West Deer Creek Road Realignment Project

Draft Environmental Assessment

Yellowstone Ranger District
Sweet Grass County, Montana

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Introduction
This environmental assessment (EA) is being prepared to address the direct, indirect, and cumulative effects of realigning portions of the historic Cherry Creek Road, which is located approximately ten miles south of Big Timber, Montana on the Yellowstone Ranger District of the Gallatin National Forest (See Map 1). One action alternative and a no action alternative are being considered in detail.

The action alternative (Alternative 2) would provide deeded public motorized access to National Forest System (NFS) lands in the West Fork of Deer Creek, Black Butte, and Cherry Creek areas as provided for in the 2006 Gallatin National Forest Travel Management Plan FEIS and Decision. The realigned road would be formally identified as the West Deer Creek Road #421 and would be a part of the Forest Service Road System.

Under the No Action Alternative (Alternative 1), no road construction or road realignment would take place at the present time. The Travel Plan decision and objectives for permanent public access to the area would stand, however, public access to NFS lands in the West Fork of Deer Creek, Black Butte, and Cherry Creek areas would be extremely difficult and inconvenient.

Resource challenges in the area would remain problematic. Road conditions on the existing Cherry Creek Road #206, including sediment concerns to Cherry Creek, would likely deteriorate further over time. Resource damage to adjacent riparian areas on both public and private lands would likely continue. The frequency and extent of future maintenance would depend on uncertain agency funding outcomes.

This analysis is being prepared in compliance with the National Environmental Policy Act (NEPA), Council of Environmental Quality (CEQ) regulations, the Gallatin National Forest Land and Resource Management Plan (1987) and the Gallatin National Forest Travel Management Plan (2006). Gallatin Forest Plan standards would be followed. The information and analysis in this document will be used to determine whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI) (40 CFR1508.9). The purpose of the NEPA process is to help public officials make decisions that are based on the understanding of environmental consequences, and to take actions that protect, restore, and enhance the environment (40 CFR 1500.1 (c)). This process also ensures that the public has opportunities to become informed and involved throughout all aspects of the process.

The general road location is shown on Map 1. The West Deer Creek Road #421 would provide reasonable public motorized access to NFS lands that would extend south from State Highway #298 (Main Boulder Road) across the landowners’ private lands in Section 33, T1S., R14E. The new segment of road to be constructed on NFS lands would connect to the private road and extend south for approximately 1.64 miles through Section 4, T2S, R14E and connect to the historic Cherry Creek Road #206 on NFS lands in Section 9, T. 2 S., R. 14 E, Park County, MT

Background
The Under Secretary of Agriculture has entered into a binding Agreement with the private landowners to relocate the historic Cherry Creek Road in order to secure permanent public access to NFS lands across private land in this area. The private landowners and the United States Department of Agriculture (USDA) Forest Service have agreed to jointly construct a new realigned road segment in the Cherry Creek area that would provide permanent public motorized access from State Highway 298 (Main Boulder Road) to NFS lands that are located approximately ten miles south of Big Timber.

The private landowners are constructing a new segment of road (approximately .96 mile in length) across their private land in Section 33. When this private road segment is completed to the mutually agreed standards, the landowners will grant and donate an easement for this road to
the Forest Service. As proposed, the Forest Service would construct a connecting segment of new road (approximately 1.64 miles) where the privately constructed road enters the National Forest in Section 4. This newly constructed road segment would connect to the existing Forest Service road system on NFS lands in Section 9.

The landowners and the Forest Service are committed to completing the construction and recording the road easement for West Deer Creek Road in a timely manner. Road construction standards would be sufficient to accommodate year-round truck and stock trailer use.

**Purpose and Need for Action**

The purpose and need for the proposed road realignment project is to restore access to more than 16,000 acres of public land and resources in accordance with the 2006 Gallatin National Forest Travel Management Plan FEIS and Decision. This project was made necessary by an access dispute, and would effectively restore permanent public access, while mitigating current trespass problems on adjacent private property. The road relocation is designed to minimize resource damage caused by use, and would provide access to NFS lands in the West Fork of Deer Creek, Black Butte, and Cherry Creek area on the Yellowstone Ranger District, south of Big Timber, Montana.

**Proposed Action**

The proposed action for this project is to relocate a portion of National Forest System (NFS) Road #206, locally known as the Cherry Creek Road. The total length of new road to be constructed to replace the historic route is approximately 2.6 miles, with approximately .96 mile of this road construction located on private land and 1.64 miles on NFS lands. The road segment to be closed and relocated closely parallels Cherry Creek and contains erosion and resource damage in riparian areas as a result of the 2011 flooding. The new route would be located on a bench/hillside to the west of the existing route, and was designed to avoid creek fords, riparian areas, and would provide an improved road alignment. The 1.64 miles of newly constructed NFS Road #421 that would occur on NFS lands is necessary to provide for permanent public motorized access through the Gallatin National Forest on a legally deeded right of way, and would provide a connection to the historic Forest Service System Road #206 and the new segment of road currently being constructed on private land.

The .96 mile of new road construction on private land is located in T1S, R14E, Section 33, beginning from the junction of the Main Boulder Road. The private segment of road is being constructed by the private landowner and will be considered in this analysis as a connected action that will be analyzed for cumulative resource effects.

This environmental assessment (EA) addresses the proposed relocation under consideration through Sections 33, 4, and 9 (see attached map), however, the decision to be made for this project is limited to the actions proposed on NFS lands in T1S, R14E, Sections 4 and 9 (see attached map).

The existing road location on private property would no longer be available for public travel. Restoration activities on private land would be conducted by the property owner(s). The approximate 2.3 miles of existing Road #206 (Includes spur road #206G which would no longer be accessible) on NFS lands that would be replaced by the new road construction would no longer be needed to provide public access to NFS lands and would be permanently closed, removed from the system, and no longer available for motorized travel. Additional reclamation work, including drainage, seeding, and/or other low level reclamation work may occur on the closed road as determined necessary. Over time, additional stabilization work would occur on portions of the road on NFS lands that were seriously altered by the 2011 flood event. This stabilization would
prevent further erosion, stream degradation, and sedimentation in the riparian portions of the route that lie adjacent to Cherry Creek.

The road and easement would be of varying width based upon terrain, approach, safety and visual considerations. The road right of way would be of variable width from 20-40 feet; with a relatively standard 12-14 foot road bed width. The relocated portion of road would include critical infrastructure such as cattle guards, signage, and inter-visible turn outs. The new road segment has been designed to accommodate standard sized vehicles hauling trailers or campers. Forest Service standard road designs and BMP requirements would be followed. Road construction details are similar to those of other Forest Service single-lane road systems found throughout the Forest for use by a mix of administrative, commercial, and recreational uses.

The Forest Service would be responsible for management and maintenance of the entire road. The road would be managed in accordance with standard Forest Service operational and maintenance schedules. In the instance of the West Deer Creek Road #421, the specific maintenance objectives of the road are to maintain the road for user safety, preservation of the road facility, minimize impacts to adjacent resources, and to provide a suitable driving surface to the Tomato Can Trailhead at approximately mile marker 4.1 (1.5 miles beyond the end of the proposed relocation).

**Relationship to the Forest Plan and Travel Plan**


Direction is provided by the Final Environmental Impact Statement (FEIS) and Land and Resource Management Plan (Forest Plan) for the Gallatin National Forest (USDA Forest Service 1987 P 206 & 206(a)). The Forest Plan provides direction for all resource management programs, practices, uses, and protection measures for the Gallatin National Forest. The Gallatin Forest Plan sets goals for public access and recreational opportunities on the Forest and allocates portions of the land base to help achieve these goals and objectives (FP II-1). The Gallatin Forest Plan provides overall management direction in the form of objectives, guidelines and standards. The objectives for recreation resources are outlined in the Forest Plan on pages II-2 & II-3.

The Gallatin Forest Plan subdivided the forest into 26 management areas (MA's). These areas are described in detail in Chapter III of the Forest Plan. The West Deer Creek Road Realignment project area is located within Forest management areas MA6 (dispersed recreation) and MA16 (livestock).

The Forest Plan uses management areas to guide management of specific National Forest lands within the Gallatin National Forest with each MA providing for a unique combination of activities, practices, and uses. The Forest Plan (Chapter III) contains a detailed description of each MA as it relates to significant issues. Following is a brief description of the applicable management area direction for each of the MAs that could be affected by the project.

- **MA6** - Management goals for MA6 are to provide for a wide variety of dispersed recreational opportunities and to provide additional public access to these areas (FP III-17).
- **MA7** - Management goals for MA7 are to manage the riparian resource to protect the soil, water, vegetation, fish, and wildlife dependent on it (FP III-19).
- **MA16** - Management goals for MA16 are to maintain or improve vegetative conditions and forage production for livestock use. Roads may be constructed to provide public access, private land access, or access to other management areas (FP III-50-51)
The new road to be constructed is located in MA6 & MA16, which allow for motorized recreational use. The existing road segment to be closed to motorized use and reclaimed is located in MA7 parallel to Cherry Creek. This existing road segment has areas of severe erosion that are contributing sediment into the stream. Closing this segment of road is consistent with the FP standards for MA7. Proposed road construction activities associated with the West Deer Creek Road Realignment Project are also consistent with Forest Plan Management Area direction for MA6 and MA16.

**Gallatin National Forest Travel Management Plan (2006)**

The Gallatin National Forest Travel Management Plan (2006) identifies and establishes opportunities for public recreational use and access using the Forest’s road and trail system. For each road and trail it specifies the types of uses that are appropriate including pleasure driving, high clearance and all-terrain vehicle use (ATVs), motorcycle use, biking, horseback riding, snowmobiling, hiking and skiing. It also describes seasonal restrictions that may apply and programmatic direction that will provide guidance for future management proposals related to Forest travel. For the purposes of organization and clarity in the Travel Plan, the Gallatin Forest was divided into 39 subunits called “Travel Planning Areas” (TPAs). Within each TPA you find the route-by-route management direction for the roads and trails within that area, plus each TPA has its own unique management goals, objectives, standards, and guidelines.

Acquisition of deeded public motorized access in the Cherry Creek area has long been an objective of the Forest Service (see the 1987 Gallatin Forest Plan Eastside Management Area Map, and page II-26 of the Plan). This objective carried forward in the Travel Management Plan. In Table I-3 on pages I-4 and I-5 of the Travel Plan Detailed Description of the Decision (hereafter referred to as the Travel Plan), there is an objective (Obj. B-3) which for the Deer Creeks TPA, states: “Provide permanent road access to the NF boundary and across private inholdings in the Cherry Creek area.” In the travel planning area direction for the Deer Creeks TPA (page II-52), Obj. 1-2 states: “Acquire additional public access in the Cherry Creek drainage.” Although the Forest Service did not have deeded public road access in this area at the time the Travel Plan was signed, it was part of the decision to pursue such access rights and maintain a roaded corridor in this location.

The Travel Plan route table on page II-55 of the 2006 Gallatin Travel Management Plan shows the Cherry Creek Road #206, from the Boulder Highway (#298) to the center of Section 16, to be managed with an emphasis on passenger car roaded access. This same designation is also found on the Travel Plan Decision Map for summer motorized use.

The objectives of the Travel Plan to acquire roaded public access in the Cherry Creek area are included as part of Alternatives 2 through 7-M in the FEIS. The road shows as open yearlong to passenger car and other motorized use in all alternatives considered, including Alternative 1, the no action alternative. This is because the public (but not the Forest Service) held an easement for use of the road until 2010, when the easement expired. In other words, in 2006 when the Travel Plan decision was signed, the road was receiving public motorized use. From 2012 to 2013 this access and use has been temporarily interrupted.

**Scope of the Proposed Action and Decision to be Made**

**Scope of the Proposed Action**

The scope of actions to be addressed in this analysis is limited to whether or not the FS should relocate portions of the historic Cherry Creek Road #206 that are located in Sections 4 & 9, T2S, R14W, Park County, MT and permanently close the existing segment of road to motorized travel.
The existing road to be closed and relocated parallels Cherry Creek with numerous creek fords and has areas with extensive erosion and resource damage as a result of the 2011 flood. The new NFS road segment to be constructed would be located to the west of the existing road on a bench/hillside away from the creek and would provide permanent public motorized access to NFS lands in the West Fork of Deer Creek, Black Butte, and Cherry Creek areas.

The Deciding Official for this proposal is the District Ranger for the Yellowstone Ranger District. Based on the purpose and need for this project, thoroughly reviewing and considering the analysis presented in this document and in the specialist reports (Project File), and considering public comments and FS responses, the District Ranger will review the proposed action and alternative in order to make the following decisions. The decision will be documented in a Decision Notice (DN), if a Finding of No Significant Impact (FONSI) can be made.

**Decision to be Made**

- Should proposed road relocation, construction and reclamation as described in Alternative 2 (Proposed Action) occur?
- What mitigation measures are required?
- What monitoring is required?

**Public Involvement & Scoping**

The proposal was listed in the Schedule of Proposed Actions in July of 2013. Scoping calls were made to numerous potentially interested parties in June/July of 2013, notifying them of the proposed action and providing an opportunity for them to submit issues, comments or concerns. On April 18, 2013 the Forest archaeologist met with the Crow Tribal Council and on May 14, 2013 with the Confederated Salish and Kootenai Tribe. Neither tribe had concerns with the proposal.

Approximately 35 calls were made to abutting landowners, affected special use and grazing permittees, parties that had specifically expressed interest or concerns with this area in the past, partner agencies, elected representatives, and nonprofit entities that had been involved with this issue in the past decade. Public information sheets, maps, and meetings were made available to the public through a series of articles in the Big Timber Pioneer, the Billings Gazette, and on the Custer-Gallatin Website.

The majority of the commenters was supportive of the proposal and pressed the agency to act quickly in implementing a permanent solution that would restore public access to the area. A few questions did arise during scoping that requested information regarding future grazing and recreation management on the National Forest; specifically the Forest Service’s ability to manage recreation and permitted grazing in the Cherry Creek area and on the National Forest in a time of diminishing staffing and budgets. One commenter requested information regarding wildlife usage of the area. Two commenters voiced their concern that the National Forest diminished their property values and questioned the potential for future trespass on their private properties.
Issues
The Forest Service considered the public comments received from project scoping, as well as internal concerns voiced by the FS Interdisciplinary Team, and identified potential issues associated with the Proposed Action. The issues were separated into two groups: “key” issues and other issues to be analyzed. “Key” issues were defined as those directly or indirectly caused or that would be improved by implementing the proposed action. Other issues to be analyzed were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence but still needing to be analyzed. The section below identifies “key” issues and summarizes other resource considerations that were analyzed for the project. Based on internal scoping and comments from the public, other agencies, and tribal contacts, the interdisciplinary team developed the following list of issues to analyze and address.

The Forest Service identified three “key” resource areas for consideration that were raised during scoping or internally. These issues include:

1. Water quality/Aquatics
   Portions of the Cherry Creek drainage were burned over in the 2006 Derby Fire and in the spring of 2011, a “500 year” flood event caused considerable damage within the drainage and to the existing Cherry Creek Road. The proposed realignment could affect water quality in the project area as measured by potential sediment delivery and stream channel form and function.

2. Noxious and Invasive Weeds
   Road construction activities associated with the approximately 1.64 miles of road to be constructed, and reclamation activities associated with closing the existing 2.3 miles of the old Cherry Creek Road segments could increase the extent and abundance of noxious weed populations in the project area. Of major concern is the potential for new invasive weed species that have not been documented in the project area to become established.

3. Recreation/Public Access
   Providing motorized access to National Forest Service lands in the West Fork of Deer Creek, Black Butte and the Cherry Creek area for the public’s use and enjoyment has been a continued long term concern. How would the proposed realignment address these concerns as measured by the criteria listed for this area in the 2006 Gallatin National Forest Travel Plan?

Other resource issues that were considered and analyzed include effects to:

A. Wildlife (T&E, MIS, Sensitive Species, Big Game, Migratory Birds)

B. Sensitive Plants

C. Heritage Resources

D. Soils

E. Range

F. Socio-Economics
Alternatives
This section describes and compares the alternatives considered for the West Deer Creek Road Realignment Project. This section also presents the alternatives in comparative form, defining the differences between alternatives and providing a clear basis for choice among options by the decision maker and the public.

Alternatives Considered in Detail

Alternative 1 - No Action
Under the No Action Alternative (Alternative 1), no road construction or road realignment would take place at the present time. The Travel Plan decision and objectives for permanent public access to the area would stand, however, public access to NFS lands in the West Fork of Deer Creek, Black Butte, and Cherry Creek areas would be extremely difficult and inconvenient.

Resource challenges in the area would remain problematic. Road conditions on the existing Cherry Creek Road #206, including sediment concerns to Cherry Creek, would likely deteriorate further over time. Resource damage to adjacent riparian areas on both public and private lands would likely continue. The frequency and extent of future maintenance would depend on uncertain agency funding outcomes.

Alternative 2 - The Proposed Action
The proposed action for this project is to relocate a portion of National Forest System Road #206, locally known as the Cherry Creek Road. The total length of new road to be constructed to replace the historic route is approximately 2.6 miles with approximately .96 mile of this road construction on private land and 1.64 miles on NFS land. The road segment to be relocated closely parallels Cherry Creek and contains areas of erosion and resource damage in riparian areas. The new route would be located on a bench/hillside to the west of the existing route, and was designed to avoid creek fords, riparian areas, and would provide an improved road alignment. The 1.64 miles of new road construction that would occur on NFS lands is necessary to provide for permanent public motorized access through the National Forest on a legally deeded right of way and would serve as a connection to the historic Forest Service System Road #206 and the new segment of road currently being constructed on private land.

The .96 mile of new road construction on private land is located in T1S, R14E, Section 33, beginning from the junction of the Main Boulder Road. This segment of road is being constructed by the private landowner and will be considered in this analysis as a connected action that will be analyzed for potential cumulative effects.

This Environmental Assessment (EA) addresses the proposed road relocation under consideration through Sections 33, 4, and 9 (see attached map), however, the decision to be made for this project is limited to the actions proposed on NFS lands in T1S, R14E, Sections 4 and 9 (see attached map).

The existing road location on private property would no longer be available for public travel. Any restoration activities on private land would be conducted by the property owner(s). The 2.3 miles of existing road # 206 on NFS lands that would be replaced by the new road construction would no longer be needed to provide access and would be closed, removed from the system, and no longer be available for motorized travel. Additional drainage work, seeding or other low level work may occur on the closed road as determined necessary. It is anticipated that stabilization work would occur on the riparian portions of the road on NFS lands that were seriously altered by
the 2011 flood event. This stabilization would prevent further erosion, stream degradation, and sedimentation in in the riparian area portions of the route that lie adjacent to Cherry Creek.

The newly constructed road and easement would consist of varying widths based upon terrain, approach, safety and visual considerations. The road right of way would be of variable width from 20-40 feet; with a relatively standard 12-14 foot standard width. The new road design includes critical infrastructure such as cattle guards, signage, and inter-visible turn outs. The new road segment has been designed to accommodate standard sized vehicles hauling trailers or campers. Forest Service standard road designs and BMP requirements would be followed. Road construction details are similar to other Forest single-lane road systems found throughout the Forest for use by a mix of administrative, commercial, and recreational uses.

The Forest Service would be responsible for the management and maintenance of the entire road on both private and NFS lands. The road would be managed in accordance with standard Forest Service operational and maintenance schedules. In the instance of the West Deer Creek Road #421, the specific maintenance objectives of the road are to maintain the road for user safety, preservation of the road facility, minimize impacts to adjacent resources, and to provide a suitable driving surface to the Tomato Can Trailhead at approximately mile marker 4.1 (1.5 miles beyond the end of the proposed relocation).

Road Standards for Construction
- Standard 12-foot roadbed width with ditch, 15-mph design or,
- Standard 14-foot roadbed width without ditch, 15-mph design
- Operating season of use – Light Traffic: yearlong; Heavy traffic: Jun 1 – Mar 30
- Surfaced where needed for operating season; from commercial source near Big Timber

Surfacing Specifications
- Surface Course – none, Base Course – 6” thick lift of
- 3”-minus crushed aggregate in locations where native soils don’t support the intended traffic

Other Specifications
- Inter-visible Turnouts (min. 10’ wide by 50’ long with 25’ tapers either side)
- Standard 1:1 back slopes and 1.5:1 fill slopes
- Maximum sustained grades of 8%
- Application of Best Management Practices throughout
- Hydraulic culvert design across Cherry Creek
- Cattle guards – highway legal loading, road width + 2-feet; including stock bypass
- Signs – highway guide, route ID, and travel management. Stop sign at highway

Road Right of Way Needs
- 60-feet wide, 30-feet either side of centerline.
- A Montana Department of Transportation encroachment permit would be required for this new approach to the Boulder Canyon Highway

Road Maintenance Standards
The maintenance objectives of the road are to maintain the road for user safety, preservation of the facility, minimize impacts to adjacent resources, and to provide a suitable driving surface for pickup-trailer combinations to the Tomato Can Trailhead at approximately mile marker 4.1 (1.5 miles beyond the end of the proposed location).
The result would be a drainage maintenance (culverts and drainage dips) cycle of 1-2 years and a road surface grading cycle of 3-5 years, depending on the need.

Reclamation Activities (Existing Cherry Creek Road Segment)
The existing road location of Cherry Creek Road #206 and spur road #206G on NFS lands would no longer be available for public travel. Any restoration activities on private property would be conducted by the private landowner(s). The 2.3 miles of existing road on NFS lands would be replaced by the newly relocated and constructed road (1.64 miles) on NFS lands and would no longer be needed to provide public access. This portion of the old Cherry Creek Road would be would be closed, removed from the system, and would no longer be available for motorized travel. Customary methods would be used for the closure of the road that may include fencing, signing, seeding, area specific slashing, and drainage installations. It is anticipated that stabilization efforts would focus on riparian portions of the road that were severely damaged in the 2011 flood event, and in areas that involve stream crossings or culverts.

Mitigation and Design Criteria (Specific to Alternative 2)
Mitigation measures and project design criteria were developed to address potential impacts the action alternative (Alternative 2) may cause. Site-specific forms of mitigation that would be employed are discussed by resource:

Water Quality/Aquatics
1) Activities with potential to deliver sediment to stream channels such as road reclamation, channel reconstruction, and stream crossing installation would occur during summer months under dry channel conditions in Cherry Creek.
2) Disturbed areas would be reseeded in a timely manner to allow revegetation to occur before the following spring runoff.
3) Newly constructed road segments would utilize BMPs.
4) The stream crossing on Cherry Creek would be designed to convey a 100-year flow event.
5) Vehicles and machinery would not be operated within wetland areas.
6) Materials would not be deposited in streams or wetland areas.
7) All required water quality permits, including 124 permits and Nationwide 404 permit compliance validations for stream crossings, would be acquired by the Gallatin NF prior to any ground disturbance.

Noxious/Invasive Weed Species
8) Noxious weed treatment would be conducted according to guidelines and priorities established in the GNF Noxious and Invasive Weed Management EIS (2005). Methods of control may include biological, chemical, mechanical and cultural. Follow-up treatments and monitoring would be conducted as needed.
9) Weed infestations along travel routes would be manually controlled/removed or flagged prior to road construction activities.
10) Gravel or borrow pits to be used during road construction or reconstruction would be free of new weed invader species. A list of weed species considered to be potential new invaders is included in the project file.

11) Staging areas (e.g., for equipment, materials, or crews) would not be located in weed infested areas.

12) All off-road equipment used on this project would be washed before moving into the project area to ensure that the equipment is free of soil, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds. Off-road equipment includes all construction equipment and such brushing equipment as brush hogs, masticators, and chippers; it does not include chip vans, service vehicles, water trucks, pickup trucks, and similar vehicles not intended for off-road use.

13) When working in known weed infested areas equipment would be cleaned at a washing station before moving to other Forest Service System lands that do not contain noxious weeds.

14) Where feasible, reestablish vegetation on disturbed bare ground to minimize potential weed establishment. Re-vegetation is especially important where the potential for weed introduction may be highest, such as at staging areas.

15) Any priority weed species identified during road maintenance activities would be reported to the District Weed Specialist. A list of priority weed species is included in the project file.

16) All straw or hay used for mulching or watershed restoration activities would be certified weed-free.

17) Road segments proposed for reclamation would be treated for weeds prior to reclamation activities.

**Recreation/Public Access**

18) The new route would be clearly signed using FS standard signs for private property crossings, distances, and directional routes.

19) The closure of the old route would be monitored to identify compliance concerns and develop opportunities to educate and correct behavior as necessary.

20) The area would be added as a Ranger, LE&I, and cooperative law enforcement priority in County agreements.

**Wildlife**

21) The GNF Food Storage Order would be implemented and enforced. A Food Storage Order (FSO) has been in place within the recovery zone since 1990. It was expanded in 2007 to include the entire GNF. The FSO is currently being implemented and enforced within the project area.

**Sensitive plants**

22) Surveys completed in summer of 2013 found no locations of sensitive plants within the proposed road relocation area. In the event that sensitive plants are found during project implementation, measures would be taken to protect or avoid them.

23) Any necessary herbicide applications would comply with guidelines described in the Gallatin National Forest Noxious and Invasive Weed Treatment Final Environmental
Impact Statement and Record of Decision (USDA 2005) and would maintain a 100-foot buffer around any identified sensitive plant populations.

**Heritage Resources**

24) Avoidance measures or site-arming techniques would be incorporated into road reclamation plans for the two sites located along the old road segment to be closed prior to any ground disturbing activities.

25) If any new sites are discovered during construction of the new road segment, the Forest archaeologist would be advised and coordination for appropriate avoidance and/or protection measures would be incorporated.

**Soils**

26) Follow Best Management Practices in Appendix A and Forest Plan Standards for soil and water resources. Construction design for the roadway should minimize the amount of waste rock remaining after road construction.

27) Any waste rock remaining at the end of road construction would be removed from Forest Service lands. Waste rock left piled on the ground would become a haven for weed species.

28) Construction equipment would remain within the road corridor during road construction to the extent possible.

29) Road construction equipment would only be parked outside the immediate road corridor in designated areas. Acceptable areas include the existing parking area at the end of the private road section, the area just past the steep hillslope section, and adjacent to the area where the proposed road intersects the Cherry Creek drainage.

30) Parking areas off the existing constructed road corridor would be evaluated for follow-up actions (ripping, seeding, etc.)

31) The Gallatin National Forest mitigation standard for salvaging topsoil at all excavations of limited extent (Keck 2012) applies to any excavation made during the installation of cattle guards, sign posts, or other installations associated with road construction.

**Range Resources**

32) Cattle guards would be installed on the new segment of road to keep grazing livestock within the permitted West Deer Creek Allotment.

33) The range administrator would coordinate with the grazing permittee to ensure that livestock grazing is not causing resource damage to newly disturbed areas (pasture rotation, timing).

34) Protect riparian rehabilitation areas along the closed road from grazing (livestock, wildlife) using passive (timing, rotation) or physical barriers (slashing, exclosure) until vegetation becomes well established.

**Required Monitoring**

**Water Quality/Aquatics**

Implementation of the proposed action would require monitoring to ensure that rehabilitated road segments and stream banks are vegetating.

Monitoring would also be necessary to evaluate the effectiveness of BMPs.
Noxious Weeds
Pretreatment of roads and equipment as proposed would be documented. The effectiveness of seeding disturbed areas with native seed mixes would be evaluated upon completion of the activity. Areas with weed treatments would be surveyed and monitored according to treatment priorities established in the GNF Noxious and Invasive Weed Management EIS (2005).

Recreation/Public Access
The newly constructed route would be monitored to identify the need for additional educational and enforcement signage. This monitoring would occur on an annual basis for the next 5 years.

Range
Existing monitoring techniques, protocols, priorities, procedures that are currently in place for managing livestock grazing activities would be used.

Effectiveness of cattle guard placement would be monitored to ensure that grazing livestock remain within the permitted allotment.

Heritage
If the no action alternative is selected, continued monitoring of the two existing heritage sites on the old Cherry Creek Road location would be needed to determine ongoing impacts associated with continued road use.

Soils
Soil monitoring would be conducted along the travel corridor in year 2 and 5 after road construction is complete to assess the level of off road impacts that occur along the new access road. Data on the presence and relative abundance of weed species would be included as part of those assessments.

Comparison of Alternatives
Table 1 provides a comparison of effects for the “key” resource issues associated with implementation of Alternative 1 and Alternative 2. The table also contains a summary of how these resource effects were measured. The purpose of information displayed in this table is to assist the reader to be able to easily compare the differences in effects to “Key” issues between alternatives, where the levels of effects or outputs can be distinguished quantitatively and/or qualitatively.
### Table 1: Comparison of Effects for “Key Issues” with Alternatives 1 and 2

<table>
<thead>
<tr>
<th>Resource</th>
<th>Type of Effects</th>
<th>Measure of Effects</th>
<th>Alternative 1 (No Action)</th>
<th>Alternative 2 (Proposed Action)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Quality Aquatics (Sediment)</td>
<td>Short and long-term sediment delivery to Cherry Creek</td>
<td>Miles of riparian road in Cherry Creek Drainage</td>
<td>Riparian road in Cherry Creek floodplain that is a significant source of sediment to Cherry Creek, would remain at existing (approx.) 2 miles</td>
<td>Amount of road in Cherry Creek floodplain would be reduced to (approx.) 1 mile, a 50% reduction. Remainder of relocated road would be on a dry bench that would not contribute sediment to Cherry Creek</td>
</tr>
<tr>
<td>Water Quality Aquatics (Stream Channel)</td>
<td>Short and long-term sediment delivery causing damage to Cherry Creek stream channel</td>
<td>Condition of channel damage caused by 2011 flood</td>
<td>Channel damage caused by 2011 flood would continue to present a major, chronic source of sediment and channel instability in Cherry Creek that is likely to persist for decades.</td>
<td>Channel damage caused by 2011 flood would be repaired. Sediment source would be closed to public use, rehabilitated, revegetated, and channel stability restored.</td>
</tr>
<tr>
<td>Noxious Weeds (Weed Spread)</td>
<td>Increase/ decrease in number, size, and density of noxious weed populations</td>
<td>Vegetative conditions and noxious weed species and populations present</td>
<td>Increasing size and density of existing weed populations without ability to effectively monitor and treat inaccessible areas. Introduction of new species would be limited</td>
<td>Increased size and density of existing populations due to ground disturbing activities, however, effective mitigation, monitoring, and treatments would minimize weed spread. Some potential for introduction of new species with user increased access.</td>
</tr>
<tr>
<td>Noxious Weeds (Treatments)</td>
<td>Number, size, and density of weed populations</td>
<td>Effectiveness of and ability to monitor and treat weed populations on a regular basis</td>
<td>Weed treatments would remain limited to accessible areas. Other areas limited to biological control only due to cost of effectiveness with limited motorized access</td>
<td>Increased access to the area would allow for a full array of monitoring and cost-effective weed treatments that would be conducted on a regular basis to reduce weed populations</td>
</tr>
<tr>
<td>Public Access Recreation (Forest Plan &amp; Travel Plan Compliance)</td>
<td>Short and longterm effects to meeting Forest and Travel Plan</td>
<td>Qualitative analysis of the ability to meet Forest Plan, Travel Plan, and ROS Objectives,</td>
<td>Does not achieve the Forest Plan Desired Future Condition or Travel Plan Objectives for permanent public</td>
<td>Complies with the intent of the Gallatin Travel Plan, Forest Plan, and ROS Class to provide for permanent public</td>
</tr>
</tbody>
</table>
Alternatives Considered but Not Studied in Detail

In addition to Alternatives 1 and 2, which were studied in detail for this EA, six other alternatives were thoroughly explored for potential implementation. After considerable research and numerous discussions with adjacent private landowners, as well as consideration of cost effectiveness and feasibility for an implementable agreement, the Forest Service lands specialists and interdisciplinary team for the project concluded that these alternatives did not warrant further detailed study. Following are the descriptions of the six alternatives considered and the reasoning for their dismissal.

Alternative 3- Acquire Permanent Public Access Easements on the Existing Cherry Creek Road

Options to acquire permanent public access from the private landowners along the existing Cherry Creek Road were thoroughly explored and actively pursued by Forest Service for several years. However, despite years of effort, the Forest Service was not able to reach a mutual agreement with the three landowners involved to acquire the necessary permanent public access easements. For this reason, Alternative 3 was dismissed and was “not studied in detail” in this EA.

Alternative 4- Acquire Permanent Public Access Easements on Alternate Road Locations

Options for the Forest Service to acquire permanent public access easements on other road locations in the area were thoroughly explored and actively pursued by Forest Service for several years. However, the Forest Service was not able to reach an agreement with the three landowners involved to acquire permanent public easements on alternative road locations across private land in the project area. For this reason, Alternative 4 was dismissed and was “not studied in detail” in this EA.

Alternative 5- Establish Legal Public Access on the Existing Cherry Creek Road by Legal Action

The opportunity to establish (re-establish) legal public access rights on the existing Cherry Creek Road was thoroughly explored and actively pursued for several years. The Public Lands Access Association (PLAAI) compiled historic evidence and filed a lawsuit, seeking for a court ruling to establish the existing Cherry Creek Road as a public road. After the lawsuit was filed, the PLAAI and private landowners involved entered into a binding settlement, in which by agreement, the
existing Cherry Creek Road remained open to public motorized use for a period of 10 years. After the 10 years expired, the road was closed to public vehicle use by the landowners and the FS was unable to negotiate permanent public access to NFS lands. For this reason, Alternative 5 was dismissed and was “not studied in detail” in this EA.

**Alternative 6-Land-for-land Exchange Resulting in Public Road Access to NFS Lands.**

Options to exchange one or more parcels of National Forest System (NFS) land for one or more parcels of private land in order to provide the public with permanent national forest access were thoroughly explored. The Forest Service and private landowners considered this alternative, but mutually concluded that there was greater efficiency and cost-effectiveness in pursuing the actions associated with Alternative 2. Alternative 2 actions consist of an easement donation to the United States (US) by the private landowners at zero cost to the public. For this reason, Alternative 6 was dismissed and was “not studied in detail” in this EA.

**Alternative 7-Land Purchase Resulting in Public Road Access to NFS Lands.**

An option for the US to purchase private lands in order to provide permanent public access to NFS lands was thoroughly explored. This option would have required reaching an agreement with landowners who would be willing to sell a portion of their private lands at the appraised value. The Forest Service explored this alternative, but was not able to reach an agreement with the landowners to purchase the private land necessary to provide access. Alternative 2 consists of an easement donation to the US by the private landowners at zero cost to the public. Therefore, Alternative 7 was dismissed and was “not studied in detail” in this EA.

**Alternative 8-Acquire a Permanent Road Easement from Neighboring Landowners**

An option to acquire a permanent road easement, to provide permanent public access to NFS lands, from landowners neighboring the existing Cherry Creek Road (Brownlee Ranch) was thoroughly explored. This option would have required negotiating an agreement with one or more neighboring landowners to grant or donate an easement across their private land in a location where no easement or public use had previously existed. The Forest Service explored this alternative, but was not able to reach an agreement with the neighboring landowners granting permanent easements across their private lands. Therefore Alternative 8 was dismissed and was “not studied in detail” in this EA.

**Affected Environment and Environmental Consequences**

**Introduction**

This section discusses the environmental effects that would likely occur with implementation of the various alternatives and forms the scientific and analytical basis for comparing the environmental effects of each alternative. The impacts discussed in this chapter are for those issues considered to be factors in formulating the decision. For each issue that is “key” to the decision to be made, this section describes in full: a) the affected environment, b) direct and indirect effects, and c) cumulative effects. The section also includes a summarized version of effects for those issues that were not considered to be “key” factors in the decision to be made but need to be analyzed and addressed. Also included are discussions of past, present, and reasonably foreseeable activities that were considered in the cumulative effects analysis and a discussion of
compliance with the Gallatin Forest Plan and applicable laws, regulations, policies, and other guidance. The Project File contains the complete specialist report/analysis regarding these issues and can be obtained upon request.

Some of the effects discussed in this section are complex and not easily quantified. In regard to this, it should be kept in mind that many of the values presented are based on professional analysis or are modeled predictions of the effects. The actual effects may not occur exactly to the degree presented. More important than the exact effects is the comparison of effects between the various alternatives, Alternative 1 (No Action) and Alternative 2.

The project area encompasses the road corridor for the new West Deer Creek Road segment to be constructed, which would be approximately 12-14 feet wide, and includes the road right-of-way, which would be up to 40 feet wide on either side of the roadbed. The existing portion of the old Cherry Creek Road to be replaced, closed to motorized travel, and reclaimed is also included as part of the project area.

Analysis areas for determining effects to individual resources vary, so they are identified by spatial and temporal boundaries for each resource, along with the methodology used for analysis.

Past, Present, and Reasonably Foreseeable Actions

The Council on Environmental Quality (CEQ) regulations implementing NEPA require that federal agencies consider three types of actions: (1) connected actions, which are two or more actions that are dependent on each other for their utility; (2) cumulative actions, which when viewed with other proposed actions may have cumulatively significant effects, and should therefore be analyzed together; and (3) similar actions, "which when viewed with other reasonably foreseeable or proposed actions, have similarities that provide a basis for evaluating their environmental consequences together." (40 CFR 1508.25(a)).

A connected action being considered in this analysis is the current construction of approximately .96 mile of new road across private land in Section 33, T1S, R14E to replace a portion of the existing Cherry Creek Road #206. The majority of the new Road #421 would be located on a bench to the west of the existing road and is being relocated to address soil erosion and riparian resource concerns caused by the existing road. When this private road segment is completed to the mutually agreed upon standards with the FS, the landowners intend to grant and donate an easement to the FS. Alternative 2 (Proposed Action) would construct a road on NFS lands that connects to this new road. If Alternative 2 is selected, then the historic road on private land would be permanently closed for public use and the private landowner would be responsible for restoration efforts needed on private land.

Other past, present or reasonably foreseeable actions that will be considered for cumulative impacts include:

- **Ongoing road maintenance**- All Forest Service System Roads require some amount of routine road maintenance. The amount and type of maintenance vary and are based on the type and amount of public use, as well potential effects to natural resources from road deterioration. Routine road maintenance includes but is not limited to grading, surfacing, brushing, ditch and drainage improvements, culvert replacement or cleaning, etc.

- **2006 Gallatin National Forest Travel Plan Implementation**- The Gallatin National Forest Travel Management Plan (2006) identifies and establishes opportunities for public recreational use and access using the Forest’s road and trail system. For each road and trail it specifies the types of uses that are appropriate, describes seasonal restrictions that may apply, and programmatic direction that will provide guidance for future management proposals related to Forest travel. The Travel Plan route table on page II-55 shows the
Cherry Creek Road #206, from the Boulder Highway (#298) to the center of Section 16, to be managed with an emphasis on passenger car roaded access. The road shows as open yearlong to passenger car and other motorized use in all alternatives. The public held an easement for use of the Cherry Creek Road until 2010, when the easement expired and was receiving public motorized use when the Travel Plan decision was signed in 2006.

- **Deer Creek Range Allotment** - The area being analyzed for this road realignment project is located within the Cherry Creek pasture of the West Deer Creeks Range Allotment. This allotment is currently active with 3 permittees.

- **2011 Spring Flood Event** - Riparian areas and low lying road and trail segments within the project area were negatively affected by major flood events in May and June of 2011, when above substantially average runoffs were created from a series of rain on snow events. Considerable damage occurred to portions of the Cherry Creek Road and to segments of Cherry Creek causing channel erosion, sediment deposits, and undercutting of stream banks.

- **2006 Derby Fire** - A large wildfire occurred in summer of 2006 that burned approximately 200,000 acres including much of the project area. The burn was mosaic in this area and did not consume all of the timber and vegetation but the area contains evidence of fire (standing dead and downed snags).

- **2014 Sweet Grass Restoration & Resiliency Project** - The Forest Service is in the early planning stages for a restoration and resiliency project for the area burned in the 2006 Derby Fire that includes the project area. No specific treatment areas have been identified at this time; however, it is possible that restoration activities could include this portion of the Cherry Creek drainage.

- Ongoing noxious weed treatments are occurring along the existing travel routes in the project vicinity as a part of the regular district noxious weed control program. (weed spraying, biological control) in accordance with the GNF Noxious and Invasive Weed Management Plan FEIS and Decision

**Key Issues**

1) **Water Quality/Aquatics**

Short and long-term sediment delivery to stream channels, as well as effects to stream channel form and function, are the primary water quality and aquatic resource issues that have the potential to be impacted by activities associated with the proposed project. Sensitive and/or management indicator aquatic species could also be affected.

**Analysis Methodology**

Short and long-term sediment delivery to stream channels and stream channel form and function are the primary aquatic resource issues associated with road construction, rehabilitation, and channel restoration. Direct, indirect, and cumulative effects are discussed qualitatively within the context of their short and long-term influence on sediment delivery and channel form and function in Cherry Creek and Happy Jack Creek (subwatersheds) in relation to Forest Plan goals, objectives, and standards. Miles of road under the existing and desired condition per subwatershed are used to evaluate long-term change in sediment delivery potential from the travel system. Because Cherry Creek and Happy Jack Creek do not have a hydrologic surface connection to the Boulder River there is no potential for this project to affect aquatic habitat or
fish populations in the Boulder River. Therefore, a detailed analysis of project effects on sediment and aquatic habitat in the Boulder River is not required.

Streams have considerable variability in their inherent sensitivity to disturbance, the role that riparian vegetation plays in maintaining their stability, and the ability to recover from damage. Some stream or channel types are inherently very stable and not susceptible to disturbance impacts, while other channel types can be significantly altered. Thus, it is important to understand the sensitivity of individual streams and reaches within streams in order to evaluate past, present and future disturbance effects on channel stability and fish habitat quality. The affected environment descriptions include a channel type classification and sensitivity analysis.

The Proper Functioning Condition (PFC) evaluation is a qualitative method for assessing the condition of riparian-wetland areas that considers hydrology, vegetation, and erosion/deposition attributes and processes and assesses how well these processes are functioning.

**Spatial Scale:** The project lies within the Boulder River-Cherry Creek sixth-code HUC which extends from the West Boulder River/Boulder River confluence downstream to the Boulder River/Yellowstone River Confluence. Potentially affected subwatersheds include Happy Jack Gulch and Cherry Creek. Because Happy Jack Gulch and Cherry Creek do not have a hydrologic surface connection to the Boulder River, project effects would not be detected at the sixth-code HUC scale. Therefore subwatersheds are the appropriate scale for this analysis.

**Temporal Scale:** This analysis considers both short and long-term effects of the proposed action. Short-term effects are those immediate effects directly related to road construction, road decommissioning, and stream channel restoration activities. These are expected to last up to one year as disturbed areas revegetate. Effects that are expected to persist after disturbed areas have revegetated (greater than one year) will be considered long-term effects.

**Affected Environment**

All project related activities would occur within the Happy Jack Gulch and Cherry Creek subwatersheds within the Boulder River-Cherry Creek 6th code HUC.

**Happy Jack Gulch**

Happy Jack Gulch is a small watershed only two miles in length. Due to the small size of the watershed, Happy Jack Gulch is ephemeral and conveys water only during and immediately after runoff or rain events. Confined portions of the valley have a defined ephemeral stream channel while wider areas of watershed have little to no defined channel. Happy Jack Gulch is bisected by the Smoot and Michael irrigation ditches on private land and does not connect with the Boulder River. For these reasons Happy Jack Gulch does not support fish or aquatic organisms, nor does Happy Jack Creek contribute sediment to the Boulder River. Currently there are no open designated motorized vehicle routes in Happy Jack Gulch on National Forest system lands.

**Cherry Creek**

Cherry Creek is a small second order stream originating in the foothills of the Beartooth mountains. The watershed is small and only 3.5 miles in length. Despite its small size, there is evidence to suggest that Cherry Creek and many other streams in the Beartooth foothills are “flashy” and prone to relatively frequent flood events. Volcanic parent material and nonporous alluvium likely decrease infiltration rates and increase surface runoff in the region, thus contributing to high flood frequency and magnitude.
Loss of forest canopy from the 2006 Derby Fire may have altered flow regimes in Cherry Creek by changing the discharge, timing and duration of runoff. By 2011, ground vegetation had re-established over most of the Derby Fire scar and much hydraulic recovery had occurred (Mark Story, Retired GNF Hydrologist Personal Communication). However, in the spring of 2011, heavy rainfall over a record snowpack resulted in a 500 year recurrence interval runoff event in Cherry Creek (Story, 2011). The flood destabilized Cherry Creek causing massive channel incision and erosion. Segments of the Cherry Creek road (NFSR 206) captured Cherry Creek resulting in abandonment of an approximately 400 foot segment of historic channel and severe erosion and gullying of the roadbed with one location down-cut by over six feet. This has left vertical eroding banks which represent a significant, chronic source of sediment to Cherry Creek (Figure 1).

Sediment mobilized during the 2011 flood event was deposited primarily as large bars in the downstream channel and floodplain areas. Currently, the entire Cherry Creek streamflow travels subsurface through these large sediment deposits causing all but the upper reach of Cherry Creek to become intermittent. Due to this intermittency (and irrigation water withdrawals by the Smoot Ditch on private land), Cherry Creek does not currently maintain a surface-water connection with the Boulder River. This connection may reoccur in the future during large flood events, but the local landowner reports that Cherry Creek streamflow has not reached the Boulder River since the 2011 flood event.

Currently, there are approximately 3.4 miles of NFS Road # 206 on NFS lands in the Cherry Creek drainage. The lower two miles of the road above the Forest Boundary lie within the Cherry Creek floodplain. The road crosses Cherry Creek at five locations. As discussed previously, the road captured all flow from Cherry Creek over a distance of approximately 400 feet.

In June 2013, the GNF Riparian Monitoring Crew collected vegetation rapid assessment, Rosgen Channel Type, and Preferred Function Condition (PFC) assessments on Cherry Creek at two sites on NFS land (Rosgen 1996). One site was rated as “Functional at Risk” and the other site received a “Nonfunctional” rating. “Functioning at Risk” means that riparian areas are in functional condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation. A “Nonfunctional” rating means that riparian areas clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows, and thus are not reducing erosion, improving water quality, etc. Factors contributing to these ratings included channel incision with little floodplain connectivity, channel intermittency (the channel was dry on the survey date), and the vegetative community dominated by upland species, including noxious weeds. The 2011 flood event was likely the root cause of these factors, however, the existing riparian road with a lack of riparian vegetation likely contributed.
The Rosgen channel types range from C3b in those reaches less impacted by the flood, to severely impacted G3 and G4 channels. C3 channels have moderate sensitivity to disturbance, good recovery potential, moderate sediment supply and streambank erosion potential, and a very high vegetation controlling influence. The G channel type reflects significant channel scouring and incision that occurred during the flood and is entrenched with a low width/depth ratio and no floodplain access. The channel has extreme sensitivity to disturbance, has a very poor recovery potential, very high sediment supply, very high streambank erosion potential and high vegetation controlling influence. Recovery in these flood altered channels will occur over time as the channel evolves into a more stable B or C channel types. However, the lack of riparian vegetation, relatively dry site conditions, and abundance of noxious weeds will retard this process.

On June 2th, 2013 an electrofishing survey for fish presence/absence was conducted in the upper watershed above the point of intermittency. The survey reach was 240 meters in length and no fish or amphibians were detected. The surveyed reach was very shallow and provided poor fish habitat. Upland forbs were observed in the channel suggesting that the surveyed reach is also intermittent. Due to intermittency and bisection of the channel by the Smoot Ditch on private land, Cherry Creek does not have a surface connection to the Boulder River which would allow fish to populate the stream.

The desired future condition (DFC) for Cherry Creek would be a stable stream channel that is neither aggrading (depositing sediment) nor degrading (eroding sediment). Reaches that are currently unstable due to flood effects and road encroachment would evolve into functioning stream channels depending on gradient. As these channels develop over time it is possible that perennial flow may be restored and riparian species would become established.
Direct/Indirect Effects Alternative 1 (No Action)

Under Alternative 1 (no action) riparian road segments on NFS lands would continue to confine the Cherry Creek floodplain and route sediment to the stream channel. This would retard recovery of Cherry Creek from the 2011 flood event.

Direct/Indirect Effects Alternative 2 (Proposed Action)

With implementation of Alternative 2, approximately one mile of riparian road in the Cherry Creek drainage would be closed and rehabilitated, with the existing Cherry Creek Road #206 relocated to dry, upper slopes, mostly in Happy Jack Gulch. This would decrease the length of riparian road in the Cherry Creek drainage on NFS lands by 50% (from two miles to one mile). It would also decrease the miles of road on NFS lands in the drainage from about 3.4 miles to 1.64 miles. Only about 0.3 mile of new road construction would occur in the Cherry Creek drainage. This portion of the route would cross Cherry Creek in one location, but not parallel the stream and floodplain and would require construction of one stream crossing. Because the portion of the road proposed for closure and rehabilitation has two crossings, the project would result in a net decrease of one stream crossing. The new road would also implement BMP’s to route rain and snowmelt off of the road surface, thus minimizing sediment generation.

Short and Long-term Sediment Delivery

Assuming the sediment delivered from riparian road segments to Cherry Creek is equal among segments, decreasing the miles of riparian road by 50% would result in approximately 50% net reduction in long-term sediment delivery from riparian road segments to Cherry Creek. It is likely that most of the existing road sediment contribution to Cherry Creek occurs from the riparian road segments, as opposed to the road segments located outside of the riparian zone. Thus, reducing the amount of riparian road by 50% would likely result in a significant decrease in road sediment input to Cherry Creek.

In the short-term, decommissioning riparian road segments has potential to generate sediment which could be delivered to Cherry Creek. If road decommissioning work were to occur in summer months when Cherry Creek is dry, this concern would be mitigated.

Most of the proposed new road construction would occur in Happy Jack Gulch where the road would be located high on dry slopes with little potential for sediment generation. There would be little consequence to water quality or aquatic life in the short or long term because Happy Jack Gulch is ephemeral and does not support aquatic life.

Because the proposed route avoids water bodies everywhere possible (with a single stream crossing being the exception) and because BMP’s would be employed to mitigate sediment generation and transport to water bodies or floodplains, the effect of new road construction on short and long-term sediment delivery and overall water quality would be minor and short-term. However, the road decommissioning and stream channel restoration included in the proposed action would significantly reduce sediment into Cherry Creek by mitigating the severe and chronic sediment inputs that resulted from the effects of the 2011 flood event. Thus, the overall effect on short and long-term sediment delivery in the project area would be highly positive. Because neither Cherry Creek nor Happy Jack Gulch support fish nor do they have a hydrologic surface connection to the Boulder River, there is no potential for the proposed action to effect fish populations or habitat.

Stream channel form and function

Currently Cherry Creek has channels which range from being moderate to highly sensitive to disturbance. Recovery potential in this channel type that was most affected by the 2011 flood event is low, but is exacerbated by riparian road segments that not only confine the channel
but are a substantial sediment source. Road closure and rehabilitation proposed under
Alternative 2 would stabilize chronic sediment sources, help accelerate recovery from the
2011 flood event, and would dampen the effects of future floods.

Based on stream channel sensitivity analysis, field reviews, and PFC evaluations,
implementation of the proposed action would have no detrimental impact on aquatic habitat
attributes or fish populations. Road closure/rehabilitation and relocation would accelerate
recovery of Cherry Creek from the 2011 flood and attainment of DFC. Therefore the
proposed action alternative would result in "no impact" to water quality, stream channel
stability, or fish populations.

Cumulative Effects Alternative 1 (No Action)
The 2006 Derby Fire resulted in a relatively small percentage of the Cherry Creek watershed
being converted from forest to grassland. Since 2006, grass and shrublands have largely
recovered to pre-fire levels and there is little remaining influence from the fire on hydrologic
conditions. Therefore, the 2006 Derby fire would have little if any potential for cumulative
effects with the no action alternative.

With Alternative 1 (no action), eroding road segments that have captured or are confining
the Cherry Creek channel and are negatively influencing channel morphology would not be closed
and rehabilitated and would continue to have cumulative effects with the 2011 flood event. These
effects would likely include chronic sediment contribution to the Cherry Creek channel over time.

Livestock grazing can effect streamside vegetation, sediment yield and routing, and may result in
channel modification. Therefore, permitted livestock grazing of the Cherry Creek Pasture of the
West Deer Creek Allotment could further retard recovery of flood impacted stream segments
without reclamation activities or grazing management adjustments. For this reason, the no action
alternative could have cumulative effects with livestock grazing.

The Sweetgrass Restoration &Resiliency project, currently in the planning stages, focuses on
fuels reduction and resource resiliency. The project is being designed to minimize any negative
effects or have positive effects, where opportunities arise, on stream flows and/or sediment
delivery to stream channels. Therefore, there would be no measurable cumulative effects
associated with Alternative 1.

The 2006 Travel Plan implementation is designed to improve BMP’s on existing road segments
and would result in a net reduction in sediment delivery to stream channels. Therefore, there
would be no cumulative effects of Travel Plan implementation with the no action alternative.

Cumulative Effects Alternative 2 (Proposed Action)
The 2006 Derby Fire resulted in a relatively small percentage of the Cherry Creek watershed
being converted from forest to grassland. Since 2006, grass and shrublands have largely
recovered to pre-fire levels and there is little remaining influence from the fire on hydrologic
conditions. Therefore, the 2006 Derby fire would have little if any potential for cumulative
effects with Alternative 2 (proposed action).

Cherry Creek channel segments altered by the 2011 flood event will continue to erode and
contribute sediment to the channel for years to come. Road closure and rehabilitation under the
proposed action has potential for short-term increases in sediment delivery to Cherry Creek. This
would be mitigated by implementing this type of work when Cherry Creek is dry. Planned
rehabilitation of the most highly incised portion of Cherry Creek would stabilize a significant and
chronic sediment source. As closed and rehabilitated road segments re-vegetate, there would be a
net reduction in sediment delivery to Cherry Creek by removing and rehabilitating about one mile
of riparian road. Construction of the proposed West Deer Road would occur primarily in the
Happy Jack Gulch Drainage with only about 0.3 miles of road in the Cherry Creek drainage. The new road would cross Cherry Creek once and would not parallel the stream. Therefore there is little potential for long-term sediment delivery to Cherry from the proposed new road construction.

Removing riparian road will hasten the recovery of flood impacted channels and conversion to more stable channel types. With mitigations, any short-term increases in sediment delivery from the existing road closure would not be measurable relative to existing sediment loads. Road relocation would result in a net benefit to channel morphology and would hasten flood recovery. Therefore, there would be no negative cumulative effects associated with the proposed action alternative with respect to the 2011 flood event. In fact, Alternative 2 would, to a large degree, remedy water quality problems that resulted from the flood event.

The primary concern with livestock grazing is that it could retard the vegetative recovery of the closed/rehabilitated road segments. Mitigation included in project design includes potential adjustments in grazing management (timing, pasture rotations, etc.) and/or potential riparian exclosures if needed, to allow riparian vegetation to become established. Thus, there would be no cumulative effects with the proposed action alternative.

Road Maintenance activities have potential to generate sediment. However, because the West Deer Road #421 would replace the existing Cherry Creek riparian road with a road located high on dry slopes and would have BMP’s, there would be little to no potential for sediment delivery to stream channels. Therefore there would be no cumulative effects of ongoing road maintenance with the proposed action.

The Sweetgrass Restoration & Resiliency project, currently in the planning stages, focuses on fuels reduction and resource resiliency. The project is being designed to minimize any negative effects or have positive effects, where opportunities arise, on stream flows and/or sediment delivery to stream channels. Therefore, there would be no measurable cumulative effects associated with Alternative 2.

The 2006 Travel Plan implementation would improve BMP’s on existing road segments and would result in a net reduction in sediment delivery to stream channels. Therefore, there would be no cumulative effects with Alternative 2.

**Sensitive Fish Species**

Sensitive species are those plants and animals identified by the Regional Forester for which population viability is of concern. A Biological Evaluation (BE) is required to determine how a proposed action may affect any sensitive species. Fish species listed as 'sensitive' on the GNF include Arctic grayling (Thymallus arcticus), westslope cutthroat trout (Oncorhynchus clarki lewisi), and Yellowstone cutthroat trout (O. clarki bouvieri). Only Yellowstone cutthroat trout are present in the Boulder River-Cherry Creek sixth-code HUC. A 2013 electrofishing survey confirmed that no Yellowstone cutthroat trout are present in Cherry Creek and suitable habitat is not present. Therefore, no sensitive fish species are present in the analysis area.

Based on the above effects analysis, I have reached the following determinations for Yellowstone cutthroat trout. For the proposed action alternative, there would be no impact on YCT and population viability would not be affected. Detailed rationale for this determination is included in the effects analysis of this report.
Sensitive Amphibian Species

There are two GNF sensitive amphibians, the northern leopard frog (Rana pipiens) and the Boreal (Western) toad (Bufo boreas). Northern leopard frogs breed from mid-March to early June (Maxell 2000). Mating occurs when males congregate in shallow water and begin calling during the day (Maxell 2000). Eggs are laid at the water surface in large, globular masses of 150 to 500 (Maxell 2000). Young and adult frogs often disperse into marsh and forest habitats, but are not usually found far from open water (Maxell 2000). Overwintering habitat is the bottom of permanent water bodies, under rubble in streams, or in underground crevices. During a Gallatin National Forest survey in 1999, Northern Leopard frogs were found only on the Bozeman Ranger District with a second potential sighting on the Gardiner Ranger District. None have been found throughout the project area incidental to riparian or fisheries surveys. This is likely because there is not suitable habitat in the project area.

Western toads inhabit all types of aquatic habitats ranging from sea level to 12,000 in elevation (Maxell 2000). They breed in lakes, ponds, and slow streams, preferring shallow areas with mud bottoms (Maxell 2000). Western toads breed from May to July, laying long, clear double-strings of eggs (Maxell 2000). Tadpoles metamorphose in 40 to 70 days (Maxell 2000). Because of their narrow environmental tolerance (10-25 C throughout the year), adults must utilize thermally buffered microhabitats during the day, and can be found under logs or in rodent burrows (Maxell 2000). Adults are active at night and can be found foraging for insects in warm, low-lying areas (Maxell 2000). Western toads overwinter in rodent burrows and underground caverns. Prior to 2007 surveys, western toads were not found on the east side of the Gallatin Range (Atkinson and Peterson 2000). There is not suitable breeding habitat within the project area so western toads are not likely present.

Because there does not appear to be suitable habitat for either sensitive amphibian species and because none were encountered incidental to riparian or fisheries surveys, there is no effect anticipated with the proposed action alternative.

Aquatic Management Indicator Species

Management Indicator Species (MIS) are those species whose habitat is most likely to be affected by management practices thereby serving as indicators of habitat quality. The Gallatin National Forest Plan directs that habitat is provided for identified management indicator species and those native indigenous species that use special or unique habitats. For coldwater habitats, all species of wild trout (self-perpetuating populations) whose life cycle includes construction of intra-streambed spawning nests (redds) are listed by the 1987 GNF Forest Plan as indicator species (GNF 2011). These include brook, brown, rainbow, golden, and cutthroat trout. Incubation of trout eggs and embryos within stream gravels makes them particularly sensitive to habitat disturbance that increases fine sediment delivery to streams where these species spawn. There are no MIS within the analysis area. Therefore populations of MIS are expected to remain viable within the entire Gallatin National Forest planning area.

Compliance with other Laws, Regulation and other Direction

Montana Water Quality Act

Neither of the two streams in the Project Area (Happy Jack and Cherry Creeks) appear on the MDEQ 2012 303(d) list (MDEQ 2012a) or are listed as segments in need of total maximum daily load (TMDL) development by the MDEQ (MDEQ 2012b).

Happy Jack and Cherry Creeks historically drained into the Boulder River; however surface flow between these seasonal streams and the Boulder River has been effectively severed by irrigation water withdrawal and the effects of the 2011 flood event. TMDL’s were developed
for the Boulder River in 2009, including for the river reach into which the Project Area streams historically flowed and the river segment connecting that reach to the Yellowstone River. These river segments had been listed on the 2006 303(d) list as impaired for lead, copper, silver, iron, nickel and cadmium. TMDL’s were developed for these reaches for lead, copper, and iron. The DEQ found that data did not demonstrate impairment due to silver, nickel, or cadmium and thus did not develop a TMDL’s for those pollutants.

- The proposed project is consistent with State of Montana Water Quality Act requirements to protect, maintain, and improve the quality of water for a variety of beneficial uses for the following reasons.
- The streams within the project area have not been identified by the Montana DEQ as impaired and there are no TMDL’s developed or planned for those water bodies.
- The proposed project activities would employ BMP’s such that water quality changes, if any, would be considered “naturally occurring” under Montana water quality standards (ARM 17.30.602 (19)).
- The streams in the Project Area historically drained to the Boulder River but at present, surface flow is effectively disconnected from the River. The Boulder River is considered by the MDEQ to be impaired with respect to lead, copper, and iron. There is no indication that the proposed activities would result in increased levels of heavy metals in the Project Area streams. The planned activities in the headwaters would not further degrade downstream impaired waters.

**Executive Order 11990 – Protection of Wetlands**

Executive Order 11990 calls for the identification, assessment, and protection of wetlands by requiring Federal agencies to avoid, if possible, and practicable, adverse impacts to wetlands and to preserve and enhance the natural and beneficial values of wetlands. The proposed project would be consistent with these requirements, as no wetland areas have been identified within the proposed disturbed area and, if wetland areas are encountered, prescribed mitigation measures would prevent impacts to those areas.

**Executive Order 11988 – Floodplain Management**

Executive Order 11988 requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The proposed project would be consistent with these requirements since impacts to the only floodplain affected (that of Cherry Creek at the proposed road crossing) would be mitigated by proper road design and BMP’s

**Gallatin National Forest Plan**

Gallatin National Forest Plan (USFS 1987) Forest-wide Standards that apply directly to the proposed project, located on pages II-23 and 24, include the following Forest-wide standards:

10. Water and Soils. *Best Management practices (BMP’s) will be used on all Forest Watersheds in the planning and implementation of project activities.* The proposed project would be consistent with this standard because appropriate and effective BMP’s to protect water quality would be employed.

**Forest Service Policy in FSM 2500 (USFS 2010).**

The proposed project would be consistent with the requirements of these directives, which include protection of wetlands and floodplains among other requirements, due to project design and prescribed mitigations.
All management practices will be designed or modified as necessary to maintain land productivity and protect beneficial uses. The proposed project would be consistent with this requirement due to the routing and construction of the new road segment so as to best maintain land productivity and protect beneficial uses.

Required Permits

All required water quality permits would be acquired by the Gallatin National Forest prior to any ground disturbance activities for the proposed action including 124 permits and Nationwide 404 permit compliance validations for stream crossings. This analysis was conducted with the assumption that one stream crossing would be constructed across Cherry Creek. However, at this time, there has been no need identified for either of these permits.

Based on the preceding effects analysis and determination, the overall beneficial effects of the proposed action on water quality, floodplains, and aquatic habitat, the conclusion is that this project is consistent with State of Montana water quality standards, GNF Plan objectives and standards as well as Forest Travel Plan Direction. More specifically the project brings the travel system in the Cherry Creek drainage in compliance with Goal E. Objectives E-2, E-3, and standards E-5 through E-7.

2) Noxious and Invasive Weeds

Road construction activities associated with the approximately 1.64 miles of road to be constructed, and reclamation activities associated with closing the existing 2.3 miles of the old Cherry Creek Road segments could increase the extent and abundance of noxious weed populations in the project area. Of major concern is the potential for new invasive weed species that have not been documented in the project area to become established.

Analysis Methodology

Information regarding current noxious and invasive weed infestations and results of weed management in the project area was derived from records of previous weed treatments and monitoring, as well as observations during past field surveys. The effect of proposed activities on noxious weed spread was measured using the predicted amounts of soil and/or understory vegetation disturbance associated with the new road construction and reclamation activities associated with the road segment to be closed. No major tree canopy reduction is associated with the project; therefore, it is not relevant to the effects analysis for noxious weeds. Long-term effects on the ability to treat weeds and the cost-efficiency of future weed treatments are discussed qualitatively, relative to the miles of open, restricted, and/or closed road that result from each alternative. The boundaries of analysis for noxious and invasive weeds are described below:

Spatial Boundary: The effects analysis area for noxious and invasive weeds, considers the extent of currently documented weed infestations in the project area and the likely seed dispersal distances to non-weed infested areas. Road systems and lands (private and federal) adjacent to the project area have noxious weed infestations similar in composition and distribution to those in the project area, so transport of weed seeds to these lands from the project area would have little additional impact. For these reasons, the effects analysis area for noxious weeds consists of the project area.

Temporal Boundary: The time period for measuring effects to noxious and invasive weed populations is ten years following completion of road construction activities. Beyond ten years, the likelihood of events or activities affecting weed populations would be difficult to predict.
**Affected Environment**

The project area currently contains documented populations of various noxious and invasive weed species. Hoary cress, leafy spurge and cheat grass are widely established and are considered “naturalized” in the project area. Canada thistle, hounds tongue, and spotted knapweed are also currently established, but not considered naturalized in the project area. Infestations of these species are currently being monitored and contained where they occur along or near FS roads, with eradication occurring where feasible.

Of major concern are potential new invaders (see project file) not yet documented in the project area. In accordance with guidelines in the Northern Region Overview (USDA 1999), management priorities emphasize identification and eradication of tansy ragwort, orange hawkweed, meadow hawkweed, sulfur cinquefoil, rush skeletonweed and yellow starthistle. These species would be a high priority for eradication if any individuals were observed during operations or monitoring in the project area.

Documented weed species occurring in the project area and infestation levels of such are displayed in Table 2 below.

**Table 2- Noxious Weed Species Found in the Project Area**

<table>
<thead>
<tr>
<th>Species</th>
<th>Infestation Level*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spotted knapweed (Centaurea maculosa Lam.)</td>
<td>Low</td>
</tr>
<tr>
<td>Houndstongue (Cynoglossum officinale)</td>
<td>Low to Moderate</td>
</tr>
<tr>
<td>Hoary cress/whitetop (Cardaria draba)</td>
<td>Low to Moderate (naturalized, Moderate)</td>
</tr>
<tr>
<td>Canada thistle (Cirsium arvense)</td>
<td>Low</td>
</tr>
<tr>
<td>Leafy Spurge (Euphorbia esula)</td>
<td>Heavy</td>
</tr>
<tr>
<td>Cheatgrass (Bromus tectorum)</td>
<td>Low to Moderate (Naturalized Moderate)</td>
</tr>
</tbody>
</table>

Noxious weed treatment and monitoring activities have been and will continue to be ongoing in the project area along existing road prisms, following guidelines established in the Gallatin National Forest Noxious and Invasive Weed Management FEIS and Decision. Treatments emphasize reducing infestation levels and slowing the rate of spread. Current treatments occurring in the project area are displayed in Table 3.

**Table 3-Current Treatments Occurring in the Project Area**

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Treatment Types Used</th>
<th>Mechanical</th>
<th>Biocontrol Agents</th>
<th>Herbicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leafy spurge Euphorbia esula</td>
<td>Biocontrol, Herbicide</td>
<td>Non-used</td>
<td>• flea beetle (Aphthona abdominalis)</td>
<td>• glyphosate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• flea beetle (Aphthona nigriscutis)</td>
<td>• dicamba</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• hawk moth (Hyles euphorbiae)</td>
<td>• picloram</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• glyphosate + 2,4-D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• picloram + 2,4-D</td>
</tr>
<tr>
<td>Houndstongue Cynoglossum officinale</td>
<td>Herbicide, Mechanical</td>
<td>Clipping seed heads, Hand pulling</td>
<td>None currently available in the U.S.</td>
<td>• dicamba (Apply at rosette stage, late summer or early fall.)</td>
</tr>
</tbody>
</table>
### Effects Analysis

#### Direct/Indirect Effects Common to All Alternatives

With implementation of any alternative, seeds from any weeds on private and National Forest roads in the project area may be transported within and out of the area by OHVs, passenger vehicles, people, birds, and wildlife. Untreated weed infestations on private lands in the project area could spread to public lands. Areas with bare soil, due to the 2011 spring flooding, would remain vulnerable to weed infestation under both alternatives.

Indirectly, the continued increase in tree and shrub canopy cover in the project area and the shade they would provide could gradually lower the overall density of weeds in the infested areas and lessen the risk for future spread with either alternative.

#### Direct/Indirect Effects for Alternative 1 (No Action)

With the selection of Alternative 1 (No Action), there would be no ground disturbing reclamation activities and no new road construction. Soil and vegetative disturbance along portions of the existing segment of Cherry Creek Road, related to the flood event of 2011, would remain vulnerable to further weed infestation.

Current weed treatments and monitoring along existing Forest System Roads would likely continue, however, they would be dependent on Yellowstone District priorities and the availability of appropriated funding. It is likely that the monitoring and treatment of Forest System Road #206 and its spur would be a low priority for treatment because the road is not

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Treatment Types Used</th>
<th>Mechanical Treatment</th>
<th>Biocontrol Agents</th>
<th>Herbicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada thistle</td>
<td>Biocontrol, Herbicide</td>
<td>Clipping seed heads</td>
<td>• stem-boring beetle (Ceatrhyncus litura)</td>
<td>• 2,4-D</td>
</tr>
<tr>
<td>Cirsium arvense</td>
<td></td>
<td></td>
<td>• gall fly (Urophora cardui)</td>
<td>• clopyralid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• shoot fungus (Sclerotinia sclerotiorum)</td>
<td>+ 2,4-D</td>
</tr>
<tr>
<td>Spotted knapweed</td>
<td>Biocontrol, Mechanical</td>
<td>Hand pulling</td>
<td>• seed head gall fly (Urophora affinis)</td>
<td>• glyphosate</td>
</tr>
<tr>
<td>Centaurea maculosa</td>
<td></td>
<td></td>
<td>• seed head gall fly (U. quadrifasciata)</td>
<td>• picloram</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• seed head moth (Metzneria paucipunctella)</td>
<td>+ 2,4-D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• black leaf blight fungus (Alternaria alternata)</td>
<td>+ clopyralid + 2,4-D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• root moth (Agapeta zoegana)</td>
<td>+ picloram</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• verdant seed fly (Terellia virens)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• root weevil (Cyphocleonus achates)</td>
<td></td>
</tr>
<tr>
<td>Whitetop (Hoary cress)</td>
<td>Herbicide,</td>
<td>Non-used</td>
<td>None currently available</td>
<td>• glyphosate</td>
</tr>
<tr>
<td>Cardaria draba</td>
<td></td>
<td></td>
<td></td>
<td>• 2,4-D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+ chlorsulfuron</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+ metasulfuron</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+ amitrole</td>
</tr>
<tr>
<td>Cheatgrass (Downy Brome)</td>
<td>Herbicide,</td>
<td>Non-used</td>
<td>None currently allowed in the U.S.</td>
<td>• glyphosate</td>
</tr>
<tr>
<td>Bromus tectorum</td>
<td></td>
<td></td>
<td></td>
<td>+ Imazapic</td>
</tr>
</tbody>
</table>
currently drivable due to the lack of public access and roadbed erosion caused from the 2011 flooding.

Because current public access to the drainage is limited by vehicles, the risk of new weed species introduction and spread is low, however, the same lack of access makes weed treatments and monitoring more difficult and expensive and less likely to occur on a regular basis. Established populations of leafy spurge and knapweed would likely continue to expand within the drainage unless broad scale biological control efforts are undertaken.

**Direct/Indirect Effects for Alternative 2 (Proposed Action)**

Alternative 2 (Proposed Action) includes the construction of approximately 1.64 miles of new permanent road, as well as the closure and reclamation of approximately 2.3 miles of the existing Cherry Creek Road #206. Construction of the new road segment and reclamation activities associated with closing the segment of the old Cherry Creek Road #206 would include soil and vegetative disturbances that are conducive for weed introduction and spread.

Minimizing the amount of soil disturbance and the timeframe with bare soil conditions along road right of ways, pullouts, and reclamation areas by seeding with native and desired non-native species would help to reduce the risk of weed spread in these areas.

Restoring access to the drainage, as proposed with Alternative 2, would increase use by public vehicles and may also increase the risk of weed introduction and spread. However, weed treatments and monitoring would be less difficult and less expensive than under Alternative 1 due to better access to the area. Because of mitigation required with Alternative 2 implementation, and improved access for weed spraying equipment, weed treatments would be a high priority for the District.

The risk of weed spread in the project area would vary for different plant communities. Dry areas where shrub species are predicted to dominate may be at lower risk, while dry grass and forb-dominated communities may be at higher risk for weed invasion (Noste and Bushey 1987). Leafy spurge and spotted knapweed occur in the project area in both previously disturbed and undisturbed habitats. Both may increase, at least temporarily, in some areas following construction activities. This may not be due to invasion from adjacent infestations, but to germination from seed already present in the soil (Fire Effects Information System 2008).

Weed treatment activities would likely be successful in controlling leafy spurge and spotted knapweed along the road prisms and right-of-ways where they would be actively treated, but these treatments would have little effect on populations located outside of the road corridor. These two species are considered naturalized in the project area, and would not likely be eradicated by any type of weed treatment efforts. The short-term management goal for leafy spurge and spotted knapweed is to reduce the risk of seed and plant parts being transported out of the project area. The long-term goal is to reduce the size of infestations and slow the rate of spread within the project area. Based on past monitoring (see project file) and the observed success of recent weed treatment efforts (Renck personal observations 2010-2013), continued treatment of existing infestations along roads in the project area would greatly reduce the risk of transporting these species off-site. Biological control agents for knapweed and leafy spurge may also be released in off-road infestations and would over time reduce the incidence of those species.

Treatment of other noxious weed species that are mainly confined to road prisms, would be moderately to highly effective in reducing their spread with activities associated with Alternative 2. Noxious weed treatment and monitoring activities would follow guidelines established in the GNF Noxious and Invasive Weed Management EIS. Under the proposed action, mitigation
measures to reduce the risk of weed spread in the project area would protect recent investments in weed management.

With Alternative 2, weed treatment and monitoring would be implemented annually to minimize the risk of weed spread in the project area. This would also protect other recent investments made for weed management. Because effective mitigation measures have been designed to detect and eradicate new invaders, they are not expected to become established. Weed treatments and effective project mitigation associated with Alternative 2 would be expected to decrease weed populations in the project area over time.

**Cumulative Effects Common to All Alternatives**

The loss of tree canopy cover from Derby fire and the spring flood of 2011 have been factors affecting off-road weed spread in the project area. As the tree canopy in open stands closes and shrub species regenerate, shade-intolerant weeds would, over the long term, be displaced. Because the project area is within the currently permitted Deer Creek Grazing Allotment, there would continue to be a moderate risk for spreading current weed populations with continued livestock grazing.

With both alternatives, weed treatments and monitoring along Forest Service System Roads in the project vicinity would continue and cumulative effects to weed infestations are expected to be low.

**Cumulative Effects for Alternative 1 (No Action)**

In the short term, the no-action alternative would only contribute a low level of cumulative effects to the risk of weed spread. Over the long term, limited access to Cherry Creek Road #206 would likely gradually increase the size and density of weed populations along this road corridor, due to the high cost and difficulty of treating and monitoring the area.

**Cumulative Effects for Alternative 2 (Proposed Action)**

With implementation of Alternative 2, soil and vegetation disturbance related to the flood event of 2011 would still be vulnerable to weed infestation. Implementation of Alternative 2 would improve the ability to treat and monitor existing infestations by improving the road access to the area, thus reducing the risk of their expansion. Routine road maintenance activities on existing roads in the project area may result in some ground disturbance that would be conducive to further spread of some existing weed populations, however, improved vehicle access would allow for more cost effective weed treatment and monitoring than under the No Action Alternative (Alternative 1).

Stabilization work would occur on damaged portions of Forest System Road #206 that would be closed. This work would on lands that were seriously altered by the 2011 flood event. This stabilization would prevent further erosion and vegetation loss, which would also reduce the likelihood for weed spread along the road prism.

In the short term, Alternative 2 would contribute to minor cumulative effects associated with the risk of weed spread; however, the long-term risk for spread of existing infestations would be low. In fact, it is likely that several of these weed populations would decrease in extent over time due to effective weed treatments associated with the project.

**Compliance with other Laws, Regulation and other Direction**

Federal legislation, regulations, policy, and direction that require development and coordination of programs for the control of noxious weeds and evaluation of noxious weeds in the planning process include the following:
**Forest Service Manual 2259.03**

“Forest office shall cooperate fully with State, County and Federal officials in implementing 36 CFR 222.8 and sections 1 and 2 of PL 90-583 (see below). Within budgetary constraints, the FS shall control to the extent practical, noxious farm weeds on all National Forest System lands.” Weed treatments and monitoring would continue in the project area along National Forest System Roads as funding allows, with either alternative, however, they would be more extensive with implementation of Alternative 2.

**Executive Order #13112**

Invasive Species, February 3, 1999. This order directs Federal Agencies whose actions may affect the status of invasive species to (1) prevent the introduction of invasive species (2) detect and respond rapidly to , and control, populations of such species in a cost effective and environmentally sound manner, as appropriations allow. Alternative 1 would not have any agency actions, and Alternative 2 includes design criteria, mitigation, weed treatments and monitoring that responds to Executive Order #13112.


This act provides authority to control weeds on rangelands as part of a rangeland improvement program. The Forest Service would work with the range permittee to control noxious weed infestations in the project area with either alternative.

**GNF Noxious and Invasive Weed Management FEIS (2005)**

Weed treatments and monitoring associated with the project would be in accordance with those allowed on the Gallatin National Forest in accordance with this document and decision.

3) **Recreation/Public Access**

Project related activities would affect opportunities for recreational activities and public access in portions of the Deer Creeks Planning Area.

**Analysis Methodology**

Similar to the Gallatin National Forest Travel Planning effort, this analysis will use the Deer Creeks Travel Planning Area (TPA) as a tool to gauge recreational and public access opportunities and the potential effects of such. Within the TPA, the Forest Service infrastructure is considered to be a network of opportunities that are complimentary; providing quality and diverse recreation opportunities that are appropriate in this management, social, and resource setting.

Potential changes to recreation setting or the recreation environment in the TPA were measured qualitatively. Alternatives were evaluated based on their ability to meet public access and Travel Plan objectives appropriate with the ROS objectives.

**Spatial Scale:** The spatial scale for direct, indirect and cumulative effects is the Deer Creeks TPA. This area was chosen because recreation, travel and access goals, objectives and standards have been developed to apply to this specific area. Types of use, access, effects were analyzed and planned over this specific subset of the Forest. The Deer Creeks TPA is an area defined by similar landscape characteristics, recreational opportunities, and resource conditions.

**Temporal Scale:** The temporal scale for the past, present, and cumulative effects will be 2006 to 2016. This time period was chosen because an affirmative decision on the
management of the existing Cherry Creek Road #206 was made as part of the 2006 Travel
Plan decision through 2016, which is the timeframe anticipated to fully implement the
proposed road relocation, including the construction of the new West Deer Creek #421 road
segment and the closure/rehabilitation of the existing Cherry Creek Road #206.

Affected Environment
The analysis area for recreation/public access is the Deer Creeks TPA located south of Big
Timber, MT in the foothills of the Beartooth Mountain Range. The topography is rolling and was
impacted extensively by the 2006 Derby Fire. The travel planning area has several public access
points via roads and trails. The road networks provide dispersed camping, firewood gathering
and hunting opportunities. Driving for pleasure is a recognized and valid use of the National
Forest system routes. The trails in the area are predominately seasonally restricted motorized
trails and are popular during fall hunting season. This area does not have specific winter
management objectives for snowmobiling, skiing, or other winter activities because of
inconsistent snow.

Recreation facilities in the Deer Creeks TPA include numerous roads, trails, trailheads and two
rental cabins.

National Forest System (NFS) Roads
Table 4 lists National Forest System Roads included in the Deer Creeks TPA, their seasons of
use, and the predominate types of uses on the roads. These roads are most heavily used during
fall hunting by both day use and overnight camping hunters.

Table 4 – Roads in the Deer Creeks TPA (Name, Number, Season of and Predominant Use

<table>
<thead>
<tr>
<th>Road Name and NFS #</th>
<th>Season of Use</th>
<th>Predominate Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherry Creek Road #206**</td>
<td>Yearlong</td>
<td>Hunting, fishing, camping, firewood gathering, trailhead</td>
</tr>
<tr>
<td>Iron Mountain Road #482</td>
<td>Yearlong</td>
<td>Hunting, dispersed camping, firewood gathering, access to Placer Gulch Trailhead</td>
</tr>
<tr>
<td>Evergreen Road #1713</td>
<td>May 16th to December 1st</td>
<td>Hunting, dispersed camping, firewood gathering</td>
</tr>
<tr>
<td>West Bridger Road #488</td>
<td>Yearlong</td>
<td>Hunting, dispersed camping, access to W. Bridger Cabin and Jim’s Gulch Trailhead</td>
</tr>
<tr>
<td>Derby Gulch Road #6674</td>
<td>Yearlong</td>
<td>Hunting, dispersed camping, firewood gathering</td>
</tr>
<tr>
<td>Packsaddle Butte Road #6675</td>
<td>Yearlong</td>
<td>Hunting, dispersed camping, firewood gathering</td>
</tr>
<tr>
<td>Carey Gulch Road #6671</td>
<td>May 16th to December 1st</td>
<td>Hunting, dispersed camping, firewood gathering</td>
</tr>
<tr>
<td>Upper Blind Bridger Road #6677</td>
<td>Yearlong</td>
<td>Hunting, dispersed camping, firewood gathering</td>
</tr>
<tr>
<td>Lower Deer Creek Road #2550</td>
<td>May 16th to October 14th</td>
<td>Hunting, dispersed camping, firewood gathering, trailhead access</td>
</tr>
<tr>
<td>Wepler Road #2551</td>
<td>May 16th to October 14th</td>
<td>Hunting, dispersed camping, firewood gathering</td>
</tr>
<tr>
<td>Main Bridger Road #1176</td>
<td>Yearlong</td>
<td>Hunting, dispersed camping, firewood gathering, trailhead access</td>
</tr>
<tr>
<td>Elk Creek Road #2606</td>
<td>Yearlong</td>
<td>Hunting, dispersed camping,</td>
</tr>
</tbody>
</table>
**Draft Environmental Assessment**

**Road Name and NFS #** | **Season of Use** | **Predominate Use**
--- | --- | ---
**trailhead access**

**This includes as referenced in the Travel Plan decision.**

In May of 2011 large rain on snow events caused extensive flood damage to roads and trails in the Main Bridger, West Bridger, and Lower Deer Creek drainages. Roads especially damaged from the high creek flows include: Cherry Creek Rd #206, West Bridger Road #488, Derby Gulch Road #6674, Lower Deer Creek Road #2550, and Wepler Road #2551. Emergency repairs were made, where possible, to allow the public to use the roads during the summer of 2011. Further repairs are necessary and would be conducted in 2014.

The Cherry Creek Road #206, (the proposed route for realignment) is identified in the Gallatin Travel Plan FEIS and Decision (2006) as a yearlong motorized route available to passenger cars and open to public use. The route has been subject to temporary closure as a result of both political and environmental conditions. In the recent past, non-motorized public use and administrative, permittee and private motorized use has taken place. However, as identified in the Gallatin Travel Plan, it is a legitimate, designated motorized route suitable for passenger cars.

The Gallatin Travel Plan defined and designated the road corridor to provide access into Cherry Creek area.

**National Forest System Trails**

Several National Forest System Trails exist within the Deer Creeks TPA. Table 5 lists the trails in this area, which include a combination of motorized and non-motorized trails. The motorized opportunities provide a mix of yearlong and seasonally restricted use. Table 5 also provides a representative set of trails in the TPA; however, it is not an exhaustive listing but provides a general representation. Table 5 displays how the trail area is predominantly used, their season of use, and predominant type of use.

**Table 5-Trails in the Deer Creeks TPA (Name, Number, Season of and Predominant Use**

<table>
<thead>
<tr>
<th>Trail Name &amp; Number</th>
<th>Season of use</th>
<th>Predominant Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dore Creek Trail #168</td>
<td>Yearlong</td>
<td>Open to non-motorized users. Used mostly by hikers and stock during fall hunting season.</td>
</tr>
<tr>
<td>Derby Ridge Trail #126</td>
<td>Yearlong</td>
<td>Open to non-motorized users. Used mostly by hikers and stock during fall hunting season.</td>
</tr>
<tr>
<td>Jim’s Gulch Trail #129</td>
<td>Yearlong</td>
<td>Open to non-motorized users. Used mostly by hikers and stock to access Deer Creek Cabin and fall hunting season.</td>
</tr>
<tr>
<td>Lower Deer Creek Trail #5</td>
<td>Yearlong – non-motorized ATVs and Motorcycles – May 16th to March 31st</td>
<td>Open to motorized and non-motorized users. Used mostly by Deer Creek Cabin renters and during fall hunting season.</td>
</tr>
<tr>
<td>Placer Gulch Trail #256</td>
<td>Yearlong – non-motorized ATVs and Motorcycles – May 16th to March 31st</td>
<td>Open to motorized and non-motorized users. Used by Deer Creek Cabin renters, gold panners and fall hunters.</td>
</tr>
<tr>
<td>Tomato Can Trail #156</td>
<td>Yearlong – non-motorized Motorcycles – May 16th to March 31st</td>
<td>Open to motorized and non-motorized users. A very low use trail which is difficult to find.</td>
</tr>
<tr>
<td>Boone Peak Driveway Trail #2</td>
<td>Yearlong – non-motorized</td>
<td>Open to motorized and non-</td>
</tr>
</tbody>
</table>
The 2011 flood event also affected a number of area trails. Trails damaged by the flooding include: Jim’s Gulch Trail #129, Lower Deer Creek Trail #5, Placer Gulch Trail #256 and Tomato Can Trail #156. Placer Gulch Trail was particularly hard hit by flooding and has been closed to all motorized use. Horse use is also discouraged due to very high cut banks (4-5 ft. in some locations) and no tread in many areas. Repairs to these trails have been ongoing.

In 2013 construction began on an ATV trail system in the Derby Gulch/Lower Deer Creek area. Trail design and layout was completed during the summer of 2010, work began in the summer of 2013 and it is anticipated to be complete in the summer of 2014.

**Developed Recreation (Cabins and Campgrounds)**

The West Bridger Cabin and Deer Creek Cabins are within the Deer Creeks TPA. The Deer Creek Cabin is utilized approximately 80 – 100 days per year; mostly during the summer season. The West Bridger Cabin is utilized approximately 150 – 175 days per year. The West Bridger Cabin is located along West Bridger Road and thus more accessible yearlong.

**Dispersed Recreation**

Dispersed recreational day and overnight use occurs within the TPA during fall hunting seasons. Hunting use is comprised of hunters on foot or horseback. No dispersed motorized use occurs within the TPA per the 2006 Travel Plan.

**Recreation Special Uses**

The travel planning area has several public access points via roads and trails. The road networks provide dispersed camping, firewood gathering and hunting opportunities. The trails in the area are predominately motorized trails and are popular during fall hunting season.

The TPA has two day use hunting outfitters whose hunting areas overlap with National Forest System (NFS) lands in the allotment. The operating period is during fall archery season (September 4-October 17) and general hunting season (October 23-Nov 28).

The TPA also has one overnight hunting outfitter whose hunting area overlaps with NFS lands in the allotment. His camp is located outside of the allotment in Dry Creek. The operating period is the same as day use.

**Recreation/Public Access Effects Analysis**

**Direct and Indirect Effects for Alternative 1 (No Action)**

With Alternative 1 (No Action), the objectives of the Gallatin Forest Plan and Travel Plan would not be realized. Permanent public access issues would not be resolved; public access would be interrupted. Available recreation infrastructure, roads, trails and National Forest opportunities would be difficult to access for the general public and the Big Timber community.

Administration of the National Forest recreation, property and transportation infrastructure in the Cherry Creek area would continue to be difficult. Maintenance of the roads, trails, signage,
property boundaries, and outfitter and guide permit administration would continue to be limited due to the lack of accessibility.
Direct and Indirect Effects for Alternative 2 (Proposed Action)

With Alternative 2 (Proposed Action) the Gallatin Travel Plan and Forest Plan objectives would be realized. A roaded corridor in this area was thoroughly analyzed, considered, and developed as part of the holistic look at the Gallatin National Forest, the Yellowstone Ranger District, and the Deer Creeks TPA. Under the Proposed Action Alternative, the balance of reasonable access to the National Forest in perpetuity would be restored as designed and planned for in the 2006 Travel Plan. The TPA and the National Forest provide a huge diversity of opportunity in this planning area; and across the National Forest. Alternative 2 provides for a broad range of recreational opportunities to continue in this TPA and on the National Forest in general. Under this alternative, the type and level of use would be similar to levels that existed prior to the recent motorized access interruption. However, it is anticipated that for up to 1 to 2 years, this area may receive a pulse of increased use due to a period of limited access. It is not expected that the brief increase of use would cause any lasting or negative effects to the quality of the recreation opportunity in the area. On the contrary, positive effects for the recreating public are anticipated in regard to increased availability of recreational opportunities and access to the National Forest amenities in this area. The improved road realignment would create an improved recreation experience in regard to a sustainable, comfortable driving surface with permanent public access.

After a period of closure it is anticipated that some infrastructure (signage, trails, parking) may need maintenance to accommodate the return of public motorized use. This maintenance would be prioritized on the Forest and would likely occur over a period of years. The public users’ experience may be temporarily affected as amenities are restored to standard, but notable or lasting effects are not expected.

It is anticipated that the greatest effect associated with the realignment of the road corridor and the closure of the existing road segment would be in regard to compliance with the new travel regulations, as well as visitor education and compliance. Increased education and enforcement efforts would likely be needed post-construction to help educate users on the requirements of the new arrangement and provide orientation with their surroundings. It is anticipated that this would also be a short term effect of 1-2 years, as the results of user education, compliance, and information begin to resolve potential effects. Other physical barriers may also be utilized, if necessary, to assist with recreational and public access management.

Under Alternative 2, it is not anticipated that there would be lasting direct or indirect effects to the recreational opportunity as a result of the road realignment. Positive effects would be associated with a better road alignment; thereby providing an enhanced recreational experience is anticipated. Benefits of a permanent access and the realization of the Forests goals are both positive effects that move the TPA towards its desired future condition.

Cumulative Effects for Alternative 1 (No Action)

No actions would be taken with Alternative 1, so the only potential cumulative effects would be associated with implementation of the Travel Plan for this portion of the Deer Creeks TPA. Without action, it is unknown when the public would be able to gain permanent motorized access and full recreational use of this area as provided for in the 2006 Travel Plan FEIS and Decision.

Cumulative Effects for Alternative 2 (Proposed Action)

When considered in the context of other ongoing or anticipated activities in the project area. No cumulative effects are anticipated as a result of the activities associated with Alternative 2 to realign this road and close/rehabilitate the existing road segment. When combined with the other ongoing activities and with consideration of the designated management choices for the Deer Creeks TPA in the 2006 Gallatin Travel Plan decision, no measurable effects or changes to the recreational experience are anticipated in the long or short term. Positive lasting effects
associated with better road alignment, thereby improving the recreation experience, are anticipated. Benefits of a permanent public access and the realization of the Forest's goals are positive effects that move the Deer Creeks TPA towards its desired future condition.

Compliance with Applicable Laws, Regulation and Forest Plan Guidance

**Gallatin National Forest Plan (1987)**

The Gallatin National Forest Plan directs the Forest to provide for a broad spectrum of recreation opportunities in a variety of Forest settings (FP, pg. II-1). The Forest Plan recognizes objectives for recreation settings by incorporating the Recreation Opportunity Spectrum (ROS), which provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities (FP, pg. II-2). Furthermore, the Plan specifically identifies as objectives activities that will be managed 1) to provide for users' safety, 2) that existing recreational hunting opportunities will be maintained, 3) that recreation trails will provide safe public access, and 4) to continue the cabin rental program (FP, pg. II-2-3). The action alternative (Alternative 2) is compliant with Forest Plan ROS objectives.

**Gallatin National Forest Travel Plan (2006)**

The Gallatin National Forest Travel Plan (2006) contains language updating and further defining the forest-wide goals, objectives and standards for recreation. The Travel Plan recognizes the goal of “providing for a variety of recreation opportunities on the road and trail system that allows for the enjoyment of the Forest’s backcountry, wilderness, rivers, lakes, topography, wildlife, snow and historical assets” (TP, Detailed Description of the Decision, I-1). The travel plan also acknowledges Access as an overarching goal of the Forest. Specifically the goal is to “Provide and maintain reasonable, legal access to the Gallatin National Forest lands to provide for human use and enjoyment and to protect and manage Forest resources and values.” In addition the travel plan has specific objectives speaking to resolving access needs through acquisition of perpetual easements and acquiring all rights needed to provide public access in perpetuity.

Goals, objectives and standards are further defined in the Travel Plan by Travel Planning Area. The Deer Creeks TPA includes the proposed road realignment. The goals include:

- “Acquire additional public access into the Cherry Creek drainage.”
- “Provide opportunities for both motorized and non-motorized summer recreation use with emphasis on motorcycle, ATV, horse and pack stock use.”
- “In addition, provide moderate levels of opportunity for mountain biking, pleasure driving and 4x4 use on backcountry roads.”

Objectives for this travel planning area include achieving the goals stated above through the route-by-route-decisions made through the Travel Plan. Future proposed changes to the uses specified in the Travel Plan will be done in consideration of the targeted recreation setting to be provided (TP, Detailed Description of the Decision, II-164). The targeted recreation setting for summer recreation in this travel planning area is a combination of Roaded Natural, Semi-Primitive Motorized and Semi-Primitive Non-Motorized. The proposed action would meet all of the goals, objectives, and standards outlined in the Travel Plan for the Deer Creeks TPA.
Other Resources Analyzed

A. Wildlife (T&E, Sensitive, MIS, Big Game, Migratory Birds)

Project related activities have the potential to affect wildlife habitat that is necessary for various wildlife species including threatened and endangered (T&E), Regional Forester listed sensitive species for the Gallatin National Forest, Management Indicator Species as identified in the Gallatin National Forest Land and Resource Management Plan (Gallatin Forest Plan 1987, p. II-19), and/or migratory bird species that utilize the area.

Analysis Methodology

The construction of the new road segment #421 (approximately 1.64 miles on NFS lands) along with the closure of the portion old Cherry Creek Road #206 (which in turn necessitates the closure of spur road # to the east that would no longer be accessible), consisting of a total of approximately 2.3 miles was considered to be an equitable/slightly favorable exchange of road miles, particularly since the closure of the old road would benefit the riparian area where it currently exists. Both of these motorized routes would no longer be viable and would be removed from the Travel Plan route layer in exchange for public access on newly constructed Road#421.

Direct effects to habitat or modification thereof were assumed to be little to none, or a slight benefit due to the removal of a road within a riparian area and the slight reduction in road mileage associated with the proposed project. Therefore, the focus of this report is the effect of indirect effects of site-specific, short duration ground disturbing activity. Since Alternative 2 would not notably alter habitat above that which currently exists, disturbance was deemed the primary factor to consider. Disturbance in the project area and vicinity would mainly be due to road construction and decommissioning activities and would last only a short duration (approximately 6 months maximum).

The best available science was used in analysis, including scientific references at the end of this document, data from the USFS NRIS Wildlife database, field verified data, and the Gallatin National Forest Plan. Only terrestrial animal species are addressed in this wildlife analyses. Evaluation of aquatic and sensitive plant species are included in other sections of the EA.

Each wildlife species’ potential presence of habitat and life history needs was examined in conjunction with how they might be disrupted by project activities. For the grizzly bear, effects to secure habitat and route density were determined through a modeling process. This information was put in context with the habitat quality and location. A Biological Assessment is being prepared for the project and it will be sent to the US Fish and Wildlife Service for concurrence prior to a decision being made. Other species did not require models due to the proposed work constituting only a low disturbance and a narrative discussion was provided that described the effects of the disturbance. Yet other species were dismissed from any detailed analysis due to the lack of potential habitat within the project area.

The context for considering cumulative effects includes spatial and temporal boundaries. The geographic context for the terrestrial sensitive species addressed in this report differs by species. Temporal boundaries for these species are the timeframes within which the proposed road and trail work would be completed that may cause displacement or behavioral and/or physiological responses.
Spatial Scale: The spatial bounds for wildlife analysis are limited to the actions proposed on NFS lands in T1S, R14E, Sections 4 and 9. Overall effects would be quite limited in nature except for the short duration disturbance.

The spatial scale typically used to analyze effects to grizzly bears (i.e. action area) is the subunit of a Bear Management Unit (BMU), which represents the expected annual home range for adult female grizzlies in the GYE. BMUs and subunits are delineated for areas inside the recovery zone, but not outside, largely because there are not enough locations of grizzly bears outside the recovery zone to provide sufficient data to delineate bear use areas. The Interagency Grizzly Bear Study Team (IGBST) uses “bear analysis units” (BAUs) to monitor changes in secure habitat outside of the recovery zone. Therefore, the Boulder BAU was used to delineate an analysis area for effects to grizzly bear. This BAU is approximately 278 mi² in size.

For those species where the effects were considered minimal, or that were not considered due to lack of potential habitat, the cumulative effects analysis area was not defined and no analysis was conducted. This was because a) the project area does not provide viable habitat, and, therefore, that particular species is not expected to be present or b) the project would not adversely modify habitat to an unsuitable condition or cause detrimental disturbance to that species to any measurable degree.

Temporal Scale: Temporal bounds for wildlife analysis are defined by the amount of time that heavy equipment would be working in the project area. This includes the construction of the new road segment (#421) and the closure of the old road (#206). This is estimated to be no longer than six months from the start of implementation, which is anticipated to begin in the spring/summer of 2014.

Wildlife Species Considered
Table 6 addresses those species protected under the Endangered Species Act, species designated as sensitive terrestrial species by the Regional Forester, Management Indicator Species identified in the Gallatin Forest Plan, and migratory birds. For each species, the status, habitat requirements, and probable occurrence is displayed.

Table 6-Wildlife Species Status, Habitat Requirements, Potential Occurrence

<table>
<thead>
<tr>
<th>Common Name &amp; Status</th>
<th>Habitat Requirements</th>
<th>Potential Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threatened &amp; Endangered Species</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grizzly Bear (threatened)</td>
<td>RIP and All Habitats</td>
<td>Yes, project is South of I-90 where grizzly bear occurrence is possible, but outside the Recovery Zone and outside the known distribution area for grizzlies (Schwartz et al. 2006). Informal consultation was initiated and a separate BA written to further analyze the project effects to grizzly bear. Concurrence with the FWS would be obtained prior to project implementation.</td>
</tr>
<tr>
<td>Lynx (threatened) and Lynx Critical Habitat</td>
<td>SF, AS, LPP,</td>
<td>No, project is outside of designated critical lynx habitat (USD 2009) and mapped potential lynx habitat. Project is not within a lynx analysis unit (LAU). No documented occurrence of lynx on this portion of the Gallatin National Forest. Lynx generally occur in moist subalpine fir habitats, above</td>
</tr>
<tr>
<td>Common Name &amp; Status</td>
<td>Habitat Requirements</td>
<td>Potential Occurrence</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Wolverine (proposed)</strong></td>
<td>AL, SA</td>
<td>No, proposed actions are not within wolverine habitat. The project area is low elevation (4,950 to 5,050 feet) and well outside of the zone of permanent snowpack. Preferred habitat is large, isolated tracts of land supporting a diverse prey base. Wolverines are known to occur on the Gallatin National Forest, but their presence has not been recently verified within the project area.</td>
</tr>
<tr>
<td><strong>Sensitive Species</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bald Eagle (sensitive)</strong></td>
<td>MS, RIP, WET, AQ</td>
<td>No, lack of suitable nesting or foraging habitat. Bald eagles in Montana occupy riparian habitat almost exclusively during the breeding season, but occasionally exploit upland areas for food and roost sites, especially during winter.</td>
</tr>
<tr>
<td><strong>Peregrine Falcon (sensitive)</strong></td>
<td>RO</td>
<td>No, lack of suitable habitat. Peregrine falcons are summer residents in the US, nesting high on cliff ledges, usually located near water.</td>
</tr>
<tr>
<td><strong>Trumpeter Swan (sensitive)</strong></td>
<td>RIP, WET, AQ</td>
<td>No, lack of suitable habitat. Habitat requirements include fairly large bodies of water. There are no large bodies of water in the project area.</td>
</tr>
<tr>
<td><strong>Harlequin Duck (sensitive)</strong></td>
<td>RIP, WET, AQ</td>
<td>No, lack of suitable habitat. Harlequin ducks are small sea ducks that winter in coastal waters before migrating inland to nest along mountain streams. Harlequins prefer shallow, cold, fast moving streams which do not occur in the project area.</td>
</tr>
<tr>
<td><strong>Flammulated Owl (sensitive)</strong></td>
<td>PP, AS</td>
<td>No, lack of suitable habitat. Burned forest and lack of large ponderosa pine for nesting and foraging do not provide habitat components for this insectivorous migratory owl.</td>
</tr>
<tr>
<td><strong>Black-backed Woodpecker (sensitive)</strong></td>
<td>Recently burned conifer forest</td>
<td>No, habitat within the project area but not in optimal quantity or quality. The black-backed woodpecker is a primary cavity nester inhabiting northern coniferous forests. Burnt forest post-fire 1-6 years is preferred. The greater Derby Mountain fire (2006) vicinity provides adequate nesting and foraging habitat.</td>
</tr>
<tr>
<td><strong>Townsend’s (Western) Big-Eared Bat (sensitive)</strong></td>
<td>RO, MS, PP, Caves/Mines</td>
<td>No, lack of suitable habitat. There are no caves or mine adits in the project area. Burned forest lacks bark for roosting.</td>
</tr>
<tr>
<td><strong>Gray Wolf (sensitive)</strong></td>
<td>Habitat generalist</td>
<td>Yes, wolves and prey may be present in project area.</td>
</tr>
<tr>
<td><strong>Bighorn Sheep (sensitive)</strong></td>
<td>S, RO</td>
<td>No, lack of suitable habitat. Bighorn sheep prefer areas with foraging areas adjacent to cliffs for security. There are no cliffs in the project area.</td>
</tr>
<tr>
<td>Common Name &amp; Status</td>
<td>Habitat Requirements</td>
<td>Potential Occurrence</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Management Indicator Species</td>
<td></td>
<td>No, lack of suitable habitat due to the Derby Mountain fire of 2006. The goshawk is an indicator for dry old growth consisting of Douglas fir forest types, but they will use other forest types. Goshawks forage in a variety of open and forested communities and prey on small mammals and birds.</td>
</tr>
<tr>
<td>Northern Goshawk (management indicator species)</td>
<td>DF, SF, AS, LPP</td>
<td>No, lack of suitable habitat. The pine marten is an indicator for mesic old growth habitat consisting of spruce/ fir forest types. The marten is strongly associated with forested habitat. There is no marten habitat within the project area.</td>
</tr>
<tr>
<td>Pine Marten (management indicator species)</td>
<td>SF, LPP</td>
<td>Yes, the project area provides primarily winter foraging habitat for elk and summer range for mule deer.</td>
</tr>
<tr>
<td>Elk (management indicator species)</td>
<td>Habitat Generalist</td>
<td>Yes, migratory birds are a diverse group including raptors, waterfowl, shore birds, game birds, and songbirds utilizing a vast array of habitats for nesting and foraging.</td>
</tr>
<tr>
<td>Other Species</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migratory Birds</td>
<td>All Habitats</td>
<td>Yes, migratory birds are a diverse group including raptors, waterfowl, shore birds, game birds, and songbirds utilizing a vast array of habitats for nesting and foraging.</td>
</tr>
</tbody>
</table>

Habitat Key: SF=Spruce/Fir; AS=Aspen; LPP=Lodgepole Pine; DF=Douglas fir; MS=Mountain Shrub; FM=Forest Meadows; AL=Alpine; RIP=Riparian; WET=Wetland; AQ=Aquatic; RO=Rock/Cliff/Canyon; PP=Ponderosa Pine; PJ=Pinyon-Juniper; G=Grassland; SA=Sub-alpine; S=Sagebrush.

All of the species in Table 6 were reviewed and considered as compared to the seven criteria listed below. Some species were not carried forward for detailed analyses because they fall into one of the seven categories below and implementation of the project is anticipated to have ‘No Impact’ to the species:

1) Habitat is completely absent or lacks vital components inside areas of activity, making it unsuitable for occupancy or use by the species in question.
2) The type or intensity of the activity in the proposed action is expected to have no impact/effect on these species or their habitat.
3) The action area is located outside the species' current known geographic or elevation range.
4) Proposed activity or disruption effects would occur outside of an animal's seasonal occupancy of otherwise suitable habitat.
5) The associated project design or mitigations eliminate any potential for impact to the species.
6) Considering the territory or home range size for this animal in comparison to the area extent of the habitat affected by the proposed action, no measurable change can be ascertained at the landscape level.
Based on the consideration of habitat and occurrence potential, the only species carried forward for further analysis to determine potential effects from the proposed project include grizzly bear, wolf, elk, and migratory birds.

**Affected Environment**

The historic Cherry Creek Road #206 has been in place for over 100 years and provides access for the public on NFS lands. The road closely parallels Cherry Creek and contains areas of erosion and resource damage within the associated riparian area. The location of FS Road #206 along a riparian corridor and subsequent periodic flood events, and private property concerns, necessitate that the Forest Service change the road location.

The Derby Mountain fire in 2006 burned approximately 200,000 acres adjacent and within the proposed project area in the Cherry Creek drainage, as well as large portions of Upper and Lower Deer Creek drainages. Fire activity and intensity varied considerably leaving numerous small patches of burned and unburned timber and grasslands. The proposed road realignment would occur mainly in open bunchgrass hillside vegetation that on a dry, rocky ridge that has recovered well from the fire since 2006.

Vegetation along the proposed new road #421 consists of dry habitat trees (Ponderosa, Lodgepole, and Limber Pine). Sagebrush is regenerating from the Derby Mountain fire (2006). The ridge tops contained creeping juniper and sage, while the draws contained a mixture of chokecherry, ninebark, and snowberry. Grasses consisted of bunch grasses (Idaho fescue and bluebunch wheatgrass). Cheatgrass was also well represented. Dry site phlox, pussytoes and cactus were growing along the ridgeline, and the “shoulders” of the ridge contained additional grasses intermixed with arnica, lupine, balsamroot and bitterroot.

The project occurs in elk winter range and mule deer summer range. There are no records in the NRIS Wildlife Database for threatened, endangered, proposed, or R1 sensitive species observations, however there have been unverified reports of grizzly bear seen in the surrounding Deer Creek areas. There were no occurrences of threatened, endangered, or sensitive species, nor observations or sign documented during field reconnaissance surveys for this project.

**Grizzly Bear**

The grizzly bear was listed as a threatened species under the ESA in the lower 48 states in 1975 (40 Fed. Reg. 1975:31736). The Grizzly Bear Recovery Plan (USDI 1993) delineated grizzly bear recovery zones in six mountainous ecosystems in the US, including the Greater Yellowstone Area (GYA). The GYA grizzly bear recovery zone covers parts of Montana, Idaho and Wyoming, and includes portions of six national forests (including the Gallatin), two national parks, state and private lands, and lands managed by the BLM. Grizzly bears also frequently use areas outside the designated recovery zone.

The GYA grizzly bear population met stated recovery objectives, and was petitioned for delisting by the US Fish and Wildlife Service (FWS) in 2005. A Final Rule designating GYA grizzlies as a Distinct Population Segment and removing this segment from the list of threatened and endangered species was published in March 2007. However, a court order vacated the delisting and remanded the decision back to the FWS. Therefore, as of the date of the court decision (September 21, 2009) GYA grizzly bears are again listed as threatened under the ESA (USDI 2010).

There is no critical habitat designation for grizzly bears in the GYA. Overall, general habitat conditions in the GYA are excellent. Within the recovery zone, there are large blocks of undisturbed and secure habitat, with low open road and total motorized access route densities in the majority of the Bear Management Subunits. On the Gallatin National Forest outside
the recovery zone, approximately 43% of the area within the distribution zone for grizzly bears is in designated Wilderness, Wilderness Study Areas, or is terrain-limited for motorized access.

The West Deer Creek Road Realignment project area is located outside the grizzly bear recovery zone, and outside the known distribution area for grizzlies (Schwartz et al. 2006). However, the USFWS has determined that the species may be present on the Gallatin National Forest south of Interstate 90, and the project is located south of I-90.

The Interagency Grizzly Bear Study Team (IGBST) uses ‘bear analysis units’ (BAUs) to monitor changes in secure habitat outside of the recovery zone. The West Deer Creek Road Realignment project is within the Boulder BAU. The Boulder BAU is approximately 278 mi². The proportion of the BAU that is secure is 69.9% and percent of Total Motorized Access Road Density (TMARD) is 11.52%.

As stated in the BO for the Gallatin National Forest Travel Plan (USDI 2006), loss and fragmentation of habitat is particularly relevant to grizzly bear survival, and the BO refers to the importance of areas of secure habitat and linkage zones between them. Mortality is also discussed, and the impacts of human-caused mortality are summarized. Refer to pp. 7-15 in the Biological Opinion on the Effects of the Gallatin National Forest Travel Plan on Grizzly Bears (USDI 2006) for a full discussion of the grizzly bear, its life history, status, distribution, and ecology.

**Gray Wolf**

On the Gallatin Forest, gray wolves were recently protected as threatened species under the Endangered Species Act (ESA). Wolves were removed from the threatened species list (delisted) in March 2008. In July 2008, a preliminary injunction was granted against the US Fish and Wildlife Service’s decision to designate and delist the northern Rocky Mountain gray wolf population segment under the ESA. The limited preliminary relief reinstated ESA protection for the wolf. In April 2011, President Obama signed legislation that directed the Secretary of Interior to reissue enactment of the final rule that removed from the list of Endangered and Threatened Wildlife, the Northern Rocky Mountain Distinct Population Segment of gray wolf. This action became effective on May 5, 2011 (Federal Register, Vol. 76, No. 87, 2011). Following the delisting of a species under the ESA, the species is placed on the Region 1, Regional Forester’s Sensitive Species List.

The Gallatin Forest Plan currently contains no specific direction for managing gray wolves or their habitat; however, there is a forest-wide standard to manage essential habitat so as to maintain sensitive species (USDA 1987:II-18).

There are no wolf territories, dens or rendezvous sites in or near the project area. The nearest known wolf pack is the Boone Mountain territory on the south side of I-90 southwest of Big Timber, MT, approximately 10-15 miles east of the project area. According to Abby Nelson (personal communication), Montana Fish, Wildlife, and Parks Wolf Management Specialist, this pack has broken up and is no longer considered a viable reproducing pack. Wolves pass through the Cherry Creek drainage on occasion, but do not regularly inhabit the project area. The surrounding area provides suitable habitat for wolf prey species such as big game animals. The most abundant big game animal found within and adjacent to the project area is elk.

**Elk**

In the Montana State Elk Plan (2004), the elk occupying the West Deer Creek Road Realignment project area are considered part of the Absaroka Elk Management Unit (EMU)
and part of the smaller Hunting District (HD) 560. The distinct herd unit that has established summer and winter range areas near the project area is the Elk Creek/Deer Creek herd. According to Justin Paugh, Montana Fish, Wildlife, and Parks Region 5 Area Biologist (Paugh 2013), the Deer Creeks/Elk Creek elk population trend data for 1981-2013 indicates an all-time high in numbers. The population objective for this herd unit is 100 elk; the 2013 count was 155.

Elk use has increased on National Forest lands in Cherry Creek, the West Fork of Upper Deer Creek as well as the Castle Butte area in recent years. The Derby Mountain fire of 2006 burned large portions of Upper and Lower Deer Creek drainages as well as most of the Cherry Creek drainage. Changes in forage and cover conditions may be resulting in a redistribution of elk in this area. Some elk may winter in the project area, depending on annual climactic conditions.

The Cherry Creek NFS road access was closed before the 2009 hunting season and very little hunter harvest occurred from this herd that year. In 2010, the area was reopened to foot and horseback hunters and remained open through the 2012 hunting season. Hunters using this access reported high success on elk, and reported elk to be using National Forest Lands around Castle Butte and Black Butte throughout the hunting season. The reduced motorized access to this area seemed to keep elk on public lands during the season where they are accessible to hunters who are willing to hike or horseback into the area (Paugh 2013).

**Migratory Birds**

Migratory birds are a diverse group including raptors, waterfowl, shore birds, game birds, and songbirds utilizing a vast array of habitats for nesting and foraging. Riparian areas such as streamside habitats, wet meadows, seeps, and springs are used as foraging sites, nesting habitat, and cover. Riparian areas are considered the most biologically diverse ecosystem and therefore support virtually all bird species during some portion of the life cycle. Bird species richness and diversity are higher in riparian areas than in other habitats.

**Wildlife Effects Analysis**

The species carried forward for wildlife analysis to determine potential effects from the proposed project include grizzly bear, wolf, elk, and migratory birds.

**Direct and Indirect Effects for Alternative 1 (No Action)**

**Grizzly Bear**

In general, grizzly bears avoid human activities, and displacement of bears away from humans may cause them to avoid otherwise suitable habitats. Such displacement has been shown to reduce their fitness or even affect survival in some cases.

With Alternative 1 (no action), there would be no additional disturbance other than what already exists with non-motorized or occasional administrative access. Table 7 shows the results of the Access Model runs for current conditions based on the Forest GIS road layer.

**Table 7-Model Results for the Boulder Bear Analysis Unit Secure Habitat and TMARD**

<table>
<thead>
<tr>
<th>Boulder BAU</th>
<th>Secure Habitat</th>
<th>TMARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Area of BAU = 277.9482 square miles</td>
<td>69.9026%</td>
<td>11.52% (percent of the analysis unit having a road density &gt; 2 mi/ mi²)</td>
</tr>
</tbody>
</table>
The West Deer Creek Road Realignment project is within the Boulder BAU. The Boulder BAU is approximately 278 mi. The proportion of the BAU that is secure is 69.9% and Total Motorized Access Road Density (TMARD) is 11.52%. There would be no changes in OMARD, TMARD, or Secure Habitat with the Alternative 1.

Proper food storage requirements would continue to be enforced in the project area.

**Gray Wolf**

With the Alternative 1 (no action), there would be no direct mortality of gray wolves. There would be no activities associated with road construction and rehabilitation that would increase human presence and operation of heavy machinery, which in turn could result in disturbance to wolves within the project area. Elk would not be displaced and there would be no expected changes in elk/wolf distribution.

Available habitat in the area would remain unchanged for wolves and their primary prey, elk. With the No Action Alternative, there would be no impacts to prey base, potential denning or rendezvous sites; no changes in open road density; and no disturbance or displacement of any individuals is expected.

**Elk**

There would be no change in habitat components or open road density with Alternative 1 (no action). Access to this area for elk hunting purposes is relatively good on National Forest lands even though it is currently non-motorized. The Gallatin Travel Plan analyzed the impacts of the existing Cherry Creek Road #206 as an open motorized route for big game, including elk. The No Action alternative would not alter that prior designation.

With Alternative 1, there would be no disturbance or displacement of elk other than that which currently occurs. The Gallatin Travel Plan programmatic direction Guidelines for wildlife (H-2 and I-1) would be met.

**Migratory Birds**

There would be no habitat modification or disturbance resulting from Alternative 1 (no action). Ongoing impacts from the damaged road and disturbance from vehicles and non-motorized traffic would continue. These effects were analyzed in the Gallatin Travel Plan; the No Action alternative does not alter that prior designation or physical placement.

**Direct and Indirect Effects for Alternative 2 (Proposed Action)**

**Grizzly Bear**

In general, grizzly bears avoid human activities and displacement of bears away from humans may cause them to avoid otherwise suitable habitats. Such displacement has been shown to reduce their fitness or even affect survival in some cases. The existing Cherry Creek Road #206 and spur road would be closed to motorized use and removed from the Gallatin Travel Plan designated route layer. They would be permanently closed and portions would be decommissioned and re-vegetated upon completion of the new West Deer Creek Road #421. The disturbance resulting from both road construction and decommissioning would be short-term in nature (approximately six months maximum). Removal of the existing Cherry Creek Road #206 from the riparian area would actually benefit the grizzly bear.

Table 8 displays the results of the Access Model runs for conditions after project implementation based on the Forest GIS road layer.
The West Deer Creek Road Realignment project is within the Boulder BAU. The Boulder BAU is approximately 278 mi² which would not be affected by project implementation. The proportion of the BAU that is secure would increase slightly by 0.0017% and Total Motorized Access Road Density (TMARD) would decrease slightly by 0.04%. There would be only slight measurable changes in OMARD, TMARD, or Secure Habitat with the Proposed Action alternative resulting in a slight increase in the amount of secure and a decrease in TMARD.

There are no standards or management direction for grizzly bears within the project area. This motorized route corridor was analyzed in the Gallatin Travel Plan and the proposed realignment would not increase access above that which was already provided. However, the removal of the existing Cherry Creek Road #206 from the riparian area is consistent with management direction for MA7 from the Gallatin Forest Plan.

The project would include seeding disturbed areas with native vegetation seed to rehabilitate closed road sections that are vulnerable to erosion. Roadside areas and disturbed portions of the old road bed would be planted with a mix of native grass and forb species. While the planted areas may contain some forage species for grizzly bears, they are not highly desirable species that would be expected to attract grizzly bears, and would occur in areas bears would tend to avoid due to proximity to roads.

Alternative 2 (proposed action) would have no effect on important habitat features such as army cutworm moth sites, cutthroat trout spawning streams, or whitebark pine stands, since none of these features are present in the project area. The project area contains elk winter range, so the Proposed Action alternative would likely have some short-term effects on the availability of ungulate meat as a food source for grizzly bears due to the temporary disturbances from project activity.

Proper food storage requirements would be enforced for all activities associated with Alternative 2. Food and attractants would be properly stored when not being transported or used.

**Gray Wolf**

Gray wolves may be affected by a variety of human activities that cause disturbance or alter habitat. Noise and human presence associated with road construction and decommissioning activities associated with the proposed West Deer Creek Road Realignment project could cause temporary disturbance and/or displacement of gray wolves and/or their prey species from the project area.

No direct mortality of gray wolves is expected from implementation of Alternative 2 (proposed action). Activities associated with road construction and reclamation would include increased human presence and operation of heavy machinery. This could result in disturbance to wolves within the project area. It is expected that wolves would relocate to nearby undisturbed habitat and resume their normal behavior. Elk could be temporarily displaced by human presence and equipment operation during project implementation which in turn could affect wolf distribution. However, displacement would only be short-term...
during the road realignment activities, and should have no lasting effect on elk/wolf distribution.

Wolves do not regularly inhabit the project area, but may pass through on occasion. Since there are no den or rendezvous sites in the area, any disturbance effects from project activities would be limited to temporary displacement of transient wolves or prey species. Project related effects would be minor for the gray wolf.

Elk

Under Alternative 2 (proposed action), habitat would remain available for elk. Elk use would likely continue to increase on NFS lands in Cherry Creek, the West Fork of Upper Deer Creek as well as the Castle Butte area, mostly due to lingering effects of the Derby Mountain fire of 2006.

The project area contains elk winter range. Alternative 2 would have some short-term effects due to the temporary disturbance from project activity if any elk are wintering in the project area. The Gallatin Travel Plan programmatic direction Guidelines for wildlife (H-2) would be met. The Gallatin Travel Plan analysis considered big game winter range in the location of the designated corridor; this realignment would not substantially change effects that were previously analyzed. However, Guideline I-1 would not be met. Disturbance may take place while elk could still be on winter range and during calving season, which may cause stress and adversely affect their reproductive success. These effects would be temporary for the year of project implementation.

Road density would remain virtually unchanged (but slightly less) since the existing Cherry Creek Road would be closed and the length of the new West Deer Creek Road #421 is less than the total to be closed. Also, refer to the grizzly bear effects above.

Migratory Birds

There would be some minor direct effects of habitat modification and disturbance resulting from the construction of this road. While the road corridor was analyzed as a motorized route in the Gallatin Travel Plan, the presence of the road in the riparian area most likely has some negative impact on the bird species richness and diversity. The closure of the old road #206 would provide a slight benefit to migratory birds due to the removal of a road within a riparian area. The removal of the road in the riparian area to the new location that is on a dry, rocky ridge would allow full representation of bird species richness and diversity. This is consistent with the management direction in MA7 of the Gallatin Forest Plan.

Summary of Effects to Wildlife Species

Table 9 summarizes the determination of effects for the various wildlife species analyzed for Alternative 2 and provides a brief rationale for this determination. Alternative 1 (no action) is not addressed in this table because it would not generate any additional effects than what already occur.

The Cherry Creek Road has been in existence since the 1890s and maintaining this public road access by relocation of a portion of the road and changing its name to West Deer Creek Road #421 would have minimal, if any, effects to federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, sensitive species designated by the Regional Forester, Management Indicator Species, and/or migratory birds.
Table 9 – Effects Determination and Rationale by Species for Alternative 2

<table>
<thead>
<tr>
<th>Wildlife Species</th>
<th>Alternative 2-Determination and Rationale</th>
</tr>
</thead>
</table>
| Grizzly Bear (threatened)              | NL AA  
|                                        | There is no direction for grizzly bear in the project area. Regardless, the amount of secure habitat and TMARD improve with the Proposed Action alternative. The Proposed Action alternative meets the Gallatin Travel Plan direction. |
| Lynx (threatened) and Lynx Critical Habitat | NE, NE  
|                                        | The project occurs outside of designated critical habitat, modeled lynx habitat, and designated lynx LAUs. |
| Wolverine                              | NLJ  
|                                        | The implementation of the West Deer Creek project is not likely to jeopardize the continued existence of wolverines as the proposed project would occur outside of wolverine habitat and below the elevation range suitable for this species. It is noteworthy that the FWS in their proposals have concluded that other human activities in wolverine habitat either do not negatively affect the species, or occur at such a small scale and individual level as to not represent a substantial threat to the wolverine. Therefore, the FWS indicated there should be relatively few and rare situations on the forests that should rise to the level of needing conferencing with them on concerns for the wolverine. Wolverines are unlikely to be affected by proposed road realignment activities. |
| Sensitive2                              | NI  
|                                        | Minimal suitable nesting and foraging habitat available within the project area; little to none of this would be affected site specifically. Temporary disturbance from human/machine activity would produce immeasurable impacts associated with Proposed Action alternative. |
| Black-backed Woodpecker                | NI  
|                                        | Lack of suitable habitat                                                                                   |
| Peregrine Falcon                       | NI  
|                                        | Lack of suitable habitat                                                                                   |
| Gray Wolf                              | MIIH  
|                                        | Wolves and prey present in project area; minor impact only due to temporary disturbance from human/machine activity associated with Proposed Action alternative. |
| Bald Eagle                             | NI  
|                                        | Lack of suitable nesting or foraging habitat                                                               |
| Flammulated Owl                        | NI  
|                                        | Lack of suitable habitat                                                                                   |
| Harlequin Duck                         | NI  
|                                        | Lack of suitable habitat                                                                                   |
| Trumpeter Swan                         | NI  
|                                        | Lack of suitable habitat                                                                                   |
| Bighorn Sheep                          | NI  
|                                        | Lack of suitable habitat                                                                                   |
| Townsend’s big-eared bat               | NI  
|                                        | Lack of suitable habitat                                                                                   |
| MIS3                                   | - (Negative)  
|                                        | The Proposed Action alternative would have some short-term effects due to the temporary disturbance from project activity if any elk are wintering in the project area. The Gallatin Travel Plan |
Critical Habitat (1) No Effect; (2) May

- **Wildlife Species** | **Alternative 2-Determination and Rationale**
--- | ---
| programmatic direction Guidelines I-1 would not be met. Disturbance would take place while elk may still be on winter range and during calving season which may cause stress and adversely affect their reproductive success. This would be temporary for one year. However, road density would remain virtually unchanged (but slightly less than the current situation.

- **Marten**
  - 0 (Neutral)
  - The pine marten is an indicator for mesic old growth habitat consisting of spruce/ fir forest types. The proposed West Deer Road Realignment project would not affect the quality or structure of mature to old growth forest available to marten.

- **Northern Goshawk**
  - 0 (Neutral)
  - Suitable habitat for goshawk does not occur within the immediate project area where the new road construction and decommissioning would occur due to the Derby Mountain fire.

- **Migratory Birds**
  - + (Positive)
  - The Derby Mountain fire of 2006 changed the habitat available for songbirds. Birds using the burned snags created by stand replacing fire have shifted to those species assemblages adapted or impervious to fire. Similarly, birds using open grasslands and rocky ridges may also be present in the mosaic pattern of habitat available. The proposed project is not expected to alter habitats to any measurable degree. Birds associated with the riparian area adjacent to the old road #206 to be removed may benefit from the road closure. With the closure of the road #206 which is along a riparian corridor and areas of unburned forest, migratory birds may benefit slightly.

Options in determination of effects for threatened Grizzly Bear, Canada Lynx, and Lynx Critical Habitat: (1) No Effect; (2) May Effect - Likely To Adversely Affect (NLAA); (3) May Effect - Not Likely To Adversely Affect (LAA); (4) Beneficial Effect and for proposed wolverine (1) No Effect; (2) Not Likely To Jeopardize The Continued Existence Of The Species Or Result In Destruction Or Adverse Modification Of Proposed Critical Habitat; (3) Likely To Jeopardize The Continued Existence Of The Species Or Result In Destruction Or Adverse Modification Of Proposed Critical Habitat.

Options in determination of effects for sensitive species: (1) No impact; (2) MIH - May impact individuals or habitat, but is not likely to cause a trend to Federal listing or loss of viability; (3) Likely to result in a trend to Federal listing or loss of viability; and (4) Beneficial impact. There would be "no impact" to sensitive species determined to be absent from the project area.

Description of Effect for MIS and Migratory Birds: + = Positive, 0 = Neutral, - = Negative

### Cumulative Effects for Both Alternatives

For those species where the effects were considered minimal or were not considered at all due to lack of potential habitat, the cumulative effects analysis area was not defined and analysis was not conducted. This was because a) the project area does not provide viable habitat, and, therefore, that particular species is not expected to be present or b) the project would not adversely modify habitat to an unsuitable condition or cause detrimental disturbance to that species to any measurable degree. Therefore, no cumulative effects are anticipated.

Past, ongoing, and reasonably foreseeable activities considered for cumulative effects include:

- **Ongoing road maintenance** – Any road maintenance activities are very site specific and short term in nature as to not contribute any cumulative effects.
- **2006 Travel Plan Implementation** – The effects of the Gallatin Travel Plan was considered as part of the analysis of direct and indirect effects.
- **Range Allotment** – There may be some livestock present on the allotment during the time period that the project activities are occurring, however timing and range management flexibility in the current grazing permit would minimize any
potential effects. Any dead livestock carcasses would serve as an attractant to grizzly bears, however, grazing permittees are responsible for notifying the Forest Service and moving the carcass if determined to pose a safety threat to the public.

- Sweet Grass Restoration & Resiliency Project – This project is in the planning stage and would not be implemented until well after this project activity ceases.
- 2006 Derby Fire – The effects of the Derby Fire were considered to be part of the affected environment for wildlife species potential habitat and occurrence.
- 2011 spring flood event - The effects of this flood event were considered to be part of the affected environment for wildlife species potential habitat and occurrence.

After consideration of the above-described actions, it was determined that none of these activities overlap with the proposed action in space and time, therefore there would not be any cumulative effects associated with either alternative.

This project occurs over both private and public land. The new access route would cross the adjacent private parcel in order to access NFS lands. There are no other reasonably foreseeable future activities on the private parcel that would be expected to have cumulative impacts to grizzly bears or any other wildlife species.

Compliance with Applicable Laws, Regulation and Forest Plan Guidance

National Forest Management Act
The National Forest Management Act (NFMA) requires that Forest plans "preserve and enhance the diversity of plant and animal communities...so that it is at least as great as that which can be expected in the natural forest" (36 CFR 219.27). Furthermore, implementation regulations for the NFMA specify that, "Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area".

The wildlife analysis focused on nine terrestrial species identified as "Sensitive" that are known or suspected to occur on the Gallatin National Forest (USDA 2011). With the implementation of Alternative 2, proposed road construction and reclamation work would have “no impact” on flammulated owl, Townsend big-eared bat, trumpeter swan, harlequin duck, bald eagle, peregrine falcon, bighorn sheep, and black-backed woodpecker. The determination for gray wolf for Alternative 2 would be “may impact individuals or habitat, but would not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species”.

Endangered Species Act
Under Section 7 of the Endangered Species Act, each Federal agency must ensure that any action authorized, funded or carried out is not likely to jeopardize the continued existence of any threatened or endangered species. The project ‘may effect, not likely to adversely affect’ grizzly bear, would have ‘no effect’ on lynx or lynx critical habitat, and is ‘not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat’ of the wolverine.

Forest Plan Standard for Wildlife and Fish, page II-18, section 6.a.12 – Habitat that is essential for species identified in the Sensitive Species list developed for the Northern Region
will be managed to maintain these species. These sensitive species were addressed as part of
the analysis for the proposed road construction and reclamation project.

MA7 has a wildlife standard to “maintain suitable habitats for those species of birds,
mammals, and fish that are totally or partially dependent upon riparian areas for their
existence”. This standard is met with Alternative 2 by closing the riparian segments of the
old Cherry Creek Road #206 as part of the realignment of the designated travel corridor.

Alternative 2 meets the Forest-wide standards for wildlife. Riparian areas were considered in
the development of the road realignment plans within the designated road corridor originally
analyzed in the Gallatin Travel Plan. There is no increase, and in fact a slight decrease in
open road density with the closure of existing Road #206 because the length of the new Road
#421 is less than the total to be closed. Direct and indirect effects to designated sensitive and
Management Indicator Species were considered and the determination made that habitat
would be maintained.

Gallatin Forest Travel Plan Direction

There is applicable Travel Plan direction for wildlife, including species of special
management designation (which includes sensitive species) – Standard D-6, Objective G-1,
Guideline G-2 and Guideline I-1.

- **Standard D-6. Wildlife.** There shall be no increase in public motorized routes within any
travel planning area beyond those identified through this Travel Management Plan
without modifying the Plan in accordance with NEPA. The new road construction and
reclaimed road segments with subsequent changes in the road system proposed for this
project follows this management direction. From the perspective of sensitive terrestrial
wildlife species, the project would be consistent with this Travel Plan direction.

- **Objective G-1. Grizzly Bear.** Provide effective closures on access routes not designated
for motorized use. The existing Cherry Creek Road #206 would be removed from the
Gallatin Travel Plan and no longer be considered designated routes for any motorized
use.

- **Guideline G-2. Species of Special Management Designation.** Any proposed motorized
routes, whether to serve public or administrative needs, should be located to avoid or
mitigate for known occupied habitat such as nesting, denning, roosting or key foraging
areas for species of special management designation. Mitigation measures may include,
but are not limited to: altering route design, timing/volume of use restrictions, temporal
and spatial buffers, and/or route/area closures in similar habitat within the home range
of the species of concern for the duration of use of the newly designated route. The
proposed action is to provide the same amount of public use with the new West Deer
Creek Road #421 as the old Cherry Creek Road #206. The new road #421 would be
slightly shorter than the total of the other route to be closed. The concept of one travel
corridor was explained in the Gallatin Travel Plan and the analysis for all wildlife species
conducted therein.

- **Guideline H-2. Wildlife.** Roads or trails that are constructed for motor vehicle use
should be located such that construction and use do not result in adverse impacts to key
habitats, or should be designed so as to mitigate for adverse effects in areas where
impacts to key habitats cannot be avoided via the route location. Both the new Road
#421 and the existing Road #206 to be closed and reclaimed are located within winter
range for big game (elk). The travel corridor that these routes define was analyzed in the
Gallatin Travel Plan; this realignment would not substantially change that effect already
analyzed.
• **Guideline I-1.** *Wildlife.* Minimize stress factors from human recreation use to species of management concern during calving, fawning, denning and nesting seasons in habitats used for reproduction. Disturbance may occur during calving/fawning season for both elk and deer which may cause stress and adversely affect their reproductive success. This would be temporary in nature and would only affect one reproductive year. Guideline I-1 would not be met.

**Migratory Bird Treaty Act**

On January 10, 2001, President Clinton signed an Executive Order outlining responsibilities of federal agencies to protect migratory birds. On January 17, 2001, the USDA Forest Service and the USDI Fish and Wildlife Service signed a Memorandum of Understanding to complement the Executive Order. The West Deer Creek Road Realignment Project would not result in a loss of migratory bird habitat or be an extirpation threat to any migratory birds.

**B. Sensitive Plants**

Sensitive species are those animal and plant species identified by the Regional Forester for which population viability is a concern as evidenced by a significant current or predicted downward trend in population numbers, density, or in habitat capability that will reduce a species’ existing distribution (FSM 2670.5.19). There are currently nineteen plant species designated by the Regional Forester as sensitive on the Gallatin National Forest. If these plants occur within the project area of influence where ground disturbance would take place, the proposed vegetation disturbance activities could potentially impact sensitive species populations.

**Analysis Methodology**

Impacts to sensitive plant species were evaluated by first screening whether suitable habitat exists within the immediate project area. If sensitive plant populations are found within proposed treatment areas, effects to these populations would be measured by the type and amount of ground disturbance being proposed and the amount of suitable adjacent habitat that would be disturbed.

Sensitive plant surveys were conducted in the project area where the Forest System new road segment (1.64 miles on NFS lands) would be constructed to connect to the existing Cherry Creek road and the portions of the existing road to be reclaimed. The survey took place along the entire length of the newly located route, which had been identified on the ground by a Forest Service survey crew. The June 26, 2013 survey date was the appropriate time to survey for potential sensitive species in this portion of the Gallatin National Forest. Plant phenology was blooming with some seed production.

**Spatial Scale:** The spatial boundary for sensitive plant analysis is the ground disturbing treatment areas associated with the project proposal. This includes the new road segment to be constructed and the portions of the existing road segment to be reclaimed.

**Temporal Scale:** The temporal boundary for sensitive plant analysis is 10 years or the amount of time it would take vegetation to become re-established on disturbed areas.

**Affected Environment**

Table 10 lists those nineteen plant species that are currently listed as sensitive on the Gallatin National Forest. Very few sensitive plants have been found in other surveys in the Absaroka Mountains. It was determined that there is potential habitat for two of the listed species in the project area: Large-leaf Balsamroot (*Balsamorhiza macrophylla*) and Austin’s Knotweed.
(Polygonum doublasii spp. Austinae). These species were targeted during the June 2013 field surveys. The elevational range for the project area is 4950 to 5050 feet, which was slightly low for the balsamroot but other requisite habitat features were found in the project area...

Table 10- Sensitive Plant Species for the Gallatin National Forest

<table>
<thead>
<tr>
<th>Plants</th>
<th>Habitat</th>
<th>Elevation (in feet)</th>
<th>Potential Habitat Available?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musk root Adoxa moschatellina</td>
<td>forest, moist mossy slopes, rock crevices</td>
<td>4,400-5,400</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>Small flowered columbine Aquilegia brevistyla</td>
<td>open woods and streambanks, limestone sites, northern aspect</td>
<td>5,000-6,000</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>Large leafed balsamroot Balsamorhiza macrophylla</td>
<td>open hills, bunch grass</td>
<td>7,000-8,500</td>
<td>Yes - Project area is lower than the elevational range, however requisite habitat features were identified.</td>
</tr>
<tr>
<td>Small yellow lady’s slipper Cyoripedium calceolus ver. Parviflorum</td>
<td>Bogs, damp mossy woods, seeps, moist forest meadow ecotones</td>
<td>3,000-6,200</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>Giant hellborne Epipactis gigantea</td>
<td>Thermal or Perennial springs, boggy organ fens</td>
<td>2,000-5,750</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>English sundew Drosera anglica</td>
<td>Bogs</td>
<td>3,000-9,000</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>Beaked spikerush Eleocharis rostellata</td>
<td>Bogs</td>
<td>2,700-6,100</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>Slender cottongrass Eriophorum gracile</td>
<td>Peatland (fen) species</td>
<td>3,000-7,600</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>Hiker’s gentian Gentianopsis simplex</td>
<td>Mountain bogs, meadows, seeps</td>
<td>4,400-8,400</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>N. rattlesnake plantain Goodyera repens</td>
<td>Open mossy forests, mountains, limestone, shale</td>
<td>5,700-6,800</td>
<td>No – Requisite habitat features not found in project area.</td>
</tr>
<tr>
<td>Discoid goldenweed Haplopappus macronema</td>
<td>Rocky, open or sparsely wooded slopes, talus, above timberline</td>
<td>7,640 +</td>
<td>No – Neither elevation nor requisite habitat features found in project area.</td>
</tr>
<tr>
<td>Hall’s rush Juncus hallii</td>
<td>Moist to dry meadows and slopes, montane</td>
<td>6,900-8,400</td>
<td>No - Neither elevation nor requisite habitat features found in project area.</td>
</tr>
</tbody>
</table>
The majority of the surveyed area includes a dry, rocky ridge. The new route dropped off the eastern side of the ridge and crossed some minor draws as it climbed. Vegetation consisted of dry habitat trees (Ponderosa, Lodgepole and Limber Pine). Sagebrush was beginning to regenerate after the Derby Fire (2006). Shrubs varied according to placement along the route. The ridge tops contained creeping juniper and sage, while the draws contained a mixture of chokecherry, ninebark, and snowberry. A population of leafy spurge was identified, with lesser amounts of hounds tongue and giant mullein. Grasses consisted of bunch grasses (Idaho fescue and bluebunch wheatgrass). Cheatgrass was also well represented. Forb growth was dependent on aspect and placement. Dry sight phlox, pussytoes and cactus were growing along the ridgeline, and the “shoulders” of the ridge contained additional grasses intermixed with arnica, lupine, cleft-leaf balsamroot and bitterroot.

No species listed on the Gallatin National Forest Sensitive Plant List were found during the field surveys for the project. The elevation is slightly low for the balsamroot. There was a fair amount of bare and thin soils. The elevation for the knotweed was only slightly high. The surveyors do
not feel that they would have missed either of these species due to plant phenology. Both have a leaf structure that is readily identifiable without flowers.

Effects Analysis

Direct/Indirect Effects for Both Alternatives

Alternative 1-No action; Alternative 2-Proposed Action

Impacts to sensitive plant species were first evaluated by assessing whether suitable habitat exists within the immediate project area to be affected. Surveys in the project area were conducted and reviewed to determine presence. No sensitive plants were found in any of the areas proposed for treatment. Mitigation designed for this project states “In the event that sensitive plant species are found in any affected area, measures would be taken to protect or avoid them” and that “Any necessary herbicide applications would comply with guidelines described in the Gallatin National Forest Noxious and Invasive Weed Treatment Final Environmental Impact Statement and Record of Decision (USDA 2005) and would maintain a 100-foot buffer around any identified sensitive plant populations”. Thus, it is reasonable to conclude that activities associated with road construction and reclamation of portions of existing road segments would not result in detrimental effects to sensitive plant species or its habitat. There would be “no impact” to any sensitive plant species suspected or known to occur on the Gallatin National Forest and this issue will not be further addressed.

Cumulative Effects for Both Alternatives

Alternative 1-No action; Alternative 2-Proposed Action

Past, Present, and Future activities that could potentially have cumulative effects to sensitive plant populations are those that contain some type of vegetation disturbance and include:

- Ongoing road maintenance- Could create some small areas of ground disturbance
- 2006 Derby Fire-Some vegetation is still recovering from the effects of this fire
- 2011 spring flood event-Some low-lying areas within the project area still contain areas of ground disturbance that has not yet revegetated.

However, because there are no direct/indirect effects to sensitive plant species associated with project activities related to either alternative, it is not likely there would be any cumulative effects when combined with other past, present, and/or reasonably foreseeable activities in the project area.

Compliance with Applicable Laws, Regulation and Forest Plan Guidance

National Forest Management Act of 1976 (NFMA)

The National Forest Management Act (NFMA) of 1976 requires that the US Forest Service maintain sufficient habitat to sustain viable populations of native species. Protection of sensitive species and their habitats is a response to the mandate of the National Forest Management Act (NFMA) to maintain viable populations of all native and desired non-native vertebrate species (36 CFR 219.19).

In accordance with the 1987 Gallatin Forest Plan, a biological evaluation (BE) must be completed prior to implementation of activities that have the potential to affect sensitive species. As part of Forest Service Region 1 streamlining policy (August 17, 1995), the FS is no longer required to produce a "stand alone" biological evaluation for sensitive species. Effects of the proposal to sensitive species are therefore disclosed in this section of the EA. Both of the alternatives would comply with NFMA requirements as the area of ground disturbance.
disturbance associated with either alternative is minimal and no sensitive plant populations were found in the project area.

**Forest Service Manual (FSM 2680)**

Forest Service Manual (FSM 2670) provides policy under which Forest Service projects are designed to maintain viable populations of sensitive species and to ensure that those species do not become threatened or endangered due to Forest Service actions. As part of the National Environmental Policy Act (NEPA) decision-making process, proposed Forest Service programs or activities are to be reviewed to determine how an action would affect any sensitive species (FSM 2670.32). The goal of the analysis should be to avoid or minimize impacts to sensitive species.

The project area was surveyed at the appropriate time of year for sensitive plant populations and none were found. Mitigation is a part of project design that would protect and/or avoid sensitive plant populations if they are found during project implementation.

**C. Soils**

Ground disturbing activities associated with the construction of approximately 1.64 miles of new road to replace the existing Cherry Creek Road #206, and the closure/rehabilitation of portions of the existing road have the potential to have effects to soil resources.

**Analysis Methodology**

The preliminary soil and land resource assessment for the proposed West Deer Creek Road Realignment was made based on a review of the available, map-based, resource information for the area. Resources consulted included: 1:24,000 topographic maps (Mceod and Ross Canyon Quads), USGS geology maps (Geologic Maps of the Livingston and Big Timber 30’ x 60’ Quadrangles), the Soil Survey of the Gallatin National Forest (199?), and 2005 color (resource inventory) aerial photography. Information gained from these sources provided a start towards interpreting relationships between topography, geologic parent materials, soil resources, and the patterns of vegetation along the proposed road construction route.

A field assessment was completed by the Forest soils scientist along the proposed realignment route. This route had been flagged on the ground, starting from the end of the new road being constructed across private land to reach the Forest boundary. The entire realignment route was reviewed, including the new road access crossing private land, up the point above where the proposed new road corridor drops off of the ridge top to join up with the existing Cherry Creek Road. The purpose of the field assessment was to get oriented to local landforms and note how changes in geology or landscape attributes were being reflected in plant communities along the proposed route. The level of pre-existing ground disturbance was also noted. The soil scientist also sampled several shallow soil pits to verify shallow and very shallow soil depths prevalent along ridge top and side slope areas and obtaining photo documentation of relevant soil-landscape relationships.

The existing road along Cherry Creek on Forest Service that would be closed and rehabilitated was also reviewed. This road corridor would be reclaimed back to a more natural, undisturbed condition and would be further reviewed for potential impacts to soils once the final reclamation plan is complete. A detailed soils assessment cannot be fully quantified for that portion the project until the final reclamation plan has been submitted; however, it is safe to assume based on best professional judgment, that the level of detrimental soil disturbance after restoration is completed would be less than current levels along the existing Cherry Creek route.
Spatial Scale: The spatial area for direct and indirect effects to soil resources is the corridor extending 250 feet out from the centerline on both sides of the newly constructed road. The road itself would be a FS system road. As such, FS system roads are not included as detrimental soil disturbance (DSD) with respect to the Region One maximum DSD standard. Thus, the road itself would be exempt from any consideration of total DSD levels. Associated disturbances, however, that occur outside the immediate road corridor that are created during construction or as a result of related activities such as off-road use of areas adjacent to the road, would be subject to the DSD criteria and standard. This standard would be applied for both a 100 foot corridor on either side of the road and a 250 foot corridor.

The spatial area for cumulative effects to soil resources were applied on a landscape scale so that cumulative effects along the first stretch of road past the private land were assessed for the entire hillslope, for the second stretch of road at the entire depositional swale area, and for ridgetop areas, the entire ridgetop for the length of newly constructed road.

Temporal Scale: The soils effects analysis extends out 50 years, as the newly constructed system road would be a permanent part of the Forest Travel Plan infrastructure. Anything beyond 50 years out is likely too far out to make reasonable projections.

Affected Environment

The full length of the proposed road re-alignment on NFS land is situated on a large, andesitic, lava flow. These rock types are very hard and have an overall coarse grain size, resulting in coarse textured soils with abundant rock fragments. Guidance provided in the Gallatin Forest Plan states that, “The Forest Soil Survey will be incorporated into resource area analysis; however, in this case, the Forest Soil Survey was of little use for this project area because it is not accurate or site specific enough.

Soils information provided in this analysis is based primarily on field assessment of the soil-landscape conditions along the proposed road corridor. The assessment factors in the influences of the predominant geologic parent materials, landform and slope position characteristics, site stability, plant community relationships, and local climate influences along with soil sampling at selected locations along the route to characterize predominant soil characteristics on a landscape basis.

The new road being constructed across private land to the Forest boundary ends shortly after re-encountering andesite bedrock at the start of a very steep sideslope. From this point on the proposed NFS new road corridor remains on Forest Service lands. Between the end of the private section and where the road re-connects with the existing Cherry Creek, the road corridor passes across 4 distinct land types. These landtypes include: the very steep sideslope hillslope at the start, a depositional basin/swale area on the other side of the hillslope, the ridge top and associated steep sideslopes along most of the route, and a steep hillslope that the road corridor cuts across on its way down to Cherry Creek at its terminus. All told the proposed new road construction on NFS land is estimated to be approximately 1.64 miles.

Of greatest interest along the proposed road corridor are the soil and vegetation relationships, which can be used to manage soils and vegetation in this area. Limber pine makes up a substantial proportion of the conifer trees along the start of the road through private lands. Soils in this area receive limited precipitation which results in more basic (high pH) soil conditions. With increasing elevation the limber pine gets replaced by Douglas-fir which is also quite tolerant high soil pH levels as well as the presence of shallow bedrock. Clumps of Douglas-fir are often found in the vicinity of rock outcrop areas on shallow or very shallow soils.

In grassland areas along the proposed road corridor, patterns in the vegetation can be used as a reasonably accurate indicator of soil depth. The deepest soils occur in the footslope/swale area
(road segment #2). This area supports almost exclusively grass species. Douglas-fir cannot compete with the perennial grasses on this site.

Further to the south, shallow soils along the ridgetop (road segment #3) support grassland communities comprised primarily of bluebunch wheatgrass, big sagebrush, and cheatgrass, along with areas of open grown Douglas-fir. The shallowest soils (2 to 8 inches deep over hard volcanic bedrock) tend to support bluebunch wheatgrass with very few annual species, growing between the bluebunch plants. With increasing soil depth, the amount of annual species, especially cheatgrass, increases so that shallow soils (8 to 20 inches deep over hard volcanic bedrock) have bluebunch wheatgrass growing on them with plenty of annual species. Big sage is commonly present but its growth appears stunted due to the limited soil depth.

Areas of sediment deposition in swales or otherwise concave slope positions have the deepest soil depths and are found on ridgetop areas along the proposed road corridor. These soils are likely moderately deep (20 to 40 inches) over hard andesite bedrock. They support bluebunch wheatgrass with larger, more robust big sagebrush but also have lush stands of cheatgrass that blanket the ground surface between individual bluebunch wheatgrass and big sagebrush plants.

Understanding the soil/vegetation relationships can be helpful in making adjustments to the final road corridor from a cut and fill perspective, if necessary. They can also be used in planning the revegetation of disturbed areas outside the actual constructed roadway. More importantly, they are critical to understanding vegetative response to management actions, such as weed control activities and in predicting landscape response to soil disturbance.

Direct and Indirect Effects for Alternative 1 (No Action)

With Alternative 1, no action would be taken to relocate the existing Cherry Creek Road. There would be no direct effects on soil resources within the area of the proposed road realignment. Current level low levels of soil disturbance in this area would be expected to remain much the same as current conditions. Public access would be limited in the area. Indirect effects on the soil resource would likely be as a result of increased weed infestations on lands where Forest Service administrative access would likely continue to be restricted, thereby limiting ongoing weed control activities on Forest Service Lands.

Reclamation activities on the damaged portions of the existing Cherry Creek Road may occur at some point in time; however, they would not be a priority for treatment in the short term and access would be difficult for any future reclamation activities.

Direct and Indirect Effects for Alternative 2 (Proposed Action)

The proposed new road construction activities associated with Alternative 2 would have very little direct impact to soil resources, provided disturbance associated with road construction is limited to the immediate area of the road corridor. The roadway would be an NFS system road, which is exempt from the Region 1 detrimental soil disturbance standards. Additional disturbances off of the immediate road corridor should be avoided, to the extent possible, especially in areas of shallow and very shallow soils. Soils in these areas can be readily degraded by disturbance that would be difficult to remediate due to limited available soil resources. This type of disturbance would likely remain visible for a very long time. Project activities would likely have potential to create more soil disturbance in areas of deep soils, but these soils are more resilient to the impacts of disturbance (provided the area is not steeply sloping) and can be much more readily reclaimed.

A detailed soils assessment can’t be fully quantified for the road closure/reclamation portion the project until the final reclamation plan has been submitted; however, it is safe to assume based on
best professional judgment, that the level of detrimental soil disturbance after restoration is completed would be less than the current levels along the existing Cherry Creek route.

The greatest threat to soil resources from the project activities is not from direct impacts during road construction, but from indirect effects that could potentially occur as a result of increased public road access along this route. Off-road disturbances in this area would likely result in additional weed infestations, which in turn degrade the soil resource; however on the flipside, this same road access would improve the Forest’s ability to conduct weed control activities in this area.

Cumulative Effects for Alternative 1 (No Action)

Activities that could potentially have cumulative effects to the soil resource associated with Alternative 1 (No Action) include:

- **Ongoing road maintenance** — Ongoing road maintenance would have minimal effects on soil resources because the Cherry Creek Road would remain inaccessible to motorized use and would not be maintained. It is expected that restoration activities on the severely damaged portions of road would likely be conducted at some future point in time, but not in the near term, and may be reduced due to limited budget and access.

- **West Deer Creek Range Allotment (Cherry Creek Pasture)**: — Access by Forest Service personnel to this portion of the range allotment could be restricted, thereby, limiting potential management options in the event of soil resource damage associated with the range allotment, so some minor cumulative effects are possible.

- **2011 Spring Flood Event** — Restricted Forest Service access to the existing Cherry Creek Road #206 could limit future restoration actions conducted on Forest Service lands along Cherry Creek as a result of the 2011 spring flood event.

Cumulative Effects for Alternative 2 (Proposed Action)

Activities that could potentially have cumulative effects to the soil resource associated with Alternative 2 (Proposed Action) include:

- **Ongoing road maintenance** — Ongoing road maintenance would have minor, if any, any cumulative effects when combined with the proposed action, as long as ground disturbing activities are limited to the road corridor, including any potential scenic turnouts or parking areas that may be constructed in the future but are not a part of this project.

- **2006 Travel Plan Implementation** — Construction of this alternative road access is a part of the 2006 Travel Plan Implementation decision. Beyond the initial road construction phase, there would no further impacts from the 2006 Travel Plan Implementation on this area.

- **West Deer Creek Range Allotment (Cherry Creek Pasture)**: — Access by Forest Service personnel to this portion of the range allotment would be enhanced, thereby, increasing management options in the event of soil resource damage associated with the range allotment, so some minor positive cumulative effects could be expected.

- **2011 Spring Flood Event**— Some limited positive cumulative effects are possible due to improved Forest Service access to the Cherry Creek area because improved access would allow for additional restoration activities on Forest Service lands along the creek.
Compliance with other Laws, Regulation and other Direction

Multiple Use Sustained Yield Act (1960)

The Multiple-Use, Sustained Yield Act of 1960 (P.L. 86-517 Stat. 215: 16 U.S.C. 528-531) set the stage for current U.S. Forest Service directives aimed at maintaining soil productivity and preserving forest soil health. Within the Multiple Use, Sustained Use Act is the following reference of land and hence soil productivity, “...maintain coordinated management of resources without impairment of the productivity of the land.” In essence, you cannot sustain high levels of output across a wide range natural resource products and uses without protecting soil productivity. Common themes from the Multiple Use Act of multiple-use, sustained yield, and maintaining land productivity run through the National Environmental Policy Act (NEPA) of 1969 (16 U.S.C. 4321), the Forest and Range Renewable Resources Planning Act (RPA) of 1974 (16 U.S.C. 1600-1614), the National Forest Management Act (NFMA) of 1976 and are reaffirmed in various Amendments to the Forest Service Manual, Chapter 2550 - Soil Management. A 2005 Amendment (2550.05) states that “the Forest Service must assure that project activities do not produce substantial and permanent impairment of the productivity of the land (FSM 2550.05). . Project related activities have been designed and mitigated so they would not impair either soil or land productivity.

R-1 Supplement 2500-99-1 to FSM 2500 (1999)

In 1999, the R-1 Supplement 2500-99-1 to FSM 2500 – Watershed and Air Management (Effective 11/12/1999) for Region One provided guidance at the time on how National Forest System Lands in Region 1 should be managed “without permanent impairment of land productivity and to maintain or improve soil quality”. The R-1 Supplement established the Region One standard for not creating “detrimental soil conditions” on more than 15 percent of an activity area and identified what surface soil conditions should be used to identify if and when detrimental soil conditions exist. Specific details with respect to the identification of detrimental soil disturbance on Gallatin National Forest lands are provided in Keck (2010, 2011, and 2012). In addition, the Region 1 Approach to Soils NEPA Analysis Regarding Detrimental Soil Disturbance In: Forested Areas (USFS-R1 2011) came out in March 2011 providing guidance on appropriate field sampling methods to be used for soils NEPA analysis. Appropriate sampling procedures were followed for project analysis and project related activities would not create “detrimental soil conditions” in excess of Region 1 standards.

Gallatin Forest Plan Direction (1987)

The Gallatin National Forest Plan (1987) provides a somewhat limited amount of guidance with respect to soil resources. In the Objectives section, the application of “best management practices” is the only soils related topic identified. Within Forest Standards, item 8.b.c. for Site Preparation and Activity Debris Disposal Standards, the Forest Plan identifies the need to “maintain an adequate nutrient pool for long-term site productivity through the retention of topsoil and soil organisms”. Most of the Forest Plan direction related to soils, however, is found in the Water and Soil Standards section.

Items within this section related to soils are as follows:

- #1 “The Forest Soil Survey will be incorporated into resource area analysis.”
- #2 Best management practices (BMP’s) will be used on all Forest watersheds...
- #3 Requirements for cumulative effects analysis to be conducted for projects involving vegetation removal as well as analysis on how to mitigate any “adverse effects on water related beneficial uses”.

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Draft Environmental Assessment

- #8 “All management practices will be designed or modified as necessary to maintain land productivity and protect beneficial uses.”

Project related activities would be in compliance with all direction and guidance provided in the Gallatin Forest Plan with respect to soil resources.

D. Heritage

Project related ground disturbing activities have the potential to affect heritage sites that occur within the project area.

Analysis Methodology

Prior to any field work being conducted, the Forest archaeologist researched the Heritage Site and Inventory data base to see if there had been previously inventories and if there are any documented sites located in the area. A predictive model of where sites are generally located in the regional local and the Site Inventory Strategy (SIS) were also utilized to determine past use in the project area or similar areas.

After completing the database search and reconstructing possible past use in the area and what could be expected to be found, “field work” was conducted by the Forest archaeologist. This included an intensive on the ground survey of the flagged route for the new road location, looking for historic artifacts and features.

Spatial Scale: The spatial scale for Heritage analysis includes the template of the old road to be reclaimed, and the areas of potential ground disturbance associated with the new road to be constructed. The location for the new road was flagged on the ground by the Forest survey crew. Areas of potential ground disturbance include the 12-14 foot wide roadbed and up to a 40 foot right-of-way on both sides of the road. Therefore, an approximately 100 foot wide strip was surveyed along the entire route for the new road.

Temporal Scale: The timeframe for project analysis consists of the length of time that ground disturbing activities would likely occur in the project area. For this project, it is estimated that construction and reclamation activities could occur for up to one field season.

Affected Environment

Upon completion of the project review process, the Forest archaeologist discovered that two pre-historic sites are located along the “old” or existing road segment that is proposed to be abandoned. This was an indication that there is potential for other pre-historic sites in the area. An intensive, on the ground, survey was conducted in the summer of 2013 along the entire route for the new road, with only a handful of flakes being found (about 5) on private land near the location of the new road to be constructed on National Forest System (NFS) land. This low number of flakes does not constitute a site and no flakes were found on NFS land. There were no other artifacts, features, or sites discovered on the surveyed and flagged road route located on NFS lands for the new road segment or within the road right of way (a 100 foot wide swath) along the entire route for the new road segment.

Direct and Indirect Effects for Alternative 1 (No Action)

With Alternative 1, no action would be taken to relocate the existing Cherry Creek Road. Retaining the existing road in the current location and continuation of motorized use of this section of road, would likely continue to directly and indirectly affect the two heritage sites, (24SW0128 and 24SW0129) located along the existing road. These road segments are located along a riparian draw adjacent to Cherry Creek that is very susceptible to further damage. Potential effects to the two known heritage sites include erosion, exposure of additional artifacts,
and flooding which could wash the site away or expose materials that may increase the chance of looting of the site.

**Direct and Indirect Effects for Alternative 2 (Proposed Action)**

The proposed new road construction activities associated with Alternative 2 would not impact any heritage resources because no new sites were discovered during on the ground surveys of the location for the new route conducted in the summer of 2013. Mitigation is in place to protect any sites that may be found during project implementation.

The only potential concern for heritage resources with Alternative 2 would be associated with the two known heritage sites (24 SW0128 and 24SW0129) that are located along the existing road segment that is to be closed and rehabilitated. However, any reclamation of this segment of road would be done in cooperation with the Forest archaeologist to ensure that the two known sites would not be disturbed, and would be protected from ground disturbing activities associated with closing and reclaiming the old road.

**Cumulative Effects for Alternative 1 (No Action)**

The portions of the existing road to be replaced are located along a riparian draw adjacent to Cherry Creek that is very susceptible to washouts from flooding or intense rain events. Potential cumulative effects to the two known heritage sites that would be associated with the No Action Alternative would likely be associated with flood events, other future ground disturbing activities, and/or continued motorized road use that could cause further erosion, exposure of additional artifacts, or destruction of the sites.

**Cumulative Effects for Alternative 2 (Proposed Action)**

Construction of the new road segment associated with implementation of Alternative 2 would not have any cumulative effects on heritage resource sites. No heritage sites were found along this road location. The surveyed and flagged location for the new road is on a bench, near the ridge, that is away from areas that are likely to be affected by future flooding and/or erosion.

The existing damaged road segment would be closed to motorized use and severely damaged areas would be reclaimed. Reclamation activities would be coordinated with the Forest archaeologist to ensure that the two known sites that are located along the existing road would be protected from further disturbance. Because of these activities associated with Alternative 2, it is not likely that there would be any measurable cumulative effects.

**Compliance with other Laws, Regulation and other Direction**

**The National Historic Preservation Act (NHPA)**

The National Historic Preservation Act (NHPA) the major law that guides actions for Heritage Resources. NHPA states that when a Federal Agency decides to conduct a project or designates funds toward a project, if the project is on federal lands or if the project needs a federal permit, then the agency is responsible to survey, identify, and evaluate any impacts that the project may have on heritage resources. Heritage resources may include historic trails, roads, cabins, mining sites, ditches, homestead sites or may include pre-contact Native American sites, such as pictograph sites, rock features, occupation sites, quarry sites, traditional cultural properties or sacred sites etc.

The National Historic Preservation Act has been considered and addressed for this project. The heritage database was consulted and field surveys were conducted in the summer of 2013 for the project. All proposed new road construction activities would be in compliance with
NHPA. Project related mitigation has been designed and would be incorporated into project implementation to ensure that the project complies with the NHPA.

**Gallatin National Forest Plan (1987)**

The Gallatin National Forest Plan (1987) was also reviewed to ensure that all necessary policy directives associated with project related activities are in compliance. All project related activities would be conducted in accordance with these directives.

### E. Range Issue

Project related activities have the potential to affect currently permitted livestock grazing in the West Side Management Area of the Deer Creek Allotment.

**Analysis Methodology**

The range analysis was conducted using GIS data to determine if actions associated with any of the alternatives would affect the range resource and/or management associated with livestock grazing of the Deer Creek Allotment.

- **Spatial Boundary** - The spatial boundary for effects analysis is limited to the Deer Creek Allotment.

- **Temporal Boundary** - The timeframe used for this analysis is ten years which equates to the timeframe of a typical grazing allotment permit.

**Affected Environment**

This section describes the current conditions for range administration and livestock permittee access to Forest areas within the Deer Creek Allotment. The Deer Creek Allotment consists of approximately 19,494 acres with 1474 animal month units (AUMs) available for livestock use and is managed as two separate grazing areas, the east side and the west side. Each management unit is made up of 3 pastures. The project area is located in the Cherry Creek pasture of the west side management area of the Deer Creek Allotment. The allotment is grazed under a deferred-rotation system.

The Deer Creek Allotment has been grazed by domestic livestock since the late 1800s with allotment records beginning 1911. Permitted use has varied over the years and animal numbers were much higher and seasons of use longer, prior to 1950. According to allotment records, grazing has been primarily limited to cattle, although horses and sheep have also occasionally been permitted in the past.

Public access to the Cherry Creek Pasture is through private roads on Cherry Creek, Conant Creek, and Brownlee Creek, or the area can be accessed from the Red Mountain Trailhead on the Iron Mountain road. Table 11 contains the authorized number of livestock and season of use for the three West Side pastures of the Deer Creek Allotment.

#### Table 11 - Proposed West Side Pasture Rotation for 2014

<table>
<thead>
<tr>
<th>West Side Pastures</th>
<th>Approx. Season of Use</th>
<th>Authorized Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castle-Enos/Dore</td>
<td>7/01 – 8/15</td>
<td>254 cow/calf</td>
</tr>
<tr>
<td>Bohe</td>
<td>8/16 – 9/13</td>
<td>254 cow/calf</td>
</tr>
<tr>
<td>Cherry Creek</td>
<td>9/14 – 10/15</td>
<td>254 cow/calf</td>
</tr>
</tbody>
</table>
Direct and Indirect Effects for Alternative 1 (No Action)

Livestock grazing activities would continue for the West Deer Creek Allotment. The number of permitted cow/calf pairs, season of use, and pasture rotation would continue as currently permitted for the remainder of the 10 year grazing permit. The permittee would continue to have motorized access in order to maintain or develop range improvements assigned in their grazing permits or for other authorized administrative activities. No direct or indirect effects are anticipated with selection of Alternative 1.

Direct and Indirect Effects for Alternative 2 (Proposed Action)

Grazing activities, related to livestock and/or the permittee are expected to have only minor effects with the implementation of Alternative 2 (Proposed Action). As displayed in Table 3 above, livestock would not likely be allowed into the Cherry Creek pasture until 9/14. Construction of the new segment of road is expected to be completed by this timeframe. However, if construction activities are not completed prior to the season of use for the Cherry Creek Pasture, the current grazing permit contains flexibility in pasture management that allows for the livestock to remain in one of the other allotment pastures until road construction activities are completed or the season of use associated with the permit is over. Mitigation is included to protect soils and vegetation in the newly disturbed riparian areas associated with the closure and reclamation of the segment of the old Cherry Creek Road. Options that may be utilized, as needed, to aid in the re-establishment of riparian vegetation along this portion of Cherry Creek include riparian enclosures, felling of woody materials, timing of livestock grazing, and/or resting of this pasture for a period of time.

Cattle guards would be installed in strategic locations along the new road segment to ensure that livestock remain within the permitted allotment and do not wander up the road onto unpermitted portions of the Forest. The cattle guards would be monitored to ensure that they are effective.

The permittee would be allowed motorized access in order to maintain or develop range improvements assigned in their grazing permits or for other authorized administrative activities. This is authorized through the grazing permit regardless of the configuration of the Forest’s motorized travel system. Improved vehicle access with the construction of the new road segment would allow for more cost effective permit administration of the Deer Creek Allotment. Existing monitoring techniques, protocols, priorities, procedures, etc. that are currently in place for managing livestock grazing activities would be used.

Cumulative Effects for Both Alternatives

Alternative 1 (No Action), Alternative 2 (Proposed Action)

Livestock grazing within the project area is not expected to be adversely or positively affected by project related activities associated with either of the alternatives. The Proposed Action includes design criteria (installation of cattleguards) and the current grazing permit contains short-term flexibility in grazing management.

Project related activities, when combined with the above mentioned past, present, and reasonably foreseeable activities in the project area, would not likely contribute to any measurable cumulative effects for range resources within the Deer Creek Allotment with either of the alternatives.
Compliance with other Laws, Regulation and other Direction

**Public Law 16 U.S.C 528- Multiple-Use Sustained-Yield Act (1960)**

“It is the policy of the Congress that National Forests are established and shall be administered for outdoor recreation, range, timber, and wildlife and fish purposes.” Project related activities would be consistent with this law.


This law authorized the Secretary of Agriculture to issue permits for various uses on National Forest System Lands and to keep their numbers in balance with the carrying capacity of the range. This project would not change the current authorized permitted use of the Deer Creek Allotment.

**Gallatin National Forest Plan (1981) pages II-1, II-4, and II-13**

This project is consistent with range management goals, objectives, and guidance as outlined in the 1987 Gallatin National Forest Plan.

**Deer Creek Environmental Assessment (1998)**

This project is consistent with and would not affect historical range resource uses of the Allotment as described in the 1998 Deer Creek Environmental Assessment.

**Deer creek Term grazing permit issued 2009**

Activities associated with this project would not be in conflict with the current grazing permit that was issued in 2009. The current grazing permit allows for flexibility in grazing management.

**2005 OHV rule (36 CFR 212.51(a)(8)) and current Travel Plan decisions (2006)**

Variances can be permitted through district offices for specific and individual access needs and must be attained prior to proceeding with vehicular use off previously designated roads and trails. This project is consistent with the 2006 Travel Planning decision for the Deer Creeks Travel Planning Area.

**F) Socio-Economics**

A socio-economic analysis was conducted to provide the decision maker with approximate costs and perceived benefits to the public, permitted Forest users, and the local community of implementing the project. Brief descriptions of the perceived cost/benefits associated with each of the two alternatives are provided below. Table 12 displays the approximate relative costs associated with the two alternatives to provide a direct comparison.

**Alternative 1 (No Action)**

It is difficult to define specific social benefits associated with resolving the temporary public access interruption, and to assign a specific dollar amount for repairing the Cherry Creek Road #206 in its existing location. The value of this access point is related to the acres of NFS lands that are temporarily inaccessible until the current situation is resolved (approximately 16,000 acres). As detailed in the recreation and public access analysis, the Cherry Creek drainage is a critical location for providing reasonable, sustainable, and convenient access for the local community and Forest visitors. This portion of the Forest serves the general public, educational school
programs, grazing permittees, and four outfitter and guiding businesses. Given the location of the road in juxtaposition with Cherry Creek, it is anticipated that large scale investments would be needed on a recurring basis to keep the road at a reasonable standard given environmental, safety, and operability concerns.

The Gallatin National Forest Travel Plan Decision anticipated bringing the current Cherry Creek road to the Tomato Can Trailhead to a standard that accommodates pickups pulling stock trailers. In order to bring the existing road to that standard, it is anticipated that it would take approximately $230,000 ($70,000 to repair the flood damages, and an additional $160,000 to bring the road and the 5 stream crossings) to the appropriate standard.

**Alternative 2 (Proposed Action)**

The relocation of the West Deer Creek Road #421 (Alternative 2) would resolve the interruption of public and administrative vehicular access in the Deer Creek Travel Planning Area and move toward the goals and desired future condition as detailed in the 2006 Travel Plan FEIS and Decision. A detailed socio-economic analysis was conducted as part of the Travel Plan EIS and is considered in the 2006 DN/FONSI at the Forest level. The anticipated effects of individual routes were not analyzed in detail; rather a holistic look of recreation and travel on the National Forest considered social and economic measures.

The cost of the proposed West Deer Creek Road Relocation is anticipated to be approximately $150,000. The new location only crosses Cherry Creek one time. Long-term, maintenance costs would considerably decrease (in comparison with Alternative 1) as the new route is in a more durable location and would incorporate sustainable design. It is anticipated that the entire project, with the exceptions of signage and patrol would be contracted.

Table 12 displays the implementation, rehabilitation, and maintenance costs associated with Alternative 1 (No Action) and Alternative 2 (Proposed Action). Approximately $25,000 is planned with both alternatives to repair the flood damages to the road beyond the Tomato Can Trailhead to the dispersed camping area on Deer Creek. Planning costs (NEPA) were not included in either of the alternatives because they are considered to be sunk costs at the point of alternative selection.
**Table 12-Estimated Costs Associated with the Alternatives**

<table>
<thead>
<tr>
<th>Work Item</th>
<th>Alternative 1 No Action Costs</th>
<th>Alternative 2 Proposed Action Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Road Construction</td>
<td>$0</td>
<td>$175,000</td>
</tr>
<tr>
<td>(West Deer Creek Road #421)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old Road Rehabilitation</td>
<td>$230,000</td>
<td>$25,000</td>
</tr>
<tr>
<td>(Cherry Creek Road #206)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Road Maintenance</td>
<td>$0</td>
<td>$2,000</td>
</tr>
<tr>
<td>(West Deer Creek Road #421)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Road Maintenance</td>
<td>$6,000</td>
<td>$0</td>
</tr>
<tr>
<td>(Cherry Creek Road #206)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signage</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>(Either Road)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Socio-Economic Summary of Effects**

From an economic perspective, implementation of the proposed action would have no discernable or lasting changes in the context of the Big Timber community, Sweet Grass County, the Custer Gallatin National Forest, or this Region of Montana. As referenced in the Recreation and Public Access report, this area may see a temporary increase in use after a period of interruption, which may result in very nominal increases in gas sales, hunting licenses, and/or local amenities. It is, however, unlikely that this change would be noticeable or measurable upon implementation of the decision.

The road construction/rehabilitation work and other associated contracts may also provide a limited amount of income over a short amount of time. It is anticipated that the award of the contracts would provide a few jobs and nominally increase sales of gas, food, or lodging in the area for a short period of time. It is unlikely this change would be noticeable or measurable as a result of the decision.

Although the benefits of this individual access route are not easily quantifiable; the benefit to the public and various National Forest resources of implementing the proposed action would well outweigh the dollar estimates associated with this project.
Consultation and Coordination

List of Preparers

The following Forest Service employees comprised the interdisciplinary team (IDT) that prepared the environmental analysis and Environmental Assessment for this project:

- Alex Sienkiewicz- Yellowstone District Ranger, Responsible Official
- Lauren Oswald- Deputy District Ranger, Recreation Specialist
- Johnathan Kempff - Forest Civil Engineer
- Bon Dennee- East Side Lands Officer
- Elizabeth McFarland- Forest Planning Staff Officer
- Barbara Ping- NEPA Coordinator
- Clint Sestrich- East Zone Fisheries Biologist
- Dale White- Forest Hydrologist
- Andy Kelher-East Zone Vegetation Manager (Noxious Weeds, Range, Economics)
- Rachel Feigley- East Zone Wildlife Biologist
- East Zone Wildlife Biologist- Rachel Feigley
- Annie Martel & Sally Senger- Sensitive Plants
- Marcia Pablo- Forest Archaeologist
- Tom Keck- Forest Soils Scientist

Consultation

The Forest Service consulted the following Federal, State, and local agencies, tribes, groups and individuals during the development of this environmental assessment:

Federal Agencies

- Jennifer Madgik-Congressional Staff (Tester)
- Rachel Court- Congressional Staff (Tester)
- Todd Jackson- Congressional Staff (Baucus)
- Liz Dellwo- Congressional Staff (Daines)
- Jim Sparks-Bureau of Land Management Field Manager (Billings)

Tribes

- Crow Tribal Council
- Confederated Salish Kootenai Tribal Council
State Agencies
Tim Baker- MT Governor Staff (Bullock)
Montana State Historic Preservation Office
Justin Paugh- MT Department of Fish, Wildlife and Parks Biologist
Hugh Zackheim – MT Fish, Wildlife, & Parks Lands & Public Access Departments
John Gibson- MT Public lands and Water Access
Gary Hammond – Fish, Wildlife & Parks Region 5 (Billings)
Jeff Hagener – MT Fish, Wildlife, & Parks Director (Helena)
Mike Volesky- MT Fish, Wildlife, & Parks Deputy Director (Helena)

County
Bob Faw/Susie Mossness/Bill Wallace- Sweet Grass County Commissioners
Dan Rostad- Sweet Grass Conservation District

Groups & Businesses
Laura Nelson- Big Timber Pioneer
Brett French- Billings Gazette
Ken Stockton- VFW Post 3177 Committee on Public Lands & Access for Disabled
Tim Alrich-Montana Wildlife Federation
Dan Rostad- Boulder River Watershed Association
John Gibson-Billings Rod & Gun Club
Lou Goosey- Park County Rod & Gun Club
Chuck Rein- Crazy Mountain Stock Growers
Mike Mueller – Rocky Mountain Elk Foundation
Mike & Mona Lovely- Rollin Boulder Outfitters
George Matelich- Boulder Valley Holdings LLC

Individuals
John Novotny-Interested Party Big Timber
George Anderson-Interested Party Big Timber
Jim & Diane Booth - Grazing Permittees
Greg & Vickie Langford- Grazing Permittees
Mike Hayes- Interested Party Big Timber
Rod Chappell- Interested Party Big Timber
Lee Smoot- Private landowner
Distribution, Review, and Comment Period for the EA

Distribution
Availability of this Draft EA was published with a legal notice in the Bozeman Daily Chronicle (the newspaper of record), stating that the Draft EA is available for public review and comment. The Draft EA was also posted and downloaded onto the PALS database for the Gallatin National Forest and is available on the Internet at [http://www.fs.usda.gov/projects/gallatin/landmanagement/projects](http://www.fs.usda.gov/projects/gallatin/landmanagement/projects) under West Deer Creek Road Realignment Project.

Review
Hard copies of this Draft EA can be obtained or viewed at the following location:

Yellowstone Ranger District, Big Timber Office

Information or questions regarding the document are available from:

Lauren Oswald, Deputy District Ranger by email lmoswald@fs.fed.us
or by phone (406)-222-1892

or

Barbara Ping, NEPA Coordinator by email bping@fs.fed.us
or by phone (406)-522-2558

How to Comment
Pursuant to 36 CFR 218.25, comments on this proposed project will be accepted for 30 days beginning on the first day after the date of publication of the legal notice the paper of record (Bozeman Daily Chronicle). If the comment period ends on a Saturday, Sunday, or Federal holiday, comments will be accepted until the end of the next Federal working day.

Only individuals or entities (as defined by 36 CFR 218.2) who submit timely and specific written comments (as defined by 36 CFR 218.2) about this proposed project or activity during this or another public comment period established by the responsible official will be eligible to file an objection. Other eligibility requirements are defined by 36 CFR 218.25 (a)(3) and include name, postal address, title of the project and signature or other verification of identity upon request and the identity of the individual or entity who authored the comments. Individual members of an entity must submit their own individual comments in order to have eligibility to object as an individual. A timely submission will be determined as outlined in 36 CFR 218.25 (a)(4). It is the responsibility of the sender to ensure timely receipt of any comments submitted.

Comments should be within the scope of the proposed action, have a direct relationship to the proposed action, and must include supporting reasons for the Responsible Official to consider (36 CFR 218.2).

Submit comments to the Responsible Official who is Alex Sienkiewicz, Yellowstone District Ranger, by one of the following methods; mail: PO Box 1130, Big Timber, Montana, 59011; telephone: (406)-932-5155, facsimile: 406-932-5777, or email: comments-northern-
gallatin@fs.fed.us (please put “Comments on West Deer Creek Road Realignment Project” in the subject line) in order to be considered when making the final decision. Office hours, for those who wish to hand deliver their comments, are 8:00 a.m. to 4:30 p.m., Monday – Friday (except Federal holidays). Acceptable formats for electronic comments are text or html e-mail, Adobe portable document format, and formats viewable in Microsoft Office applications.
Map 1- Alternative 2 (Proposed Action) & Vicinity Map

West Deer Creek Road Realignment Project

National Forest System Lands

Sec 4

Sec 9

Additional 2011 Flood Damage and Repairs

Sec 10

Sec 3

Cherry Creek Road (206)
Proposed Rehabilitation on Federal Road Lands
(Miles 1.34 to Mile 2.15)

Sec 33

Private Property

Sec 32

New Road by Private Landowner

Sec 3

Old Deer Creek Road

Sec 4

New Deer Creek Road

Proposed 1.64 mile Relocation
(Mile 0.98 - Mile 2.62)

Sec 33

Private Property

Sec 32

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Proposed 1.64 mile Relocation
(Mile 0.98 - Mile 2.62)
Appendix A- Best Management Practices (BMPs)

BMPS Applicable to the West Deer Creek Road Realignment Project

Introduction
Best Management Practices are the primary mechanism to enable the achievement of water quality standards (Environmental Protection Agency 1987). This Appendix: 1) describes the Forest Service's BMP process in detail; 2) lists the key Soil and Water Conservation Practices (SWCP) that have been selected to be used in the Gallatin; and 3) describes each SWCP that will be refined for site-specific conditions in order to arrive at the project level BMPs that protect beneficial uses and meet water quality objectives.

BMPs include, but are not limited to, structural and nonstructural controls, operations, and maintenance procedures. BMPs can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (40 CFR 130.2, EPA Water Quality Standards Regulation). Usually BMPs are applied as a system of practices rather than a single practice. BMPs are selected on the basis of site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility.

The Gallatin National Forest Plan states that "Soil and water conservation practices as outlined in the Soil and Water Conservation Practices Handbook (FSH 2509.22, May 1988) will be incorporated into all land use and project plans as a principal mechanism for controlling non-point pollution sources; meeting soil and water quality goals; and to protect beneficial uses. Activities found not in compliance with the soil and water conservation practices or State standards will be brought into compliance, modified, or stopped." (FP, p. II-23). Montana State Water Quality Standards require the use of Reasonable Land, Soil, and Water Conservation Practices (analogous to BMPs) as the controlling mechanism for non-point pollution. Use of BMPs is also required in the MOU between the Forest Service and the State of Montana as part of our responsibility as the Designated Water Quality Management Agency on National Forest System (NFS) lands.

The Practices described herein are tiered to the practices in FSH 2509.22 and include the Montana Forestry BMP's which were updated by Montana DNRC in 2004 and used in the Montana Forestry BMP audit process. They were developed as part of the NEPA process, with interdisciplinary involvement, and meet Forest and State water quality objectives.

BMP Implementation Process
In cooperation with the State of Montana, the USDA Forest Service's primary strategy for the control of non-point sources is based on the implementation of preventive practices (BMPs) determined necessary for the protection of the identified beneficial uses.

The Forest Service Non-point Source Management System consists of:

1. BMP selection and design based on site-specific conditions; technical, economic and institutional feasibility; and the designated beneficial uses of the streams.

2. BMP Application.

3. BMP monitoring to ensure that they are being implemented and are effective in protecting designated beneficial uses.

4. Evaluation of BMP monitoring results.
5. Feeding back the results into current/future activities and BMP design.

The District Ranger is responsible for ensuring that this BMP feedback loop is implemented on all projects.

A. **BMP Selection and Design.** Water quality goals are identified in Forest Plans. These goals meet or exceed applicable legal requirements, including State water quality regulations, the Clean Water Act, and the National Forest Management Act. Environmental assessments for projects are tiered to Forest Plans, using the NEPA process. Appropriate BMPs are selected for each project by an interdisciplinary team.

   a. BMP selection and design are dictated by water quality objectives, soils, topography, geology, vegetation, and climate. Environmental impacts and water quality protection options are evaluated and alternative mixes of practices are considered. A final collection of practices are selected that not only protect water quality but meet other resource needs. These final selected practices constitute the BMPs.

B. **BMP Application.** The BMPs are translated into contract clauses, special use permit requirements, project plan specifications, and so forth. This ensures that the operator or person responsible for applying the BMP actually is required to apply it. The site-specific BMP prescriptions are taken from plan-to-ground by a combination of project layout and resource specialists (hydrology, fisheries, soil, geology, etc.). This is when final adjustments to fit the BMP prescriptions to the site are made before implementing the resource activity.

C. **BMP Monitoring.** During project activities (ex., timber harvest or road construction), timber sale administrators, engineering representatives, resource specialists, and others ensure that the BMPs are implemented according to plan. BMP implementation monitoring is done before, during, and after resource activity implementation. This monitoring answers the question: Did we do what we said we were going to do? Once BMPs have been implemented, further monitoring is done to evaluate if BMPs are effective in meeting management objectives and protecting beneficial uses of water. State water quality standards, including the beneficial uses, will serve as one evaluation of the criteria for the sale.

D. **BMP Monitoring Evaluation.** The technical evaluation/monitoring described above will determine how effectively BMPs protect and/or improve water quality. Water quality standards and conditions of the beneficial uses of water will serve as one evaluation criteria. If the evaluation indicates that water quality standards are not being met and/or beneficial uses are not being protected, corrective action will consider the following three components:

   - The BMP: Is it technically sound, properly designed, and effective? Is it really best, or is there a better practice, which is technically sound and feasible to implement?
   - The implementation program or processes: Was the BMP applied entirely as designed? Was it only partially implemented? Was it properly designed? Were personnel, equipment, funds, or experience lacking with a result of inadequate or incomplete implementation?
   - The water quality criteria: Do the parameters and criteria used for effects evaluation adequately reflect human induced changes to water quality and beneficial uses?
Feedback. Feedback of the results of BMP evaluation is both short- and long-term in nature. Where corrective action is needed, immediate response will be undertaken. This action may include: modification of the BMP, modification of the activity, or ceasing the activity. Cumulative effects over the long-term may also lead to the need for possible corrective actions.

Definitions

I. "Hazardous or toxic material" means substances which by their nature are dangerous to handle or dispose of, or a potential environmental contaminant, and includes petroleum products, pesticides, herbicides, chemicals, and biological wastes.

II. “Stream," as defined in 77-5-302(7), MCA, means a natural watercourse of perceptible extent that has a generally sandy or rocky bottom or definite banks and that confines and conducts continuously or intermittently flowing water.

III. "Streamside Management Zone (SMZ)" or "zone" as defined at 77-5-302(8), MCA means "the stream, lake, or other body of water and an adjacent area of varying width where management practices that might affect wildlife habitat or water quality, fish, or other aquatic resources need to be modified." The streamside management zone encompasses a strip at least 50 feet wide on each side of a stream, lake, or other body of water, measured from the ordinary high water mark, and extends beyond the high water mark to include wetlands and areas that provide additional protection in zones with steep slopes or erosive soils.

IV. "Wetlands" mean those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include marshes, swamps, bogs, and similar areas.

V. "Adjacent wetlands" are wetlands within or adjoining the SMZ boundary. They are regulated under the SMZ law.

VI. "Isolated wetlands" lie within the area of operation, outside of the SMZ boundary, and are not regulated under the SMZ law.

II. Streamside Management

The Streamside Management Law (77-5-301 through 307 MCA) provides minimum regulatory standards for forest practices in streamside management zones (SMZ). The "Montana Guide to the Streamside Management Zone & Rules" is an excellent information source describing management opportunities and limitations within SMZs.

III. Roads

A. Planning and Location

1. Minimize the number of roads constructed in a watershed through comprehensive road planning, recognizing intermingled ownership and foreseeable future uses. Use existing roads, unless use of such roads would cause or aggravate an erosion problem.

2. Review available information and consult with professionals as necessary to help identify erodible soils and unstable areas, and to locate appropriate road surface materials.
3. Fit the road to the topography by locating roads on natural benches and following natural contours. Avoid long, steep road grades and narrow canyons.

4. Locate roads on stable geology, including well-drained soils and rock formations that tend to dip into the slope. Avoid slumps and slide-prone areas characterized by steep slopes, highly weathered bedrock, clay beds, concave slopes, hummocky topography, and rock layers that dip parallel to the slope. Avoid wet areas, including moisture-laden or unstable toe slopes, seeps, wetlands, wet meadows, and natural drainage channels.

5. Minimize the number of stream crossings and choose stable stream crossing sites.

6. Locate roads to provide access to suitable (relatively flat and well-drained) log landing areas to reduce soil disturbance.

B. Design
1. Properly design roads and drainage facilities to prevent potential water quality problems from road construction.

2. Design roads to the minimum standard necessary to accommodate anticipated use and equipment. The need for higher engineering standards can be alleviated through proper road-use management.

3. Design roads to balance cuts and fills or use full bench construction (no fill slope) where stable fill construction is not possible.

4. Design roads to minimize disruption of natural drainage patterns. Vary road grades to reduce concentrated flow in road drainage ditches, culverts, and on fill slopes and road surfaces.

C. Road Drainage
Road Drainage: Road Drainage is defined as all applied mechanisms for managing water in a non-stream crossing setting, road surface drainage, and overland flow; ditch relief, cross drains and drain dips)

1. Provide adequate drainage from the surface of all permanent and temporary roads. Use outsloped, insloped or crowned roads, and install proper drainage features. Space road drainage features so peak flow on road surfaces or in ditches will not exceed capacity.

   a. Outsloped roads provide a means of dispersing water in a low-energy flow from the road surface. Outsloped roads are appropriate when fill slopes are stable, drainage will not flow directly into stream channels, and transportation safety can be met.

   b. Insloped roads, plan ditch gradients steep enough, generally greater than 2% but less than 8%, to prevent sediment deposition and ditch erosion. The steeper gradients may be suitable for more stable soils; use the lower gradients for less stable soils.

   c. Design and install road surface drainage features at adequate spacing to control erosion; steeper gradients require more frequent drainage features. Properly constructed drain dips can be an economical method of road surface drainage. Construct drain dips deep enough into the subgrade so that traffic will not obliterate them.
2. Design all ephemeral draw culverts with adequate length to allow for road fill width. Minimum culvert size is 15 inch. Install culverts to prevent erosion of fill, seepage and failure as described in V.C.4 and maintain cover for culverts as described in V.C.6.

3. Design all relief culverts with adequate length to allow for road fill width. Protect the inflow end of all relief culverts from plugging and armor if in erodible soil. When necessary construct catch basins with stable side slopes. Unless water flows from two directions, skew ditch relief culverts 20 to 30 degrees toward the inflow from the ditch to help maintain proper function.

4. Where possible, install culverts at the gradient of the original ground slope; otherwise, armor outlets with rock or anchor downspouts to carry water safely across the fill slope.

5. Provide energy dissipaters (rock piles, slash, log chunks, etc.) where necessary to reduce erosion at outlet of drainage features. Crossdrains, culverts, water bars, dips, and other drainage structures should not discharge onto erodible soils or fill slopes without outfall protection.

6. Prevent downslope movement of sediment by using sediment catch basins, drop inlets, changes in road grade, headwalls, or recessed cut slopes.

7. Route road drainage through adequate filtration zones or other sediment-settling structures to ensure sediment doesn't reach surface water. Install road drainage features above stream crossings to route discharge into filtration zones before entering a stream.

D. Construction (see also Section IV on stream crossings)

1. Keep slope stabilization, erosion and sediment control work current with road construction. Install drainage features as part of the construction process, ensuring that drainage structures are fully functional. Complete or stabilize road sections within same operating season.

2. Stabilize erodible, exposed soils by seeding, compacting, riprapping, benching, mulching, or other suitable means.

3. At the toe of potentially erodible fill slopes, particularly near stream channels, pile slash in a row parallel to the road to trap sediment (example, slash filter windrow). When done concurrently with road construction, this is one method that can effectively control sediment movement, and it can also provide an economical way of disposing of roadway slash. Limit the height, width and length of "slash filter windrows" so wildlife movement is not impeded. Sediment fabric fences or other methods may be used if effective.

4. Minimize earthmoving activities when soils appear excessively wet. Do not disturb roadside vegetation more than necessary to maintain slope stability and to serve traffic needs.

5. Construct cut and fill slopes at stable angles to prevent sloughing and other subsequent erosion.

6. Avoid incorporating potentially unstable woody debris in the fill portion of the road prism. Where possible, leave existing rooted trees or shrubs at the toe of the fill slope to stabilize the fill.

7. Consider road surfacing to minimize erosion.
8. Place debris, overburden, and other waste materials associated with construction and maintenance activities in a location to avoid entry into streams. Include these waste areas in soil stabilization planning for the road.

9. Minimize sediment production from borrow pits and gravel sources through proper location, development and reclamation.

10. When using existing roads, reconstruct only to the extent necessary to provide adequate drainage and safety; avoid disturbing stable road surfaces. Prior to reconstruction of existing roads within the SMZ, refer to the SMZ law. Consider abandoning existing roads when their use would aggravate erosion.

E. Maintenance

1. Grade road surfaces only as often as necessary to maintain a stable running surface and adequate surface drainage.

2. Maintain erosion control features through periodic inspection and maintenance, including cleaning dips and crossdrains, repairing ditches, marking culvert inlets to aid in location, and clearing debris from culverts.

3. Avoid cutting the toe of cut slopes when grading roads, pulling ditches, or plowing snow.

4. When plowing snow, provide breaks in snow berm to allow road drainage.*

5. Haul all excess material removed by maintenance operations to safe disposal sites and stabilize these sites to prevent erosion. Avoid sidecasting in locations where erosion will carry materials into a stream.

6. Avoid using roads during wet periods if such use would likely damage the road drainage features. Consider gates, barricades or signs to limit use of roads during spring break up or other wet periods.

7. Upon completion of seasonal operations, ensure that drainage features are fully functional. The road surface should be crowned, outsloped, insloped, or water-barred. Remove berms from the outside edge where runoff is channeled.

8. Leave abandoned roads in a condition that provides adequate drainage without further maintenance. Close these roads to traffic; reseed and/or scarify; and, if necessary, recontour and provide water bars or drain dips.

V. STREAM CROSSINGS

A. Legal Requirements

1. Under the Natural Streambed and Land Preservation Act of 1975 (the "310 law"), any activity that would result in physical alteration or modification of a perennial stream, its bed or immediate banks must be approved in advance by the supervisors of the local conservation district. Permanent or temporary stream crossing structures, fords, riprapping or other bank stabilization measures, and culvert installations on perennial streams are some of the forestry-related projects subject to 310 permits.

Before beginning such a project, the operator must submit a permit application to the conservation district indicating the location, description, and project plans. The evaluation generally includes on-site review, and the permitting process may take up to 60 days.
2. Stream-crossing projects initiated by federal, state or local agencies are subject to approval under the "124 permit" process (administered by the Department of Fish, Wildlife and Parks), rather than the 310 permit.

3. Short-term exemption (3a authorization) from water quality standards is necessary unless waived by the Department of Fish, Wildlife and Parks as a condition of a 310 or 124 permit. Contact the Department of Environmental Quality in Helena at 444-2406 for additional information.

B. Design Considerations (Note: 310 permit required for perennial streams)

1. Cross streams at right angles to the main channel if practical. Adjust the road grade to avoid the concentration of road drainage to stream crossings. Direct drainage flows away from the stream crossing site or into an adequate filter.

2. Avoid unimproved stream crossings. When a culvert or bridge is not feasible, locate drive-throughs on a stable, rocky portion of the stream channel.

C. Installation of Stream Crossings (Note: 310 permit required for perennial streams)

1. Minimize stream channel disturbances and related sediment problems during construction of road and installation of stream crossing structures. Do not place erodible material into stream channels. Remove stockpiled material from high water zones. Locate temporary construction bypass roads in locations where the stream course will have minimal disturbance. Time construction activities to protect fisheries and water quality.

2. When using culverts to cross small streams, install those culverts to conform to the natural stream bed and slope on all perennial streams and on intermittent streams that support fish or that provides seasonal fish passage. Ensure fish movement is not impeded. Place culverts slightly below normal stream grade to avoid culvert outfall barriers. Do not alter stream channels upstream from culverts, unless necessary to protect fill or to prevent culvert blockage.

3. Design stream-crossings for adequate passage of fish (if present), minimum impact on water quality, and at a minimum, the 25-year frequency runoff. Consider oversized pipe when debris loading may pose problems. Ensure sizing provides adequate length to allow for depth of road fill. #

4. Install stream-crossing culverts to prevent erosion of fill. Compact the fill material to prevent seepage and failure. Armor the inlet and/or outlet with rock or other suitable material where feasible.

5. Consider dewatering stream crossing sites during culvert installation.*

6. Maintain a 1-foot minimum cover for stream-crossing culverts 15 to 36 inches in diameter, and a cover of one-third diameter for larger culverts, to prevent crushing by traffic.

7. Use culverts with a minimum diameter of 15 inches for permanent stream crossings.

D. Existing Stream Crossing

1. Existing stream crossing culverts shall have adequate length to allow for road fill width and have adequate capacity to allow for the passage of the 25-year frequency runoff. To prevent erosion of fill, provide or maintain armoring at inlet and/or outlet with rock or other suitable material where feasible. Maintain fill over culvert as described in V.C. 6.
VII. Hazardous Substances

A. General
1. Know and comply with regulations governing the storage, handling, application (including licensing of applicators), and disposal of hazardous substances. Follow all label instructions.

2. Develop a contingency plan for hazardous substance spills, including cleanup procedures and notification of the State Department of Environmental Quality.

B. Pesticides and Herbicides
1. Use an integrated approach to weed and pest control, including manual, biological, mechanical, preventive and chemical means.

2. To enhance effectiveness and prevent transport into streams, apply chemicals during appropriate weather conditions (generally calm and dry) and during the optimum time for control of the target pest or weed.
Appendix B - References Cited

Noxious Weeds


USDA, 2005, Gallatin National Forest Noxious and Invasive Weed Treatment Final Environmental Impact Statement and Record of Decision

Public Access/Recreation

Range

Sensitive Plants
USFS. 2013 Senger, Sally & Martell, Annie, Sensitive plant surveys for the West Deer Creek Road Re-alignment Project

Soils


Moscow, ID. U. S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 64 pp. (Page-Dumroese, et. al. 2009a)


**Water Quality/Aquatics**


MDEQ. 2012a. 303(d) List. Montana Department of Environmental Quality, Helena, MT

MDEQ. 2012b. Waters in need of TMDLs and TMDL Priority Schedule. Montana Department of Environmental Quality, Helena, MT


Story, M.T. 2011(b). Personal communication. Gallatin NF. Bozeman, MT.

Noxious Weeds

Wildlife


_______________. 2006. Gallatin National Forest Travel Management Plan Final Environmental Impact Statement, Record of Decision. Bozeman, MT: USDA Forest Service. [Homepage of U. S. Forest Service Northern Region Gallatin National Forest],
West Deer Creek Road Realignment Project


_______________. 2013. Endangered and threatened wildlife and plants; threatened status for the distinct population segment of the North American wolverine occurring in
