



Sisters Trail Additions and Realignments (STAR)



Decision Memo

Sisters Trail Additions and Realignments (STAR)

U.S. Forest Service

Sisters Ranger District, Deschutes National Forest

Deschutes County & Jefferson County, OR

This decision incorporates all the information outlined in the following Categorical Exclusion Review form and supporting project documentation included in the project file.

Decision and Rationale

I have decided to authorize the activities described in the “[Proposed Action](#)”, including the project design criteria outlined in [Appendix A](#).

Applicable Categorical Exclusion and Findings Required by Other Laws

The “[Applicable Categories](#)” section provides rationale for categorically excluding this action from documentation in an Environmental Assessment (EA) or Environmental Impact Statement (EIS) and for using the identified category. The “[Environmental Analysis Review](#)” section documents rationale to support my finding that no extraordinary circumstances exist, along with findings required by other applicable laws and regulations to demonstrate compliance with the legal framework for the activities authorized by this decision.

Agencies, Organizations and Persons Contacted

A list of “[Agencies, Organizations and Persons Contacted](#)” regarding this proposal is provided along with a brief overview of comments/feedback received and how they were considered.

Implementation Date

Project implementation may begin immediately.

Administrative Review

Decisions that are categorically excluded from documentation in an environmental assessment or environmental impact statement are not subject to an administrative review process (Agriculture Act of 2014 [Pub. L. No. 113-79], Subtitle A, Sec. 8006).

Contact

For additional information concerning this decision, contact: Madison Anderson, NEPA Planner, by email at madison.anderson@usda.gov.

Ian Reid
Sisters District Ranger



Sisters Trail Additions and Realignments (STAR)



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Categorical Exclusion Review

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Project Information

Project Name: Sisters Trail Additions and Realignments (STAR)

Responsible Official/Signing Authority: Ian Reid, District Ranger

Unit: Sisters Ranger District

Counties: Deschutes, Jefferson

Anticipated Implementation: Beginning as early as Fall of 2025 and ongoing thereafter as field conditions and staff and volunteer availability allows.

PALS Project Tracking #: 64457

Project Webpage: <https://www.fs.usda.gov/project/deschutes/?project=64457>

General Location: Trail actions located across the Sisters Ranger District

Applicable Management Areas: Wilderness (M6), Deer Habitat (MA7), General Forest (MA8), Scenic Views (MA9), Intensive Recreation (MA11), Whychus Creek Wild & Scenic River (Scenic Section; MA17), Front Country (MA18), Metolius Special Forest (MA22), Metolius Scenic Views (MA26)

Watersheds: Metolius, Indian Ford, Whychus, and Three Creeks



Applicable Category

This project is categorically excluded from documentation in an EA or EIS because it fits the following category: 36 CFR 220.6(e)(1) “Construction and reconstruction of trails”. This category is applicable for this project because the proposed trail actions fall within trail construction and reconstruction. Further, the visitor use management activities included as part of this project are associated with trail management.

Purpose and Need: Why do we need to act?

The purpose of the STAR project is to conduct additions and realignments to the official trail system on the Sisters Ranger District. This will help to meet the need for unique recreational experiences, trail connectivity, restoration or abandonment of fire damaged trails, additions of existing routes to the official Forest Service trail system, and/or realignment of system trails.

Proposed Action: What are we proposing to do?

The STAR project includes trail actions on 19 existing and proposed trails across the Sisters Ranger District (Figure 1). The trail actions include trail abandonment, new trail construction, new trail additions and realignment/reconstruction of existing trails (Table 1). Some trail actions meet a variety of desired user experiences not currently available in the existing trail network (Table 2). Other trail actions address damage from previous disturbances and/or resource impacts from existing trails. Overall, a net increase of approximately 43 miles of non-motorized trails to the National Forest System trails is included in the proposed action. Work will be accomplished during snow-free seasons, which may vary by trail and elevation, typically spring, summer, and fall. Wildlife seasonal restrictions will be implemented during trail construction where appropriate to minimize disturbance. The proposed trail actions will take many years to accomplish with Forest Service staff and partners. The proposed action incorporates all project design criteria (PDCs) developed by the project’s team of interdisciplinary resource specialists and approved by the Responsible Official ([Appendix A](#)).

Table 1. Summary of trail actions.

Trail Action	Definition	# Trails	Trail Width	Total Miles
Abandonment	Trails removal from the official trail system. Trail infrastructure removal.	1	24”	4.3
Construction	New construction of a trail that does not currently exist on-the-ground.	4	24”	17.0
Addition	Existing on-the-ground route additions to the official trail system.	8	24-60”	29.7
Realignment/ Reconstruction	Existing system trails rerouting and/or reconstruction to increase trail sustainability, promote positive user experiences, and/or protect resources.	6	24”	12.7

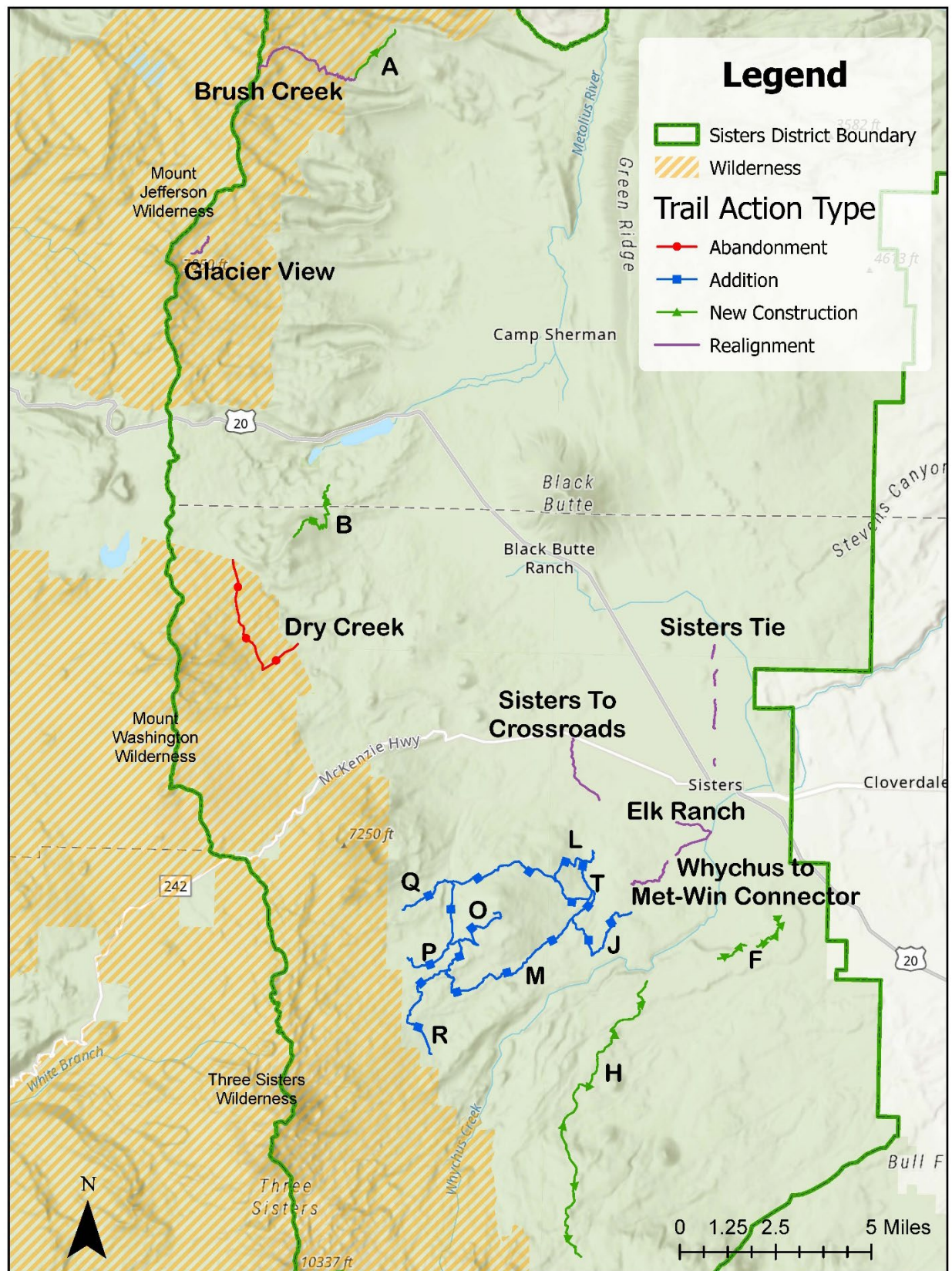


Figure 1. Overview map of the proposed action.



Overview of Trail Actions

Trail abandonment will include primarily administrative actions to remove the trail from the National Forest System trails inventory. Removal from the inventory will result in the trails removal from maps and maintenance will no longer be authorized. No ground disturbing decommissioning activities are proposed as this trail (Dry Creek Trail) is effectively closed from fire damage and limited maintenance in recent years. Trailhead infrastructure will be removed.

Trail construction will include both administrative and ground disturbing actions. Administratively, the new trails will be added to the official National Forest System trails inventory. Ground disturbance (e.g., vegetation removal, soil compaction to create trail tread) may include the use of a mix of hand tools and equipment. Equipment could include power tools such as chainsaws and small trail building equipment like a walk-behind skid steer, or mini-excavator. In the case of Trail F and Trail B, a small excavator may be used for trail construction. Trail tread and corridor widths vary by trail use designation. No mechanized or motorized equipment will be used in designated Wilderness. (Dry Creek Trail, Brush Creek Trail, Glacier View Trail). Some trail construction may necessitate the cutting of brush and small trees (less than 9-inch DBH), and / or the addition of culverts, natural rock fords, and / or small footbridges. Where necessary, appropriate fill sites for trail construction material are identified.

Trail additions are primarily an administrative action to add existing user-created trails, some of which are located on maintenance level 1 roads or decommissioned roads, to the National Forest System trails inventory. Some additions will need ground disturbing activities, outlined above in trail construction, to connect them with existing trails or to reroute them off roads with motorized vehicle traffic. Minimal ground disturbing trail maintenance actions will be needed along most of the trail addition to ensure they meet standards and specifications established in the Trail Management Objectives (TMOs).

Trail realignment/reconstruction includes the activities described in trail construction with the addition of decommissioning actions for previous system trail segments no longer part of the official trail. This may include decompaction with hand tools up to a depth of 4 to 8 inches and the placement of loose rocks and woody debris to discourage continued use of the old trail. Trail reconstruction will reestablish existing administrative trails by ensuring accurate on-the-ground trail alignment using trail construction techniques to meet trail management objectives.

Associated actions that may occur during project implementation include sign installation and actions to discourage the use of unauthorized routes. Trail reassurance signs may be installed on trees along trail additions. Trail user stop signs will be placed at major road junctions. Existing trail signage may be modified to represent changes to the trail network. Trail signage will follow relevant sign and visual standards. Sign installation may include minimal ground disturbance to add signposts. Post type and size may vary by location including but not limited to 4x4-inch wood posts or carsonite composite posts. Motorized and non-motorized use on closed (Maintenance Level 1) or unauthorized routes exist across the project area. The proposed action includes actions to discourage the use of unauthorized routes and closed roads adjacent to the proposed action. Actions to discourage the use of unauthorized routes may include the placement of loose rocks, large boulders and/or woody debris. These actions may reduce resource impacts such as disturbance to wildlife.



Sisters Trail Additions and Realignment (STAR)



Table 2. Summary of proposed trails.

Trail Action	Trail Name ¹	Intended User	Miles	Wilderness?
Abandonment	Dry Creek Trail	Hike	4.33	Yes
Addition	Trail J	Equestrian	3.32	No
Addition	Trail L	Equestrian	1.55	No
Addition	Trail M	Equestrian	14.36	No
Addition	Trail O	Equestrian	2.39	No
Addition	Trail P	Equestrian	1.65	No
Addition	Trail Q	Equestrian	1.69	No
Addition	Trail R	Equestrian	3.31	No
Addition	Trail T	Equestrian	1.47	No
New Construction	Trail B	Hike and/or Bike	3.35	No
New Construction	Trail F	Bike	2.27	No
New Construction	Trail A	Hike and/or Bike	1.69	No
New Construction	Trail H	Bike	9.70	No
Reroute/Realignment	Glacier View Reroute	Equestrian, Hike	0.84	Yes
Reroute/Realignment	Elk Ranch Reroute	Equestrian, Hike, and/or Bike	1.04	No
Reroute/Realignment	Sisters Tie Reroute	Equestrian, Hike, and/or Bike	1.85	No
Reroute/Realignment	Whychus Met Win Reroute	Equestrian, Hike, and/or Bike	2.97	No
Reroute/Realignment	Brush Creek Trail Reroute	Hike	3.92	Yes
Reroute/Realignment	Sisters Crossroads Reroute	Hike and/or Bike	2.09	No

¹ Trail names for additions and new construction will be determined by the appropriate official during trail implementation and incorporated into the National Forest System trails inventory.



Project Screening

Legal and Regulatory Considerations

Given the nature of the project, the Responsible Official is requesting documentation to demonstrate compliance with the following legal and regulatory considerations:

☒ NFMA/Land Management Plan

☒ Endangered Species Act (ESA)

☒ Sensitive Species (FSM 2670)

☒ National Historic Preservation Act (NHPA)

☒ Tribal Consultation

☒ Clean Air Act (CAA)

☒ Clean Water Act (CWA)

☒ Pertinent Executive Orders

Special Management Areas:

☒ Wilderness

☐ Roadless

☒ Wild & Scenic River Corridor

☐ Recommended Wilderness

☐ Research Natural Areas

☒ National Scenic & Historic Trails

☐ National Recreation Area

Agencies, Organizations and Persons Contacted

During the pre-planning phase, district and forest recreation staff coordinated with trails partner groups to identify trails of interest for trail actions. Additionally, early in the project development, the project wildlife biologists began discussions on the project with the Oregon Department of Fish and Wildlife biologists to further understand wildlife use in the trail areas.

Public Scoping – A 45-day scoping period began on July 21, 2023. The scoping period included a scoping notice that described the proposed actions, provided a list of proposed trails and an overview map of trail action locations. The notice was delivered by email to those subscribed to the Deschutes National Forest GovDelivery mailing list and by postal mail to those on the Deschutes National Forest NEPA mailing list. In addition, the scoping notice information was shared by the Deschutes National Forest as a press release.

Seventy-four comment letters were received from individuals and organizations during the comment period. Common concerns raised included trail use conflict, maintenance and monitoring, user education and etiquette, and impacts to various resources and nearby communities. All comments received during the comment period were reviewed and considered by the interdisciplinary team and the Responsible Official. The Responsible Official also met face to face with several commenters and organizations during or immediately following the scoping period. Where feasible, public and organization comments have been addressed through incorporation into the proposed action design including, but not limited to, dropping some scoped trails from the proposed action. For example, the Minto Lake was originally proposed for abandonment and Trail E was originally proposed for addition; both of these actions have been dropped in the final decision. Realignment of portions of the Sisters Tie Trail and closures of unauthorized routes adjacent to the project trails were also added to the proposed action based on scoping input. In response to private property concerns, a gradual



renaming to remove private property names may occur on select trails adjacent to Sisters' communities.

Supporting Project Documentation

- "STAR Scoping Comment Consideration Spreadsheet", which includes identified comments and line officer consideration.

Environmental Analysis Review: How would our management actions affect the environment?

National Forest Management Act (NFMA) - Land Management Plan Consistency

The pertinent specialist has reviewed the proposed action including design features and provided supporting analysis and rationale for determinations in the project record. The following are specialist determinations regarding project consistency with applicable land management plan direction, standards, and guidelines:

Botany: Consistent

Cultural/Heritage: Consistent

Engineering: Consistent

Fisheries: Consistent

Fuels: Consistent

Hydrology: Consistent

Lands and Special Uses: Consistent

Minerals: No proposed changes to minerals access; N/A

Range: No range allotments in project; N/A

Recreation: Consistent

Scenic Resources: Consistent

Soils: Consistent

Silviculture: Consistent

Special Management Areas: Consistent

Wildlife: Consistent

Other Resources: No additional resources identified by the Responsible Official; N/A

Supporting Project Documentation

- "STAR Deschutes Forest Plan (as amended) Consistency Spreadsheet", which shows how the proposed action meets all relevant goals, objectives, standard and guidelines.

Other Law, Regulation and Policy Consistency

Endangered Species Act

Threatened, Endangered, Proposed and Candidate Species and Critical Habitat

The pertinent specialists reviewed the proposed action and made the following determinations for threatened, endangered and/or proposed species (Table 3).

Table 3. Threatened, endangered, proposed or candidate species and critical habitat effect determinations

Species/Habitat	Status	Proposed or Designated Critical Habitat Present?	Determination	Brief Rationale (or refer to other project documentation)
Whitebark pine (<i>Pinus albicaulis</i>)	Threatened	No	LAA	Potential effects have been addressed under the USDA Forest Service's Pacific Northwest Region Whitebark Pine Programmatic Biological Opinion. Conservation measures required by the programmatic will be implemented, ensuring ESA compliance for this species.
Oregon spotted frog (<i>Rana pretiosa</i>)	Threatened	No	NE	Oregon spotted frogs do not occur on Sisters Ranger District.
Northern spotted owl (<i>Strix occidentalis caurina</i>)	Threatened	Yes	NLAA	Trails that fall within NSO habitat or home ranges already exist and are currently utilized. There will be no trail construction within owl nest territory cores (0.5 mi). No Nesting, Roosting, Foraging (NRF) habitat elements will be altered by the proposed action. Critical Habitat: The physical and biological features of NSO Critical Habitat (CH) will not be altered. Project design criteria are in place to protect the four physical and biological features of NSO CH. No effect to Critical Habitat.



Sisters Trail Additions and Realignment (STAR)



Species/Habitat	Status	Proposed or Designated Critical Habitat Present?	Determination	Brief Rationale (or refer to other project documentation)
Gray wolf (<i>Canis lupis</i>)	Endangered	No	NLAA	Project will result in a net increase in core habitat (+152 acres) for wolves and their prey. No known denning or rendezvous sites will be impacted by the project. The proposed action is consistent with Forest Plan direction for big game. The Forest will provide signage and outreach to inform forest visitors of best practices for recreating in wolf country.
North American Wolverine (<i>Gulo gulo luscus</i>)	Threatened	No	NLAA	Trails which may affect wolverine (Glacier View, Brush Creek, Trail H) are already in areas with existing road and trail infrastructure. Wolverines are already likely to avoid the area, but may further avoid due to increased visitation. No denning habitat present within 0.25 miles of proposed action.
Monarch Butterfly (<i>Danaus plexippus</i>)	Proposed Threatened	No	NE	No suitable host plants (<i>Asclepias</i> species - milkweed) present along proposed action.
Columbia River Bull Trout <i>Salvelinus confluentus</i>	Threatened	No	No Effect	Critical habitat or occupied habitat for this species is not present in the project area of activities or in close proximity.

NE – no effect; NLAA – may affect, not likely to adversely affect; LAA – may affect, likely to adversely affect; **No Jeopardy** - not likely to jeopardize the continued existence or adversely modify critical habitat

Supporting Project Documentation

- “STAR Wildlife BE”, which documents the analysis and determination of possible effects summarized herein on Regional Forester Sensitive species, Northwest Forest Plan Survey and Manage, Deschutes National Forest Management Indicator, and other species of concern.
- “STAR Wildlife BA”, which documents the analysis and determination of possible effects summarized herein on endangered, threatened, or proposed species.
- “STAR Aquatics BE/BA”, which documents the analysis and determination of possible effects summarized herein on endangered, threatened, proposed, or sensitive species.

Sensitive Species (FSM 2670)

The pertinent specialists reviewed the proposed action and made the following determinations for sensitive species, or their habitat, known or suspected in or near the project area (Table 4).

Sensitive species, or their habitat, not known/suspected in or near the project area were not carried forward for analysis. These species are given a **No Impact (NI)** determination. No Impact species include Northern bald eagle, Bufflehead, Tricolored blackbird, Yellow rail, Greater sage grouse (western), Northern waterthrush, Horned grebe, Black rosy-finch, Oregon vesper sparrow, American white pelican, Aleutian Canada goose, Shiny tightcoil, Silver-bordered fritillary, Johnson’s hairstreak, Dalles Hesperian.

Table 4. Sensitive species impact determinations

Species	Determination	Rationale (or refer to project documentation)
<i>Penstemon peckii</i>	MIH	Project activities intersect documented populations of <i>P. peckii</i> , causing disturbance to individuals and habitat. <i>Penstemon peckii</i> is a disturbance-adapted species and will likely recover outside of the trail corridor.
<i>Gentiana newberryi</i> var. <i>newberryi</i>	NI	Project activities avoid this population.
Redband Trout <i>Oncorhynchus mykiss</i> ssp.	NI	No direct or indirect effects to redband trout or their habitats are expected since proposed activities are not expected to affect this species or habitats within or near the project area.
A Caddisfly <i>Rhyacophila chandleri</i>	MIH	The effects to this species would be confined to the trail crossing locations and many miles of suitable habitat exists outside of these crossing locations.
Zig zag darner <i>Aeshna sitchensis</i>	NI	No direct or indirect effects to the zigzag darner are anticipated from this project because suitable habitat for this species is not present on or in close proximity of the proposed trail routes.

Species	Determination	Rationale (or refer to project documentation)
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	MIIH	Individuals roosting in caves/rock outcroppings may be disturbed during trail construction activities, or during recreational use of the trail. Project would not create a change to foraging conditions. Any impact will not contribute to a trend towards listing or a loss of viability toward a population or species.
Pallid bat <i>Antrozous pallidus</i> Spotted bat <i>Euderma maculatum</i> Fringed myotis <i>Myotis thysanodes</i>	MIIH	Individuals roosting in caves/rock outcroppings may be disturbed during trail construction activities, or during recreational use of the trail. Project would not create a change to foraging conditions. Any impact will not contribute to a trend towards listing or a loss of viability toward a population or species.
Sierra Nevada red fox <i>Vulpes vulpes necator</i>	MIIH	Known individuals/populations exist over 1 mile from proposed trails. Individuals may be disturbed by trail construction or use, but would not contribute to a trend towards listing or a loss of viability toward a population or species.
Lewis's Woodpecker <i>Melanerpes lewis</i>	MIIH	Individuals may be disturbed or harmed by trail construction felling of snags for human safety, but will not contribute towards a negative trend in viability on the Deschutes.
White-headed Woodpecker <i>Picoides albolarvatus</i>	MIIH	Individuals may be disturbed or harmed by trail construction felling of snags for human safety, but will not contribute towards a negative trend in viability on the Deschutes.
Crater Lake Tightcoil <i>Pristiloma crateris</i>	NI	Individuals could be crushed by trail construction, but PDCs for building trails in suitable habitat would avoid disturbance.
Johnson's Hairstreak <i>Callophrys johnsoni</i>	MIIH	Larvae could be incidentally harmed during felling of trees for human safety, but would not cause a negative trend in viability on the Deschutes.



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Species	Determination	Rationale (or refer to project documentation)
Western bumblebee <i>Bombus occidentalis</i>	MIHH	Proposed action may increase the potential for noxious weed infestation which may indirectly harm bumble bees by requiring chemical treatment. Trail construction also has the potential to disturb or destroy active underground nests. Rerouting trails out of sensitive riparian areas with floral resources will have a beneficial impact.
Morrison bumblebee <i>Bombus morrisoni</i>	MIHH	The proposed action may increase the potential for noxious weed infestation which may indirectly harm bumble bees by requiring chemical treatment. Trail construction also has the potential to disturb or destroy active underground nests. Rerouting trails out of sensitive riparian areas with floral resources will have a beneficial impact.
Suckley's Cuckoo Bumble Bee <i>Bombus suckleyi</i>	NI	Suckley's cuckoo bumble bee has not been documented in the continental U.S. since 2015, despite intensive search efforts. The species has never been documented on Sisters Ranger District.

NI – no impact; **MIHH**- may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species; **WIFV** - will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Supporting Project Documentation

- “STAR Wildlife BE”, which documents the analysis and determination of possible effects summarized herein on federally listed, Northwest Forest Plan Survey and Manage, Deschutes National Forest Management Indicator, and other species of concern.
- “STAR Wildlife BA”, which documents the analysis and determination of possible effects summarized herein on endangered, threatened, or proposed species.
- “STAR Aquatics BE/BA”, which documents the analysis and determination of possible effects summarized herein on endangered, threatened, proposed, or sensitive species.

National Historic Preservation Act – Section 106 Review

The pertinent specialist has reviewed the proposed action and made the following determination regarding Section 106 compliance:

No adverse effects to historic properties - 36 CFR 800.5(b). Section 106 Review has been completed and National Register eligible cultural sites are located within the project area. Modifications can avoid/protect cultural resources (see comment section).

Forest Service archaeologists completed a cultural resource inventory of the area of potential effect (APE) for this undertaking, resulting in new pedestrian surveys, cultural resource site



visits and updated documentation for sites within or adjacent to the APE, and the initial recordation of new sites and isolated finds.

In analyzing the potential effects to historic properties from this undertaking, Forest Service archaeologists made treatment recommendations for each of the cultural resources that may be affected. Each is discussed in detail in the cultural resource inventory report produced for the undertaking. With the treatment recommendations for the cultural resources that may be affected, and in accordance with Stipulation VI.B of the *2025 Programmatic Agreement among the USDA Forest Service - Pacific Northwest Region (Region 6), ACHP, and Oregon SHPO regarding the Process for Compliance with Section 106 of the NHPA in the State of Oregon by the USDA Forest Service (2025 Oregon PA)*, the Forest finds that the undertaking described here will have No Adverse Effect on historic properties.

In the event of an inadvertent discovery of historic properties, the undertaking described here will be redesigned for avoidance and the properties will be documented, evaluated, and reported to the SHPO. If avoidance is not possible, the undertaking shall cease immediately, and the Forest shall consult with the SHPO and ACHP pursuant to 36 CFR Section 800.13(b). An Inadvertent Discovery Protocol will be provided for all project implementers.

Supporting Project Documentation

- “STAR Cultural Resource Inventory Report”, which documents the analysis and determination of possible effects summarized herein on historic properties, cultural sites, and other important cultural resources.

Consultation with Federally Recognized Tribes

Consultation with federally recognized tribes was conducted as follows:

Following project initiation, the Deschutes National Forest, Sisters Ranger District sent project notification letters and emails on June 20, 2023, to the Confederated Tribes of Warm Springs, the Klamath Tribes, and Burns Paiute Tribe. The notification described the project, invited comments and assistance in how the Forest Service determined the effects of the proposed activities on historic properties, and solicited participation due to a unique government to government relationship.

Sisters Ranger District followed the Stipulations provided at V.A.3 and VI.B.1 of the 2025 Oregon PA by submitting all determinations of eligibility and providing documentation of the inventory and the finding of effect for this undertaking to Tribes 30 days prior to State Historic Preservation Office (SHPO) submittal.

The Sisters Ranger District received no formal comments or disagreements from the Confederated Tribes of the Warm Springs, Burns Paiute Tribe, or Klamath Tribes on the finding of effect or determinations of eligibility for this undertaking.

Supporting Project Documentation

- “STAR Tribal Consultation Letters”, which are the official government to government consultation initiation including a project description and map.



Special Management Areas

The pertinent specialist has reviewed the proposed action and made the following determinations based on special management area presence, proximity, or lack of:

National Recreation Trail – Metolius Windigo

No direct trail actions will occur on the Metolius Windigo trail. Trail additions and realignments adjacent to the trail may improve public safety by separating user groups. The Responsible Official may consider adjusting the Trail Management Objectives (TMOs) to designate direction of use for bike users after construction if needed. The project will have no impact on the National Recreation Trail designation criteria (FSM 2353.33b).

National Wild and Scenic River – Whychus

Approximately 0.2 miles of Trail J enter the scenic portion of the Whychus Wild and Scenic River corridor. The trail is set back from the river canyon's edge. It will have no impact on the scenic character of the area. Further, the project is consistent with the Whychus Wild and Scenic River Management Plan.

Clean Air Act

The pertinent specialist has reviewed the proposed action and made the determination that this project complies with the Clean Air Act. The project does not generate measurable pollutants that impact air quality such as acid rain, urban air pollution, and stratospheric ozone depletion.

Clean Water Act

In compliance with the Clean Water Act, the Oregon Department of Environmental Quality lists the following waterbodies in the project area as water quality impaired (303(d) list): Canyon Creek, Brush Creek and Indian Ford Creek for Temperature; Whychus Creek for pH and Temperature; Abbot Creek for Sedimentation and Temperature. Management direction regarding 303(d) listed rivers is that any project activity should not further degrade the parameters for which it is listed (USDA/USDI 1999). Trail locations, construction specifications and additional PDCs are designed to not further degrade the stream temperature, pH or sedimentation of the associated impaired waterbodies. There will be no measurable impact on water quality.



Pertinent Executive Orders

The responsible official and/or applicable specialist(s) have determined the proposed action complies with the following Executive Orders (EO), which were deemed pertinent:

EO 11988, Floodplain Management – requires determination of action occurring in a floodplain, using HUD floodplain map or more detailed map if available. The Whychus-Metolius Windigo Reroute and Elk Ranch Reroute are located to avoid the Whychus Creek floodplain. A small portion of less than 200 feet of existing tread is in “Zone AE” of the mapped FEMA Flood Hazard Zone which has a 1% annual chance of flood hazard (100-year floodplain). Additional connecting portions of this trail are located within the 0.2% Annual Chance of Flood Hazard (500-year floodplain) and areas of reduced flood hazard risk due to levee. No portion of the trails will be in the Regulatory Floodway. Due to the use of existing tread of user-created paths which are not considered facilities, there will be no impact or net rise to the floodplain.

EO 11990, Protection of Wetlands – avoid actions within wetlands unless there are no practical alternatives, and the action includes all practicable means to minimize harm to wetlands. Trails have been located to avoid wetlands. Where existing trails are located within close proximity or within wetlands, trails are re-routed out of the wetland or design features and trail construction techniques such as providing adequate drainage and use of crossings will be used to avoid impacts to wetlands.

EO 13112, Invasive Species – prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. Equipment cleaning is required to reduce the introduction of invasive plant seed prior to entering National Forest System lands. Invasive plant prevention practices will be discussed at force account crew, volunteer, or contractor pre-work sessions. Highly disturbed areas post-implementation will be seeded with native seed for erosion and invasive species control as determined by a botanist.

EO 13186, Migratory Birds – identify actions that may have a measurable negative effect on migratory bird populations. The proposed action would not have any measurable negative effect on migratory bird populations. Project design criteria are in place to limit adverse impacts to migratory birds.



NEPA: Extraordinary Circumstance Determinations

Pertinent specialists have reviewed the proposed action and informed the following determinations made by the responsible official with regard to the degree of potential effects for the resource conditions considered (Table 5):

Table 5. Resource conditions considered for extraordinary circumstance determinations

Resource Considered for Extraordinary Circumstances	Is there a degree of potential effect that raises uncertainty over its significance? Briefly explain.
Federally listed threatened or endangered species, designated critical habitat, and Forest Service sensitive species	Botany: NO, there is no uncertainty Rationale for no: Trails will follow PDCs incorporated in the proposed action.
	Fisheries: NO, there is no uncertainty Rationale for no: There is small scale and small number of project activities at stream crossings. Trail activities will follow PDCs incorporated in the proposed action.
	Wildlife: NO, there is no uncertainty Rationale for no: Trails will follow PDCs incorporated in the proposed action. Effects have been analyzed through Section 7 consultation.
Floodplains, wetlands, or municipal watersheds	NO, there is no uncertainty Rationale for no: Trails are located to generally avoid floodplains/wetlands and PDCs are applied to avoid impacts.
Congressionally designated areas, such as wilderness, wilderness study areas, or national recreation areas	NO, there is no uncertainty Rationale for no: Wilderness and special management areas' character will be maintained. All applicable management plans and guidelines will be followed.
Inventoried roadless areas	N/A, not present
Research natural areas	N/A, not present
American Indians and Alaska Native religious or cultural sites	NO, there is no uncertainty Rationale for no: During consultation with three area Tribes, there were no formal comments or disagreements with the findings that arose. Cultural resource review of the project did not identify any conflicts with sites.
Archaeological sites, or historic properties or areas	NO, there is no uncertainty Rationale for no: After a review of eligibility determinations and project design criteria, the Forest Heritage specialists found that the project will result in No Adverse Effect to historic properties.



Appendix A. Project Design Criteria

Project design criteria (PDCs) have been incorporated into the proposed action and analysis. Table A.1 - Presents an overview of the PDCs applicability by trail. Table A.2 - Includes the complete PDC language by primary resource area it protects

Table A.1. PDC by Trail Matrix¹.

PDC	B 1	B 2	B 3	B 4	B 5	B 6	B 7	B 8	B 9	B 10	B 11	B 12	C 1	C 2	C 3	C 4	E 1	E 2	E 3	E 4	F 1	R 1	R 2	S 1	S 2	S 3	S 4	S 5	S 6	S 7	S 8	S 9	S 10	S 11	S 12	S 13	S 14	S 15	S 16	S 17	S 18	S 19	S 20	S 21	S 22	S 23	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8		
Trail A	X	X	X	X	X	X	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	X	X	X	X	X	X	X	X		
Trail B	X	X	X	X	X	X	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	X	X	-	-	X	-	-	-	-	-	X	X	X	X	X	X	X	X	
Trail F	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	
Trail H	X	X	X	X	X	X	-	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	-	-	X	X	X	X	X	X	-	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X
Trail J	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	X	X	-	X	-	X	X	-	X	X	X	X	X	X	X	X	X		
Trail L	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	X	X	-	-	-	X	-	-	-	-	X	X	X	X	X	X	X	X	
Trail M	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	X	X	-	-	-	-	-	-	-	-	X	X	-	X	-	X	X	-	-	X	X	X	X	X	X	X	X	
Trail O	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	X	X	-	-	-	X	-	-	-	-	X	X	X	X	X	X	X	X	
Trail P	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X
Trail Q	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	X	X	-	-	-	-	X	X	-	X	-	X	-	X	-	X	-	X	X	X	X	X	X	X	X
Trail R	X	X	X	X	X	X	-	X	X	X	-X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X
Trail T	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	X	X	-	-	-	X	-	-	-	-	X	X	X	X	X	X	X	X	
Brush Creek	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	X	X	-	-	X	-	-	-	-	X	X	X	X	X	X	X	X	
Dry Creek	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
Elk Ranch	-	-	-	-	-	-	X	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	X	X	X	X	X	-	-	-	-	-	-	X	X	-	X	X	X	-	-	-	X	-	-	-	-	X	X	X	X	X	X	X	X
Glacier View	X	X	X	X	X	X	-	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	-	X	X	X	X	X	-	X	X	X	-	-	X	X	X	X	X	X	X	
Sisters to Crossroads	-	-	-	-	-	-	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	
Sisters Tie	-	-	-	-	-	-	X	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-	X	-	-	-	-	X	X	X	X	X	X	X	X
Whychus to Met-Win	-	-	-	-	-	-	X	X	X	X	X	X	X	X	-	X	-	X	X	-	X	X	X	X	X	X	X	X	-	-	-	-	-	-	X	X	-	X	X	X	-	X	-	X	-	-	-	-	X	X	X	X	X	X	X	X

¹ The symbol “X” denotes the PDC is applicable and “-” denotes the PDC is not applicable to the listed trail.



Sisters Trail Additions and Realignments (STAR)



Table A.2. List of all PDCs.

Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
B	Botany & Noxious Weeds					
B – 1	J1: Whitebark pine trees of all size classes will be protected during trail maintenance from damage except those that directly impede trails. Whenever possible, trees will be pruned of side branches to maintain cone bearing branches and allow for continued seed production instead of felled.	High	None	Not applicable.	USDA FS PNW Whitebark Pine Consultation Programmatic Biological Opinion	Trail maintenance: Brush Creek, Glacier View, Trail A (B1), Trail B (B1), Trail H (B1, B4), Trail R (B1, B3)
B – 2	J2: Trail maintenance and reconstruction will stay within existing disturbance footprints whenever possible.	Moderate	None identified.	Not applicable.	USDA FS PNW Whitebark Pine Consultation Programmatic Biological Opinion	Trail maintenance: Brush Creek, Glacier View, Trail A (B1), Trail B (B1), Trail H (B1, B4), Trail R (B1, B3)
B – 3	J3: Trail relocation will be situated to avoid all mature whitebark pines so that no trees need to be pruned or removed. To the extent possible, minimize damage to whitebark pine seedlings and saplings.	High	None identified.	Not applicable.	USDA FS PNW Whitebark Pine Consultation Programmatic Biological Opinion	Trail maintenance: Brush Creek, Glacier View, Trail A (B1), Trail B (B1), Trail H (B1, B4), Trail R (B1, B3)
B – 4	L1: Pre-implementation surveys for whitebark pine and documentation of all size classes are required where these activities overlap with suitable and optimal habitats. In lieu of pre-implementation surveys, a qualified monitor (either a botanist or silviculturist) must be on site during implementation to flag and avoid as operations are occurring.	High	None identified.	Not applicable.	USDA FS PNW Whitebark Pine Consultation Programmatic Biological Opinion	Trail Construction: Brush Creek, Glacier View, Trail A (B1), Trail B (B1), Trail H (B1, B4), Trail R (B1, B3)



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
B – 5	L2: During field surveys whitebark pine of all age classes will be documented. Saplings and mature whitebark pine found would be marked in the field and avoided. Marking will be done in a manner that does not cause damage to the tree or introduce disease (e.g. flagged). Additionally, concentrated pockets of whitebark pine seedlings (that total at least 10 percent of all seedlings in the project area) should be field marked and avoided to the extent possible.	High	None identified.	Not applicable.	USDA FS PNW Whitebark Pine Consultation Programmatic Biological Opinion	Trail Construction: Brush Creek, Glacier View, Trail A (B1), Trail B (B1), Trail H (B1, B4), Trail R (B1, B3)
B – 6	L3: Trail construction will be situated to avoid all whitebark mature pines so that no trees need to be pruned or removed. To the extent possible minimize damage to whitebark pine seedlings and saplings	High	None identified.	Not applicable.	USDA FS PNW Whitebark Pine Consultation Programmatic Biological Opinion	Trail Construction: Brush Creek, Glacier View, Trail A (B1), Trail B (B1), Trail H (B1, B4), Trail R (B1, B3)
B – 7	Work with the project botanist to protect identified TES sites. Routing of trails through identified TES sites must be coordinated alongside the botanist prior to construction.	High	Trail routing through a known TES site.	Contact project botanist.	Deschutes Land and Resource Management Plan as amended (LRMP) TE-6, TE-7	Trail Construction: Trail H (3 Creeks), Brush Creek Reroute, Sisters Crossroads Reroute, Elk Ranch Reroute, Whychus Met Win Reroute
B – 8	Should they be found during implementation, protect any additional unmapped TES and/or survey and manage occurrence sites as specified by botanist.	High	Trail routing through a new TES site.	Contact project botanist.	LRMP TE-6, TE-7	Entire project area
B – 9	Require clean (weed free) equipment to reduce the introduction of invasive plant seed. Clean tires and undercarriages to remove mud, dirt and seeds before bringing onto the National Forest.	High	None identified.	Not applicable.	Federal Noxious Weed Act and	Entire project area



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
					Executive Orders 13112, 13751	
B – 10	Discuss invasive species and invasive plant prevention practices at force account crew, volunteer, or contractor pre-work sessions.	High	None identified.	Not applicable.	Federal Noxious Weed Act and Executive Orders 13112, 13751	Entire project area
B – 11	Alert project botanist if new weed sites are found during implementation and work with botanist to avoid increasing size or density of sites.	High	None identified.	Not applicable.	Federal Noxious Weed Act and Executive Orders 13112, 13751	Entire project area
B – 12	Areas with high levels of disturbance should be replanted or reseeded with local, native species where deemed necessary by botanist	High	None identified.	Not applicable.	Federal Noxious Weed Act and Executive Orders 13112, 13751	Entire project area
C	Cultural Resources					
C – 1	No new trail construction or reroutes within 100 feet of identified avoidance areas. Where avoidance is not practicable, a qualified archaeologist will monitor new trail construction and/or any ground disturbing activities to avoid adverse effects to elements of cultural resource sites that qualify them as eligible or potentially eligible for listing to the National Register of Historic Places.	High	Working within or adjacent to identified avoidance areas.	Contact project archaeologist	National Historic Preservation Act (NHPA); Forest Service Manual (FSM) 2360.63; LRMP CR-4, CR-11; Whychus WSR Mgmt Plan	Entire project area
C – 2	If encountered during implementation, cultural resources will be reported to project archaeologist and avoided.	High	Working within or adjacent to identified avoidance areas.	Contact project archaeologist.	NHPA; FSM 2360.63; LRMP CR-2, CR-11; Whychus WSR Mgmt Plan	Entire project area



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
C – 3	No falling of historic blazed trees along Brush Creek Trail Reroute.	High	Working along Brush Creek Trail Reroute	Contact project archaeologist.	NHPA; FSM 2360.63; LRMP CR-4, CR-11;	Brush Creek Trail Reroute.
C – 4	An Inadvertent Discovery Protocol will be provided to all project implementers, including volunteers and agency personnel.	High	None identified.	Not applicable.	NHPA; FSM 2360.63; LRMP CR-2	Entire project area
E	Engineering					
E – 1	Use ¾" minus base rock at trail intersections with hardened surfaced (asphalt concrete, BST, etc.) roads. Compaction with a vibrating plate compactor is preferred but could be tamped by hand as well. Adjust moisture before compaction. Base rock should cover the full width of the tread for 3' from the edge of hardened surface. Base rock must come from a weed-free source determined by the project botanist.	Moderate	None identified.	Not applicable.	Professional judgement/to protect edge of pavement	Sisters to Crossroads, Trail H
E – 2	Where trails cross roadside ditches, place a culvert in line with the roadside ditch to preserve positive drainage. 12" corrugated steel is preferred. Place fill over the top of the culvert to provide a smooth transition between the shoulder and road backslope.	High	None identified.	Not applicable.	Professional judgement/to preserve positive drainage	Entire project area
E – 3	On trails that overlap Maintenance Level 1 or unauthorized roads, utilize boulders, vegetation, or signs to eliminate motorized traffic. Use the most economical method that is effective in meeting the management objectives for the area.	High	None identified.	Not applicable.	LRMP TS-7, TS-8	Entire project area
E – 4	Install yield signage on trails where they intersect Forest Service Roads to warn trail users of crossing vehicle traffic.	High	None identified.	Not applicable.	Professional judgement/trail user safety	Trail H, Sisters to Crossroads



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
F	Fire/Fuels					
F-1	During trail construction or maintenance activities, slash material should be sufficiently scattered outside of the trail corridor. Small amounts of slash may be scattered in a manner that does not create large concentrations of fuel. If large amounts of slash are generated, consult with project fuels staff for site specific guidance as materials may need to be chipped and hauled from the site.	Moderate/ High	None identified.	Not applicable.	LRMP M8-27	Entire project area
R	Recreation & Scenic Resources					
R – 1	It is expected that various elements of the project will be broken out and implemented separately. For each trail or grouping of trails for implementation, the following steps should be taken and documented: 1) Coordinate with internal program areas (e.g. special uses, timber, fire, public affairs, etc.) prior to implementation to ensure implementation is coordinated across programs. 2) Hold a pre-work meeting prior to implementing approved actions to ensure that USFS trails staff and/or partners implementing the action understand the desired objectives and associated PDCs. 3) Hold a post-work meeting to ensure the project achieved the objectives and to capture lessons learned for future projects.	Moderate	Partner led implementation.	Ensure partners understand expectations and cover at annual pre-season planning meetings.	Best Practices	Entire project area
R – 2	Provide USFS Public Affairs Staff and Recreation Team Lead notification of any need for trail closures or other public notification needs at least 10 days in advance of activities.	High	Partner led implementation.	Ensure partners understand expectations and cover annual	Best Practices	Entire project area



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
				season planning meetings.		
S	Soil, Water & Fisheries					
S – 1	Locate or relocate trails to conform to the terrain, provide suitable drainage, provide adequate vegetated buffer between the trail and nearby waterbodies to prevent sediment delivery to waterbodies and avoid potential adverse effects to soil, water quality, or riparian resources.	High to Moderate	None identified.	Not applicable.	USDA USFS 2012 National Best Management Practices (BMPs), NWFP RP-22	Elk Ranch, Whychus to MetWin, Trail H, Trail J, Glacier View
S – 2	Avoid sensitive areas, such as riparian areas, wetlands, stream crossings, inner gorges, and unstable areas to the extent practicable.	High	None identified.	Not applicable.	BMPs	Elk Ranch, Whychus to MetWin, Trail H, Trail J Glacier View
S – 3	Use suitable measures to hydrologically disconnect trails from perennial and intermittent waterbodies to the extent practicable.	High	None identified.	Not applicable.	BMPs	Entire project area
S – 4	Use applicable practices for control of erosion and stormwater when constructing trails.	High to Moderate	None identified.	Not applicable.	BMPs	Entire project area
S – 5	Install and maintain suitable drainage to collect and disperse runoff and avoid or minimize erosion of trail surface and adjacent areas.	High	None identified.	Not applicable.	BMPs, LRMP RP-22	Entire project area
S – 6	Assess trail conditions to identify drainage and trail surface maintenance needs to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources. Once yearly for two years after spring runoff by trails, soils or aquatic specialists.	High to Moderate	None identified.	Not applicable.	BMPs, LRMP RP-22	Glacier View, Trail H, Trail M
S – 7	Manage designated trails to mitigate adverse effects to soil, water quality, and riparian resources from over-use when closure and rehabilitation is not practicable or desired.	High to Moderate	None identified.	Not applicable.	BMPs, LRMP RP-2	Glacier View, Trail M



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
S – 8	Minimize the number of stream crossings.	High	None identified.	Not applicable.	LRMP RP-24	Glacier View, Trail H
S – 9	Stream crossings (bridges, culverts, fords) should be constructed perpendicularly to the stream channel.	High	None identified.	Not applicable.	LRMP RP-26	Glacier View, Trail H, Trail Q
S – 10	Harden fords with materials found on site. Construction of step downs is recommended where materials area available and additional disturbance to channels can be minimized. Rock hopping should be utilized as crossings for very small drainages where rock is present to minimize additional disturbance.	High	None identified.	Not applicable.	LRMP RP-26, BMPs	Glacier View, Trail Q
S – 11	Bridge structures and culverts on streams and ditches must be channel spanning and able to accommodate high flows, no center piers. Culvert bottoms should be embedded in the substrate.	High	None identified.	Not applicable.	BMPs	Elk Ranch, Whychus to MetWin
S – 12	No instream work with heavy equipment is allowed, streambank work and persons wading instream is allowed.	High	None identified.	Not applicable.	Northwest Forest Plan (NWFP) RP-16, RP-20	Elk Ranch, Whychus to MetWin, Trail H, Glacier View
S – 13	Bridges built over waterways made of wood must use light penta oil or natural wood to reduce potential impacts to fish and aquatic organisms. Coordinate with Fish Biologist for use of non-listed materials. Use of wood treated with creosote, heavy penta oil or copper napthanate is not allowed. Treated wood may only be used on bridge sills.	High to Moderate	None identified.	Not applicable.	InFISH RA-3	Trail H and any other identified bridges
S – 14	Any disturbed areas adjacent to streams or waterbodies will be stabilized by use of approved erosion controls (wattles, silt fences, mulch, slash or fabric) and then revegetated with native plants and grasses.	High	None identified.	Not applicable.	NWFP RP-12-13	Elk Ranch, Whychus to MetWin, Trail H, Glacier View
S – 15	Keep refueling and fuel storage at least 150 feet away from streams, ditches, wetlands and other waterbodies. No storage of fuels near live streams or intermittent stream channels or wetlands.	High	None identified.	Not applicable.	InFISH RA-4	Entire project area



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
S – 16	Trees may be felled in RHCAs and riparian reserves for initial trail construction or to address safety concerns. Keep felled trees in RHCAs and riparian reserves on site.	High	None identified.	Not applicable.	InFISH RA-2, NWPF RA-2	Entire project area
S – 17	Work with Aquatics specialists on planning the rehabilitation of the existing Glacier View Trail and restoring Canyon Creek headcut to protect and restore wet meadow areas.	High	None identified.	Not applicable.	NFWP RP-5	Glacier View
S – 18	In mapped sensitive soil types of high-water table potential, pre-implementation surveys for sensitive soils needed to verify site specific concerns. Where new routes overlay soils with high water table are field verified, align trail to avoid these areas where practicable. Where avoidance of the area is not practicable, follow standard trail management and maintenance guidelines for trails in “wet areas”. Consult with soils or aquatics specialists to help determine appropriate technique (i.e. puncheons, turnpikes, etc.). Consult project wildlife biologist to determine appropriate technique for bridge on Trail H to minimize disturbance to NWFP Survey and Manage species.	High	Provided in PDF.	Provided in PDF.	LRMP SL-1, SF-4, SF5, NWFP Survey and Manage	Trail A, Whychus Met-Win Reroute, Trail H, Trail J, Trail M, Trail R, Trail P, Trail Q, Trail F, Sisters Crossroads
S – 19	In highly erosive or displaceable soil types, consider stabilization structures (may include rock walls, gabion baskets, or log retaining structures) to minimize slope creep where fall-line slope exceeds 20%. Forest Service staff (recreation, soils/geology, or aquatics) will monitor site stability during the first season of use to determine if stabilization actions are needed. Monitoring specifics will be provided in the Trail Implementation Plans.	High	None identified.	Not applicable.	LRMP SL-1, SF-4, SF5	Brush Creek Trail, Trail B, Glacier View Trail
S – 20	To reduce potential for excessive rutting and development of multiple tread paths, where practicable, to minimize the tendency of stock to create braided or multiple trail treads,	High	None identified.	Not applicable.	BMPs	All Equestrian Trails



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
	designate season of use ¹ to avoid periods when trail surfaces are particularly prone to unacceptable rutting.					
S – 21	Provide reasonable access to stock water at suitable intervals along designated equestrian trails where practicable and minimize erosion near stream and ditch banks.	High	None identified.	Not applicable.	BMPs	Trail M, Trail J, Glacier View
S – 22	Provide adequate drainage where the trail (existing roadbed) crosses the ephemeral stream channel. Work with Hydrologist or Fish Biologist to meet stream crossing design requirements.	High	None Identified.	Not applicable.	LRMP RP-26, BMPs	Trail Q
S – 23	To reduce long-term trail rutting potential in soils with a high-water table on Trail J and possible sedimentation to Pole Creek Ditch, provide a minimum 50-foot buffer to Pole Creek Ditch, where practicable.	High	If this is not possible due to other resource concerns.	Implement trail techniques to prevent rutting, allow drainage, monitor, improve as needed.	LRMP SL-1, SF-4, SF5	Trail J
W	Wildlife					
W – 1	Disturbance activities (e.g., elevated noise related to trail construction such as ground compactor, chainsaw) will be restricted within ¼ mile of any known or newly discovered nests, dens, or bat hibernacula/maternity colony as shown in list below or unsurveyed northern spotted owl nesting, roosting, foraging (NRF) habitat.	High	None identified.	Not applicable.	LRMP WL-3, WL-4, W1-5, WL-11, WL-12, WL-19, WL-20, WL-28, WL-29, WL-33, WL-34, M11-30	Entire project area

¹ Season of use is part of a trail's designed use outlined in the trail management objectives set for each trail. Designed Use is the anticipated use with the most demanding impacts which determines the appropriate trail parameters to apply to a given trail (FSH 2309.18, Section 14.4). For the equestrian trails, it is anticipated the predominant use by equestrians would occur during the snow free season and, as such, the trail will be designed to those parameters. Season of use does not restrict trail use outside the designed use period but rather acknowledges most trail use would occur within the designated period.



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
	- Red-tailed hawk & Northern goshawk: March 1 to August 31 - Coopers & Sharp-shinned Hawk: April 15 to August 31 - Osprey: April 1 to August 31 - Northern Spotted Owl: March 15 to September 30 - Great Gray Owl: March 1 to June 30 - Great Blue Heron: March 1 to August 31 - Bald Eagle: February 1 to July 31 - Golden Eagle: February 1 to July 31 - Bat hibernacula: November 1 – April 15th - Bat maternity colony: April 15th – October 31 This condition may be waived in a particular year if nesting or reproductive success surveys reveal that the species indicated is non-nesting or that no young are present that year as coordinated through project wildlife biologist. If new nests, dens, or hibernacula are discovered or raptors are sighted exhibiting territorial behavior during layout, implementation, or monitoring activities, the project wildlife biologist will be contacted immediately. All activities will cease until a wildlife biologist can evaluate the site to determine appropriate protection measures. If nesting activity is not evident by May 15th (goshawk, great gray Owl) or June 15th (Cooper's and sharp-shinned hawks), a nest will be considered inactive and project activities may proceed for the season.					
W – 2	For added trails (i.e., trails being added on pre-existing roads or trails), down wood may be shifted off trail or bucked the width of the trail. Trail layout will avoid large snags that may be	High	None identified.	Not applicable.	LRMP M7-12, WL-20, WL-22, WL-37, WL-38,	Entire project area



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
	hazard trees. If unavoidable, consider topping the tree to maintain the maximum safe height or retaining the bole as unbucked down wood.				WL-61, WL-63, WL-72	
W – 3	For new trails, final layout will be reasonably comparable in length and location to the trails as mapped in the planning document. Final trail layout will avoid sensitive wildlife habitat by routing around large logs/snags, riparian corridors/wetlands, patches of hiding cover, guzzlers, and caves, where practical. Logs to avoid include those over 12 inches dbh and accumulations of log of any size layered 3 or more logs deep. Hiding cover is defined as stands meeting one of the following: • Stands six acres or larger that are capable of hiding 90 percent of a standing adult deer from the view of a human at 200 feet. • Stands six acres or larger with an average height of 6 feet and which has not been thinned in 15 years, or in black-bark pine, a minimum of one-half acre in size which has not been thinned or harvested for at least 20 years. Proposed trails through sensitive wildlife habitat will be reviewed by the project wildlife biologist once the final route is flagged on the ground but not yet constructed.	High	None identified.	Not applicable.	NWFP, LRMP WL-64, WL-75	Entire project area
W – 4	Trail crews will be provided with resources to aid in the identification of wolf and wolverine signs. Any suspected sighting will be reported to the project wildlife biologist within 24 hours. <u>If a potential wolf or wolverine den is discovered, all activities will immediately cease until a wildlife biologist can evaluate the site to determine appropriate protection measures.</u>	Moderate	None identified.	Not applicable.	LRMP WL-40, Endangered Species Act	Entire project area



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
W – 5	Recreation will coordinate with the project wildlife biologist at least four months prior to trail implementation to identify if coordination is needed between the Forest and the U.S. Fish and Wildlife Service (the Service) to identify an appropriate pre-project and project-concurrent wolf trail specific monitoring plan specific to the trail area. Monitoring tools include but are not limited to trail cameras, autonomous recording units (ARUs), and training of project staff and marking crews on how to identify and report incidental wolf signs (e.g., tracks, scat, and evidence suggestive of a den site).	High	None identified.	Not applicable.	Wolf Programmatic	Entire project area
W – 6	Wolf Den and Rendezvous Buffer Zones: At the time of decision, some project activities overlap with a known area of known wolf activity (AKWA – Metolius/North Cascade Multipack). At the time of decision there are no known wolf den or rendezvous sites in or near the project area. All activities associated with the proposed action, including noise generating activities, will be restricted within a 1-mile buffer zone around known den or rendezvous sites (i.e. homesites) from April 1 through July 15 (the wolf denning and rendezvous period). If a wolf homesite is discovered within a project area during implementation between April 1 and July 15 (the denning and rendezvous period), then all project activities within 1 mile of the homesite shall cease immediately (as practicable without endangering human safety, etc.) and the Forest must notify the Service by the end of the next business day. The Forest will then coordinate with the Service and Oregon Department of Fish and Wildlife (ODFW) to implement	High	If a wolf homesite or a new AKWA is proposed where project activities are planned.	Coordinate with the project wildlife biologist.	PDC 1 of Wolf Programmatic (USFWS)	Entire project area



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
	an effective buffer zone to avoid repeated disturbances before project activities can resume. If an AKWA is added where the homesite is unknown and project activities will occur during the denning and rendezvous period, the following criteria apply: A) The Forests will work with the Service to identify an appropriate pre-project and project-concurrent wolf monitoring plan specific to the project area to inform whether or where to implement the buffer zone. B) Project pre-implementation review: 1) Before project implementation within an AKWA, the Forests shall communicate the results of pre-project monitoring to the Service. 2) If the best available data supports that the den/rendezvous site(s) occurs at least 1 mile from all proposed project activities and project activities are unlikely to disturb the activities of those wolves, the project can be implemented without the buffer zone. Project staff will be trained on the identification of wolf signs and will be instructed to report wolf observations to the Forests. 3) If pre-project monitoring data supports the existence of a wolf den within 1 mile of project activities, the Forests shall implement the buffer zone. 4) If the Service determines that monitoring data supports the existence of a homesite within 1 mile of the project area, the Forests will defer to the Service's determination and implement the buffer zone.					



Sisters Trail Additions and Realignments (STAR)



Number	Design Feature	Effectiveness	Watch Out Situations (if applicable)	Procedures if Watch Out Situation	Ensures Compliance With	Applicable Area/Activity
	C) Project area monitoring through the denning and rendezvous period (April 1 through July 15). If monitoring data are inconclusive (i.e., wolf or wolves detected, but the best available information cannot corroborate the presence or absence of a den/rendezvous site), the Forests will either: 1) Implement the buffer zone until the best available information suggests that wolves are denning at least 1 mile from project activities and would not be affected by those activities; or 2) Implement project activities with monitoring through the duration of the denning period as described below: i. For the first 30 days of project activities, the Forests will check monitoring equipment within the project area every 7 to 10 days. Those data will be processed within the same time frame, and wolf observations will be communicated to the Service by the end of the next business day. After 30 days, if recurring wolf observations continue, the Forests will continue to monitor and work with the Service to determine whether the buffer zone should be implemented and if so, how to best avoid or minimize effects to wolves. ii. If wolves are not detected within 1 mile of the project over the 30-day monitoring period, monitoring of cameras and ARUs may decrease to a monthly basis for the remainder of the denning period unless new wolf observations are detected. If new wolf					



Sisters Trail Additions and Realignments (STAR)



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	observations are detected, the Forests will return to a weekly monitoring frequency.					
W – 7	If a proposed action may result in an overall increase in public use that could increase human disturbance within an AKWA, the Forests will engage in outreach, education, and deploy signage in wolf use areas that advise the public on appropriate cautions such as walking dogs on leash, appropriate disposal of human food trash, and not feeding or approaching wolves.	Moderate to High	If a new AWKA is proposed within the project area.	Coordinate with the project wildlife biologist.	PDC 4 of Wolf Programmatic (USFWS)	Entire project area
W – 8	If a new Threatened, Endangered, Proposed species is listed, proposed, or elevated at any part of implementation, all project activities within and adjacent to habitat/critical habitat will stop until species special protection measures are developed to mitigate disturbance from project activities for the given habitat or for the project area of concern. If a new R6 Sensitive Species is listed, all project activities will stop within the species' associated habitat until species special protection measures are developed to mitigate disturbance from project activities for the given habitat or for the project area of concern.	High	None identified.	None applicable.	Endangered Species Act, Forest Service Manual 2670.31-32, National Forest Management Act, National Environmental Policy Act	Entire project area