

SANDY RIVER BASIN INTEGRATED MANAGEMENT PLAN

CHAPTER 3



Chapter 3: Management Objectives, Standards and Guidelines

Chapter 3 provides an overview of general management objectives; standards and guidelines for BLM administered lands in the Sandy River Basin. This chapter outlines the resource specific direction the BLM will use to assess land or resource use activity and will apply when implementing various management practices. Resource Specific management actions are discussed in Chapter 4.

Desired Future Condition: This section describes the desired outcome or condition of a specific resource at some time in the future (usually the duration of the planning cycle 15 years). It is a description of the desired end product of management for the resource.

Management Objective: Refers to project specific goals that would lead to a realization of the outlined desired future conditions.

Management Direction: Refers to direction developed specifically for the particular resource as it relates to the planning area. Management direction establishes the guidelines, constraints, criteria or parameters to which all management actions or land use activities regarding the particular resource must adhere.

3.1 Recreation

Issue Identification: A public outreach plan was created to provide opportunity for recreation-related stakeholders within the Sandy River Basin to explore the issues, needs, and vision for the planning area. As a result of this effort a niche for BLM lands was developed. Specifically, the planning area offers opportunities for providing barrier free river access, day use recreation and multiple use non-motorized trail development.

As part of the scoping undertaken during the Sandy River Basin planning process, two focus group workshops were held; one of these meetings focused river-based recreation. The meeting allowed planning team members to sit down with local river users, businesses operators and agency representatives in order to identify where current recreation resources were inadequate to meet demand.

River-based Recreation: A key concern among those involved during the river-based workshop centered on access to the Sandy River. Participants identified that there weren't enough safe river access points along the middle and upper portions of the Sandy River, and those that existed were problematic. Users were utilizing bridge right of ways and other informal access points to enter the river, giving rise to concerns about safety and private property trespass.

After rolling out the planning maps, participants identified key locations along the Sandy River that offered good opportunities for remedying these concerns and shortcomings.

Trail-based Recreation: Trail based focus group participants identified the need for providing a trail link between the developed opportunities found near the Portland Metro area, and the primitive opportunities provided for in the Mount Hood and Salmon-Huckleberry Wilderness areas. BLM-

administered lands in the middle Sandy River Watershed were identified as a key public access point to provide non-motorized multiple use trail opportunities.

The following desired future conditions, recreation niche, primary market strategy and recreation objectives were formed, in part, via trail and river based public participation.

Desired Future Condition

The area's close proximity to the majority of Oregon's population and abundant beauty cause the Sandy River Basin to receive high levels of use and attention from recreationists and tourists. Recreation sites at Marmot and the Sandy-Salmon confluence allow for improved levels of river access to the middle section of the Sandy River. BLM recreation facilities play a key role in connecting recreation facilities on the lower Sandy and in close proximity to the Portland metro area with dispersed and developed opportunities provided by the Mount Hood National Forest. BLM-administered lands and recreation facilities provide high quality day use opportunities and non-motorized multiple use trails where identified. A community-based approach to recreation management solicits input and assistance from a wide variety of stakeholders, user groups and community members.

Recreation in the SRBIMP will be managed for activities, experiences, and associated beneficial outcomes under a Benefits-Based Management framework (see Chapter 5). Three recreation experience zones correspond to benefits-based management objectives. Each zone exhibits a unique set of recreation opportunities (i.e., consisting of activities, experiences, and benefits), use patterns, and management issues and actions that combine to facilitate the production of a specific recreation outcome.

Niche: Only 40 miles from the Portland metropolitan area, the Sandy River Basin offers a scenic corridor with a unique mix of both high quality developed recreation, interpretative facilities and river greenway open space.

Primary Market Strategy: A 'Destination' market strategy is pursued, reflecting the draw of the Sandy River Basin for visitors beyond the immediate vicinity. Recreationists come from throughout the Pacific Northwest to participate in river-based recreation opportunities including angling, kayaking, and boating. New trail-based opportunities appeal to recreationists throughout the region. Corresponding markets for recreation development in the planning area include the communities of Sandy, The Villages at Mount Hood, the Portland metropolitan area and rural Clackamas County.

Management Objectives

- Provide a range of experiences that facilitate beneficial outcomes for visitors.
- At developed sites provide clean, safe, enjoyable, and accessible facilities and outdoor recreational opportunities in a forested setting. In undeveloped areas provide less developed open space for a variety of outdoor recreation and nature study opportunities.

- Provide recreationists with adequate signage, interpretative and educational information. Where possible, interpretive and environmental information efforts will be coordinated with other recreation providers in the basin to foster consistency.
- Provide recreation opportunities under the Benefits-Based Management Framework.

Management Direction

Recreation resources have been stratified out into four categories and management direction developed for each. Specific direction by category is as follows:

General Recreation Management Direction

- Commercial guiding and outfitting activities on the river and any other commercial uses of federal lands shall be required to obtain a special recreation use permit.
- The BLM will identify partners and strive to involve user groups, volunteers, and other interested public in maintaining resources through partnerships, adopt-a trail programs, and special events.
- Where possible the BLM will coordinate with regional partners to develop and disperse visitor information consistent with the area's 'Destination' market strategy.
- Utilize signage to delineate public-private property boundaries where feasible and visitation is expected.

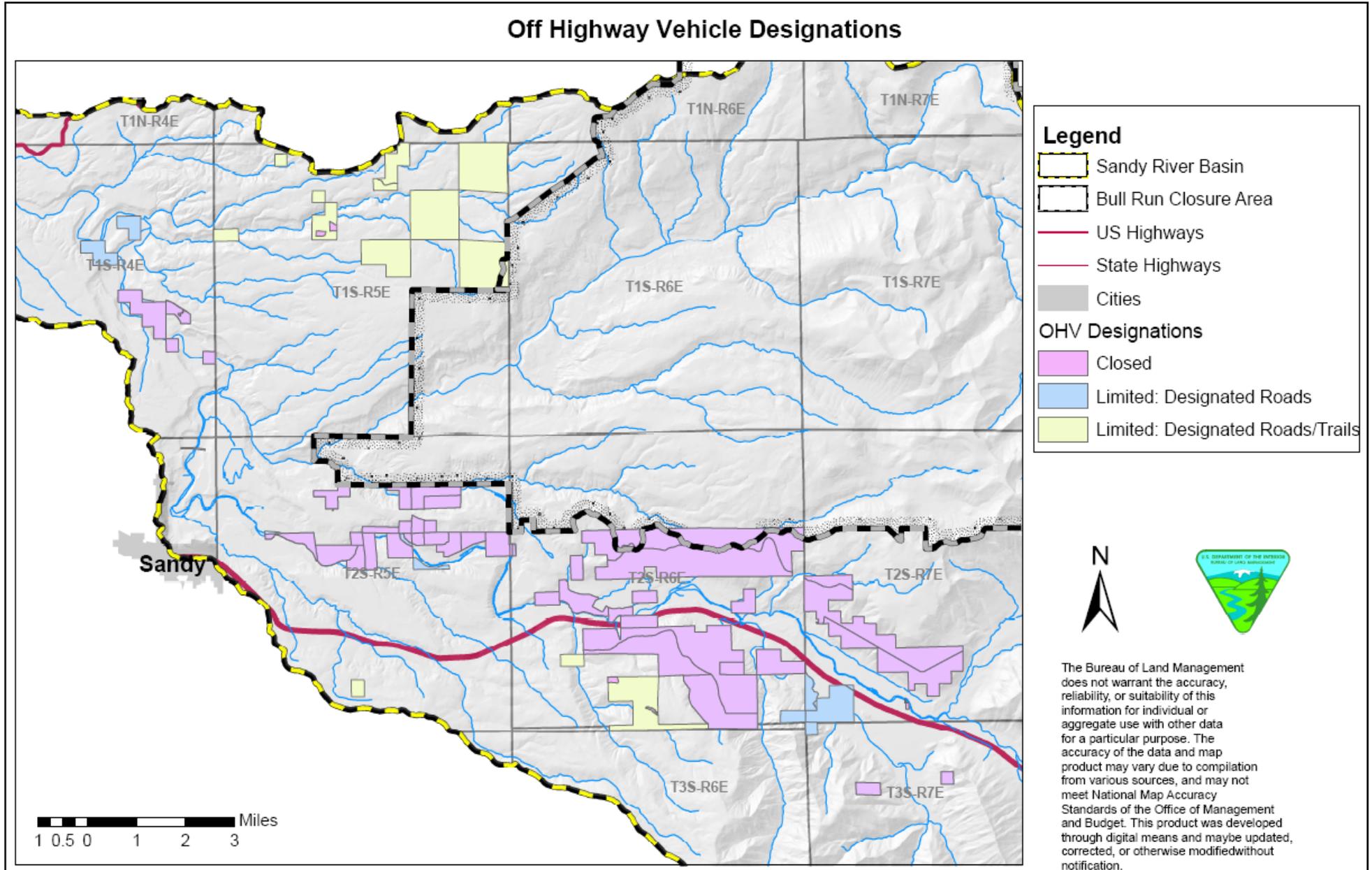
Travel and Transportation Management Direction

- Manage OHV use consistent with Area Designations (see Figure 3: Off-Highway Vehicle Designations) and consistent with guidelines contained in the 2008 Resource Management Plan*:
 - Limited to designated roads and trails (3609 acres).
 - Limited to designated roads (882 acres).
 - Closed (10189 acres)

**Note: some newly acquired lands were not assigned an OHV designation during the 2008 RMP process and as such, the total does not equal 14850 acres*

- **Closed Area Management Guidelines:**
 - All motorized vehicles are prohibited from entering closed OHV areas unless authorized by the BLM for administrative purposes.
- **Limited Area Management Guidelines:**
 - Manage limited OHV areas in accordance with all applicable federal and state off-highway vehicle regulations.
 - Motor vehicle use will be limited to administrative, commercial, and passenger vehicle traffic where not specifically signed or gated.
 - Until road and trail designations are complete, all motorized vehicles will be limited to the interim road and trail network as mapped unless closed or restricted under a previous planning effort or due to special circumstances as defined below.

Figure 3: Off-Highway Vehicle Designations



- Routes may be closed or their use limited under seasonal or administrative restrictions. These restrictions may include, but are not limited to , fire danger, wet conditions, special requirements for wildlife species, protection of cultural resources, or for public safety.
- Limitations apply to all class 1 all terrain vehicles (ATV's), Class II 4-wheel drives (4WDs) and Class III (motorcycles) vehicles and to all activity types (recreational, commercial, etc.) unless authorized by the BLM for administrative purposes.

Trail Development Management Direction

- ***Sustainable trail development*** will occur within the planning area. Trail design will allow for a high quality experience while protecting sensitive cultural and natural resources.
- ***10 percent average trail guideline:*** The average trail grade for any given trail network will not exceed 10%.
- ***Out slope and grade reversal guideline:*** Trail out slope of 10 percent or greater will be implemented to facilitate proper drainage.
- ***Half rule guideline:*** Trail grade or steepness will not exceed half the grade or steepness of the hillside.
- ***Maximum sustainable grade*** established by experience zone. Each experience zone will provide a different trail experience.
 - Developed zone will maintain a maximum grade as not to exceed 5 percent.
 - Front country zone will maintain a maximum grade as not to exceed 10 percent.
 - Backcountry zone will maintain a maximum grade as not to exceed 17 percent.
- ***Trail reconstruction and realignment:*** will be allowed for “social trails or poorly aligned existing trails when necessary.
- ***Vegetation removal:*** Trail design minimized vegetation removal through route designation.
- ***Trail brochures*** will be developed for all developed trail systems stressing trail etiquette and Tread Lightly principles.
- The level and degree of ***trail-related signage*** will be dictated by the objectives and direction outlined for each recreation management zone (see Chapter 5).
- ***Communication:*** Clearly publish trail closures and other relevant regulatory information which will be made available through a variety of channels including brochures, web-based outreach and partnerships.

Facility Development Management Direction

- Facilities will be developed in a manner that minimizes long term operation and maintenance costs.
- No overnight camping facilities will be developed within the planning area.
- Day use facilities will provide the necessary amenities to reduce environmental impacts and facilitate the implementation of a standard amenity fee system.
- Planned and future development will focus on minimizing private property trespass issues, and provide safe alternative to accessing the Sandy River.
- Future development, to the greatest extent possible, would be designed to adhere to visual resource goals within the planning area and blend with the natural environment.

- BLM will seek assistance from interested groups in developing themes for interpretive and educational materials at recreation facilities, particular the former Marmot Dam site.
- Current and future emphasis should be placed on identifying opportunities for barrier free recreation access.

3.2 National Landscape Conservation System Units

The National Landscape Conservation System (NLCS) is a collection of over 850 units totaling roughly 27 million acres managed by the Bureau of Land Management. Its purpose is to conserve, protect, and restore nationally significant landscapes recognized for their outstanding cultural, ecological and scientific values.

Desired Future Condition

All NLCS units within the planning area will be managed in accordance with the mechanism of their inclusion into the System. The units will be promoted and recognized as regional components of an interconnected national system. The integrity and primary values of each unit will be protected.

General NLCS Objectives

- Preserve and enhance the primary values for which each NLCS unit was designated.
- Where possible, educate visitors about the National Landscape Conservation System and highlight the importance of NLCS units within the Sandy River planning area.

Management Direction for Each of the NLCS unit types

Wild and Scenic Rivers Direction

- Protect and enhance outstandingly remarkable values of designated wild and scenic river corridors (including those classified as wild, scenic, or recreational).
- Provide interim protection to wild and scenic river corridors (including those classified as wild, scenic, or recreational) that are suitable for inclusion as components of the National Wild and Scenic Rivers System.
- Provide interim protection to wild and scenic river corridors (including those classified as wild, scenic, or recreational) that are eligible but have not yet been studied for suitability as components of the National Wild and Scenic Rivers System pending suitability evaluations.

Wilderness Areas Direction

- Preserve the undisturbed natural integrity of existing and potential future Wilderness and Wilderness study areas.

Mount Hood Corridor Direction

- Manage lands in the Mount Hood Corridor primarily for the protection or enhancement of scenic qualities. Management prescriptions for other resource values associated with these lands shall be planned and conducted for purposes other than timber harvest, so as not to impair the scenic qualities of the area.
- Timber cutting may be conducted following a catastrophic event. Such cutting may only be conducted to maintain safe conditions for the visiting public; to control spread of forest fire; for activities related to the administration of Mt. Hood Corridor Lands and for removal of hazard trees along trails and roadway.

Bull Run Management Unit (BRMU) Direction

- Protect and enhance water quality on BLM-administered lands within the Bull Run Watershed Management Unit (located in the Salem District).
- Exclude timber harvesting, except as necessary to protect or enhance water quality; or except as necessary for the construction, expansion, protection, or maintenance of facilities for either a municipal water supply or energy transmission.
- Codify a public access closure to BLM-administered lands within the BRWMU through the completion of a Federal Register Notice and inclusion into the Code of Federal Regulations.
- Manage public access to surrounding BLM-administered land in such a manner that minimizes the potential for recreation-related public trespass into the BRWMU.
- Utilize public information and visitor management strategies to increase awareness of the Bull Run Watershed Management Unit. Public information, via brochures, agency personnel, the internet and other media, will include references to the BRWMU and its closure to public access.
- Construct trails in a manner that fully recognizes the potential for undesirable public access into the BRWMU. Trail design tactics that take into account landscape feature and likely trail user behavior will be utilized.
- Implement structural controls to detour potential trespass.

3.3 Visual Resources

Desired Future Condition

BLM administered lands within the planning area exhibit a variety of scenic qualities which prompted their inclusion into the National Landscape Conservation System. Significant portions of protected lands will retain an undeveloped character while existing close to the Portland metropolitan area. The overall existing character and appearance of this landscape will remain basically unchanged from its present condition. Management objectives and direction have been established to balance resource use with other activities to the extent that they protect and enhance the quality of visual resources within the planning area. Zoning regulations will continue to dictate the extent and type of development or resource use that can occur on given parcel of private land with direct review by the BLM for compliance.

Management Objective

- Minimize the visual impacts of all surface disturbing activities regardless of the Class in which they occur (see Figure 4 VRM designations).

VRM Class 1 areas- Preserving the existing character of the landscape

- Provide for natural ecological changes in visual resource management class 1 areas.
- Some very limited management activities may occur in these areas.
- The level of change to the characteristic landscape should be very low and will not attract attention.
- Changes should repeat the basic elements of form, line, color, texture and scale found in natural features of surrounding areas./landscape.

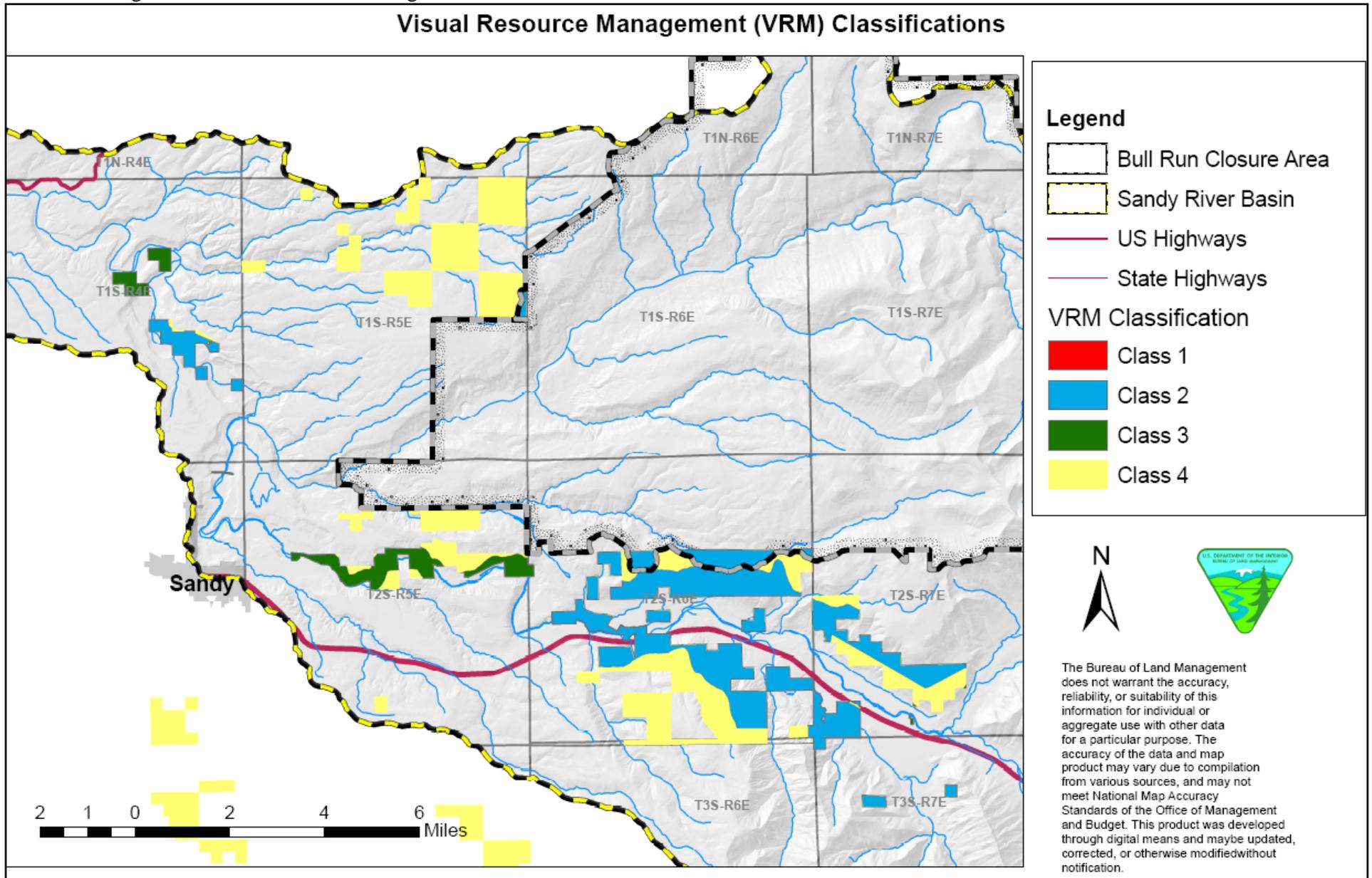
VRM Class 2 areas- Retaining the existing character of the landscape

- Manage for low levels of change to the characteristic landscape.
- Management actions can be seen but cannot attract the attention of the casual observer.
- Change should repeat the basic elements of form, line, color, texture and scale found in natural feature of surrounding areas/landscape.

VRM Class 3 areas- Partially retain the existing character of landscapes

- Manage for moderate levels of change to the characteristic landscape.
- Management activities may attract attention but should not dominate the view of the casual observer.

Figure 4: Visual Resource Management Classifications



- Changes should repeat the basic elements of form, line, color, texture and scale found in natural feature of surrounding areas/ landscape.

VRM Class 4 areas- Allow major modifications of character of landscape

- Manage for moderate levels of change to the characteristic landscape.
- Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the effect of these activities through careful location, minimal disturbance, and repeating the basic elements of form, line, color, and texture.

Management Direction

- The visual quality of BLM managed lands in the planning area will not change dramatically under existing regulations and established visual resource management guidelines.
- Priority acquisitions within the planning area would be identified to mitigate potential future impacts to visual resources by minimizing the potential for altering the forested setting that comprises the planning area.
- Unregulated recreational use and future development of the river corridor within the planning area would be address to preserve the visual qualities of BLM managed lands.
- The overall visual quality within the planning area would remain unaltered.

3.4 Cultural Resources

Desired Future Condition

Public lands will be inventoried to determine the presence of specific prehistoric and historic sites. Some historic activities and sites have been previously identified. The National Historic Preservation Act and other laws mandate certain requirements for identification, evaluation and protection of cultural resource values. Inventories will be performed whenever a ground disturbing project is proposed. Evaluations of identified sites will occur in accordance with federal law and Bureau policy.

Management Objective

- Conserve scientific, traditional use, heritage, educational, public, and recreational values of cultural and paleontological resource sites.

Management Direction

- Avoid ground disturbing actions on sites that are listed (or eligible for listing) on the National Register of Historic Places.
- Salvage sites with scientific value prior to disturbance through practices such as date recovery, which include excavation, relocation, or documentation if avoidance is not practical.

3.5 Hydrology/Water Quality and Quantity/Soils

Desired Future Condition

Riparian and channel conditions on BLM-administered lands are maintained or enhanced in a manner that contributes to Basin-wide water quality objectives. Total Maximum Daily Load (TMDL) effective shade targets are achieved where potential riparian and channel conditions allow through non-impairment of functioning areas and active restoration of sites currently below site potential effective shade. Best Management Practices (BMP's) contained in the 2008 Salem RMP are utilized to successfully move water quality on BLM-administered lands towards improved conditions. Management actions effectively reduce or minimize sediment and bacteria introduction to streams and waterways.

Management Objectives

- Provide for long term soil productivity.
- Maintain or restore riparian vegetation to meet TMDL Effective Shade Targets to attain system potential effective shade.
- Maintain or enhance channel and floodplain function through active restoration techniques and/or passive restoration.
- Maintain and restore water quality.

Management Direction

General:

- Design and implementation of projects will minimize detrimental soil disturbance to provide for long term productivity and avoid potential for accelerated erosion and sedimentation.
- Best Management Practices and Riparian Management Areas will be implemented to maintain or restore water quality.

For Active Management along Perennial Streams:

- Apply thinning and other silvicultural treatments to speed development of riparian vegetation and channel system potential.
 - Exclude thinning within 60 ft of the ordinary high water line (primary shade zone) on either side of channel.
 - Only thin down to 50% canopy closure from 60 ft to the distance equivalent to the height of one site potential tree from either side of the channel (secondary shade zone).
- Retain all snags and coarse woody debris in thinning operations, except for safety or operational reasons.

For Active Management along Intermittent Non-Fish-Bearing Streams:

- Apply thinning and other silvicultural treatments to speed the development of riparian and channel system potential within the distance equivalent to ½ site potential tree either side of channel.
 - Exclude thinning and other silvicultural treatments with 35 feet (slope distance) on either side of the edge of the stream channel, as measured from the ordinary high water line.
 - Retain all snags and coarse woody debris in thinning operations except for safety or operational reasons.
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- Restoration treatment priority will be given to those streams with fish that do not meet Total Maximum Daily Load Shade Targets.
 - Implement road improvement, storm-proofing, maintenance, or decommissioning to reduce chronic sediment inputs to stream channels and water bodies.
 - Identify the extent of landslide areas which are associated with stream channels (Administratively withdrawn TPCC). Manage these areas for eventual source of large woody debris for downstream stream channel habitat and function.

3.6 Fisheries

Desired Future Condition

The future condition of the Sandy River and its tributaries will be one in which abundant high quality habitat will be capable of supporting healthy anadromous and resident fish populations. Habitat quality will gradually improve in the Sandy River and its tributaries as previously disturbed riparian areas revegetate, and as new land management practices afford better protection for these areas in the future. Fish restoration measure will help speed this process. Sufficient habitat will be provided, both in terms of quality and quantity.

Management Objectives

- Provide for conservation of special status fish and other special status aquatic species.
- Provide for riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood, and stream bank stability.
- Maintain and restore water quality.
- Maintain and restore access to stream channels for all life stages of fish species.
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Management Direction

For Active Management along Perennial and Intermittent Streams with Fish:

- Apply thinning and other silvicultural treatments to speed development of large trees to provide an eventual source of large woody debris for stream channel habitat and function.
 - Exclude thinning within 60 ft of the ordinary high water line on either side of channel.
 - Only thin down to 50% canopy closure from 60 ft to the distance equivalent to the height of one site potential tree from either side of the channel.
- Retain all snags and coarse woody debris in thinning operations, except for safety or operational reasons.

For Intermittent Non-Fish-Bearing Streams*:

- Apply thinning and other silvicultural treatments to speed the development of large trees to provide an eventual source of large woody debris for downstream channel habitat and function.
- Remove or modify constructed fish passage barriers to restore access to stream channels for all life stages of fish species.

**See section 3.5 for management direction on these streams.*

3.7 Vegetation

Desired Future Condition

The desired future condition of the forested stands in the Sandy River Basin varies according to Land Use Allocation. In *Timber Management Areas* forested stands will be managed for continuous timber production that can continue to be sustained through a balance of growth and harvest. *Deferred Timber Management Areas* will remain unaltered throughout the duration of this planning cycle (15 years) and will be reevaluated in the future. In *Riparian Management Areas*, large trees will be retained to provide shade and an eventual source of large woody debris to stream channels.

In *Administratively Withdrawn* and *NLCS/Congressionally Designated/Acquired* lands a complex forest structure with large conifers, hardwood and understory species; multi layered stand characteristics and native understory species development in overstocked, conifer dominated stands will be managed for through reduced stockings in younger stands. In older stands, an increase in standing and downed wood potential will be emphasized.

Management Objectives

- Improve stand health, scenic qualities, and terrestrial and riparian habitat through vegetation management.
- Manage vegetation in order to improve forest health, maintain a supply of timber and maintain or improve scenic qualities and habitat function.

Management Direction: Timber Management Areas

- Manage as commercial forest lands to achieve continuous timber production.

- Commercial thinning would be applied to recover anticipated mortality; to adjust stand composition or dominance; to reduce stand susceptibility to disturbances such as fire, windstorm, disease, or insect infestation; and to improve merchantability and value
- Timber would be offered for sale from regeneration and commercial thinning harvest.
- Regeneration harvests would be conducted to remove volume and replace slower-growing stands with young, rapidly growing stands.
- Regeneration harvests would be scheduled for stands to maximize potential growth and yield.
- Regeneration harvests would be applied to younger stands for purposes that include management of:
 - Age class distribution
 - Diseased stands
 - A change in species composition to a more commercially desirable species
 - Overstocked stands with poor vigor and low crown ration
 - Areas affected by natural disturbance.

Management Direction: Riparian Management Areas

- Provide for conservation of special status fish and other special status aquatic species.
- Provide for riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and larger wood, and stream bank stability.
- Maintain and restore water quality.
- Maintain and restore access to stream channels for all life stages of fish species.

Management Direction: Administratively Withdrawn Areas

- Manage vegetation within the Sandy River Area of Critical Environmental Concern apart from the harvest land base and in accordance with the relevant and important values for which it was designated.
- Pursue vegetation management projects that:
 - enhance scenic values and recreation opportunities,
 - enhance or maintain water quality,
 - enhance or maintain habitat for wildlife, fish or botanical species,
 - control or reduce the spread of forest fire, and
 - address public safety concerns (i.e. hazard trees) along trails and roadways.
- Utilize Density management thinning treatments to promote the development of multi-layered stand characteristics, reduce stocking, increase understory species development and hardwoods in the older stands, and control non-native species.
- Utilize variable thinning prescriptions in density management treatments to promote diversity in otherwise even-aged, contiguous stands.
 - Focus thinning projects on suitable stands where topography and road access are favorable and require little temporary or permanent road construction.
 - Incorporate thinning projects into stewardship contracts where possible.
- Evaluate potential to combine stewardship thinning projects with weed control and reforestation efforts.

Criteria for Density Management Treatments in Administratively Withdrawn areas

Open Sapling Brush Stands (0-40 Years Old)

- **Stocking and Density control:** Thinning would be prescribed in young sapling stands to reduce stocking (pre-commercial or young stand thinning, typically stands less than 25 years, where thinned trees would be left on the ground). Thinning where the trees are removed would be primarily in over stocked, even aged stands where trees are too big, or too tall for conventional pre-commercial thinning. Stocking in these older stands should be in excess of 300 dominant/co-dominant trees per acre, and are typically over 25 years old.
- **Species composition control:** Favor minor species including hardwoods by increasing growing space around them. Use a range of residual tree densities.
- **Retain developing understories** that do not interfere with the development of dominant and co-dominant trees in the stand.
- **Invasive species control and reforestation:** Areas where invasive species can be removed or controlled and once treated can be reforested with conifers and/or other tree and shrub species.
- **Identify stands for treatment** through GIS queries, aerial photo interpretation, stand exams, and/or stocking surveys.
- **Openings larger than 10 acres** in size created by stand replacement events such as insects, fire, disease and/or wind throw can be treated and reforested. Tree and shrub removal followed by site preparation for reforestation and restoration may occur.

Closed Sapling Young to Mature Stands (40-80 Years Old)

- **Stocking Control:** Enhance tree growth and developing understories where present by reducing overstory stocking. Highest priorities are over-stocked, even aged conifer dominated stands. Maintain an average 40-50 percent crown closures.
- **Species composition control:** Maintain a component of minor species in treatment areas including hardwoods.
- **Understories** can be developed by natural regeneration, planting in openings or beneath commercial thinning or density management treatments.
- **Openings larger than 10 acres** in size created by stand replacement events such as insects, fire, disease and/or wind throw can be treated. Timber harvesting followed by site preparation may occur.
- **Stand dead/down CWD recruitment:** retain enough green tree capital for recruitment in future stands.
- **Identify stands for treatment** through GIS queries, aerial photo interpretation, stand exams, riparian surveys and/or stocking surveys.
- These projects can be **implemented** through commercial timber sales and stewardship contracts, where feasible.

Mature to Structurally Complex Stands (Older than 80 Years)

- **Openings larger than 10 acres** in size created by stand replacement events such as insects, fire, disease and/or windthrow can be treated where canopy closure is less than 40 percent. Timber harvesting following site preparation may occur. Native disease resistant conifer and/or hardwoods can be planted.
- **Removal of timber in these age classes** would also occur to maintain safe conditions for the visiting public, reduce the potential fire risks and for removal of hazard trees along trails and roadways.

Management Direction: National Landscape Conservation System /Congressionally Designated

- Conserve, protect and restore the identified outstanding cultural, ecological, and scientific values.
- Align vegetation management prescriptions with the purpose and/or mechanism of an area's inclusion or potential inclusion into the National Landscape Conservation System.

Mount Hood Scenic Corridor

- Timber cutting can only be conducted on Mt. Hood Corridor lands following a resource-damaging catastrophic event. Such cutting can only be done to achieve the following resource management objectives.
 - To maintain safe conditions for the visiting public;
 - to control the continued spread of forest fire,
 - for activities related to administration of the Mt. Hood Corridor lands; or
 - for removal of hazard trees along trails and roadways.

Bull Run Watershed Management Unit

- Exclude timber harvesting, except as necessary to protect or enhance water quality or as necessary for the construction, expansion, protection or maintenance of facilities for either a municipal water supply or energy transmission.

Designated, Eligible and Suitable Wild and Scenic Rivers

- Develop prescriptions that do not compromise the identified Outstandingly Remarkable Values of designated, eligible or suitable wild and scenic rivers.

Criteria for Density Management Treatments in National Landscape Conservation System/Congressionally Designated (excludes Mt. Hood Scenic Corridor and Bull Run Management Unit).

- **Stocking and Density control:** Thinning would be prescribed in young sapling stands to reduce stocking (pre-commercial or young stand thinning, typically stands less than 25 years, where thinned trees would be left on the ground). Thinning where the trees are removed would be primarily in over stocked, even aged stands where trees are too big, or too tall for conventional pre-commercial thinning. Stocking should be in excess of 300-500 dominant/co-dominant trees per acre.
- **Species composition control:** Maintain and attempt to provide for the recruitment of understory and hardwood species in the stand.
- **Height to Diameter ratio:** Stands should have a height to diameter (H:D) ratio less than 80. H: D ratios are used as a measure of the ability of a tree to resist damage or breakage from wind, or heavy, wet snow. (Tappeiner et.al. pg 213). The H:D ratio of a tree can be determined by dividing the height of the tree by the diameter of the tree.
- **Insects, fire and disease:** Openings larger than 10 acres in size created by stand replacement events such as insects, fire, disease and/or windthrow can be treated. Dead, downed or dying trees can be removed. Native disease resistant conifer and/or hardwoods can be planted.

3.8 Wildlife

Desired Future Condition

Upland habitats throughout the Basin exhibit an increased complexity in forest structure with multiple canopy layers, large decadent conifer trees, accumulation of large coarse wood material, snags, species diversity (with large deciduous trees), and vertical and horizontal canopy diversity. BLM-administered lands contribute to a dynamic mosaic of forest ages across the landscape, with an emphasis on older forest. Habitat restoration activities and silvicultural treatments assist in the restoration of late-successional structure and its associated wildlife.

Riparian areas display complex forest structure with large Western Redcedar and Douglas fir, accumulation of large coarse woody material, snags, multiple canopy layers, diverse species composition (including large deciduous trees), and vertical and horizontal diversity in canopies.

Special habitat features, including caves, cliffs, wetlands, bogs, ponds, talus slopes and other specific or distinctive habitats required by sensitive species are preserved. Treatments that would produce desirable habitat conditions for late succession associated wildlife species would include variable density management through thinning, gap creation, and planting of native species.

Management Objectives

- Maintain, mimic, and restore natural vegetation patterns and processes where possible.

- Protect suitable habitat for the Northern Spotted owl. Cooperate with USFWS concerning Threatened and Endangered species as required by law.
- Provide for the conservation of BLM special status species. Manage for habitat features required by BLM special status species.

Management Direction: General

- Promote development of habitat suitable for nesting, roosting and foraging for the Northern Spotted Owl in stands that do not currently meet suitable habitat criteria.
- Minimize habitat modifications in areas where the current trajectory will lead to a diverse and healthy forest ecosystem
- Promote wildlife forage in suitable areas (i.e. power line corridors) for deer and elk in cooperation with state agencies and concerned user groups.
- Survey for BLM special status species before and following habitat modifications.

Management Direction: Timber Management Areas

- Manage species that are listed under the Endangered Species Act consistent with recovery plans and designated critical habitat.
- Restrict activities that would disrupt nesting during nesting season where northern spotted owl has been found.

Management Direction: Administratively Withdrawn, National Landscape Conservation System/ Congressionally Designated and Riparian Management Areas (*excludes Mt. Hood Scenic Corridor and Bull Run Management Unit*).

- Manage species that are listed under the Endangered Species Act consistent with recovery plans and designated critical habitat.
- Manage BLM special status animal species to maintain or restore populations and habitat consistent with species conservation requirements.
- Implement conservation and cooperative plans, strategies and agreements for special status species.
- Restrict activities that would disrupt nesting during nesting season where northern spotted owl has been found.
- Increase monitoring responsibilities as recreation development precipitates increases in visitor use.
- Manage for structurally complex forest habitat.
- Manage in accordance with relevance and importance criteria of Sandy River ONA, which includes; fish, wildlife and natural processes (2008 RMP/FEIS).
- Minimize roads, constructed features, and recreation related impacts around streams and wetlands.

Management Direction: Open Sapling Brush Stands (0 to 40 years)

- Utilize gap creation to enhance habitat diversity in young stands. Gaps would be designed to provide early seral areas of native grass and shrub communities.
- Consider placement of nest boxes after thinning treatments and on the edge of meadows and ponds that lack large snags.
- Pursue development of legacy trees by cutting around large dominant trees in order to create future nesting trees.

Management Direction: Closed Sapling Young to Mature Stands (40 to 80 years)

- Utilize tree inoculation, topping and girdling to create snags in areas lacking standing dead trees.
- Evaluate potential for the creation of coarse woody debris in areas lacking downed wood.

Management Direction: Mature to Structurally Complex Stands (80+ years)

- Allow stands to develop along current trajectory with limited silvicultural activity.

3.9 Invasive Non-Native Plants and Botany

Desired Future Condition

Combine education, research and noxious weed control to raise awareness and protect critical native species habitat within the Sandy River Basin. Identify the location of all invasive non-native species, develop control methods and outreach materials that could be used by other programs and increase public awareness of the threat of invasive species to the health of the watershed.

Management Objectives

- Provide for conservation of BLM special status species.
- Maintain or restore natural plant communities on non forest and non commercial forest lands.
- Avoid the introduction of invasive plants and the spread of existing invasive plant infestations on BLM administered lands.

Management Direction

- Maintain or restore natural plant communities, retention of legacy components, and removal of invading vegetation.
- Re-vegetate degraded or disturbed areas with native seed or plants to maintain the native plant community.
- Project should be consistent with Sandy Basin Invasive Species Partnership.
- Implement measures to prevent, detect, and rapidly control new invasive plant infestations.

- Treat invasive plants in accordance with the Records of Decision (RODs) for the *Northwest Area Noxious Weed Control Program EIS* and the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (September, 2007) and the *Cascades Resource Area Invasive Species EA* (February, 2009).
- Utilize manual, mechanical, cultural, chemical, and biological treatments to manage invasive plant infestations.

3.10 Fire/ Rural Interface Areas

Desired Future Condition

Fuel free buffers created to reduce fire hazards in rural interface and developed recreation areas (private property, facilities and trails). Create safe areas for firefighters to work and suppress fires quickly. In Wildland Urban Interface areas: The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Figure 4, Sandy River Basin Rural Interface Areas, shows the relationship between BLM-administered land and residential development within the planning area (as identified by the Metro Regional Government).

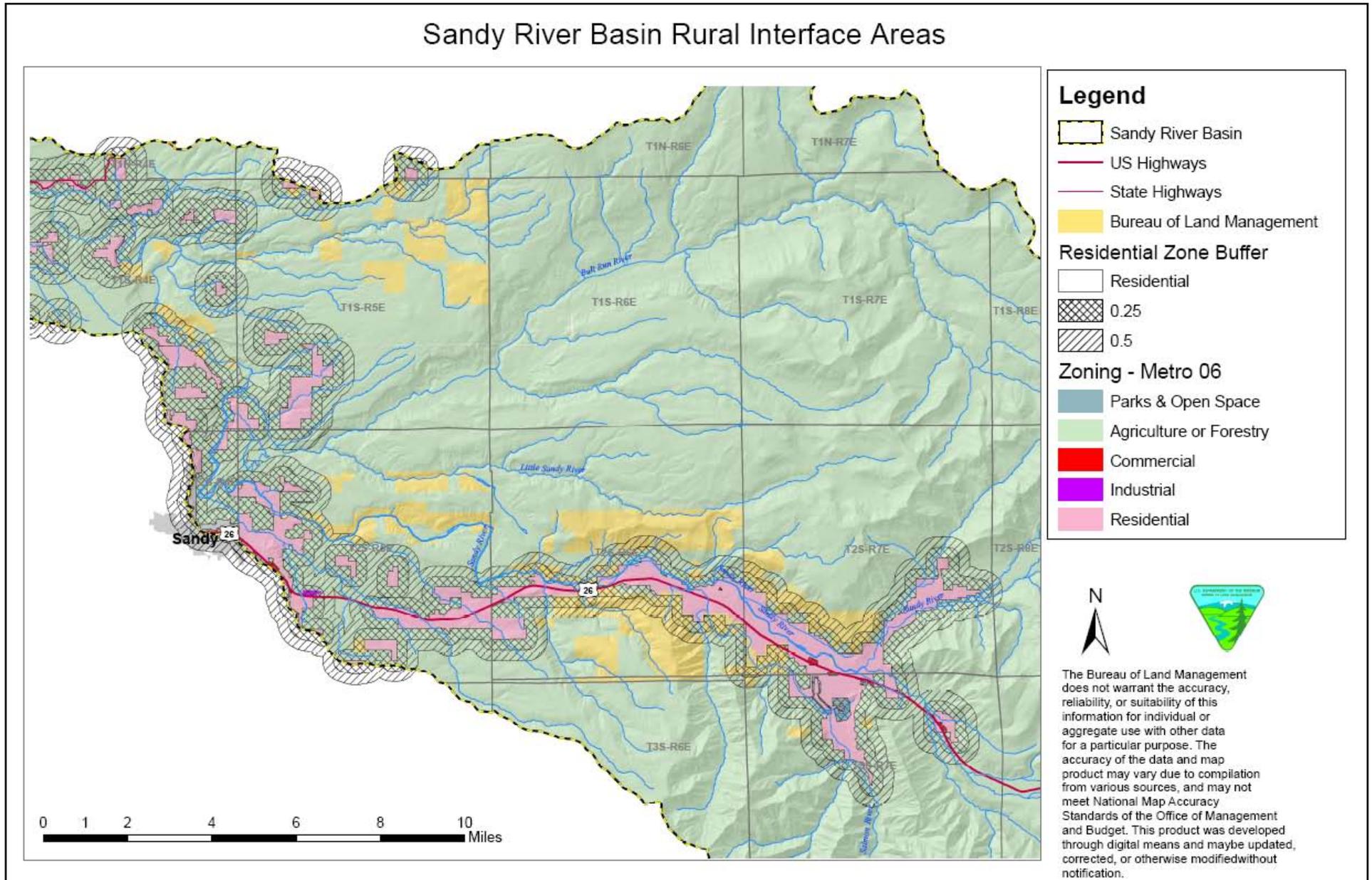
Management Objectives

- Reduce the fire hazards to communities that are at risk from uncharacteristic wildfires.
- Decrease the risk of large wildfires, and reduce the cost and associated hazard of fire suppressions.
- Reduce the risk of resource damage due to uncharacteristic wildfires.

Management Direction

- Treat hazardous fuels generated by management activity, particularly in wildland urban interface areas. (See Figure 4).
- Prioritize fuel hazard reduction projects near residences, private property boundaries, along planned recreational development and roadways.
- Apply fuel treatments to stands of any age in order to reduce the fuel hazards.
- Fuel treatments will included such activities as tree cutting and removal, brush cutting, pruning, reducing crown bulk density, treating of activity fuels, removing of biomass, and prescribed burning.

Figure 5: Rural Interface Areas



SANDY RIVER BASIN INTEGRATED MANAGEMENT PLAN

CHAPTER 4



Chapter 4: Management Actions and Implementation Schedule

This chapter outlines management actions and an implementation schedule for proposed projects. Section one of this chapter focuses on proposed recreation projects for facility, trail, and general recreation management/visitor services. Sections two and three focus on management actions related to restoration strategies in two categories A) *Aquatic* (hydrology, fisheries) and B) *Terrestrial* (vegetation, wildlife, non-native invasive plants/botany and fuels management).

Management Actions outline specific actions that will be taken to resolve current resource management issues, concerns, or problems. Management actions include detailed implementation schedules. Where current information exists, implementation schedules provide project specifics with targeted outcomes.

Project Implementation Strategy: Limited staff and funding will be available to implement the projects contained within this management plan. Because the amounts and types of funding sources vary from year to year it is not possible to have expenditures and or projects prioritized. Additionally, the dynamic nature of the sites included in this plan make it difficult to factor in natural disturbance within the planning area, and the precedent that disturbances may have on prioritization of projects. The following guidelines will guide the prioritization of projects within the planning area.

Generally the highest priority will be given to those actions necessary to ensure that sensitive natural and cultural resources are protected. Law enforcement, public safety and the distribution of public information will generally receive the highest level of priority. High priority will also be given to projects that can show non Federal support through the formation of partnerships and agreements.

Facility and trail development projects have been limited but are contained within this plan as part of an overall resource management strategy. Development will be consistent with guidelines, standards and objectives for which they were planned. Low levels of facility development have been planned at a level that adequately addresses future growth, resource needs, health and safety concerns and resource protection.

Budget Note: Although this management plan establishes standards, guidelines and identifies priority projects, accomplishing these objectives via project implementation will depend on budget allocations, assistance with partners and the ability to secure outside funding sources. If budget allocations are insufficient, activities proposed in the plan may need to be rescheduled. Insufficient budgets over a period of several years could cause an inability to implement proposed activities, to apply standards and guidelines and to achieve some of the desired future conditions.

4.1 Recreation

This section outlines the specific management actions that the BLM will implement to achieve the recreation specific management objectives outlined in chapter 3. Management actions associated with site design plans on the Marmot site, Sandy/Salmon confluence, and the Homestead trail system are displayed within this chapter. Actions associated with recreation management and visitor services are also provided.

Operation and maintenance costs for planned facility and trail development have been minimized by intergovernmental and user group agreements. A Memorandum of Understanding has been completed with the Clackamas County Parks Department in order to facilitate co-management of the Barlow Trail Wayside/Homestead Trail System complex. Additionally, an Adopt-a-Trail Agreement with local vendors, trail user groups and private companies has been established. These agreements have been proactively entered into to highlight the far reaching support for development plans within the basin and to create a successful model for future recreation management and community involvement. Copies are available upon request at the Salem District Office.

Implementation

To fully implement the complexities associated with each management zone a phased approach to site development has been adopted. To the greatest extent possible, phases will be adhered to as staff and funding is available. The goal of this breakdown is to create a roadmap for project completion, operations and maintenance through the duration of this plan (15 years). A year end review will follow each fiscal year to evaluate future budgets; review progresses made and outline future work goals.

4.1.1 Management Actions: Facility and Trail Development

Marmot Recreation Site and Marmot Trail System

The Marmot Recreation Site, located at the former site of Marmot Dam, will offer the public a broad range of opportunities that complement other recreation resources within the planning area. The BLM worked with agency representatives, private landowners, and recreation user groups to establish goals and objectives for site restoration, rehabilitation, and site development.

The site plan selected for implementation provides a park design that integrates the programmatic elements illustrated in the selected action (Figure 5). This plan maintains a natural, largely undeveloped feel throughout the site. The design focuses on day use visitation only with no overnight facilities.

While there are no overnight facilities, the proposed infrastructure will support reserved group areas for picnicking, river and upland visitors. Boat ramps, parking areas and associated amenities will facilitate river access and work in concert with upstream and downstream river access points. Interpretation will highlight the site's importance to regional natural history.

Approximately 8 miles of non-motorized multiple-use trails will be constructed in vicinity of Marmot Recreation Site. Trails were designed to provide a beginner to intermediate level of difficulty and complement the day-use amenities provided within the developed area. Trails will serve a regional need for introductory trails for hikers and mountain bikers. See Figure, the Trail Development Plan, for an overview of proposed trail construction within the planning area.

See Chapter 5 for a description of Benefits Based Management objectives, targeted benefits and outcomes, and setting prescriptions for the site and trail system.

Project Implementation Schedule *

Table 5: Marmot Recreation Site and Marmot Trail System

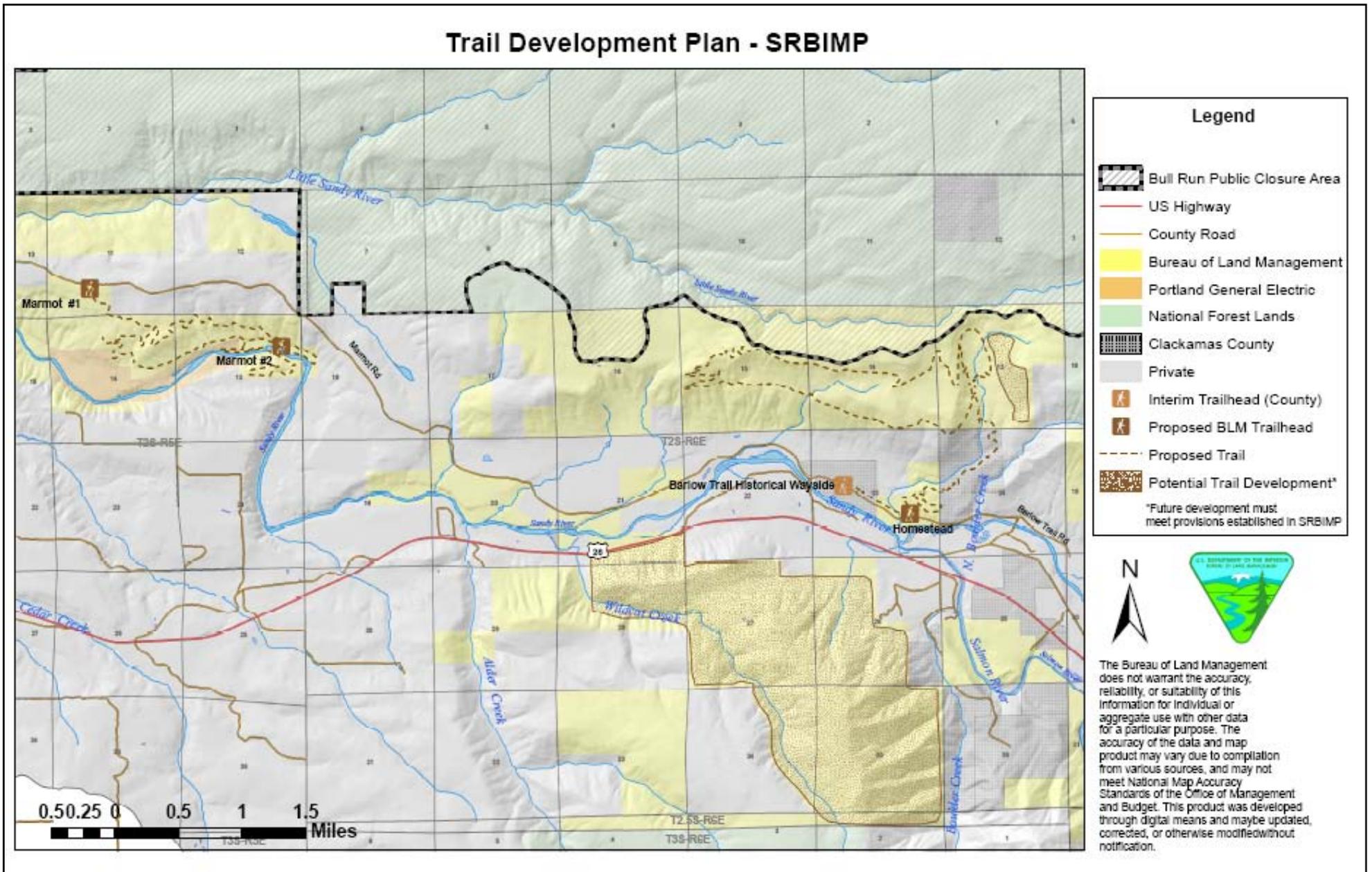
Phase	Responsible Agency	Target Outcomes	Target Completion (FY)
1	BLM	Complete revegetation plan. Prepare site and implement replanting plan.	2009 -2010
2	BLM	Complete architectural and engineering site design plans.	2010
3	BLM	Address priority public safety concerns on site (footbridge, etc)	2010
4	BLM	Monitor revegetation success and address tree and shrub mortality.	2010-2013
5	BLM	Begin first stage of construction for proposed infrastructure and amenities as funding allows: parking areas, restroom facilities, day use picnic areas.	2011
6	BLM	Begin first stage of trail construction.	2011
7	BLM	Second stage of construction for proposed infrastructure and amenities: complete parking areas and day use sites, begin group shelters.	2012
8	BLM	Third stage of construction: finish group shelters, finish proposed trails	2013-2014
9	BLM	Perform annual maintenance.	2010-2024

***Based on Availability of Resources**

Figure 6: Marmot Recreation Site Development Plan



Figure 7: Trail Development Plan



Sandy/Salmon Confluence Recreation Site and Homestead Trail System

The Sandy/Salmon confluence site offers the public a safe alternative to accessing the Sandy River fitting an identified niche within the basin. Located at river mile 38 along the banks of the Sandy River (eight miles upstream from the former site of Marmot Dam) the Sandy/Salmon confluence site is in a dynamic setting where the cloudy, glacial waters of the Sandy mix with the clear waters of the Salmon. The location of the site, working in concert with a proposed access point at the Marmot Dam site and other existing access points downstream, makes it a good fit for the needs of kayakers, anglers, boaters and other river users.

Clackamas County Parks Department is in the process of developing the Barlow Trail Wayside Park located to the west of the proposed Sandy/Salmon confluence site. The BLM has been working with Clackamas County and has entered into a Memorandum of Understanding to co-manage this area.

The site plan (Figure 8) selected for implementation provides a park design that maintains a natural feel throughout the park, focusing on day use visitation only. Appropriate levels of carrying capacity were taken into consideration to support non-motorized trail and river users, interpretive activities, and environmental education in a way that seeks a balance between the developed and natural portions of the site.

The site will act as the primary trailhead for approximately 20 miles of multiple use non-motorized trails that have been designed to the west of Forest Road 14 (Homestead Road), and to the southernmost boundary of the Little Sandy River Watershed. To minimize the likelihood of trespass into the Bull Run Watershed Management Unit, extra care and consideration was given to trail design and layout in the area. As a trail design objective, a minimum buffer of 300 feet was established between proposed trail corridors and the Bull Run Management Unit Boundary. Additionally, topographical features that would naturally detour from cross country travel were utilized to minimize the potential for trespass. See Figure 7, the Trail Development Plan, for an overview of proposed trails within the Homestead System.

Project Implementation Schedule *

Table 6: Homestead Trail Development and Barlow Trail Wayside

Phase	Responsible Agency	Agency Property	Target Outcomes	Target Completion (FY)
1	BLM/Clackamas County	BLM/Clackamas County	Finalize Memorandum of Understanding between Clackamas County Parks Department and the BLM. MOU outlines collaborative management goals, objectives and responsibilities.	2009
2	BLM	BLM/Clackamas County	Finalize Adopt a Trail Agreement between recreational user groups for management assistance with Homestead Trail System.	2009
3	BLM	BLM/Clackamas County	Complete Trail design specifics for link between County and BLM properties. Complete construction of phase one (6 to 8) miles of Homestead Trail System.	2009
4	Clackamas County	Clackamas County	Construction of Trailhead parking lot and trailhead access to the Sandy River.	2009
5	BLM/Clackamas County	Clackamas County	Development/design of historical wayside signage and kiosk including narratives. Interpretive material will focus on historical context of Barlow Trail, and natural history on north park forested area.	2010
6	BLM/Clackamas County	BLM/Clackamas County	Install way finding information at trail junctions and install kiosk. Post private-public boundary signage as needed.	2011
7	BLM	BLM	Construct additional trails as indicated on trail design plan	2010-2013
8	BLM/Clackamas County	BLM/Clackamas County	Implementation of visitor use monitoring plan focusing on studying physical and social impacts to trail and visitors' beneficial experience.	2010-2024
9	BLM/Clackamas County	BLM/Clackamas County	Perform routine trail maintenance as scheduled and determined through periodic trail review, user input, and trail partner review.	2010-2024

***Based on Availability of Resources**

Figure 8: Sandy-Salmon Confluence Site Development Plan

SALMON & SANDY RIVER CONFLUENCE INTEGRATED DEVELOPMENT

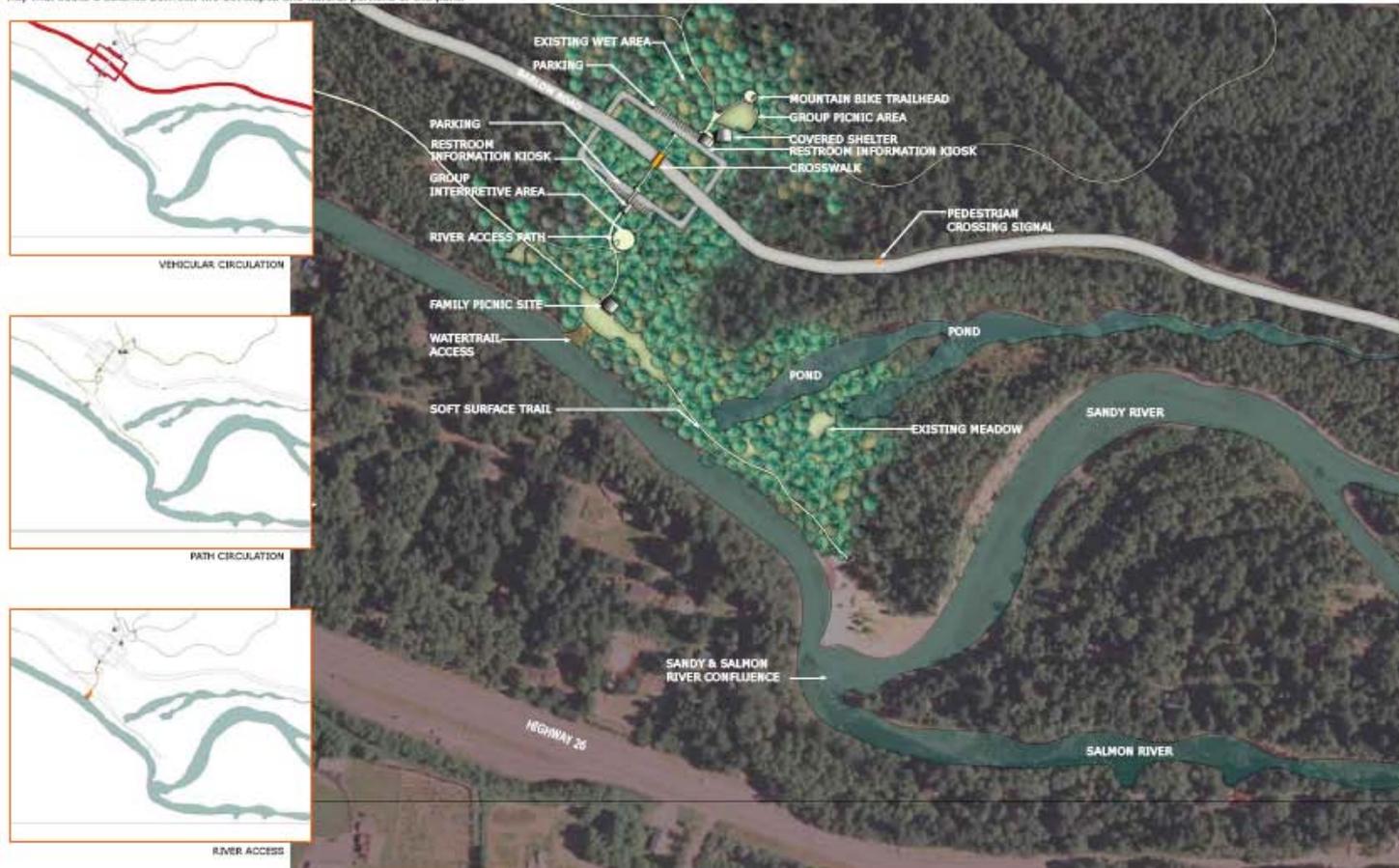
DESIGN PROCESS

This scenario produced a park design that integrated the programmatic elements of Scenarios A and B. The preferred alternative (scenario C) maintains a natural, largely undeveloped, feel throughout the park. The design focuses on day use visitation only with no overnight facilities.

Careful consideration was given to the existing natural areas such as the river, riparian vegetation and forests. Restoration and enhancement of these features was considered whenever possible while providing access to well defined programmed spaces. The spaces were looked at as opportunities for enhancing views, providing access to the river, and locating day use activates such as picnic area, interpretive trails and educational programs.

Appropriate levels of development including carrying capacity were taken into consideration to support mountain bike users, kayak and river rafting river access, and interpretive trails and trail connectors. Facilities account for carrying capacity and architecture will correspond to the BLH Wildwood facility.

While seeking to preserve a natural environment within the park, particular attention was given to incorporating a variety of features that enable interpretive activities, environmental education, and community events in a way that seeks a balance between the developed and natural portions of the park.



4.1.2 Recreation Management and Visitor Services

Management Actions

This section summarizes the general management strategies that the BLM will employ to achieve the desired future conditions, experiences and associated benefits outlined in Chapters 3 and 5. Actions for recreation management and visitor services will be implemented during facility and/or site development (see project implementation schedules for Marmot, Sandy/Salmon River Confluence, and Homestead Trail System).

- Develop and provide adequate but limited recreation infrastructure including appropriate levels and types of public access, trails and facilities.
- Develop and provide adequate signage along the Sandy River, consistent with ongoing water trail planning efforts.
- Inventory, close and rehabilitate existing dispersed camping sites and user trails within the planning area. Work closely with adjacent private property owners and land managers.
- Pursue opportunities to conduct cooperatively sponsored annual river cleanup and trail-based special events.
- Develop a comprehensive interpretive program for river and upland trail users.
- Work with local business to provide recreation and interpretive information and displays.
- Provide and post information signs marking public lands in high use areas and designated private lands near high use recreation areas.
- Issue special recreation permits for competitive events and commercial uses where appropriate.

4.1.3 Travel and Transportation Management

Management Actions

- Identify final route designations in a comprehensive interdisciplinary travel and transportation management plan (consistent with 2008 Salem RMP) by 2013.
- Develop an interim OHV map illustrating OHV designations within the Sandy River Basin.

- Conduct on the ground inventories within limited areas and evaluate the potential for route designation, route closure and site rehabilitation.
- Analyze proposed routes through public scoping and NEPA analysis.
- Complete final transportation management plan, develop maps and brochures for public distribution, describe specific restrictions and define opportunities.

4.2 Aquatic Restoration Strategy

The aquatic restoration strategy for the Sandy River Basin includes a water quality restoration plan and outlines priority projects for active restoration and monitoring. This strategy also outlines the BLM's role in implementing the habitat conservation and restoration strategy developed in concert with the Sandy River Basin Partners.

The listing of threatened species and PGE's decision to remove dams in the Sandy River Basin catalyzed formation of a coalition to recover Sandy River salmon and steelhead. The coalition became the Sandy River Basin Partners. The BLM was one of more than a dozen public and private organizations that participated in this effort. The end product from this effort was a habitat conservation and restoration strategy which identifies priority locations and priority action types. The strategy has two parts: a short term plan, and a framework for long-term planning and implementation.

Management actions, priorities and an implementation strategy have been created for fisheries within the Sandy River Basin. These strategies were developed following the completion of a basin-wide assessment of salmon and steelhead habitat conditions by the Sandy River Basin Working Group (SRBWG 2006), and the preparation of an aquatic habitat restoration strategy for the basin (SRBWG 2007). The aquatic habitat restoration strategy for BLM administered lands within the Sandy River basin is tiered to the basin-wide restoration strategy (SRBWG 2007) which provides a geographic focus and hierarchical framework for directing future investments (staff time and funding) toward high priority restoration needs that will aid in rebuilding salmon and steelhead populations. Specifics for this strategy can be found in Section 4.2.2. and in more detail at the following web address:

<http://www.sandyriverpartners.org/background.html#aquatic>

4.2.1 Hydrology

Management Actions

This section summarizes components of the Water Quality Restoration Plan (see appendix C Sandy Basin WQRP, 2009) for BLM lands in the Sandy Basin. As a designated management agency, BLM is responsible for meeting the planning and implementation requirements in the Sandy Basin TMDL and WQMP (ODEQ, March 2005), codified in OAR 340-042-0080(3)(a)-

(e). This section provides specific water quality management measures or actions, restoration goals and objectives along with potential for active restoration and monitoring.

The overall goal of the BLM Sandy Sub basin WQRP is to maintain or enhance riparian and channel condition contributing to compliance with water temperature standards and implement BMP's to avoid contributing to bacteria loading. The BLM objective is to achieve the TMDL effective shade targets where potential riparian and channel conditions allow.

This objective will focus on protecting areas where effective shade meets current targets, avoiding future impairment of these areas, and restoring areas that are currently below the site potential effective shade. The recovery of water quality conditions on BLM-administered land in the Sandy Sub-basin will largely depend on implementation of Riparian Management Areas (RMA's) and BMPs contained in the 2008 RMP. The ODEQ has recognized and acknowledged the utility of the BMP's in moving federal administered lands and water quality towards an improved condition. The 2008 RMP includes BMP's which are intended to prevent or reduce water pollution and to meet the goals of the Clean Water Act. These range from protection of existing riparian shade condition to active restoration including silvicultural treatments necessary to move riparian areas toward system potential shade. The BMPs also include sediment reduction and recreation development practices which will decrease the potential for bacteria transport and introduction to streams.

Riparian system potential vegetation is a natural plant community that can grow and reproduce on or near a water site, given elevation, soil properties, plant biology and hydrologic processes. Potential effective shade is shade derived from system potential vegetation. Effective shade provides site-specific targets for compliance with the nonpoint source allocations in the TMDL.

Table 5 provides a summary of restoration action benchmarks and schedule over the period of this plan. Table 6 and Figure 9 provide potential water quality projects presented in the WQRP. After review of BLM modeled "temperature" reaches and follow-up field verification, the Middle Sandy River Watershed has been determined to have the highest potential for water quality restoration projects. Some of the project areas are recently acquired lands where conditions have been drastically altered to the point that the system potential vegetation and properly functioning channel conditions may not be attainable for many decades. The WQRP list of restoration projects will be updated periodically as newly acquired lands present opportunities for restoration.

Potential treatments for development of Riparian system potential vegetation and channel conditions to meet TMDL temperature targets:

- Where Western Red Cedar is lacking in the RMA but is the dominant system potential species, prioritize for re-establishment in Riparian Management Areas.
- Conduct seedling and sapling thinning in the secondary shade zones along perennial and fish bearing stream Riparian Management Areas. Retain existing canopy cover in the primary shade zone (60 ft) and 50% cover in the secondary shade zone.

- Where mixed hardwood and conifer are the Riparian Management Area “system potential vegetation” but hardwood dominate, convert discrete hardwood areas to conifer species while retaining as much effective shade as possible.
- Manually release conifers from competitive vegetation in RMA’s.
- Place large wood and boulders in channels and floodplains to encourage capture of sediment, retention of flows and promotion of cool substrate flow during the summer season.
- Storm proof or decommission roads and minimize new permanent stream crossings.
- Restore wetland function where existing conditions promote solar heating.

Potential BMP’s for minimizing bacteria introduction to basin waters:

- Sealed vault toilets will be used at all developed recreational facilities, unless a sewage system and drain field is approved by ODEQ.
- Construct and maintain refuse disposal sites to avoid water contamination.
- Site camps for permitted group overnight camping would be greater than 100 feet from surface water.

Monitoring; Provide results in District Annual Program summary:

- Continue long-term water temperature effectiveness monitoring at the West Creek restoration site.
- Annually conduct “effective shade retention” monitoring and RMA width monitoring as per the 2008 RMP and the 2009 WQRP.
- Annually conduct BMP implementation monitoring in the basin. Re-assess the need, after three consecutive years of monitoring (2008 RMP).

Project Implementation Schedule*

Table 7: Water Quality Restoration Projects- Benchmarks and Schedule

Phase	Targeted Outcomes	Target Completion (FY)
1	Complete Water Quality Restoration Plan and submit to Oregon Department of Environmental Quality for approval.	2009
2	Continue to identify potential water quality restoration projects, prioritize and seek funding. Complete field visits validating project potential. Review newly acquired lands for restoration potential.	2009-2011
3	Complete NEPA and required design. Identify partners and cooperators for cost-share. Coordinate with Sandy Basin Partners, watershed council and Oregon Watershed Enhancement Board when possible. Implement emergency erosion control measures where needed.	2009-2012
4	Complete “on the ground” layout of projects. Write contracts for restoration projects.	2010-2013
5	Restoration project construction and administration.	2010-2014

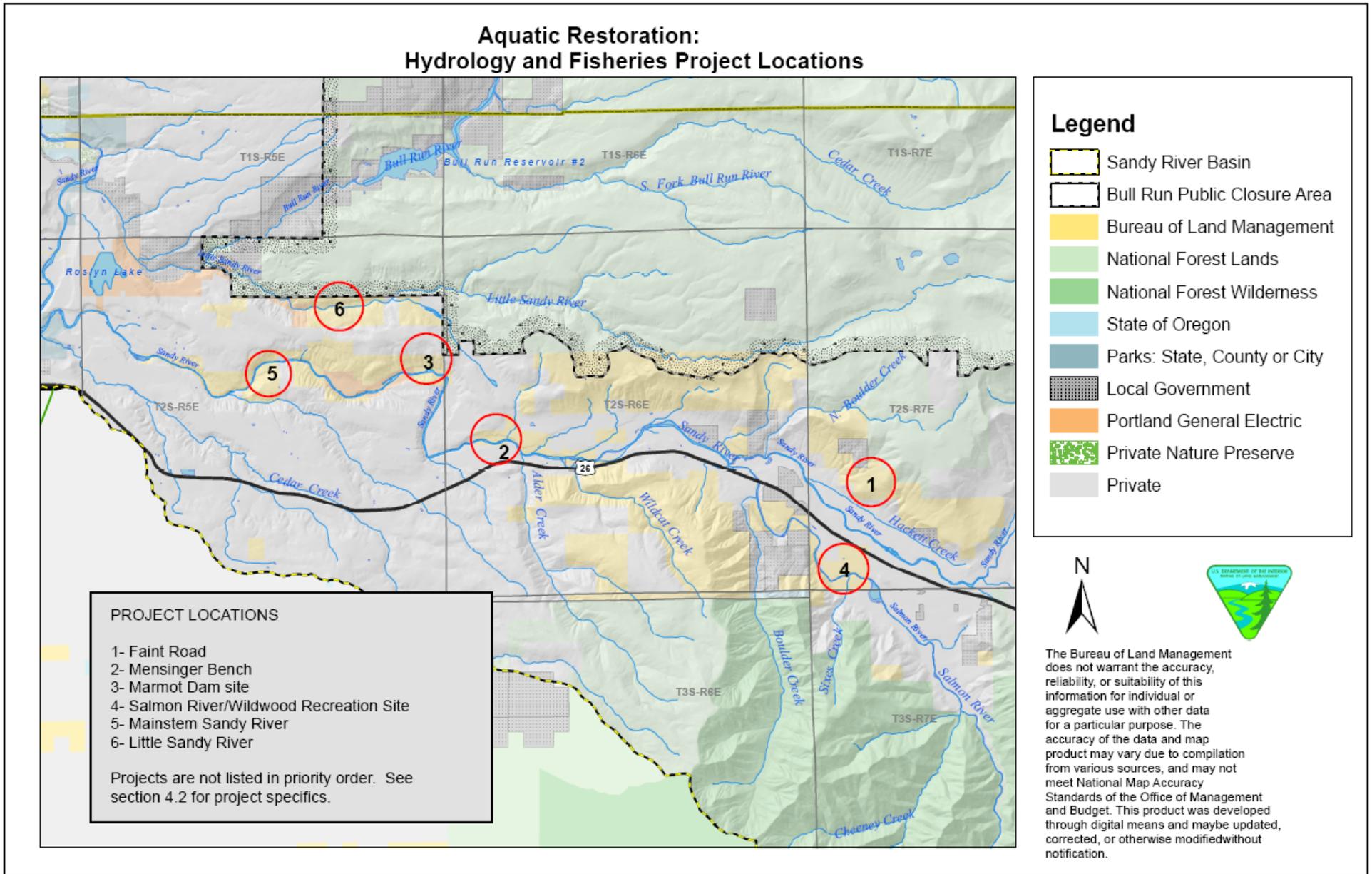
***Based on Available Resources**

Project Implementation Schedule*

Table 8: Water Quality Restoration Projects

Location	Targeted Outcomes	Target Completion (FY)
Faint Road	Complete road storm proofing to protect stream crossings. Control erosion at stream crossings and road surfaces	2009-2010
	Repair OHV damage to wetland and perennial stream. Restore wetland and stream function and plant native species. Control future OHV access.	2009-2010
Minsinger Bench	Plant conifers in the riparian area along West Creek. Control blackberry in the Riparian Management Area and along floodplain.	2009-2011
	Introduce channel complexity to West Creek below County bridge. Replant native shrubs under power line corridor.	2009-2011
	Restore wetland flow regime by removing earthen dam on unnamed tributary. Plant system potential species including cottonwood, willow and wetland species.	2011-2012
Marmot Dam	Address January 2009 flood damage through on-site erosion control and road repair. Upgrade or remove western tributary road crossing. Perform bank erosion control on both eastern and western tributaries.	2009-2010
	Re-design channel of western tributary. Riparian planting of system potential species.	2009-2011
	Riparian planting of system potential species on eastern tributary. Pursue boulder and large wood placement.	2009-2011
Middle Sandy – Newly Acquired Land	Complete riparian thinning and weed control on approximately 200 acres.	2009
Gordon Creek	Thin approximately 400 acres of conifer within the Riparian Management Area.	2010-2015

Figure 9: Aquatic Restoration: Hydrology and Fisheries Project Locations



4.2.2 Fisheries

The salmon and steelhead habitat assessment completed by the Sandy River Basin Work Group (SRBWG 2006) identified stream reaches in the Sandy River basin that provide anchor habitat for federally listed salmon and steelhead populations. Anchor habitats are defined as stream reaches that currently harbor specific life history stages of salmon and steelhead to a greater extent than the stream system at large. Eight priority anchor habitat watersheds were identified by the SRBWG for aquatic habitat restoration actions including (in priority order): Sandy River corridor (mouth to Zigzag River confluence), Salmon River, Still Creek, Upper Sandy River (upstream of and including Clear Fork Sandy River), Gordon Creek, Alder and Wildcat Creeks, Little Sandy River, and Trout Creek. BLM manages lands in or adjacent to reaches identified for restoration actions in three of these watersheds: Sandy River corridor, Salmon River, and the Little Sandy River.

After prioritizing specific watersheds and stream reaches for restoration actions the Sandy River Basin Work Group next developed a hierarchical framework to guide the implementation of restoration actions in the individual priority watersheds (SRBWG 2007). The hierarchical framework ensures the appropriate types of restoration actions are identified and implement in priority sequence to address the primary changes in watershed processes that are responsible for limiting salmon and steelhead production. The restoration strategy is outlined below:

Basin Wide Aquatic Habitation Restoration Strategy (SRBWG 2007):

- Identified priority watersheds in the basin (at the 5th, 6th, and 7th field scales) that provide the cornerstones for addressing freshwater habitat restoration needs of Sandy River basin salmon and steelhead populations.
- Established the hierarchy, or sequence, in which actions should be pursued in order to achieve maximum resource benefits. The SRBWG identified four tiers of restoration actions: Tier 1 – reconnect isolated habitats; Tier 2 – restore long term processes (roads, water quality, marine derived nutrients, etc.); Tier 3- restore long term processes (riparian vegetation); and Tier 4 – restore short term processes (in-stream habitat).
- Define specific restoration actions (and types of restoration actions where they are not known site-specifically) in priority watersheds necessary to address limiting factors.

Fish habitat restoration actions on BLM managed lands in the Sandy River basin would follow the priorities outlined above and listed in more detail in the restoration strategy (SRBWG 2007). However, the Work Group recognized that as funding opportunities or landowner willingness arises, then the order of project implementation might differ, but the hierarchical structure and sequencing outlined in the restoration strategy will generally guide restoration actions and investments (SRBWG 2007).

By following a hierarchical framework, restoration actions necessary to address and ensure the long term sustainability of aquatic habitat conditions are prioritized for initial implementation.

Additional information on the objectives and goals of the four tiers of restoration actions are provided below:

Tier 1 – Reconnect isolated habitats

The focus of these restoration actions is to restore connectivity to currently isolated habitats that were historically occupied by salmon and steelhead. The restoration goal for Tier 1 actions is to broaden the spatial distribution of fish populations, providing unimpeded access to historically available habitats. Restoration actions planned or already implemented include removal of dams on the Sandy and Little Sandy Rivers, reconnecting side-channel habitats to the main channel of the Salmon River, and removal or replacement of culverts that are barrier to fish movement.

Tier 2 – Restore Long Term Processes (Roads, Water quality, Marine derived nutrients, etc.): The focus of these actions is broad and is intended to restore long term watershed processes. These actions included: reducing impacts from road-related activities, improving water quality, increasing stream flows, adding marine-derived nutrients, providing public outreach and education efforts.

Tier 3 – Restore Long Term Processes (Riparian Vegetation): These actions focus on restoring the long term functioning and ecological components of riparian vegetative communities through project improvements as well as land acquisitions and easements. Examples of specific types of restoration actions include riparian planting, eradication of invasive weeds and plants, thinning, and conifer release.

Tier 4 – Restore short Term Processes (In-stream Habitat): The primary emphasis of these actions is to restore large woody material to stream ecosystems. Much of the large wood in streams was removed during the mid to later part of the 20th Century. The restoration goal for Tier 4 actions is to increase large wood densities and accumulations in a manner emulating natural or properly functioning stream ecosystems. An emphasis is placed on creating engineered log jams that emulate the natural deposition and accumulation of large woody material within a stream channel. Large wood provides structural habitat complexity in streams (i.e. creation of pool habitat, hiding cover for fish, etc.) and aids in gravel retention, and maintaining floodplain connectivity.

Projects currently being implemented on BLM lands in the Sandy River basin to restore fish habitats are identified in Table 9. Water Quality restoration projects outlined in section 4.2.1 will also help restore fish habitats through improved channel shape and function, reduction of sediment loads, and improved water quality (cooler water temperatures). Many of the water quality restoration projects are Tier 2 and Tier 3 projects under the fish habitat restoration hierarchy. As BLM acquires new lands in the basin through exchange or purchase, those lands will be assessed for habitat restoration needs following the hierarchal framework outlined above and in the restoration strategy (SRBWG 2007).

Project Implementation Schedule*

Table 9: Fisheries Habitat Restoration

Location (River)	Reach	Target Outcomes	Target Completion (FY)
Salmon River	1 &2	Reconnect side channels to main river channel on BLM lands adjacent to Wildwood Recreation Site (Tier 1 project). Add LWD to improve spawning and rearing habitat of side channels (Tier 4).	2009-2010
	2	Riparian vegetation restoration via conifer planting in an aging Alder stand at Wildwood Recreation Site. Initiate public outreach and education concurrent with planting.	2009-2010
	1 &2	Riparian vegetation restoration via noxious weed eradication on BLM lands.	2009-2025
	2	Assist Sandy River Basin Work Group (SRBWG) with placement of LWD to improve spawning and rearing habitats	2015-2020
	1 &2	Assist SRBWG improve spawning and rearing habitat in main channel with placement of log jams	2020-2025
Mainstem Sandy River	4-7	Continue to support knotweed eradication and public education on invasive species efforts in the Sandy River basin (Tier 2 and Tier 3 projects). Participate and support additional SRBWG restoration projects.	2009-2025
	7	Assist SRBWG with reduction/elimination of diking to restore floodplain connections.	2015-2025
	7	Work on reconnecting side channels to main river channel	2020-2025
	6&7	Assist SRBWG improve spawning and rearing habitat in main channel with placement of log jams	2020-2025
Little Sandy River	1&2	Monitor LWD structures put in place downstream of the diversion dam in 2007. Plan and implement additional LWD placement based on results of monitoring.	2008-2010

***Based on Available Resources**

4.3 Terrestrial Restoration Actions

Management actions have been identified for BLM administered lands throughout the Sandy River Basin. Phase one of this restoration effort focuses on lands located in the middle portion of the Watershed. Opportunities exist for restoration strategies that promote diversity on otherwise even-aged, contiguous stands, control the spread of invasive non-native species and reduce the threat of catastrophic fires.

The following restoration strategies are based on identified sites, locations and the land use allocations established by the 2008 Salem District RMP. Units within the following land use allocations have been targeted for restoration activities: Administratively Withdrawn, National Landscape Conservation System and Riparian Management Areas. Units that fall within Timber Management and Deferred Timber Management Areas will be managed for restoration goals and objectives as outlined in this plan when it is not in conflict with the goals and objectives contained in the 2008 RMP. Units that fall within designated Mt. Hood Corridor and Bull Run Management Unit lands will be managed according to the legislation that created them.

To implement the projects being proposed in this plan and address the complexities involved with each phase of these projects, an implementation schedule has been created for restoration based projects. Each project has been broken into different “phases” with objectives and general timelines outlined to accomplish each “phase”. All restoration projects, including restoration thinning, invasive species management, fuels treatment and habitat and riparian restoration are included in this schedule. To the greatest extent possible, phases would be adhered to as resources are available. The goal of this breakdown is to create a roadmap for project completion, operations and maintenance through the duration of this plan (15 years). A year end review will follow each fiscal year to evaluate future budgets; review progress made and outline future work goals.

Stewardship contracting will be used, when possible and appropriate, to implement the terrestrial restoration actions outlined in the following sections. Stewardship contracting involves land management through broad-based public and community participation. Stewardship projects combine the flexibility of a service contract with a product removal contract.

Stewardship contracting authority includes agreements with nonprofits, best-value contracts, designation by description, end results, goods for services, and varies from 1 to 10 years. The primary objective of any stewardship project is to achieve key land management goals that meet local and rural community needs and ecosystem values through an open, collaborative process. The land management goals of a stewardship contract may:

- Improve, maintain, or restore forest and rangeland health,
- Maintain or obliterate road and trail systems to improve water quality
- Improve soil productivity,
- Use prescribed fires to improve composition, structure, condition, and health of forest stands or to improve wildlife habitat,

- Remove or reduce vegetation or other activities to promote healthy forest stands, decrease the potential of uncharacteristic wildfire or achieve other land management objectives,
- Restore and maintain of watersheds, water quality, and wildlife and fish habitat,
- Control of noxious and exotic weeds to protect and promote native habitat.
- Reestablish native plant species and increase ecosystem resilience to insect and disease

4.3.1 Vegetation

Management Actions

Management direction and criteria has been developed for each Land Use Allocation within the planning area (see Chapter 3). The collection of inventory data would be necessary to determine the treatment, or series of treatments necessary to meet the desired future condition of vegetation within the planning area. Priority would be given to those stands to be treated in areas that require the least amount of road construction, renovation or restoration.

Priority stands for treatment would be identified through GIS queries, aerial photo interpretation, stand exams, and/or stocking surveys. Management Actions would be implemented to achieve the desired future conditions and management direction as outlined in Section 3.8. Stand exams, stocking surveys and other survey techniques will be used to prioritize areas for restoration treatment.

Vegetation management direction and associated criteria have not been proposed for the Bull Run Management Unit and the Mt. Hood Corridor Lands. Management direction specific to these two NLCS units can be found in Chapter 3.2.

Potential Treatments for Enhancing Vegetation (*Timber Management Areas and Deferred Timber Management Areas*):

- Retain non-commercial trees, snags, and coarse woody debris when not posing a hazard to personal safety or compromise operations.
- Maintain stand densities through commercial thinning at levels above that needed for identified species to occupy the site.

Potential Treatments for Enhancing Vegetation (*National Landscape Conservation System/Congressionally Designated/Acquired Lands, excludes Mt. Hood Corridor and Bull Run Management Unit Lands*):

- Remove trees across age classes to maintain safe conditions for the visiting public, to control the spread of forest fire and for removal of hazard trees along trails and roadways.
- Prioritize areas for restoration treatment and implement site surveys, stand exams where needed.
- Establish priority treatment areas and identify demonstration sites.
- Reduce stocking in dense, even aged stands to increase overall forest stand health.

- Decrease the potential for wildfire spread.
- Restore and enhance potential wildlife habitat.
- Restore and enhance riparian areas and water quality
- Maintain, restore and/or enhance the scenic qualities of the area.

Potential Treatments for Enhancing Vegetation (*Administratively Withdrawn Lands*):

- Implement variable thinning, weed control, and reforestation project prescriptions to promote diversity in even aged, contiguous stands.
- Treat suitable stands where topography and road access are favorable and require little temporary or permanent road construction.

Project Implementation Schedule*

Table 10: Restoration Actions- Vegetation, Wildlife and Fuels
For Administratively Withdrawn and National Landscape Conservation System lands

Phase	Targeted Outcomes	Target Completion (FY)
1	Prioritize areas for restoration treatment. Survey areas (stand exams, stocking surveys, invasive plant surveys, fuels inventory) where needed. Assign Stewardship/Restoration Coordinator for the Sandy River Basin. Conduct ongoing surveys as needed.	2009-2010
2	Collect priority survey data. Establish treatment areas secure feasible access. Ongoing surveys as needed.	2010
3	Complete required NEPA. Implement thinning and restoration projects at demonstration sites. Ongoing surveys as needed.	2011-2013
4	Complete work at demonstration sites. Identify additional priority sites and implement treatments. Ongoing surveys as needed.	2013-2015
5	Monitoring of treated sites. Identified treatments continue to be implemented. Surveys are updated and continue where needed.	2015-2024

***Based on Available Resources**

4.3.2 Wildlife

Management Actions

Timber Management Areas and Deferred Timber Management Areas will primarily be managed for permanent forest productivity. Restoration activities will be developed when not in conflict with the goals and objectives for these lands as outlined in the 2008 Salem District Resource Management Plan,. Management actions in the Administratively Withdrawn, National Landscape Conservation System/Congressionally Designated land use allocations were determined across age classes and are listed below.

Priority stands for treatment would be identified through GIS queries, aerial photo interpretation, stand exams, and/or stocking surveys. Management Actions would be implemented to achieve the desired future conditions and management direction as outlined in Section 3.7.

Timber Management Areas and Deferred Timber Management Areas

See Management Actions outlined in Vegetation Section 4.3.1

Administratively Withdrawn, National Landscape Conservation System/Congressionally Designated (excludes Mt. Hood Corridor and Bull Run Management Unit).

- Create Gaps (2.5 to 5 acres in size) to promote grass and shrub communities.
- Cut or girdle trees within close proximity to the drip line of large dominant trees to accelerate their growth.
- Decommission or block roads to reduce impacts to wildlife habitat.
- Retain and encourage developing understories for wildlife habitat and forage
- Create diversity in monoculture stands through the implementation of variable density thinning projects.
- Place nest boxes in younger forests (0-40 years old) lacking large snags, and on edges of meadows and ponds.
- Top and girdle trees in areas lacking standing dead wood.
- Create downed wood where appropriate and lacking.
- Develop an inventory of beaver activity on public lands, and monitor when possible.
- Re-establish BBS in lower Sandy River Basin, and establish a mid-Sandy River route, based on available funding.

4.3.3 Invasive Non-Native Plants and Botany

Management Actions

- Implement the Cascades Invasives Non-native plant species eradication plan (Planned for completion Spring of 2009) that includes inventory, treatment, monitoring, outreach and education.

- Continue to treat invasive non-native plants where previously treated, monitor outcomes and make adjustments.
- Work with the Sandy Basin Invasive Species Partnership (SBISP) to implement an Early Detection Rapid Response within the Sandy Basin. This means that any new invaders would receive a rapid response upon discovery.
 - The SBISP created scoring criteria to prioritize Restoration areas for treatment. The end result was a matrix that evaluated and prioritized sites based on both Ecological and Landscape values, site condition and restoration needs. Sites that occur on BLM lands have been identified in Table 11, and will be the focus for the implementation of the SBVRC partnership.
 - Basin-wide priorities for treatment areas have been established within this partnership and would be supported by the BLM for funding. Specific restoration areas include: Sandy Gorge, Little Sandy Dam, Middle Gorge, Marmot Dam, Sandy River to Wildcat Creek, Sandy Salmon Confluence, Lower BLM reach and Minsinger Bench (See Invasive Non-Native Restoration Figure 9 for project locations.).

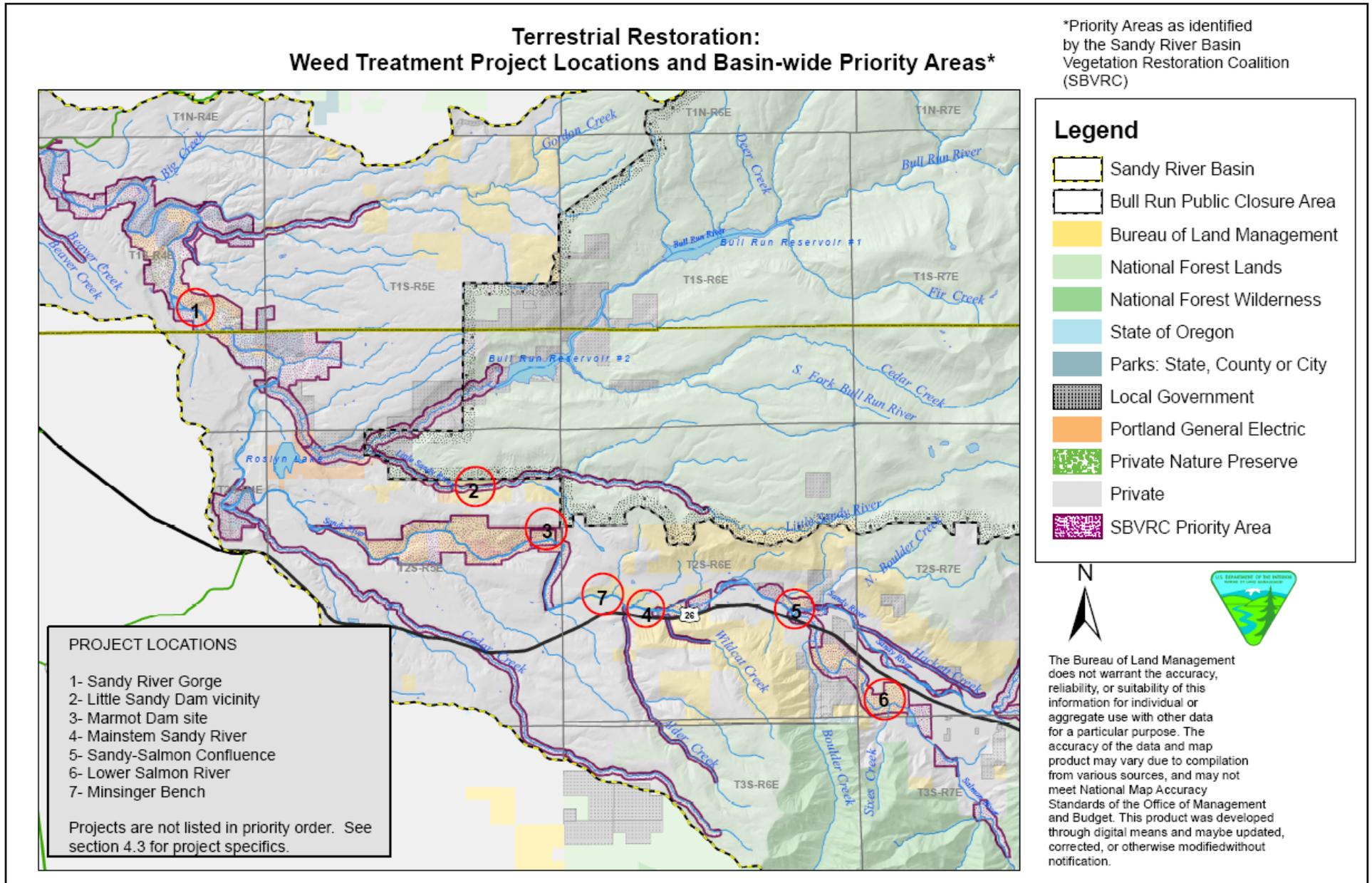
Project Implementation Schedule*

Table 11: Restoration Actions: Non-native Invasive Species

Location	Targeted Outcomes	Target Completion (FY)
Sandy River Gorge	<i>Ongoing</i> - Treat riparian areas for knotweed and other priority species. Continue inventory and monitoring.	2002-2020
Little Sandy Dam	Inventory for invasive plants and treat identified species. Continue monitoring efforts.	2011-2020.
Marmot Dam site	Begin site revegetation and restoration efforts. Establish trail plots of trails and shrubs to monitor site conditions.	2009-2010
	Continue site monitoring, invasive species removal and management.	2009-2025
Sandy River (BLM Channel to Wildcat Creek)	Treat knotweed in riparian areas. Treatment and ongoing assessment of ivy	2009
	Additional inventory for future restoration opportunities.	2010-2025
Sandy River-Salmon River Confluence	<i>Ongoing</i> - Treatment of knotweed along riparian area	2009
	Implement native planting.	2010-2025
	Continued treatment of invasive species. Monitoring and preparation for recreation-related visitation.	2010-2025
Salmon River (Lower BLM Reach)	Monitor knotweed within riparian area and re-treat as needed.	2009
	Inventory and assessment for invasive species.	2010
	Continued monitoring.	2010-2025
Minsinger Bench	Removal and control of invasive species until trees are established.	2009-2025
	Removal of blackberry in unplanted areas (south slope of creek along fence line with upper bench)	2010-2012
	Re-establish non-coniferous trees and other native plants as necessary.	2010-2015
	Harvest trees planted in power line corridor.	2011-2013
	Replant trees with power line species identified by the Bonneville Power Administration.	2014-2017
	Continued invasive species monitoring	2009-2025

***Based on Available Resources**

Figure 10: Terrestrial Restoration- Weed Treatment Project Locations



4.3.4 Fire/Rural Interface Areas

Management Actions

- Implement fuels reduction plan as outlined in section 3.10.
- Focus on fuel reduction projects along developed recreation areas/trails and adapt to where future uses are anticipated/established.
- Plan fuels reduction projects to complement other project work occurring within the planning area.
- Work with land management agencies, private property owners and recreational user groups to minimize private property trespass issues.