

Park and Trail Standards

A sustainable POSTR system involves a commitment to environmental, economic, and social practices that enhance a community's quality of life and promote responsible management of resources. Most importantly, a commitment to sustainability requires us to think about the impact of our actions on future generations. The following park and trail standards are intended to ensure that the design and construction of parks and trails in Snowmass Village is balanced with long-term maintenance requirements, enhancing community living, and reducing consumption of resources. The standards adapted from numerous state and federal sources, including the US Forest Service, the National Park Service, the US Access Board, the National Recreation and Parks Association, the Colorado Department of Local Affairs (DOLA), and sustainable park system guidance from Oregon, among other sources.

ENVIRONMENTAL SUSTAINABILITY STANDARDS

Environmental sustainability promotes the efficient and responsible use and management of resources to provide long-term benefits to the community. To achieve environmental sustainability, the rate of renewable resource harvest, pollution, and non-renewable resource depletion must be reduced to the point of being sustainable over the long term. A sustainable park should, to the fullest extent possible, function within the ecosystem and its processes rather than separately. Healthy ecosystems provide direct benefits to communities which surround and rely on these ecosystems. Examples include water purification, clean air, groundwater recharge, food production, and viewsheds.

Air Quality

- Reduce carbon emissions in POSTR equipment and vehicles.
- Increase bike trail access and provide safe routes to parks.
- Provide transportation alternatives to motor vehicles.
- Increase plantings of trees within appropriate areas to improve air quality.

Habitat Enhancement and Restoration

- Ensure park and recreation facilities and uses do not harm adjacent natural areas and sensitive habitats.
- Reduce vulnerability to damage from flooding, storm surge, wildfire, and drought by reducing development of hazard prone areas.
- Develop an Integrated Pest Management program to reduce the use of chemicals and to ensure proper use/disposal of chemicals.
- Protect existing habitats by developing clear landscape protection plans and specifications

Recycling

- Conduct on-site green waste/composting of park materials.
- Recycle appropriate park waste.
- Provide public recycling containers at all developed park and recreation facilities.

Renewable Energy

- Replace or renovate obsolete energy or resource-inefficient infrastructure within park and recreation facilities.
- Develop demonstration projects that highlight

alternative energy sources and/or reduction in resource use.

- Utilize solar roof top collecting panels.
- Utilize wind generating equipment.

Utility Reduction

- Utilize right-sizing strategies for vehicles and equipment.
- Track water, electricity, natural gas use within buildings and other facilities
- Track fuel use for vehicles and equipment.
- Track water use through centrally controlled irrigation systems.
- Where appropriate, use treated water for irrigation of developed landscapes.
- Establish benchmarks for reduced use of utilities and fuel for vehicles
- Increase paperless electronic document storage in administrative work.
- Expand use of LED lighting.

Soils

- Acknowledge Soil as a Living System
- Perform Soil Analysis and Assessment
- Monitor and learn from local soil conditions
- Retain native soils that are relatively undisturbed
- Use structural soils to increase longevity of trees and adjacent pavements
- Design soils at paved areas to provide load-bearing capacity for pavements as well as nutritional components
- Protect native soils and future planting areas from compaction and contamination during construction

Native Habitat and Genetic Diversity

- Design landscapes based on principles of ecological succession, selecting appropriate, low maintenance native plants
- Remove invasive plants to avoid habitat degradation, particularly at edge conditions
- Design to encourage diversity of vegetation and to reinforce edge conditions

Water Resources and Flood Protection

- Respect natural drainage patterns and use stormwater as an asset and not as a waste
- Design parks to provide storm water retention.
- Design sites to maintain or restore beneficial drainage patterns
- Use infiltration trenches to slow run-off and allow infiltration to occur
- Develop bioswales within and adjacent to parks.
- Use pervious surfaces, where appropriate, for parking areas, walkways and other public spaces.
- Design and install centrally located irrigation systems in all new parks.
- Use recycled water for landscape irrigation where feasible.
- Provide erosion control or prevention measures at the source to reduce downstream impacts
- Provide temporary erosion control measures on partially completed projects or if soil is to remain exposed for more than 30 days
- Design for water conservation by grouping plants with similar water requirements; consider rainwater harvesting systems and water conserving irrigation systems

- Preserve and restore riparian corridors and wetlands by creating buffers
- Include floodplain areas in the riparian buffer for maximum wildlife benefit

Design, Green Building and Construction

- Align trails and locate improvements with consideration of the natural environment to protect ecosystems and sensitive habitat areas.
- Set a standard of LEED certification for all new and renovated buildings.
- Incorporate sustainable design principles in renovated and new construction, such as:
 - Ground water recharge
 - Solar power sources
 - Composting or low-flow restrooms
 - Low-water vegetation
 - Sustainable and recycled products
 - Energy efficient materials and processes
 - Local products

ECONOMIC SUSTAINABILITY STANDARDS

Economic sustainability within the field of parks and recreation primarily refers to ensuring a government agency's capacity to maintain public infrastructure and continue to achieve its public purposes into the future. Economic sustainability also involves consideration of government spending and its impact on the economy as a whole, including the private sector and the local community (i.e. economic impact and user spending).

POSTR System Development

- Prior to the start of construction determine annual operational costs and sources of funding for new or expanded projects.
- Incorporate sustainable practices into the design of new or renovated projects to limit resource use and reduce on-going maintenance and operation costs.

Fiscal Practices

- Ensure that funding for long-term maintenance and operations does not exceed costs of services.
- Evaluate the cost-benefit impact of sustainable practices and continue to set new benchmarks.



SOCIAL SUSTAINABILITY STANDARDS

Parks serve as valuable places for shared social activity and public interaction. For a community to enjoy a high quality of life and be sustainable, the basic needs of all residents must be met. A socially sustainable community must have the ability to build and maintain park facilities serving residents of all ages and abilities.

Education and Outreach

- Provide sustainability training for public park employees.
- Provide opportunities for the public to learn about park sustainability and natural resource protection.
- Provide demonstration gardens of native plantings within local parks.

Social Interaction with the Natural Environment

- Provide outdoor spaces designed and operated to encourage social interaction.
- Enhance the public's physical, mental, and social well-being by providing opportunities to interact with nature.
- Create volunteer opportunities for the public to be directly involved in the protection, maintenance, and enhancement of natural and open space areas.
- Provide public access to parks, recreational facilities and open space areas for all members of the community.
- Promote ecological values among TOSV residents through public education and interpretation of park and open space features.

Public Health

- Provide Community Gardens for local residents to grow edible food products and interact with other local residents.
- Provide edible landscape demonstration gardens within parks.
- Provide facilities and programs to encourage physical fitness and reduce the obesity rate among TOSV residents.

ACCESSIBILITY STANDARDS

Achieving accessibility in outdoor and recreation environments is often a challenge due to the constraints posed by terrain, the degree of development, construction practices and materials, and other factors. In response to this, the US Access Board has produced a series of guides regarding recreational facilities and their interface with the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA), both of which provide federal Accessibility Standards. In some cases, POSTR development will be required to follow these standards, and in others the standards can simply act as guidance for good inclusive design, depending on the particular aspects of each project, funding sources for the project and involved agencies. The provisions address access to trails, picnic areas, viewing areas, beach access routes and other components of outdoor developed areas when newly built or altered. They also provide exceptions for situations where terrain and other factors make compliance impracticable.

US Access Board guides are available here: <https://www.access-board.gov/guidelines-and-standards/recreation-facilities/guides>. Relevant guides include:

- Boating Facilities
- Fishing Piers and Platforms
- Play Areas
- Play Surfaces
- Sports Facilities
- Swimming Pools, Wading Pools, and Spas

The US Access Board intends to develop guidelines for non-federal outdoor sites covered by the Americans with Disabilities Act (ADA) and areas developed with federal grants and loans covered by the ABA through a subsequent rulemaking. These anticipated rules will likely also apply to POSTR development, and should be incorporated into the department's design standards when available.



TRAIL STANDARDS

The trails included in this plan are designed for a milieu of user experiences and purposes. Each type of trail is therefore subject to a different set of standards and practices that will best accommodate the users on that trail. Multi-use paths should be wide-enough to accommodate the many users and user types that may be on the trail simultaneously, while natural surface trails should be designed in a manner that provides a more natural experience and follows the contour of the land

Typology

The Trail Typology presented on the following pages was developed to provide a common vocabulary for trail types within Snowmass Village, and summarize current policies relating to intended trail users and design specifications for each facility type. The Trail Typology is divided into two parts – one summarizing appropriate facilities for Rugged Trails and the other for Multi-Use Paths. The typology is based upon current department practices and national guidelines established by various organizations for the development of multi-use paths, bicycle facilities, equestrian facilities, and sustainable trails. The following documents have been used to develop the typology and related design and maintenance standards of POSTR Plan:

Equestrian Design Guidebook for Trails, Trailheads and Campgrounds, USDA Forest Service and FHWA Recreational Trails Program, 2009. Provides practical guidelines for developing recreation environments that are sensitive to the needs of riders and their stock.

Forest Service Trail Accessibility Guidelines (FSTAG), USDA Forest Service, 2003 draft. Provides guidance for maximizing accessibility,

while recognizing and protecting the unique characteristics of the natural setting of each trail.

Guide for the Development of Bicycle Facilities, American Association of State Highway Transportation Officials (AASHTO), Fourth Edition, 2012. National guidance on providing facilities that are safe, convenient, well-designed and well-maintained, with low-crash frequencies and severities. Addresses various riding environments, including design of on-road facilities and design of shared use paths.

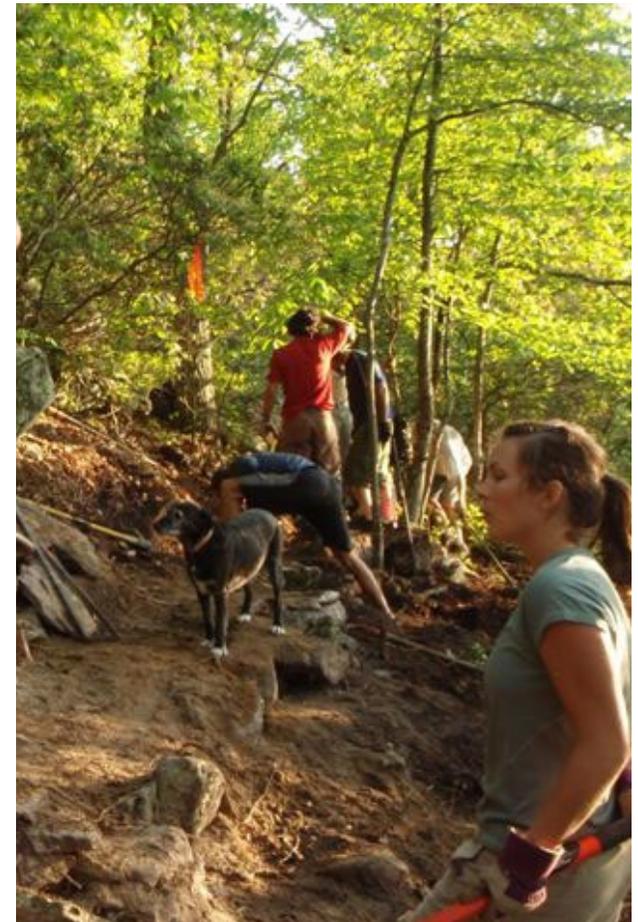
Guide to Sustainable Mountain Trails: Trail Assessment, Planning and Design Sketchbook, National Park Service, 2009 Edition. Presents sustainability criteria for assessment, planning, design, implementation and communication of mountain trail projects that minimize impact to natural and cultural resources.

Manual on Uniform Traffic Control Devices (MUTCD), Federal Highway Administration (FHWA), 2009 Edition. Defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public travel.

TRACS Trails Management Objectives, United States Forest Service (USFS), 2011. Specifies designed use objectives and travel management strategies for individual sections of local Forest Service trails.

Trails Management Handbook, USFS National Headquarters, 2008. Used to implement decisions regarding trail management within the Arapaho and Roosevelt National Forests and Pawnee National Grassland.

Trail Solutions: IMBA's Guide to Building Sweet Singletrack, International Mountain Biking Association (IMBA), 2004. Is a leading source of sustainable trailbuilding information (covering planning, design, tool selection, construction and maintenance) as well as how to successfully introduce natural objects (rocks, roots, logs, etc.) and man-made features (elevated bridges, teeter-totters, jumps, etc.) to add technical challenge to mountain biking experiences.



Rugged Trails



Multi-Use Paths



Natural Surface Trails

In general, natural surface trails are characterized as:

- Narrow mountain trails designed as sustainable, rolling contour trails that have minimal impact on natural systems
- Trail treads should include benching, outsloping, grade reversals, armoring, switchbacks, and other techniques to minimize erosion and wear by trail users
- Frequently smooth and flowing, with features like banked turns, rolling terrain, and consistent and predictable surfaces
- Tend to wind around obstacles such as trees, large rocks and bushes
- If intended for singletrack mountain biking, may also exhibit technical sections with features such as roots, logs and rocks, or man-made technical features such as elevated bridges, jumps, teeter-totters, and drop-offs

Rugged Accessible Trails:

Regional facilities are longer distance, multi-jurisdictional paths that may be used for a variety of These wide accessible trails provide rugged trail opportunities to a wider range of users, including handcycle and mobility assisted users, and are also user friendly for beginner level mountain biking and family style hiking. Most handcycles are built in a tricycle configuration and are powered by the riders' arms verses legs; therefore, these recreationalists need newly adapted trail systems.

- Handcycle
- Beginner Mountain Biking
- Hiking

Unpaved Graded Path

Multi-use or shared use paths are physically separated from motor vehicle traffic. They have a graded gravel fines treadway and provide accessible outdoor recreation and transportation opportunities for many user groups.

- adult/child bicyclists
- horseback riding
- walking
- jogging/running
- wheelchair use
- baby strollers
- dog walking
- snowshoeing
- cross country skiing
- Local facilities connect local destinations such as:
 - schools
 - shopping
 - employment

Paved Path

Regional facilities are longer distance, multi-jurisdictional paths that may be used for a variety of recreation and non-motorized transportation needs. Similar to the list above.

Are often located in the vicinity of linear features such as:

- river and stream corridors
- roads
- railroad grades
- utility corridors
- irrigation canals

Mowed Path

A mowed path is a soft surface trail that is light on the land and can accommodate a limited number uses. These paths typically serve as a recreation oriented facilities and are generally suitable for providing access to natural areas and some rural connections.

Mountain Biking

Tread Width

12"-48" narrow trail tread for singletrack experience

Corridor Width

5' - 7'

Average Grade

<10% grade desired for sustainable trails

Hiking

Tread Width

12"-36"

Corridor Width

4' - 6'

Average Grade

<10% grade desired for sustainable trails

Equestrian

Tread Width

24" - 48"

Corridor Width

8' - 12'

Average Grade

<10% grade desired for sustainable trails

Rugged Accessible Trail

Tread Width

36" - 60"

Corridor Width

6' - 12'

Average Grade

- 1% - 3%
- 5% - 8.33% for 200' Max
- 8.33% - 10% for 30' Max
- 10% - 12% for 10' Max



Trail Standards

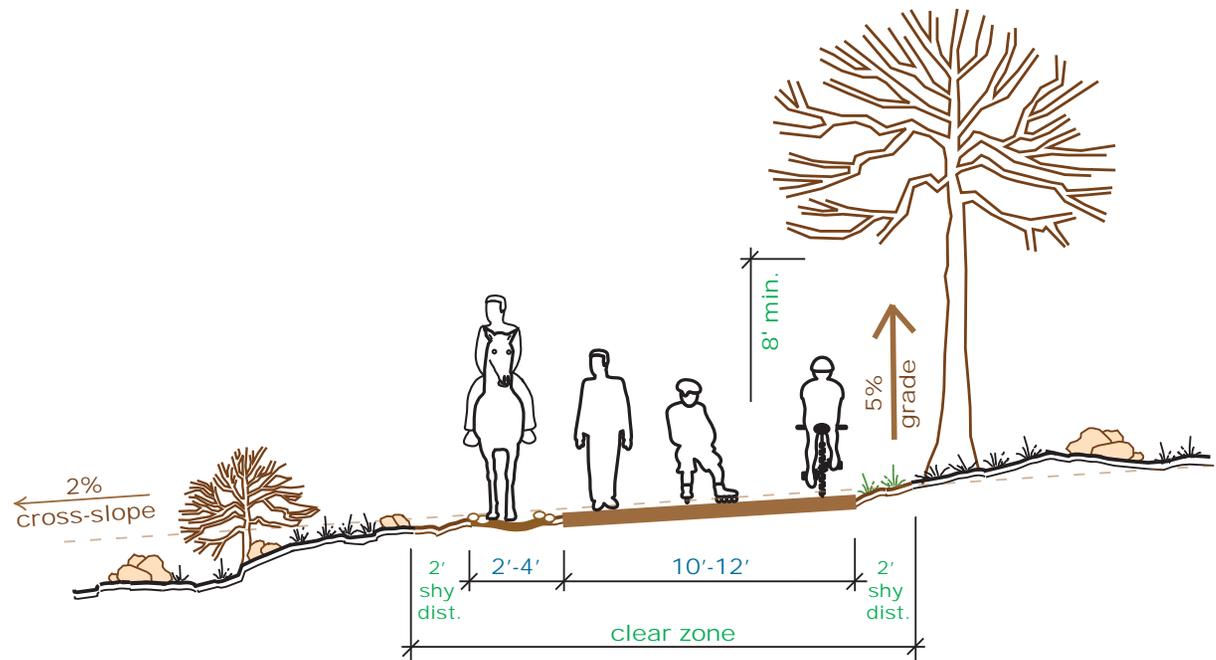
Multi-Use Paths

Off-road multi-use paths offer alternative routes removed from traffic for transportation purposes, as well as more casual recreational opportunities for walking, biking and other trail uses. Multi-use paths may be paved or soft-surface, but should be developed to widths that will allow bicyclists to meet and pass other cyclists, pedestrians, and other users of the trail system. Pedestrians tend to use paths in groups and may walk side-by-side and/or meander laterally. Pets on leashes and in-line skaters will take up additional lateral space on a multi-use facility. Joggers and equestrians prefer to travel on soft-surface path shoulders. Design and maintenance considerations shall therefore include:

- Multi-use paths are an appropriate facility type to be developed in linear open spaces, or parallel to higher volume roadways when adequate separation can be provided between multi-use path and road.
- Design to accommodate activity levels by a variety of non-motorized users including pedestrians, bicyclists, in-line skaters, joggers, equestrian users, etc.
- The AASHTO Bike Guide should be followed for designing all multi-use paths.
- The trail tread may be soft surface (crusher fines) or paved (asphalt or concrete). Trail width is 10' min. with a 5% grade. However, a 12' width is preferred to accommodate higher levels of multiple use.

- Standard MUTCD signage and pavement markings, including ladder-style crosswalks, should be installed at all street crossings.
- Widths and structural loadings of bridges and other trail structures are encouraged be designed to accommodate small emergency and maintenance vehicles.

- Where equestrian use is desired in a corridor with a paved multi-use path, provide a softer, separate tread for horses alongside the main path.
- Clear vegetation and maintain a 2' min. shy distance for lateral clearances and an 8' min. for vertical clearances (10' min. for equestrian use)

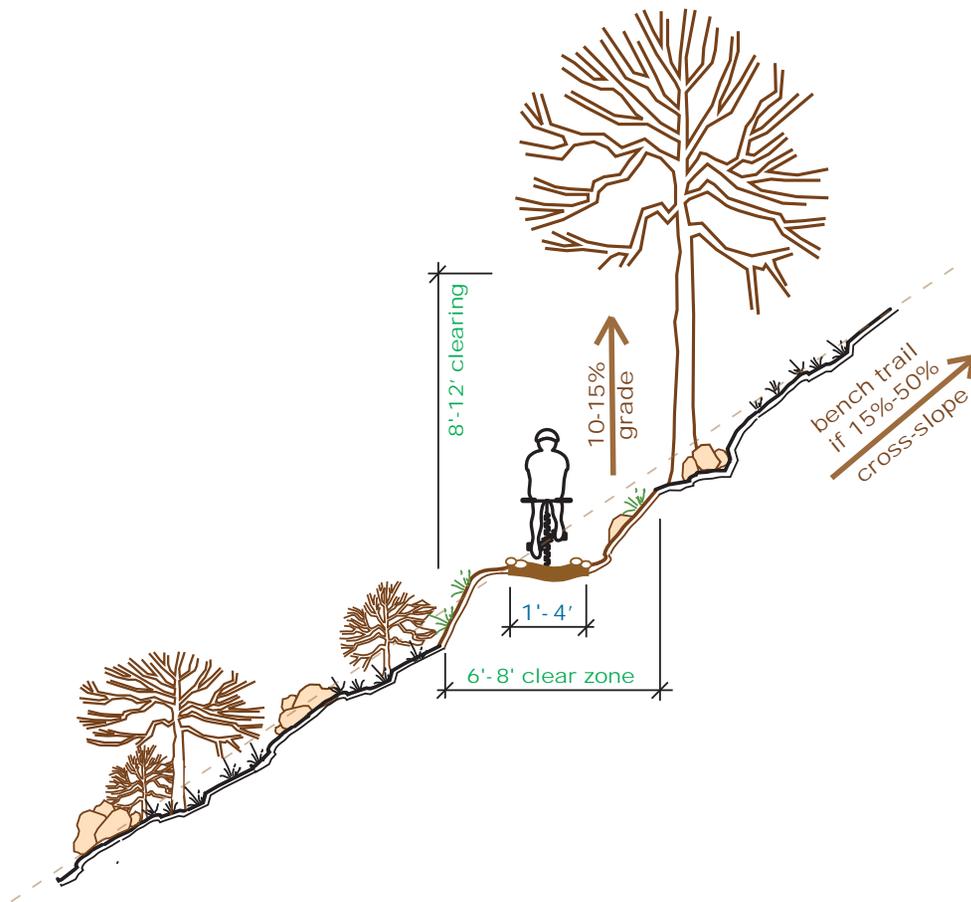


Rugged Trails

In contrast to multi-use paths, most rugged, natural surface trails should not be developed to wide standards in an effort to provide high-quality nature experiences and discourage use by motorized ATV users. Narrow trails laid out following the natural contours of the land are desired, with careful attention paid to slopes, tread compaction, and water drainage to promote sustainable trail design and maintenance.

- Rugged, natural surface trails are generally appropriate to be developed in open space areas as a series of stacked loop trails of varying lengths.
- The trail tread is compacted soil typically 12" - 48" wide and defined by using vegetation, boulders, and other natural features to create chokes and corrals that create an interesting, meandering hike or ride.

- Multi-use rugged trails should be designed as rolling contour trails - characterized by gentle grades, undulations called grade reversals, and an outsloped trail tread that allows water to drain off the surface without causing erosion.
- With proper design, a rugged trail can accommodate equestrians while minimizing user conflicts and damage to the trail surface. Vertical clearance for equestrian use should be at least 10 feet, with a horizontal clearance of at least 5 feet. Sight distance should be at least 100 feet, and proper signage is needed to indicate which user has the right-of-way priority.
- Horses often prefer water crossings to bridges. If this isn't practical, provide mounting blocks at the ends of bridges so that riders can dismount and lead their horses across the structure. In addition to the standard amenities for human users, parking and staging areas, water for horses and hitching posts at any area where the rider may stop to take a break (rest areas, restrooms, etc.) should be provided.



TRAIL SAFETY AND ETIQUETTE

The planning and design of a multiple use trail system entails facility design that takes the needs of each user into consideration while also balancing the manner in which these different users encounter one another. Trail safety remains a priority concern while high quality visitor experience for all users is the ultimate goal. Despite all efforts at designing to prevent user-conflict, it is important to communicate expectations for trail etiquette in order to minimize negative experiences. By providing information through programs, media and signs, trail users become accustomed to how best to interact with other users, land owners and land managers which enhances the trail experience for everyone.

Multi-Use Trail Safety Standards

“With time, patience, commitment, and cooperation among users and between users and managers as well as diligent and aggressive planning and management, shared-use trails can be an excellent way to accommodate many types of users with minimal conflict.”
- National Recreational Trails Advisory Committee

Physical Responses:

- Provide a variety of trail opportunities.
- Build trails wide enough to accommodate the expected use, and for safe passing.
- Provide pullout areas where necessary.
- Design in adequate sight distances.
- Design to control speeds where necessary.
- Provide separate trailheads for different users.
- Provide separate trails when necessary and possible. This may be necessary only for problem sections.
- Design and construct trails to minimize erosion.

Management Responses:

- Information and Education
 - Communicate why the trail is shared.
 - Communicate who should yield to whom and why.
 - Communicate the consequences of problem behaviors (e.g., from impact on other users to loss of access for offenders).
 - Build consideration and trust.
 - Communicate physical and social trail conditions to help users have more accurate expectations of what and whom they are likely to find on a particular trail.
- User Involvement
 - Trail Planning
 - Management
 - Conflict Resolution
 - Regulations and Enforcement

Trail Etiquette Guidelines

Following are guidelines for trail etiquette for multiple-use trails, developed by the Montana Chapter of the Continental Divide Trail Alliance. A broad coalition of user groups supported the effort:

RESPECT: Education about friendly respect for all users will diminish negative encounters on the trail for all users. It’s a simple concept: if you offer respect, you are more likely to receive it.

COMMUNICATION: Let folks know you’re there – before you’re there. Riding up on horses and stock can be dangerous even for the best-trained critters. For bikers and hikers; 1. Make yourself known to stock and rider. A simple “Howdy” works to get attention. 2. Step downhill and off trail.

HORSES UPHILL: Horses and mules are prey animals. That means they think everything wants to eat them; even the hiker with a large, scary backpack and especially the fast-moving biker “chasing” them. When startled, frightened critters go uphill. You should move downhill to avoid an encounter with a 1,000 pound panicked animal.

YIELD APPROPRIATELY: Do your utmost to let your fellow trail users know you’re coming - a friendly greeting is a good method. Anticipate other trail users as you ride around corners. Bicyclists should yield to other non-motorized trail users, unless the trail is clearly signed for bike-only travel. Bicyclists traveling downhill should yield to ones headed uphill, unless the trail is clearly signed for one-way or downhill-only traffic. In general, strive to make each pass a safe and courteous one.

RESPECT THE RESOURCE: Help protect your accessibility by playing nicely with your neighbors and treating trails with reverence. Always practice Leave No Trace ethics and pitch in to give back - pick up trash, volunteer on a trail project or become a member of your local trail club.

AVOID SPREADING SEEDS: Help keep weeds out of our forests. Noxious weeds threaten our healthy ecosystems and livelihoods. Stay on trails and designated roads, use weed seed free hay, check your socks, bikes and horse tails for hitchhikers when you get back to the trailhead.

BE INFORMED: Questions about where to ride, trail closures, outdoor ethics and local regulations are important to know before you head out on the trails. Contact your local land manager if you are unsure about what you can and can't do in a given area.



LANDSCAPE MAINTENANCE STANDARDS

- Plants should be selected based on their level of maintenance, durability, mature widths and heights, aesthetic appeal, and thematic qualities. Native species that maintain the Town's natural rural character should be preferred.
- Thorny plants should not be used where their placement could be hazardous to public safety such as near sidewalks or trails.
- Non-turf planting areas should be mulched to retain moisture, suppress weeds, and moderate soil temperature.
- Turf should be used as a functional recreational element rather than solely for aesthetic purposes wherever possible.
- Lower water use, warm season turf grasses should be used.
- Irrigation systems should be designed, constructed, managed, and maintained to achieve the highest overall efficiency possible. Efficiency is measured by the amount of water beneficially used to sustain plant life divided by the amount of water applied. Efficiency is affected by the attributes of the controller, method of irrigation, irrigation equipment, proper hydrozoning, site topography, condition and size of plants, and weather conditions.
- High efficiency irrigation methods (for example, drip, 'MP rotators', micro-sprays) should be encouraged.
- Rotors and spray heads should be designed and installed with minimized overspray onto paved surfaces, structures, and non-vegetated areas.
- Recycled water should be used for irrigation if available. Plans should also be designed for recycled water use.
- Perpetual landscape maintenance is paramount to water efficient landscaping and water conservation. Regardless of the efficiency of the irrigation design and installation, a landscape can quickly lose its efficiency with the lack of proper maintenance. The following list contains continual maintenance responsibilities:
 - Monitoring and adjustment of controllers
 - Repairing of broken/ leaking/ clogged/ malfunctioning irrigation equipment
 - Calibrating irrigation application equipment to provide maximum efficiency
 - Maintaining minimum mulch levels
 - Pruning plants to eliminate irrigation application interference
 - Replacement of equipment
 - Replacement of plant materials