SECTION 4

# Trail Classifications and General Characteristics

## Overview

This section establishes classifications and general characteristics for trails common to Minnesota. The classifications establish a common language to ensure consistency in how trails are described and planned. The general characteristics of each trail type define key design aspects important to meeting user needs and expectations.

## Service Levels

Service level refers to the capacity of a given trail or trail system to meet the needs and expectations of a defined population or specific user group within a geographical context. In Minnesota, trail systems are planned at a number of service levels, including local (city and township), county, region, and state.

### Hierarchal Relationship Between Service Levels

As with a roadway system, there is a hierarchal relationship between service levels, with local trails meeting the needs of smaller, localized populations and county, regional, and state trails incrementally meeting the needs of broader-based groups and larger populations.

The following provides a general definition of the various service levels associated with trails. The key distinctions are the size of the service area, type of groups and populations being served, length of trail, site-specific setting, and level of specialization provided by the trail.

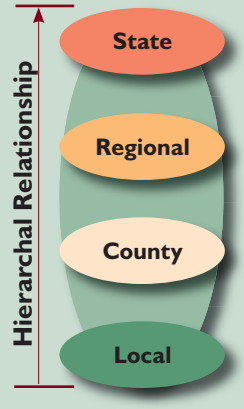
#### Local Trails

Local trails provide close-to-home trail opportunities (within a five-minute drive or 10-minute walk), often with direct access from individual neighborhoods. Trail linkages to county, regional, and state trails and parks are desirable. Local trails are predominantly nonmotorized. Depending on the classification, lengths range from 1/4 mile to many miles of interconnected trails within a given site or within and between cities. Cities and townships typically have jurisdiction and funding responsibilities for local trails.

#### County Trails

County trails are one level higher than local trails and are often located in rural or less developed areas where local or regional trail systems are not provided. County trail systems often fill gaps between regional and local trail systems in the Twin Cities metropolitan area. In rural areas, county trails are often the de facto local trail system. Trail lengths can vary considerably, with individual shared-use paved trails commonly traversing through an entire county or several counties.

**Trail Service Levels**




*Service level increases as user groups become broader, more specialized, and/or more resource dependent.*

County shared-use paved trails are most prevalent along roadway rights-of-way, abandoned rail lines, and county parks, the latter two of which offer higher recreational value consistent with many regional and state trails. Motorized trails become more common at the county level, especially where there are no state level trails available. Minnesota counties typically have jurisdiction and funding responsibilities for county trails.

### Regional Trails

Regional trails serve a regional population within the Twin Cities metropolitan area and multiple cities and/or counties in greater Minnesota. Travel time to a trailhead is typically up to 30 minutes, or more. For nonmotorized uses, the trail must be long enough for at least an hour of visitor experience, which translates into at least 5 miles for walking and 20 miles for bicycling. Significant emphasis is placed on the recreational value and setting of the trail. Trail corridors exhibiting scenic qualities with numerous natural resource attributes are the highest priorities.

Regional trails must be adopted as part of the Regional Park and Trail System Plan when in the Twin Cities metropolitan area and provide a consistent level of service throughout the region. They must also complement, not duplicate, other trails and trail systems provided at the local level. The Metropolitan Council has jurisdiction and funding responsibilities for regional trails within the Twin Cities metropolitan area. Because of its size, the regional park system is well suited for developing longer natural surface trails, most often accommodating hiking, cross-country skiing, horseback riding, and mountain biking.

Regional trails outside the Twin Cities metropolitan area need to provide the same general values as those within it to qualify for DNR grant funding. Motorized natural surface trails are not common at the regional level, especially the Twin Cities metropolitan area.

### State Trails

State trails are almost always destination trails (defined on page 4.9) and serve a statewide population. Travel time to a trailhead is often one to four hours. As with regional trails, significant emphasis is placed on the recreational value and setting of the trail. Trail corridors exhibiting scenic qualities with numerous natural resource attributes are the highest priorities. Typically, state trails are a minimum of 20 miles long, and often much longer. Abandoned rail lines traversing the Minnesota landscape are common corridors. State trails are often connected to state parks or other local, regional, or state attractions. They must fit into the overall state trail system as mandated by the Legislature. State parks and forests provide extensive opportunities for developing both paved and natural surface trails, including trails for motorized uses not routinely allowed at other service levels. Funding appropriations typically require direct authorization from the Legislature.

### Private Trails

Private trails refer to trails that traverse private property as part of a larger system of trails. The most common example of this is grant-in-aid snowmobile trails, which traverse private land through agreements secured by local snowmobile clubs. This approach has been generally successful with snowmobiles in part because of the limited direct impact on the land after the snow melts, which is a major consideration for a private property owner. Private trails are crucial to maintaining the expansive network of snowmobile trails in the state.

The potential for OHV trails to follow this practice holds some promise and does occur on larger tracks of private land where the property owner controls and limits access, often to family and friends. Since OHV trails have more impact on the land than do snowmobile trails, the likelihood of a network of private trails developing is smaller.

## Changes to Service Levels

The service level of a trail or system of trails can change over time in response to use patterns and other factors. For example, a series of local nonmotorized shared-use paved trails that are linked together may, on occasion, be reclassified as a regional trail if they collectively meet regional trail service level criteria. Likewise, county and regional trails linked together may be reclassified as a state trail if they meet state trail service level criteria.

The process for changing a service level follows established protocol by the appropriate agencies. The criteria for change are based on those provided in this manual and any additional requirements established by the implementing agencies.

## Overview of Trail Classifications

Trail classifications define the various types of trails commonly found in Minnesota. The classifications are used to establish a level of consistency in trail planning and design throughout the state. The guidelines are not intended to be rigid or inflexible. Each implementing agency must refine the classifications to suit localized needs. The individual trail classifications fall into one of four categories, as described in the following graphic and table.

### Trail Classification Categories

Trails within Minnesota fall into four categories based on type of use, surfacing, location, or season.

## Typical Trail Classifications In Minnesota

| Trail Category | Classifications | User Groups | Service Levels |
|---|---|---|---|
| **Shared-Use Paved Trails** | Neighborhood Trail<br>City Trail<br>County Trail<br>Regional Trail<br>State Trail<br><br>*Sub-Classifications*<br>Destination trail<br>Linking trail<br>Destination trails emphasize the setting and recreation value. Linking trails emphasize safe travel and are often located in road rights-of-way. | Walking, jogging, bicycling, and in-line skating are typically accommodated on all classifications and subclassifications when asphalt paved.<br><br>In-line skating and some bicycling are not accommodated when aggregate surfacing is used. | These trails occur at local, county, regional, and state service levels.<br><br>Service levels are based on location, length of trail, and size of user population. |
| **Natural Surface Trails** | Hiking Trail<br>- General Hiking Trail<br>- Nature Interpretive Trail<br>Equestrian Trail<br>Mountain Biking Trail<br>Off-Highway Vehicle Trail (OHV)<br>- Off-Road Vehicle (ORV)<br>- All-Terrain Vehicle (ATV)<br>- Off-Highway Motorcycle (OHM<br><br>Forest Access Routes and Roads (these are not designated trails)<br><br>Shared-Use Nature Trail | Trail user groups are consistent with classifications.<br><br>Forest access routes and roads accommodate a range of authorized motorized and nonmotorized user groups on an informal network of routes through the forest.<br><br>Shared-use natural trails can be either nonmotorized or motorized trail uses, but not typically both. | Hiking trails are common at local, county, regional, and state service levels.<br><br>Equestrian and mountain biking trails are most common at the county, regional, and state level.<br><br>OHV trails are almost exclusively at the state and county level.<br><br>Local access trails usually traverse larger tracks of forested lands at the federal, state, and county level. |
| **On-Road Bikeways** | Bike Routes<br>Bike Lanes<br><br>Both of these classifications are provided on streets and roads as shoulders or designated lanes. | Bicyclists are the primary users of bikeways. In-line skaters are secondary users. | Bikeways are common at local, county, regional, and state service levels. Bikeways augment, but do not take the place of, shared-use paved trails. |
| **Winter-Use Trails** | Cross-Country Ski Trail<br>Snowshoeing Trail<br>Winter Hiking Trail<br>Dogsledding Trail<br>Skijoring Trail<br>Snowmobile Trail | Trail user groups are consistent with classifications. | Groomed cross-country ski trails and winter hiking trails are common at county, regional, and state service levels. Dogsledding and skijoring trails are most common at the regional and state level. Snowmobile trails are common at the county, state, and private level. |

Each of the trail classifications defined in the previous matrix:

- Accommodates a specific type of user
- Provides a certain type of recreational experience and value to the visitor
- Is located in a specific type of setting appropriate for the activity
- Follows design guidelines that allow for the safe and enjoyable use of the trail

The following profiles the trail classifications and their interface with each other. Other sections of the manual consider the technical planning and design of each type of trail in greater detail.

# Shared-Use Paved Trails

Shared-use paved trails typically accommodate pedestrians, bicyclists, in-line skaters, and wheelchair users. The following profiles define the preferences of those using shared-use paved trails.

## Bicyclists Profiles

The following profiles were compiled from various sources, particularly the *Profiles of Trail User Populations – Minnesota Border to Border Trail Study* (DNR ) to highlight the preferences of typical bicyclists.

| Type | Preference Profile |
|---|---|
| **Family Bicyclist** | **Trail Use Pattern:**<br>• Prefers bike trails and quiet streets (to avoid heavy traffic), with preference for trails if conveniently located<br>• Most activity happens close to home, but will also use trails extensively on vacation<br>**Recreation Setting Preferences:**<br>• Controlled, traffic-free access to trails is most important consideration<br>• Quality of the riding experience is of primary importance, with length being secondary (20 miles maximum)<br>• Connections to parks and playgrounds are important<br>**Motivation/Activity Style Elements:**<br>• Rides in family groups, often including small children<br>• Needs good information for planning trips and access to support facilities (rest areas, parking lots, water sources) and prefers restrooms to portable toilets<br>• Prefers scenic areas but no challenging terrain, especially when children are along |
| **Recreational Bicyclist** | **Trail Use Pattern:**<br>• Seeks out and travels to trails and bicycle-friendly areas away from home, either as a day or overnight trip<br>• Prefer trails, but will also use roads that are safe, convenient, and not too busy<br>**Recreation Setting Preferences:**<br>• Trails shorter than 10 miles are not very desirable for repeat use; 20 miles is the desired minimum<br>• Looped configurations of varying lengths are preferred over out and back systems<br>• Sense of place and an interesting experience are important, with riders seeking places with scenic quality and interesting natural or (if in urban setting) built forms<br>**Motivation/Activity Style Elements:**<br>• Many seek escape from motorized traffic and value experiencing nature<br>• Regards bicycling as an important recreational interest and is willing to make an investment in equipment<br>• Often uses amenities, such as parks and rest areas, along the trail<br>• As a group, interested in varying levels of trail difficulty<br>• Destinations at reasonable distances are important to maintaining interest in a given trail |
| **Fitness Bicyclist** | **Trail Use Pattern:**<br>• Will use a combination of roads and trails that are long and/or challenging enough for a good workout<br>• Prefers trails if they are long enough (20 or more miles) and allow for faster speeds with minimal user conflicts<br>• Will routinely use the same routes for challenges and timing, often daily<br>**Recreation Setting Preferences:**<br>• Trails need to offer varying difficulty and lengths; interconnected loops are highly preferred<br>• Not primarily motivated by experiencing natural setting, but will select this type of trail if other requirements are met<br>**Motivation/Activity Style Elements:**<br>• Uses bicycle as primary form of exercise to maintain and improve health<br>• Primarily rides alone or in small groups and often rides multiple times per week<br>• Frequently extends the season by riding earlier in spring and later in the fall than recreational riders |
| **Transportation Bicyclist** | **Trail Use Pattern:**<br>• Not dependent on trails, but will use them if convenient, safe, and direct<br>**Motivation/Activity Style Elements:**<br>• Bicycle is used as a form of transportation; motivation is fitness, environmental values, and economy<br>• Lack of a safe "system" of roads (with bike lanes or routes) and trails is a major barrier<br>• Trail design is critical, with ability to go fast with good sightlines and directness being most important |

## Walker, Jogger and In-line Skater Profiles

The following profiles were compiled from various sources, particularly the *Profiles of Trail User Populations – Minnesota Border to Border Trail Study* (DNR) to highlight the preferences of typical walkers, joggers, and in-line skaters.

| Type | Preference Profile |
|---|---|
| **Recreational and Fitness Walker or Jogger** | **Trail Use Pattern**:<br>• Will use the same trails daily or several times per week if they are convenient and easy to access (most live within 3 miles of the trail they are using)<br>• Recreational user wants trails that provide social interaction, scenic beauty, or both<br>• Will use sidewalks to get to a trail system in urban and suburban settings<br>• Will use trails year-round, although spring, summer, and fall are most popular<br>**Recreation Setting Preferences:**<br>• Recreation user finds sense of place, natural setting, scenery, and being away from traffic important (less so with fitness user)<br>• Prefers looped configurations in all settings, with 2 to 4 miles suitable for beginners and 5 to 9 miles for fitness walkers<br>• Has a strong desire for safety and security, with the lack of this being a major reason a trail would not be used<br>**Motivation/Activity Style Elements:**<br>• Recreational users have a wide range of motivations, with a desire for social interaction being important to some and solitude to others<br>• Exercise for health benefits is prime motivator for fitness walkers and joggers; health is of growing importance to recreational users as well<br>• Walkers and joggers of all types will go out alone or with friends or family |
| **Recreational In-line Skater** | **Trail Use Pattern:**<br>• Seeks out nearby trails for daily use, but will travel to a specific trail on weekends<br>• Prefers loop system, with 10 to 15 miles minimum (will use out and back if there is no other choice)<br>**Recreation Setting Preferences:**<br>• Seeks trails that are not heavily used<br>• Does not prefer technically difficult trails with sharp turns, too many steep hills, or poor stopping conditions<br>• Does well on trails designed similar to bike trails, especially when they are 10' feet wide or wider<br>• Routine sweeping of the trail is important<br>**Motivation/Activity Style Elements:**<br>• Highly values smooth, wide trails; rough trails are especially troublesome for beginners<br>• Primarily motivated by getting exercise, enjoying skating, being outdoors, and socializing<br>• Will skate alone, with friends, and occasionally with family |
| **Fitness In-line Skater** | **Trail Use Pattern:**<br>• Uses routes that are challenging with enough distance to get in a good workout (10 to 25 miles)<br>• May go out daily or several times per week and will routinely use the same trails close to home<br>• Prefers loop system<br>**Recreation Setting Preferences:**<br>• Primarily uses a series of streets, roads, and trails to create a long enough route<br>• Does not desire technically difficult trails with sharp turns, too many steep hills, or poor stopping conditions<br>• Has facility needs similar to those of bicyclists<br>**Motivation/Activity Style Elements:**<br>• Highly values smooth, wide trails; rough trails are especially troublesome for beginners<br>• Primarily motivated by getting exercise and enjoying skating<br>• Will skate alone, in couples, or in small groups |
| **Commuting In-line Skater** | **Trail Use Pattern:**<br>• Uses skating as a form of transportation<br>• Uses trails where available, but will also use streets and roads<br>• Other preferences are similar those of transportation bicyclists<br>**Motivation/Activity Style Elements:**<br>• Needs traffic enforcement, security, skate-friendly routes to and from work sites<br>• Needs accommodations at work, such as lockers, changing areas, and showers |

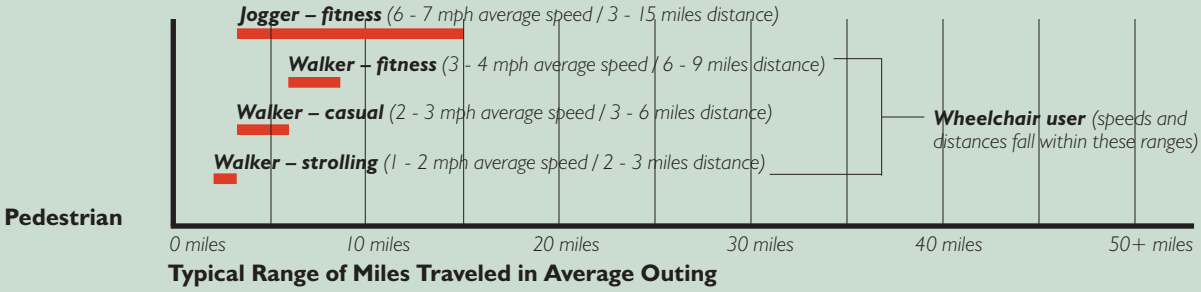
## General Travel Speeds and Distances Associated With Paved Trails

The recreational value of a trail or trail system depends in part on the number of *continuous* miles available for a given type of trail user. This is an important consideration in trail system planning to ensure that trails are long enough to be of value to the targeted user group. For example, a single looped trail of 20 or 30 uninterrupted miles provides considerably different recreational value than five independent trails of 4 or 5 miles each.

The type of use envisioned for a trail plays a major role in determining the miles necessary to satisfy the needs of the targeted user groups. The following graphic illustrates the travel speeds and distances associated with various types of trail users.

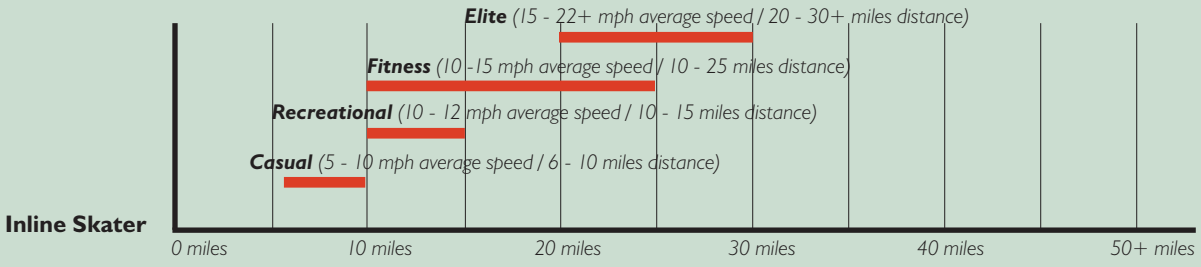
### General Travel Speeds and Distances for Various Types of Trail Users

The average travel speed and distance traveled per trail user outing varies considerably within and between trail user groups. As travel speed and distance traveled increase, so do user expectations on the design and development standards used for the trail. The most important of these is trail width and geometric form, with wider and more liberal curvilinear layouts being appropriate as a trail accommodates a broader array of users. For example, a trail user has a different expectation for distance and travel speed for a local neighborhood trail than would be the case for a major citywide, regional, or state trail. In developing trail system plans, it is important to clearly define the targeted user groups, then use an appropriate trail classification and accompanying development standard to safely accommodate them. The following illustrates common travel speeds and distances for the most common multiuse paved trail user groups.



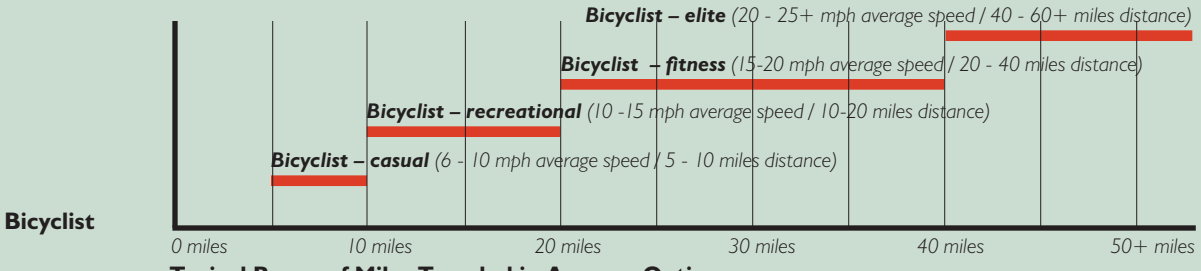

**Pedestrian**

**Typical Range of Miles Traveled in Average Outing**




**Inline Skater**

**Typical Range of Miles Traveled in Average Outing**




**Bicyclist**

**Typical Range of Miles Traveled in Average Outing**

***Finding detailed design information!***

Refer to Section 5 – Shared-Use Paved Trails for technical design information for this type of trail.

## Shared-Use Paved Trail Classifications

Shared-use paved trails are specifically designed to accommodate one or more of the profiled trail user groups. This type of trail is appropriate within local, county, regional, and state trail systems. There are five classifications that fall under this trail category:

- **Neighborhood Trail** – is used to connect local residential areas to the citywide trail system. Typically 8 feet wide.
- **City Trail** – is used to create the core system of trails that traverse a city via greenways, open space, trail corridors, or following road rights-of-way. Typically 10 feet wide, 12 feet where use volumes are high.
- **County Trail** – is similar to a city trail, only at a county level. County trails typically traverse the county via greenways, open space, trail corridors, or following road rights-of-way. Typically 10 feet wide.
- **Regional Trail** – traverses one or more cities, townships, or counties as part of the regional trail network. Regional trails typically follow greenways, open space, and designated trail corridors. They are often used to link regional parks and open spaces together, as well as being destinations unto themselves. Typically 10 feet wide, 12 feet where use volumes are high.
- **State Trail** – traverses one or more counties, anywhere in the state. State trails typically follow abandoned rail corridors, greenways, and large-scale open spaces. They are almost always destination trails. Typically 10 feet wide (12-foot trails are not as common as for regional trails due to lower levels of use.)

## Service Levels

As the titles suggest, there is a general hierarchal relationship between classifications and service levels, with neighborhood and city trails typically under the jurisdiction of a municipality, city, or township, and county, regional, and state trails under corresponding jurisdiction.

To the trail user, the primary distinction among trail classifications and service levels is geographic location, type of users accommodated, levels of use, and trail length. As trails serve more people and traverse or connect together larger geographical areas, the level of service tends to go up, as do some of the development standards, most notable of which is trail width as defined in Section 5 – Shared-Use Paved Trails.

Critical to the development of shared-use paved trails is maximizing their value, whether they are traversing a greenway in a suburb or the rural countryside. As described in Section 2 – Principles of Designing Quality Recreational Trails, values include safety, convenience, recreation, fitness, and transportation/commuting. Of these, recreation is one of the most important in terms of predicting a trail's level of use, assuming that safety and convenience are sufficiently provided for or held constant. In general, trails offering high-quality recreational experiences are those that:

- Are scenic and located in a pleasant parklike setting, natural open space, or linear corridor that is away from traffic and the built environment
- Provide a continuous and varying experience that takes visitors to a variety of destinations and is a destination unto itself
- Offer continuity with limited interruptions and impediments to travel

This underscores that trail planning should be based on the *quality* of the trail experience as well *quantity* of trail miles.

## Multiuse Paved Trail Subclassifications

To emphasize the importance of trail quality in system planning, shared-use paved trails have two subclassifications that distinguish between trails that are destinations (due to their higher recreational value) and those that are primarily used to link the trail system and greater community or region. The following considers each of these in greater detail.

## Destination Trails

Destination trails are located within a greenway, open space, park, parkway, or designated trail corridor separated from vehicular traffic. As the name implies, the high recreational value of this type of trail often make it a destination unto itself. Destination trails have a particular emphasis on continuity and are the major conduits for travel within and between trail systems. The following images highlight a number of optimal settings for destination trails offering high recreational value.



***Destination trails in natural open space/greenway settings.*** *These photos illustrate the general character of trails that are located within a greenway or separated linear trail corridor away from roadways and traffic. As the progression of photos from left to right illustrates, the recreational value of one trail setting versus another is clearly discernible to the trail user. Even at a local trail system planning level and when opportunities are limited, maximizing the use of destination trails as the core system of trails is desirable.*



***Destination trails in an urban setting.*** *Even at the local level, destination trails can be woven into the built form of the community, as the photo on the left of a trail weaving through a new subdivision illustrates. Destination trails are also located in very urban areas that exhibit a natural amenity, such as Lake Harriet in Minneapolis (middle photo). In this case the lower trail is for walkers and the upper is for bicyclists and inline skaters. As the photo on the right illustrates, destination trails are also commonly found along designated parkways that exhibit a parklike setting. All of these trails provide higher recreational value than most linking trails.*

As the photos illustrate, destination trails place a great deal of emphasis on location and creating a sequence of interesting events that make a trail appealing to the user.

## Linking Trails

Linking trails emphasize safe travel for pedestrians to and from parks and around the community or region. Linking trails still offer recreational value, but typically not to the same level as destination trails. The following images highlight a number of settings for linking trails.


***Linking trails in varying forms.*** *These photos illustrate a progression of trail settings from a utilitarian corridor to a more naturalistic setting along a roadway. In the first, the trail provides a safe conduit for pedestrian-level travel. In the middle photo, the open countryside location gives this trail more recreational value even though it is located very close to the edge of the road. In the right photo, the linking trail is more appealing due to its location relative to the adjacent roadway. As illustrated, providing more separation from the road along with natural grasses and trees improve the character of this trail corridor.*

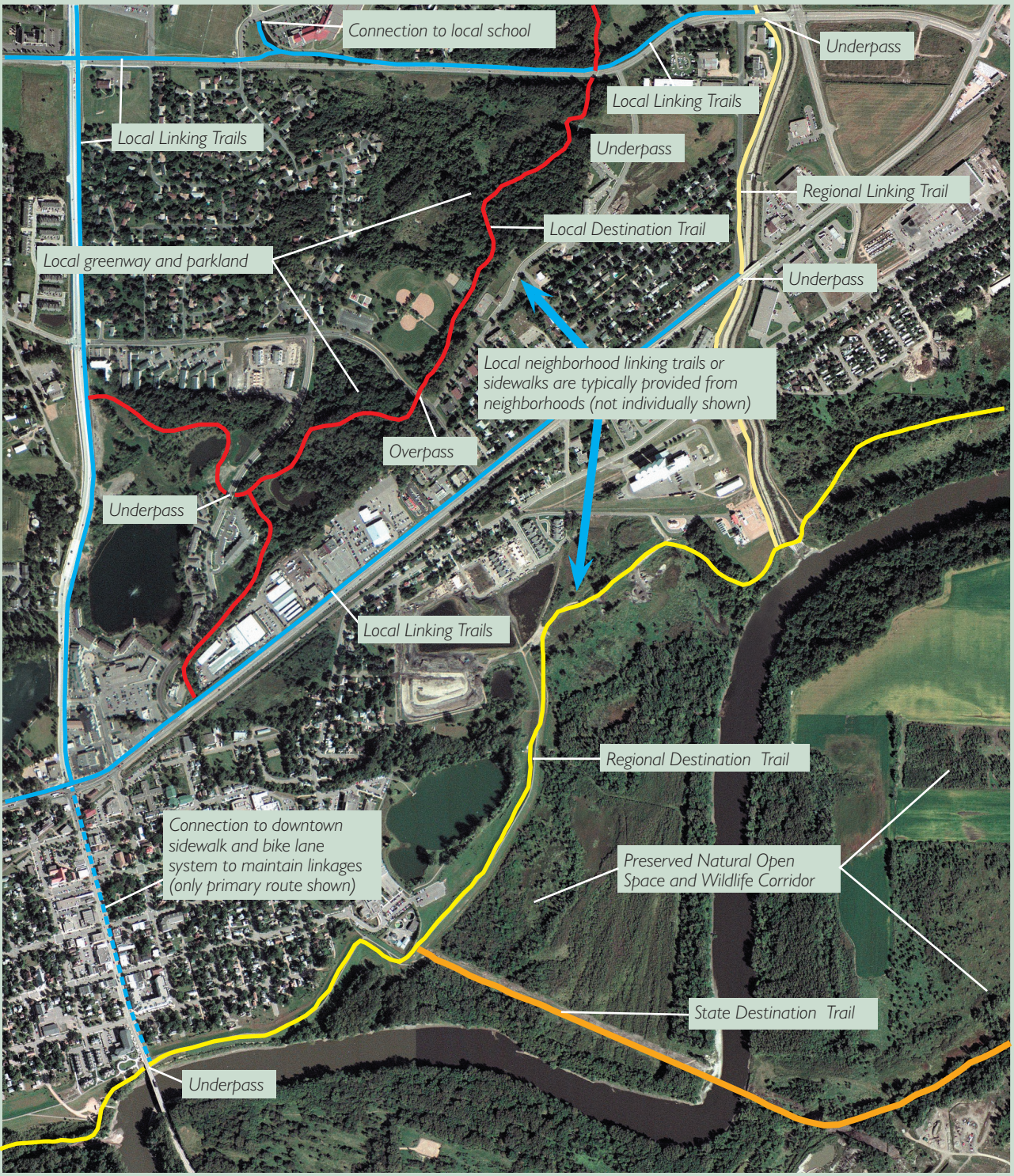
As the images illustrate, the setting for linking trails greatly affects their recreational value as judged by scenic quality, continuity, and sense of separation from vehicular traffic.

## Interrelation of Destination and Linking Trails at a System Level

The following aerial image illustrates the optimal interrelationship between local, regional, and state destination and linking trails in a hypothetical fully integrated trail system.

### Destination and Linking Trails in an Integrated Trail System Context

The aerial image below illustrates the optimal use of destination and linking trails in a hypothetical integrated trail system at the local, regional, and state trail level. As illustrated, destination trails within each of these classifications form the core system of trails. Assuming that personal safety is not perceived to be an issue, these trails will tend to be very popular due to their high recreational and other values. Although the linking trails offer less recreational value, they remain very important to creating a functioning and comprehensive trail system. But having a whole system of linking trails would not offer the same values as the trail system in the illustrated example.



The interrelationship between destination and linking trails at a system level is important. By making a qualitative distinction between trails within a given system, greater weight can be given to those that offer the highest overall value to the community. This will result in trail systems that are the most satisfying to use and consistent with user preferences, which in turn results in higher levels of use.

### Trail Difficulty Rating

Paved trails are generally designed for family use with gradients averaging 5 percent or less, as defined in Section 5 – Shared-Use Paved Trails. In instances where trail grades are steeper, signage is usually provided to caution the trail user. Otherwise, there are no established difficulty ratings per se for shared-use paved trails.

***Finding detailed design information!***

Refer to Section 6 – Sustainable Natural Surface Trails for technical design information for this type of trail.

## Natural Surface Trails

The natural surface trails category encompasses a number of trail classifications, including hiking, equestrian, mountain biking, OHV, local access, and nonmotorized shared-use trails. The following considers the distinguishing features of each of these.

### Hiking Trails

Natural hiking trails are pedestrian-only trails for hikers and joggers. These trails attract users seeking a natural experience in a scenic setting. The following profile defines the preferences and motivations of users.

### Hiker Profiles

The following profiles were compiled from various sources, particularly the *Profiles of Trail User Populations – Minnesota Border to Border Trail Study* (DNR) to highlight the preferences of each type of hiker, which greatly influences trail design.

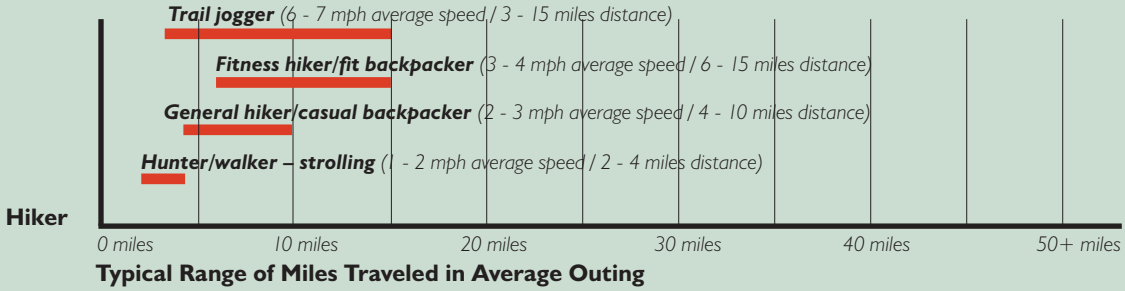
| Type | Preference Profile |
|---|---|
| **Destination Hiker** | **Trail Use Pattern:**<br>• Seeks out trails for a desired experience (such as solitude), whether near home or some travel distance<br>• Prefers looped systems over out-and-back trails to vary the experience<br>• Will seek out trails of varying difficulty<br>• Likes to stop along the trail to rest, observe, and socialize if hiking in a group<br>• Expects trail to be of varying difficulty consistent with the landscape characteristics<br>**Recreation Setting Preferences:**<br>• Large percentage seeks escape from motorized activity, and value experiencing nature in its most basic form<br>• Natural setting is important to all, with wooded, rolling terrain with wildlife viewing opportunities commonly preferred<br>• Trail difficulty is an important determinant in trail selection, with a desire for a wide range of challenges<br>• Access to the trail is a major predictor of use levels<br>• Length preferences vary widely with skills and preference, with beginners liking shorter loops of 2–4 miles and day hikers preferring 5–9 miles<br>• Minimum preferred width should be 18”<br>• The scenic value of the trail is important, especially for repeated use<br>**Motivation/Activity Style Elements:**<br>• Motivations for using natural trails vary widely, ranging from physical challenge to experiencing nature<br>• Likes diverse trails that appeal to a variety of interests and skills levels<br>• Highly willing to travel to obtain a desired trail experience<br>• Travels as an individual, as a couple, or in small groups of family and friends<br>• Typically needs maps, route guides, and general information about trail features |
| **Overnight Backpacker** | Overnight backpackers have many of the same preferences as a destination hiker, only with a few nuances associated with overnight stays. Additional preferences include:<br>• Camping areas at intervals of 5–10 miles is desired, with average daily hiking distance up to around 10 miles<br>• Access to water is necessary, especially at camps<br>• Pit toilets are important at designated camp areas<br>• Outing length varies from 5–100 miles, with 25–35 miles being a common distance over a few days to a week |

## General Travel Speeds and Distances Associated With Hiking Trails

As with shared-use paved trails, the recreational value of a hiking trail is predicated on the number of continuous miles available. The type of use envisioned for a trail plays a major role in determining the miles necessary to satisfy the needs of the targeted user group(s). The following graphic illustrates the travel speeds and distances associated various types of hiking trail users.

### General Travel Speeds and Distances for Various Types of Hiking Trail Users

The average travel speed and distance traveled by a hiking trail user depends on whether a person is out for a stroll, walking briskly, or jogging. The expectations of each user varies as well. Strollers want to observe the finer points of nature, while joggers are often more focused on the terrain and challenges of the trail. Hiking trails should be designed with a specific user or group of users in mind. For example, a general hiking trail needs to appeal to all types of users. On the other hand, an interpretive trail needs to highlight natural details if it is to appeal to its target user. The following illustrates common travel speeds and distances for the most common hiking trail user groups.




## Classifications

Natural hiking trails are specifically designed to accommodate trail users seeking a natural setting. This type of trail is appropriate within local, county, regional, and state trail systems. Under this classification, there are four subclassifications, as the following considers.

### General Hiking Trail

General hiking trails are natural surface trails most often located in larger local, regional, and state parks or greenways where there is adequate open space for a trail loop. Hiking trails are most often associated with natural settings offering scenic beauty, solitude, and wildlife observation opportunities. As the following photos illustrate, the width and character of hiking trails relate to the setting and site-specific trail needs.

***Natural hiking trails to meet varying needs and settings.*** *In general, grass and native soils are preferred surfacing for natural trails. Grass is typically suitable where use is light to moderate. Where trails receive heavier use, native soil surfacing prevails. The width of hiking trails typically responds to the setting and type of use. Narrow single track (left) is common in larger parks and open spaces or along long linear trails such as the Superior Hiking Trail. As use increases, a wider trail often develops so people can walk side by side (middle). Where hiking trails are used for cross-country skiing, a wider corridor is required, most often with a grass surface to aid snow retention and limit erosion (right).*

### Nature Interpretive Trail

Nature interpretive trails have much in common with general hiking trails with the exception of placing greater emphasis on interpretation and education. Typically, interpretive trails are found within designated nature or conservation areas and arboretums. Interpretive kiosks and signage is provided along the trail. These trails are often linked to an interpretive center or other educational facility. Significant emphasis is also placed on accessibility of nature interpretive trails to all populations.


***Nature interpretive trails are distinguishable by the usually intimate scale and interpretive signage.*** *These trails often are less than a couple of miles long and linked to an interpretive center. As the three photos illustrate, the character of the signage can vary from park system to park system. The key is to be consistent so trail users become familiar with signage patterns.*

## Walker/Hunter Trail

Walker/hunter trails are most commonly found in northern Minnesota forests and typically take advantage of old logging access roads and trails. The primary distinction between these trails and forest access routes is that they are designated specifically for nonmotorized use only. Typically, walker/hunter trails are defined by a geographical area in which all trails within that area are designated for this use and for authorized forest management activities.


***Walker/hunter trails are typically simple passageways through the forest.*** *Most often, these trails are old logging access roads or trails that have been left to grow in. These trails are most commonly used in the spring and fall to access hunting areas or picking berries or mushrooms.*

## Forest Access Route

Forest access routes have much in common with walker/hunter trails except that their use is broader and includes motorized and nonmotorized uses. *As nondesignated, informal routes through the forest, these routes are not typically included as part of a designated recreational trail system.* (This distinction is further defined on page 4. 36)

## Difficulty Ratings

The difficulty of a hiking trail has a direct correlation with user expectations. For example, nature interpretive trails are typically expected to be easy, with remote hiking trails increasingly difficult.

### Hiking Trail Difficulty Rating

The table establishes general guidelines for difficulty ratings associated with hiking trails. Ratings used for individual trails should include additional descriptors consistent with their particular setting.

| Aspect | Easiest | More Difficult/Intermediate | Very Difficult/Advanced |
|---|---|---|---|
| Grade | 5% or less average<br>15% maximum for short distance | 10% or less average<br>15% for longer distance | 15% or less average<br>15% or more |
| Tread surface | Firm and stable | Mostly stable, with some variability | Widely variable, with some less stable footing |
| Obstacles | Avoidable or small, easy to get around | Larger and more frequent; requires some maneuvering to get around | Numerous and unavoidable, must be maneuvered around |
| Bridges | Minimum of 36" wide with railings where needed | Bridges minimum of 24" wide with railings where needed; short crossings may use stepping stones | Bridges 24" wide or narrower; often rustic design and more limited railings; crossings may use stepping stones |

***A note about accessibility!***

The desired level of accessibility should be clearly defined when natural surface trails are designed. An accessible trail must meet the provisions defined on page 6.72 in Section 6.

## Hiking Trail Configurations

The layout of hiking trails is almost always in response to the landscape setting, with a sequence of events provided that enhances trail users' experience by taking advantage of the scenic qualities and sense of place of the site. In a park or natural area, a looped trail system is a common approach to trail layout, as illustrated in the following graphic.

### Looped Nature Trail Configuration In Park Or Greenway Setting

#### Overall Layout

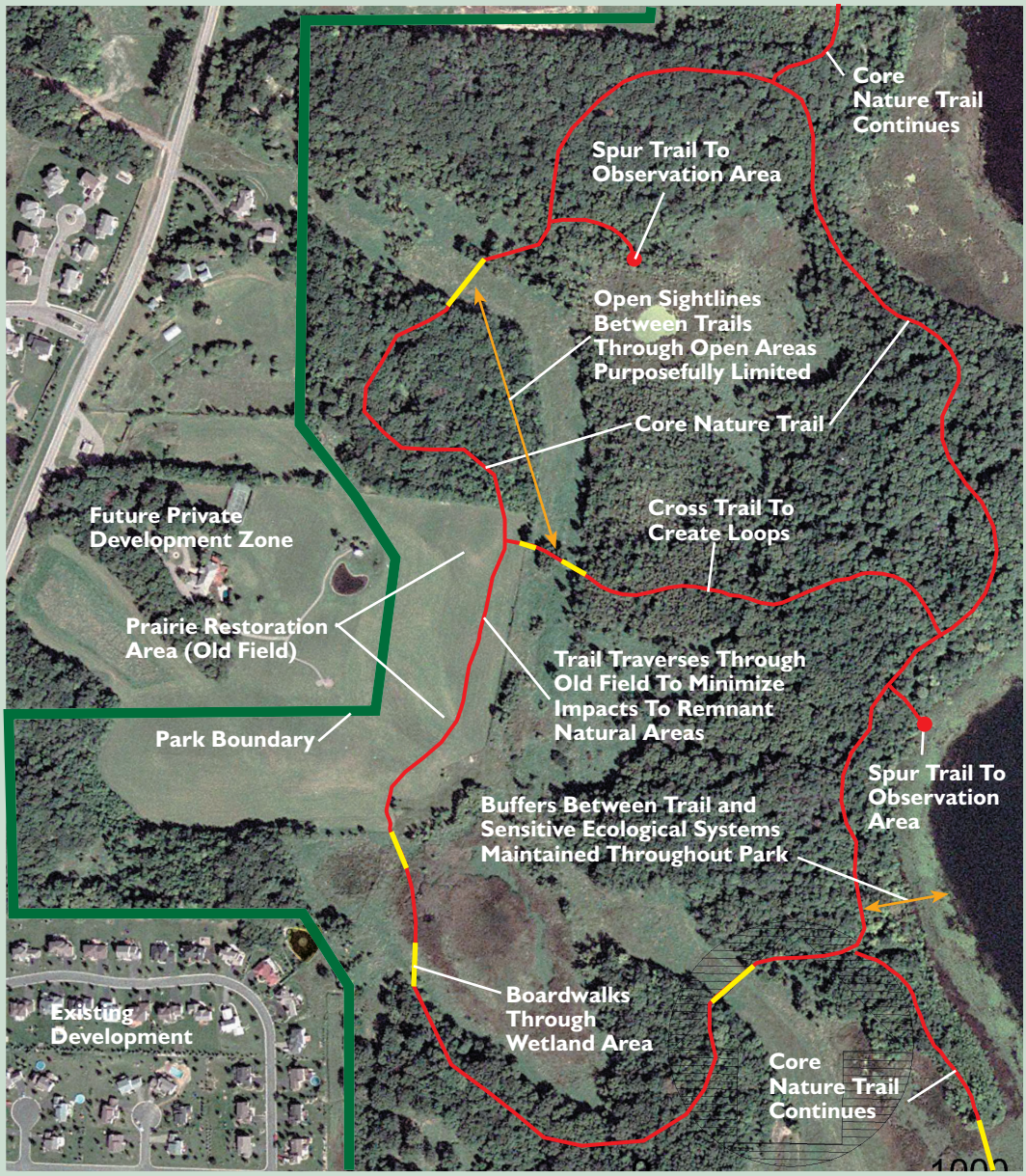
This hypothetical park map with nature trails shows a looped system that is carefully integrated with sensitive ecological systems. The trail user gets to enjoy the natural character of the park while still preserving its innate qualities.

#### A Sequence Of Events

With nature trails, creating a sequence of events is especially important to maximize the trail experience. This includes trying to minimize the extent to which trail users are visible from another section of trail.

#### Ecological Buffers

Maintaining adequate buffers between a trail and sensitive ecological system is particularly important, especially when the trail is used for nature interpretation and education. This includes limiting the impact on ecotonal areas (transition zone between plant communities).




In a larger landscape setting, the layout for a nature trail is often linear. The Superior Hiking Trail is one of Minnesota's best examples of a linear natural trail that offers a diversity of scenery. Varying land character and specific points of destination coupled with numerous access points, overlooks, and camping opportunities are necessary to offset the out-and-back aspect of these trails.

***Finding detailed design information!***

Refer to Section 6 – Sustainable Natural Surface Trails for technical design information for this type of trail.

## Equestrian Trails

Equestrian trails are for horseback riding and, less frequently, horse-drawn carriages. These trails attract riders seeking a safe and contiguous trail experience in a natural setting away from traffic. The following profile defines the preferences of equestrian trail users using natural trails.

## Equestrian Trail User Profiles

The following profiles were compiled from various sources, particularly the *Profiles of Trail User Populations – Minnesota Border to Border Trail Study* (DNR) to highlight the preferences of horseback and carriage drivers, which greatly influence trail design.

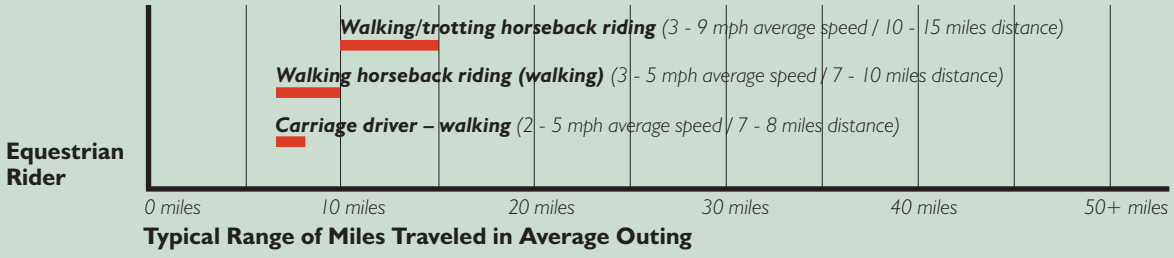
| Type | Preference Profile |
|---|---|
| **Local and Destination Trail Rider** | **Trail Use Pattern:**<br>• Destination trail rider will travel to trails and public land areas to ride designated trails or a network of trails through the forest; local trail rider rides in the immediate area where horses are kept<br>• Destination rider rides 10–15 miles per day, 25–30 miles on an average weekend trip; local riders average 7–10 miles per day<br>• Prefers looped configurations with varying conditions<br>• Local rider require direct access to trails from boarding areas<br>**Recreation Setting Preferences:**<br>• A wide or highly developed trail is not required<br>• Single-file trails make horses easier to handle and require less maintenance<br>• Need water nearby for horse<br>• Variety in trail is desirable, including water crossings, logs that horses can go over, hill climbs and descents, open areas and woods<br>• Trails should be free of dangerous conditions, but some obstacles are desired to make the trail more interesting<br>• Bridges need to be about 8' wide and clear zone above the trail has to be at least 9' high<br>• Big, open flat field is best for parking, not paved parking lots<br>• Picket lines are preferred over corrals and should be at least 24' long (only horses that are familiar with each other can go in a corral together, and corrals are easier to kick down and take up more space than picket lines)<br>**Motivation/Activity Style Elements:**<br>• Very social activity, with riders going out in small to large groups<br>• Day outings to multiday trips are common with this group, frequently camping with friends or family<br>• Riders like to be self-contained, with special trailers commonly used to haul horses and house riders at night<br>• Will often travel long distances to a trail if it is publicized, especially on state lands with many miles of local trails<br>• Riding tends to increase in the fall after the horse show seasons ends<br>• Riders seek challenge to animals and riding skills, and also seek escape to a natural setting<br>• Insects in the height of summer can make riding uncomfortable, especially in the northern part of the state<br>• Desired trail length is a matter of hours people want to ride: 50% of day rides are usually 1–3 hours, 40% are 3–8 hours, and 10% are greater than 8 hours (riding speeds: walk is 3–5 mph, trot is 5–9 mph, gallop is 9–12 mph)<br>• Most trail riding is done at a walk, with faster speeds requiring more skill and greater horse control<br>• Growing interest in the sport by women, which increases concerns about security (66% of riders are women) |
| **Carriage Driver** | **Trail Use Pattern:**<br>• Rides long carriages on trail either locally or hauls horses and carriages to a destination<br>• Uses sleighs in winter and carriages in the summer<br>• Limited number of participants means use is very spread out<br>**Recreation Setting Preferences:**<br>• Looped routes are preferred, but linear is acceptable if connected to a staging area<br>• Minimum trail width needed is 8', with turnaround areas at regular intervals (or at road crossings if sightlines are adequate); trail must have a smooth surface<br>• Mixture of open and wooded area similar to other trails is preferred<br>• Gateway Trail and connected trail systems is a good example of a carriage trail<br>• Need to be separated from vehicles for safety<br>**Motivation/Activity Style Elements:**<br>• Frequently draft horse owners are looking for something to do with them<br>• Have often done other forms of riding and moved into carriages for various reasons, including age or injuries that prevent them from riding<br>• Typical ride is 7–8 miles, if horses are in shape |

## General Travel Speeds and Distances Associated With Equestrian Trails

As with hiking trails, the recreational value of an equestrian trail is predicated on the number of continuous miles available for use. The type of use envisioned for a trail plays a major role in determining the miles necessary to satisfy the needs of the targeted user group(s). The following graphic illustrates the travel speeds and distances associated various types of equestrian trail users.

## General Travel Speeds and Distances Associated With Equestrian Trail Users

The average travel speed and distance traveled by an equestrian trail user depends upon the speed the horse is traveling. For the most part, trail riders walk their horses most of the time, although riders will trot periodically. The following illustrates common travel speeds and distances for the most common hiking trail user groups.




## Classifications

Equestrian trails are typically located within county, regional, and state trail systems. Under this classification, there is one subclassification that accommodates carriages.

### Equestrian Trail

Equestrian trails are natural surface trails most often located in large county, regional, and state parks or greenways where there is adequate open space for a trail loop. Equestrian trails are most often associated with natural settings offering scenic beauty, solitude, and wildlife observation opportunities. As the following photos illustrate, equestrian trails can be either double or single track.

***Horse trail widths respond to the setting.*** *As with hiking trails, horse trails usually take a form that is in keeping with the setting. In wide-open areas (left), a double track trail will often form to allow riders to ride side by side. In the forest or where space is more limited, a single track of varying widths will develop (middle and right). Where horse trails are used for cross-country skiing, a wider corridor is required, which often encourages a double track to be formed.*

### Carriage Trail

Carriage trails are natural surface trails that are essentially double-track equestrian trails that accommodate both carriage drivers and horseback riders. Although this group is relatively small compared to horseback riders, carriage trail users are well established in certain areas of the state and their needs have to be considered when designing equestrian trails in those areas. Most notable of these considerations is trail width, with 8 feet being the minimum necessary to accommodate this type of use.

***Carriage trails require stable trail beds with adequate width.*** *Both of these photos illustrate trail treads that can accommodate carriages. Whereas each of these trails functions well enough, each exhibits different values. The trail in the left photo offers a more social atmosphere with other types of trail uses that may appeal to some drivers. The trail in the right photo offers more solitude that would appeal to others.*

### Forest Access Route

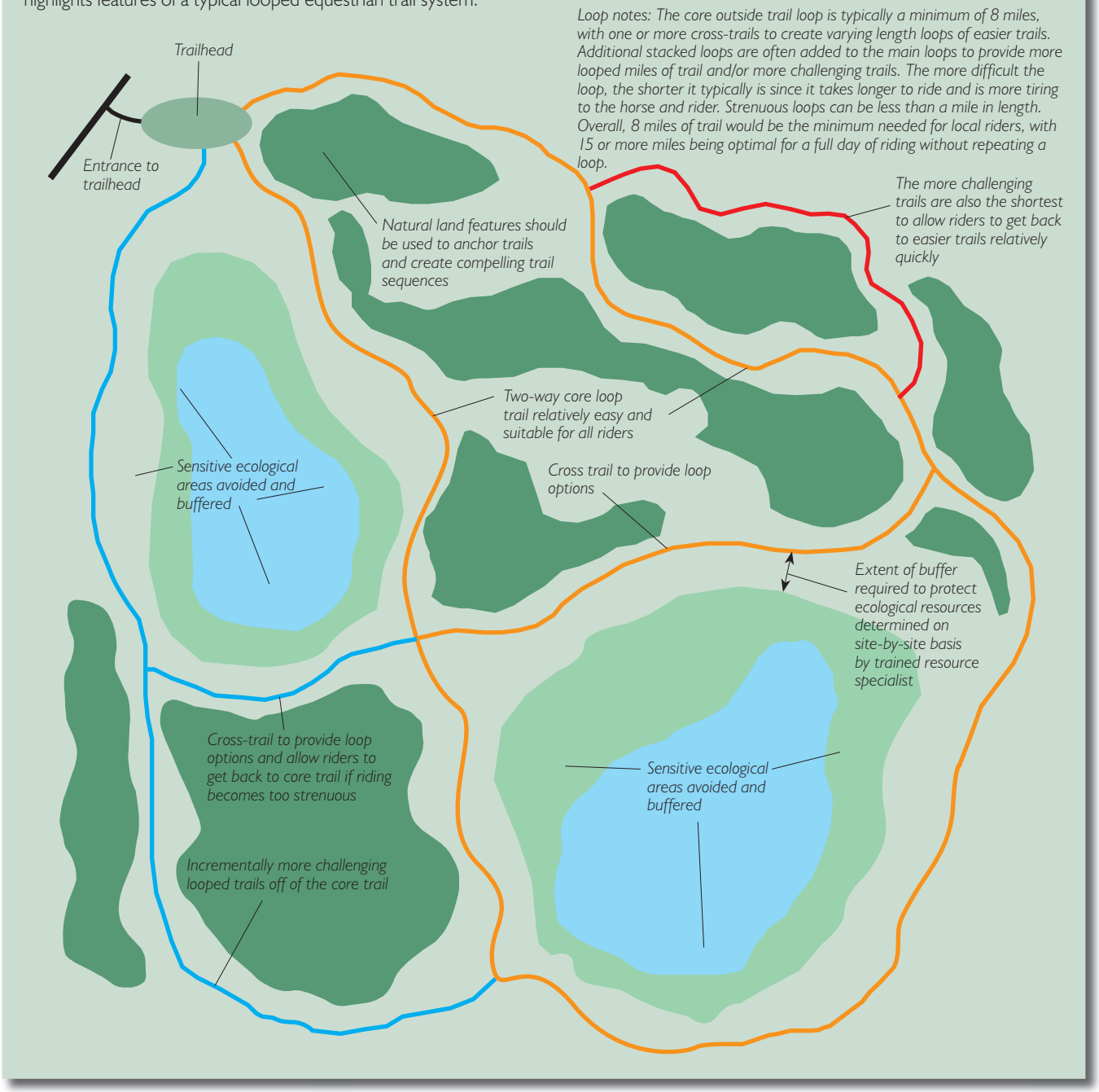
Forest access routes are also suitable for equestrian use. *As nondesignated, informal routes through the forest, these routes are not typically included as part of a designated recreational trail system.* (This distinction is further defined on page 4. 36.)

## Equestrian Trail Configurations

The layout of equestrian trails has much in common with hiking trails. Providing a sequence of events that highlight the scenic qualities of an area enhances the trail user experience. Where feasible, a looped trail system is the most desirable and common approach to trail layout, as illustrated in the following graphic.

### Equestrian Trail Layout Configuration

Creating a sequence of events is as important to equestrians as it is hikers. This includes trying to minimize the extent to which trail users are visible from another section of trail. Maintaining adequate buffers between a trail and sensitive ecological systems also remains important. This includes limiting the impact on ecotonal areas (transition zone between plant communities). The following illustration highlights features of a typical looped equestrian trail system.




## Difficulty Ratings

The level of difficulty categories associated with equestrian trails are consistent with those used for other types of natural trails, albeit defined relative to this particular use.

### Equestrian Trail Difficulty Rating

The table establishes general guidelines for difficulty ratings associated with equestrian trails, which are similar to those used for hiking.

| Aspect | Easiest | More Difficult/Intermediate | Very Difficult/Advanced |
|---|---|---|---|
| Grade | 5% or less average<br>15% maximum for short distance | 10% or less average<br>15% for longer distance | 15% or less average<br>15% –20% for short distance |
| Tread surface | Firm and stable | Mostly stable, with some variability | Widely variable, with some less-stable footing |
| Obstacles | Avoidable or small, easy to get around | Larger and more frequent, require some horse control and maneuvering | Numerous unavoidable, require considerable horse control and maneuvering |
| Creek crossings | Bridges minimum of 5' wide with railings where needed | Shallow ford crossings that are relatively easy to maneuver through | Deeper, more challenging fords requiring steady horse control |

***Finding detailed design information!***

Refer to Section 6 – Sustainable Natural Surface Trails technical design information for this type of trail.

## Mountain Biking Trails

Mountain biking trails attract bicyclists seeking a more natural and often more challenging setting for riding than that of a multiuse paved trail. The following profile defines the preferences and motivations of this type of rider.

### Mountain Biker Profile

The following profiles was compiled from various sources, particularly the *Profiles of Trail User Populations – Minnesota Border to Border Trail Study* (DNR). Note that family and recreational bicyclists are considered under the shared-use paved trail classification.

**Type:** Mountain Biker

**Preference Profile**

**Trail Use Pattern:**

- Seeks and travels to trails away from home as a day or overnight trip
- Should not be confused with people who own mountain bikes but do not use them on mountain bike trails
- Commonly desire 2- to 3-hour riding opportunities, 20–25 miles of contiguous trail (although fewer miles are acceptable in challenging terrain

**Recreation Setting Preferences:**

- Best trails have a natural, challenging character and immerse the rider in nature while providing a good workout and opportunity to test skills
- In rural areas or in the northern forests, will use a combination of roads, logging roads, and trails as available, safe, and convenient (with some wanting an escape from heavily used areas to find solitude)
- In urban/suburban areas, highly prefer developed mountain bike trails offering looped configurations with varying levels of challenge
- Appreciate having an outside water spigot to clean bikes after rides, as well as other common trailhead amenities

**Motivation/Activity Style Elements:**

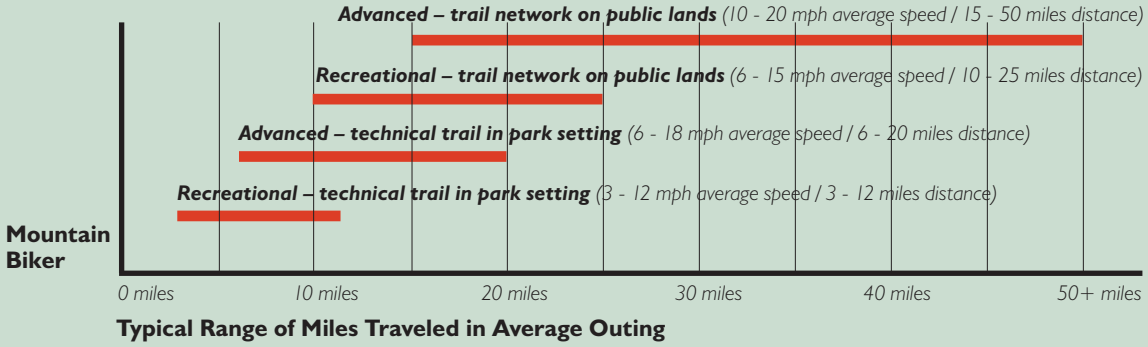
- Getting exercise, experiencing natural setting, and testing skills are prime motivators
- May take multiple day trips to a publicized trail area
- Highly social activity, with groups consisting of family and friends
- Will often travel long distances to a trail if it is publicized
- Mostly go as individuals, couples, or in small groups of family and friends
- Get information from diverse sources to find riding opportunities

### General Travel Speeds and Distances Associated With Mountain Biking Trails

Mountain biking speeds tend to be lower than those of general bicycling. The degree of difficulty of a given trail greatly influences travel speeds and miles of trail needed for a 2- or 3-hour typical outing. The following graphic illustrates the travel speeds and distances associated with various types of mountain bikers.

## General Travel Speeds and Distances for Various Types of Mountain Biking

The average travel speed and distance traveled by a mountain biker varies considerably relative to the type of trail and the type of rider. In urban or suburban parks, where space is limited, trails tend to be single-track stacked loops of varying levels of difficulty, typically from 3 to around 10 miles in length. In forested public lands in the northern part of the state, where old logging roads or trails are extensively used, interconnected trail systems can consist of hundreds of miles of trails. The following illustrates common travel speeds and distances for various types of mountain bikers.




## Classifications

Mountain biking trails are appropriate within local, county, regional, and state trail systems.

### Mountain Biking Trail

Mountain biking trails are natural surface trails most often located in larger local, regional, and state parks or within county, state, or federal forest where there is adequate open space for a trail loop. Mountain biking trails are most often associated with natural settings offering varying challenges and scenery. In larger forests, a sense of solitude and opportunity to observe wildlife is important. As the following photos illustrate, the width and character of mountain biking trails relate to the setting, site-specific trail opportunities, and the needs of the targeted group of riders.

***Mountain biking trails range from easy to advanced to accommodate a wide range of riders with different preferences.*** *From casual, dual-track trails (left) to single track (middle) to technical single track (right), mountain bike trails are designed in response to the geographic location, specific site setting, and the type of users being accommodated. In regional park settings around the metropolitan area, well-designed and specialized single-track trails are becoming more common and preferred by many riders. In greater Minnesota, designated mountain bike trails often take advantage of existing forest roads or dual-track trails as core trails, with single-track loops configured off of the main spine.*

### Forest Access Route

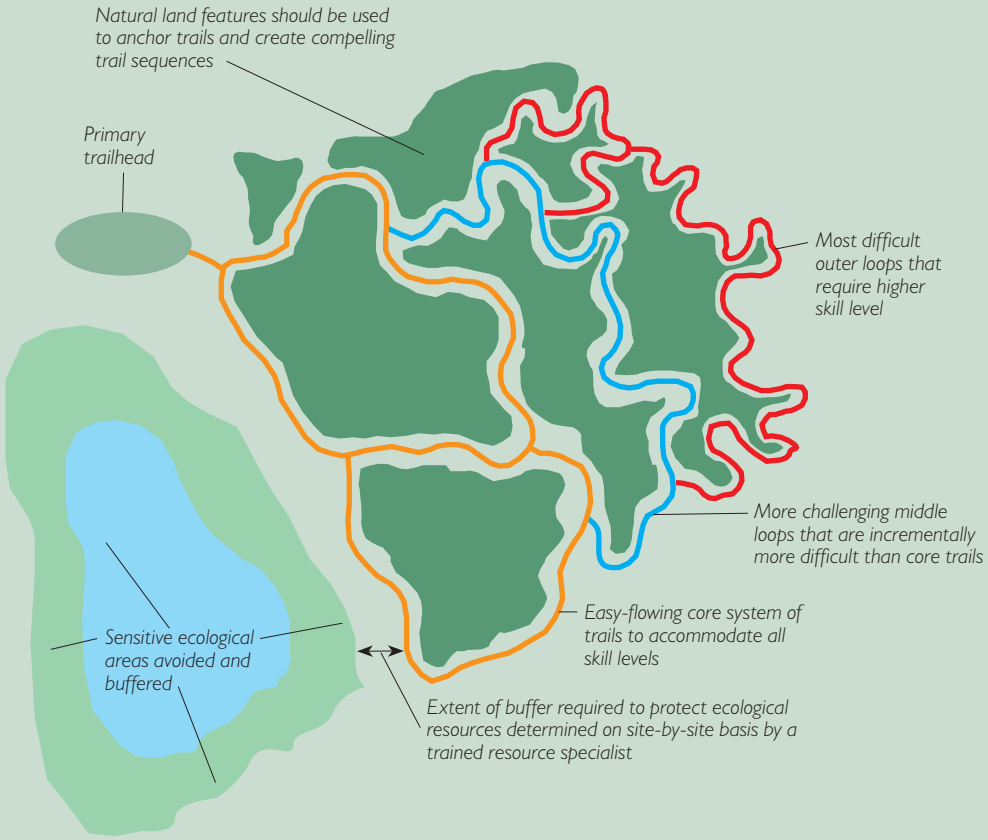
Forest access routes are also suitable for mountain bike use. *As nondesignated, informal routes through the forest, these routes are not typically included as part of a designated recreational trail system.* (This distinction is further defined on page 4.36.)

## Mountain Biking Trail Configurations

The layout of a mountain bike trail is very specialized in order to accommodate the type of challenging features that appeal to riders. Trail layouts also reflect the landscape being traversed and respond to the nuances of a site that make them interesting to the trail user. Maintaining a certain rhythm and flow is important to creating an appealing mountain biking trail. In a park setting, a stacked looped trail system is desirable, as illustrated in the following graphic.

## Mountain Bike Trail Layout Configuration

Where feasible, looped trails are preferred by mountain bikers because they provide more variety and avoid an out-and-back experience. (Out-and-back trails are acceptable where loops are not feasible.) The flow of a trail is important to mountain bikers. The easiest trails should be relatively gentle with predictable curves. Middle loops should include more challenging sections with increasing technical requirements. The most challenging loops can have very tight curves and be very technical. Consistency of flow is important because riders want to get into a riding rhythm. Transitions between open sections and tighter sections should be gradual and be predictable enough to allow riders to adjust their speed and maintain control of their bikes.




*Loop lengths: The length of each loop varies depending on type of use and level of difficulty. An overall length of 5 miles of trails is considered the minimum needed for most local trail users, with up to 25 miles being optimal for a defined looped system. In forested areas where forest roads and trails are used as core trails, trail lengths of 50 miles or more are considered optimal.*

The use of one- or two-way trails is typically determined on a site-by-site basis. For trails designed specifically for mountain biking in a parklike setting (such as a regional park), one-way trails are common so riders do not have to expect oncoming traffic, especially in highly technical zones. For forest-based trail systems, two-way trails are common, especially on the core trails. These can be augmented by one-way loops as warranted.

***Helpful resource!***

The International Mountain Bicycling Association (IMBA) has a publication entitled *Trail Solutions – IMBA's Guide to Building Sweet Singletrack* that provides additional guidelines on building mountain bike trails. See www.imba.com.

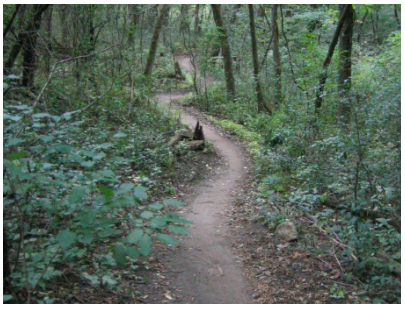
## Common Design Features for Mountain Bike Trails

The technical design of mountain biking trails is of considerable importance to trail riders and worthy of additional consideration in this section. The following illustrates common design features and preferences of mountain bike riders. It is these types of features that separate designated mountain bike trails from local access routes and shared-use natural trails.

## Variety

Creating a sequence of events through the use of anchors, edges, gateways, and destinations will make a mountain bike trail more exciting and challenging. If the design meets user expectations, riders are more likely to stay on the trail rather than create new routes to increase the challenge.

***Trail takes advantage of existing forest trails.*** *Dual-track in combination with single-track can add variety if well balanced.*



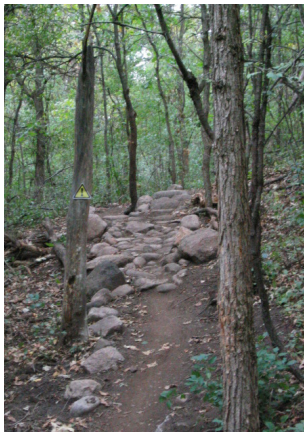
***Classic single track****. If well designed, the trail can be exciting with safe riding speeds.*

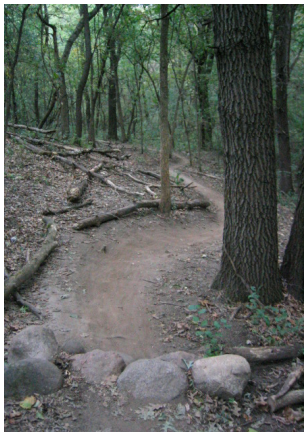
***Tightening down the curve*** *adds to the riding experience and helps control speed. Trail flow is also very important to riders.*

## Technical Features That Add Interest and Challenge and Limit Space Requirements

A mix of technical features consistent with the trail rating is important to holding the interest of a rider. These features also help control speed and limit the overall area needed to accommodate a viable stacked loop trail, which is especially important in local or regional parks where space is generally limited.

***A narrow bridge challenge*** *bypass provides an alternate route for more experienced riders, but also allows the more casual rider the chance to ride on the same trail.*





***Trail obstacles*** *come in many shapes and sizes to add interest and challenge to the trail. The level of difficulty must be consistent with the trail rating system in order for riders to select the trail best suited to their skills. Notice the routine use of site anchors near trail obstacles to keep riders on the trail.*

***Boulders for challenge and sustainability.*** *Vertical climbs using boulders are much more stable than soil-tread climbs. Importantly, these need to be well anchored to prevent bypassing.*

***Unique and fun trail features*** *provide riders with unexpected thrills that are challenging yet safe. The boardwalk (left) adds a twist to the more common level version; the teeter (right) provides another unusual trail feature.*

***Sustainable curves are designed*** *– they do not occur by happenstance. Notice the superelevation and edge stabilization on these two curves. Sustainable mountain bike trails are all about the details. The more effort that goes into the initial design and construction, the more durable and long-lasting the trail will be.*

***Anchored bridge*** *helps ensure that riders will not create a bypass through a drainage, which is ultimately unsustainable.*

***Spontaneous features*** *allow a rider to develop new skills, or to simply stay on the main trail for a more casual ride.*

## Difficulty Ratings

The level of difficulty associated with mountain bike trails is consistent with the rating system promoted by the IMBA, as the following table highlights.

### Mountain Bike Trail Rating System

The table establishes general guidelines for difficulty ratings associated with mountain bike trails. Level of difficulty ratings should be consistent throughout the state to ensure that any given trail is consistent with riders expectations.

| **Aspect** | **Easiest** (White Circle) | **Easy** (Green Circle) | **More Difficult** (Blue Square) | **Very Difficult** (Black Diamond) | **Extremely Difficult** (Dbl. Black Diamond) |
|---|---|---|---|---|---|
| Trail Width | 72" or more | 36" or more | 24" or more | 12" or more | 6" or more |
| Tread Surface | Hardened or surfaced | Firm and stable | Mostly stable with some variability | Widely variable | Widely variable and unpredictable |
| Average Grade | Less than 5% | 5% or less | 10% or less | 15% or less | 20% or more |
| Maximum Grade | Maximum 10% | Maximum 15% | Maximum 15% or greater | Maximum 15% or greater | Maximum 15% or greater |
| Natural Obstacles and Technical Features | None | Unavoidable obstacles 2" tall or less<br>Avoidable obstacles may be present<br>Unavoidable bridges 36" or wider | Unavoidable obstacles 8" tall or less<br>Avoidable obstacles may be present<br>Unavoidable bridges 24" or wider<br>Technical trail feature 24" high or less, width of deck is greater than 1/2 the height | Unavoidable obstacles 15" tall or less<br>Avoidable obstacles may be present, with many including loose rocks<br>Unavoidable bridges 24" or wider<br>Technical trail feature 48" high or less, width of deck is greater than 1/2 the height<br>Short sections may exceed criteria | Unavoidable obstacles 15" tall or greater<br>Avoidable obstacles may be present, with many including loose rocks<br>Unavoidable bridges 24" or narrower<br>Technical trail feature 48" high or greater, width of deck is unpredictable<br>Short sections may exceed criteria |

***Finding detailed design information!***

Refer to Section 6 – Sustainable Natural Surface Trails for technical design information for this type of trail.

## OHV Trails

OHV trails typically accommodate three classes of vehicles: ATVs, ORVs, and OHMs. The following profiles define the preferences and motivations of ATV trail users.

### ATV Trail Rider Profiles

The following profiles were compiled from various sources, particularly the *Profiles of Trail User Populations – Minnesota Border to Border Trail Study* (DNR).

| Type of Rider | Preference Profile |
|---|---|
| **Recreational Trail Rider** | **Trail Use Pattern:**<br>• Travels to trails and ATV areas to ride designated trails and road systems<br>**Recreation Setting Preferences:**<br>• Natural setting is an important element of experience, with highly technical areas a secondary attraction<br>• Prefers looped configurations with varying conditions<br>• Natural, hilly areas make for the best trails, with long, straight trails found to be boring<br>**Motivation/Activity Style Elements:**<br>• ATV is a source of escape to natural settings<br>• Seeking challenge to machines and operating skill<br>• Highly social activity, with groups consisting of family and friends<br>• Will often travel long distances to a trail if it is publicized |
| **Long Distance Tourer** | **Trail Use Pattern:**<br>• Rides long distances from place to place (need extensive trail and forest road system)<br>• Prefers loop system, but will use out and back if no other choice<br>**Recreation Setting Preferences:**<br>• Seeks challenges with a variety of conditions with obstacles and technical requirements – although not all of the trail should be highly difficult so groups can stay together<br>• Technical challenges should include hills, trees, logs, rocks, and winding configurations<br>• Needs access to local services, lodging, restaurants, and businesses (40 to 60 miles max range on a tank of gas)<br>• Will use ditches and local trails to connect trails<br>• Frequently rides in unfamiliar areas, requiring maps, signs, and other information about trail systems<br>**Motivation/Activity Style Elements:**<br>• Commonly in family groups or with close friends<br>• Travels on machines much like snowmobiles<br>• Tends to travel slow, wanting to see the countryside; not very interested in speed and performance |
| **Technical Challenge Rider** | **Trail Use Pattern:**<br>• Needs a relatively small area, with 2 acres being the maximum size required (trails are not used for this activity)<br>• Only a small number of riders use these areas as a main part of the sport<br>**Recreation Setting Preferences:**<br>• Prefers short, wet runs or hilly terrain that challenges machine capabilities and rider skill<br>• Natural setting is not important, with riding challenge being the most important site selection criterion<br>**Motivation/Activity Style Elements:**<br>• Participates in groups in this highly social activity, often taking part in events and rallies where allowed<br>• Most riders stop after several times around the area and then spend most of their time as trail riders |
| **Local Access/ Utilitarian Rider** | **Trail Use Pattern:**<br>• Starts trips from and return to home, with wide-ranging trip length depending on purpose for ride<br>• Knows and rides the local forest road and trail system, but also frequently rides on road rights-of-way, private land, and other public lands as necessary to get to destination<br>**Recreation Setting Preferences:**<br>• Requires little or no developed trail system and uses roads and trails for convenience in getting around<br>**Motivation/Activity Style Elements:**<br>• Does not necessarily consider self a recreational rider, often rides for utilitarian purposes (hunting, fishing, working in the woods, traveling to and from specific destinations) – convenience of travel is key motivation |
| **Excitement Seeker/ Careless Rider** | In each of the above segments, excitement seekers and careless riders may be source of behavior problems, creating safety concerns and presenting a bad public image for this type of activity. This is as a major concern of many responsible OHV riders. |

ORV and OHM riders have much in common with ATV trail riders, as well as some notable nuances, as defined in the following graphic.

## ORV and OHM Trail Rider Profiles

The following profiles were compiled from various sources, particularly the *Profiles of Trail User Populations – Minnesota Border to Border Trail Study* (DNR) to highlight the preferences specific to ORV and OHM riders. For conciseness, the nuances of these groups relative to ATV trail riders are cited. Otherwise, the general preferences of ORV and OHM riders remain relatively consistent with those of ATV riders.

| Type of Rider | Preference Profile |
|---|---|
| **ORV Recreational Trail Rider** | • Technical trails can be short (frequently less than 5–10 miles) yet take an entire day to run<br>• 25– 40 miles is a common distance for nontechnical drivers on scenic trails<br>• Very social sport, with little need for solitude and much time spent working together and "bench racing"<br>• Passengers are important participants, providing a "second set of eyes"<br>• 4 x 4 technical challenge drivers on trails travel at low speed, frequently preferring to avoid higher speed trail riders on ATVs and OHMs |
| **ORV Technical Challenge Rider** | • The primary difference between this type of rider and ATV riders is the type of technical challenge being sought, with ORV riders sometimes seeking very challenging boulder runs that would seem impossible to negotiate<br>• Building a vehicle to specifications is a major part of the sport, as is testing that equipment in challenging field conditions<br>• Events are often timed and scored<br>• Trails that satisfy this type of rider are very technical and often hard to find, resulting in riders traveling considerable distances to a trail or event area |
| **OHM Recreational Trail Rider** | • 5–50 miles of looped trails is a common range of riding distances<br>• Very little interest in riding through wet areas<br>• A combination of single and double track is desirable, with single track only being 24" wide<br>• The majority of trails should be in the intermediate range, with another 10% being easy and 10% difficult |
| **OHM Technical Challenge Rider** | • Trails that satisfy this type of rider are very technical and often hard to find, resulting in riders traveling considerable distances to a trail or event area<br>• Advanced riders are capable of traversing amazingly steep and long hillsides with relative ease |
| **ORV/OHM Local Access Rider** | Has much in common with ATV local access/utilitarian riders |
| **Excitement Seeker/ Careless Rider** | In each of the above segments, excitement seekers and careless riders may be source of behavior problems, creating safety concerns and presenting a bad public image for this type of activity. This is as a major concern of many responsible OHV riders |

## Average OHV Trail User Outing

The average outing (time spent afield riding) for OHV riders varies with the type of use and trail. On dedicated trails that are specifically designed for a given type of use with varying levels of challenge, 25 miles is considered an average riding distance. On road-based trails through the forest, riding distances can increase substantially and range between 80 and 140 miles. ATV and OHM riders tend to have longer outings or cover more miles than ORV drivers, as is summarized in the following table.

## Outing Times And Distances For OHV Riders

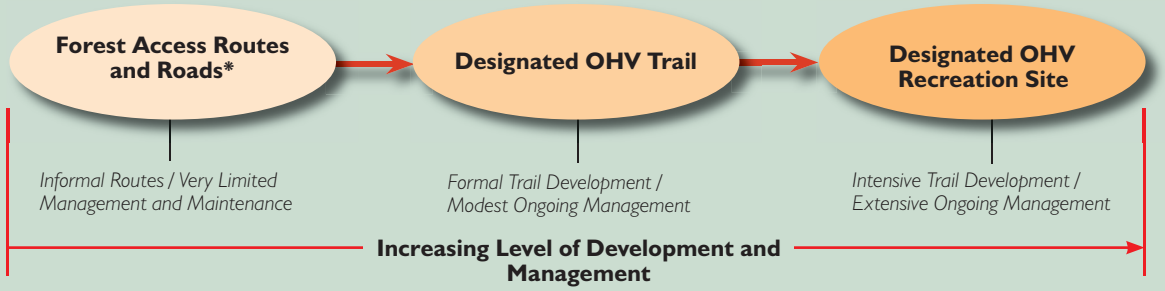
| Trail Type | Average Outing Length | Common Riding Distance | Maximum Riding Distance |
|---|---|---|---|
| ATV | 4–5 hours riding time | 18–26 miles for average rides, 26-40 for longer rides | Maximum full-day rides for OHV riders of all types can be 80–140 miles or more. Most, however, tend to ride average distances as defined in the previous column. ATVs commonly go 40–60 miles on a tank of gas. |
| ORV | 5–6 hours riding time | 12–20 miles for average rides, 20–40 for longer rides | |
| OHM | 6–7 hours riding time | 18–35 miles for average rides, 35–80 for longer rides | |

## Classifications

In Minnesota, there are three primary classifications for OHV trails that correspond to types of riders, levels of development, and approaches to management, as the following graphic illustrates.

### OHV Trail Classifications

OHV classifications progress from forest access routes/roads (authorized for this use) to highly developed trails within a recreational site setting. The following defines the common OHV trail classifications in Minnesota.




** Note that "forest access routes and roads" are nondesignated, informal routes through the forest that are not typically included as part of a designated recreational trail system. However, they are still monitored for sustainability and ecological impacts and may be subject to restricted use or closure if they become unsustainable for a given type of use, including OHVs.*

The distinction among trail classifications is important, with each addressing the needs of specific types of riders. Of equal importance, the designations correlate trail development with a certain level of management to ensure long-term sustainability. For forest access routes and roads, where use is generally dispersed, the informal network of routes through the forest is often fairly extensive but receives very limited maintenance. Conversely, designated OHV trails are a managed and maintained system of trails of modest length that can be indefinitely sustained. Since designated OHV recreation sites are the most intensely developed, the overall scale of the facility is more limited and balanced against an agency's ability to manage and maintain the trails.

### Designated OHV Trail

Designated OHV trails consist of a defined series of roads and trails, typically within a state or county forest or other public lands. Designated OHV trails accommodate recreational trail riders and long distance tourers who are most interested in riding for longer distances in a natural setting with varying levels of difficulty. These trails start at designated trailheads and may have multiple access points. The main trail can be either a loop or an out-and-back. Stacked loops of varying difficulty and length are optimally provided off a main, easier trail. The loops are typically designed to accommodate either a variety or a specific type of OHV, depending on local demand.

For designated OHV trails, a mix of dedicated trails, trail conversions and on-road trails is used to provide a diverse and interesting trail experience. The following photos highlight the differing character of trail types associated with designated OHV trails.

***On-road trails*** *take advantage of the existing road infrastructure and provide their own diversity of experience. (Typically, these are located on lower-level roadways within a forest setting.)*

***Trail conversion*** *takes advantage of an old road by letting it "grow in" to create a narrower, more intimate trail experience within the same developed footprint.*

***A dedicated trail*** *is shaped specifically for OHV use and designed to add challenge and excitement. Careful assessment of ecological impacts is a key aspect of selecting new trail routes.*