GREENWAY GUIDELINES FOR THE EAST TENNESSEE REGION:
RECOMMENDATIONS FOR WATER, RAIL, AND ROADSIDE TRAILS IN REGIONAL LANDSCAPES

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PART 1 // INTRODUCTION

From left to right: roadside trail in road right-of-way, rail right-of-way with railside trail, waterside trail in waterside easement, trail in public recreational open space.
INTRODUCTION
People in East Tennessee may think of a greenway as a pleasant tree-lined walking loop in their local park, or a bicycle trail next to a creek. However, a single greenway can be part of a much wider system. If linked to other greenway corridors in the community, county, and the East Tennessee region, it would form a regional greenway system. As part of a regional greenway system, each local greenway trail and corridor provides communities with transportation routes, recreation, flood mitigation, preservation of cultural and environmental landscapes, and other social and economic benefits.

PART I of this guide provides a brief introduction to the benefits and design of community, county, and regional greenway corridors and systems. It discusses settings common to East Tennessee, such as rural, suburban, urban, or town center, as well as open spaces. Layout, design, and location of trail segments, trail surfaces, maintenance and buffer areas are also introduced. A Glossary of Common Trail Design Terms concludes Part I.

PART II provides examples of greenway corridors in typical East Tennessee settings. East Tennessee’s ridge and valley terrain limits the number of continuous routes available, so greenway corridors often need to share existing road, rail, utility, open-space, or water-feature corridors, particularly in town centers and suburban settings. Thus examples in Part II focus on illustrating corridors in roadside, railside and waterside settings. Illustrations based on actual landscape settings from the region provide realistic before-and-after examples of potential greenway corridors.

PART III includes Visual Indexes that illustrate details and specific examples of trail crossings, trail surface materials, trail signage, buffers and barriers, lighting, and amenities suitable for the East Tennessee region. Appendices at the end of Part III provide further information on trail maintenance, guidelines for the use of mile markers, examples of plants that are used successfully in regional corridors, a Sidepath Checklist, and regional guidelines for signing and marking greenway trails.

BENEFITS OF GREENWAY SYSTEMS, CORRIDORS, AND TRAILS
Great greenway trails and corridors provide access for many different types of users to a rich variety of places, experiences, activities, and landmarks. Local greenway paths situated near urban and suburban housing developments offer residents everyday opportunities for exercise, access to nearby parks, and a chance to experience seasonal flora and fauna. When these local greenway paths connect to one another, they become part of a larger greenway corridor that can link neighborhoods. These corridors are useful for commuters heading to work in town centers and business parks. They also provide access to regional recreational amenities for residents and visitors alike. As the greenway corridors develop, they can grow into a regional greenway system that encompasses multiple counties and metropolitan areas, providing connections between population centers and amenities such as state and national parks.

Greenway trails and corridors also provide many benefits that may seem less tangible at first glance, but contribute to an improved quality-of-life in important ways. When placed between roads or railroad tracks and residential developments, greenway corridors act as a buffer for noise and air pollution. Where a greenway corridor follows the perimeter of a commercial development or parking lot, it can act as a sponge for stormwater run-off and help reduce the need for new storm sewer capacity. Along a stream or river, a vegetated greenway corridor filters pollutants in stormwater run-off before it enters adjacent waterbodies. In all of these areas, greenway corridors help preserve habitat for local flora and fauna.
HOW TO USE THIS GUIDE

This guide is valuable for readers who are just beginning to learn about greenways and those already familiar with the subject matter. If the reader is an elected official, community organizer, or neighborhood advocate interested in starting a greenway movement in their own community, the guide may be read cover to cover. Part I outlines the core principles of greenway development, explaining the benefits of greenway trails, defining commonly used terms, offering tips on funding sources, and presenting the basics of determining a route for a new corridor. Part II illustrates how trails can be accommodated in common East Tennessee landscapes and offers compelling before-and-after images. This information is vital for readers who aim to inspire and encourage greenway development in their community.

Experienced readers, including transportation planners, urban planners, municipal engineers, veteran trail advocates, and design professionals, may use this guide as a general reference. The greenway corridors illustrated in Part II cover roadside, railside, and waterside greenways in a range of local landscape conditions and will be helpful to professionals who can refer to the specific example most similar to the trail they are working with. Of particular interest to experienced readers are the Visual Indexes in Part III, which graphically demonstrate solutions to common greenway obstacles and illustrate examples of amenities, materials, border conditions, buffer ideas, and signage commonly used on successful trails. Helpful appendices provide information on suitable local plants, trail maintenance, signage, and other topics.

Rather than a detailed construction or technical reference manual, this guide is meant to foster a general understanding of both the benefits and challenges associated with building greenways in East Tennessee. For detailed information on specific topics, this guide directs the user to the appropriate technical manuals and codes that have been developed by government agencies, transportation groups, professional organizations, and trail advocates.
DESIGN OF GREENWAY SYSTEMS, CORRIDORS, AND TRAILS

Great greenway corridors not only allow visitors and residents to access a rich variety of uses, special experiences and places, seasonal flora and fauna, landmarks, activities and route options, but also opportunities to create new memories with every visit – both in and adjacent to the corridor.

Keys to building a great greenway system include:
• Information about users and their needs
• Help and support of local communities and trail supporters
• Assistance from experienced greenway designers

Often the first greenways a community builds are recreational loop trails or streamside trails in parks. These trails form an important foundation for a greenway system, but often serve only residents who are able to drive to the parks where they are located. A fully developed community or regional greenway system serves many different users and activities, and serves as an alternative transportation system for those who choose not to or cannot drive. Community greenway systems are particularly beneficial to the health and welfare of children, young families, and community members who need convenient places for daily activity.

This section introduces community members to some of the steps required to start building greenway corridors and systems. It also defines some terms commonly used in greenway planning. Steps covered include:

1. Understand Your Community, County, and Region
2. Organize Community Support and Resources
3. Identify Multiple Uses for Greenway Corridors
4. Identify Potential Routes, Corridors, and Connections
5. Secure Places for Trails
6. Plan for Connection, Access, and Variety of Routes
7. Determine Trail Surface Type and Location
8. Consider Maintenance and Buffer Areas

TRAIL DESIGN AND LOCATION

1. UNDERSTAND YOUR COMMUNITY, COUNTY, AND REGION

Greenway corridors can occur in many landscape settings. Some of the first questions a community might ask include:
• Are local landscapes rural, suburban, urban or open-space?
• Are there continuous corridors of recreational, waterside, railroad or utility land that pass through the community?
• What are the historic, interesting or scenic places in the community?

A good exercise for understanding the character of local landscapes is to have community members share, via a website or meetings, historical pictures and pictures of their own favorite local landscapes and places.

In this publication, we focus on providing examples for rural, suburban or urban settings, and commercial or residential zones, because these are often more difficult locations to see the potential for designing corridors. However, a community should also take full advantage of opportunities for locating trails, trailside amenities, and trailheads in parks and other community open-space settings.
Open space settings
Often include some combination of passive and active parks, agricultural fields, woodlots, woodlands, floodplains, unimproved drainages or hillsides, undisturbed open space, and other natural features. Open space settings can be found in rural, suburban or urban locations, and are a primary component of rural settings.

Rural Settings
Often include some combination of agricultural land, rivers, creeks, unimproved drainages, hillsides, undisturbed open space, and other natural features.

Suburban Settings
Often include low-density residential housing communities and highly developed commercial areas along major roadways. They often feature larger parks and sports complexes.

Urban and Town Center Settings
Often include a mix of residential, commercial, and entertainment uses. They vary in scale from small towns to large cities. Parks are usually of mixed size and use.

UNDERSTAND GREENWAY USERS, NEEDS, DESTINATIONS, AND OPPORTUNITIES
Some of the first questions a community might ask include:
• Who might use greenways in the community?
• Where do these potential users live, work, and attend school?
• What are the needs of the community residents — exercise, economic development, tourism, and / or transportation?
• What are the goals for community, county, and regional greenways?

This is a very practical exercise, where local residents are one of the best sources of information. At these meetings, groups gather and brainstorm about who might use local greenways, discuss the activities greenway users would enjoy, and place colored dots or notes on a map to identify special places in the community. Groups might start by thinking about:
• local places where children and other non-drivers need to go, such as schools, places of worship, social clubs, recreation and community centers, employment centers, transit connections, grocery stores, and shops
• recreational fields, parks, waterfronts, courthouse squares, public gardens, historic or cultural sites and other places that appeal to both residents and tourists
• places that can support different types of tourism, for example agricultural, bird-watching, wilderness or horseback tourism
• special or scenic landscapes and other places that can be connected together to tell a story about the local communities and regional history

After this meeting, organizers use meeting notes to identify typical greenway users for the community, modes of travel that community greenways might need to accommodate, and potential destinations and routes for greenway users.
Mode of travel is the term transportation planners use to describe the means a person uses to travel along a route. This guide discusses three non-motorized modes of travel common to greenway use in East Tennessee:

- pedestrian travel, which includes walking, hiking, or running, and wheelchairs, strollers, canes, and other assistance that people use during these activities
- bicycle travel, which includes use of a broad variety of bicycle types, including recreational, commuter, mountain, and road bikes
- equestrian travel, which involves either riding or leading a horse or other pack animal

Understand where greenway users live, work and attend school
Planners refer to areas of a community where people live or work adjacent to a greenway corridor and can easily reach the corridor as the trailshed or user catchment for the corridor. The size and shape of a trailshed is affected by the time a potential visitor travels, the travel mode (by foot, bicycle, horse or automobile) a potential visitor uses to reach the greenway, and locations of any barriers to travel – for example, rivers or highways that prevent a visitor from reaching the corridor by their chosen mode.

Typically during evaluation of corridor routes, a planner helps a community identify pedestrian, bicycle, automobile and, if relevant, equestrian trailsheds for a corridor to make sure there are plenty of potential users who are close enough to visit the corridor regularly.
2. ORGANIZE COMMUNITY SUPPORT AND RESOURCES
BUILD FUNDING, SUPPORT AND TRAIL COMMUNITY

The success of any greenway corridor plan is dependent upon building community support and finding the necessary resources for funding and implementation. It is critical to invite ideas and involvement from interested stakeholders and neighbors as early as possible in order to instill a sense of ownership in the project. Community design workshops and frequent communication through newsletters and blogs are good ways to keep people informed and give them input in the final design.

Trail Community: Includes those with an interest in, or relationship to, a particular trail, such as trail users, volunteers, landowners, and the officials and citizens of local communities through which the trail passes. The Appalachian Trail Community is an example.

POTENTIAL FUNDING SOURCES

A large portion of the funding may come from a local government agency that is directly associated with the project, such as a city parks and recreation or public works department. In addition, it may be possible to secure state or federal transportation funding. Three sources for those funds are your local TPO/MPO, the state Department of Transportation (DOT), and the state Department of Environment and Conservation. The Transportation Planning Organization (TPO) or Metropolitan Planning Organization (MPO) is a regional agency that coordinates state and federal transportation funds for its planning area. Some of the federal transportation funds that can be used for greenway trails are distributed by TPOs/MPOs. Other state and federal transportation funds are distributed by the state DOT. Trails funded by grants from TPOs/MPOs and DOTs generally have to serve a transportation purpose and require a local cash match.

The Tennessee Department of Environment and Conservation (TDEC) distributes grants that can be used for trails and parks. These grants are generally smaller than those distributed by TPOs/MPOs or DOTs. Despite the smaller size of these grants, they are attractive because they sometimes allow an in-kind rather than a cash match, and they often have fewer restrictions and require less time to spend than grants from other state and federal sources.

Private foundations and organizations can be another valuable funding resource. Examples include organizations dedicated to the preservation of specific areas (a river watershed or ridge top), neighborhood boosters, historic or landmark preservation groups, alternative transportation advocates, and habitat preservation groups. Grants from these groups may often be for relatively small amounts of money, but the cumulative effect of multiple grants can have a large impact on a project. Grants may be procured to fund specific portions of a design, such as individual amenities or improved educational signage. Large foundations, such as those with health-related missions, may offer more substantial awards to fund trail construction.

ADVOCACY RESOURCES

BIKE WALK KNOXVILLE
www.bwknox.org

LEGACY PARKS FOUNDATION
www.legacyparks.org

GREAT SMOKY MOUNTAINS REGIONAL GREENWAY COUNCIL
www.smokymountainsgreenways.org

2008 TENNESSEE GREENWAYS AND TRAILS PLAN – APPENDIX B
www.tennessee.gov/environment/recreation/docs/gt_plan2008_app_b.pdf

RAILS-TO-TRAILS CONSERVANCY
www.railstotrails.org

AMERICAN TRAILS
www.americantrails.org/resources/statetrails/TNstate.html
3. IDENTIFY MULTIPLE USES FOR GREENWAY CORRIDORS

GREENWAY CORRIDORS WORK WITH AND SUPPORT ADJACENT USES
When a community invests the time, effort, and funds to build greenways, it should also identify the ways these investments can address other community needs. These new activities and amenities attract visitors such as history buffs, wildlife watchers, naturalists, exercise enthusiasts, agriculture tourists and day visitors, while serving as an economic engine that supports local businesses. It is important to think of a greenway corridor as a means to reach homes, schools, places of worship, landmarks, recreation and conservation areas, and businesses in the trailshed area – and to look for creative ways the transportation routes in the greenway corridor can work together with adjacent land uses.

IDENTIFY LOCATIONS FOR SPECIAL PLACES AND AMENITIES IN A CORRIDOR
Landmarks, trailside amenity sites, habitat areas, and other special places help users navigate their way through a trail system and serve as destinations and rest areas. Corridors are often made wider at selected locations to include these features. Some destinations may connect to a primary trail by spur or loop trails that allow a user to explore or linger in the area. These wider areas might accommodate:
- trailside activity places like a micro-park, scenic overlook, water access point, hedgerow, bird or native plant habitat area
- practical elements like restrooms, call boxes, picnic tables or shelters
- “crossroads micro-parks” where two primary trails join

IDENTIFY LOCATIONS FOR SPECIAL PLACES AND AMENITIES NEAR A CORRIDOR
Connector trails can link destinations and other areas near a trail that are open to use by greenway users. For example:
- larger adjacent public places, gardens, parks, woodlands, cultural or historic sites that greenway users can enjoy
- wetlands, grasslands, woodlands or habitat provide opportunity to enjoy and learn about native plants and wildlife

TOURS AND THEMES
Every community has stories and traditions – particularly in East Tennessee. Connecting local stories to community greenway corridors and designing routes that bring visitors to memorable or historic sites helps reinforce community character and identity.

For example, the historic coal mining area surrounding Briceville and Lake City once provided coal to power fabric mills in Knoxville, and the area still has many artifacts and sites connected to this history. A railside corridor following the “coal route” could connect locals to their industrial past and bring bicycle tourists north to the Briceville-Lake City area.

IDENTIFY INCENTIVES FOR CONSERVATION OF LANDSCAPE CHARACTER IN ADJACENT LANDSCAPE SETTINGS
Greenway corridors derive a great deal of character from the visual appeal of surrounding landscape setting – this is sometimes referred to as a borrowed view, because the adjacent property owner is essentially allowing visitors to borrow and enjoy the scenery.
4. IDENTIFY POTENTIAL ROUTES, CORRIDORS AND CONNECTIONS

Greenway corridors are continuous corridors of linear open space where longer primary greenway trails are located. At minimum, a greenway corridor is wide enough to contain the desired mix of trails and their maintenance areas, adequate space for different users, and enough distance to preserve the safety of travelers on the trail and the privacy of adjacent property owners. Greenway corridors often follow existing public open-space, transportation, or utility corridors to take advantage of continuous rights-of-way or easement opportunities that might be arranged in these corridors. With some additional thought, a greenway corridor becomes a linear park that offers amenities to thousands of community residents and visitors.

IDENTIFY LOCATIONS FOR GREENWAY GREEN-SPACE CORRIDORS

To identify opportunities for creating connectivity, greenway planners often assemble regional maps that show existing and planned greenway routes. Then they look for:

• additional routes in each community to connect destinations and neighborhoods to each other and to routes already on the planning map

Existing utility, road, rail, and open-space corridors are often considered for greenways because they are both continuous and include connections across community, county, and regional boundaries. Finally, the projected cost and viability of each option is evaluated. Consultations with adjacent property owners, neighborhood groups, and other stakeholders familiar with community needs and landscapes are a key part of a corridor planning process.

IDENTIFY TRAVEL ROUTES AND COMMUNITY CONNECTORS

Routes is a general term planners use to describe the mix of roadways, sidewalks, trails, or even railways and waterways that members of the public use to travel between destinations. For example, the route taken by a person walking her dog may start on a local street or sidewalk in a neighborhood that connects to a greenway corridor; then follow a trail in the greenway corridor to a local dog park.
5. SECURE PLACES FOR TRAILS

As mentioned earlier, greenways often share space in road, railway, utility or waterway corridors or follow property lines. The most common methods for securing passage rights for a corridor are via public rights-of-way (ROW) or easements. The diagrams below show some typical locations for trails in relation to different types of easements and rights-of-way.

**Right-of-Way (ROW):** Land held in fee simple title for use as a public utility (highway, road, railroad, trail, utilities, etc.) for a public purpose. Usually includes a designated amount of land on either side of the utility that serves as a buffer for adjacent land uses.

**Easement:** Grants the right to use a specific portion of land for a specific purpose or purposes. Easements may be limited to a specific period of time or may be granted in perpetuity; or the termination of the easement may be predicated upon the occurrence of a specific event. An easement agreement survives transfer of land ownership and is generally binding upon future owners until it expires on its own terms.

**Road Diet:** A technique in transportation planning whereby the number of travel lanes and/or effective width of the road is reduced in order to improve safety or provide space for other modes of travel within the road right-of-way.

**ROADSIDE LOCATIONS (A)**

If sufficient space is available, roadside greenway routes are often located in road rights-of-way, and safety barriers and buffers, shading, signage, lighting for the trail are integrated with the roadway corridor design. Sometimes innovative approaches like road diets are used to fit a greenway into a road right-of-way. However, if space cannot be made available in the road ROW, easements or additional ROW may be sought from adjacent property owners. Depending on the road’s context and the types of bicyclists expected, bicycle lanes or bikeable shoulders may also be integrated into the road design.

**RAILSIDE LOCATIONS (B)**

Permission to build a trail within a railroad ROW is obtained from the rail company, and the private owner typically retains ownership of the land. Whether the trail is within the railroad ROW or in a separate easement, the greenway is usually located as far away from the tracks as possible. Grade changes, dense plantings, fences and other barriers should be included to stop greenway users from trespassing on the rail line. Buffers, fences or other barriers may also be needed to prevent trespass of users onto property adjacent to the railroad ROW and to create privacy for adjacent property owners. Greenways corridors should be located to minimize crossings of active rails at grade.

If a rail company will not grant permission to use their ROW, a community may explore options with adjacent property owners (see E).
ADJACENT TO PROPERTY LINES (E)

Typically property owners prefer to locate easements adjacent to a property line. Buffers, fences or other barriers may be needed to prevent trespass of users onto private property and create privacy for adjacent property owners. Property owners often use an area of trees, shrubs or hedgerow to mark the edge of private property.

Carefully evaluate existing vegetation at property lines to see if it has value for privacy screening or bird habitat before clearing for greenway routes. Make sure that easements are generous enough to allow for planned routes, maintenance areas, buffers, barriers, and separation areas required for the safety of corridor users and the privacy of adjacent property owners on both sides of the corridor.

OPEN SPACE (F)

Open spaces are often destinations in a greenway system because of the recreational and social activities they offer. When corridors pass through open spaces owned or accessible to public use, such as a public park or waterfront plaza, opportunities exist to add spurs, loops, and other trail configurations that provide users more variety of route choices and experiences. One or two simple connectors can link trails in open spaces to a nearby greenway corridor system, increasing use and accessibility of both the open space and the corridor.

6. PLAN FOR CONNECTION, ACCESS, AND VARIETY OF ROUTES

IDENTIFY POTENTIAL CONNECTORS, ACCESS POINTS, AND TRAILHEADS

While a greenway corridor may have an overall character that unites segments into a continuous whole, trail routes are often divided into a series of shorter trail segments for design, management, and maintenance purposes. These segments can differ significantly as the trail passes through different landscape settings, soils, terrain, land uses, and other features. Individual segments of the same trail may simply be basic links that connect over a long distance, or they may each have a distinct character. A segment may be a special place that requires a different layout, material palette, and amenities than the rest of the trail to accommodate an increased intensity of use or a greater variety of available experiences.
VARIETY MAKES GREENWAY TRAVEL INTERESTING

As the old saying goes, “variety is the spice of life.” A great greenway system may include both direct linear spine trails to help a user get to a destination and areas of parallel, braided, and spur trails off the main spine that allow frequent or recreational visitors a variety of routes in and around the corridor. It is not necessary to always pave alternate route spurs and byways off the main trail — especially if they are designed to be less traveled or they bring wildlife watchers into quieter, more fragile landscapes. Other trail layout variations, such as stacked loops, spoke and wheel, and balloon trails, are also illustrated at the right.

Once potential corridor and trail routes are identified, connectors and trailhead options for each route should be considered. The more connections a corridor has to homes, employment locations, and other destinations, the more it will be used. A connector is a part of the route that is not in the greenway corridor, but helps local residents reach entries to the corridor. A spur is a short trail within the greenway corridor that leads from a primary, spine, or secondary trail to points of user interest — overlooks, waterside access points, etc.

Minor trailheads are entry points that help local residents access greenways from home and other destinations without driving — for example from a sidewalk or residential street. These trailheads usually do not include parking areas, lighting or other amenities that may be disruptive to a residential area. Major trailheads are more publicly accessible locations where people have the option of driving to the greenway and parking. These trailheads are usually located adjacent to roads or near existing parking that a school, place of worship, park, or community-minded business is willing to share. Sponsoring a trailhead often increases foot traffic for adjacent businesses. All trailheads should include signage to raise awareness of the trail and to help orient users.
7. DETERMINE TRAIL SURFACE TYPE AND LOCATION

DIFFERENT ACTIVITIES REQUIRE DIFFERENT SURFACE MATERIALS

People pursue activities as diverse as bird watching, commuter bicycling, mountain biking, jogging, walking, and horseback riding in the same greenway corridor.

To maintain the safety and enjoyment of all greenway users, it is a good practice to provide separated trail surfaces for incompatible activities and travel modes. Whenever possible, trails should be designed for ADA accessibility, especially when public funds or lands are used.

Noise, conflicts between users, wear and tear, frequency of use, terrain requirements and travel speed are some of the factors that determine compatibility of uses and modes in greenway corridors and thus the number and arrangement of single-use and multi-use trail surfaces required in each corridor segment.

TRAIL SURFACES

If needed, separate trail surfaces for different users can be placed within the same corridor. In these cases vegetation buffers, distance, or changes in elevation are used to separate incompatible trail uses (see illustration at right). In addition, slopes, turning radii, stopping distances, trail bed, maintenance area, signage, lighting and other factors may vary by the modes of travel a trail is designed to accommodate. (See Visual Index B in Part III of this guide.)

Greenway design professionals help a community make sure that its greenways meet all code requirements and are designed with the same care, thought, and concerns for safety, durability, and maintenance needs as its roads.

Professional Greenway Design Services: Design and layout of greenway trails and systems requires special training, knowledge, experience, and skill. Many different factors are taken into account, including hydrology, topography, soils, flora, fauna, management objectives, user expectations and characteristics, and trail design standards. Greenway designers utilize data collected from area site analysis, environmental assessments, public meetings, and area trail and management plans.
**MIXED-USE TRAIL SURFACES**

Sometimes, different types of trail users share the same trail surface. For mixed-use transportation trails, the AASHTO Guide for the Development of Bicycle Facilities sets the standard minimum trail width at 10 feet. In instances where there is a significant constraint, a width of 8 feet may be allowed for short distances. If a particular area is expected to be highly used, then a width of 11 to 14 feet should be considered.

**8. CONSIDER MAINTENANCE AND BUFFER AREAS**

Like road corridors, greenway corridors have maintenance areas where routine maintenance occurs to keep a trail passable, including all cleared and managed parts adjacent to the surface. A maintenance area typically includes the full dimensions of the path or trail surface, an adjacent area (2 feet minimum) on either side of the trail where vegetation is kept low, and the space overhead (often 10 to 12 feet) from which brush and obstacles need to be cleared.

Well-designed greenway corridors minimize maintenance needs through:

- minimizing the width and height of maintained areas
- locating trail surfaces on stable sub-surface conditions with minimal flooding
- selecting trail surface and trail bed materials appropriate for slopes and soils
- using native plant materials that minimize mowing, trimming, and other care requirements

Visual Index sections of this document provide more information on many of the topics discussed in this section.

**GENERAL CLEARING, GRUBBING, AND THINNING WIDTH AND HEIGHTS**

The clearing and grubbing width, as well as the selective thinning width, should be determined by the width of the trail:

<table>
<thead>
<tr>
<th>TRAIL WIDTH</th>
<th>CLEARING AND GRUBBING WIDTH</th>
<th>SELECTIVE THINNING WIDTH</th>
</tr>
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<tbody>
<tr>
<td>6 FOOT</td>
<td>10 FEET</td>
<td>20 FEET</td>
</tr>
<tr>
<td>8 FOOT</td>
<td>14 FEET</td>
<td>24 FEET</td>
</tr>
<tr>
<td>10 FOOT</td>
<td>16 FEET</td>
<td>26 FEET</td>
</tr>
</tbody>
</table>

The clearing height should be based on the “tallest” user type expected on that particular trail. If pedestrians and hikers are the only users expected, then the clearing height is 8 feet. When bikes will also use the trail, the clearing height is 10 feet. In cases where trails permit equestrian use, the clearing height is 12 feet.
REFERENCES
BOOKS AND PUBLICATIONS
2010 American Disabilities Act (ADA) Standards for Accessible Design
American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities
Trail Construction and Maintenance Notebook, USDA, Forest Service, 2007
WEBSITES
Council of Bay Area Resource Conservation Districts, Horse Owners Guide to Water Quality Protection
atfiles.org/files/pdf/HorseOwnersGuide.pdf
Equestrian-Related Water Quality Best Management Practices
atfiles.org/files/pdf/Equestrianwatermgmt.pdf
Great Smoky Mountains Regional Greenway Council: smokymountainsgreenways.org/aboutgw.htm
National Trails Training Partnership, Planning Trails & Greenways: www.americantrails.org/resources/planning/index.html
Tennessee Trails & Tracks Resource Guide
United States Access Board:
www.access-board.gov

VOCABULARY RESOURCES
American Trails glossary of terms:
www.AmericanTrails.org/resources/info/glossary.html
United States Department of Transportation dictionary:
www.rita.dot.gov/dictionary/index.xml
GLOSSARY TERMS

Bank
The terrain alongside the bed of a river, creek, or stream. The grade of the bank can vary from nearly vertical to a shallow slope.

Floodplain
Flat, occasionally flooded areas bordering streams, rivers, or other bodies of water, susceptible to changes in the surface level of the water. The Federal Emergency Management Agency (FEMA) maintains floodplain maps for many waterways in the United States.

Floodway
The channel of a river or stream where the annual rising or lowering of water occurs.

Greenway Corridor
A linear open space containing the greenway trail and maintenance area; may include environmental, safety, and privacy buffer areas. Often found along existing contiguous open spaces such as road and rail rights-of-way, and waterway and utility easements. Can provide space for conservation, recreation, alternative transportation, and wildlife habitat.

Greenway System
A set of greenway corridors, trails and associated accesses that interconnect and function as a whole to serve community, county or regional users. Each trail retains its local distinctiveness and character; however, some elements like signage may be similar or standardized to help users find their way through the system. Greenway systems can connect parks, wilderness preserves, cultural facilities, and historic sites with business, residential, and rural areas.

Multiple-Use (Multi-Use, Shared-Use) Trail
Includes a single, braided or parallel set of trails that interconnect and are designed to support more than one user group at a time (for example, pedestrian and bicyclists). Some user groups may still be excluded.

Professional Greenway Design Services
Design and layout of greenway trails and systems requires special training, knowledge, experience, and skill. Many different factors are taken into account, including hydrology, topography, soils, flora, fauna, management objectives, user expectations and characteristics, and trail design standards. Greenway designers utilize data collected from area site analysis, environmental assessments, public meetings, and area trail and management plans.

Right-of-Way (ROW)
Land held in fee simple title for use as a public utility (highway, road, railroad, trail, utilities, etc.) for a public purpose. Usually includes a designated amount of land on either side of the utility that serves as a buffer for adjacent land uses.

Road Diet
A technique in transportation planning whereby the number of travel lanes and/or effective width of the road is reduced in order to improve safety or provide space for other modes of travel within the road right-of-way.

Single-Use Trail
Includes trail surfaces designed, constructed, and signed for only one intended use – for example, hiking.

Stream Protection Buffer
An area of preserved or restored vegetation to either side of a waterway designed to slow stormwater, and to allow for sediment dropout and debris removal before runoff enters the waterway. In a stream protection buffer, the roots of dense native vegetation stabilize stream bank soils while leaf canopy cover regulates temperature and provides wildlife habitat. Measures should be taken during trail construction adjacent to waterways to preserve and remediate vegetation. Once established, streamside vegetation should not be mown. For more information on minimum stream protection buffer areas and measures refer to: Knox County Tennessee Stormwater Management Manual, Chapter 6: Water Quality Buffers. Regulations vary by jurisdiction.
Trail Community
Those with an interest in, or relationship to, a particular trail, such as trail users, volunteers, landowners, and the officials and citizens of local communities through which the trail passes. The Appalachian Trail Community is an example.

Trail Easement
Grants the right to use a specific portion of land for a specific purpose or purposes. Easements may be limited to a specific period of time or may be granted in perpetuity. Alternatively, the termination of the easement may be predicated upon the occurrence of a specific event. An easement agreement survives transfer of landownership and is generally binding upon future owners until it expires on its own terms.

Trail Route
An established or selected course of travel along a greenway trail.

Trail Segment
To make design, management and maintenance easier, long trails are sometimes divided into segments. Changes in geographic features, trail surface layout, jurisdiction and/or political boundaries are often used to distinguish segments.

Trail Spur
A trail that leads from primary, secondary, or spine trails to points of user interests or activities – overlooks, waterside access points, etc. Spurs are contained within the greenway corridor.

Trail Surface
The actual surface in the greenway corridor where people walk, ride, or roll, while a trail bed is the finished earth surface on which a base course or surfacing may be constructed. For trails without surfacing, the trail bed is also the surface. Care should be taken to avoid damage roots of trees and shrubs when preparing a trail bed.

Trail, Primary
A continuous route that originates at or connects to trailheads and serves as a major route through a community or regional greenway system. Primary trails direct users through an area. Ideally, primary trails also connect a number of significant destinations to each other – like freeways and arterials do in our road system.

Trail, Secondary
Shorter trails that create connections between primary trails or branches of primary trails. Secondary trails encourage local movement between two primary trails or create a variety of routes for exploring a localized area.

Trail, Spine
A spine is a trail that acts as a “backbone” to a regional trail system. Regional spine trails are also often primary trails in community, county and regional greenway systems.

Trail
A single trail or set of braided or parallel trails that interconnect and are designed to support trail activities, plus adjacent maintenance and buffer areas in the corridor. Where rights-of-way or easements are narrow, the trail may use much of the width of a greenway corridor. In other areas, a greenways corridor may include the trail corridor plus trailside feature or amenity areas.

Trailshed
The geographical area and population from which a greenway trail attracts users or visitors.

Travel mode
A particular form of travel, such as walking, bicycling, operating a motor vehicle, etc.