Unpaved Non-Motorized Trail Guidelines

Office of Greenways and Trails

Florida Greenways and Trails Council

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1. Objectives and Introduction

Mission Statement: To promote new spaces to recreate through the development and improvement of unpaved non-motorized trails to suit our state's current and future recreational needs.

We all know a good trail when we're on one. We're not disoriented due to lack of signage or markers. We're not climbing over downed trees or ducking under branches, and we're not slogging through water or mud unless we've been forewarned beforehand. A good trail is one where we can fully enjoy our surroundings while challenging ourselves if that is our intent. Trails should provide for a variety of trail distances, loops, ecosystems, scenery and degrees of difficulty. As trail professionals, we should strive to make the best possible experience for users and learn from the past.

In 1987, the Florida Legislature established what is now referred to as the Florida Greenways and Trails System under Chapter 260, Florida Statutes. The intent of the Legislature was to encourage horseback riding, hiking, bicycling, paddling and jogging through the creation of recreational trails, and thereby to improve the health and welfare of the people. The Department Environmental Protection, Division of Recreation and Parks, Office of Greenways and Trails was directed under Chapter 260.016, Florida Statutes, to establish the Florida Greenways and Trails Council which shall advise the Division in the execution of its powers and duties under this chapter. This body is comprised of representatives from various recreational user groups, private landowners, as well as local, state and federal governments. The Council's primary role would be to provide a forum for discussion of trail issues between trail users and trail providers, thus contributing to the development of a statewide network of trails.

At its first working meeting, held in November of 1988, the members agreed there was a need for a formally recognized set of trail development and maintenance standards suitable for Florida's natural environment. The Council immediately set out to create these standards. Almost thirty years later, the Council and Staff have changed, with the guidelines shortly following suit.

This manual is intended to inform organizations on the development or reconstruction of trails in the state of Florida, specifically providing design guidelines for unpaved hiking, cycling, equestrian and multiple-use trails in Florida. Trails are a gateway to nature and provide users with a means of learning about Florida's diverse ecology and natural settings. A successful trail design requires an ability to recognize existing uses and user groups, while planning for future recreational needs.

While design criteria vary from organizations at the state and federal level, these guidelines are intended to be a broad base of information to begin the thought process of creating a trail. This document should be ideally used in addition to a collaborative trail design process with a professional design and engineering firm. The following subject matters are covered more fully in each chapter: **Accessibility, Pre-construction considerations, Trail construction, Wayfinding, Trail Amenities and Appendices.**

2. Trail Accessibility

Trails and associated facilities should be designed or retrofitted so that accessibility is a key tenet. Creating trails that are accessible to a variety of users with differing abilities enhances their outdoor experience by creating opportunities to connect individuals with nature.

Sometimes, physical or environmental considerations prevent a trail from being fully accessible. In this case, publishing accurate information on trail features and any trail limitations will inform a user if it is within their skill level so they can make an informed decision. This information should be available through multiple communication methods, including websites, signage, via phone or through the visitor's center. Also, it is important to relay what devices are available at the trail or trailhead to enhance a users experience and whether a reservation is recommended. This could include all terrain wheelchairs or audio devices. Policies concerning Other Power-Driven Mobility Devices and service animals should also be posted.

When seeking to retrofit an existing trail to provide greater access, trail design should consider

budgetary constraints, legal requirements, and the natural environment as this could alter the existing trail experience. For example, cultural, natural and historic sites should provide reasonable accommodations and consistent access that preserves the significance of each property's features.

There are numerous laws, regulations and statutes related to the creation of applicable facilities and this document should not be the sole source of consideration in designing a trail. A number of resources are available for more information related to the development of outdoor recreation facilities and providing access for all. Please refer to Title II of the Americans with Disabilities Act (ADA), most current Florida Building Code, and Access Board Outdoor Guidelines. Additional manuals are provided by the US Forest Service, including Outdoor Recreation Accessibility Guidelines (FSORAG) and Trail Accessibility Guidelines (FSTAG). For the most recent copies of manuals related to these guidelines, please directly contact the entities listed above. A list of websites has been provided for convenience in the preceeding hyperlinks, but note that these websites often change and may not be the most recent information.

3. Pre-construction Considerations

A well designed trail starts well before construction plans are drawn, with careful consideration given to certain topics. The topics addressed in this section identify areas of consideration necessary to the successful construction of a trail. Some of the considerations in this section relate to management, resource protection, aesthetics and many others.

Aesthetics – Stimulate the user's senses by providing a route that includes not only scenic views, but also sounds (streams, waterfalls, etc.), smells (pine, ferns, damp earth, etc.), and things to touch (vegetation, rock formations, water, etc.). Take advantage of scenic vistas for rest stops. Trail design, signage and amenities should be in keeping with the trail setting and should not detract from the trail's character. For example, wilderness trails should maintain a wild look and feel.

Archaeological and Historical Resources – Trails should be designed to minimize or not impact archaeological and historical sites. Instead, interpretation of these sites should be included as an integral part of the trail system. Where feasible, archaeological and historic sites (including ruins, working landscapes and historical landscapes) should be included in trail brochures and maps as points-of-interest. Contact the Florida Department of State, Division of Historical Resources for more information.

Bridges – Provide bridges, walkways and other crossing facilities where necessary with appropriate railings and other safety measures.

Community Involvement – Community support is vital for a trail project, including pre-construction phases and support for management once constructed. Solicit community leadership support for trail development. Promote community involvement with trail planning, construction and maintenance. Create alliances between various trail user groups early in an effort to maximize resources and efforts. Assess needs within the community and solicit leadership support for trail development.

Consultation with Authorities – Consult with federal, state, local and other land management authorities and law enforcement to determine regulations for appropriate trail use. Carrying capacity should also be a consideration in consultations.

Contaminated Sites – Do not locate trails on known contaminated sites. Or, remediate sites as necessary to ensure a safe and healthy trail experience. An environmental assessment may help determine if a site is or was contaminated.

Degree of Difficulty – Establish the degree of difficulty for each trail and/or portion of the trail as required. The degrees of difficulty are defined as easy, moderate and difficult and should be indicated at the trailhead and included in all trail information.

Electronic Communication – Many trail users now carry a number of devices that can remotely empower them with information regarding the trail, user performance, or engage the environment differently from past generations. A well designed trail will also benefit from incorporating a variety of electronic communication options along the trail that could include:

Mobile friendly website or application – Many trails should have information already available online. A mobile device friendly website or application “app” can empower users to get information without the need for signs or other physical changes in the trail. Trail design should incorporate a discussion on what trail information is accessible on a mobile device.

Quick Response (QR) Codes – Many trails in the state deploy QR Codes to allow users to scan the barcode and retrieve information electronically. This can be used to let a user know their location, find information about nearby services and other relevant facts.

User choice – Some trail users prefer not to utilize technology on trails, opting for an escape from technology in the natural environment. For the purposes of designing a trail, community involvement with user groups is incredibly important to preventing conflicts between users who engage with the environment in different ways. Considerations should be given to both users that decide to use technology and those who do not.

Monitoring –Monitoring the trail, its facilities and the adjacent natural resources are all key components of trail design and planning. The goal is to keep the trail and its surroundings in working order. To achieve that goal, physical inspection of trailheads and the entire length of the trail is periodically necessary. Monitoring should be conducted with sufficient frequency to detect impacts to the trail’s resources and/or facility maintenance needs. Trailheads, facilities and problem spots along trails may be documented with photos to show changes over time. Infrastructure such as bridges should be inspected by appropriately qualified personnel according to recommended schedules

Public Land Use – Utilize public land and rights-of-ways whenever possible to minimize project cost. Check land ownership and ensure that proper easements, use permits, licenses and agreements/contracts have been obtained. Consideration should be given to state, regional and local comprehensive plans and land development codes for future trail development.

Rural/Primitive/Low Volume Trails – Rural/primitive/low volume trails should take into consideration

accessibility to areas with diverse natural and cultural experiences. These trails tend to experience a low volume of users at any given time, contain few amenities and are usually located away from populated areas.

Trail Linkages – Trail location and routing should encourage connections to other trails throughout the state. Strive for local linkages to statewide trail systems to provide for trail continuity and long distance users.

Waste Receptacles – Provide trash receptacles at primary and secondary trailheads, picnic areas and campsites. All trail corridors should be subject to a “pack it in, pack it out” policy. All waste receptacles should prevent wildlife from accessing disposed trash to prevent behavioral changes in animals.

Urban/High Volume Trails – Urban/high volume trails should be conveniently connected to residential areas, schools, activity centers, parks, recreational areas and cultural and historical points-of-interest. Where feasible, plan trails to be utilized as transportation alternatives to motorized use and to promote local commuter, leisure and tourism. Urban/high volume trails should accommodate all user types where appropriate and comply with the guidelines set forth by the Americans with Disabilities Act (ADA).

Visibility – Provide for clear visibility corresponding to travel speed of trail users, especially at trail intersections, corners and curves.

Cost Efficiency

Materials and Equipment – Use locally obtainable or salvage materials and equipment when possible if trail construction is necessary.

Rehabilitation of Existing Trails – Rehabilitate or upgrade existing trails when possible as an ecological and economical alternative to constructing new trails. Encourage the use of abandoned railroads, easements and other rights-of-ways.

Recycled Materials – Utilize recycled materials wherever appropriate.

Life Cycle Costs – Consider life cycle costs in the selection and use of materials for trail construction.

Environmental and Wildlife protections

Access to nature – Creating a healthy connection between humans and nature provides people with an understanding of how co-habitation and environmental protection serves human and environmental sustainability. Trails have the ability to expose an increasingly urban population to nature. Proper interpretation and education, in association with trail use, allows users to better understand the necessity of environmental protection.

Air Quality and Noise – Whenever possible, avoid locating trails in close proximity to areas where air and noise are heavily polluted by other human uses.

Diversity of Natural Experiences – Locate trails in areas with diverse habitats, ecosystems, landscapes, areas of natural scenic beauty and proximity to water bodies whenever possible. This diversity should provide for a wide range of opportunities and a variety of experiences.

Drainage and Topography – Lay out paths that conform to the existing topography and minimize impact to natural drainage. To prevent existing trails from eroding due to improper design, use water bars or breaks (at an angle other than 90 degrees to the trail), graded dips, and out sloping. Drainage ditches or culverts may also be needed for crossings. Use native vegetation to prevent erosion wherever appropriate and feasible. Trails should be designed to limit cut and fill and take advantage of varied topography that does not restrict travel and maintains natural drainage where possible.

Environmental Impacts and Sensitive Areas – Trail designers should be aware that all trails effect the landscape including vegetation, waterways and wildlife. They can interrupt pathways for animals to get to food, water or shelter. Trails can open up areas to predators. Users may disturb animals so they move away from the trail. These effects may extend well beyond the immediate area of the trail and the length and number of trails magnify these effects. Trail designers should consult with wildlife biologists to route trails in order to understand and minimize or negate impacts. Trails should not be located in ecotones to avoid fragmenting habitats. Wherever possible and appropriate, adapt abandoned roads or other already disturbed areas.

Environmental, Social and Economic Impact Studies – Trails should be designed so they are environmentally compatible and benefit the local economy and community. Studies may be required by law or when it is not readily apparent how a trail negatively or positively impacts other public facilities, activities and transportation.

Location and Route – The location and route of a trail will determine the user experience. Trail users in urban areas will have a substantially different experience than those who use trails in rural areas. Further, the route of a trail can help to diversify its experience. A meandering path can be more interesting to some users since it encourages the user to observe many different viewpoints. Trail location and route will affect ambiance and level of difficulty. Additionally, the design and implementation team should consider cost efficiencies when planning the location and route of a trail.

Viewsheds – Provides a trail user with the ability to observe a certain location and reflect on the area. Common viewsheds overlook lakes, natural landscapes, urban areas, or other areas of significance. Interpretive signage may be provided at these locations to enhance the user's knowledge of the area.

Natural Buffers – Preserve or replant native vegetation as screens to buffer trails from surrounding areas and to enhance the trail user's experience.

Prescribed Burns – Prescribed burning is an essential

practice to maintain the health of some natural communities. Design and manage trails in collaboration with land managers to not interfere with burning practices and provide interpretation for trail users about the role of fire on the landscape.

Sustainability – Trail adaptability should be included in design to ensure that it sustains itself or is easily repairable during times of natural disaster and ecosystem changes.

Wildlife Behavior Impacts – Trail infrastructure such as trash receptacles and campsites can attract wildlife and result in human/wildlife conflicts. These issues can be minimized by proper facility siting, wildlife resistant trash cans and by promoting wildlife wise camping practices.

4. Trail Construction

Hiking Trails

Hiking trails may be classified into three general categories: Low, Medium and High usage. Hiking trails, where use is projected to be low, should be kept to a minimum width in more sensitive, natural and rural settings. Medium and high volume trails should be designed wider and more stable to prolong the life of the trail. High volume use requires a different trail design and could incorporate paved and/or natural surface trails through parks, neighborhoods or activity centers. The following trail design specifications are only guidelines.

Tread Width

Low volume use.....1 to 2 Feet

Medium volume use.....2 to 5 Feet

High volume use.....over 5 Feet

Horizontal Clearance – One foot minimum on each side of tread. Additional clearance should be provided in hazardous areas (e.g. road crossings, sharp drop offs, or tripping hazards).

Vertical Clearance – Eight foot minimum clearance

Grades

Desirable grade.....0 to 10%

Maximum grade for extended slope.....10%

Maximum grade for shorter slope.....15%

Steps/water bars will be needed.....>15%

Ramps to bridge/boardwalks.....8%

Drainage – Unpaved trails should be cross-sloped or crowned 2% to 5% per foot where needed to ensure integrity of the tread.

Surfaces – Unimproved, unpaved: Natural materials such as indigenous soil, leaf litter, pine straw, mowed grass, wood chips. Improved, unpaved: Gravel, compacted limestone, soil stabilizers, crushed shell and graded road base. The type of surface used should consider location, cost, expected volume of use and type of users.

Length of Hike

Short Hike..... 1 to 3 miles

Half-day to One Day Hike..... 3 to 9 miles

Overnight Hike.....over 9 miles

Off-road Cycling Trails

These guidelines address only those bicycle trails that are unpaved. For information about the construction of paved recreational trails, please contact The Florida Department of Transportation (FDOT).

Tread Width – 18 inches minimum

Horizontal Clearance – One foot minimum on each side of tread. Additional clearance should be provided in hazardous areas (e.g. road crossings, sharp drop offs).

Vertical Clearance – Eight foot minimum (Except to allow for the occasional natural obstruction which enhances the experience, but does not prevent passage)

Grades – 0% to 50% (0% to 5% at approaches to intersections)

Drainage – Unpaved trails should be cross-sloped or crowned 2% to 5% per foot where needed to ensure the integrity of the tread.

Surfaces – Unimproved, unpaved: Natural materials such as indigenous soil, leaf litter, pine straw, mowed grass, wood chips. Improved, unpaved: Gravel, compacted limestone, soil stabilizers, crushed shell and graded road base. The type of surface used should consider location, cost, expected volume of use and type of users. Soft sandy soils should not be considered for extended bicycle trails.

Length of Ride

Short ride..... 1 to 10 miles

Medium ride..... 10 to 40 miles

Long ride..... over 40 miles

Design Speed – The speed that a cyclist travels depends on several factors. Type of bicycle, condition of bicycle, purpose of ride, surface condition, location of trail, wind speed and direction, and condition of the rider. Bicycle trails should be designed for speeds that are appropriate for the particular terrain and topography.

Turning Radius – Urban/high volume cycling trails should have a 20-foot minimum turning radius. Each trail should consider that the design of trail curvature is dependent on the average speed of the cyclist. Increased speed due to a downhill slope requires a longer radius of curvature. Banking and widening the tread on curves provides increased safety. Wilderness bicycle trails should have a turning radius from 2 to 6 feet. The turning radius may be constrained by natural obstructions such as trees, water, rocks or environmentally sensitive areas.

Equestrian Trails - Equestrian trails usually occur on natural and unpaved surfaces and are designed for a horse and rider traveling in single file to achieve a “backwoods experience,” facilitating a closeness with nature. Any site considering equestrian trails should have access to sufficient land to develop or connect to at least five miles of trail. Horse drawn wagons or carriages are gaining popularity and usually travel on jeep or two-lane dirt roads where access is available to bridges for crossing creeks and streams. Consideration should be given to identifying appropriate road systems on public lands that could accommodate “driving trails.”

Tread Width – 18 inches minimum

Horizontal Clearance – Two feet on each side of the tread width. Additional clearance should be provided in hazardous areas (e.g. road crossings, sharp drop offs, tripping hazards).

Vertical Clearance – 10 foot minimum clearance overhead

Grades

Desirable grade.....0% to 10%

Maximum grade for extended slope.....18%

Maximum grade for shorter slope.....25%

Drainage – Unpaved trails should be cross-sloped or crowned 2% to 5% per foot where needed to ensure the integrity of the tread.

Surfaces – Unimproved, unpaved: Natural materials such as indigenous soil, leaf litter, pine straw, mowed grass, wood chips. Improved, unpaved: Compacted limestone, soil stabilizers and graded road base. The type of surface used should consider location, cost, expected volume of use and type of users. Soft sandy soils and gravel should not be considered for extended horse trails.

Length of Ride

Short to half-day.....0 to 16 miles

Full day.....17 to 32 miles

Overnight trip..... Over 32 miles

Water: Access to water should be provided every 5 to 10 miles along trail.

Unpaved Multi-Use Trails

For the purposes of this document, multi-use trails are categorized as trail corridors for multiple trail user groups and types.

The sensitivity of the area, the type and thresholds of use allowed and other pertinent factors should be considered when designing a multi-use trail.

Multi-use trails are more appropriate in sensitive habitat than several single use trails. As volume of use increases, education and other management effort will be required to maintain harmonious use.

Multi-use unpaved trails should be designed for the largest width and height requirements for the use type allowed. So for example, if horses will use a multi-use trail the trail should be routed to be safe for horses and designed to the width and height needed for equestrians.

Tread Width – Optimum five foot minimum. Other widths should be determined by carrying capacity.

Horizontal Clearance – One foot minimum on each side of tread

Vertical Clearance – 10 feet minimum

Grades

Desirable grade..... 0% to 5%

Maximum grade for extended slopes.....10%

Maximum grade for shorter slope.....15%

Drainage – Unpaved trails should be cross-sloped or crowned 2% to 5% per foot where needed to ensure the integrity of the tread.

Surfaces – Unimproved, unpaved: Natural materials such as indigenous soil, leaf litter, pine straw, mowed grass, wood chips. Improved, unpaved: Compacted limestone, soil stabilizers, and graded road base. The type of surface used should consider location, cost, expected volume of use and type of users. Soft sandy soils and gravel should not be considered for extended multi-use trails.

Trip Length – If possible, multiple lengths should be considered in trail design due to users with differing abilities. If multiple distances are not possible on a single trail, design should consider location and routing as discussed in other sections of this document.

Trail Crossings

Trail crossings are becoming an increasingly dominant discussion item for multiple types of trails as Florida continues to grow in population. Trails need to respect private property, weigh the cost of an alignment, and ensure the safety of users. All of these tenets relate to how a trail gap can be closed when a physical barrier such as a road, railroad, waterway or other obstruction is present. For any transportation related crossing such as a roadway, railroad or others please refer to Florida Department of Transportation's Design Resources, available at http://www.dot.state.fl.us/rddesign/default.shtm .

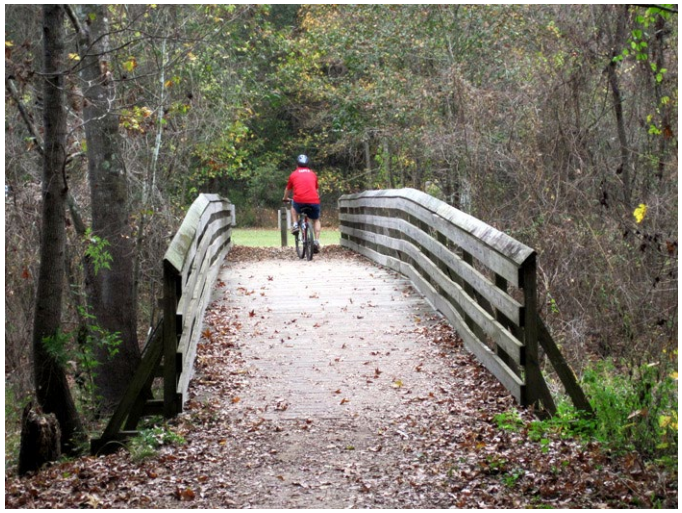
At-Grade Crossings

At-grade crossings occur when a trail needs to cross a road or railway without a bridge or tunnel. Whenever it is necessary to cross transportation or utility with a trail, special care must be taken to ensure the safety of trail users and respect for private property. Selection of a safe crossing may take precedence over a scenic route or require an alternate trail route. Appropriate signs should be installed to caution trail users and motorized traffic of the crossing and any dangers or hazards that may be encountered. Clear visibility at crossings is required for all. Adequate stopping sight distance must be provided for motorists and trail users. A trail's width should not be reduced as it approaches a crossing. It should also be straight and cross at a right angle to roads or rails. When it is not possible to cross at 90 degrees, the trail should be widened to allow the users to cross as close to 90 degrees as possible.

Equestrian trail crossings at paved roads and railroad tracks should have enough cleared space on both sides of the road or track to allow a reasonable number of riders to gather in a group and cross together.

Above-Grade Crossings

Constructing a trail bridge over a transportation facility, waterway or other piece of land that prevents a trail connection often increases a project's cost. This construction cost should be weighed against the cost of finding an alternative route to close a gap in the trail. Bridges should be constructed above the seasonal high water mark. Bridges and boardwalks can be used in



places where minor connections are necessary, such as waterways or topographically challenging areas.

Water Crossings – When crossing over paddling trails, allow for a minimum of four feet of vertical clearance under the bridge at the seasonal high water mark. Bridges with an elevation of over 36 inches above grade or swift moving water shall have railings at a minimum height of 42 inches. Equestrians may use a ford through water for crossing a waterway that is less than 30 inches deep where approach is gentle and stream bottom is firm. Avoid fording areas where erosion and resource damage may occur. Water level indicators are required at all fords.

Fence, Gate and Barricade Crossings – Trails often cross property boundaries. Where the trail meets a fence that must remain intact, a fence crossing or stile is needed. Gates which must be opened and closed should have signs to remind trail users of their responsibility to close gates after use or should be equipped with an automatic closer. However, this situation should be avoided wherever possible. Barricades should be installed to prevent unauthorized users from entering a trail. They should allow for unrestricted access by the appropriate trail user, as well as controlled access for emergency, maintenance and patrol vehicles.

Fence and Gate – If a permanent pedestrian opening cannot be negotiated through a fenced area, then a gate should be installed with a sign to trail users to be sure to close gate behind them or with instructions about who to contact if it must be kept locked. Another method that may be used is a self-closing hinge on a gate that will automatically close due to a spring mechanism in the hinge. Fences maintaining livestock in a field or pasture can be fitted with a pedestrian baffle or a stepladder crossing (stile).

Barricades – Barricades are usually used to prohibit motorized vehicles from trails or to separate one trail use from another. Signs should accompany a barricade explaining what is expected so that intentions are clear and enforcement is easy. Barricades should allow for unrestricted access by pedestrians, equestrians and cyclists as well as controlled access for emergency, maintenance and

patrol vehicles. Wooden or reinforced concrete posts should be 24 inches to 30 inches in height and placed four feet to fivefeet apart and be marked with a readily visible reflective or painted surface.

Seasonal Use – Trail designers and managers should give special considerations to the tropical climate and user base of Florida, especially tourists in cooler months. Florida's moderate climate allows for almost year round trail use. Due to this, considerations in trail design and management should include hunting, flooding and other events that could potentially close the trail. Hunting doesn't close a trail unless the manager deems it necessary. It is not a condition like flooding. Flooding often occurs in natural areas due to their location and proximity to floodplains and water bodies.

Hunting is a very popular recreational activity in Florida and many times lands with recreational trails will be in areas where hunting is legal at certain times of the year. Signage, as well as websites, should indicate very clearly when hunting season occurs. Provide hunting season calendars at trailheads or entrance kiosks, and on websites. All users of public lands should take appropriate safety precautions to prevent hunting incidents. Encourage wearing hunter orange when hiking during hunts. If designing a backcountry trail on land where seasonal hunting will occur, work with land managers to ensure that trails are shown on hunt maps.

5. Wayfinding

Signage provides trail users with information they need to use trails and trail facilities. Trail signs need to be carefully designed and appropriately installed according to type and level of use expected. Trail users and managers should avoid over signing, which can clutter the environment and result in information overload and trail users ignoring regularly posted information. Signs must be clear, concise and legible. Their location and placement is critical. The frequency of signs located along the trail should be set by trail context. Urbanized trails may not need markings as frequently due to a greater likelihood of street crossings, while rural trails may require frequent markings due to the lack of points-of-interest along a trail.

Emergency Indicators – Trail design should incorporate a unified emergency demarcation system that is developed in collaboration with the response services such as police, fire and emergency medical transit while also considering the trail setting. Signs indicating what to do in case of

emergencies should be appropriately placed at trailheads or along trails as deemed necessary by trail management. Many times, trail users are unsure about who to contact first -- the trail manager or emergency services. This should be worked out locally between the land manager and first responder services.

Maps and Signs – Provide signs, maps and brochures at all trailheads and appropriately placed information kiosks to indicate permitted types of trail use, distances of trail sections, trail difficulty rating and to show the location of the kiosk or trailhead where the user is viewing the information. Signs and maps may also make note of landmarks, commonly seen wildlife, unusual features and sites of historical or ecological significance. All signs should be easily identifiable, vandal resistant, weather resistant and durable.

Posting Height – Hiking, off-road cycling and multiple-use marking should be four to six feet high on poles or posts along the trail, or five to six feet high on trees along the trail. Equestrian marking should be four to six feet high on poles or posts along the trail, or seven to eight feet high on trees along the trail.

Private Property – Trails often border and sometimes traverse private property. Trail users should respect these boundaries by observing posted signs and exercising caution to avoid trespassing. It is the responsibility of the trail user to know their location, and the manager's responsibility to provide information on the trail and trailhead. Information should be provided at kiosks, on trail maps, or along the route. Additional information may be provided to mobile devices that employ geolocation technology.

Trail Marking and Location System – Provide a standardized, universally recognized, and easily understandable trail and marking system. This trail marking system should be used at hazardous points and directional changes along the trail.

Types of Trail Signs and Marks – There are a number of sign types utilized on trails in Florida.

Each sign should be clearly indicated to trail users to orient them and help provide a positive trail experience. Many international, national and statewide organizations have provided a set of specificed guidelines and standards for the use of blazes, signs and other marking systems for trails. The use of these established systems of marking trails should be respected and not conflict with localized systems of marking trails. The following list has been created to give a better understanding of current symbol schemes in use.

Attachment Methods – There are many ways to affix signs or marks along trails to indicate to users relevant information regarding their trail experience. The way a sign or mark is placed on a trail or other fixture such as a tree or post can affect a user's experience. Generally, the most common practices of affixing signs and marks along trails are to paint onto tree surfaces, nail to a post or a tree with an aluminum nail, or to use a post that is buried at a minimum of two feet deep with a cross member at the bottom of the post for stability.

Camping Blazes or Signs – Mark camping areas with appropriate signs around the camping area. Designated camping areas may be signed on trees, poles or posts.

Directional Signs – Informing trail users of their bearing and route of travel is one of the most basic, albeit required types of signs necessary for any trail system. Signs should include a combination of styles to accommodate users of all abilities. For example, a set of shapes that are textured in differing colors can clearly provide better orientation for users with sight limitations than just a plainly colored shape. Directional signs should clearly distinguish all primary trail routes from side, access, loop, connector or cross trails and use double blazes or some form of graphic symbol for changes in trail direction.

Educational/Interpretive Signs – Unique natural or cultural features along the trail should be highlighted with this type of sign. Material, color and size should be consistent along the same trail or natural feature.

Festival Signs – Promotion and advertisement of special activities and events are designed at the discretion of the trail manager, following applicable guidelines and rules.

Graphic Symbols – Each trail system may have different graphic symbols with different meanings.

For example, an international association publishes standards for mountain biking, while hiking groups have largely adopted a blaze system. Graphic symbols indicate to trail users information about a trail section's level of difficulty, directions, warnings and other information.

Informational Signs – Orient trail users to their location on or within a trail system, provide an overview of facilities and/or amenities, and a description of the route to reach them with this type of sign. Informational signs can also indicate trail length, number of miles traveled (milepost), as well as other information. The material, color and size of sign used should be consistent within a given trail. Signs may use international adopted symbols for all graphics. Designated camping areas should be marked or signed and located off of the main trail path.

Regulatory Signs – Regulatory Signs are used to notify trail user of laws, regulations and rules governing the trail, such as permitted uses, hours of operation or accessibility. Regulatory signage must comply with the agency having jurisdiction over land trail crossings. All regulatory signs should be of black lettering on a white reflective background, unless otherwise directed by the agency having jurisdiction. Check for consistency with local authorities for specific regulations or guidelines.

Trail Blazes – Trail blazes are a common type of marking for any particular type of trail. Many trail managers utilize various shapes, sizes and classifications of trail blazes. Blazes should be painted vertically at a minimum of two inches wide and six inches long. Offset double blazes or a sign should be used to indicate a change of direction when the trail is departing from an obvious path. Double blazes should be painted one above the other at two inches apart. Blazes or signs should be frequent enough along the trail and indicate the appropriate user type on the correct trail. The distance between blazes will vary with terrain or water body. The trail must be blazed or signed so it can be followed in either direction.

Warning Signs – Warning Signs are used to caution trail users about hazards that may be encountered on trails such as sharp curves, slippery bridges, roadway crossings, steep downhill or uphill conditions, blind intersections, changes in trail surface conditions and waterway hazards. Warning signs should be of uniform size and placed at a reasonable distance to give the user substantial time to react to the hazard , usually a minimum of 50 feet before the hazard and located at the hazard. Warning signs should be highly visible with black lettering on a reflective yellow background. Sign should be consistent along the same trail and designed at the discretion of the

manager.

6. Trail Amenities

Support facilities such as trailheads, parking and staging areas are necessary to the function, management, accessibility and safety of trails. Not all trails are required to have a primary or secondary trailhead. Location and layout of support facilities should be designed uniformly with sensitivity to the environment, should accommodate users and must be constructed in compliance with ADA requirements.

Trailheads – A point of access or starting place of a trail system is called a trailhead. A trailhead functions as a location for information about the trail. Trailheads are classified into three categories: Primary, Secondary and Remote.

Primary trailheads are generally more developed and provide the most comprehensive facilities and information about the trail. They may consist of improved parking areas, sanitary facilities, information and interpretive signs, maps and brochures, potable water, picnic facilities, electric service, direct access by management personnel and other amenities.

Secondary trailheads may be less developed and be located along the trail route. They may consist of unimproved parking areas, sanitary facilities, information signs, maps or brochures, potable water and provide access for management personnel.

Remote trailheads consist of an unimproved parking area, bench information signs, maps or brochures and access by management personnel.

Rest Stops – A designated place to stop along a trail. A rest stop may consist of, as a minimum, a bench placed in the shade or with a roof structure. Consider issues such as surveillance, security and distance when planning rest stops.

Parking and Staging Areas – It is important to consider the average and maximum user capacity of a trail when planning parking needs. Parking lots should be sized consistent with the use

demands, trail activity and user type. Primary trailheads should have a number of spaces consistent with the expected use of the trail it serves. Special considerations should be given to parking requirements for those with impairments in areas where the natural environment could be impacted by certain surfaces. Parking lots must provide adequate space for vehicles with trailers and include the proper turning radii. Staging areas at trailheads should be located with convenient and safe access to the trail.

Equestrian Trailer Parking – In addition to providing equestrian trailer parking at spaces where horseback riding trails are present, horse-friendly materials should be used. Spaces should be designed as a row of pull-through spaces each with sufficient depth and width for unloading horses and to allow horses to be tied to trailer sides. To accommodate overflow parking, additional space is recommended. Accessibility to shade and potable water should be considered when designing equestrian parking.

Bicycle Racks – Bicycle racks should be considered for all trailheads where bicycles are allowed. They should meet context sensitive design guidelines and be located in suitable staging areas.

Camping – Where desired, permitted and appropriate, provide for camping opportunities.

Primitive Camping – Camping zones should contain minimal amenities and be in remote areas. Primitive campgrounds should be accessible only by foot, hoof, bicycle or watercraft. The campsite should be screened from the main trail. Clearly define the camping zone with signs. Design should consider the lay of the land, with level, normally dry forested areas preferred. Campsites located within various public agency lands shall comply with those agency regulations. Provide vertical, open space for tents and horse areas. All primitive camping should be under the “pack it in-pack it out” policy.

Hiking & Cycling – Whenever possible, provide space to be used as designated camping areas for these users. The area needs to be well defined to prevent environmental degradation beyond the site. Parking and storage considerations should be given to users of these sites.

Equestrian – Provide an area in close proximity to camping area for tying or tether lines for horses. Camping areas that can accommodate equestrian camping should be well defined.

Amenities – Only place fire pits or fire rings where permitted. When choosing areas for camping, consider where natural water systems are located for potential sources of drinking and cooking water.

Location – Camping zones should be well marked and a short distance off the main trail.

Space Standard– Where appropriate land is available, provide a designated camping zone consistent with the carrying capacity of the land. If possible, provide multiple sites appropriately spaced. Larger areas should be designated for trails with greater use. Equestrian camping zones generally require more space for camping. See appendices for more information.

Developed / Group Camping: Developed camping should contain amenities. The campsite should be screened from the main trail. Clearly define the camping zone with signs. Design should consider the lay of the land, with level, normally dry forested areas preferred. Campsites located within various public agency lands shall comply with those agency regulations. Provide vertical, open space for tents and horse areas.

Location – Camping zones should be designated off the main trail at a short distance. Access by management and emergency vehicles shall be designed.

Space Guidelines – Developed camping areas should be designed with space available for use by all user groups. Campsites should be built to accommodate travel trailers, motor homes, horse trailers and watercraft trailers. Equestrians, cyclists and paddlers will require additional space for racks, stalls, corral, wash down areas, hitching posts and trailer parking.

Amenities – Types of amenities may include electrical hookups, water hookups, designated and numbered sites, trailer dump station, refuse station, restroom with showers, picnic tables, fire rings, security, pavilions, cabins, concessions, docks, firewood, stables, corrals and access by management personnel.

Appendix A: Glossary of Terms

These definitions are followed by most trail managers in Florida and have been used in this document.

Accessibility – Accessibility as used inthis document means the design of trails with every potential user in mind. Not all trails will be able to accommodate all users, but designers should give every consideration to making their trail accessible.

Amenities – Any element used to enhance the user's experience and comfort.

Clearance – The amount of horizontal or vertical space given to a user on any side of a trail.

Debris – Any undesirable material that encroaches on a trail that hinders the intended use.

Designated Trail – The State of Florida established a designation program to recognize trails of regional and statewide importance. The Department of Environmental Protection, Office of Greenways and Trails administers this program. More information can be found at www.floridagreenwaysandtrails.org.

Ecotone – Transition zone between two plant communities.

Fence Stile – See Stile.

Grade Separation – The term given to crossings of various heights where multiple modes of transportation traverse one another. Typically, at-grade means at the same level, above grade crossing means a bridge, and below grade means a tunnel or underpass.

Guardrail – A protective barrier placed along hazardous sections of a trail.

Interpretive Sign or Display – An educational sign or display that describes and explains a natural or cultural point of interest on or along the trail.

Kiosk – A structure housing informational or interpretive displays.

Multi-use Trail – A non-motorized trail shared by more than one user group.

Off Road Bicycle/Bike – A term used to define the non-motorized bicycle ridden on unpaved trails. Synonymous terms include: Fat Tire Bike, All Terrain Bicycle (ATB) and Mountain Bike.

Public Lands – Lands owned or leased by the federal, state, county, municipal or other government entity.

Private Lands – Land owned by citizens, businesses, not for profits, etc.

Staging Area – A short term parking area located within close proximity to the trail for off landing gear.

Stile – A series of steps or rungs which enables a hiker to pass over a wall or fence.

Trail Degree of Difficulty Rating – A rating of trail difficulty based on an average user with average physical abilities.

Easy is defined as relaxing, posing minimal difficulties and able to be traveled with little physical effort.

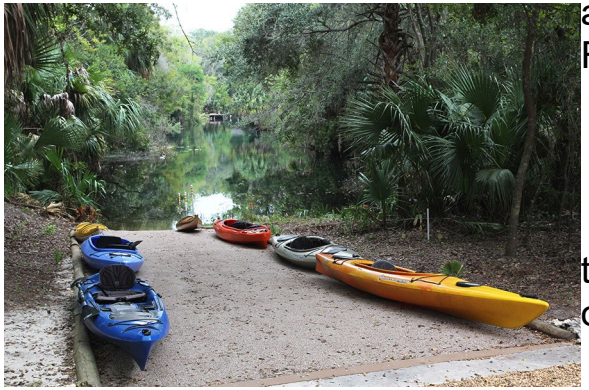
Moderate is defined as not requiring excessive or extreme physical effort.

Difficult is defined as physically strenuous requiring excessive or extreme physical effort.

Wetland – A lowland area, such as a marsh or swamp saturated with water creating a unique naturally occurring habitat for plants and wildlife.

Appendix B: Paddling Trail Considerations

This document is created for the purposes of land based, unpaved trails. Nevertheless, information related to the creation of paddling trails can increase exposure to natural lands and considerations should be given to the design of these trails. Publically owned waterways often possess scenic and recreational qualities, increasing exposure to wildlife. Florida has a great diversity of waterways suitable for paddling trails. These include rivers, creeks, lakes, estuaries and coastlines. Paddling trails shall comply with state and federal regulations of the U.S. Coast Guard and Florida Fish and Wildlife Commission (FWC). Contact the FWC for an in-water informational signage installation permit.



Camping – Where no dry land is available along paddling trails, a covered platform may be provided above the high water mark. Provide a self-contained or equivalent restroom facility.

Water Depth – Except for periods of extreme drought, paddling trails should be a minimum depth of six inches.

Portage – Use hiking trail guidelines for land based portage trails.

Trip Length

Short to half day..... 2 - 8 miles

Full day..... 8 - 15 miles

Overnight..... Over 15 miles

Land-based signage – Signs placed on waterway banks shall be visible at varying water levels by paddlers and should follow the attachment methods outlined in this document.

In-Water informational signage – The U.S. Coast Guard and U.S. Army Corps of Engineers approves in-water signage. The following conditions apply to signage for water trails:.

Signs placed in Florida waterways require a permit and shall comply with U.S. Coast Guard and FWC regulations. Contact the FWC for installation permit.

Markers/signs shall only be placed on one side of the paddling trail. Markers/signs should be placed on shore or as close as possible to the shoreline so as not to be mistaken for navigational aids.

Markers/signs should be placed out of the “main” body of water so as not to become a hazard to navigation and/or safety for powered boats.

Markers/signs should be a minimum of 12 inches by 12 inches and a maximum of 18 inches by 18 inches.

Markers/signs material should l be white reflective background with an international orange border, black block characters and brown crossed kayak and canoe paddles. (To be utilized on signs only.)

Markers/signs should be mounted on minimum schedule 40 PVC pipe, four inches in diameter.

Pile markers/signs are recommended in areas where facilities are not available, or it is not possible to install the larger signage. Utilize minimum schedule 40 PVC pipe, minimum six inches in diameter. Markings on the pile markers/signs shall be white reflective background with an international orange border, black block characters and brown crossed kayak and canoe paddles. For more information, visit http://myfwc.com/boating/waterway/markers/

Water Crossings

When crossing over paddling trails, allow for a minimum of four feet of vertical clearance under the bridge at the seasonal high water mark. Bridges with an elevation of over 36 inches above grade or swift moving water shall have railings at a minimum height of 42 inches.

Appendix C: Works Cited and Additional Resources

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