

Trail Development Plan

For

Stringer's Ridge Park Chattanooga TN



Prepared for the
Trust for Public Land by

Trail Dynamics
art & science of trails

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Table of Contents

Background Information	1
Observations	5
Recommendations	10
Desired Trail Experiences	10
Proposed Trail System and Trail Specifications	13
Trail Type 1	13
Trail Type 2	14
Trail Type 3	14
Trail Type 4	16
Trail Construction, Maintenance and Reclamation Methods	19
Special Areas	20
Phase 1 – Priorities	20
Overlook Area	20
Fly-over Bridge	23
Civil War Interpretation	23
Phase 2 – Additional Opportunities	23
Adventure Play Area / Interactive Educational Destination	23
Bike Skills Area	25
Bike Pump Track	26
Trail and Access Points	27
Neighborhood Accesses	29
White Oak Park Connection	29
Conclusion	32
Appendices	i
A. Stringer's Ridge Current Conditions (Map)	i

B. Proposed Conceptual Ideal Trail System (Map)	ii
C. Potential Trails North of Stringer's Ridge (Map)	iii
D. Jones and Jones – Stringer's Ridge Access Diagram (Map)	iv
E. Cost Estimates for on the Ground Design Phase and Construction	v
F. Beanstalk Journeys Adventure Playground Resource	vi
G. Conservation Easement Language	vii
H. Notes from Stakeholder Meetings	xxxi
Reports & Comments from May 10, 2011 Stringer's Ridge Steering Committee	xxxi
Focus Group – Trails	xxxiv
Notes from August 10, 2011 Stringer's Ridge Trail Planning Committee	xxxvi
I. Glossary of Trail Related Terminology	xxxviii

Background Information

The Stringer's Ridge project area is an approximately 100 acre parcel of undeveloped forested land located just north of downtown Chattanooga, Tennessee. It was acquired (through a combination of easements and outright purchases) by the Trust for Public Land (TPL) in January 2010 and subsequently conveyed to the City of Chattanooga after plans to intensively develop the property were rejected. A conservation easement administered by the Tennessee River Gorge Trust (TRGT) protects the property, which contains an existing system of roads and trails that is currently seeing light use. TPL, in concert with the Tennessee River Gorge Trust and the City of Chattanooga, recognized the unique value of Stringer's Ridge, and all three organizations and local user groups are working to create a trail system that will be an asset to the larger community: the central city, trail users, and immediate neighbors. The project goal is to develop a quality trail system with related outdoor recreation facilities, while protecting the resources of the property.

The benefits of recreational trails are well documented and include improvement of physical and emotional health, enhancement of the local economy, and increased support for preserving public land and the natural environment. While other wooded trail systems like Raccoon Mountain, Lookout Mountain, and Enterprise South are available in the greater Chattanooga area, Stringer's Ridge is unique in that it is situated in an urban location and therefore is much closer to the homes and workplaces of a large number of potential trail users (approximately 25,000 people live and/or work within a 2 mile radius). Other, more formal, hard-surfaced trails exist in downtown Chattanooga, but Stringer's Ridge gives people a place to use trails in a forested and natural setting, away from traffic and the normal pace of city life.

Realizing that it was important to take the time needed to do careful analysis and planning/design while developing the Stringer's Ridge trail system, Rick Wood, Tennessee State Director of TPL in Chattanooga, contacted Woody Keen, president of Trail Dynamics LLC (TD) in February 2011. Trail Dynamics has extensive experience assessing trails and developing effective trail development/management plans in similar circumstances. A scope of work was agreed upon, consisting of two site visits by Trail Dynamics (including trail assessment and stakeholder input) and creation of a Trail Development Plan document.

The initial site visit took place over several days during the week of May 9, 2011, with Trail

Dynamics' Woody Keen and Valerie Naylor exploring Stringer's Ridge, as well as other nearby trail systems. The week's agenda included field work; visiting Stringer's Ridge; studying topographic and neighborhood maps, existing trails and the surrounding landscape; and hosting meetings with TPL and stakeholders. Trail Dynamics received input from TPL, TRGT, City of Chattanooga and Outdoor Chattanooga staff, representatives from Jones and Jones (a landscape architecture firm contracted to provide bicycling and pedestrian trail connectivity planning recommendations in the Stringer's Ridge area to the city), and various stakeholders including neighboring residents and members of the Southern Off-Road Bicycling Association (SORBA) and Wild Trails, a trail advocacy organization primarily focused on trail running.

The Hamilton County Regional Planning Agency has hired Jones and Jones to develop a conceptual plan to improve connectivity between Stringer's Ridge and Chattanooga's waterfront. Trail Dynamics and Jones and Jones coordinated efforts during the week to identify key



Left: The view of Chattanooga from Stringer's Ridge is excellent and shows why Stringer's Ridge was used as a lookout post during the Civil War.

Below: Jones and Jones staff study maps and possibilities for access into Stringer's Ridge with TPL and Trail Dynamics.



Left: Stringers Ridge stakeholders meeting with TPL and staff from Trail Dynamics.



connection and access points. These proposed urban trail connections will allow many users to access trails on foot or by bicycle, as an alternative to vehicular access. These connections will create a venue for lunchtime and after-work trail use, as well as an excellent location for trail-related events. In addition, Stringer's Ridge provides amazing, unique views of the city and could be a valuable outdoor classroom, showcasing important environmental and historical resources.

This document represents the written deliverables for the Trail Assessment / Evaluation and Trail Development Plan scope of work. It includes an evaluation of the property and the existing trails, as well as recommendations on actions needed to develop a sustainable, enjoyable trail system. Maps, cost estimates for future design phases, and additional documentation included in the appendices supplement the trail development plan. A final meeting in fall 2011 will complete this Phase 1 by presenting the plan and recommendations to TPL and project stakeholders.



All: TD field work consisted of reviewing current conditions at Stringer's Ridge, studying maps with TPL staff and stakeholders, and attending various meetings.

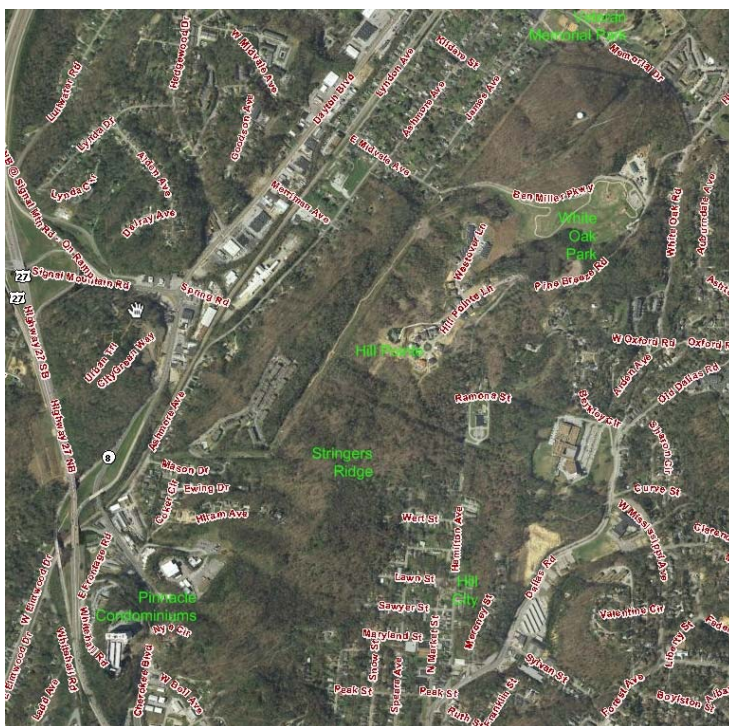


Left and Below: Good trail planning and design involves studying the available maps but also time on the land.



Observations

Located across the Tennessee River and less than one mile from downtown Chattanooga, Stringer's Ridge is virtually surrounded by intense development. The Cherokee Blvd commercial district adjoins the southern end, while Chattanooga's Hill City residential neighborhood lies to the east; Red Bank's Hill Pointe residential development to the north; and various neighborhoods to the west, including several small, isolated residential pockets and apartment complexes. The large 137-unit Pinnacle Condominiums also sits within ¼ mile of Stringer's Ridge. Neighboring communities encompass a very diverse economic range within walking distances of the proposed trail system. Focusing on the needs of these potential park visitors, as well as more regular trail users, is important in the development of this trail plan.



Above: Map- Stringer's Ridge and surrounding development.

The current access to the property is from West Bell Ave, just off of Cherokee Blvd. Public access is also available from High Ridge Drive, Hiram Avenue, and Nye Circle. Many trail users are also accessing the property through the powerline easement to the northwest, or through private property. Limited parking is currently available at the Bell Avenue and High Ridge Drive access points.

Existing trails exhibit a wide range of type and condition: from paved and dirt road to moderate level single-track to narrow “goat path”

trails, including eroded fall line and therefore unsustainable alignments. The roadbeds appear to be a combination of driveways to old homesites, roads that once connected through the property, or timber extraction routes. Some trails seem to have been created by all terrain vehicle (ATV) traffic and tend to be along fall lines. More recently, volunteers have constructed narrow single-

track paths to make key connections between existing roads and avoid encroaching on neighboring property. Advanced wooden mountain bike features like elevated trails and drops are also present in one location; these were poorly constructed and in an unusable condition.

While some of the existing trails have sustainable alignments, many do not, as they have too steep of a gradient, follow the fall line, and generally do not conform to accepted best-management practices (BMPs) for trail design. These trails would sustain a very low level of use as is the current pattern, but will exhibit many problems over time as trail usage increase with the development of an official park. Increased trail usage from a variety of users is one of the goals of the Stringer's Ridge project. Overly steep and fall line trails inevitably lead to erosion, creating undesirable impacts to natural resources such as vegetation, wildlife habitat and water quality, as well as necessitating increased maintenance and worsening risk-management.

The topography of Stringer's Ridge is overall quite conducive to developing sustainable trails: sideslopes range from very moderate 5 - 10% along the ridge tops up to 60% on some of the eastern slopes. Much of the property falls into the "sweet spot" between about 20-45% where trails are relatively easy to build yet still drain well.

Gradient is not the only factor to affect trail sustainability: soil types, vegetation, watershed and drainage, precipitation and how it falls, and type and amount of use all factor into the equation. Stringer's Ridge soils were generally a reasonably durable and well-drained clay/loam mix with little surface rock evident. The property is almost entirely forested, with some areas being open forest while others contain heavy undergrowth and many exotic-invasive species. Forest duff layers range from light to moderate. The watershed is fairly small with few impervious surfaces and few active waterway drainages. These factors allow the land to better accommodate heavy rain events as vegetation and duff layer help to dissipate the energy of precipitation and act as a sponge to soak water up. The major exception to this is on the powerline corridor, which, while not currently part of the TPL property, provides an important potential link to nearby public facilities and therefore needs to be evaluated. The powerline is not protected by tree cover, and the access road / trail is showing



Above: Much of the land on Stringer's Ridge is ideal for trail building.

evidence of major erosion, ponding, and sediment deposit due to a lack of water management in this open corridor.

Current trail-use levels are low and therefore do not accurately reflect the potential for future user-based impacts and water-based erosion. Evidence of heavier past use by vehicles and ATVs as well as pedestrian traffic definitely highlight a few trail segments which are not sustainable. Currently the most heavily-used area is the city overlook viewpoint, where erosion, litter, vegetation impacts, and evidence of fire indicate that many of the users visiting this site lack good outdoor ethics and care for the property.

Ease of navigation is another important factor in trail design. Many of the existing trails don't serve the overall needs of an ideal trail system, leading trail users to dead ends or negative control points or providing redundant and confusing intersections.

The needs and desires of the public also need to be taken into account in the design of the trail system - both current uses and potential future users. TPL has done an excellent job of soliciting and incorporating stakeholder input in Stringer's Ridge trail development. Contributors include neighbors surrounding Stringer's Ridge, current trail users, Wild Trails, SORBA, conservationists, nearby outdoor retailers, and local governments. Interest and excitement about Stringer's Ridge are high, as evidenced by a recent well-attended volunteer cleanup day and stakeholder meetings.



***Above and Right:** TPL organized a volunteer clean up at Stringer's Ridge as a way to introduce the public to the project and build momentum for support of the project.*



While it's obvious that many people care deeply about the property, unfortunately some are also using Stringer's Ridge in undesirable ways. Evidence of recent unsanctioned uses includes: dump-sites, homeless camps, minors with alcohol, OHV tracks, fire remains, and alcohol containers in the parking lot. Studies have documented that increasing legitimate use discourages undesirable activities, as those engaging in this type of undesirable behavior

generally do not want to be observed.

Inviting more trail users to Stringer's Ridge by improving the trail system will create a facility that will draw more eyes and ears to the ridge thereby expanding community stewardship of the property and help end these problems.



All: Homeless camps and trash dumping are currently prevalent on Stringer's Ridge.



This high level of public interest and ownership presents both an opportunity and a challenge. Strong feelings of ownership can lead to much needed volunteer assistance with fundraising, construction, maintenance, monitoring and outreach. However this level of interest can also lead

to difficulties when individuals get overly focused on their own desires to the exclusion of needs of others and the “bigger picture”. Ideally TPL will be able to balance between welcoming stakeholder input and assistance, while not allowing special interests to drive the project to the detriment of the general public.

Risk management, sustainability, navigability, and the motivation of current and future trail users all need to be taken into account when deciding which trail segments should be adopted into the future trail system and what should be added, rerouted or abandoned.

Recommendations

Desired Trail Experiences

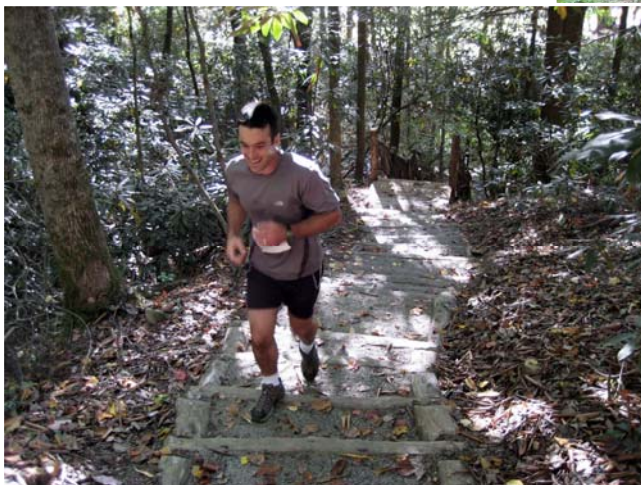
Stakeholder meetings and input received by TPL and TD indicates that a high level of interest exists in the Stringer's Ridge trail and park project, and that there are a variety of expectations and desires related to it. Current trail users value the escape from city life into the solitude of nature; they want a place to explore, walk their dog, view the city from a unique perspective, and ride their bikes. Future trail users who are not yet invested in the project will benefit from Stringer's Ridge as well – an easy, safe trail experience with strong destinations is needed to invite them into the outdoors.

Several participants in stakeholder meetings expressed a desire to maintain the primitive, wild, forested qualities of the property. They mentioned narrow, challenging trails, feelings of solitude, and the ability to get lost. While such a trail experience is certainly understandable, the TD trail planning team does not think that Stringer's Ridge is the appropriate venue for extremely challenging, get lost in the wilderness type trail experiences. The property does lend itself to single-track trail options further from the trailhead to meet some of this demand; however, due to its small size and proximity to the city, TD recommends that the future Stringer's Ridge trail system serve the greatest number of people by catering more to beginner and intermediate trail users. Primitive and much more challenging trail experiences already exist in larger, less disturbed tracts of public land further from town such as Raccoon Mountain and Lookout Mountain. Enthusiast trail users will seek out the trail experiences they desire and are generally willing to travel to do so. One goal at Stringer's Ridge should be to introduce trails and the forest to those not currently using trails by developing a system of easy-to-navigate and use trails.

Trail Dynamics does not recommend that all trails in Stringer's Ridge be road width and novice friendly; instead, there should be some variety in trail offerings within the system. While the property simply does not have enough land-base to fulfill the desires of every potential trail user, to the greatest extent possible, a variety of different trail experiences should be provided to cater to a variety of user motivations. Stakeholder input suggested that trail runners and mountain bikers could generally share trails with minimal conflict. Attention should be paid to mitigate the greater potential for conflict between bikes and casual walkers. Similarly, the desires of more primitive hikers must be balanced against the interests of the exercise and adrenaline crowd.



Left and Above: Wider trails with easy grades and more open corridors appeal to novice users, families and more experienced users traveling as a through route to other trail experiences.



Left and Above: Narrower and more challenging trails appeal to more experienced trail users.



Left and Below: Good trail systems offer a range of different trail experiences.



Beginner trails will invite novice trail users into the woods as these users need a safe, non-threatening, wide and smooth tread surface, with easy to moderate grades. More experienced trail users, however, are looking for more interest and challenge and to immerse themselves deeper into the outdoor experience, and therefore generally prefer narrower, less formal single-track trails. This more experienced group can be further divided into those seeking a fast, fun “flowy” trail experience (primarily mountain bikers and trail runners) and those seeking quiet, solitude and the opportunity to commune with nature.

Obviously there is a great deal of crossover between these groups: advanced users will travel the beginner trails to access the more advanced single-track and to add mileage, and many trail users are looking for some mixture of fun and solitude. Since some level of compromise is mandatory, a good solution is to gear much of the trail mileage to novice users, design the bulk of the remainder as flow trail, and set aside a small portion for primitive pedestrian-only use in the more remote or sensitive areas. Expert level trails and features such as the existing mountain bike drop structures are likely not appropriate for Stringer’s Ridge, but beginner and intermediate level, high skill / low penalty-for-failure technical trail features (TTFs) could fit well with the trail system, adding interest and challenge and providing for skills progression.

Below and Right: Examples of appropriate TTFs as options alongside trails.



Proposed Trail System and Trail Specifications

We believe that Stringer's Ridge can accommodate four different levels of trail design ranging from beginner cycling/pedestrian trails and ranging up to intermediate single-track natural surface trails as a detailed more below:

Trail Type 1: Beginner-friendly pedestrian and bicycle trail of 8'+ wide improved surface.

Surfacing is firm and stable and consists of existing pavement and / or compacted, crushed stone. Corridor clearance >12' with very open sightlines. Minimal (<5%) overall trail gradient, maximum 8% gradient for short distances, no mandatory obstacles. This trail type already exists at Stringer's Ridge and mainly needs maintenance, although some adjustment and surfacing will likely be needed at the southern end. It connects the High Ridge Road limited access parking point (see map, Appendix A) with the city overlook



Above: This road at Stringer's Ridge will serve nicely for Trail Type 1 and will provide easy access to all skill levels of users to the overlook of downtown Chattanooga.

viewpoint. This trail will allow trail users of all abilities including those with mobility or health challenges to access the current biggest attraction at Stringer's Ridge found at the overlook. This trail will also form the spine of the main family-friendly loop. While this trail will not be open to motorized use, full-sized vehicles would be able to use it for maintenance and emergency access.

Trail Type 2: Beginner-friendly pedestrian and bicycle trail of a 6'+ wide improved or natural surface. Minimal (<5%) overall trail gradient, maximum 10% gradient if possible (existing paved trail between West Bell Avenue and High Ridge Road accesses may exceed this), mandatory obstacles < 4". Corridor clearance >8' with open sightlines. Large portions of this trail will be on existing old roadbed and may benefit from a partial road to trail conversion, adding meander and undulation to improve sustainability and enhance the user experience. This trail will provide a family-friendly loop through Stringer's Ridge with connections to the main trailhead, the city overlook, and proposed interactive educational opportunities (see below). While this trail will not be open to motorized use, full sized service vehicles would be able to access much of the trail (and the special areas) for construction, maintenance, and emergency access.



Above and Right: 6' wide beginner trail will appeal to a wide range of users including kids learning to ride bikes, exercise walkers and runners, and other more experienced trail users traveling longer distances. This type trail will differ greatly from the greenway trails along the river corridor in town- it is in a forested area and therefore will offer some shade and cooler summer temps.

Trail Type 3: Intermediate-level pedestrian and bicycle single-track of a 4'+ wide bench with natural surface. Average trail gradient < 8%, maximum trail gradient 15% if possible, mandatory obstacles < 8", optional intermediate level TTFs may exist but should have an easy ride-around option. Corridor clearance >6' with open sightlines; Signage explaining yield protocol will be

critical on these trails. One-way traffic may need to be considered if use conflict becomes an issue on the narrower trails. One successful management tool is routing pedestrian traffic in one



Left and Below: Routing mountain bikers in the opposite direction from foot traffic is a popular management tool and can help to reduce user conflict.

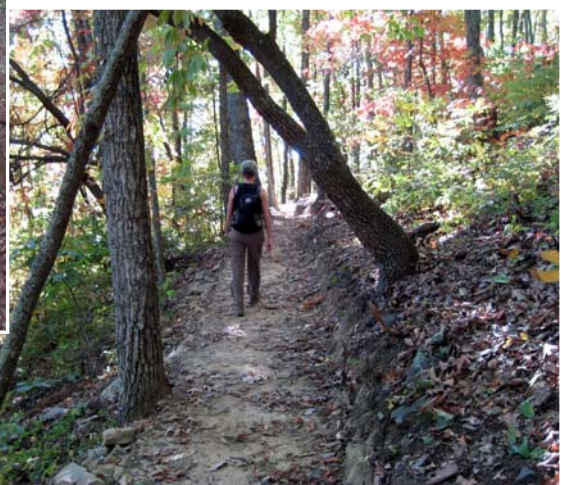


direction while routing mountain bike traffic in the opposite direction on these types of trails. This provides for the different user groups to always be facing each other on the trail and can help to decrease “surprises”.

Some portions of this trail will be on old roadbed and will benefit from a formal road-to-trail



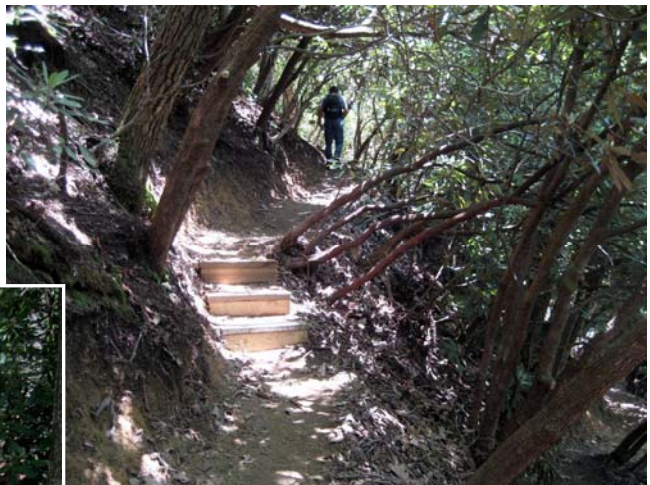
conversion that involves narrowing the tread and adding meander and undulation to improve sustainability and the user



Above and Right: Type 3 trail will feature a 4' wide natural surface tread with 6' wide corridors. This will give a single track feeling but still allow for shared use and passing opportunities by different user groups.

experience. This trail will provide an optional loop off of the main type 2 trail loop and will be geared towards fun and flow for mountain bikers and trail runners. It could also provide a connection to White Oak Park and potential additional trail mileage to the north and west. Trail width and turn radii will be sufficient to allow passage by a small ATV for maintenance and EMS access.

Trail Type 4: Intermediate-level pedestrian-only single-track of a 2-4' wide bench, with natural surface. Average trail gradient < 12%; trail grade over 15% may incorporate steps; mandatory obstacles < 10"; corridor clearance >4'. This trail will provide options off of the type 2 and 3 trails and will be geared towards hikers seeking solitude and desire to commune with nature. The segment over the western ridge top could also offer interpretive information describing the role of Stringer's Ridge in the Civil War. Hiking-only trails can use structures such as steps to navigate steeper pitches but still be sustainable.



Left and Above: More intimate hiking-only trail opportunities will be limited but present at Stringer's Ridge.

Much of the existing road system is sustainable, well built, and can easily be adapted to serve the needs of novice trail users. Some segments are unsustainable fall line trails or do not serve the overall needs of the trail system since they take users to dead ends or other negative control points. These will be abandoned, and restoration work can be performed to hide old corridors. Some new connections will be needed in order to complete a beginner-friendly loop trail. Spring

2011 tornados did a significant amount of damage on Stringer's Ridge; and many road corridors were choked with downed trees. Clearing out sustainable trail corridors will be a large task moving forward, but un-sustainable alignments are currently effectively closed and no efforts should be put into clearing non-sustainable alignments.



Left and Below: Spring 2011 storm damage on Stringer's Ridge was significant.



Below: Many existing road segments on Stringer's Ridge represent sustainable alignments serving the needs of many trail users and can be incorporated into proposed trail system.



While portions of existing routes will become part of the type 3 and 4 trails, much of the existing single-track trail will need to be abandoned. The portions of old roadbeds to be adopted as more advanced trail should undergo a formal road to trail conversion, narrowing down, adding meander

and undulation to improve sustainability and the user experience. Existing single-track should only be adopted if it is sustainably aligned and forms a logical part of the overall trail system. The bulk of proposed type 3 and 4 trails will be new trail construction.

Below and Right: Formal road-to-trail conversions can provide for a single-track feel if the design and implementation are well done.



Approximate trail mileage

Type 1 trail: 0.25

Type 2 trail: 2.25

Type 3 trail: 2.75

Type 4 trail: 0.75

While good information was available on existing routes, please note that reroutes and proposed new trail construction alignments have not yet been flagged, and therefore, are conceptual at this stage. Inevitably, ground truthing during design phase will show both opportunities and obstacles not observed during TD's limited site visit in Phase 1 of this project. Mileages given are approximations based on conceptual lines drawn on the map and are not ground truthed. Actual trail mileage will vary.

Trail Construction, Maintenance and Reclamation Methods

Much of the existing road and trail system can be incorporated into the proposed Stringer's Ridge trail system; however, reroutes and new trail will also need to be built. Maintenance and adjustments will need to be performed on existing travel ways, and some segments will need to be closed and rehabilitated to a natural condition.

Almost all trail segments need corridor clearing by removing vegetation and storm downfall to open up the trail and bring it up to specifications. Many trail segments would also benefit from drainage work to create and reinforce existing grade reversals and nicks. Some segments will benefit from some degree of road-to-trail conversion, narrowing the tread by cutting a narrower, meandering, undulating bench and bringing in choke points.

Abandoned trail segments need to be reclaimed and naturalized. In some instances this may simply mean scarifying compacted soils and masking the old corridor with organic debris in order to discourage use and encourage re-growth. Eroding fall line segments will need additional work by installing drainage or settling basins as well as scarification and masking.

New trail construction and improvements to drainage will generally be more efficiently done with heavy equipment of a size appropriate to the tread width specification; although, some segments (particularly type 4 trail) may lend themselves to hand construction methods. Contouring alignments and full bench or mechanically compacted partial bench construction will yield lower

maintenance tread. Hand finish work will always be necessary behind the machinery. Hand work offers an excellent opportunity to use volunteer labor, cut construction costs, educate volunteers in trail construction and maintenance, foster a sense of ownership, and build the trail community. A working relationship where the trail system is in part built by professional and partly volunteer built is known in the trail profession as "hybrid contracting" and would be a great option for the construction phase at Stringer's Ridge.



***Above:** Volunteer participation in the trail construction phase is encouraged. This helps build support and a sense of ownership of the trail system.*

Special Areas

The existing landscape of Stringer's Ridge is by no means pristine and untouched. On the contrary, evidence of past development abounds in the old roads, homesite ruins, and civil war earthworks, all of which add to the interest of Stringer's Ridge and provide points of interest to draw curious trail users into the woods. The current city overlook viewpoint is a strong draw, and additional opportunities have been identified to entice new users to the outdoors, draw novice trail users further into the park, and encourage more outdoor recreation activity.

Destination facilities that provide interactive educational opportunities such as adventure play areas, hands-on interpretive learning experiences, and a mountain-bike skills area or pump track could add greatly to the appeal of outdoor recreation and the Stringer's Ridge trail system and are described in more detail later in this report. They will appeal to those who might not normally recreate in the outdoors and forest, encourage repeat visits, and help fight the epidemics of

childhood obesity and outdoor deficit disorder by providing fun and interesting places for children to play in a natural landscape. Memorable viewpoints like the proposed canopy walk leading to a viewing platform and overlook, and flyover bridge will join other signature Chattanooga landmarks such as the Walnut Street Bridge and the Tennessee Riverwalk in drawing visitors to the city, prolonging their stay by giving them more to see and do, inviting them to return frequently, and thereby helping to grow to the local economy.



Above: Many old home structures are present on Stringer's Ridge.

Phase 1 – Priorities

Overlook Area: This high-use area needs to be designed and physically improved to make it more inviting to novice trail users. Providing an elevated wooden platform would have this effect, allowing view seekers to enjoy a unique perspective of downtown Chattanooga while protecting the land from negative impacts. Integrated seating could allow trail users to relax and spend more time enjoying the view. Interpretive exhibits could give information about the city and the history

of Stringer's Ridge as well as invite visitors to explore further into the trail system. An elevated walkway with a canopy trail flavor would also add to the overlook experience by creating a memorable approach that suddenly opens up to reveal the view. Creative and attractive structural details should maintain a consistent theme among railings, seating, and interpretive displays.



Left and Below: Overlook structures provide a great opportunity for trail users to take a break and enjoy the view.



Above, Right and Below: Canopy walks are elevated trails in the trees that provide for an interesting view and experience of a forest not obtained on terra-firma trails.



Fly-Over Bridge: The southernmost hilltop on the property provides an excellent location for a fly-over bridge to create a very strong destination into the park. Visitors would have to walk or ride a bike a short distance from the trailhead which would serve to burn many calories for children and the adults accompanying them.

Civil War Interpretation: On the westernmost ridge top, the remnants of civil war earthworks coupled with a winter view of the city offer an opportunity for creative, hands-on interpretation. The steepness of the surrounding terrain and sensitivity of the resources in this area suggest that the access trail should be minimalist and pedestrian only.

With the exception of the civil war earthworks, all of these special destination areas are accessible by heavy equipment and full sized vehicles. This will allow for easy access during the construction phase, for routine maintenance to build areas, and for EMS access in the case of an emergency.



Above: Cultural resources offer great interpretation opportunities within trail systems.

Phase 2 – Additional Opportunities

Pending the availability of future funding and management capacity, there are additional opportunities to construct the following amenities:

Adventure Play Area / Interactive Educational Destination: Adventure playareas are gaining popularity and fit in well with the concept of “nature-play”. They can best be described as playgrounds with a more rustic feel using more organic and natural materials (wood and rope). They better fit into forest and natural environment landscapes as compared with the plastic and colored playgrounds that dominate more formal park settings. These type of facilities blur the lines between playgrounds, tree-houses and children’s forts and really encourage kids to have fun, explore and get good full-body exercise. Trail Dynamics highly recommends using Beanstalk Journeys to design/build a custom adventure playground and the same company would also be a great choice of contractors for the canopy walk and overlook structure:

Beanstalk Journeys Adventure Playgrounds

http://beanstalkjourneys.com/adventure_playgrounds.html



All: Samples of adventure playgrounds in forest-park settings. Such a playground at Stringer's Ridge would provide for a strong destination and help to develop new trail users.

The Phase 1 fly-over bridge is located in this general location and would connect the trail system directly with the proposed adventure playarea. The “under” trail would lead up to the playarea, and the exit path from the playarea on the “fly-over bridge” would lead out and into the heart of the trail system. These features combined would provide an extremely strong destination for this area located close to but not at the trailhead.



All: Over/Under bridges provide interest to trail systems and can solve difficult design problems of how to fit many trails into a compact area.

Bike skills Area: The northeastern hilltop homesite area needs a strong destination in order to draw trail users further into the woods. This area is already heavily disturbed and could be a great location for a bicycle skills area. These progressive difficulty, high skill / low penalty bicycle play areas give riders a place to improve their skills with little risk of getting injured and are inherently spectator and kid friendly. This location is further into the park as compared to the adventure playarea, but park visitors on bikes can travel greater distances. The bike skills area might be better located in or near White Oak Park in coordination with the city of Red Bank.



All: Examples of kid friendly skill areas. These areas provide low risk with progressive levels of difficulty for riders of all ages.

Bike Pump Track: Yet another kid friendly bike facility, pump tracks are short convoluted loops of flowing bermed turns and rollers that can be built in less than an acre with nothing more than good soil (clay). Advanced riders will use momentum and body position to “pump” through the loop without pedaling (hence the name) while novices and kids will simply enjoy riding around the turns, whoops and the rollers. This could be located adjacent to the skills area or in White Oak Park in partnership with the city of Red Bank.



Above and Left: Pump tracks are easy to build and need nothing other than good dirt and a good design. Kids of all ages will get a great work-out “pumping” their way through the berm turns and rollers.

Trailheads and Access Points

Several locations were discussed and evaluated as potential trailheads during the planning phase of this project. These include the current official access off West Bell Avenue, the High Ridge Road access, a parcel off Matlock Street in Hill City, interior locations off of the main paved trail, and White Oak Park to the north. Identified concerns include increased traffic in residential areas, difficulty of law enforcement oversight and lack of visibility from the road to limit undesired behavior, the condition of roads needed for vehicles to access trailheads, and the need to acquire additional property for trailheads. Concerns about difficulty of patrolling eliminated consideration of an interior trailhead. Hill City residents were not eager to see additional vehicular traffic through their neighborhood. This coupled with their remote locations and the narrow single lane road discouraged consideration of the High Ridge Road. and Matlock Street. options. The Matlock Street option could become a higher priority in a later phase as use of the park grows and the neighborhood is in agreement with this type of use.

Trailhead 1: (Designated as TH1 on the proposed trail system map, Appendix B) West Bell Avenue is the best option for the main trailhead given its proximity to Cherokee Boulevard, high visibility, remoteness from residential streets, and already designated bike lane. While TPL does not currently own sufficient property in this area to create a trailhead without heavy site work and high expense, the owner of adjacent parcels has expressed a willingness to work with them for a trailhead facility. This facility will hopefully provide a number of improved parking spaces, a kiosk with information on the Stringer's Ridge trail system, pedestrian and bicycle entry to the trails, and a gate to permit maintenance and emergency vehicle access.



Above and Right: Several outdoor and bicycle shops serving outdoor enthusiasts are located within a short distance from the proposed main trailhead.

Access off High Ridge Road should be limited to a pedestrian- and bicycle-only access point. This access point is also suitable for some official use/access, handicap and emergency parking.

Trailhead 2: (Designated as TH2 on the proposed trail system, Appendix B) The Matlock Street / Spears Avenue trailhead option will provide a valuable opportunity in the future. It is attractive because it already has a level, paved area (the remains of an old school facility) and reasonably easy access to the existing trail system. However, it would require vehicles to travel through the Hill City neighborhood, is quite remote and has a lack of visibility from the road. Potentially this could be designated as a pedestrian- and bicycle-only access without providing parking.

Neighborhood Accesses

It would be advantageous to route trails close to neighborhoods, particularly in the Hill City area east of Stringer's Ridge, in order to invite and encourage use by residents.



***Above:** Providing direct access into the trail system from various neighborhoods such as Nye Circle is recommended and would invite residents to use and therefore care for Stringer's Ridge.*

Designating additional access points for neighboring landowners will encourage locals to walk or ride to the trails. Such access points would not encourage use by the general public and would not include parking. They could be signed "dead end trail" or "private property" if needed from the main trail system. Many of these access points dump into public rights of way and onto public roads, so trails ending in these locations should be considered open routes. Some neighborhood access points such as Nye Circle already exist and simply need formalizing through signage and inclusion on the trail map.

White Oak Park Connection

Well developed trailhead facilities, including lighted paved parking, a multi-use sidewalk trail, running water, and restrooms, already exist at nearby White Oak Park. White Oak might also be an excellent location for higher intensity development facilities such as a pump track or bike skills area. Unfortunately a legitimate, legally protected access between White Oak and Stringer's Ridge does not exist. Currently, trail users are connecting the multi-use trail to a short segment of Ben Miller Parkway to the powerline access road to arrive at Stringer's Ridge.

Below and Right: White Oak Park.



While the powerline offers an already developed access and may offer the most viable solution through trail easements, it is not in an ideal trail alignment. It lies in the bottom of a watershed, has no tree cover to protect from splash erosion, is eroded and muddy, and will always need to remain open for maintenance vehicles. Surfacing and re-grading can help to deal with these problems; however, as a maintenance ROW and working corridor, the recreational experience would always be compromised.

A preferable option would be to acquire access across adjacent higher land if possible. This would allow more sustainable and enjoyable trails with side-hill alignments and tree cover. A combination of side-hill trail where obtainable and powerline road may also be a viable option. Regardless of the alignment, securing legitimate access to a connection between White Oak Park and Stringer's Ridge, whether through land purchase

Right: The powerline ROW is currently used by trail runners and others to access Stringer's Ridge from White Oak Park. To provide a sustainable trail, significant re-grading and surfacing would be required. The aesthetics would still be undesirable from a trail experience standpoint.



or trail right of way easement, needs to be a high priority. A map of this connection, showing both the existing social use trail and a more preferred trail connection is included in the appendices.

There is potential for additional trail connectivity to the west of White Oak Park through the Tennessee American Water Company (TAWC) water tower property, and the Veteran's Memorial Park, known as the duck pond, in Red Bank to the north. The water tower property, in particular, provides an opportunity for valuable additional trail mileage. A conceptual potential trail system on this property with a beginner friendly lower loop and more advanced trail options higher up is included in the appendices. Working with the TAWC to secure access to this property for trail users would add value to the Stringer's Ridge trail system.

Conclusion

Trail Dynamics appreciates the opportunity to work with the Trust for Public Land and the Chattanooga trail community to improve trail facilities at Stringer's Ridge. We congratulate TPL for seeing the value in the property and having the forethought and vision to preserve and improve it. Additionally, TD would also like to thank Art Thompson, whose Stringer's Ridge GIS project proved immensely helpful in developing this trail plan.

This trail system has the potential to be an exceptionally valuable resource for the community due to its proximity to the downtown area, large number of nearby residents, and unique views and history. By developing strong destination points within the park, Stringer's Ridge could lure new trail visitors into the forest-park and offer new opportunities to a community already blessed with great outdoor spaces. Some of these potential users have likely never been in a forested natural eco-system and that learning experience coupled with opportunities for needed exercise add



Above: The Stringer's Ridge project would indeed "conserve land for people" and users would enjoy the trail system and recreational facilities for many years to come.

great value to this project. The obvious existing local support indicates that the Stringer's Ridge trail system will be well used and well loved. This is an excellent example of TPL putting into practice its "Conserving land for the people" motto.

Trail plans such as this one do not represent completion of a project; to the contrary they are instead the beginning of a process. Trail planning can be considered Phase 1 with Phase 2 being an on-the-ground design phase that takes the conceptual ideas and flags trail alignments

in the field (going from paper designs to landscape designs). Trail plans do however serve a very important role in the trail development process in terms of giving the "big picture" view of a proposed trail system that can be shared with the land managing agency, stakeholders, future trail users, and potential donors that can help turn a concept plan into the reality of a park and great trail system.



*All: "Trails have multiple values that reach far beyond recreation. Trails are important for the nation's health, economy, resource protection and education."
Trails for All Americans Report, 1990*



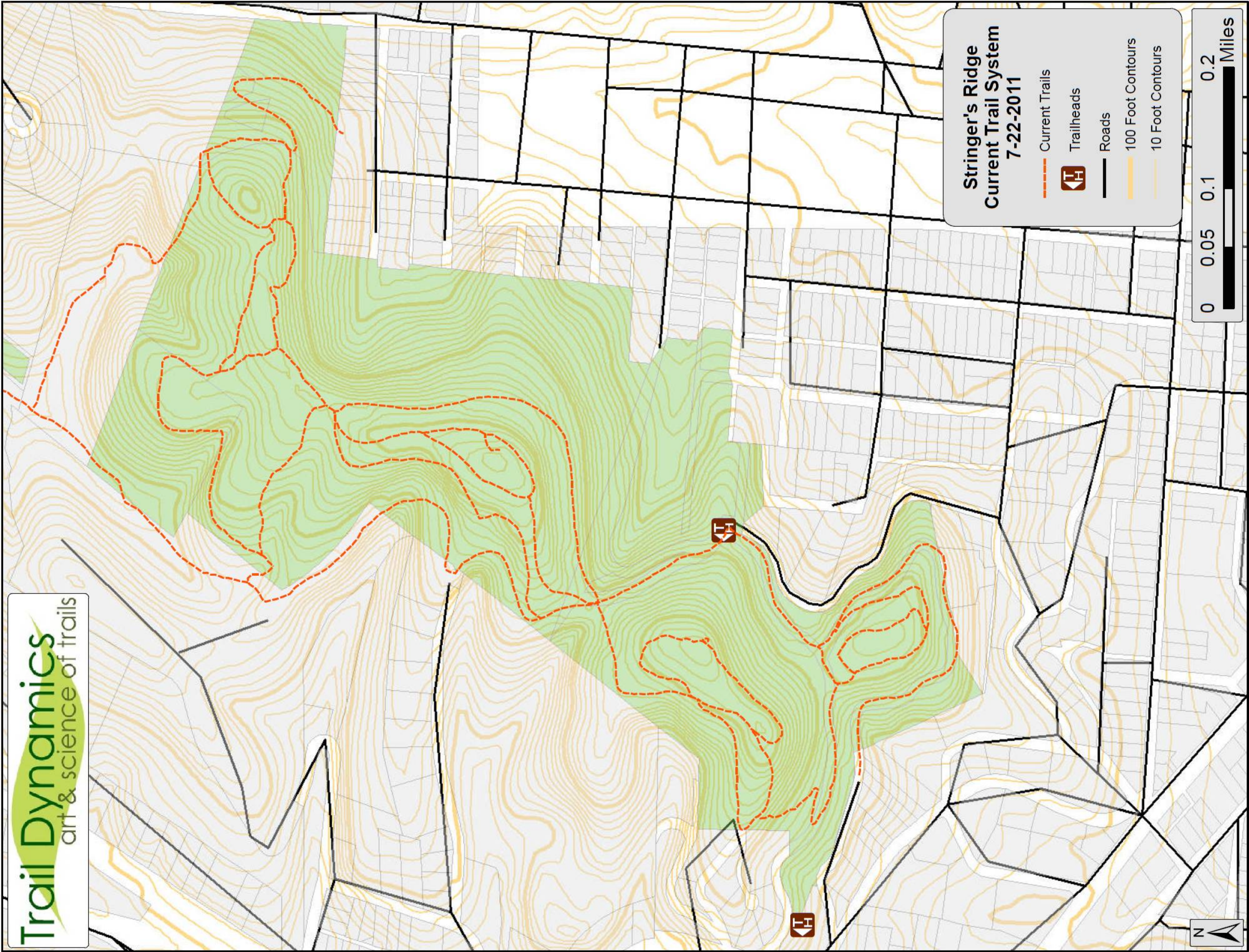
Trail Dynamics

art & science of trails

Guiding your trail development process from concept to completion with experience, expertise and passion.

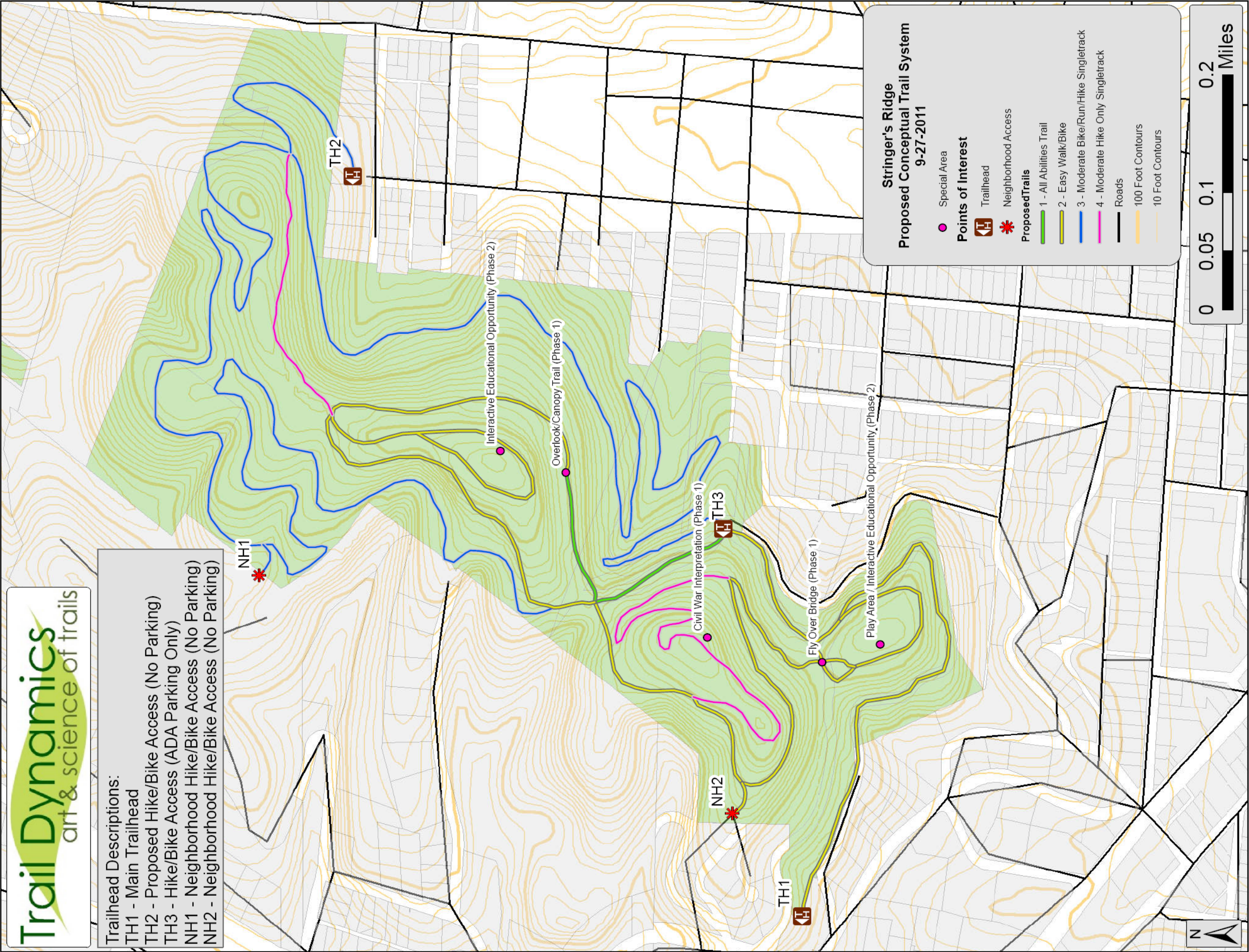
Appendix A

Stringer's Ridge Current
Conditions (Map)



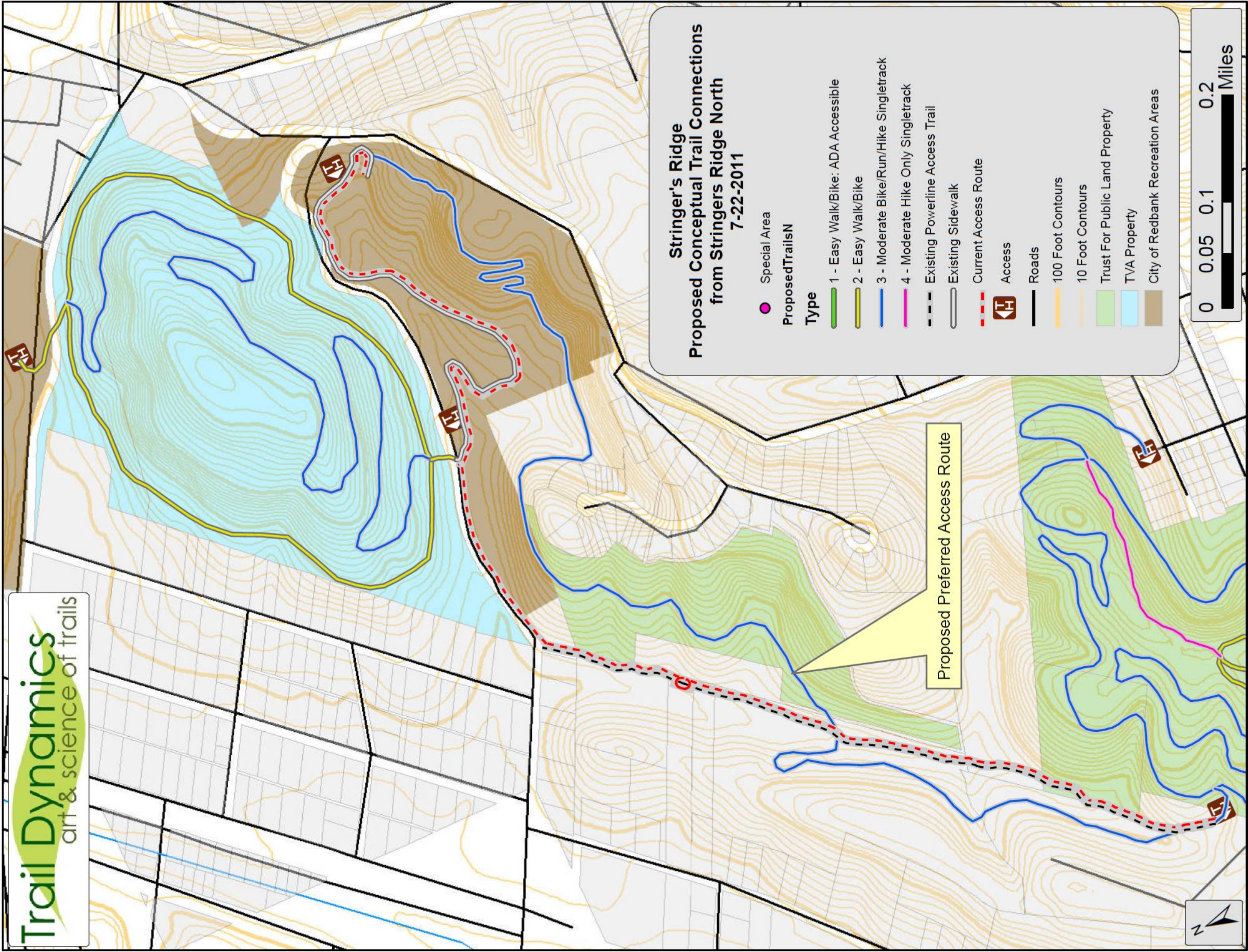
Appendix B

Proposed Conceptual Ideal Trail System (Map)



Appendix C

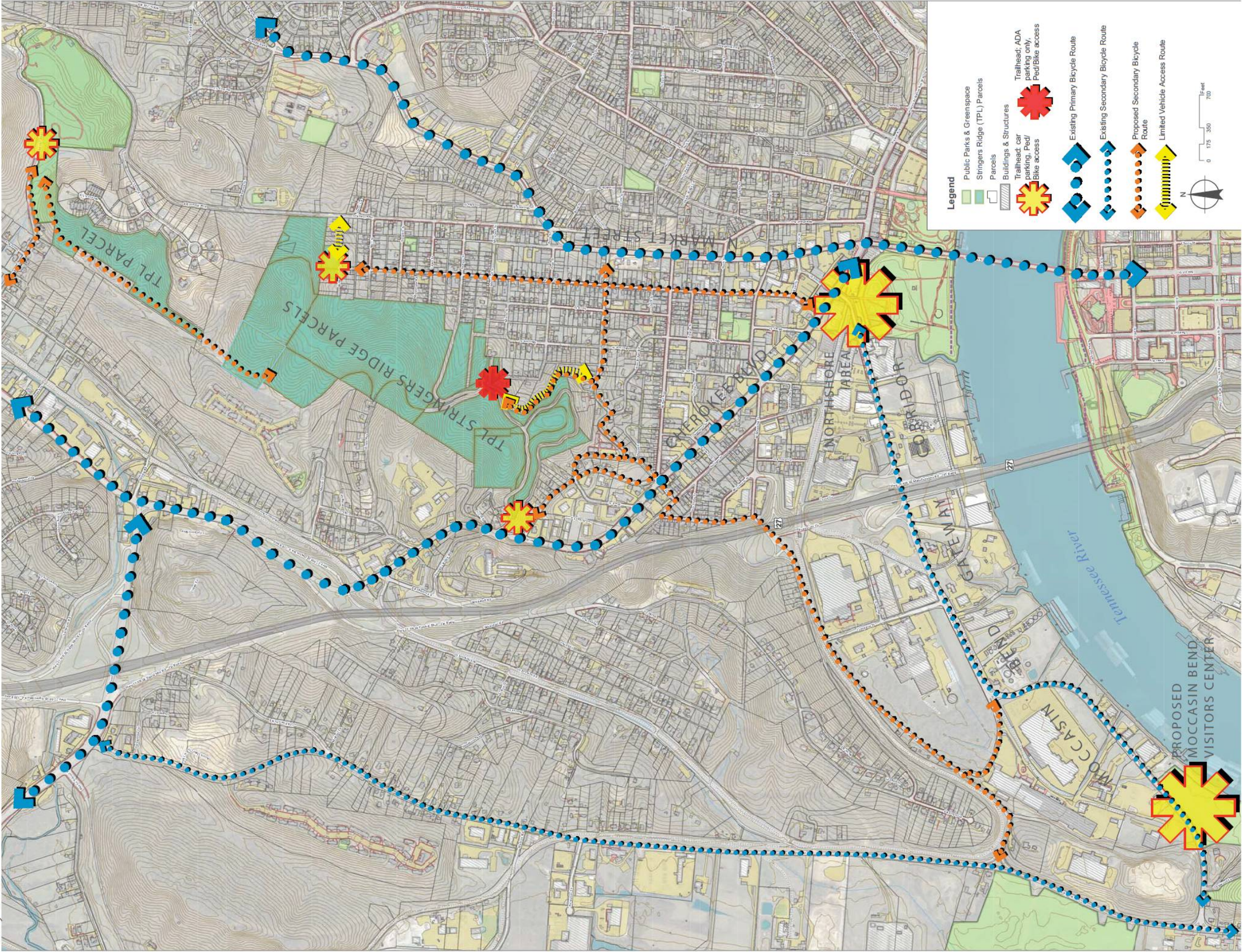
Potential Trails North of
Stringer's Ridge (Map)



Appendix D

Jones and Jones –
Stringer’s Ridge Access
Diagram (Map)

STRINGERS RIDGE ACCESS DIAGRAM
May 2011



Appendix E

Cost Estimates for on the Ground Design Phase and Construction

As noted in the conclusion of this document, a trail development plan does not represent the end of a project but instead a beginning with many additional phases to follow including: design phase (on the ground pin flagging of the actual trail alignments, design work for trail structures etc) and implementation/construction phase (building of the trail system and other park amenities).

Cost estimates for trail construction will certainly be much easier to predict after the design phase is complete. This will allow for a better understanding of what exactly is to be built and what the conditions of the build will be based on a clear understanding of the flaglines and any needed structures, and more accurate distances will be available.

Based on what we have seen in Phase 1 and the field work undertaken during that phase, we would expect basic cost of Type 3 trail (4' wide tread) to be in the \$3-4 per linear foot range. Much of Type 1 and 2 trail already exists and is simply a matter of clearing downfall and other vegetation management work. If new trail in the Type 2 does need to be built to provide for loop and connectivity, we would estimate that cost to be \$4-5 per linear foot for natural surface and double that for compacted crushed stone surfacing for 6' wide tread.

The design of Type 1-3 trails is such that few structures will be needed, the exception would be the fly over bridge. Cost estimates for such would be in the \$10-20K range however more detail on the design elements would be needed to provide more accurate costing information.

Type 4 hiking only trails could likely be the more structure intensive trails to construct due to needed steps for steeper and fall-line sections. Cost estimates for such trail cannot be provided until more detail design is complete.

The cost estimate for Phase 2 (field design work) is a bit easier to predict, however there are questions that need to be answered to give a firm cost proposal. We would anticipate this work to cost \$10-15K. The range is a reflection of needed info from TPL on level of detail and deliverables. One such example of a detail that would affect cost is design work for needed bridges including the proposed fly-over bridge. Detailed drawings of the design would be expensive to produce if desired, as compared to a design/build approach with only the location and a general concept provided in Phase 2.

TPL will need to continue to communicate with Trail Dynamics and a firm scope developed in order to fully understand cost.

Appendix F

Beanstalk Journeys Adventure Playground Resource

Trail Dynamics highly recommends using Beanstalk Journeys to design/build a custom adventure playground and the same company would also be a great choice of contractors for the canopy walk and overlook structure: http://beanstalkjourneys.com/adventure_playgrounds.html

Appendix G

Conservation Easement Language

RETURN PAGE
STA 109543

This Instrument Prepared By:	Send Tax Bill to:	Tax Parcel No.
J. Alex Ghio, Esq	The Trust for Public Land	126N-D-002.
The Trust for Public Land	306 North Monroe Street	126N-D-002.01.
306 North Monroe Street	Tallahassee, FL 32301	126N-D-003.
Tallahassee, FL 32301		126N-D-004.
		126N-D-005.
		126N-D-006.
		126N-E-026.
		126N-F-001.
		126N-F-020.
		126N-G-001.
		126N-G-002.
		126N-G-015.
		126N-J-002.
		126N-J-003.
		126N-J-004.
		126N-J-005.
		135C-D-021.

Instrument: 2011033100116
Book and Page: GI 9375 724
MISC RECORDING FEE \$120.00
DATA PROCESSING FEE \$2.00
CONVEYANCE TAX \$0.04
PROBATE FEE \$1.00
Total Fees: \$123.04
User: TLF
Date: 3/31/2011
Time: 12:55:57 PM
Contact: Pam Hurst, Register
Hamilton County, Tennessee

GRANT OF CONSERVATION EASEMENT

THIS CONSERVATION EASEMENT ("Conservation Easement") is hereby granted and quitclaimed on this 30th day of MARCH, 2011, subject to the provisions herein contained, by **THE TRUST FOR PUBLIC LAND**, a California not-for-profit corporation ("**Grantor**"), to **TENNESSEE RIVER GORGE TRUST, INC.**, a Tennessee not-for-profit corporation ("**Grantee**"), for the purpose of forever conserving the Conservation Values of the Property (both as hereinafter defined).

W I T N E S S E T H:

Grantor is the owner in fee simple of certain real property located in the City of Chattanooga, Tennessee, Hamilton County, Tennessee, consisting of approximately thirty-seven (37) acres and more particularly described in Exhibit A attached to and incorporated herein by this reference (the "**Property**").

The Property is primarily forested hillside and hilltop land with steep slopes, and contains or supports significant wildlife habitat, scenic beauty, and historic resources. In its current undeveloped state, it helps control water runoff onto the nearby neighborhoods and provides a role in helping reduce or offset carbon emissions.

The Property possesses scenic natural beauty and is located in the midst of an area of increasing development and subdivision of land for residential and commercial purposes. This ridge overlooks downtown Chattanooga and the Tennessee River to the south, Lookout Mountain and Raccoon/Elder Mountains to the southeast and west, and the mouth of the

09

Tennessee River Gorge and the flanks of Signal Mountain and Waldens Ridge to the northwest and north, and is visible to the general public from many places within the community, as one of the last undeveloped hillsides and hilltops in the heart of downtown Chattanooga. The Property possesses outstanding scenic qualities which provide a significant benefit to and scenic enjoyment for the general public and the citizens of Chattanooga, especially from the public waterfront areas of downtown Chattanooga.

The Property is located in an area projected for substantial growth, as downtown Chattanooga and the community at large are beginning to experience sustained economic growth resulting from billions of dollars of private capital investment in the community, including the construction and start-up of Volkswagen's first American manufacturing plant; substantial plant expansion by Alstom Power Company (within sight of the Property); an Amazon.com distribution center; and a new manufacturing plant for Wacker Chemical in nearby Bradley County which is expected to involve more than \$1 billion in capital investment.

The Tennessee Heritage Conservation Trust Fund Act: A Preliminary Assessment of Need (December 2006) (the "**Heritage Trust Assessment**") was produced by the Tennessee Department of Environment and Conservation and the Tennessee Wildlife Resources Agency to provide guidance to the Tennessee Heritage Conservation Trust Board as it carries out the mandate set forth in T.C.A. §11-7-103 *et seq.* to assist the State of Tennessee in permanently conserving and preserving tracts of land for the purposes of promoting tourism and recreation; protecting, conserving and restoring the State's physical, cultural, archeological, historical and environmental resources; and preserving working landscapes. The Heritage Trust Assessment identified portions of the Property and adjacent property with a score of "Very High Importance (B1)" for protection due to the biological richness of this area.

In addition to its scenic quality and its value as natural habitat, the Property is an unique historic site having been the location of military action during the Civil War. From the hilltops located on the Property, Union troops bombarded Chattanooga in 1863, opening the campaign for Chattanooga, which included the Battle of Chickamauga. Also on the hills located on the Property, the US Army Signal Corps established one of its first signal stations in the area as Union troops approached the "gateway to the Deep South." The Property is in direct line of sight with both the Lookout Mountain unit and Signal Point unit of the Chickamauga/Chattanooga National Military Park, and also overlooks much of the newly-created Moccasin Bend National Park. The Property also features spectacular views of other properties already protected by Grantee, including areas at the mouth of the Tennessee River Gorge; at Edwards Point on Signal Mountain; and along the flanks of Elder Mountain.

The open space use of the Property is consistent with public and private programs for conservation and protection of open space for nearby properties. The forested, open space, watershed protection, wildlife habitat, historic, and scenic characteristics of the Property, and its current use and state of improvement, are described in a Present Conditions Report prepared by Grantee with the cooperation of Grantor and acknowledged by both to be complete and accurate as of the date of this Conservation Easement (the "**Report**"). The Report will be used by Grantee to assure that any future changes in the use of the Property will be consistent with the terms of this Conservation Easement. However, the Report is not intended to preclude the use of

other evidence to establish the present condition of the Property if there is a controversy over its use or condition.

The forested, open space, watershed protection, wildlife habitat, historic, and scenic values of the Property are collectively referred to herein as the "**Conservation Values**" of the Property.

Grantor has agreed to convey to Grantee this Conservation Easement upon the Property, for the purpose of assuring that, under the perpetual stewardship of Grantee, the Conservation Values of the Property will be conserved and maintained forever, and that the uses of the Property that are inconsistent with these conservation purposes will be prevented.

The granting of this Conservation Easement is intended to comply with the requirements of The Conservation Easement Act of 1981, Tennessee Code Annotated ("**T.C.A.**") § 66-9-301, et seq., as amended, which permits the creation of conservation easements. Specifically, the Conservation Easement's "limitations and affirmative obligations are intended to preserve, maintain or enhance the present condition, use or natural beauty of the land, the open-space value, the air or water quality, the forest, recreational, geological, biological, historic, architectural, archaeological, cultural or scenic resources of" the Property.

The granting of this Conservation Easement will also serve the following "conservation purposes" as such term is defined in Section 170(h)(4)(A) of the Internal Revenue Code of 1986, as amended (the "**Code**"): (i) the preservation of land areas for outdoor recreation and for environmental education of the general public; (ii) the preservation of open space, including forest land, for the scenic enjoyment of the general public; (iii) the preservation of an historically important area; and (iv) the preservation of open space pursuant to the following clearly delineated governmental conservation and preservation policies, yielding a significant public benefit:

- The Agricultural, Forest and Open Space Land Act of 1976 as set forth in T.C.A. § 67-5-1001, et seq., which states in § 67-5-1002 that "The general assembly finds that: . . . (2) [t]he preservation of open space in or near urban areas contributes to . . . the conservation of natural resources, water, air, and wildlife . . . [and] preservation of land in an open condition for the general welfare" . . . and "(3) Many prime agricultural and forest lands in Tennessee . . . are being permanently lost for any agricultural purposes and that these lands constitute important economic, physical, social and esthetic assets to the surrounding lands and to the people of Tennessee;"
- The Conservation Easement Act of 1981, T.C.A. § 66-9-301, et seq., as amended, which permits the creation of conservation easements;
- The Tennessee Civil War Trails Program, which program was launched by the State of Tennessee in 2006 and supports the preservation of important Civil War property located within the State;
- *A Future For The Past: A Comprehensive Plan for Historic Preservation in Tennessee*, which Plan was drafted by the Tennessee Historical Commission

and which supports the preservation of important Civil War property located within the State;

- *State of Tennessee 1999 Historic Preservation Plan*, which supports the setting aside of Civil War property located in the State;
- *2004 Management Plan and Master Plan for the Tennessee Civil War National Heritage Area*;
- *Tennessee Civil War Heritage Trail*, a handbook published through the Tennessee Department of Environment and Conservation;
- *The Civil War Discovery Trail*, a national program instituted by the Civil War Preservation Trust which supports the goal of preserving and maintaining Civil War programs;
- *Civil War Sites Advisory Commission 1993 Report*, which details the need to preserve and protect Civil War battlefield property; and
- American Battlefield Protection Program, CWSAC Reference No. TN018. Preservation Priority: IV.2 (Class D).

The current uses of the Property are consistent with the conservation purposes of this Conservation Easement.

Grantee is a tax-exempt nonprofit organization and a qualified organization under §§ 501(c)(3) and 170(h), respectively, of the Code, and is a qualified "Holder" under T.C.A. § 66-9-303(3)(B), whose primary purpose is the preservation, protection or enhancement of land in its natural, scenic, forested and/or open space condition.

Grantee accepts the responsibility of enforcing the terms of this Conservation Easement and upholding its conservation purposes forever.

NOW, THEREFORE, for the reasons given, and the mutual covenants, terms, conditions and restrictions contained herein, Grantor hereby donates, grants, remises, releases and forever quitclaims to Grantee, its successors and assigns, and Grantee accepts, a conservation easement on the Property, in perpetuity, in order to conserve and retain the Property forever predominantly in its forested, scenic, and/or open space condition in accordance with the terms of this Conservation Easement; and Grantor donates, grants, assigns, remises, releases and forever quitclaims to Grantee, its successors and assigns, the right to take appropriate legal action in law or equity to enjoin, prohibit and remedy any violation of the terms of the easement created by this Conservation Easement and to enter the Property at reasonable times to observe and document the state of preservation and to prevent any violation of the terms of this Conservation Easement.

1. **Purpose.** It is the purpose of this Conservation Easement to assure that the Property will be conserved and retained forever predominantly in its natural, scenic, forested and/or open space condition and to prevent any use of the Property that will significantly impair

or interfere with the Conservation Values of the Property. Grantor intends that this Conservation Easement will generally confine, except as otherwise specifically permitted herein, the use of the Property to such activities as are not inconsistent with the purpose and terms of this Conservation Easement.

2. **Implementation.** This Conservation Easement shall be implemented by limiting and restricting the development and use of the Property in accordance with its provisions as provided herein. Permanent or temporary structures or other buildings or improvements to the Property may hereafter be constructed, placed or maintained on the Property only as specifically provided herein.

3. **Definitions.** As used in this Conservation Easement, the term "Grantor" includes the original Grantor, its successors and assigns, all future owners of any legal or equitable interest in all or any portions of the Property, and any party entitled to the possession or use of all or any part thereof, and the term "Grantee" includes the original Grantee and its successors and assigns.

4. **Affirmative Rights of Grantee.**

4.1 **General Affirmative Rights of Grantee.** Grantor hereby grants the following rights to Grantee, which rights shall be in addition to, and not in limitation of, any other rights and remedies available to the Grantee:

(a) to prevent Grantor or third persons (whether or not claiming by, through, or under Grantor) from conducting any activity on or use of the Property that is inconsistent with the terms of this Conservation Easement, and to require Grantor or third persons to restore such areas or features of the Property that may be materially damaged by any inconsistent activity or use;

(b) after notice to Grantor (or Grantor's successor in title), and without unreasonably interfering with Grantor's use and quiet enjoyment of the Property as restricted by this Conservation Easement, to enter upon the Property at reasonable times and in a reasonable manner in order to monitor Grantor's compliance with and otherwise enforce the terms of this Conservation Easement, including but not limited to those monitoring rights and enforcement rights more specifically set forth in Section 10, provided that in the absence of evidence which gives Grantee a reasonable basis to believe that there has been a violation of the provisions of this Conservation Easement (which evidence shall be made available and known to Grantor prior to entry by Grantee);

(c) to enforce this Conservation Easement in the case of substantial or material breaches by Grantor or third persons (whether or not claiming by, through, or under Grantor) in accordance with the provisions of Section 10; and

(d) if Grantee in good faith determines that circumstances require immediate action to prevent or mitigate significant damage to the Conservation Values of the Property, to obtain injunctive and other equitable relief against any violations in a local court of competent jurisdiction, including without limitation relief requiring the removal of offending

structures and vegetation and other restoration of the Property to the condition that existed prior to any such violation (it being agreed that Grantee will have no adequate remedy at law).

4.2 Affirmative Rights for Development of Recreational Trails Systems.

Grantor additionally grants the right for Grantee to plan, promote, and implement the construction, operation, maintenance, and repair of a recreational trail system for both pedestrian hiking and non-motorized trail biking through and across the Property and connecting to other adjoining properties where public recreational trail systems exist. This trail system shall be for recreational use only, and Grantee shall not allow the use or operation of motorized vehicles except as reasonably needed for construction, operation, maintenance, repair, and security patrolling of the trails so constructed. The standards and limitations for trail construction shall be as set forth in Section 6.3 below. Grantee's right to plan and implement such a trail system may be done directly by Grantee, its successors, agents, or assign or in cooperation with the City of Chattanooga and/or Hamilton County, and/or other volunteer recreational clubs, but in all circumstances, Grantor shall have the reasonable right of review and approval for all material aspects of the recreational trail systems, including trail locations, construction plans, trail materials, and trail maintenance and security prior to implementation. Grantee's right to develop such recreational trail systems is permissive, and nothing contained in the grant of this right to Grantee shall create an affirmative obligation under Grantee to undertake such development or to complete such development within a particular timeframe.

4.3 Affirmative Right for Development of Amenities Related to Public Recreational Trail System.

If Grantee or its designees or agents develop a public recreational trail system as permitted under Section 4.2 above, Grantee shall also have the right, either on its own account or through the City of Chattanooga or other entity, to develop limited additional amenities to complement the trail system, including: (i) the development of a parking lot or lots located only on (or connecting to) existing public roadways on the perimeter of the Property and intended to accommodate public parking for persons utilizing the public recreational trail system, not to exceed 3,000 square foot in size (on the portions of any parking lot built within the Property) for each such lot; (ii) the placement of park benches or similar amenities along the trail system (which may not be utilized for any type of commercial advertising); (iii) the construction of public restroom facilities in connection with any parking lot located on the perimeter of the Property, provided that if any additional restroom facility is to be located within the interior of the Property, such a facility may only be a self-contained passive restroom facility without public utility connections; (iv) the development of overlook or viewpoint facilities in accordance with the standards in the following Section 4.4; and (v) the placement of small, limited and appropriate trail guide signs and markings for the safe and enjoyable use of the trail system so long as they do not compromise the Conservation Values of the Property.

4.4 Affirmative Right for Development of Overlooks and/or Gazebos.

Grantee shall also have the right to plan, develop, construct, and maintain, either on its own account or in conjunction with the City of Chattanooga or other entity, up to one (1) overlook, gazebo, or observation deck. Any such structure may be enclosed, but it shall not be connected to public utility hookups and shall not exceed one story in height. The exterior walls of any such structure must be neutral earth-toned in color, in order to blend into the surrounding landscape. No individual structure may exceed 1,500 square feet in floor area.

4.5 Liability for Improvements. If any of the improvements contemplated by this Section 4 are developed, Grantee shall have no liability to Grantor or to any third party for, and Grantee shall be indemnified and held harmless from, any costs associated with the development, operation, or maintenance of the public recreational trail system and any related amenities, and any personal injury or property damage which arises out of or results from the development, maintenance or operation of any of the improvements contemplated by this Section 4 to the extent permissible by law. The public recreational trail system and amenities permitted under this Section 4 shall be constructed in a good and workmanlike manner in accordance with all applicable ordinances, laws, and regulations. Grantor, or another designated entity responsible for developing such public recreational trail system, will maintain customary insurance covering any construction, maintenance, and operation of the public recreational trail system and amenities permitted under this Section 4. If ownership of the Property is ever transferred to the City of Chattanooga or other governmental entity, then the City (or such other entity) shall be responsible for maintenance and operation of the public recreational trail system and amenities permitted under this Section 4, and shall indemnify Grantee from any liability arising therefrom, up to the limits of the Governmental Tort Liability Act, T.C.A. 29-20-101, *et seq.*, or the limits of any insurance purchased pursuant to that Act, as it may now or hereafter exist in Tennessee.

5. Prohibited Uses of Property.

5.1 Prohibited Uses in General. The following acts or uses are expressly forbidden on, over, or under the Property, except for those rights expressly reserved for Grantor as provided in Section 6.1:

(a) mining, excavating, dredging, or removing from the Property of soil, loam, peat, gravel, sand, hydrocarbons, rock, river, creek, or surface stones, or other mineral resource or natural deposit;

(b) construction or occupancy of any residential dwelling, or constructing, conducting, or undertaking any industrial, manufacturing, or commercial uses of the Property;

(c) constructing or placing of any residence, building, mobile home, pipeline, energy-producing facility, water tower, transmission line, transmitting or receiving tower, commercial billboard or other advertising, antennae tower, roads (except for paths, trails, and related amenities permitted in Section 4 and Section 6 hereof), parking areas (except as permitted on the perimeter of the Property under Section 4), or other improvements of any kind on the surface of the Property, above the surface of the Property or below the surface of the Property;

(d) installing underground storage tanks or the placing, filling, storing or dumping on the Property of refuse, trash, garbage, vehicle bodies or parts, rubbish, debris, junk, waste, or other such substance, whether or not generated on the Property;

(e) the harvest or removal of any timber or other wood products from the Property, or the removal of native vegetation (wildflowers and/or trees and shrubs) and wildlife except as allowed in Section 6 below; and

(f) construction of golf courses, athletic fields and/or paved airstrips.

(g) without the prior written consent of Grantee (requested and given in a manner consistent with Section 7 of this Conservation Easement), the installation, construction, or placement of wires, lines, pipes, cables or other facilities providing electrical, gas, water, sewer, communications, or other utility services, and Grantor may not grant utility easements over and/or under the Property for any purpose.

(h) any unanticipated activity or use of the Property which would significantly impair the Conservation Values, unless such use or activity is necessary for the protection of the Conservation Values, in which case such use or activity shall be subject to the prior approval of Grantee as provided in Section 7 below.

5.2 **Prohibition Against Subdivision.** Regardless of whether the Property is currently composed of one (1) or more contiguous or noncontiguous tax parcels, the Property shall be considered as one parcel for the purposes of this Conservation Easement and shall be retained in common ownership as though a single legal parcel. There shall be no division, partitioning, or subdivision in any manner of the Property whether by physical or legal process. Notwithstanding this prohibition, the following shall not be considered as a prohibited division: (i) a boundary line adjustment made in good faith with an adjoining landowner intended to resolve disputed boundary locations, provided that advance written approval of the boundary line adjustment is obtained from Grantee and provided that any lands added to the Property by such adjustment are automatically included within this Conservation Easement; and (ii) transfers of undivided interests in the Property among joint tenants, provided that such joint tenancies are not subsequently divided or partitioned. Any such subdivision of the Property, recording of a subdivision plan, partition of the Property, or any attempt to divide the Property without permission of the Grantee is prohibited. Without limiting the foregoing, the term "subdivision" shall not be limited by any statutory definition that limits the concept of subdivision. Subject to the foregoing, the Property may be transferred, encumbered, mortgaged or conveyed, or leased in whole or in part, and the provisions of this Conservation Easement shall continue to encumber the Property. Nothing in this Section shall be construed to prohibit the leasing of all or a portion of the Property, subject to the restrictions of this Conservation Easement.

6. Reserved Rights.

6.1 **Reserved Rights of Grantor.** The provisions of Section 5 notwithstanding, Grantor reserves the right to engage in all of the following uses, activities, and privileges on the Property.

6.2 **General Reserved Rights.** The following general reserved rights of Grantor shall be permitted by this Conservation Easement:

(a) the right to engage in all acts or uses that are not prohibited by governmental statute or regulation, not expressly prohibited herein, and not inconsistent with the terms of this Conservation Easement;

(b) the right to construct, repair and replace fences on the Property, so long as the fences are constructed for the reasonable and customary management of the Property. The height, scope, and building materials used in the construction, repair or replacement of such fences shall be subject to Grantee's reasonable approval. The design of any fence shall be compatible with the undeveloped character of the Property and shall not diminish the viewshed provided by or of the Property.

(c) the right to maintain, restore, and repair existing asphalt, concrete, dirt or gravel paths; to cut and remove grass, brush or vegetation along permitted paths and any existing open areas (other than timber, which is addressed in 5.1(e) above or 6.2(d) and (e) below); and the right to perform maintenance, landscaping, and horticultural activities consistent with the purposes of this Conservation Easement;

(d) if for any reason substantial loss of timber or tree cover occurs by reason of natural disaster such as fire, flood, windstorm, insect or disease infestation, or other similar cause, the right to remove such fallen, diseased, or dying timber;

(e) the right to remove individual diseased or fallen trees; and the right to remove any species of trees, shrubs, vines, and other plants which are not native to the habitat of Hamilton County, Tennessee;

(f) the right, but not the obligation, to conduct outdoor recreational activities, including activities such as horseback riding, guided or non-guided hunting, camping, bird watching, bicycling, hiking, nature and educational touring, climbing, and similar activities which are derived from, or are primarily made possible because of, the preservation of the Property predominantly as forest and undeveloped open space;

(g) the right to post all or a portion of the Property against trespassing and hunting;

(h) the right to license, lease or grant other less-than-fee interests in all or a portion of the Property for any use reserved by Grantor under this Conservation Easement, provided that such license, lease or other interest is consistent with and subject to the terms of this Conservation Easement; and

(i) the right to conduct at or on the Property educational and non-profit activities that are not inconsistent with the purpose of this Conservation Easement and with the protection of the conservation values of the Property.

6.3 Reserved Right for Construction, Maintenance and Repair of Recreational Trails and Related Amenities.

(a) **Trails.** In connection with and in addition to those affirmative rights conveyed to Grantee to develop a public recreational trail system, and with

Grantee's prior reasonable approval, Grantor may develop trails and/or foot paths to be used solely for enhancing the exposure of the Property to the public in its natural and scenic condition and in the same manner and conditions as the Grantee has in Paragraphs 4.1, 4.2 and 4.3; provided, however that:

- (i) no such trail or foot path shall be located so as to materially diminish the Conservation Values of the Property;
- (ii) except for those portions of trails that are already paved or partially paved, trail and foot path surfaces may not be paved or composed of impervious surfaces, except where necessary to control erosion. Except where required by law or regulation, foot path layout should be limited in width to accommodate single-file hiking, yet allow adequate room for hikers to pass. Bicycle trails should not exceed eight (8) feet in width;
- (iii) trails and foot paths shall be located, designed and maintained to preserve and protect the soil conditions on the Property; and
- (iv) trails and foot paths shall meet applicable governmental regulations and good conservation practices.

Notwithstanding the foregoing, this Conservation Easement shall not prohibit Grantor, its successors and assigns, from complying in good faith with any current or future law, statute or regulation of general applicability requiring a particular design of such trails and foot paths to accommodate disabled access by the public.

(b) **Signage.** As specified in Section 5.1(c), no billboard or advertising material or other sign structure shall be erected or placed on the Property, provided, however, that (i) limited and appropriate educational or memorial plaques describing the historic significance of the Property and small signs describing plants, trees or animals to be found on the Property; (ii) limited and appropriate signage identifying the partners, including Grantor and Grantee and the City of Chattanooga, and/or Hamilton County, which made the conservation and appropriate utilization of the Property possible, may be placed on the Property; and (iii) the placement of small, limited and appropriate trail guide signs and markings for the safe and enjoyable use of the trail system so long as they do not compromise the Conservation Values of the Property.

(c) **Benches.** With the written consent of Grantee, benches may be located along any trail or foot path located on the Property.

(d) **Overlook Pavilions.** With the written consent of the Grantee and after a determination has been made that there will be no significant impairment to the Conservation Values, the Grantor may construct, maintain, and repair: (i) one (1) covered

pavilion, gazebo, or overlook located on the Property, subject to the standards established in Section 4.4.

(e) **Paving and Road Construction.** Except for those portions of trails that are paved or partially paved as described in the Report, no portion of the Property shall be paved or otherwise be covered with concrete, asphalt, or other impervious paving material, except if required by law or governmental regulation for the trails set forth in Section 4 or this Section 6, and except for erosion control or a permitted parking lot under Section 4.3.

(f) **Parking and Other Amenities.** Grantor may establish parking and other related amenities in accordance with Section 4.3 of this Conservation Easement.

6.4 **Reserved Right to Use for Recreational and Educational Purposes.** As set forth in Section 6.2(f), Grantor retains the right to use the Property for lawful passive recreational uses not involving permanent improvements or structures, including, but not limited to, hiking, historical programs, picnics, social events, nature interpretation, and other educational programs. Commercial recreational activities that exceed the *de minimus* standard set forth in Section 203 1(c)(8)(B) of the Code are prohibited. Grantor hopes to incorporate the permitted passive recreational use of the Property into a master plan to be developed by Grantee or by an agency of the City of Chattanooga for property that adjoins the Property and for the Property itself. Provided that there is no impairment of the Conservation Values, the permitted passive recreational use of the Property may, at Grantor's election, be incorporated into any master plan developed by any agency of the City of Chattanooga.

7. **Grantee's Approval.** To seek the consent and/or approval of the Grantee pursuant to Section 6.3 above for the placement of any trails and/or the construction of any fences, benches, or an overlook pavilion, or to seek the consent of the Grantee for the taking of any other action on the Property not otherwise expressly permitted hereunder, Grantor shall notify Grantee of such proposed activity and/or construction and Grantor shall provide to Grantee a plan and description of the activity to be undertaken or the structures to be constructed, along with their location; whereupon Grantee shall determine whether to give its consent to such activity. Grantor shall not begin the activity or any such construction without the prior written consent of Grantee if the activity or construction complies with the terms and intent of this Conservation Easement. Grantee shall grant permission or approval to Grantor only where Grantee, acting in Grantee's sole discretion and good faith, determines that the proposed action will not substantially diminish or impair the Conservation Values of the Property. Grantee shall not be liable for any failure to grant permission or approval to Grantor hereunder. Grantee shall have thirty (30) days to respond in writing after it receives all required documentation for the proposed construction or activity. If Grantee fails to respond in writing to Grantor's first request within thirty (30) days after it receives all required documentation for the proposed construction or activity, Grantor may give Grantee a subsequent written notice that Grantor has not received a response from Grantee with respect to such request. If Grantee fails to respond in writing to such subsequent written notice within thirty (30) days after Grantee receives such subsequent written notice, Grantee's consent to the proposed construction or activity shall be deemed to have been given.

8. **Development Rights.** Except as contemplated by this Conservation Easement, Grantor hereby grants, remises, releases and forever quitclaims to Grantee all development rights that are now or hereafter allocated to, implied, reserved or inherent in the Property, and the parties agree that such rights are terminated and extinguished, and may not be used on or transferred to any portion of the Property as it now or hereafter may be bounded or described.

9. **Responsibilities of Grantor and Grantee Not Affected.** Other than as specified herein, this Conservation Easement is not intended to impose any legal or other responsibility on Grantee, or in any way to affect any existing obligation of Grantor as owner of the Property. Among other things, this shall apply to:

(a) **Taxes.** Grantor shall continue to be solely responsible for payment of all taxes and assessments levied against the Property. If Grantee is ever required to pay any taxes or assessments on its interest in the Property, Grantor will reimburse Grantee for the same.

(b) **Upkeep and Maintenance Grantor.** Grantor shall continue to be responsible for the upkeep and maintenance of the Property, to the extent it may be required by law; provided that Grantee shall be responsible for the upkeep and maintenance of the Property relating to Grantee's activities on the Property, including the activities contemplated by Section 4.

(c) **Compliance with Laws.** Grantor shall continue to be responsible for the compliance of the Property with applicable laws, statutes, ordinances, or regulations; provided that Grantee shall be responsible for the compliance of the Property with applicable laws, statutes, ordinances, or regulations relating to Grantee's activities on the Property, including the activities contemplated by Section 4.

10. **Enforcement.**

(a) Grantee shall have the right to prevent and correct violations of the terms of this Conservation Easement pursuant to the terms of this Section 10. Grantee is hereby granted the right to reasonable entry and access to the Property pursuant to Section 4.1(b) for inspection and monitoring purposes and for enforcement of the terms of this Conservation Easement, including the right to access the Property over any roads, trail, or pathways owned by Grantor and any rights-of-way or other access ways now or hereafter available to Grantor for access to the Property. Except in cases where Grantee determines that immediate entry is required to prevent, terminate, or mitigate a violation of this Conservation Easement, such entry shall be upon prior reasonable notice to Grantor, and Grantee shall not in any case unreasonably interfere with Grantor's use and quiet enjoyment of the Property. If at any time Grantee finds what it believes is a violation, it may at its discretion take appropriate legal action. Except when an ongoing or imminent violation could irreversibly diminish or impair the open space character, scenic qualities or Conservation Values of the Property, Grantee shall give Grantor written notice in accordance with Section 17 of this Conservation Easement of the violation and thirty (30) days to correct such violation, before filing any legal action. Grantee may commence such legal action only if Grantor fails to reasonably cure any such breach within such thirty (30) days (or if such cure shall be of such a nature that it cannot be completed within such thirty (30) day period, then

only if Grantor shall not have properly commenced cure within such thirty (30) day period and have proceeded with reasonable diligence and good faith to complete such cure). If a court with jurisdiction determines that a violation may exist or has occurred, Grantee may obtain an injunction to stop it, temporarily or permanently. A court may also issue an injunction requiring Grantor to restore the Property to its condition prior to the violation but only to the extent Grantor caused the violation. The failure of Grantee to discover a violation or to take immediate legal action shall not bar Grantee from doing so at a later time. In addition to injunctive remedies, Grantee shall have the right to seek the following remedies against Grantor or any other person legally responsible in the event that a court finds that a violation of this Conservation Easement exists or has occurred: (i) monetary damages, including damages for the loss of the Conservation Values protected by the Conservation Easement; (ii) restoration of the Property to its condition existing prior to such violation, including the removal of offending structures; and (iii) any other remedies available at law or in equity. Said remedies shall be cumulative and shall be in addition to all remedies now or hereafter existing at law or in equity.

(b) If Grantee, acting in Grantee's sole discretion and good faith, determines that circumstances require immediate action to prevent or mitigate significant damage to the open space character, scenic qualities or Conservation Values of the Property, Grantee may pursue its remedies under this Section 10 without prior notice to Grantor or without waiting for the period provided for the cure to expire. In such case, Grantee shall use reasonable efforts to notify Grantor of such circumstances and proposed action, but the failure to provide such notice shall not limit Grantee's rights under this paragraph.

(c) Forbearance by Grantee to exercise any of its rights under this Conservation Easement in the event of any breach of any term of this Conservation Easement by Grantor shall not be deemed or construed to be a waiver by Grantee of such term or of any subsequent breach of the same or any other term of this Conservation Easement or of any of Grantee's rights under this Conservation Easement. No delay or omission by Grantee in the exercise of any right or remedy upon any breach by Grantor shall impair such right or remedy or be construed as a waiver.

(d) All reasonable costs incurred by Grantee in enforcing the terms of this Conservation Easement against Grantor, including, without limitation, costs and expenses of suit and reasonable attorneys' fees, and any costs of restoration necessitated by Grantor's violation of the terms of this Conservation Easement shall be borne by Grantor without setoff, deduction, defense, abatement, suspension, deferment, or reduction; provided, however, that if a court finds that no violation has occurred, each party shall bear its own costs. Grantor expressly agrees that Grantee shall have, is hereby granted, and shall be entitled to record a lien against the Property for any unpaid damages or costs of enforcement. Notwithstanding anything to the contrary in the foregoing, Grantor shall not be responsible for any costs, including costs and expenses of suit and reasonable attorneys' fees, of enforcement of this Conservation Easement against third parties that are trespassing upon or using the Property without knowledge or consent of Grantor.

(e) Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury to or change in the Property resulting from causes beyond Grantor's control, including, without limitation, acts of

trespassers or the unauthorized or wrongful acts of third parties, war, fire, flood, storms and earth movement, or major tree or other botanical disease, or from any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Property resulting from such causes. Notwithstanding anything to the contrary in this Conservation Easement, Grantor shall not be obligated or required to restore the Property to its condition prior to such injury or change. Notwithstanding the foregoing, nothing herein shall preclude Grantor's and Grantee's rights to pursue any third party for damages to the Property from vandalism, trespass, or any other violation of the terms of this Conservation Easement.

(f) Notwithstanding anything to the contrary contained in this Conservation Easement, Grantor shall have no liability whatsoever for any claims, damages, expenses or similar items that were not caused by the actions of Grantor, or its agents or employees, guests or invitees.

11. **Transfer of Easement.**

(a) If Grantee dissolves, ceases to exist, is unable or unwilling to carry out its responsibilities under this Conservation Easement, or no longer qualifies under § 170(h) of the Code, then it shall have the right to transfer the conservation easement created by this Conservation Easement, and the rights and obligations created hereunder, to any public agency or private nonprofit organization that, at the time of transfer, is a "qualified organization" under § 170(h) of the Code, but only if the agency or organization expressly agrees to assume the responsibility imposed on Grantee by this Conservation Easement. If Grantee ever dissolves, ceases to exist, or no longer qualifies under § 170(h) of the Code and a transfer has not been made pursuant to the foregoing sentence, a court with jurisdiction shall transfer this Conservation Easement, and the rights and obligations created hereunder, to another qualified organization having similar purposes that agrees to assume the responsibility. Except as permitted under this Section 11, Grantee shall not otherwise transfer the Conservation Easement or the rights and obligations hereunder.

(b) Upon such transfer pursuant to this Section 11, all records, plans and documents with respect to the Conservation Easement and the Property in Grantee's possession shall be provided to such qualified transferee organization to help provide it with an understanding of the Property, the operations thereon, and the Conservation Easement.

12. **Transfer of Property.** Any time the Property itself, any part thereof, or any interest therein, is transferred by Grantor to any third party, Grantor shall notify Grantee in writing thirty (30) days prior to such transfer, and the document of conveyance shall expressly refer to this Conservation Easement and recite that the Property is subject to this Conservation Easement. The failure of Grantor to so notify Grantee shall not impair Grantor's right to transfer the Property. After such transfer, the transferring party shall thereafter have no rights or interest in this Conservation Easement, and shall have no liability for any violations of this Conservation Easement occurring after the effective date of such transfer, but such transfer shall not affect the continued obligation of any party for matters arising prior to such transfer.

13. **Effectiveness of Conservation Easement; Amendments.** This Conservation Easement shall be effective upon execution and enforceable against third parties from and after

the time it is recorded with the Register's Office of Hamilton County. This Conservation Easement may be amended only with the written consent of Grantee and Grantor. Any such amendment shall be consistent with the purposes as stated hereinabove and shall comply with § 170(h) of the Code. Additionally, any such amendment shall be effective and enforceable as to third parties from and after the time that such amendment is recorded with the Register's Office of Hamilton County.

14. **Liability and Indemnification.** If Grantee is ever required by a court to pay damages resulting from personal injury or property damage that occurs on the Property as the result of the negligent or deliberate act of Grantor or its agents, employees, guests or invitees, Grantor shall indemnify and reimburse Grantee for these payments, as well as for reasonable attorneys' fees and other expenses of defending itself, unless Grantee or any of its agents employees, guests or invitees have committed a negligent or deliberate act that is determined by a court to be the cause of the injury or damage. If ownership of the Property is ever transferred to the City of Chattanooga or other governmental entity, then the City (or other entity) shall be responsible for the obligations of Grantor under this Section 14, up to the limits of the Governmental Tort Liability Act, T.C.A. 29-20-101, *et seq.*, or the limits of any insurance purchased pursuant to that Act, as it may now or hereafter exist in Tennessee. If Grantor is ever required by a court to pay damages resulting from personal injury or property damage that occurs on the Property as a result of a negligent or deliberate act of Grantee or any of its agents that is determined by a court to be the cause of the injury or damage, Grantee shall indemnify and reimburse Grantor for these payments, as well as for reasonable attorneys' fees and other expenses of defending Grantor.

15. **Interpretation; Captions; Severability.** This Conservation Easement shall be interpreted under the laws of the State of Tennessee, resolving any ambiguities and questions of the validity of specific provisions so as to give maximum effect to its conservation purposes. The captions in this Conservation Easement are for reference purposes only and shall not define, limit or expand the meaning or application of any term, paragraph or section contained herein. This Conservation Easement is severable, such that the invalidity, illegality or unenforceability of any term or provision contained herein shall not affect the validity, legality or enforceability of the other provisions in this Conservation Easement.

16. **Perpetual Duration.** The Conservation Easement shall be a servitude running with the land in perpetuity. Every provision of this Conservation Easement that applies to Grantor or Grantee shall also apply to their respective agents, heirs, personal and legal representatives, assigns and all other successors as their interests may appear.

17. **Notices.** Any notices required by this Conservation Easement shall be in writing and shall be personally delivered, nationally recognized overnight courier service or sent by first class mail, return receipt requested, to Grantor and Grantee respectively at the following addresses, unless a party has been notified by the other of a change of address:

If to Grantor

The Trust for Public Land
202 Tremont Street
Chattanooga, TN 37405
Attention: Rick Wood

With a copy to: The Trust for Public Land Book and Page: 61 9375 739
306 North Monroe Street
Tallahassee, FL 32301
Attention: J. Alex Ghio

If to Grantee Tennessee River Gorge Trust, Inc.
535 Chestnut Street, Suite 208
Chattanooga, TN 37402
Attention: Jim Brown, Executive Director

With a copy to:

In the event that a party to this Conservation Easement shall transfer such party's interest in the Property or under this Conservation Easement by conveyance, distribution, operation of law or otherwise, the transferee of such interest shall provide the nontransferring party with written notice of the change of address to which notice is to be sent hereunder.

18. **Environmental Matters.** Other than as previously disclosed to Grantee, Grantor has no actual knowledge of a material release or threatened release of hazardous substances or wastes on the Property in violation of federal, state or local laws, statutes, regulations or ordinances, or the Property's use as a landfill or dump.

19. **Subordination: Liens.** No provisions of this Conservation Easement should be construed as impairing the ability of Grantor to use this Property as collateral for borrowing, provided that any deed of trust, mortgage or lien arising from such a borrowing shall be subordinate to this Conservation Easement. On the date of this Conservation Easement and of its recording in the Register's Office for the county in which the Property is located, the Property and the Conservation Easement shall be free of or superior in priority to any deed of trust, mortgage or lien.

20. **Acceptance.** As evidenced by the signature of Grantee's duly authorized officer affixed hereto, Grantee hereby accepts without reservation the rights and responsibilities conveyed by this Conservation Easement.

21. **Counterpart Execution.** This Conservation Easement may be simultaneously executed in several counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument.

22. **Conveyance.** This Conservation Easement is quitclaimed subject to such limitations, covenants and restrictions as may affect the Property, but the parties hereto specifically agree to comply with all of the terms and provisions herein contained.

23. **Grantor's Representations.** Grantor represents, warrants and covenants to and with Grantee as follows:

(a) Grantor is a corporation, duly organized and validly existing under the laws of the State of California.

(b) The execution and delivery of this Conservation Easement, and the performance of Grantor's obligations under this Conservation Easement, have been duly authorized by all requisite company action, and are consistent with and not in violation of, and will not create any adverse condition under, any contract, agreement or other instrument to which Grantor is a party, any judicial order or judgment of any nature by which Grantor is bound, or the organizational documents of Grantor.

[COUNTERPART EXECUTION PAGES FOLLOW]

CONSERVATION EASEMENT
COUNTERPART EXECUTION PAGE

IN WITNESS WHEREOF, the undersigned, intending to legally bind themselves, have executed this Conservation Easement as of the date first written above.

GRANTOR:

THE TRUST FOR PUBLIC LAND

By: _____

J. Alex Ghibo MS. Counsel



STATE OF Florida

COUNTY OF Leon

Before me, a Notary Public of the state and county mentioned, personally appeared J. Alex Ghibo with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who, upon oath, acknowledged such person to be Counsel of **THE TRUST FOR PUBLIC LAND** the within named bargainor, a corporation, and that such person as such officer, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by personally signing the name of the corporation by such person as such officer.

WITNESS my hand and seal, at office in Tallahassee, Florida,
this 29th day of March, 2011.

Stacy S. Gayhart
Notary Public

My Commission Expires: 10-31-2014



**CONSERVATION EASEMENT
COUNTERPART EXECUTION PAGE**

IN WITNESS WHEREOF, the undersigned, intending to legally bind itself, has executed this Conservation Easement as of the date first written above.

GRANTEE:

**TENNESSEE RIVER GORGE TRUST,
INC.**

By: James L Brown

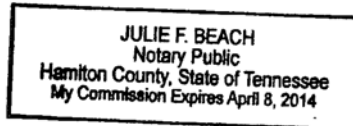
Print Name: Jim Brown

Title: Executive Director

STATE OF TENNESSEE
COUNTY OF HAMILTON

Before me, a Notary Public of the state and county mentioned, personally appeared **JIM BROWN**, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who, upon oath, acknowledged such person to be Executive Director of **TENNESSEE RIVER GORGE TRUST, INC.**, the within named bargainor, a not-for-profit corporation, and that such person as such officer, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by personally signing the name of the Tennessee River Gorge Trust, Inc. by such person as such officer.

WITNESS my hand and seal, at office in Hamilton County TN, this 30th day of March, 2011.



Julie F. Beach
Notary Public

My Commission Expires: Apr 8, 2014

STATE OF TENNESSEE)
COUNTY OF HAMILTON)

I hereby swear or affirm that the actual consideration for this transfer is \$0.00

James L. Brown
Affiant

Subscribed and sworn to before me on this 30th day of March, 2011

NOTARY PUBLIC
My Commission Expires: 11/9/2011



Exhibit "A"

Located in the City of Chattanooga of Hamilton County, Tennessee:

TRACT ONE: To locate the True Point of beginning, commence at a point located in the southern right of way line of the western terminus of Sawyer Street (a 50' public right of way) as located and shown on survey by Phillip D. Bice of Allen Surveying Company dated November 20, 2008, last revised January 8, 2009, Job No. 0701-11, said point being located North 79 degrees 05 minutes 52 seconds West, a distance of 91.19 feet from the northwest corner of the Richard J. McUsic property described in deed recorded in Book 5722, Page 912, in the Register's Office of Hamilton County, Tennessee; thence northwardly along the western terminus of Sawyer Street and continuing along the western line of the John James property described in Deed recorded in Book 1638, Page 653, in the Register's Office of Hamilton County, Tennessee, North 02 degrees 46 minutes 35 seconds East, a distance of 142.13 feet to an iron pin; thence North 74 degrees 18 minutes 34 seconds West, a distance of 748.30 feet to a point; thence North 74 degrees 18 minutes 34 seconds West, a distance of 45.82 feet to a point and the TRUE POINT OF BEGINNING; thence South 44 degrees 52 minutes 27 seconds West, a distance of 119.43 feet to a point in the northern terminus of Lakeview Road; thence along the northern terminus of Lakeview Road North 89 degrees 14 minutes 12 seconds West, a distance of 12.14 feet to a point in the western right of way line of Lakeview Road; thence southwardly along the western right of way line of Lakeview Road South 00 degrees 45 minutes 48 seconds West, 70.0 feet; thence along a curve to the left, a distance of 56.42 feet (I = 28 degrees 53 minutes 33 seconds, R = 111.88'); thence South 28 degrees 07 minutes 46 seconds East, 275.68 feet; thence along a curve to the right, a distance of 25.86 feet (I = 20 degrees 33 minutes 56 seconds, R = 72.05'); thence South 07 degrees 33 minutes 51 seconds East, 38.23 feet; thence along a curve to the left, a distance of 103.80 feet (I = 41 degrees 41 minutes 45 seconds, R = 142.63'); thence South 49 degrees 15 minutes 35 seconds East, 69.05 feet; thence South 29 degrees 26 minutes 15 seconds West, 101.68 feet; thence along a curve to the right, a distance of 130.46 feet (I = 44 degrees 52 minutes 49 seconds, R = 166.55'); thence along a curve to the left, a distance of 182.43 feet (I = 29 degrees 55 minutes 02 seconds, R = 349.38'); thence South 44 degrees 24 minutes 03 seconds West, 145.15 feet; thence along a curve to the left, a distance of 141.89 feet (I = 98 degrees 14 minutes 49 seconds, R = 82.75'); thence South 53 degrees 50 minutes 47 seconds East, 33.02 feet; thence along a curve to the right, a distance of 196.31 feet (I = 27 degrees 33 minutes 57 seconds, R = 408.03'); thence South 26 degrees 16 minutes 51 seconds East, 17.50 feet; thence along a curve to the left, a distance of 175.49 feet (I = 28 degrees 54 minutes 50 seconds, R = 347.75'); thence South 55 degrees 11 minutes 40 seconds East, 57.38 feet; thence along a

(1)

Exhibit "A"

curve to the right, a distance of 127.80 feet (I = 145 degrees 04 minutes 16 seconds, R = 50.47'); thence South 89 degrees 52 minutes 37 seconds West, 65.70 feet; thence along a curve to the left, a distance of 49.08 feet (I = 21 degrees 43 minutes 58 seconds, R = 129.40'); thence South 68 degrees 08 minutes 38 seconds West, 91.33 feet; thence along a curve to the right, a distance of 108.27 feet (I = 27 degrees 08 minutes 52 seconds, R = 228.51'); thence North 84 degrees 42 minutes 30 seconds West, 48.55 feet; thence along a curve to the right, a distance of 35.18 feet (I = 72 degrees 04 minutes 45 seconds, R = 27.97'); thence North 12 degrees 37 minutes 45 seconds West, 46.12 feet; thence along a curve to the left, a distance of 109.85 feet (I = 37 degrees 13 minutes 18 seconds, R = 169.09'); thence along a curve to the right, a distance of 72.71 feet (I = 49 degrees 55 minutes 27 seconds, R = 83.45'); thence North 00 degrees 04 minutes 24 seconds East, 84.31 feet; thence along a curve to the left, a distance of 191.79 feet (I = 98 degrees 51 minutes 21 seconds, R = 111.16'); thence South 81 degrees 13 minutes 02 seconds West, 91.47 feet; thence along a curve to the right, a distance of 145.86 feet (I = 31 degrees 27 minutes 31 seconds, R = 265.65'); thence North 67 degrees 19 minutes 27 seconds West, 103.48 feet; thence along a curve to the left, a distance of 55.16 feet (I = 08 degrees 46 minutes 36 seconds, R = 360.10'); thence North 76 degrees 06 minutes 02 seconds West, 30.07 feet; thence along a curve to the right, a distance of 84.99 feet (I = 31 degrees 00 minutes 36 seconds, R = 157.04'); thence along a curve to the left, a distance of 47.84 feet (I = 28 degrees 39 minutes 24 seconds, R = 95.65'); thence North 09 degrees 34 minutes 33 seconds East, 19.20 feet; thence North 79 degrees 10 minutes 33 seconds West, 170.00 feet; thence North 04 degrees 36 minutes 43 seconds East, 70.0 feet; thence North 79 degrees 42 minutes 36 seconds East, 39.10 feet; thence North 64 degrees 08 minutes 08 second East, 65.96 feet; thence North 61 degrees 29 minutes 13 seconds East, 39.69 feet; thence North 65 degrees 23 minutes 25 seconds East, 37.01 feet; thence South 71 degrees 22 minutes 36 seconds East, 57.50 feet; thence South 36 degrees 26 minutes 04 seconds East, 38.24 feet; thence South 60 degrees 56 minutes 09 seconds East, 28.96 feet; thence South 89 degrees 41 minutes 03 seconds East, 42.70 feet; thence North 00 degrees 24 minutes 02 seconds West, 396.0 feet; thence South 89 degrees 03 minutes 02 seconds East, 241.0 feet; thence North 31 degrees 55 minutes 56 seconds East, a distance of 753.87 feet to a point; thence South 74 degrees 18 minutes 34 seconds East a distance of 291.88 feet to the POINT OF BEGINNING. Containing 23.757 acres as shown on survey by Phillip D. Bice of Allen Surveying Company dated November 20, 2008, last revised January 8, 2009 Job No. 0701-11.

Exhibit "A"

TRACT TWO:

Beginning in the southern line of Pine Ridge Road (a 40 foot right of way) and the northeast corner of the Mark Brown property described in deed recorded in Book 4978, Page 167, in the Register's Office of Hamilton County, Tennessee; thence along the southern and western line of Pine Ridge Road the following: North 81 degrees 13 minutes 02 seconds East, 69.64 feet; Along a curve to the right a distance of 122.78 feet (I= 98 degrees 51 minutes 21 seconds, R= 71.16'), South 00 degrees 04 minutes 24 seconds West, 84.31 feet, Along a curve to the left a distance of 107.56 feet (I= 49 degrees 55 minutes 27 seconds, R= 123.45'), Along a curve to the right a distance of 83.86 feet (I= 37 degrees 13 minutes 18 seconds, R= 129.09'), South 12 degrees 37 minutes 45 seconds East, 46.12 feet, Along a curve to the left a distance of 80.0 feet (I= 67 degrees 26 minutes 20 seconds, R= 67.97'); thence leaving said road and along the George Grant property described in Deed recorded in Book 4154, Page 468, said Register's Office, South 37 degrees 07 minutes 15 seconds West, 143.73 feet to a point in the Chattanooga Housing Authority property described in Deed recorded in Book 2182, Page 185, said Register's Office; thence along the Chattanooga Housing Authority property, the Adam Towbridge property recorded in Book 6724, Page 964 and the M. Brown property recorded in Book 4978, Page 167, North 22 degrees 27 minutes 33 seconds West, 563.50 feet to the point of beginning. Containing 1.177 acres as shown on survey by Phillip D. Bice of Allen Surveying Company dated November 20, 2008, last revised January 8, 2009 Job No. 0701-11.

TRACT THREE:

Beginning at an iron pin located in the northeast corner of the Robert West property described in deed recorded in Book 7175, Page 278, in the Register's Office of Hamilton County, Tennessee, and the west line of High Ridge Road (a 40 foot right of way); thence along the northern line of the Robert West property the following calls: South 68 degrees 32 minutes 15 seconds West, 142.23 feet and North 83 degrees 22 minutes 03 seconds West, 42.01 feet to a point in the east line of George Grant property recorded in Book 4154, Page 468, said Register's Office; thence along the George Grant property North 23 degrees 16 minutes 16 seconds East, 51.47 feet to the east line of Lakeview Road (a 40 foot right of way); thence northwardly along the east line of Lakeview Road the following: Along a curve to the left a distance of 154.48 feet (I = 97 degrees 49 minutes 43 seconds, R = 90.47'), North 55 degrees 11 minutes 40 seconds West, 57.38 feet, Along a curve to the right a distance of 155.30 feet (I = 28 degrees 54 minutes 50 seconds, R = 307.75'), North 26 degrees 16 minutes 51 seconds West, 17.50 feet, Along a curve to the left a distance of 215.56 feet (I = 27 degrees 33 minutes 57 seconds, R

(3)

= 448.03'), North 53 degrees 50 minutes 47 seconds West, 33.02 feet, Along a curve to the right a distance of 73.30 feet (I = 98 degrees 14 minutes 49 seconds, R = 42.75'), North 44 degrees 24 minutes 03 seconds East, 145.15 feet, Along a curve to the right a distance of 161.54 feet (I = 29 degrees 52 minutes 02 seconds, R = 309.38'), Along a curve to the left a distance of 161.79 feet (I = 44 degrees 52 minutes 49 seconds, R = 206.55'), North 29 degrees 26 minutes 15 seconds East 93.68 feet to the intersection of the east line of Lakeview Road and the west line of High Ridge Road; thence along said intersection South 49 degrees 15 minutes 35 seconds East 1.32 feet to a point; thence along the west line of High Ridge Road the following: South 28 degrees 32 minutes 49 seconds West, 160.58 feet, Along a curve to the right a distance of 86.10 feet (I = 49 degrees 00 minutes 54 seconds, R = 100.64'), South 77 degrees 33 minutes 42 seconds West, a distance of 41.61 feet, Along a curve to the left a distance of 95.79 feet (I = 48 degrees 01 minutes 15 seconds, R = 114.29'), South 29 degrees 32 minutes 27 seconds West, 60.88 feet, Along a curve to the left a distance of 185.43 feet (I = 75 degrees 36 minutes 50 seconds, R = 140.51'), South 46 degrees 04 minutes 23 seconds East, 102.36 feet, along a curve to the right a distance of 51.08 feet (I = 23 degrees 11 minutes 39 seconds, R = 126.19'), South 22 degrees 52 minutes 44 seconds East, 48.42 feet, Along a curve to the left a distance of 107.72 feet (I = 55 degrees 08 minutes 47 seconds, R = 111.92'), South 78 degrees 01 minute 30 seconds East, 73.19 feet, Along a curve to the right a distance of 194.80 feet (I = 94 degrees 57 minutes 58 seconds, R = 117.53'), South 16 degrees 56 minutes 28 seconds West, 46.29 feet to the point of beginning. Containing 1.895 acres as shown on survey by Phillip D. Bice of Allen Surveying Company dated November 20, 2008, last revised January 8, 2009 Job No. 0701-11.

TRACT FOUR:

Beginning at a point located in the southern right of way line of the western terminus of Sawyer Street (a 50' public right of way) as located and shown on survey by Phillip D. Bice of Allen Surveying Company dated November 20, 2008, last revised January 8, 2009, Job No. 0701-11, said point being located North 79 degrees 05 minutes 52 seconds West, a distance of 91.19 feet from the northwest corner of the Richard J. McUisc property described in deed recorded in Book 5722, Page 912, in the Register's Office of Hamilton County, Tennessee; thence along the southern line of Sawyer Street South 79 degrees 05 minutes 52 seconds East, 91.19 feet to the northwest corner of the Richard McUisc property; thence along the west line of said Richard McUisc property and the western terminus of a 20' alley South 04 degrees 26 minutes 23 seconds West, 157.0 feet; thence South 85 degrees 33 minutes 37 seconds East, 70.0 feet; thence South 04 degrees 26 minutes 23 seconds West, 137.50 feet; thence North 85 degrees 33 minutes 37

Exhibit "A"

seconds West, 150.0 feet; thence South 04 degrees 26 minutes 23 seconds West, 18.66 feet; thence North 85 degrees 33 minutes 37 seconds West, 251.81 feet; thence South 04 degrees 09 minutes 25 seconds West, 10.47 feet; thence North 82 degrees 41 minutes 25 seconds West, 116.53 feet; thence South 88 degrees 02 minutes 08 seconds West, 140.82 feet; thence North 49 degrees 15 minutes 35 seconds West, 134.48 feet; thence along a curve to the right, a distance of 74.69 feet (I = 41 degrees 41 minutes 45 seconds, R = 102.63'); thence North 07 degrees 33 minutes 51 seconds West, 38.23 feet; thence along a curve to the left, a distance of 40.22 feet (I = 20 degrees 33 minutes 56 seconds, R = 112.05'); thence North 28 degrees 07 minutes 46 West 275.68 feet; thence along a curve to the right, a distance of 36.25 feet (I = 28 degrees 53 minutes 33 seconds, R = 71.88'); thence North 00 degrees 45 minutes 48 seconds East, 41.27 feet; thence North 44 degree 52 minutes 27 seconds East, 143.02 feet; thence South 74 degrees 18 minutes 34 seconds East, a distance of 748.30 feet to an iron pin located in the northwest corner of the John James property described in Deed recorded in Book 1638, Page 653, said Register's Office; thence along the western line of the John James property and the western terminus of Sawyer Street South 02 degrees 46 minutes 35 seconds West, 142.13 feet to the True Point of Beginning. Containing 9.793 acres as shown on survey by Phillip D. Bice of Allen Surveying Company dated November 20, 2008, last revised January 8, 2009 Job No. 0701-11.

TRACT FIVE:

Beginning at a point in the west line of Lot 191, North Chattanooga Land Co., Plat Book 1, Page 28, in the Register's Office of Hamilton County, Tennessee, and the north line of Peak Street; thence along the north line of Peak Street, South 87 degrees 38 minutes 39 seconds West, 218.13 feet and North 24 degrees 14 minutes 56 seconds West, 77.40 feet to a point; thence North 87 degrees 38 minutes 39 seconds East, 255.16 feet to the west line of said Lot 191; thence along the west line of said Lot 191, South 04 degrees 07 minutes 54 seconds West, 72.28 feet to the point of beginning. Containing 0.390 acres and being shown as Tract 6 on survey by Phillip D. Bice of Allen Surveying Company dated November 20, 2008, last revised January 8, 2009, Job No. 0701-11.

The source of grantor's interest is found in Deed recorded in Book 8830, Page 831, Register's Office Hamilton County, Tennessee.

Appendix H

Notes from Stakeholder Meetings



REPORT AND COMMENTS FROM MAY 10, 2011 STRINGERS RIDGE STEERING COMMITTEE

The Stringers Ridge Steering Committee met with Woody Keen and Valerie Naylor from Trail Dynamics, and Rick Wood from The Trust for Public Land for a roundtable discussion on proposed trail building.

Entities represented: Chamber of Commerce, Rock Creek, SORBA, Wild Trails, Outdoor Chattanooga, The Lyndhurst Foundation, Hill City Neighborhood Association, North Chattanooga Chamber of Commerce, Chattanooga Regional Planning Agency, TPL Advisory Board, Tennessee River Gorge Trust

I. Background and Introduction

- A. “We did it”. The land is conserved. The Tennessee River Gorge Trust owns a conservation easement on 92 acres on Stringer’s Ridge. This includes 37 acres that city owns. Jimmy Hudson owns other 55 acres and will donate it to city when it makes sense for him financially. This means that Stringer’s can never be developed in any way, except for trail building.
- B. Stringer’s Ridge is an “urban pocket forest”, and will be used for human powered recreation only, i.e. mountain biking, walking, running

II. Woody Keene’s thoughts on Stringer’s Ridge. He wants to develop a “focused perspective” with TPL by considering the following:

- A. What does Chattanooga NOT have? Rick Wood first took Woody and Valerie to Raccoon Mountain and Enterprise South so they could get idea of what Chattanooga already has. Those places are geared toward outdoor enthusiasts, i.e. those will drive to trails. Woody and Valerie want to attract 25,000 people who live within two miles of Stringer’s, most of whom are not avid trail users. Stringer’s should be a minimally invasive, low impact recreation area that’s accessible to public
- B. A Park needs to consider three things
 - 1. How to get users to visit more often
 - 2. How to increase duration of stay, i.e. building railings or benches at viewpoints
 - 3. Why some people are not visiting

- C. Planning Stages. “A plan without action is a daydream. An action without a plan is a nightmare.”
 - 1. In office planning and drafting- Summer 2010
 - 2. On the ground marking and surveying- Fall 2010
 - 3. Construction-2012

The meeting moved to an open discussion format and offered the following comments:

- A. Trailheads. Important to have defined access points Existing trailheads are:
 - 1. Behind Nikki’s restaurant on Cherokee Blvd.
 - 2. At the end of Highridge Road in N. Chatt
 - 3. At end of Spears Ave in N. Chatt. This is not in best neighborhood. Residents there are excited that condos won’t be built, but not excited about influx of cars and trail users. How can we attract these folks to Stringer’s? How can we change their outlook?
 - 4. In White Oak Park in Red Bank
- B. Parking. Group agrees that it will be difficult to build any one huge lot. Need to build few small lots at trailheads. Perhaps have them also park at Coolidge or Renaissance Park and shuttle, bike, or walk to access points. Extending the electric shuttle to the major trail head at Stringers would help this situation.
- C. Use
 - 1. “The Package”
 - a. Recreational. Stringer’s can provide a place for novices, kids, and families to bike and hike. Make use of the old road beds for the beginner level trails. Make Stringer’s Ridge a destination. Direct trails to scenic and historic points
 - b. Economic. The economic impact of Stringer’s Ridge on local businesses in the Northshore and Chattanooga as a whole can be huge. A family might rent a bike from Suck Creek, bike for a few hours, and then stop at Riverstreet for a sandwich and drinks. Also, trails are the best investment that Parks and Recreation can make. They are cheaper and used more other than ballfields, etc.
 - c. Ecological/Educational – maintaining the urban forest while offering connectivity. Opportunities to learn about Stringers Ridge.
 - d. Group agrees that bikers and runners can share trails like they do on Raccoon Mountain but not the casual walker.
 - e. Mountain bike skills park. Group agrees that skills park would provide great recreation opportunity for kids. Will definitely help increase duration of stay.
 - f. Need a pavilion

- g. Make the pavilion/ overlook a destination including a sign or sign panel that locates city landmarks so you know what you are looking at.

D. Other Items

- a. Hill City Neighborhood is excited but concerned about traffic and “strangers”
- b. The value of Stringers is easy access / proximity
- c. TD can offer chainsaw certification to anyone interested
- d. Identify and highlight historic opportunities

FOCUS GROUP - TRAILS

The Trust for Public Land offered 2 days of focus group meetings with trail users. The intent of these meetings was to get a good sense of what the trail users really want on Stringers, and to find out how they best can help execute the plans. There is a lot of experience among these people and it is good to gain their input.

- 1) What do you want Stringers Ridge to be and what types of users do you see using the property?
 - I would like to see at least 6-8 miles of single track—and it may be any combination of existing trails or new trails.
 - It's quite possible that the most exciting and interesting single track trails don't even exist yet and that some of the existing trail system should be closed or modified.
 - Celebrate the proximity to other parks and neighborhoods
 - Involve more people, all types
 - I can see many different user groups using Stringers: families, local residents, school groups, trail runners, mountain bikers, hikers.
 - Trails targeting trail runners and mountain bikers in particular should be of various difficulty levels, especially for novices (like Enterprise South)
 - Perhaps one trail or sections of trails could be "botany trails" with low-key signage. The Civil War connection should also be highlighted in some way.
 - I would like to see Stringers stay at a "rough" level – still an urban wilderness where it's safe to get "lost." Signage should be at a minimum (maybe flashes rather than signs, especially in the interior), and the experience should be as "back-woods" as possible.
 - Should define an area that is accessible to families / novice level. but they need to know by signs and/or design that a particular trail is tougher or more dangerous and likely for a more advanced trail user. Should be signed well or designed so that it is obvious.
 - Consider "zones" in planning where sections of Stringer's are especially family-friendly but others are more raw wilderness. So it would be more than trails of different levels of difficulty but also sections of different levels of difficulty, access and "feel."
 - Using the existing paved trails for the family / novice area makes sense.
 - We should clean, repair and open the existing paved trails officially as an initial means of access while we work on design and planning of the overall trail system
 - We should consider whether to clean, repair and open any trails that already exist and will definitely be part of the trail system.
 - No lights
 - The second focus group mentioned many of the above comments but we were joined by an individual from Siskin Hospital Rehabilitation Center. We discussed making a portion of the trail "accessible." We discussed signing the existing paved areas as a good area for wheelchair accessible. But we also discussed being careful not to be concerned that this would still be a challenge because it is

in the woods and there will be debris on the trail. We did not want to have to staff a leaf blower on the trail to maintain it at a certain level.

- The second group also said that a ropes course, or adventure play area would be fine for the Old Baldy area because the family area really is towards the southern end of Stringers.
 - A pump track and/or MTB skills park would be excellent additions, perhaps at White Oak Park.
 - The area around the water tower needs to be investigated.
 - In an ideal world and with all necessary permissions, it would be possible to have a corridor that would allow users to cover the full length of Stringers between White Oak and Nikki's. This might be follow an easy route down the power lines and connect eventually to the asphalt trail on the other side. However, single track should exist on the sides of the power lines, too, so there are "parallel" experiences. This could also tie into the Jones and Jones study and broader greenways work by having a relatively easy way to traverse Stringer's, while not detracting from more challenging and wilderness zones.
- 2) What do you hope your role is in all of the above?
- Volunteers have a good working knowledge of building single track trails and think that volunteers could build/repair/prepare many of the existing/planned trails;
 - A friends group should be developed (not another 501c3 non-profit). The group should work to support The River Gorge Trust and the City. The group can help monitor the trails for social issues and physical repairs as well as programming.
- 3) How do we handle parking? Where?
- A trailhead at Nickis would be a good general parking area for the families, first timers, and novice users especially. This trailhead makes sense because of its easy location and visibility to Cherokee Blvd. I would be ideal to cut trail that would veer from the asphalt path at the trailhead or along the way rather than from the current parking area. This would give those who want single-track the option to get on it sooner and reduce likelihood of user conflict. The asphalt should still be open to bikes, though.
 - This group agreed that a gate near the entrance of High Ridge Road makes sense and it actually elongates the trail experience even though it is paved. It basically is additional mileage. (Perhaps it would be possible to cut trail that would veer from High Ridge along the way rather than from the current parking area. This would give those who want single-track the option to get on it sooner.)
 - Spears Ave trailhead also makes sense but maybe a phase 2 or phase 3 parking area. Once Stringers is up and running, people are on the trails, in the park, then maybe this trailhead becomes necessary. It was thought that this trailhead might be more for the tougher trails because it is adjacent to the steeper part of the ridge.
 - Access to and from Red Bank White Oak Park is important because they already have parking and trail head features. The problem with the access is the power-line area. This area needs some attention and some thought.

NOTES FROM AUGUST 10, 2011
STRINGER'S RIDGE TRAIL PLANNING COMMITTEE

Trailheads/Parking:

- General: Concern over access/ and parking. We cannot unveil – or go public with this plan without a parking plan.
- TH1 – we all agree that that TH1 is the primary welcome area and trailhead. Rick needs to work in this gap between conceptual planning and trying to make it actually happen. Currently, neither TPL nor the City owns enough real estate to accommodate a true trailhead. Rick is working with the adjacent landowner to come up with a shared parking arrangement or a satisfactory acquisition strategy.
- TH1 and TH2 should stay labeled and located as they are currently;
- TH3 and TH4 should be re-labeled to a better description: something like Bike and Pedestrian Only Access Points (Access Points);
- TH3 should not be an ADA Only Access point. (see note on ADA below). Having a combination lock and gates system is complicated with room for many problems. TH3 should become an Access Point Kiosk geared towards the neighborhood and towards walkers and cyclists. To keep out the unwanted behavior at this small remote parking area, more thought on a new location of a gate (just beyond the Havron's driveway), signs stating this is for "emergency and official" parking only. This may also involve communicating early on High Ridge Road that there is no parking for Park Access at this entrance – that this is a emergency, official use only, and bike/ped access point only. (surely someone can come up with better wording!)
- A new Trail Head could be created at the North Chattanooga Rec Center. This would be a natural for many people coming to Stringer's Ridge to ride their bike. Rick will locate this rec center on a map and will ask Jones and Jones to consider this idea in their planning.

ADA Access:

- We should remove all references to an official ADA access point and remove the greenline. Woody, if you have a better explanation or better description here lets discuss. I want to make sure we go into this with eyes wide open, understanding the costs and benefits.

Proposed Trail Specifications:

- Jim raised a concern that about the maximum trail gradient because of sustainability of the trail and the potential required maintenance of the trail that have a steeper gradient. We agreed that there is a need to look into this further and have Woody Keene respond to this concern. Rick will also follow up on this issue by having SORBA describe to us the average gradient at both Raccoon and Enterprise South and their ability to maintain these trails. SORBA said the overall gradient at Enterprise is probably 5-8% over a 100lf section, but with some ups and downs that are steeper than that that serve the need to remove water and slow traffic.

Cost Estimates:

- Per the executed Scope of Services, Trail Dynamics still needs to provide general cost ranges of trails and special areas.

Wayfinding:

- There should be text in the document referencing Trail Dynamics recommended approach to trail signs and internal signage. This does not have to be sign standards but should reference an overall strategy, including some recommended pictures. The details can be ironed out in Phase 2.

Special Areas:

- While the committee did not disagree with any of the special areas (exception being the location of the pump track). We all felt the need to have a sentence indicating that these “special areas” all enhance the park experience but depending on funding available could be constructed at a later date. The 1st phase of development would be the trail system and that would provide the foundation for use and access.
 - Pump Track: We all liked the pump track but were not sure how much room these take up (acreage) and how much maintenance they require. It is simply an unknown. With that in mind along with these being spectator draws, we all liked the idea of the White Oak Park location. This would help animate that park with parking and restrooms already available. This being said, this makes the case for a strong connection between White Oak and Stringer’s Ridge.
 - Bike Skills Area: Once again this needs a little more explanation and description. We simply do not know how much space this takes up and what type of infrastructure and maintenance is required for this. Is this something SORBA build and maintains? Also, the know that you recommend actually has an old house foundation on it and would require land disturbance and potentially some hazardous material removal (asbestos).

Next Steps:

- TD to make changes and finalize draft.
- TD and RW to Schedule time to visit Chattanooga for final presentation and to schedule Phase 2;

Lyndhurst, TPL, TRGT, City, SORBA leadership, Wild Trail ED, have all reviewed the initial concepts and are in general agreement with them.

Appendix I

Glossary of Trail Related Terminology

Access Points: Designated areas and passageways that allow users to reach a trail from adjacent facilities (i.e., parking areas, campgrounds, etc).

Accessible: Trail segment or trail-side facility, like an overlook or platform, designed and built to comply with guidelines set forth by the Americans with Disabilities Act (ADA).

Alignment: The exact route taken by a trail or trail segment. [Related to Trail or Tread Alignment]

Alternate Line: An intentional optional route provided in alignment design and construction, which is frequently used to offer 'technical' and 'easy' options for mountain bikers.

Anchor: A landscape object (i.e., tree, stone, etc) that defines the tread edge, helping to keep users in the center of the trail. In armoring, this may be a stone or timber used to hold other armoring materials in place. Additionally, this can also refer to a sturdy object securing the stationary end of a winch or hoist.

Armor: Stone, brick, block, or other tough materials used to reinforce a surface.

Armoring: Reinforcing a trail surface with rock, recycled concrete, or wear resistant timbers (e.g., locust, treated timbers). Armoring provides a hardened tread and prevents erosion on steep trail segments or in drainage crossings. This may be used to prevent soil loss in steep or soft tread and around roots.

At Grade Cut and Fill: A tread construction technique in which organic material is removed ('cut'), then replaced with compacted mineral fill so that the finished tread is near level with the adjacent non-trail surface.

Average Trail Gradient: The average steepness of a trail segment over its length.

Backcountry Trail: A trail far from roads, buildings, and other signs of development, generally of low formality.

Backslope: The excavated slope uphill of bench cut tread. Backslope should rise from the inside

edge of the trail and smoothly transition into the native sideslope as soil composition and sideslope stability allow.

Ballast: Crushed rock fill material used to elevate a trail segment above the surrounding grade. Course ballast used in seep areas may allow water to move under the elevated tread.

Balloon Trail: A trail having a loop at the end opposite the trailhead. When drawn on a map, this trail design suggests a balloon on a string. A balloon design can add interest to an 'out and back' trail segment. May also be called a 'lollipop trail' because of its appearance on maps.

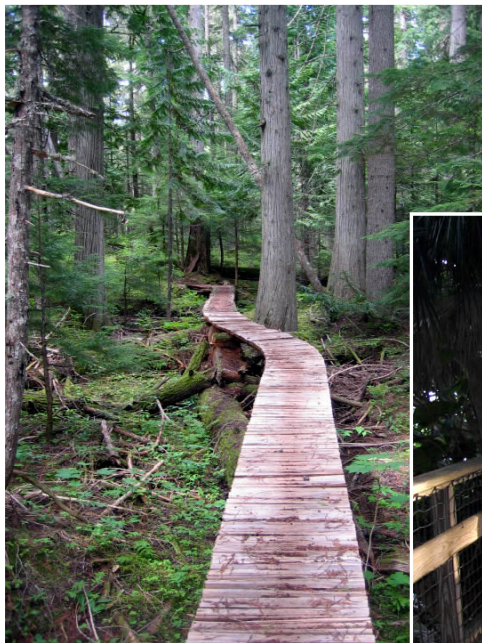
Bench Cut Tread: Shaped tread excavated out of sideslope. "Full Bench" contains no fill dirt on the tread, while "partial bench" may utilize compacted fill dirt on the outer (downhill) edge of the tread.

Berm: Mounded soil. Especially, a raised shoulder along the outside edge of a trail, preventing the flow of water across the trail tread, thus causing soft tread and erosion along the length of the berm.

Blaze: A trail identification marker. Blazes can be carved into or painted onto trees. Plastic or metal triangles or diamonds with the name of the trail or a directional arrow imprinted can be purchased and nailed to posts to mark a trail route. Scraping away bark to create a blaze is no longer recommended. Blazes nailed to trees should use non-corroding nails and the nail head should allow growth room.

Blowdown: Trees toppled over by high winds. [Related to Windfall]

Boardwalk: An elevated, fixed-plank structure, usually built on pilings in areas of wet soil or water to provide dry crossings. See photo references.



Left, Below and Right: Three examples demonstrating the construction and use of a Boardwalk.



Borrow: Fill material, usually mineral soil or gravel, taken from a site other than the trail tread excavation.

Borrow Pit: A hole dug out of sight of a trail corridor to provide fill material for trail tread construction or trail structures such as turnpikes or rock walls.

Braided Trail: A segment with undesirable multiple parallel paths created by users walking around muddy spots or other obstacles in the original alignment.

Bridge: A structure, including supports, erected over a depression (i.e., stream, river, chasm, canyon or road) and having a tread or deck for carrying trail traffic.

Broadcasting: The process of widely distributing excavated soil, cut branches, and duff as far downhill or uphill and away from the new tread as possible. Widely distributing so as to blend in with the natural soil contours and vegetation and be as inconspicuous as possible.

Brush: Vegetation or small flora.

Brushing: The process of clearing the trail corridor of plants, trees, and branches that could impede the progress of trail users.

Buffer: Any type of natural or constructed barrier (e.g., trees, shrubs, wooden fences, etc.) used between the trail and adjacent lands to minimize physical or visual impacts. Buffers also provide a transition between adjacent land uses. [Related to Buffer Zone]

Bushwhack: Off-trail travel. Originally referred to difficult cross-country travel, but now used whether the going is difficult or not. Hiking off established trails can create unwarranted reroutes or poorly considered social trails.

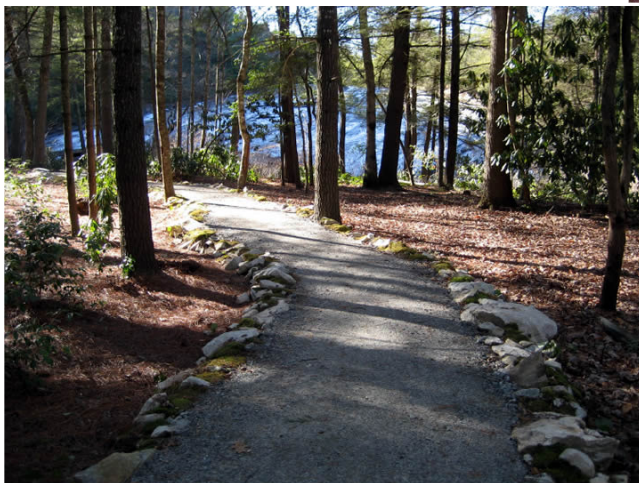
Cairn: A constructed pile of rocks located adjacent to a trail used to mark the route in lieu of a blaze. Often used in open or treeless areas or smooth rock expanses where the tread is indistinct or there is no constructed tread.

Canopy: The leaf cover in a forest stand, consisting of its upper layers.

Cantilever: The portion of a beam or other structure element extending beyond its supports.

Capacity: The maximum number of trail users that can pass through a section of trail during a given time period under existing trail conditions. Also refers to the amount of use a given resource can sustain before an irreversible deterioration in the quality of the resource begins to occur. [Related to Carrying Capacity]

Causeway: An elevated tread utilizing mineral fill material confined by stable edge materials such



Above and Right: Two different examples of a causeway.

as stone or timber. [Related to Turnpike] See photo references.

Challenge Park: A special-use area that features a variety of challenging technical trail features, generally for mountain bike uses.

Check Dam: An earthen, stone, or log dam used to slow erosion in a washed-out trail or gully. Primarily used in trail reclamation or revegetation.

Choke Point: A narrow spot in the trail and corridor that tends to slow and calm users. A choke point may restrict some users' access to a trail. [Related to Gateway]

Circle of Danger: The area surrounding a trail worker that is unsafe due to tool use. The inner, primary, circle of danger is the area the tool can reach while being used. The outer circle of danger is the area the tool could reach if the trail worker lost control or let go of the tool.

Clearing: Removal of windfall trees, uproots, leaning trees, loose limbs, wood chunks, etc. from both the vertical and horizontal trail corridor.

Clearing Limits: The area over and beside a trail that is cleared of trees, limbs, and other obstructions. Includes clearing height and clearing width.

Climbing Turn: A turn to reverse direction that doesn't have a constructed turning platform or landing. The upper and lower legs of a climbing turn are generally joined by a short section of trail, the apex of the turn, which lies directly in the fall line. As a result, climbing turns located on hillsides with a grade of more than 7 percent can be erosion prone. In a climbing turn, water drains off the outside edge on the entire length of the turn. A thru-cut climbing turn is constructed on a sidehill of 20% or more when measured between the exterior boundaries of the turn, and cuts through the sidehill grade as it changes the direction of the trail 120 to 180 degrees. [Related to Thru-Cut Climbing Turn]

Closure: A land management action temporarily or permanently prohibiting specific land or trail uses.

Compaction: The compression of aggregate, soil, or fill material into a more dense mass by tamping, vibration, or use. During trail construction, tread compaction may be accomplished by hand tools or by heavy equipment.

Contour Line: A line on a map connecting points of equal elevation.

Contouring Trail: A trail following a contour line, with its elevation remaining relatively constant.

Contrast: A visual dissimilarity between adjacent surfaces. Contrast is important in keeping users on-tread on at-grade trails.

Control Point: Places that influence where the trail goes. The beginning and end of a trail are basic control points. Other control points include parking areas, trailheads, structures, slopes appropriate for turns or switchbacks, road or water crossings, and other trails. Positive control points are places where you want users to visit. Negative control points are places you want users to avoid.

Corduroy: A trail tread built of side-by-side logs placed transversely across the trail.

Corridor: Full trail dimension, including overhead space and areas beside the tread, which must be free of brush and obstacles.

Cross Slope: The slope or gradient of the undisturbed hillside; the amount or grade of the pre-existing slope across a trail corridor, also called sideslope.

Cross-Country: Hiking or riding across open country rather than on a trail. [Related to Bushwhack]

Crowning: A trail construction technique in which the center of the tread is raised slightly to promote drainage to each side of the tread.

Culvert: A pipe or box-like construction of native rock, wood, metal, plastic, or concrete that conveys water under a trail without constricting the flow. Use of a 'half culvert' allows the native stream bottom to remain intact and is preferred to full-round culverts.

Cupping: A process of compaction and erosion that may slowly turns part of the tread into a gully; the opposite of crowning.

Curvilinear: A free-flowing trail layout pattern characterized by the general absence of straight trail segments allowing for ease of trail user movement.

Cut and Fill Construction: A trail construction technique frequently used in flat areas, whereby an organic layer of material is removed (cut) and replaced with a compacted mineral layer (fill).

Deadman: A log timber or rock partially or completely buried and used to anchor sections of armored trail or retaining wall [Related to Anchor]

Deberming: Removing the high ridge of material that has formed along the outer (downhill) edge of a trail, allowing water to once again flow off the side – and not down – the trail.

Decking: The portion of a bridge, platform, puncheon, or corduroy upon which trail traffic will travel or stand.

Destination Motivation: A user's focus on reaching a specific destination.

Directional Trail: A trail laid out or managed in such a way as to encourage users to travel in one direction only.

Doubletrack Trail: A trail that allows two users to travel side by side, or to pass without one user having to yield the trail. Many doubletrack trails are old forest roads or extraction roads.

Drainage Dip: A segment of trail, usually 20-40 feet long, whose design and construction includes a gradient reversal that forces water off-tread, even with the development of an edge berm. Used where water bars (no longer advised) were once used, a properly designed and placed drainage dip requires little maintenance. If placed in a wet-weather drainage, the dip may be 'hardened' or 'armored' to better accommodate cross-trail water flow.

Duff: Any combination of loose vegetation, vegetable matter, roots, and/or organic laden soil produced by cutting trail. Duff retains moisture and rots away quickly if not removed from trails. This results in the formation of depressions and pockets, which retain water and cause erosion problems.

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.

Ecosystem: A system formed by the interaction of living organisms, including people, with their environment. An ecosystem can be of any size, such as a log, pond, field, forest, or the earth's biosphere.

Edge Definition: Clear demarcation of tread surface from adjacent surfaces. See photo references.



Left and Above: These two pictures demonstrate the use of edge definition.

Edging: The use of plants, timbers, stones, or other items to mark the edge of a trail. [Related to Contrast, Edge Definition]

Elevated Tread: Trail tread that is raised above the level of the surrounding ground by the placement and compaction of mineral soil or other material. Elevated tread is similar to a low turnpike and is usually crowned. [Related to Raised Tread]

Environmental Impact Statement(s) (EIS): A full disclosure, detailed federal report which, pursuant to NEPA law and regulation, establishes the need for the proposed action, identifies alternatives with the potential to meet the identified need, analyzes the anticipated environmental consequences of identified alternatives, and discusses how adverse effects may be mitigated. An EIS is prepared in two stages: a draft (DEIS) statement which is made available to the public for review and a final (FEIS) statement which is revised on the basis of comments made on the draft statement.

Equestrian: Horse related.

Erosion: The natural process of wearing down and removing rock and soil by wind, water and traffic.

Exotic Plants: Plants introduced from outside their natural range.

Exposure: The relative hazard encountered when on trails and takes into consideration obstacles,

alignment, grade, clearing, tread width, tread surface, cross slope, isolation, and proximity to steep slopes or cliffs.

Extraction Road: Remaining remnant of logging, mining, or other extractive uses of land. Often intended to be used only temporarily, many extraction roads were built too steep and with poor water management and are not sustainable in design.

Face: The steep exposed side of a slope or rock. Also used to describe the exposed side of a rock in rock structures such as steps.

Fall Line: The path of least resistance or steepest line across a given contour. Water flows along the fall line under most circumstances.

Fall Zone: The area on either side of or below a technical trail feature that provides a clear landing for a rider who has failed to negotiate the obstacle.

Filter: Obvious terrain change to let trail user know that a more difficult section of trail or technical trail feature is ahead.

Flag Line: A series of flaggings or pin flags used to mark the intended route for trail construction. Usually placed in trees or on the centerline, inside edge, or critical edge of the proposed trail.

Flagging: Thin ribbon used for marking during the location, design, construction, or maintenance of a trail project

Flow: The rhythm or character of a trail.

Forest Road: Road for extraction, fire protection, forest patrols or other forest needs.

French Drain: A stone-filled trench or hole that can have a porous pipe laid along the base to collect the water and carry it away from the site. The top must be kept clear of the surfacing material; allowing water to run freely into the drain.

Front Country Trail: Trail near formal infrastructure (i.e., buildings, parking lots, etc) usually wider and more formal than back country trails. Less emphasis is put on minimizing contact with signs of the civilized world. The main objective is to provide enjoyable trail experiences within the vicinity of developed areas by utilizing the scenic and interpretative features of semi-urban, rural, and natural environments.

Gargoyle: Big ugly rock (or similar) used as guide structure.

Gateway: A structure or trail-side feature that makes the corridor narrower, slowing and calming trail user users. [Related to Choke Point] See photo reference.

Grade Reversal: A reverse in the trail grade – usually a short dip followed by a rise – that forces water off the trail. Grade reversals are subtle and typically designed into the alignment of the trail. When designed into the alignment they can prevent the need for more artificial water diversion structures such as rolling dips. [Related to Grade Change, Adverse Pitch]



***Above:** The trees framing this trail create a gateway.*

Gradient: The ratio of vertical travel to horizontal travel commonly measured as a ratio of rise to run or as a percent. For example, a trail that rises 8 vertical feet in 100 horizontal feet has an 8% grade.

Grubbing: Removal of roots, stumps, rocks, soil, etc., from the trail tread and corridor.

Guide Structure: Any of a family of landscape features, natural or man-placed, designed to keep users on tread. [Related to Choke Point, Edge Definition, Gateway]

Habitat: A place that supports a plant or animal population because it supplies that organism's basic requirements of food, water, shelter, living space, and security.

Hardened Tread: Tread whose surface is hardened through the use of pavers, compacted crushed stone, etc. [Related to Armor]

Hazard Tree: Tree or limb that is either dead, or has some structural fault, that is hanging over, or leaning toward the trail or trail-side sites where people congregate.

Hybrid System: Trail system using sustainable logging road sections and single track trail sections.

Hybrid Trail Construction: Concept where an agency uses a combination of trail contracting and

volunteers to construct a trail.

Inslope: Where the tread is sloped downward toward the backslope of the trail. An inslope drain causes water to run along the inside (uphill) edge of the trail.

Interpretive Trail: Usually a short to moderate length trail (1/2 to 1 mile) with the primary function of providing an opportunity to walk or paddle while studying interesting or unusual plants, animals, or natural features at user's pleasure. The ideal interpretive trail has a story to tell and unifies the various features or elements along the trail into a related theme.

Journey Motivation: A user's focus on enjoying the travel experience.

Kiosk: A sign or bulletin board that houses interpretive or informative displays.

Knick: A trail edge treatment on the 'downhill' edge of tread promoting water movement off tread.

Land Management Agency: Any agency or organization that manages public lands—many managed as recreation and/or wilderness areas. Examples include federal agencies such as the US Forest Service, the National Park Service, and the Bureau of Land Management; state, county, and local park system agencies; as well as The Nature Conservancy.

Loop Trail: Trail segment or system designed so that the routes are closed circuits connecting a number of points of interest, giving users the option of not traveling the same section of trail more than once on a trip.

Machine Built Trail: Segment or feature constructed with the use of an excavator, trail dozer, or other piece of powered equipment.

Maintainer: A volunteer who maintains a section of trail as part of a trail-maintenance program of a trail organization.

Maintenance: Repair, improvements or other work done on or near a trail to improve the safety and sustainability of the trail, correct any original design defects or otherwise improve usability of the trail.

Mandatory Obstacle: An unavoidable vertical protrusion in the trail tread such as a rock or root. Man-made structures such as rock steps, timber steps or other structures such as log water bars are also considered mandatory obstacles.

Master Plan: A comprehensive and long-range plan guiding the overall development of a facility, community, or region. The plan should include assessment and recommendations.

Maximum Sustainable Gradient: The steepest acceptable grade permitted on any part or segment of a trail or over the majority of the trail length. Establishing a maximum sustainable gradient must take into consideration user groups, native soils, local weather, etc.

Meander: Horizontal wave-like motion in trail design, such as a trail segment weaving among trees rather than removing the trees to accommodate a straight trail.

Mineral Soil: A soil comprised of rock fragments, sand and smaller sized particles, and free of organic matter. Mineral soil is typically buried under layers of surface organic matter (duff). Mineral soil is relatively stable and is the preferred material upon which and with which to build tread. When compacted carefully, mineral soil also provides good support to rock walls and other trail structures.

Mountain Bike (MTB): A bicycle designed for trail riding and characterized by upright handlebars, heavy-duty brakes, wide tires, and low gearing. MTBs may be used for recreational or competitive bicycling.

Multiple Use Trail: A trail that permits more than one user group at a time (i.e., equestrian, hiker, MTB, etc).

Native Species: Flora or fauna indigenous to the region being considered.

Natural Surface Trail: A trail whose tread is the product of clearing and shaping the native mineral soils. No surfacing materials are added.

Non-motorized: Muscle-powered trail recreation by modes such as bicycle, pedestrian, equestrian, skate, ski, etc.

Off Road Vehicle (ORV): Off Road Vehicle, including ATVs, 4-wheel drive vehicles, motorcycles, mountain bikes, etc.

Open and Flowing Trail: Trail designed and built with wide corridor clearing, sweeping turns, and long sight lines. Open and flowing trail segments generally promote higher MTB speeds.

Organic Soil: Soil composed primarily of plant material in varying degrees of decay. Because organic soils tend to hold moisture, they should not be used as tread material or under tread material.

Out and Back: A trail design on which a user returns from a destination via the same route used to access the destination. Successful use of out and back designs requires very interesting destinations.

Outslope: The downward grade from the backslope (inside or uphill edge) of the tread to the critical edge (outside or downhill) edge of the trail tread. [Related to Cant, Camber]

Pin Flags: Wire wands with square plastic flags at one end for field layout and marking of new trail, maintenance work, or relocations of trail sections.

Pruning: The removal of normal vegetation that intrudes into a trail corridor.



Above: An example demonstrating the construction and use of a puncheon.

PUD: Pointless Up and Down; used to describe a trail segment that climbs or drops for no apparent reason and with no 'reward' (i.e., view, interest geology, etc) for users.

Puncheon: Simple raised timber treads on sleeper sills. See photo reference.

Reclamation: The process of restoring a denuded and/or eroded area to an approximation of its original condition with soil and vegetation. Clumps of native turf

or sod removed from areas of new trail are often reused for revegetation and closure of disturbed areas. Reclamation strives to restore a site to a state that appears untouched by human use.

Reconstruct: To replace or rebuild a trail or trail structure (e.g., switchback, waterbar, bridge, etc.) that is no longer safe to use or in poor condition. Also can include all work to bring an existing trail up to its classification standard, including necessary relocation of minor portions of the trail. [Related to Reconstruction, Renovate]

Recreational Trails Program (RTP): Federal program providing funds to the States for motorized



and non-motorized trails and trail related projects, based on non-highway recreational fuel use.
(www.fhwa.dot.gov/environment/rectrails)

Reroute: A new section of trail that replaces an existing section. Rerouting is often the best remedy for a poorly designed trail that requires frequent maintenance.

Retaining Wall: A structure used to prevent soil from slumping, sliding, or falling, usually made of log or stone. Often used to provide stability and strength to the edge of a trail or at the ends of a bridge or similar structure.

Revegetation: The process of restoring a denuded and/or eroded area to an approximation of its original condition with soil and vegetation. Clumps of native turf or sod removed from areas of new trail are often reused for revegetation and closure of disturbed areas. Heavily compacted trail segments may be tilled to improve the success of transplanting.

Right-of-Way: A linear corridor of land held in fee simple title, or as an easement over another's land, for use as a public utility (e.g., highway, road, railroad, trail, utilities, etc.) for a public purpose. Usually includes a designated amount of land on either side that serves as a buffer for adjacent land uses. [Related to Easement]

Riparian: Habitat strongly influenced by water and occurring adjacent to streams, shorelines or wetlands.

Risk: Anything that threatens or limits the ability of a project to achieve its goals and objectives.

Risk Management: The act or practice of controlling risk. This process includes identifying and tracking risk areas, developing risk mitigation plans as part of risk handling, monitoring risks and performing risk assessments to determine how risks have changed. The process of thinking systematically about all possible undesirable outcomes before they happen and setting up procedures that will avoid them, minimize or cope with their impact.

Road-to-Trail Conversion: Narrowing an old extraction or forest road to provide a sustainable trail.

Rolling Crown Switchback: A sustainable turn engineered for drainage on a hillside. The trail is routed onto a crowned landing or deck where it makes a transition to the opposite direction. The upper approach is insloped to drain water out the back of the landing and the lower approach is outsloped to optimize water management of the wider tread of the turn.

Route: A traveled way, a means of access, a line of travel, an established or selected course of travel.

Runoff: Water, not absorbed by the soil, which flows over the land surface and ultimately reaches streams.

Rut: Sunken track or groove in the tread surface cut in the direction of travel by the passage of water or trail users.

Sediment: Soil that has been removed from its place of origin by erosion and re-deposited in a different area down-slope or down-stream.

Sedimentation: Deposition of soil particles or other material carried in water, usually the result of a reduction in water velocity below the point at which the material remains in suspension.

Seep: A water-saturated zone at or near the ground surface where voids in the rock or soil may allow water to drain out onto adjacent surfaces. Seep or spring sites are typically characterized by riparian vegetation and soil formed in the presence of water. Water management at trail-side seeps can be especially challenging.

Segment: A portion of a trail. Changes in geographic features, jurisdiction and/or political boundaries often distinguish segments.

Sheet Drainage: Condition in which water flows in smooth sheets rather than rivulets or channels.

Side-Slope: The natural or man made pitch of the land, as shown on contour maps.

Signage: Boards or posts with words or symbols relaying information about the trail or the area around the trail. Clear and frequent signs, especially on extended trails, increase user comfort and safety. Signs may be Cautionary, Directional, Interpretive, Objective, and Regulatory.

Sill (or Sleeper Sill): The timber or stone supporting an end of a bridge or puncheon. [Related to Puncheon]

Silt Fence: Temporary sediment barrier consisting of filter fabric, sometimes backed with wire mesh, attached to supporting posts and partially buried.

Single Track: A narrow trail usually requiring that users move in single file and providing users with a more intimate trail experience.

Slash: The branches, bark, tops, cull logs, and broken or uprooted trees left on the ground after a windfall/blowdown or through logging and trail construction. [Related to Windfall, Blowdown]

Slough (pronounced “Sluff”): Material removed from the backslope by erosion or other means that have been deposited on the trail tread. Silt and debris collecting on the uphill (inside) edge of a trail tread. Slough may raise the height of the tread relative to the original level and result in water pooling on the trail or be sufficient to block the trail. [Related to Slide]

Snag: Any standing dead, partially dead, or defective (cull) tree at least 10 inches in diameter at breast height and at least 6 feet tall.

Stacked-loop Trail: Trail system consisting of two or more adjacent loops and providing many user options of distance and experience.

Step: Structure, stone or wood, that provides a stable vertical rise on the trail, usually in sets.

Stepping Stone: Large rocks set in boggy areas or shallow stream crossings to provide passage for hikers.

Stewardship: Acting in the interest of land and water resources.

Stream Crossing: Any of a number of methods of getting users across a stream. Bridge, armored crossing, stepping stones, etc.

Structures: Man-made facilities.

Surfaced Trail: Trail with hardening material on top of the trailbed or base course that provides the desired tread. The hardened surface can lessen compaction of underlying soil, provide a dry surface for users, and prevent potential erosion and abrasion. In addition to concrete and asphalt, trails can be surfaced with compacted stone or shell, milled asphalt, etc.

Sustainable Trail: A trail that supports currently planned use and foreseen future uses with negligible soil loss and minimal environmental impact to its surroundings. While the sustainable trail will require some corridor pruning and eventual removal of certain plants over time, it allows the naturally occurring plants to inhabit the area near the trail. The sustainable trail will require

little rerouting and minimal maintenance over extended periods of time.

Sustainable Use: Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper.

Swale: A linear low-lying natural topographic drainage feature running downhill and crossing the trail alignment in which sheet drainage would collect and form a temporary water course. A low-lying ground drainage structure, resembling a swale, can be constructed to enhance drainage across the trail. Like a drainage dip, a swale is used to shed water off a trail and is a useful remedy for wet spots on relatively flat trails.

Tamping: Using a machine compactor, a tamping bar, or another tool to compact material, usually in a tread or foundation area.

Technical Segment: A trail segment that is difficult to navigate and challenges users as they proceed along the segment.

Technical Trailside Feature (TTF): An obstacle beside the trail requiring skilled negotiation, the feature can be either built or natural, such as an elevated bridge or a rock face respectively. Alternate lines are typically provided at TTF sites.

Tight and Technical Trail: Trail that is filled with obstacles such as rocks, roots, logs, sharp turns, and steep grades, making it difficult to navigate. A tight and technical trail puts a premium on MTB riding skills. Alternate lines may be provided parallel to some tight and technical segments.

Topographic Map: Maps that indicate built and natural features (buildings, roads, ravines, rivers, etc.) as well as elevation changes and land cover on a system of lines of constant elevation. United States Geological Survey (USGS) maps are available from many government offices, outdoor shops, and map stores; or from digitized versions on the Internet.

Trail: A defined route on land or water with public access for recreation or transportation purposes such as walking, jogging, hiking, mountain biking, horseback riding, canoeing, kayaking, and backpacking. A trail typically indicates the common route, temporary or permanent, taken by users between two locations. [Related to Path, Pathway]

Trail Corridor: The full dimensions of the trail, including the area on either side of the tread and the space overhead that need to be cleared of brush and obstacles. The area of passage of the trail, including all cleared and managed parts above, below and adjacent to the tread.

Trail Design: Designing and layout of trails requires special training, knowledge, experience, and skill. When designing trails, many different factors are taken into account including hydrology, topography, soils, flora, fauna, management objectives, user expectations and characteristics, and trail design standards. The designer will utilize data collected from area site analysis, environmental assessments, public meetings, and area trail and management plans.

Trail Design Standards: The specific values selected from the trail design criteria become the design standards for a given trail project. These standards will be identified and documented by the designer. Trail standards will relate to the trail physical characteristics, users, location, and environmental factors.

Trail Management Objective Sheet: Written form delineating the goals and objectives pertaining to a specific trail management project (i.e., maintenance, reroute, bridges, etc). Usually intended to provide guidance for a trail crew leader. [Related to Project Construction Notes, Trail Log]

Trail Sensory Stimulus: Any feature, object, or characteristic of a trail that captures a user's attention and enhances the user experience.

Trail Specifications: Written standards of work and type of materials to which trails (tread, clearing, grade) and trail structures (bridge, culvert, puncheon) are built and maintained according to use type.

Trail Structure: Anything constructed or erected on or near a trail; walls, platforms, bridges, TTFs, etc.

Trail Survey: A physical field assessment of the trail or proposed trail, to determine alignment, maintenance tasks, hazards, impact, etc., prior to work, or as part of ongoing trail maintenance.

Trail System: A collection of individual trails that may or may not be connected to one another. Each trail in the system may have a unique character yet belongs to the system by association with a common land manager or facility.

Trail Triage: Dividing trail projects into three distinct groups: projects whose effort and cost are poorly justified, projects that cannot resuscitate a trail segment, and those projects that will yield a high benefit for their effort and cost. Unless your agency has deep pockets, only projects falling into the last group are approved.

Trailhead: An access point to a trail or trail system; may be accompanied by various public facilities, including parking, hitching posts for horses, toilets, water, directional and informational signs, and a trail-use register.

Trample: To tread heavily so as to bruise, crush, or injure; refers to the process of vegetation being destroyed by trail users.

Traverse: To cross a slope horizontally by going gradually up and across in lieu of the more direct up-and-over (fall line) approach.

Tread: The surface portion of a trail upon which users travel.

Tread Creep: When the loose soil of the trail tread moves, sags or slides, downhill during use causing users to walk on the lower edge.

Tread Width: The width of the portion of the trail used for travel. The width specification that a trail was designed to meet, generally considered part of the trail (the beaten path or tread width).

Trench: Badly eroded trail in which the user travels in a ditch that may be knee deep or deeper.

Troad: A wide, straight trail segment often built atop an old extraction road. Usually boring for users and a good candidate for road-to-trail conversion.

Turnpike: A trail building technique that uses a combination of gravel, soil, or other filler material held in place by rocks or logs on either side to make the tread higher than the surrounding water table. Useful in low-lying areas with poor drainage. [Related to Causeway]

Undulation: Vertical wave-like motion, as in a trail segment with frequent grade reversals or a trail segment often going in and out of gullies. Undulation adds challenge, interest, and water management to a trail segment.

Urban: Places within boundaries set by state and local officials having a population of 5,000 or more.

Viewshed: The landscape that can be directly seen under favorable atmospheric conditions from a viewpoint or along a trail corridor.

Waterbar: A hardened structure (i.e., rock, timber or log) located across the tread to divert water

abruptly from the trail tread. This type of drainage structure is no longer recommended for construction or use on trails.

Wetlands: Lowland areas such as marshes or bogs that are saturated with water, creating unique habitat for plants and animals.

Wilderness Area: Uninhabited and undeveloped federal land to which Congress has granted special status and protection under authority of the Wilderness Act of 1964. Allows foot and horse traffic only; no mountain bikes, OHV use, hang gliders, or other “machines.”

Windfall: Anything (i.e., trees, limbs, brush, etc.) blown down on the trail by the wind.