

MILL MOUNTAIN TRAILS PLAN

2021 AMENDMENT





EXECUTIVE SUMMARY

The first Mill Mountain Trails Plan was developed in 2005 and adopted by City Council in 2006. Now, fifteen years later, Roanoke Parks and Recreation has initiated this Amendment to recognize the progress on plan implementation, to build on regional changes in outdoor recreation, to identify opportunities for additions to the trail network, and to continue management guidelines that protect the natural resources of Mill Mountain Park. Sound conservation and stewardship are essential elements in Roanoke's philosophy regarding access to its natural landscapes, as evidenced in the conservation easement on Mill Mountain Park and reiterated in this Amendment to the Trails Plan.

To develop this Amendment, the Parks and Recreation Department formed a Task Force including staff, trail volunteers, trail users, Pathfinders for Greenways, Blue Ridge Off-Road Cyclists, and Roanoke Valley Greenway Commission. The process included multiple presentations to neighborhoods and groups and many opportunities for public input. The Task Force assessed the physical conditions of the eleven existing trails and Mill Mountain Greenway and developed recommendations for maintenance and improvements. In addition, the Task Force evaluated seventeen trail corridors proposed by the public and recommended fifteen be included in the plan on the following pages.

Key issues that emerged during the amendment process include:

- Mill Mountain Park, with its Star, Zoo, Discovery Center, greenway and trails, is one of the region's top attractions, which contributes economic vitality to the region by drawing talent and investment to the area.
- The trails and greenway on Mill Mountain make the park an “active” place to go. They provide free space for the daily activities of residents as well as a special tourist destination.
- Mill Mountain is used by people with a wide variety of skill sets and with different goals for their personal physical, mental, social, and spiritual health.
- Because greenways and trails are the face of the region for many visitors and residents, they should be well marked and maintained, providing a pleasant experience for all.
- Multi-use trails, open to users traveling in different ways, provide the most trail for the most users.
- While many mountain bikers would love to make Mill Mountain a “bike park”, the Park is much more than one activity, and bike-specific facilities must be developed with consideration of other users and resource concerns.
- All user groups need to practice common courtesies, good trail etiquette and safe usage practices.
- The growing trail network requires increasing staff, maintenance budgets, and volunteer commitments.

The vision for the trails on Mill Mountain is to provide a sustainable network of trails that provides opportunities for residents and visitors to enjoy the natural beauty of the Park through a wide range of activities, including hiking, bicycling, horseback riding, trail running, bird watching, nature study, and dog walking. The Amendment recommends retaining all the official trails and expanding the trail network in order to have more trails and loops for users of different skill levels and modes of travel. The Amendment also recognizes citizens' desire for better connectivity to the Mountain and includes several neighborhood connections and new trail corridors to satisfy that need. Many of the official trails will be improved through maintenance and minor rehabilitation. New trails will be developed, reviewed on a case by case basis for sustainable alignment, compliance with easements, benefits to users, long term health of the forests and streams, and resources for construction and maintenance. Shared use trails will be the norm, but single use trails will be allowed and have been identified as such in the plan.

“Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity; that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life. “

John Muir

ACKNOWLEDGEMENTS

CITY OF ROANOKE

The Citizens of Roanoke

The City of Roanoke is grateful for the hundreds of citizens and visitors that assisted in this process by taking the time to fill out and submit surveys, attend public meetings, and contribute through the online feedback methods of engagement. The plan on the following pages represents input transformed into objectives and priorities for Mill Mountain Trails and Greenway and Roanoke Parks and Recreation. Once adopted, this plan will be included as a part of the Mill Mountain Park Management Plan, Parks and Recreation Master Plan, and the City of Roanoke Comprehensive Plan.

Neighborhood Associations

Riverland-Walnut Hills
Southeast Action Forum
South Roanoke Neighbors

Roanoke City Council

Sherman P. Lea, Mayor
Patricia White-Boyd, Vice Mayor
William D. Bestpitch
Joseph L. Cobb
Robert L. Jeffrey, Jr.
Stephanie Moon Reynolds
Vivian Sanchez-Jones

Planning Commission

Karri B. Atwood, Chair
Sarah Glenn
Kermit "Kit" Hale
Frank Martin, III
James E. Smith
Pamela Smith
Scott Terry-Cabbler

Parks and Recreation Advisory Board

Joshua T. Dietz, Chair
Chris Bryant
Melanie C. Crovo
Pete Eshelman
Lauren E. Hartman
William Modica
Luke Priddy
Matthew Kelley
Jared Rigby
Jerome W. Stephens
Sue Williams

Mill Mountain Advisory Board

David Perry, Chair
Ahondryea Brooks
J. Matthew Bullington
Whitney Feldmann
Mary "Sissy" Kegley
Amanda Marko
Jason Morgan
Jeff Todd
Niki Voudren

City Manager's Office

Robert S. Cowell, Jr., City Manager

Brent Robertson, Assistant City Manager for Community Development

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GLOSSARY OF ACRONYMS, ABBREVIATIONS, AND TERMS

AMENDMENT	This update to the 2005 Mill Mountain Trails Plan, developed in 2019-2021
ATC	Appalachian Trail Conservancy, a national organization coordinating trail clubs to maintain the Appalachian National Scenic Trail, an approximately 2,200 mile hiker only trail through the Appalachian Mountains; leader in hiking trail design and maintenance
BMP	Best Management Practices, standards of the profession for the optimal ways in which to implement actions
BRLC	Blue Ridge Land Conservancy, a non-profit partner which holds the conservation easement for Mill Mountain Park
BROC	Blue Ridge Off-Road Cyclists, IMBA (see below) Chapter local to Virginia's Blue Ridge and the Roanoke area
City	City of Roanoke, the owner and manager of Mill Mountain Park and the associated trails and Mill Mountain Greenway
Council	Roanoke City Council, the elected body with ultimate legislative and policy authority for the City.
E-Bike	Electronic powered bicycle, these electric or electric-pedal-assist bicycles which were introduced in the late 2010s and incorporate an electric motor as part of propulsion rather than being completely human powered
IMBA	International Mountain Bicycling Association, a non-profit organization that promotes mountain biking, providing leadership, resources and training on sustainable mountain bike trail design and maintenance
MMAB	Mill Mountain Advisory Board, a Roanoke City Council appointed board that: <ul style="list-style-type: none"> • Advises the City's professional staff and City Council on maintaining the integrity of Mill Mountain with respect to aesthetics, recreation, and accessibility • Acts as clearinghouse for citizen concerns and opinions regarding Mill Mountain • Assists the general public in understanding decisions and policies made by municipal leadership • Provides advocacy for Mill Mountain related issues • Facilitates communication between citizens, departmental staff, municipal administrative staff and legislative branches of local government by means of written directives and board recommendations.

GLOSSARY OF ACRONYMS, ABBREVIATIONS, AND TERMS

Multi-Use	Trails used by more than one user group, such as hikers, mountain bikers, and equestrians; also referred to as shared-use trails when on paved surfaces.
NPS	National Park Service, a federal agency in the Department of the Interior, responsible for management of the Blue Ridge Parkway
Pathfinders	Pathfinders for Greenways, a 501c-3 non-profit group focused on volunteer construction and maintenance of trails and greenways in the Roanoke Region
PPE	Personal protective equipment, items such as safety glasses, work gloves, chainsaw chaps and more that protect the user from hazards of trail construction and maintenance
Ride Center	A tourism designation by IMBA (see above) of an area with trails suitable for mountain biking of a particular rating based on available amenities, miles and types of trail and more. e.g. Silver-Level Ride Center
Social Trail	A user-created trail that was not professionally designed or reviewed and may not take into account sustainable trail tenets.
Task Force	Mill Mountain Trail Plan Task Force, a group of seven individuals each representing a different organization, aspect, or user group of Mill Mountain Trails and the Mill Mountain Greenway; listed in acknowledgements; integral in the formation of this Amendment
USFS	United States Forest Service, a federal agency in the Department of Agriculture; manages thousands of miles of multi-use and single-use trail on federal public land; leader in trail design and maintenance
VDOT	Virginia Department of Transportation, manager of many grants for urban trails and leader in engineering and design standards for paved trails in Virginia
VOF	Virginia Outdoors Foundation, a state agency partner which holds the conservation easement for Mill Mountain Park
WVLT	Western Virginia Land Trust, conservation easement partner whose name was later changed to Blue Ridge Land Conservancy
2005 Plan	The 2005 Mill Mountain Trails Plan, adopted by City Council as part of the Mill Mountain Park Management Plan in 2006



Volunteer helping build the Sidewinder Trail

Chapter One | INTRODUCTION

1.1 PURPOSE OF THIS AMENDMENT

The purpose of this Amendment to the 2005 Mill Mountain Trails Plan is to provide an update that documents progress in the last fifteen years, identifies future opportunities, considers trail users' input, and provides management guidance on meeting natural resource and facility needs.

1.2 HISTORY OF TRAILS AND TRAIL PLANNING FOR MILL MOUNTAIN

The first Mill Mountain Trails Plan was developed by the City of Roanoke Parks and Recreation Department in 2005 and was adopted by City Council in February 2006 as part of the Mill Mountain Park Management Plan. The Park Management Plan has extensive documentation of the history of the mountain, its development, and its natural resources. The Management Plan develops resource management zones to guide park management, based on topography, cultural resources, use patterns, and existing facilities at that time. The 2005 Trails Plan explores all the existing trails, old roads, and opportunities for development and management of a multi-use trail system. These Plans are available on-line at: www.playroanoke.com/planning-and-development/.

This Amendment to the 2005 Trails Plan will not repeat the history documented there, but rather focus on documenting events and plans that have happened since then that have helped shape trail use of Mill Mountain.

1.3 REGIONAL CHANGES AND DEVELOPMENTS THAT INFLUENCE MILL MOUNTAIN TRAIL USE

Since 2005, the Roanoke region has become more focused on its outdoor recreation opportunities and the economic impact of greenways and trails. With the 2007 update to the Greenway Plan, the localities recognized the public support for completion of Roanoke River Greenway and the importance to citizens of the natural surface trails. Multiple trail networks, such as Mill Mountain, Carvins Cove, and the National Forest, were added to the Greenway Plan as nodes, and those trails became destinations within the greenway system.

In 2009 the Roanoke Regional Partnership began tapping into the region’s natural assets by establishing Roanoke Outside and hiring staff to advertise the region’s natural assets to attract investment and talent to the region. During these changes, business and economic development interests increasingly acknowledged the value of greenways, trails, and mountains to attracting especially millennial employees, promoting health and wellness, and providing quality of life.

Mill Mountain has become increasingly important as a “gem” within the City, providing free trail opportunities close to neighborhoods and environmental benefits. In 2010 the importance of Mill Mountain as a backdrop to the City and a beloved park for residents was recognized with the donation of a conservation easement on the mountain. This easement ensured protection of the view shed and the wooded slopes, while continuing to allow trails. As the City and volunteers continued to build out the trail system, mountain biking increased on the mountain. In 2018 the Roanoke region was designated a Silver-Level Ride Center by the International Mountain Bicycling Association and Visit Virginia’s Blue Ridge, the local visitors’ center, began promoting Roanoke as the East Coast Mountain Biking Capital. While tourism is a welcome part of the use on Mill Mountain, it remains imperative that the park exists primarily as a regional park for the citizens of Roanoke and the surrounding areas.

1.4 ADDITIONAL PLANS TO SUPPORT MILL MOUNTAIN TRAILS

Numerous local, regional, state, and federal plans that recognize Mill Mountain and its trails have been developed since 2005.

Table 1.4: Plans that Support Mill Mountain Trails and Greenway

Date	Plan	Summary and/or Excerpt from Plan
2007	Parks and Recreation Department Master Plan Update	Calls for developing Mill Mountain as a signature park, and expanding natural surface trails and greenways is mentioned multiple times in this document. (p.4, 10, 11, 12)
2007	Update to the Roanoke Valley Conceptual Greenway Plan	Includes Mill Mountain Trails as a destination node. “Park staff face the typical challenges of managing a wooded park and trail network in an urban area . . . illegal uses, user conflicts, inexperienced users, invasive species, protecting resources like trees, and maintaining facilities.” (p.5-19)
2008	South Roanoke Neighborhood Plan	Shows strong support from neighborhood meetings for access to the Mill Mountain trails and greenway from South Roanoke Neighborhood. (p.50-53). 2005 plan map also included.

2012	Bikeway Plan for the Roanoke Valley Area	"Mill Mountain Park has more than 10 miles of multi-use and hiking trails ranging from technical single track to less difficult trails suitable for all users. Mill Mountain Greenway also runs through Mill Mountain Park providing connection from downtown Roanoke to destinations on top of Mill Mountain." (p.60)
2013	Roanoke Parks and Recreation Update to the 2007 Master Plan	Mentions trails and greenways are a strength of the park system, specifically Carvins Cove and Mill Mountain (p.4-5) Mentions new mountain bike trails between Mill Mountain and Explore Park (p.7) Develop additional trails and connectivity of trails, upgrade existing trails (p.17)
2013	Virginia Outdoors Plan	"Implement management and master plans for sites that can be connected to the Roanoke River Greenway and Blueway, including Mill Mountain Management Plan." (p.10.56)
2013	Blue Ridge Parkway General Management Plan	"Mill Mountain Road provides access to a parkway campground, trails, a local zoo, and city overlooks. There are hiking and fishing opportunities along the Roanoke River and hiking near the campground. The area also offers horseback riding." (p.80)
2015	Roanoke Valley/ Blue Ridge Parkway Trail Plan	"To explore the potential for development of an integrated, interjurisdictional multi-use rail system for the Roanoke area that would connect the Blue Ridge Parkway and Roanoke Valley Greenways trails." (p.1 of Purpose and Need)
2018	Roanoke Valley Greenway Plan	"Mill Mountain Park trails provide a wonderful, wooded network of natural surface trails within walking distance of numerous City neighborhoods." (p.58)
2018	Virginia Outdoors Plan	"Promote Virginia's Blue Ridge Ride Center, an International Mountain Bicycling Association Silver-Level Ride Center." (p.13.29)
2020	City of Roanoke Comprehensive Plan: City Plan 2040	"Maintain, expand, and enhance, trails and greenways (natural and paved), while protecting and reducing disturbance of vegetation." (p. 70) "Provide a comprehensive network of greenways, trails, blueways and parks." (p. 49)

1.5 VISION FOR MILL MOUNTAIN PARK

The statements below from the 2005 Plan continue to be valid and are incorporated as a part of this Amendment.

Mill Mountain Park Management Plan Vision Statement

"Mill Mountain will continue to enrich the quality of life for those who visit, work and live in the Roanoke Valley. It is an integral component of the green infrastructure of the region, or our urban fabric, and of the evolution of the City, which shall be honored and preserved. Through sound

stewardship, Mill Mountain will offer environmentally sensitive educational, recreational, and civic opportunities while preserving its natural character and resources.” (p. 48)

“A review of the literature about Mill Mountain, and a series of meetings with representative citizen’s groups indicated that the mountain has been viewed in many ways by the people of Roanoke. These views generally fit within four descriptive categories:

1. Mill Mountain as a beautiful, natural environment that should be retained
2. Mill Mountain as an important symbol for the City of Roanoke
3. Mill Mountain as a significant visual landmark
4. Mill Mountain as a recreational resource” (p.7, Section II)

1.6 GOALS, OBJECTIVES, AND STRATEGIES FOR MILL MOUNTAIN TRAIL SYSTEM

In 2005, the Trail Plan team developed the goals, objectives and strategies for the trail system, and City Council adopted those with the Trails Plan. The 2021 Amendment is built on this foundation. The goals, objectives and strategies are repeated below to show the continuity of the 2005 Trails Plan and this Amendment to it.

Goal from 2005 Mill Mountain Park Trails Plan:

“To provide a sustainable network of trails which provides residents and visitors with opportunities to enjoy the natural environment in ways which fulfill their physical, emotional, and spiritual needs while protecting the mountain resources.” (p.7, Section II)

Objectives from 2005 Mill Mountain Park Trails Plan:

- “To provide opportunities for multiple uses, including hiking, mountain biking, bicycling, and horseback riding.
- To provide opportunities for disabled users and young people.
- To provide sustainable trails.
- To provide trails with a range of difficulties, but generally rated as easy to more difficult.
- To provide linkages to other trail networks, including Roanoke Valley greenways and Blue Ridge Parkway trails.
- To provide a spectrum of opportunities for educators, including scientists, artists, naturalists and teachers.” (p.7, Section II)

Strategies from 2005 Mill Mountain Park Trails Plan:

- “Provide loops.
- Provide sustainable trails built to standards for US Forest Service and International Mountain Bicycling Association (IMBA).
- Provide connectivity among trails and destinations.
- Provide for multi-use trails, including hikers, mountain bikers, bicyclists, and equestrians.
- Provide signage and wayfinding.
- Develop a cadre of volunteers to assist with maintenance.
- Provide parking for a variety of users and vehicles.” (p.7, Section II)



A cyclist enjoys the Monument Trail on Mill Mountain during a Wednesday Night Disco Mountain Bike race.

Chapter Two | TRAIL PLAN AMENDMENT PROCESS

2.1 PROJECT STUDY AREA

The project study area was defined to include Mill Mountain Park and Fern Park, with their current official and unofficial, or social, trails. Potential and current neighborhood connections from Garden City, South Roanoke and Riverland-Walnut Hills neighborhoods were included in the scope of the project. The Chestnut Ridge Trail, managed by the Blue Ridge Parkway and National Park Service, was not part of the study area, but Mill Mountain Greenway from the Walnut Avenue bridge to the Star was included in the scope of work.

Mill Mountain Park is a 589-acre park, approximately one mile from Interstate 581, connecting the City of Roanoke to the Blue Ridge Parkway. The park is predominantly a natural area, except for approximately 10 acres at the summit that are maintained for the Mill Mountain Star, picnic area, Discovery Center, Wildflower Garden, Mill Mountain Zoo, and parking lots. Fern Park is a 9.1 acre park in South Roanoke Neighborhood, and the Fern Park Trail connects the neighborhood to the Blue Ridge Parkway and Mill Mountain trail systems.

Mill Mountain has 9.86 miles of natural surface trails and about two miles of the paved Mill Mountain Greenway. Fern Park has a 0.6 mile trail. The existing trails are shown in the table and map on the following pages.

Table 2.1: Mill Mountain Park Existing Trails and Greenway

Name	Termini	Length (mi.)	Width	Surface
Big Sunny Trail	Mill Mountain Greenway to Robin Hood Road	0.73	2-5'	Natural
Crystal Spring Trail	Ivy St. to Woodcliff Rd.	0.61	9'	Gravel
Fern Park Trail	Fern Park to Chestnut Ridge Trail at Yellow Mountain Road	0.6	2'	Natural
Mill Mountain Greenway	Walnut Ave. at Piedmont to Mill Mountain Star (other parts off the mountain)	2.00	17'	Paved
Monument Trail	J.B. Fishburn Parkway at the monument to Mill Mountain Greenway at Sylvan	1.55	2'	Natural
Ridgeline Trail	Discovery Center to Morrison Road SE	1.26	4'	Natural
Riser Trail	Big Sunny Trail to Mill Mountain Park Entrance Road	0.31	3'	Natural
Sidewinder Trail	JB Fishburn Parkway near BRP gate to Wood Thrush Trail	0.53	2'	Natural
Star Trail	Star-Wood Thrush Connector to Mill Mountain Star	1.38	4'	Natural
Star-Wood Thrush Connector Trail	Riverland Road Trailhead to Star and Wood Thrush Trails at the Water Tower	0.24	2'	Natural
Understory Trail	Mill Mountain Greenway to Ridgeline Trail	0.38	2'	Natural
Virginia Pine Trail	Wood Thrush Trail to Hartsook Blvd. with a lower loop	0.75	2'	Natural
Watchtower Trail	Mill Mountain Star to Mill Mountain Greenway on Prospect Road	0.22	5'	Natural
Wood Thrush Trail	Star-Wood Thrush Connector Trail at Water Tower to J. B. Fishburn Parkway	1.90	6'	Natural



Members of the Pathfinders for Greenways Mid-Week Crew finish installing a sign on Virginia Pine Trail.

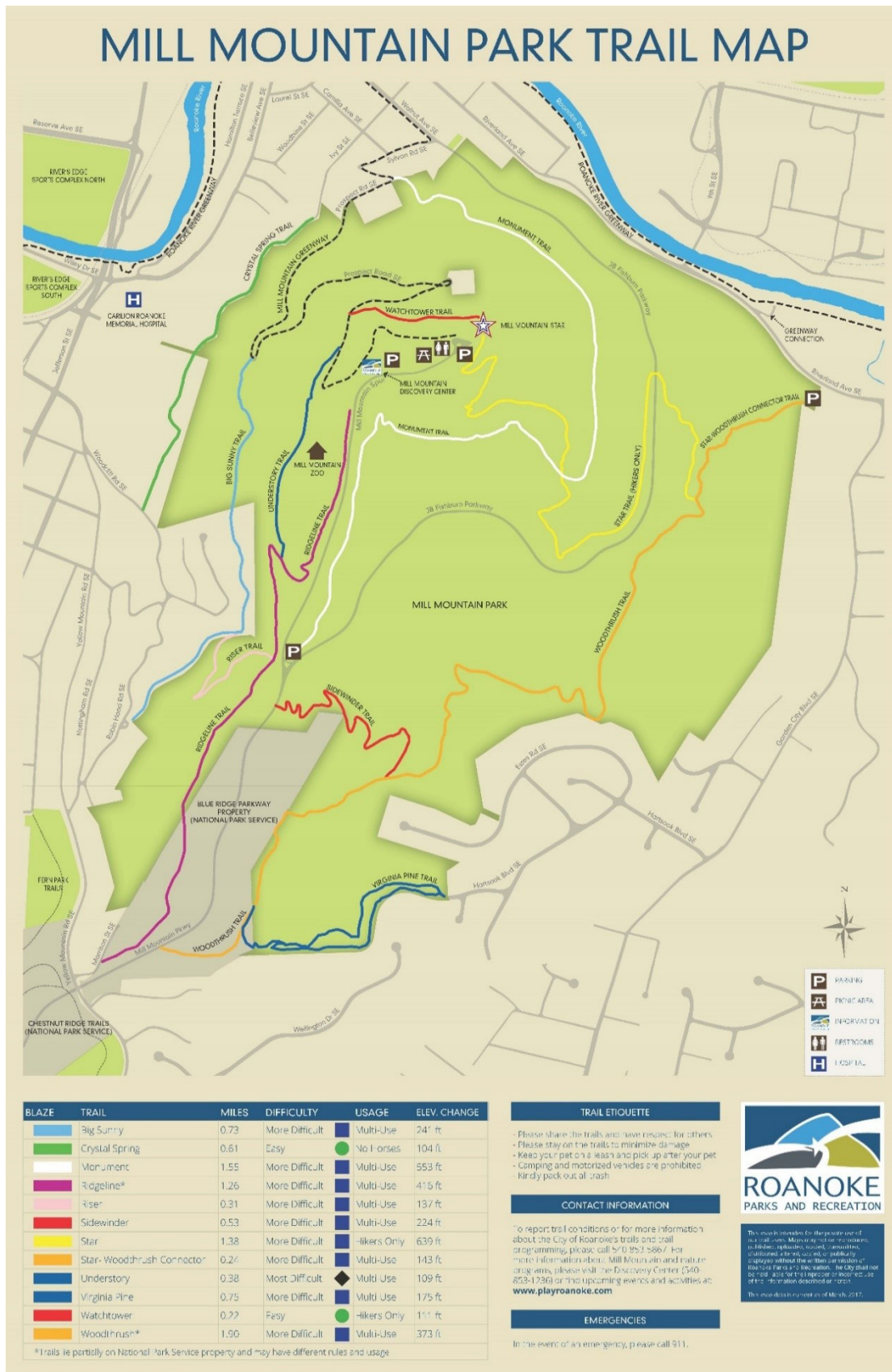


Figure 2.1: Mill Mountain Park Trail Map

2.2 APPOINTMENT OF MILL MOUNTAIN TRAIL PLAN TASK FORCE

The City of Roanoke Parks and Recreation organized the update to the trail plan. The first step was establishment of a Task Force to assist, representing staff, users, and stakeholders. Task Force members are acknowledged on page v. The Task Force met two to four times per month from May 2019 to February 2021, with the City staff anticipating a 15-month process. With the advent of COVID-19, this process needed to be extended and final public input and presentations to boards were amended to follow current guidelines and best practices with virtual meetings and presentations.

2.3 AMENDMENT STEPS AND TASKS

Parks and Recreation Department leadership and the Task Force developed the following tasks below to be addressed in the 2021 Amendment:

- Review and evaluate progress on implementation of the 2005 Plan, including progress on trail and management recommendations. (See Chapter 3)
- Assess current trail conditions, uses, amenities, and needs; inventory any new social trails; develop management and maintenance recommendations. (See Chapter 5 and Appendix A)
- Solicit input from the public, staff and resource experts, and the Garden City, Riverland-Walnut, and South Roanoke neighborhoods on connections and concerns. (See Chapter 4 and Appendix B)
- Evaluate current and possible connections from the Mill Mountain Trail System to neighborhoods, Roanoke Valley Greenways, and the Blue Ridge Parkway and its trails. (See Chapter 6)
- Develop a management process for evaluating and adding trails and trail uses to the Mill Mountain Trail System. (See Chapter 7)
- Identify any new issues, challenges, and opportunities for operation, maintenance, and management of the trail system. (See Chapter 7)
- Review by staff, Mill Mountain Advisory Board, Parks and Recreation Advisory Board, and Planning Commission before presentation to City Council for adoption.



A volunteer helps to install a sign on the newly completed Understory Trail in 2016

Chapter Three | PROGRESS ON IMPLEMENTATION OF THE 2005 MILL MOUNTAIN TRAILS PLAN

The Task Force reviewed the 2005 Trails Plan, the process used to develop it, and the recommendations from that plan.

3.1 PROGRESS ON ESTABLISHING A TRAIL SYSTEM

The Parks and Recreation Department has successfully implemented the recommendations of the 2005 Trails Plan to establish a network of trails with distinct names and a clear map that is readily available to the public.

- a. All of the Trail Uses and Closures recommended in the 2005 Plan have been implemented.
- b. All of the Trail Names and Termini have been adopted.
- c. All of the allowed uses on the trails have been implemented.

3.2 PROGRESS ON TRAIL IMPROVEMENT RECOMMENDATIONS

The Trail Improvement Recommendations have been implemented as noted in the chart below.

Table 3.2: Progress on Trail Improvement Recommendations from 2005 Plan

Trail Name	2005 Recommendations	Progress
Big Sunny Trail	1. Acquire a permanent easement across the Pace property, and work with property owners to acquire necessary public trail easements.	Completed
	2. Widen trail sections near Prospect Road to 24-36".	Completed
Crystal Spring Trail	1. Improve surface for trail use.	Completed
Mill Mountain Greenway	1. Install entrance sign.	Not completed
	2. Provide brochures at Discovery Center.	Completed
Monument Trail	1. Widen any areas that are not yet 24".	Completed
	2. Post warning signs on steep slopes near Sylvan.	Not completed
Ridgeline Trail	1. Install grade reversal at top of steep hill.	Completed
	2. Coordinate with Mill Mountain Zoo to relocate fencing and complete trail.	Completed
	3. Consider a side trail to views from the rocks.	Completed
Riser Trail	1. Post for one way use uphill by mtn. bikes and horses.	Not completed
	2. Consider improvement to accommodate two way use.	Completed
Star Trail	1. Revise to start at end of gravel road near water tower.	Completed
	2. Rehabilitate eroded sections, eliminate braided sections, install reverse grades where needed.	Not completed
	3. Establish a nature trail section or loop near the Discovery Center, incorporating a wildflower section.	Completed
Virginia Pine Trail	1. Rehabilitate, installing grade reversals, access control, and drainage features.	Completed
Watchtower Trail	1. Install steps at wall on Prospect Road.	Completed
Wood Thrush Trail	1. Build three sections of trail to provide continuous route.	Completed
	2. Coordinate with Blue Ridge Parkway on construction of section near Yellow Mtn. Rd., including improvements at Yellow Mtn. Road with signage and map of trail network.	Included in Blue Ridge Parkway Trail Plan
Wood Thrush - Star Access Trail	1. Improve surface for trail users or consider alternate location.	Completed

3.3 PROGRESS ON PARKING AND ACCESS

The parking and access recommendations have been implemented as shown below:

Table 3.3: Progress on Parking and Access Recommendations from 2005 Plan

Parking Lots	2005 Parking Recommendations	Progress
Discovery Center Parking Lot	1. Provide clear signage for access to trails.	Completed
	2. Install kiosks with maps, trail routes and difficulty, rules, and contacts.	Completed
	3. Continue to allow trailers to park in bus slots.	Completed
Mill Mountain Star Parking Area	1. Provide clear signage for access to trails.	Partial completion
	2. Finish kiosk.	Completed
Riverland Road Trailhead	1. Enlarge to accommodate horse trailers.	Not completed
(Formerly Star Trail Parking)	2. Install kiosks with maps, trail routes and difficulty, rules, and contacts.	Completed
On-street Parking		
Crown Point St.	1. Close to parking.	No action
Fern Park/Jefferson St.	1. Continue to allow parking and consider expansion.	Allowed
Fishburn Parkway at Monument	1. Retain; sign trails.	Improved
Fishburn Parkway at Star Trail	1. Retain.	Improved
Hartsook Blvd.	1. Provide trail signage and kiosk.	Improved
Morrison Street	1. Allow on-street parking.	Allowed
Robin Hood Road	1. Allow on-street parking.	Allowed
Woodcliff Road	1. Allow on-street parking.	Allowed
Yellow Mtn. Rd. Parking	1. Improve parking area with accommodation for horse trailers.	Not completed
Walk/ride-in Access		
Ivy Street	No parking.	Minimal parking
Prospect Road at Big Sunny	No parking.	Minimal parking
Prospect Road at Sylvan	No parking.	Minimal parking
Yellow Mtn. Rd. - west side	No parking.	Minimal parking

3.4 PROGRESS ON MANAGEMENT RECOMMENDATIONS

The management recommendations have been largely implemented, with an assigned Trail Coordinator and additional staff to monitor management activities. Actions include new maps, kiosks, bike fix stations, wayfinding signage, allowed use signage, bridges, and law enforcement identification of homeless camps. The Discovery Center has an address and there is additional coordination with volunteers and monitoring of uses near park boundaries.



Trail construction



At neighborhood meetings, citizens were invited to write comments and suggestions on the maps.

Chapter Four | INPUT TO THE 2021 MILL MOUNTAIN TRAILS PLAN AMENDMENT

4.1 METHODS FOR INPUT



Mill Mountain Park trails serve the region's residents and tourists, but are most accessible to adjoining neighborhoods. Likewise, adjacent neighborhoods bear more of the impact of park use. Thus, the Task Force solicited input from a variety of sources in order to consider many perspectives. To reach the region, there was an on-line input form available on the website from May 2019 to March 2020. To hear neighborhood concerns, Task Force members attended meetings with the Southeast Action Forum, Riverland-Walnut Hills, and South Roanoke neighborhood groups, providing a Power Point presentation and maps on which to write comments and suggestions. Since Mill Mountain is a regional park, an open public meeting was held at the Discovery Center with the same format as the neighborhood meetings. The Mill Mountain Advisory Board received updates from staff at their bi-monthly meetings. Task Force members randomly manned trailheads and interviewed users on 11 occasions with a survey asking what they liked about the current trail system and what improvements they would like to see.

Resource and Subject Matter Experts from Transportation Division, Western Virginia Water

Authority, Roanoke Parks and Recreation (specifically Urban Forestry), Stormwater Division and National Park Service had an opportunity to give input on the plan at a meeting on December 16, 2019. This input is reflected in the corridor assessments chart found in Chapter 6. Common concerns included machine construction on steep slopes, preserving soils and big trees on the mountain, keeping public away from fenced off areas for infrastructure, and preserving tree canopy in the Scenic Protection Area of the Conservation Easement. In addition, these Experts reviewed proposals in the field and assisted with evaluation of road crossings and trail locations.

The details of these meetings and input forms are summarized on the next page, with all the comments received included in Appendix B. Final public input occurred through a program known as “Spark.” This web-based public input allowed for members of the public to view the timeline of the plan, see a draft map, review new construction priorities and maintenance priorities and provide additional feedback. Spark was marketed through our department’s Marketing Coordinator and available for public consumption for 11 days in January-February 2021.

Mill Mountain Trails and Greenway User Survey

1. Name _____

2. E-mail _____

3. What do you like about the Mill Mountain Greenway and trail system?

4. What do you think could be improved for trail users on the Mill Mountain Greenway and trail system?

Thank you for your time!

For Office Use only:

Names of surveyors: _____

Date and location: _____

Figure 4.1.A: Mill Mountain Trails and Greenway User Survey

Table 4.1: Public Input Meetings and Collection Strategies

Audience	Date	Location	Attendees	Major Issues and Comments
Riverland/ Walnut Hills Neighborhood	09/09/2019	Riverland Road Baptist Church	8	Improve pedestrian crossings on Mill Mountain Greenway, more mutt mitt stations, need to control bicycle speeds
Mill Mountain Advisory Board	09/11/2019	Municipal Building	6	More kiosks and wayfinding signage, better connectivity, more new trail, address homeless issues
South Roanoke Neighborhood	10/22/2019	South Roanoke United Methodist Church	25	Neighborhood access, particularly near the Hospital and Fern Park; dogs; maintaining the user experience of a wooded uncrowded environment
Southeast Action Forum	11/12/2019	Belmont Park Library	25	Better access from 9 th Street and neighborhoods, stormwater impacts, loss of big trees, homeless living in parks, security for neighbors
Open	11/19/2019	Discovery Center	50	Provide more mountain bike opportunities, bike park type features, loop trails for hikers, specific downhill trail locations
Subject Matter Experts (Parks, Urban Forestry, Transportation, Engineering, Police, Western Virginia Water Authority)	12/16/2019 and other communications	Municipal Building, out in the park on corridor assessments, e-mail, phone	7	Resource protection, particularly trees, soils and stormwater. Safety at road crossings, compliance with conservation easement. Compliance with WWA needs at facilities.* Specifics related to new trail suggestions: location of old landfill, steep slopes, invasive plants, forest aspects.
Online Public Input	May 2019-March 2020	PlayRoanoke. com	105	New trails and connections, infrastructure and amenities, maintenance and management of current trails, access, and issues beyond the study area.
Trailhead Surveys	September and October 2019	Random at trailheads on Mill Mountain	22	Love the trails, great to have access from the neighborhoods.

*WWVA had concerns about the route of some new corridors surrounding some of the infrastructure on WWVA owned land and easements. Compliance includes buffers around infrastructure and to be included in design reviews of those corridors.

*The National Park Service was invited to this meeting and had multiple other opportunities to provide input to the plan but did not choose to comment. Chestnut Ridge Trail and the Roanoke Mountain Campground are managed solely by the Blue Ridge Parkway Unit of the National Park Service. The City of Roanoke Parks and Recreation Department have no management capacity over those facilities. Parks and Recreation recognizes citizens' comments in the public input appendix related to those facilities and encourages members of the public to reach out directly to the Blue Ridge Parkway with suggestions or concerns.



Figure 4.1.B: Compiled Lines and Comments from All Public Input Maps

4.2 SUMMARY OF ISSUES AND PROCESS FOR RESPONDING

The Task Force discussed all the input provided by the public, staff, and resource experts; reviewed and categorized all the written comments; and discussed alternative responses to the input. These responses are summarized below, and solutions discussed in more detail in Chapters 5, 6, and 7. All written input is included in Appendix B.

Table 4.2: Summary of Public Input

Issue Category	Task Force Process for Responding
New Trails/New Connections	Task Force compiled all requests for new trails and new connections to neighborhoods from written responses and maps. See Figure 4.1.B for Compiled Lines and Comments from All Public Input Maps. All requests were explored on the ground with a team from the Task Force plus subject matter experts as needed. The exploration group looked at user experience, sustainability, connectivity, safety, and compliance with park rules and the conservation easement. All results are summarized in Chapter 6: Evaluation of Proposals for New Trails.
Infrastructure	All specific requests were noted for each trail and the system as a whole. Cost impacts were reviewed and items were categorized as feasible with operational funding or capital funding. All results are summarized in Section 5.4: Recommendations for Maintenance Priorities and Improvements.
Management	All comments were categorized and discussed, researched and reviewed by the Task Force. Chapter 7 is dedicated to Trail Management and covers most of these issues.
Current Trails	All specific requests were noted for each trail and the system as a whole. Cost impacts were reviewed and items were categorized as feasible with operational funding or capital funding. All results are summarized in Section 5.4: Recommendations for Maintenance Priorities and Improvements.
Other	There were a number of comments that did not fit into the categories above and went into the “other” category. Examples include how people enjoyed the trail system, thoughts on other trails or greenways outside of the scope of the plan, or general comments.

4.3 RESEARCH AND REVIEW OF ISSUES

Because so many issues and philosophies were provided during public input, the Task Force felt it was important to research and review the best management practices of other professional trail managers. Mill Mountain is important to the City of Roanoke and to the region because of its high visibility, accessibility, scenic backdrop, scenic views, proximity to neighborhoods, and mixture of developed and front country experiences. The high amount of traffic it gets and the pride residents take in this park necessitate a good first impression and high-quality facilities. It is important that the trails contribute positively to this park experience and that trail management consider all the park users.

4.3.1 CONSERVATION EASEMENT REQUIREMENTS

The City of Roanoke (City) placed a conservation easement on 537 of the 589 acres that comprise Mill Mountain Park in June of 2010. The full language of this easement is located in Appendix D. This perpetual easement is intended to preserve the conservation values of the park in partnership with the Virginia Outdoors Foundation (VOF) and the Western Virginia Land Trust (WVLT), now the Blue Ridge Land Conservancy (BRLC).

The easement area does not include the built areas on the top of the mountain, which include the Star, parking areas, the Discovery Center and the Mill Mountain Zoo. The easement was crafted to be consistent with the use of the mountain as a forested recreational area for the use of the City's residents and visitors. The easement is fully consistent with Vision 2001-2020 Comprehensive Plan regarding parks, the protection of viewsheds, cultural resources and the Blue Ridge Parkway. The easement is also consistent with the Mill Mountain Park Management Plan adopted by the City in February of 2006.

The easement does place specific limits on the size of permitted structures, especially on the side of the mountain facing downtown. This is due to the concern of these structures impacting the visually forested character of the mountain. The easement does permit the building and maintaining of trails if the creation of said trails does not impact the conservation values of the property. These conservation values include the forested hillsides as seen from the City in the scenic protection area.

The easement does, however, specifically mention that trees may be cut to allow for the construction of trails and the removal of hazardous trees that might injure the public. It also allows for the maintenance of the Star overlook and cutting of trees growing tall enough to obstruct the view of Downtown from the Star.

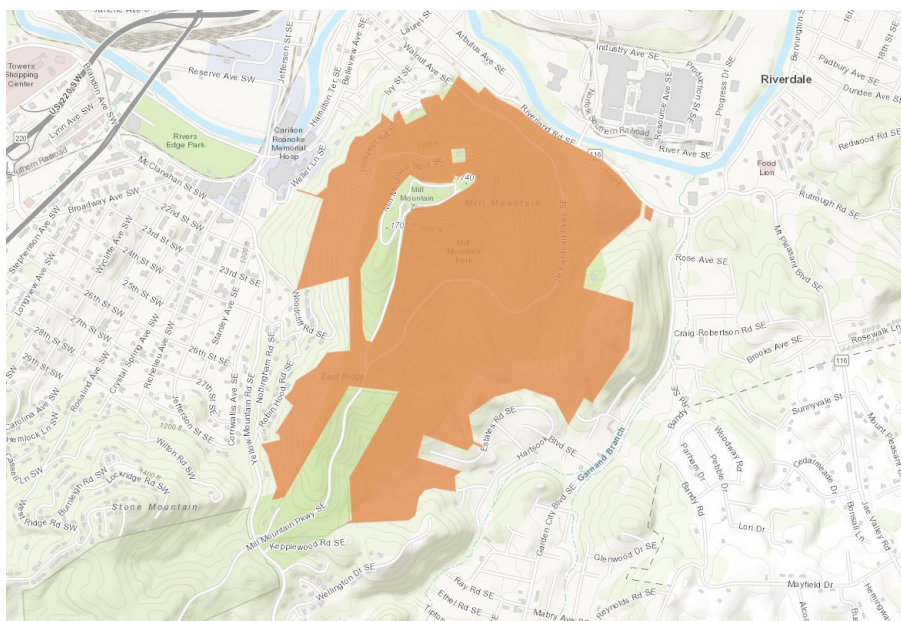


Figure 4.3.1: Boundaries of Conservation Easement

4.3.2 TRAIL STANDARDS AND USES

Current trail uses on Mill Mountain include mountain biking, hiking and horseback riding. The industry standards for sustainable trail development, design and management vary by the mode of travel. The International Mountain Bicycling Association (IMBA) provides standards for mountain biking trails, the United States Forest Service (USFS) addresses all three user groups, the Virginia Department of Transportation (VDOT) oversees standards used on paved greenways and trails, and the Appalachian Trail Conservancy (ATC) provides guidelines for hiking trails. Staff and task force members reviewed standards of these agencies as well as other local governments and the City to evaluate the existing and proposed trails and identify project processes and needs.

The USFS has a very sophisticated system, documenting not only designed use of a trail but also “managed use,” meaning a trail can be designed primarily for mountain bikers, but also allow hiking and horse use as managed uses. While most of the current trails at Mill Mountain were designed for hiking, with a few designed for mountain biking, most are being managed for multi-use, as recommended in the 2005 Trails Plan (p.20). Preference for continuation of current allowed uses was echoed in public input for the 2021 Amendment, with one exception that many mountain bikers want bike-optimized and machine built trails specifically for mountain biking in some area of the park.

4.3.3 SUSTAINABLE TRAIL DESIGN

Due to its proximity to Downtown Roanoke, high use from both citizens and visitors, and steep slopes, sustainability is key in the Mill Mountain greenway and trail system. The 2005 Plan references the need to protect the soils of the mountain through sustainable trail design. Trails are a capital investment and need to be designed and built for longevity.

The design guidelines of the USFS, outlined in Trail Construction and Maintenance Notebook, and IMBA, outlined in Trails Solutions, result in an experience that multiple user groups can enjoy with minimal maintenance for Parks and Recreation staff and volunteers. These design guidelines require extensive planning and include considerations such as the “Half Rule,” the “Ten Percent Average Grade Guideline,” “Maximum Sustainable Grade,” surface water control through “Grade Reversals,” and “Outslope.”

- The Half Rule states that a “trail’s grade shouldn’t exceed half the grade of the hillside or sideslope that the trail traverses” (IMBA, p.63). This prevents what is known as “fall line trail” where water will choose to collect and run down the trail corridor rather than flowing across the trail and continuing down the slope of the hill.
- The average trail grade, or “prevailing grade,” takes into account the user’s mode of travel and ability and the “slope of the trail from one end to the other.” Steepness or grade helps determine how difficult a trail is to build and use, as well as how much work there is to “keep it that way” (USFS, p. 7, IMBA, p. 64). A ten percent average grade guideline does not mean that sections will not be under or over ten percent, depending on the terrain, but does mean that consideration of the overall grade and efforts to keep that grade below ten percent

will keep the trail in a more sustainable state. For steep terrain such as Mill Mountain, a guideline of ten percent aids in planning efforts, applies to most soil types, minimizes user caused erosion, allows for design flexibility, helps with future reroute needs, and accommodates undulations and grade reversals.

- Maximum Sustainable Grade is the “steepest section of trail that is more than about 10 feet in length” (IMBA, p.66). While for most trails this is about 15 or 20 percent, other factors may play into it being steeper or less steep—half rule, soil type, rocks, annual rainfall amount, grade reversals, type of users, number of users, and difficulty level.
- Grade Reversal is a “spot at which a climbing trail levels out and then changes direction, dropping subtly for 10 to 50 linear feet before rising again. This change in grade forces water to exit the trail at the low point of the grade reversal, before it can gain more volume, momentum, and erosive power” (IMBA, p.67, USFS, p. 41). Not only do these get water off the trail, but they can provide that “roller coaster” feeling to trail users biking or running that is really enjoyable.
- Outslope is the tilt that the outer edge of the trail has away from the high side of the hill. It “encourages water to sheet across and off the trail instead of funneling down its center” (IMBA, p.69, USFS, p.27). Two to five percent outslope is the recommendation.

Water is the enemy of a good trail. Aligning the trail during the design phase with rolling grade dips and outslope, as well as not exceeding the Half Rule, allows water to shed from the trail tread and reduces problems such as--cupping, rutting, erosion, and mud. Design for low use or layout considering only one user group can lead to issues such as heavy braking for cyclists or switchback cutting for hikers. Flow, features to encourage desired use, proper connectivity, and control points are important as well. Those interested in more information about sustainable trail design are encouraged to reference Appendix C.

4.3.4 USER CONFLICTS AND RESPONSIBLE BEHAVIOR

For over 20 years, most of the trails on Mill Mountain have been open to multiple user groups with issues few and far between. However, public input and the Task Force identified some areas of user conflict based on trail use and rules/City Code that are not being followed. Conflicts include dogs off leash, mountain bikers speeding downhill and “running over” hikers, mountain bikers on hiker only trails, hikers cutting switchbacks and walking multiple people abreast, illegal camping, ATVs, vandalism, e-bikes user etiquette, and special events that displace other users.

The Task Force looked at user conflict and management on nearby public lands as well as on other City lands. On the Chestnut Ridge Trail, managed by the Blue Ridge Parkway and adjacent to Mill Mountain, mountain biking is not allowed due to an incompatibility with horses, as identified by National Park Service policy. At Explore Park, managed by Roanoke County, horses are not allowed on trails open to mountain bikes. On nearby preserves (Poor Mountain, Falls Ridge, and Read Mountain), managed by the Virginia Natural Heritage Division and Roanoke County respectively, trails are hiker only due to the potential of natural resource damage. However, on National Forest land and at Carvins Cove, managed by the USFS and City of Roanoke respectively, most trails are

multi-use. Such trails enable a land manager to provide more recreation opportunities with less trail mileage.

On multi-use trails, reducing user conflict requires responsible user behavior. The key to reducing conflict is the “Yield Triangle,” which encourages hikers and mountain bikers to yield to horses and mountain bikers to yield to hikers. User conflicts can also be mitigated by good trail design, intentional design to reduce high speeds, expansion of mileage to spread out users, education on trail etiquette, rules and guidelines, and enforcement of rules. Understanding that the trails on Mill Mountain are public land and there is a need for equity and room for all is important as well. No one user group can have a priority on the trail system and sharing is important when there is a limited amount of acreage and miles of trail for the enjoyment of all.



Figure 4.3.4: Yield Triangle

There are many other management methods for controlling user conflict, which may be implemented in the future. These include:

- Single use trails, where only one mode of travel is allowed. While single use trails are effective for safety and pleasing to the one user group, it does not encourage interaction among different users, can restrict loops and access for other groups, and remove equity of access to a section of the park.
- Directional trails, where everyone must go the same direction, usually in a loop. Directional trails reduce head on collisions but can limit use of certain trails and loops.
- Multi-use trails, or trails open for all user groups. Multi-use trails allow the most user types on the most miles of trails. This is the most equitable management style for trails and allows the most people access to the most land.
- Time-sharing trails, on which different user groups are allowed on the trail at different days of the week. Time sharing can reduce conflict but requires more resources for signage and enforcement and can lead to disappointment among users who are not allowed on trails on a specific day or time.
- Permit systems, where management controls the number and type of user to reduce impacts and conflicts.

- Fee for use, where management uses fees to fund user education, enforcement of rules, and amenity repair. Fee for use can cause an equity issue if the fee is unattainable for some users to pay.

For more information about guidelines, user etiquette and standards of behavior, reference Appendix E.

4.3.5 TRAIL BUILDING COSTS

Because there was significant input requesting new trails and amenities, the Task Force felt it was appropriate to look at how trails get constructed and typical trail construction costs. All of the current trails on Mill Mountain either are old roads or were built by volunteers. The City has had capital outlay for the bathroom near the Mill Mountain Star and for improvements to the Riverland Road parking area, but not for natural surface trail construction. Operating costs include staff, kiosks, signs, tools, mapping, and website management.

Table 4.3.5: Examples of Costs of Trail Building and Maintenance

Item	Personnel	Cost
Signs	Usually installed by staff	~\$40 per sign, includes post and hardware
Kiosks	Usually installed by volunteers	~\$2,000 per kiosk, map paid for by staff and designed by staff ~\$500 of that cost
Trail construction, hand built	Volunteers with their own tools/equipment	~\$0.50/linear foot
Trail construction, machine built by volunteers	Volunteers and donated tools/equipment	~\$2-\$20/linear foot
Trail construction, machine built by contractor	Contractor	~\$4-\$42/linear foot
Mapping	Staff	~\$25/hour
Website management	Staff	~\$25/hour
Trail maintenance (brushing back, water diverters tread repair)	Volunteers and staff	~\$25/hour for volunteers and/or staff



Task Force Members assessing Fern Park Trail, December 2019

Chapter Five | ASSESSMENT OF EXISTING TRAILS, CONDITIONS, NEEDS AND RECOMMENDATIONS

5.1 METHODS FOR ASSESSING CONDITION OF EXISTING TRAILS

In Summer and Fall 2019, the Mill Mountain Trail Plan Task Force completed a Trail Condition Assessment of all current trails and Mill Mountain Greenway. For trails that were assessed in the 2005 Plan, the Task Force completed a walk-through in teams, filling out a Trail Condition Form to document conditions, maintenance needs, and management issues. No grades or measurements were taken as that data already existed. The Condition Form was developed after research on other trail condition assessment forms and techniques, referencing several from municipalities in Arizona and Colorado that influenced the final version of the form used during this update. The form structure is shown below and was completed for Big Sunny, Star-Wood Thrush Connector, Crystal Spring, Monument, Ridgeline, Riser, Star, Watchtower, and Wood Thrush Trails and Mill Mountain Greenway. The trail condition issues were further rated by each member as to their severity, considering Safety, Environment, and User Experience. The results and priorities for maintenance are discussed in 5.4 Recommendations for Maintenance Priorities and Improvements.

Mill Mountain Trail Condition Form						Date of Review	
Trail Name:			Trail Length				
Trail Termini:			Assessment Team				
Trail Junctions:							
Road Junctions:							
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions	Trail Tread	Trail Berms
						Drain Dips: Waterbars	Social Trails
						Brushing & Hazardous Plants	Trees
						Trail Signs & Blazing	Steps, Benches, Crossings
						Other Features	Other Features
Section 1: From Connector Tr. to Fish. Parkway (1333') - Overall Condition							
Specific issues on Section 1 and approximate location							

Figure 5.1: Mill Mountain Trail Condition Form

5.2 METHOD FOR ASSESSMENT OF TRAILS BUILT SINCE 2005

For trails new to the system since the 2005 Plan, a full assessment was completed using the form developed for the 2005 Plan and the 2010 Carvins Cove Trail Plan. This form requires wheeling each trail, recording trail grades, sidehill grade, width, surface, and conditions. It allows computation of the percent of the trail which meets standards in terms of grade, width, and Half Rule. These items are described in detail in Section 4.3.3 for those readers who would like to learn more about trail construction and theory. This assessment was completed for Sidewinder, Understory, Fern Park, and Virginia Pine Loop. A sample form is shown below.

Mill Mountain Trail Assessment Form										Date	
Trail Name:			Trail Length			Half rule		Exceeds 1/2 rule			
Trail Start:			Attractions/Detractions								
Trail End:			Sum of Grades								
Trail Junctions:			0-5%					Sum of Surface		Sum of Width	
Assessment Team			6-10					Wood		< 2 ft	
			11-15					Gravel		2-4 ft.	
			16-20					Cinder		4.1-8 ft.	
			21-30					Hard soil		8.1-12 ft.	
			>30%					Soft soil		>12 ft.	
Station (ft)	Tread Width (in)	Tread X-slope %=in +%=out	Hillside Slope %	Surface	Grade (±%)		Feat. No.	Feat. Station	Trail View	Cond. 1=Good 5=Bad	Feature Type, Materials, Description, Details, Needs
0											
0											

Figure 5.2: Mill Mountain Trail Assessment Form

While completing these assessments, each team took pictures and updated GPS information if needed. The results of these assessments are discussed in Section 5.3 with data included in Appendix A.

5.3 DESCRIPTIONS AND CONDITIONS OF CURRENT TRAILS

The existing official trails on Mill Mountain are those included in the 2005 Plan and those approved by the City for construction since then. These official trails are signed, blazed, and depicted on the City trail map and kiosks.

Members from the Team assessed each trail using the forms in Section 5.1 or Section 5.2, depending on when the trail was built. After the assessment, Task Force members gathered to discuss the findings of the assessment team on each trail. Below are the findings from these assessments combined with assessments done in 2018 for the Parks and Recreation Master Plan. All assessment sheets can be found in Appendix A.

1. **Big Sunny:** Much of this trail is on an old roadbed, making it wider than most trails in the Park. Overall, Big Sunny is in good condition. The area under the power line has freeze thaw issues during winter and can be one of the muddier spots on the mountain. The end near Robin Hood Road, SE needs to have the inside drain re-established and some grade reversals installed, as there are water issues. Annually, brushing back is required in the power line area and between Robin Hood and the Riser intersection.
2. **Crystal Spring:** Crystal Spring Trail is a wide, gravel access along a sewer line that connects Ivy Street, SE to Woodcliff Road, SE near Roanoke Memorial Hospital. Overall, the tread is in good condition, with the trail only needing minor brushing back. On the Ivy Street, SE side, the gate is damaged from wind storms in 2018 and is not functional. This trail also has wayfinding issues on both ends and needs improved signage on surface streets from adjacent trails and Mill Mountain Greenway.
3. **Fern Park Trail:** Fern Park trail is a connection from Fern Park on Jefferson Street, SE to Yellow Mountain Road, SE and the Chestnut Ridge Trail system managed by the National Park Service. This trail is multi-use singletrack on City property and open to hike and horse user groups only on National Park Service property. There are some invasive species that tend to overtake the trail in the summer months and cause a need for brushing back and a tree identification project that needs to be freshened up. Additionally, the low-lying area under the power line tends to be muddy and could use some repair due to drainage issues.
4. **Mill Mountain Greenway:** The greenway runs along Walnut Avenue, either on the sidewalk or in the street, to Sylvan Road, SE. From there, the greenway follows “the old switchback road” up to the Discovery Center with a multiuse trail connection to the Star. As it climbs Prospect Road, SE, the greenway shares the road with a few residential landowners, crossing under the old tollbooth, which was restored in 2010, and then under the switchback bridge. The greenway is a paved City street from Walnut to the Discovery Center. The street is on a very steep sidehill and is lined most of the way with a three foot stone wall. The road surface, stone wall, and guardrails have maintenance issues due to subsidence and falling trees, and the greenway lacks wayfinding and amenities expected by the public and present on other greenways in the system.
5. **Monument:** Monument is the most popular downhill trail of the multi-use trails at Mill Mountain. It is rocky in character and drains well. There are also two areas (one near the top of

the climb and the other at the bottom near Sylvan) that have invasive species that need to be trimmed back twice a year. This trail has the most potential for user conflict and injury due to hikers and dog walkers enjoying it while mountain bikers approach at high speeds downhill on it.

6. **Ridgeline:** Ridgeline Trail connects the Mill Mountain Greenway and Discovery Center to Understory and Riser Trails as well as Yellow Mountain Road, SE and the Chestnut Ridge Trail system. Much of the trail is in good condition, but there are a few problem spots. The grassy area near the Discovery Center has trail braiding and often mud. There is a row of invasive species that need to be trimmed back twice a year near the top. There are some areas of erosion near the switchback that should also be monitored. The section of trail on National Park Service property is fall line and wide/braided.
7. **Riser:** Riser provides a connection between Big Sunny and Ridgeline for trail users on the downtown side of the mountain. At this time, the only issues are that it tends to hold leaves in the fall and winter and some re-benching is needed near Ridgeline.

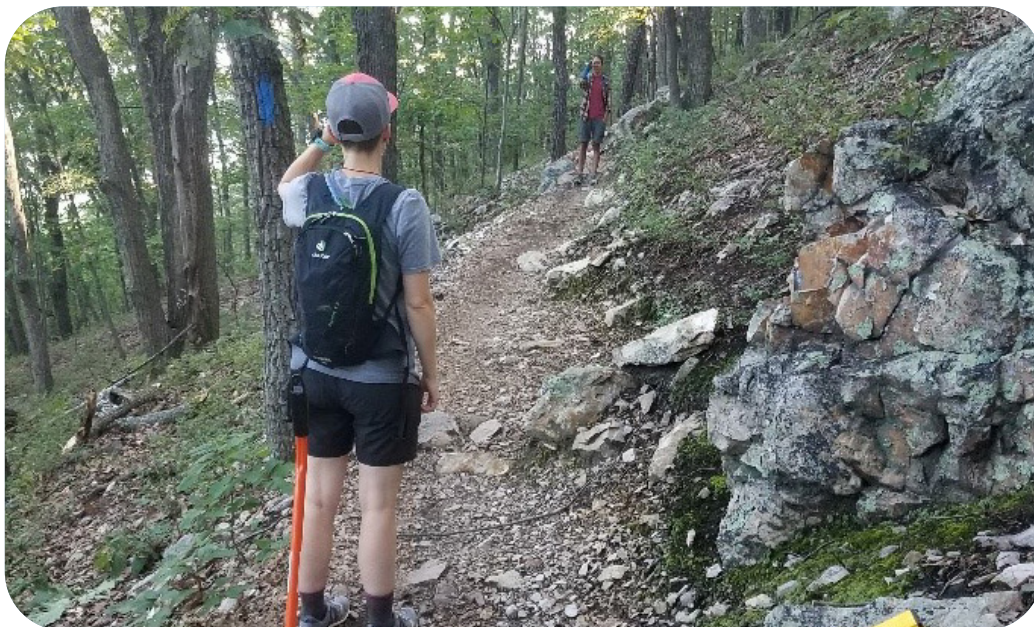


Task Force Members assessing Virginia Pine Trail, July 2019

8. **Sidewinder:** Sidewinder is one of the newer trails on Mill Mountain. Built in 2015, the tread overall is in good shape. There was a sizeable oak tree down on this trail when this Plan was started, but it was removed by City staff in December of 2019.
9. **Star:** The Star Trail is the most popular hiking trail at Mill Mountain. It was the first official built trail and gets more use than any other trail. Because of this, there are some issues with trail braiding, switchback cutting and poaching by bike riders. The intersection signage with Wood Thrush is good and the tread is in good shape as well. In the lower section from Wood Thrush

to JB Fishburn Parkway, there are several areas with metal trash, bricks, and other refuse sticking up into the trail tread. Approaching the intersection with JB Fishburn Parkway, the stairs on the lower end have been braided around by mountain bikers. The crosswalk as you hike across JB Fishburn Parkway has faded and should be repainted. The next stretch of trail from JB Fishburn to Monument has several sections with trail braiding around trees. From Monument to the top, there are several more sections of trail braiding, and some extensive switchback cutting. The switchbacks are very eroded and have large rocks in the tread. There is ample land to run the trail out farther and possibly eliminate the s-turn switchback section. In the last year, there has been a flagged social trail that keeps reappearing, crossing the Star Trail corridor multiple times. It has been removed by staff or volunteers three times and it keeps reappearing.

- 10. Star-Wood Thrush Connector:** The Star-Wood Thrush Connector was built to provide a trail parallel to the gravel road to the water tower, which is managed by the Western Virginia Water Authority (WVWA). At the time of the 2005 Trails Plan, trail users had to use the gravel road, which often has significant erosion issues. Staff works with the WVWA to address the issues on the road, which impact the entrance to the Riverland Road Trailhead. The Connector Trail has a few muddy spots and some debris emergent from the landfill, but its biggest issue is invasive species, including privet and kudzu. The alignment is good and preferred by trail users to the gravel road, but in the summer months extra maintenance of vegetation is required.
- 11. Understory:** Understory Trail was built in 2015 and 2016 as a connector from Mill Mountain Greenway to Ridgeline Trail. It helps to create a top-of-the-mountain loop for hikers and a more advanced trail for mountain bikers. There is some re-benching needed where bikers were going around the more technical features, but overall the trail is in good shape.



Task Force Members assessing Understory Trail, July 2019

- 12. Virginia Pine:** Virginia Pine Trail starts at Wood Thrush Trail and follows a finger ridge and old road bed to Hartsook Boulevard, SE. Initially, the trail was a point to point, but, in 2016, an adjacent, eroded road bed was modified into single track and the trail became a lollipop. The trail is intermediate in difficulty, but the signage is not consistent, being green circle in some places and blue square in others. The two switchbacks are in good shape, but should be monitored in case of cutting in the future. The old road bed needs to be monitored for erosion issues and impacts on neighbors during seasons of heavy rains.
- 13. Wood Thrush:** Wood Thrush Trail was built in 2007 to link multiple old road beds and provide a continuous trail on the Garden City side of the mountain. Originally designed to go to Yellow Mountain Road, the trail has terminated for many years at the Mill Mountain Spur Road, pending Blue Ridge Parkway approval. The extension to Yellow Mountain Road, SE is now included in the Parkway Trail Plan, which should allow the establishment of that connection. Wood Thrush connects to Sidewinder and Virginia Pine Trails, providing connectivity to the Garden City neighborhood. Near the water tower, there is a significant social trail to a homeless camp near the power line. There are areas where Wood Thrush is steep and braided, areas that need to be gargoyled (or blocked off); and areas that could use tread repair due to mud and erosion.
- 14. Social Trails:** There are several social trails that were identified during trail assessments for the 2021 Amendment. Social trails are created by users, have not been sanctioned by the City, and are not maintained. These include ones off of Wood Thrush near the Water Tower, off Wood Thrush before the muddy spot, from the Star overlook to Watchtower trail, from the top of Star Trail down beyond the switchbacks, from Ridgeline down to the Blue Ridge Parkway Spur Road, and from Virginia Pine to the house near Garden City. The two social trails off of Wood Thrush could be realigned and incorporated into new trail corridors 8 and 9 (See 6.2). For routes to private property, staff should reach out to the homeowners about the liability of managing a private connection to the trail system, and discuss closing these access points. The ones up at the Star overlook should be closed to prevent erosion and maintain landscaping. The one from the top intersecting the Star Trail should be addressed with Corridor Number 16 as discussed in Section 6.2. Staff should reach out to the NPS regarding the social trail off of Ridgeline to determine a solution



Task Force Members assessing trails

5.4 RECOMMENDATIONS FOR MAINTENANCE PRIORITIES AND IMPROVEMENTS ON CURRENT TRAILS

The chart below summarizes maintenance priorities and recommended improvements for current trails and the Mill Mountain Greenway.

Table 5.4: Recommendations for Maintenance Priorities and Improvements

Trail Name	Recommendations for Maintenance and Improvements
Big Sunny	<ol style="list-style-type: none"> 1. Add small wayfinding maps on both ends. 2. Add wayfinding from Robin Hood end to Fern Park Trail through neighborhood. 3. Brush back regularly. 4. Address water runoff concerns onto Robin Hood Road, SE. 5. Continue tread repair near the rootball. 6. Develop invasive species management plan and removal. 7. Add a mutt mitt station with a trash can near Mill Mountain Greenway.
Crystal Spring	<ol style="list-style-type: none"> 1. Extend wayfinding to Sylvan Road, SE/Mill Mountain Greenway. 2. Fix broken gate (gate fixed by staff in April 2020). 3. Brush back annually.
Fern Park	<ol style="list-style-type: none"> 1. Armor areas where tread is muddy. 2. Re-bench areas with too much outslope. 3. Develop invasive species management plan and removal. 4. Update kiosk maps—remove incorrect portrait maps for new standard and whole system maps. 5. Install signs at the top and bottom of the trail. 6. Inventory, update, and replace tree identification signs. 7. Allow mountain bike use.

Table 5.4, Continued: Recommendations for Maintenance Priorities and Improvements

<p>Mill Mountain Greenway</p>	<ol style="list-style-type: none"> 1. Repair the stone wall along Prospect Road, SE section. 2. Unblock and repair culverts along the Prospect Road, SE section. 3. Mill and repave. 4. Install crosswalks and curb cuts along Walnut from Hamilton Terrace, SE to Sylvan Road, SE. 5. Address erosion from Discovery Center Parking Area down towards Understory Trail. 6. Explore paving the top loop from the Star overlook to the parking lot past the Star Trail. 7. Repair guardrail along Prospect Road, SE section. 8. Cut back growth at Star overlook annually. 9. Address sediment on the trail tread near Rockledge overlook. 10. Regularly schedule leaf removal from zoo entrance to Watchtower intersection. 11. Design and install wayfinding signage: "No vehicle access to Mill Mountain Star." 12. Design and install wayfinding signage: "Greenway open to cars" on lower stretch. 13. Switchback bridge—evaluate mineral deposits, get inspection schedule from engineering. 14. Add animal proof trashcans along greenway in park. 15. Develop invasive species management plan and removal. 16. Add kiosks and wayfinding. 17. Add mile markers. 18. Replace current bollards to Parks and Recreation standard design. 19. Add art along the greenway. 20. Replace missing leash law signs.
<p>Monument</p>	<ol style="list-style-type: none"> 1. Add water diverters on downhill sections. 2. Add a kiosk and animal proof trashcan at the top near the Big Bikes art (kiosk installed 2020). 3. Develop invasive species management plan and removal. 4. Repair broken wayfinding signage. 5. Design and install better wayfinding signage from the Ridgeline/Riser 4 way to Monument trail.

Table 5.4, Continued: Recommendations for Maintenance Priorities and Improvements

Ridgeline	<ol style="list-style-type: none"> 1. Work with the National Park Service (NPS) to reroute the fall line section on Morrison Street, SE/Yellow Mountain Road, SE end. 2. Repair tread in switchback near Understory . 3. Add a technical rock garden feature above the switchback near Understory to slow down users and reduce erosion through the switchback. 4. Assess and address the social trail to the Blue Ridge Parkway Spur Road on NPS land. 5. Install wayfinding signage on Morrison Street, SE end. 6. Add water diverters and grade reversals on City land section above NPS fall line section. 7. Develop invasive species management plan and removal. 8. Deberm the section near Riser and Understory. 9. Examine the migrating trail line through the grassy area near the Discovery Center for a better solution. 10. Add small maps at Morrison Street, SE and at the intersection with Riser. 11. Revise the tree identification project to have information and not just a number.
Riser	<ol style="list-style-type: none"> 1. Install better erosion control at the intersection with Ridgeline. 2. Smooth out the approach to Big Sunny. 3. Design and better wayfinding signage from the Ridgeline/Riser 4 way to Monument Trail.
Sidewinder	<ol style="list-style-type: none"> 1. Remove large deadfall at the top (done by staff December 2019). 2. Address rock removal in technical areas. 3. Buff out bottom end of berm on the top turn from deadfall reroute (done by staff December 2019). 4. Add a small map at the top.
Star	<ol style="list-style-type: none"> 1. Address trail braiding/widening/erosion throughout. 2. Address drainage coming off the parking lot that is damaging the double switchback area. 3. Implement water diversion on fall line areas. 4. Address tread repair from Water Tower to JB Fishburn Parkway where there is landfill debris in the tread. 5. Develop invasive species management plan and removal. 6. Remove bench graffiti and repair all benches (done by staff January 2020). 7. Assess and address the social trail at the top around the stairs. 8. Armor the muddy sections on the Water Tower to JB Fishburn Parkway section. 9. Change use from Wood Thrush to JB Fishburn Parkway to allow mountain bikes on this lower stretch.
Star-Wood Thrush Connector	<ol style="list-style-type: none"> 1. Incorporate as part of Wood Thrush trail. All maintenance priorities identified during the assessment are listed below under "Wood Thrush."

Table 5.4, Continued: Recommendations for Maintenance Priorities and Improvements

Understory	<ol style="list-style-type: none"> 1. Repair tread in technical trail areas to address braiding and rock removal. 2. Address gravel runoff issue near Ridgeline intersection from the zoo road above. 3. Improve benching at the x-ing with Mill Mountain Greenway, just beyond the powerline. 4. Add a small map at the intersection with the Mill Mountain Greenway. 5. Develop invasive species management plan and removal. 6. Deberm the tread near Ridgeline. 7. Install interpretive signs at the old incline site.
Virginia Pine	<ol style="list-style-type: none"> 1. Add water diverters throughout. 2. Add a kiosk with map at Hartsook Boulevard, SE entrance. 3. Address stormwater runoff near Hartsook Boulevard, SE. 4. Add a new technical trail feature. 5. Address the social trail from the sub-division. 6. Add wayfinding from Virginia Pine to Garden City Greenway.
Watchtower	<ol style="list-style-type: none"> 1. Address litter, trash and broken glass near the top of the trail. 2. Address erosion near the top of the trail—stairs or water diversion. 3. Address social trails from the Star overlook platform. 4. Add a small map at the intersection with Mill Mountain Greenway. 5. Improve connection to the Star Overlook.
Wood Thrush	<ol style="list-style-type: none"> 1. Change all signs, maps, kiosks and language to reflect Wood Thrush extending all the way to Riverland Road Trailhead. 2. Address landfill items in tread surface on lower section. 3. Develop invasive species management plan and removal (removal started Fall 2020). 4. Address muddy areas in tread near the intersection with the Star trail, low crossings, and near the Blue Ridge Parkway Spur Road intersection. 5. Add grade reversals and water diverters throughout. 6. Address erosion on the steep slope near the intersection with Sidewinder. Explore a reroute of this area. 7. Close social trails near the Water Tower. 8. Add a small map at the intersection with the Blue Ridge Parkway Spur Road. 9. Address the leaner and dead tree near the first low crossing.

5.5 TRAIL USES, DIFFICULTY RATINGS, AND RECOMMENDATIONS

The 2005 Plan suggested trail uses and difficulty ratings for those trails based on assessment data and input from the team members. Allowed uses were based on sustainability given the terrain and proximity to neighborhoods. Trail difficulty can vary by mode of travel, so the assigned rating in the 2005 Plan could vary. Over time and as new trails were built, staff assigned uses and difficulty ratings for new trails. It became more practical to have an average difficulty rating compared to other trails in the region as well as what was on the mountain. This more simplistic system still allowed users to make informed decisions, minimized risk and injury, and improved a trail user's experience in the park. Trail uses and difficulty rating for the current trails can be found on the Mill Mountain Trail Map on page 18. The Task Force recommends continuing current trail difficulty ratings on current trails.

The Task Force, researching other trail networks and thinking of management strategies moving forward, recommends that the previous trail uses and difficulty ratings continue with only modest modifications. The Task Force examined use patterns and connectivity and concluded the lower section of the Star Trail from JB Fishburn Parkway to Wood Thrush is an important connection for mountain bikers and should be open to that use. The Star-Wood Thrush Connector, assessed by the Task Force, seemed out of place as a standalone trail and should be incorporated into the Wood Thrush Trail to provide continuity. The Task Force examined use on Fern Park Trail and determined it also needed to be open to mountain bikes for connectivity from South Roanoke Neighborhood to the Mill Mountain Trail System.

Table 5.5: Trail Use by Group

Trail	Hikers	Mountain Bikers	Equestrians
Big Sunny	✓	✓	✓
Crystal Spring	✓	✓	
Fern	✓	✓	
Monument	✓	✓	✓
Ridgeline	✓	✓	✓
Riser	✓	✓	✓
Sidewinder	✓	✓	✓
Star—Lower (Wood Thrush to JB Fishburn Parkway)	✓	✓	
Star—Upper (JB Fishburn Parkway to top)	✓		
Understory	✓	✓	✓
Virginia Pine	✓	✓	✓
Watchtower	✓		
Wood Thrush (Includes Connector trail)	✓	✓	✓
Mill Mountain Greenway	✓	✓	✓



Task Force Member Assessing Corridor 4, December 2019

Chapter Six | EVALUATION OF PROPOSALS FOR NEW TRAILS

6.1 DESCRIPTION OF NEW TRAIL PROPOSALS AND METHOD OF ASSESSMENT

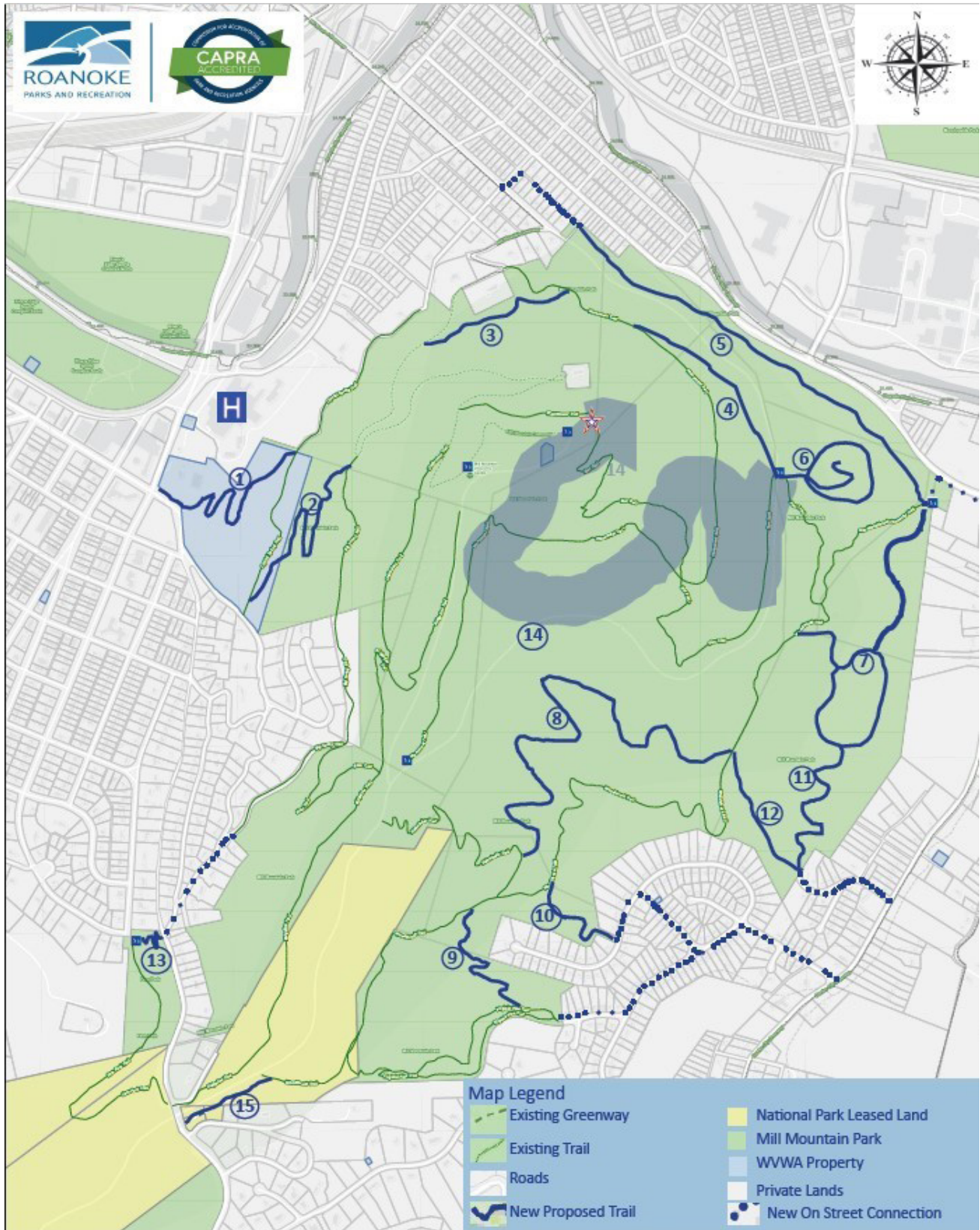
New trails and neighborhood connections were proposed by staff, Task Force Members, and through public input methods. The chart below and map on the following page take into account corridors that could accommodate a new trail or connection. Priority numbers are listed next to the corridor description. These were assigned by the Task Force based on difficulty of construction, feasibility, financial and labor resources, demand from users, interest of volunteers, essential connections for improved loops and connectivity to neighborhoods, and last but not least, sustainability. All proposed new trails and corridors were assessed on site by a group of at least two Task Force and/or Subject Matter Experts.

Table 6.1: New Trail and New Corridor Assessment Findings and Recommendations

Corridor	Description	Priority
1	South Roanoke Neighborhood Connection: Jefferson Street, SW to Crystal Spring Trail	3
2	Crystal Spring to Big Sunny	3
3	Mill Mountain Greenway near Toll Booth to Monument Trail	3
4	Star Trail Crossing of JB Fishburn Parkway to bottom of Monument Trail	2
5	Alley between Riverland Road, SE and Walnut Avenue, SE to Riverland Road TH	2
6	Lower Knob area near Riverland Road	1
7	Water Tower/Powerline Area	1
8	Sidewinder to Wood Thrush	2
9	Garden City Neighborhood Connection: Hartsook Boulevard, SE to Wood Thrush	2
10	Garden City Neighborhood Connection: Estates Road, SE to Wood Thrush	1
11	Garden City Neighborhood Connection: Crown Point Road, SE to Powerline/Water Tower Area	2
12	Garden City Neighborhood Connection: Crown Point Road, SE to Wood Thrush	2
13	South Roanoke Neighborhood Connection: Fern Park to Big Sunny	1
14	Top to Bottom Trail Open to Bikes	2
15	Blue Ridge Parkway Connection: Wood Thrush to Yellow Mountain Road, SE	1



Task Force Member Assessing Corridor 8, January 2020



Mill Mountain Trail Plan New Trail and Corridor Map 2021

Figure 6.1 Mill Mountain Trail Plan New Trail and Corridor Map 2021

6.2 FEASIBILITY AND RECOMMENDATIONS

Below are feasibility and recommendations for new trails and connections for Mill Mountain. All trails and connections suggested are multi-use and bi-directional unless noted otherwise.

- 1. South Roanoke Neighborhood Connection:** Jefferson Street, SW to Crystal Spring Trail: The Task Force members examining this corridor found it to be steeper than originally envisioned from looking at maps. This trail would need some switchbacks in the forested area and a sidewalk along Yellow Mountain Road SE to tie into Jefferson Street SW. The WVWA has requested some spacing from their retaining wall and fenced areas in the construction of this trail. Include this as a future corridor in the plan as a neighborhood connection for South Roanoke, recognizing it will be a steep connection. Staff will need to coordinate with WVWA for layout and easement for this corridor. **Priority: 3**
- 2. Crystal Spring to Big Sunny:** This corridor proved to have steeper topography than originally thought. Team members examining this corridor felt a connection is possible, but there will be multiple switchbacks and hand built trail to accommodate sensitive soils and large trees is a must. **Priority: 3**
- 3. Mill Mountain Greenway near Toll Booth to Monument Trail:** The Task Force members examining this trail found it more feasible than originally thought. There are numerous invasive plants and vines, but there is a well-graded old roadbed from the toll booth to a sewer man hole and then good sidehill grades to a connection on Monument. The recommendation is to include this corridor in the plan, but to hand build the trail due to sensitive forest structure in the area per the Urban Forestry Section in the Parks Division. **Priority: 3**
- 4. Star Trail Crossing of JB Fishburn Parkway to the Bottom of the Monument Trail:** This corridor provides connectivity from the Wood Thrush Trail to Monument Trail with the reclassification of the Star Trail as multi-use on the lower end. It helps eliminate the need for users to be on JB Fishburn Parkway and expands loop options on the mountain. There is a good old road grade near road crossing through invasive species groves and large rock and scree fields as the corridor nears Monument. Due to the large trees in the area and a need to preserve a sensitive forest ecosystem, this corridor is hand build only per the Urban Forestry Section of Parks Division. **Priority: 2**
- 5. Alley Between Riverland Road, SE and Walnut Avenue, SE to Riverland Road Trailhead:** Originally, this was proposed as two corridors with a connection to 9th Street, SE. However, upon examination, Task Force members suggest combining corridors 5 and 6 since there is not a feasible connection to 9th Street, SE at Riverland Road, SE. The connection at 9th Street, SE is not feasible due to steep grades and erosion issues from stormwater runoff in the area. The character of the feasible and proposed corridor includes constructing sidehill trail from the alley to the first switchback at Wood Thrush roughly paralleling Riverland Road, SE. The recommendation is to include in the plan with attention to homeless and stormwater concerns in the area. **Priority: 2**

- 6. Lower Knob Area near Riverland Road, SE:** This corridor was proposed through public input originally to connect Wood Thrush with Riverland Road, SE near 9th Street, SE. Upon examination by Task Force members, there is a landfill in this area which restricts excavation and grading from Wood Thrush or the Star Trail. The knob destination has great views and good access from the Star Trail/JB Fishburn Parkway intersection near the old Hartsook driveway and foundation. Old terracing and sidehill built trail could make a lariat style trail to an overlook. This trail needs to be hand built due to the old landfill, historic foundations, and steep grades. The Task Force recommends inclusion in the plan, but only as described above. **Priority: 1**
- 7. Water Tower/Powerline Area:** Upon a visit from Task Force members, this was deemed a very feasible area for new trail. There is potential to do a hub and spoke machine-built trail area to connect to Wood Thrush Trail, Riverland Road Trailhead and Garden City neighborhood. There are two very established homeless camps in the area that will be impacted by the construction of this corridor and staff will need to coordinate with police and Homeless Assistance Team in design and construction. The corridor is most feasible for machine-built mountain bike trails, the Task Force recommends they be built as such. **Priority: 1**
- 8. Sidewinder to Wood Thrush:** Task Force members examining the corridor on foot felt a sustainable sidehill trail is feasible if the new trail intersects near the bottom of Sidewinder rather than the top. The best intersection with Wood Thrush is near the bottom of the downhill near the first bridge, as examined by the team. There are two sizeable homeless camps in this area, necessitating staff and volunteers to work closely with Roanoke Police Department and the Homeless Assistance Team. This trail will be hand built through the corridor due to a sensitive forest structure per the Urban Forestry Section of Parks Division. **Priority: 2**
- 9. Garden City Neighborhood Connection: Hartsook Boulevard, SE to Wood Thrush:** Upon examining the corridor, Task Force members felt the best intersection with Virginia Pine is about 300 yards from Hartsook Boulevard, SE due to topographical restrictions. This corridor has a great open forest, healthy large well-spaced trees, and moderate topography. The best place to connect to Wood Thrush is near the intersection with Sidewinder. **Priority: 2**
- 10. Garden City Neighborhood Connection: Estates Road, SE to Wood Thrush:** From Estates Road, SE, this corridor follows the old road bed toward Wood Thrush, and then should veer north on a new side hill bench cut trail to a connection with Wood Thrush between Sidewinder and the second bridge. **Priority: 1**
- 11. Garden City Neighborhood Connection: Crown Point Road, SE to Powerline/Water Tower area:** An old road bed off of Crown Point Road, SE extends toward the "Contour Road" (2005 Plan). It is possible to use some of Contour Road to get up towards the Powerline/Water Tower area, but some traversing to meet sustainable grade is required. This trail needs to be bi-directional and multi-use to serve the most users in the park and neighborhood. **Priority: 2**
- 12. Garden City Neighborhood Connection: Crown Point Road, SE to Wood Thrush:** This corridor follows an old road bed near Crown Point Road, SE to an area where a sidehill bi-directional multi-use trail would be built to intersect with Wood Thrush near where corridor 9 would take off. **Priority: 2**

- 13. South Roanoke Neighborhood Connection:** Fern Park to Big Sunny: Several residents in the South Roanoke Neighborhood asked specifically for this corridor to be examined and included in the plan. The current social trail is eroded, fall line, and in need of storm water mitigation. Task Force members met with the Transportation Division, reviewed the crossing of Yellow Mountain Road, SE, and deemed it appropriate. The Transportation Division is willing to sign the bike/pedestrian crossing, but not paint a crosswalk at the location due to sight lines for vehicle stopping. Wayfinding signage needs to be installed along Nottingham Road, SE and an access trail from Fern Park needs to be designed and built to Yellow Mountain Road, SE. **Priority: 1**
- 14. Top to Bottom Trail Open to Mountain Bikes:** This corridor was a proposal from Blue Ridge Off Road Cyclists for machine built switchbacks from the Star down the mountain towards Monument. Task Force members examined the corridor with several subject matter experts and concluded that corridor is not feasible due to unstable soils and the impact a machine would have on the trees in the Scenic Protection Area of the conservation easement. Other options for a top to bottom mountain bike only trail were explored. A start at the top could work with a hand built single track trail through the steeper area on a sidehill and then have the corridor head south on the mountain towards Monument. Staff and proposers need to review other alignments and work together to consider soils, trees, and sustainability. This area is on the map as a shaded area but not included in the plan as proposed by the public, but there is potential in the area with more work outside the scope of the Task Force. **Priority: 2**
- 15. Blue Ridge Parkway Connection:** Wood Thrush to Yellow Mountain Road, SE: This corridor is identified in Roanoke Valley Blue Ridge Parkway Management Plan 2015 as an opportunity to connect the Mill Mountain trail system to Yellow Mountain Road, SE. The sidehill grade and forest structure through here support a viable connection and the neighboring private property owner is supportive of the corridor. **Priority: 1**

6.3 TRAILS PROPOSED BUT NOT ADOPTED INTO THE PLAN

Original Incline Corridor: The original incline was a tram with tracks and overhead wiring. The only remnants on the mountain of the original structure include concrete abutments near the Zoo and Understory Trail. There is no existing scarred land and there are now big trees in the original corridor. The hillside grades are very steep in this area of the mountain, over 50% in some places, and even the suggested staircase from public input would be difficult and expensive. There is significant existing erosion under the parallel power-line, which was considered as an alternate location by Task Force members who examined the corridor on foot. Any construction would be difficult at this grade due to runoff, sediment, and then subsequent maintenance. Either location would require AEP to modify an existing easement in that area, which is unlikely at this time. The Task Force recommendation is to not include this corridor in the plan at all.

6.4 NEIGHBORHOOD CONNECTIONS

Throughout the public input process, the Task Force received requests for better connections to Mill Mountain from adjacent neighborhoods. Some of these connections are able to be done as natural surface trails and are listed in Section 6.3. Others are street connections, spanning areas where trail construction cannot occur or does not make sense, due to it being in the right of way. The connections described below are also on the map on page 47 and are indicated with a dotted line rather than a solid line.

- **Connection of Garden City Greenway to Virginia Pine Trail via Hartsook Boulevard, SE:** This neighborhood connection will help trail users navigate from Garden City Greenway through the neighborhood on Hartsook Boulevard, SE to the trailhead at the Virginia Pine Trail.
- **Connection of Fern Park Trail to Big Sunny Trail via Nottingham Road, SE and Robin Hood Road, SE:** This neighborhood connection will allow for an on-road connection from Fern Park to Big Sunny Trail, allowing for a popular loop with hikers in the neighborhood to be signed and improved.
- **Connection of Proposed Corridor 10 on Estates Road, SE to Garden City Greenway:** This neighborhood connection will help trail users navigate from Garden City Greenway through the neighborhood on Hartsook Boulevard, SE, Rosemary Avenue, SE and Estates Road, SE to proposed corridor 10.
- **Connection of Proposed Corridors 11 and 12 on Crown Point Boulevard, SE to Garden City Greenway:** This neighborhood connection will help trail users navigate from Garden City Greenway through the neighborhood on Crown Point Boulevard, SE to proposed corridors 11 and 12.
- **Connection of Riverland Road Trailhead to Garden City Greenway:** This neighborhood connection received funding from the Surface Transportation Block Grant (STBG) for completing the connection near Dollar General to the Riverland Road Trailhead as well as an expansion of the parking lot at the trailhead. This connection is the only safe way to get trail users from the 9th Street, SE area and Roanoke River Greenway to Mill Mountain Park. It will consist of an 8' wide concrete trail adjacent to the road leading to the entrance to the trailhead as well as wayfinding all the way back to Garden City Greenway, Roanoke River Greenway, and the 9th Street, SE area, including the bus stop closest to Mill Mountain Park at 9th Street, SE and River Road, SE.
- **Connection of Proposed Corridor 5 to Ivy Street, SE to Mill Mountain Greenway:** This neighborhood connection will help users navigate from the alley at the end of proposed corridor 5 out to Ivy Street, SE and over to Walnut Avenue, SE and Mill Mountain Greenway.

Citizens requested better wayfinding signage, delineated bicycle and pedestrian travel lanes and/or sidewalks to help trail users make loops or access the park via the above listed neighborhood connections. Below are some examples of what these connections may look like in the future with wayfinding signage being the minimum and the renderings below as an ideal design standard.

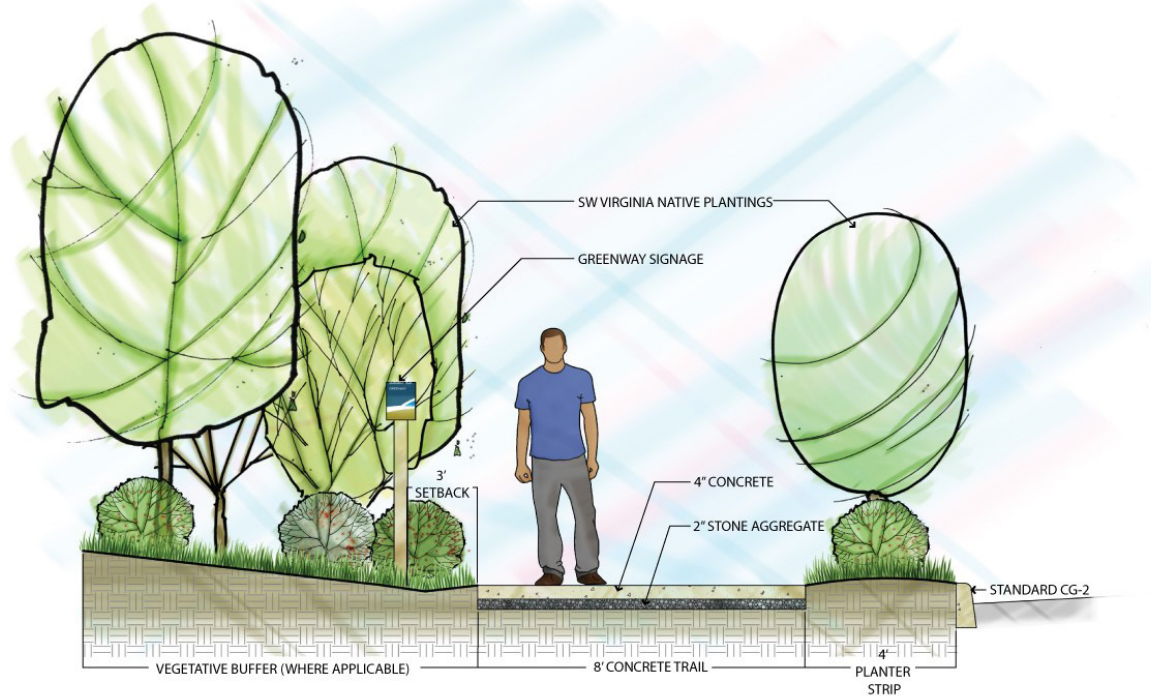


Figure 6.4.A: Neighborhood Connection with Concrete Sidewalk and Vegetated Median

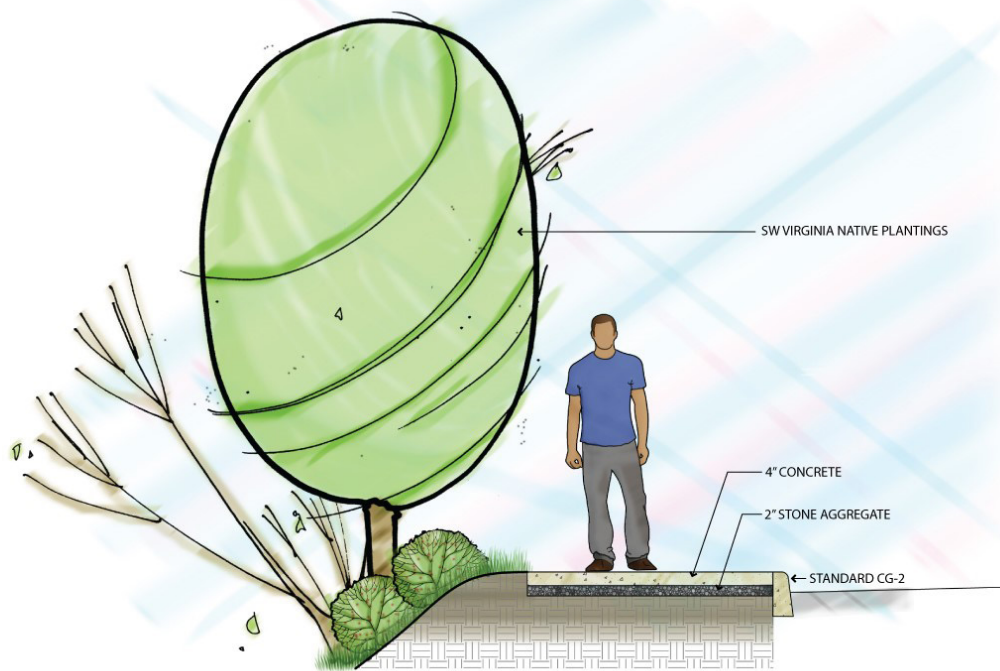


Figure 6.4.B: Neighborhood Connection with Concrete Sidewalk and Curb



Mountain bikers enjoying the Mill Mountain trail system

Chapter Seven | TRAIL MANAGEMENT AND RECOMMENDATIONS

7.1 OPERATIONS AND OVERSIGHT

Trail management on Mill Mountain has evolved over the last two decades. In the late 1990s, volunteers and the Roanoke Valley Greenway Coordinator played a significant role in advocating to City Council for legitimate trails on Mill Mountain with assistance from Urban Forestry staff. With the addition of the Discovery Center on Mill Mountain in 2001, staff working on the mountain took an interest in the trails and joined the trail and greenway partners in developing the 2005 Trails Plan. Volunteers continued to build trails after the plan, coordinated through Pathfinders for Greenways, the Roanoke Valley Greenway Coordinator, and staff at the Discovery Center.

In response to the region's growing focus on trails, a Trails Specialist position was created in the Outdoor Section of Parks and Recreation in 2013 to work with volunteer groups and manage the natural surface trail systems at Mill Mountain, Carvins Cove, and Fishburn Park. The Trails Specialist took on management responsibilities such as coordinating volunteer days, reporting volunteer hours, managing projects, and training volunteers. In 2019, this position was moved into the Parks Division and took on the responsibilities of managing the greenways as well. The Trails and Greenways Coordinator (Coordinator) supervises a staff of four full time and two part time positions to help with maintenance of the greenways and trail system.

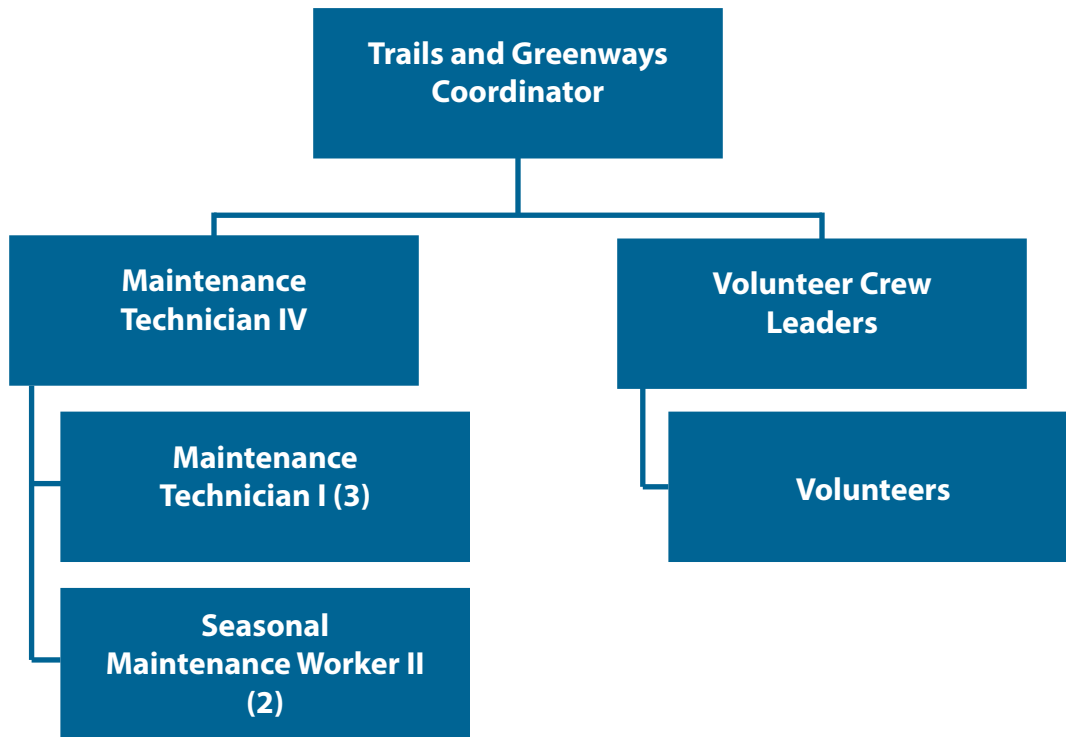


Figure 7.1: Roanoke Parks and Recreation Trails and Greenways Section Structure 2021

There are two volunteer organizations that have a vested interest in the current and future trail system on Mill Mountain and represent the interests of trail users—Roanoke Valley Greenways, including Pathfinders for Greenways and the Greenway Commission, and Blue Ridge Off Road Cyclists (BROC, formerly Roanoke Chapter of IMBA). For the 2021 Amendment, both organizations have representation and a voice in the future of the system. The Coordinator manages maintenance and new construction with staff and with the two volunteer organizations, in conjunction with department leadership for approval of new construction proposals.

The Task Force for this Amendment recommends that the City continue funding the greenways and trails staff and continue using volunteers for trail construction and maintenance.

7.2 USER CONFLICT AND MANAGEMENT ISSUES

Any trail system that serves a variety of user groups may have inherent conflict. The Task Force and Roanoke Parks and Recreation staff recognize this and hear the numerous public input comments and suggestions for solutions. This section will outline major themes and suggestions for implementation, as well as inclusion or exclusion from the plan.

7.2.1 MOUNTAIN BIKE ONLY TRAILS

Trails open only to mountain bikes were requested at public input meetings and in comment forms by some mountain bikers. The desire for these trails to be machine built, single use and single

direction limited the Task Force on recommendations due to machine impacts on soils and forest canopy as well as the steep grades that exist on Mill Mountain. Corridor 7, the area off of Wood Thrush Trail near the water tower, was identified as the best place for machine built trail due to low value pine forests, compactable clay soils, and no disruption to existing loops or user patterns of other user groups. This decision was not made in isolation by Task Force Members, but in consultation with Subject Matter Experts on conservation, parks, forestry, and water management.

7.2.2 MORE TRAILS

Numerous trail users expressed a need for “more trail,” including easy, hard, technical, flow, and just more trail overall. Seventeen corridors were identified by staff, Task Force Members, and public input. Fifteen of those are feasible and described and charted in Section 6.2. Section 6.3 describes a corridor that was proposed but deemed not feasible and why. Since there are already eleven trails on the mountain and this Amendment proposes fifteen more, the Task Force feels “more trail” should be satisfied by implementation of this Amendment. Staff will need to work closely with trail builders to ensure the variety of opportunities requested.

7.2.3 E-BIKES

The Mill Mountain trail and greenway system tends to see an equal number of users on bicycle and foot and very minimal horse traffic. State code changed with a new law signed in March 2020, effective in July 2020, redefining a bicycle to include e-bikes. Roanoke City Council held a public hearing in June 2020 where they voted to allow all classes of e-bikes on all natural surface and paved trails and greenways within the City of Roanoke and on lands managed by the City outside of City limits. With this addition, the Task Force reviewed recommendations for trail use and felt no need to change designated use on current trails and re-evaluated proposed new corridors with this in mind. All recommendations reflect legislation as of the time of adoption of this Plan Amendment.

7.2.4 CHANGES TO SPECIFIC TRAILS

Public input requested specific maintenance and management priorities and changes and many of these requests are addressed in Section 5.4. Parks and Recreation staff, Task Force members and/or Subject Matter Experts **did not feel the following changes were appropriate** for the Mill Mountain Trails and Greenway and they **are not included in the Amendment** as suggestions for implementation. These include: change use of Watchtower Trail from hiker only to multi-use; widen Monument Trail; manage Monument Trail as single direction or alternate days for user groups; remove parking icon from the map near the Big Bikes art since there are only three spaces; separate hike and bike traffic on trails; widen the natural surface trails overall; and utilize more restrictions on existing trails, such as one way, time restrictions for different users groups, and days for different user groups.


In terms of managing the Star Trail as multi-use, The Task Force is recommending the Star Trail allow mountain bikes from the intersection with Wood Thrush to JB Fishburn Parkway to allow more connectivity on the mountain for the new corridor proposals that will come to the intersection of JB Fishburn Parkway and the Star Trail.

7.2.5 SINGLE USE TRAILS AND TASK FORCE RECOMMENDATIONS

The Task Force for this Amendment does not recommend changes in use for existing trails, but does propose that some of the new trails could be single use. The Task Force members and Parks and Recreation staff feel that many of the above suggestions from public comment stem from the multi-use nature of the trail system and the fact that Mill Mountain is currently managed for three user groups—hikers, mountain bikers and equestrians. While there is not much equestrian use, the hikers and mountain bikers want their own single use trails to reduce conflict and want the other user group to “behave.” Many of the public comments around the above suggestions would significantly impact a user group--changing loops they are able to do, changing the character of the trail so much so that it would make it dangerous for other user groups, or environmentally impacting the land in a way that is not consistent with the mission of the City and Department or the conservation easement. The conflicts and perception that the other user groups need to “behave” is indication that the park needs to increase education on trail etiquette and expectations for users. (See Section 7.6 for recommendations.)

7.3 VOLUNTEER TRAIL MANAGEMENT PARTNERS, POLICIES, AND PROCEDURES

Roanoke Parks and Recreation recognizes and encourages citizens and users that want to volunteer on the Mill Mountain Trails and Greenway. However, requests from citizens and users to do work or build a new trail need to align with the Mill Mountain Park Management Plan, other Council approved plans, City policies, and the desires of other trail users, citizens, department staff, and City leadership.



VOLUNTEER BACKGROUND CHECK, CONSENT, AND RELEASE FORM

For Office Use Only:

Date Received: _____ Received By: _____

Section I – Personal Information

Volunteer Name (Maiden Name/Former Name): _____ City Resident? Yes No

Social Security Number (background check only): N/A Date of Birth: _____

Male Female First Aid/CPR Certification? Yes No Expiration Date: _____

Volunteer Address: _____ City: _____ State: _____ Zip Code: _____

Email: _____ Phone: _____

Emergency Contact Name: _____ Emergency Contact Phone: _____

What disabilities or conditions do you have which might limit participation? _____

What medications, if any, do you take at this time? _____

What allergies, if any, do you have at this time? _____

Section II – Volunteer Agreement

I understand that I am offering my services to the City of Roanoke without compensation. Once I become a volunteer, I agree to abide by all City rules, regulations and policies, either published or in effect by custom and usage, and all rules, regulations and laws of the Commonwealth of Virginia as may be required by City and State statutes.

Initial: _____

Section III – Release from Liability

1. Voluntary Participation: I acknowledge that I have voluntarily applied to serve as a volunteer for the City of Roanoke Parks and Recreation Department. I understand as a volunteer that I will not be paid for my services, and should I be injured while performing duties on behalf of the City, the City provides insurance which offers limited medical benefits. This insurance has a \$25,000 limit, is strictly excess and will only respond to expenses after all other insurance is exhausted.

2. Release: In consideration of the opportunity afforded me to serve as a volunteer for the City of Roanoke Parks and Recreation Department, I hereby agree that I, my assignees, heirs, guardians, and legal representatives, will not make a claim against the City of Roanoke, or their officers or directors collectively or individually, or the equipment that is used by the City, or any of the volunteer workers, for the injury or death to me or damage to my property, however caused, arising from my participation volunteering. Without limiting the generality of the foregoing, I hereby waive and release any rights, actions or causes of action resulting from personal injury or death to me, or damage to my property, sustained in connection with my participation in volunteering. I further consent to the unrestricted use by the City of Roanoke and/or persons authorized by them of any photographs, recordings, interviews, videotape, motion pictures or similar visual recording of me.

Initial: _____

Section IV – Indemnification and Authorized Signatures

I, the undersigned, by execution of this document, give the City of Roanoke permission to conduct a background check regarding my qualifications to volunteer in the City of Roanoke Parks and Recreation centers; including criminal record, driving record, past employment and volunteer history. I understand that I have a right to: (1) obtain a copy of my background check report and (2) challenge the accuracy of any information contained in this report by contacting the third party responsible for conducting the background check by calling the telephone number listed on the report. I understand that information collected during this background check will be limited to that appropriate for determining my suitability for particular types of volunteer work and that all such information collected during the check will be kept confidential.

By signing this application, I agree to the following: I certify that I have not been convicted and do not have charges currently pending against me for any of the disqualifying crimes listed on page three (3) of the Background Screening Policy. I agree that at all times while serving as a volunteer coach for the City of Roanoke Parks and Recreation Department, I will immediately notify the Volunteer Coordinator if I am charged with any of the disqualifying crimes.

Volunteer Signature: _____ Date: _____

Figure 7.3: Volunteer Trail Work Release Form

Recognized trail building partners at the time of this plan are Pathfinders for Greenways and Blue Ridge Off-Road Cyclists (BROC). Both of these organizations are 501c3, non-profits, and have skilled volunteers with a passion and desire to work on trails and greenways in Roanoke. Both of these organizations can lead workdays with a trail crew leader approved by the Trails and Greenways Coordinator. If another self-insured organization is interested in becoming an official trail building partner, they can do so by reaching out to the Trails and Greenways Coordinator for forms, training, and procedures.

All volunteers must fill out the volunteer form on page 57 to participate in a workday. This includes all volunteers working with partner organizations. The Coordinator keeps all of the forms on file and manages a volunteer database for Human Resources and Trail Crew Leaders. Volunteers not part of Pathfinders or BROC interested in volunteering can come out to City run trail work days or contact the Coordinator and inquire about small projects or special projects. Groups are also invited to work on trails and greenways on Mill Mountain. Tasks such as trail building, trash cleanup, brushing back overgrowth and installing signage are great teambuilding projects. The Coordinator can setup a special workday for groups. All hours and volunteer release forms need to be turned into the Coordinator at the end of the workday or reported monthly on long term projects.

Specialty power equipment such as chainsaws, mini-skid steers, mini-excavators, and brush blades require additional training. For chainsaw operation, volunteers need to attend an 8 hour approved chainsaw safety course, fill out the volunteer form, have a current first aid/CPR card, wear appropriate personal protective equipment (PPE), and get approval from the Coordinator before running a chainsaw to clear deadfall on the trail system. All chainsaw operators need to have a second person as a "swamper" to move cut wood and direct trail traffic. All hours for the sawyer and swamper as well as the area cleared need to be reported to the Coordinator. Volunteers interested in removing small deadfall with handsaws only need to fill out the volunteer form, wear the correct PPE, and notify the Coordinator of areas cleared and hours volunteered. Mini-skid steers and mini-excavators require an in-house training put on by Parks and Recreation staff on machine safety and operation, as well as trail building techniques and issues when using a machine. Brush blades require a one hour in house training on safety, operation and PPE.

The Task Force for this Amendment recommends the City continue these partners, policies and procedures around volunteer trail management.

7.4 NEW CONSTRUCTION POLICIES AND PROCEDURES

This Amendment calls for several new trails and connections to be built. Procedures for doing so are outlined below and can be amended by Roanoke Parks and Recreation staff as necessary.

1. The proposed Trail Crew Leader from the sponsoring volunteer organization flags a proposed trail alignment, fills out the New Park Project Proposal Form and submits the paperwork to the Coordinator. Only trails and connections identified in the 2021 Amendment will be considered. The project proposal should include a map identifying the trail location, a description of the proposed construction methods and resources needed, and a budget identifying sources of funding.

2. The Trails and Greenways Coordinator reviews the form and schedules a walk-through of the project flagline with the designated Trail Crew Leader.
3. The Trails and Greenways Coordinator submits the forms and recommendation to department leadership for project approval.
4. If the project is approved, the Trail Crew Leader will be able to proceed in holding workdays in accordance with Section 7.3. All volunteers must fill out a volunteer form and all hours must be reported monthly. Monthly walkthroughs with the Coordinator to monitor project progress are important ways to keep the project within scope and ensure completion to the appropriate standards. Any changes to the scope of the project need to be discussed with the Coordinator in advance.
5. All costs associated with the project should be spelled out in the Park Project Proposal Form. Roanoke Parks and Recreation has limited funds, mostly used for maintenance, and cannot fund many new projects. Volunteer groups should anticipate bearing the bulk of the cost of a new trail or connection. The Coordinator does have hand tools, some machinery and trail design tools and skills that can be provided on a limited basis to help with new construction and design efforts.

NEW PROJECT PROPOSAL FORM

ROANOKE PARKS AND RECREATION

For Office Use Only:
Date Received: _____ Received By: _____

Section I - General Information
All new projects within the park system, including right of entry requests, require review and approval through the Department's Office of Planning and Development.

Section II - Applicant Information
Applicant/Organization Name: _____
Main Contact Name (if applicable): _____
Applicant/Organization Address: _____
Work Phone: _____ Mobile Phone: _____ Email: _____

Section III - Project Information
Proposed Project Description (use additional pages if necessary): _____

Included with Proposal: Shop Drawings Prints Photos Samples
 Letter(s) of Support Change Request Initial Proposal (if applicable)

Itemized Listing of All Attachments:
1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

Purpose of Proposal: Approval Review/Comment As Requested
 Returned Data Revisions FYI/No Action

Is this project specifically identified in the Department's Comprehensive Master Plan? Yes No
If not, please identify what portion(s) of the City's Comprehensive Plan this proposal addresses: _____

Have all other City permitting requirements been identified and approved? Yes No
If so, please attach copies of the approved permits.

Section IV - Authorized Signatures
Applicant Signature: _____ Date: _____

For Office Use Only
Authorized Signatures and Approval Work Flow

Planning and Development Administrator: _____ Date: _____
Director of Parks and Recreation: _____ Date: _____

Figure 7.4: Park Project Proposal Form

The Task Force for this Amendment recommends the City continue these new construction policies and procedures.

7.5 MAINTENANCE AND MONITORING

While no trail is maintenance-free, the Mill Mountain trails are the lowest maintenance trails in the Roanoke Parks and Recreation system. Part of this has to do with the rocky nature of the soil, quality construction, and dedicated staff and volunteers who do regular maintenance to prevent long term issues.

Greenway Ambassadors regularly patrol the Mill Mountain Greenway, in addition to other greenways in the system. They send monthly reports to the Coordinator and do small tasks such as picking up trash and trimming back brush. Several trail volunteers also hike the Mill Mountain Trails monthly, taking care of small items like brushing back and trash collection, but also hand sawing dead and down trees, and doing small tread repair projects. These volunteers are a valuable tool to the City as they are the passionate citizen eyes and ears for the system and take care of much of the light and regular maintenance.

Most maintenance such as brushing back, deadfall removal and water diversion cleaning is done by volunteers. For more information on how to volunteer, please reference Section 7.3. Staff take care of bigger maintenance items such as sign and gate repair, re-routes, invasive species removal and amenities. The Coordinator manages all maintenance, and requests are routed through this position. Citizens and trail users are encouraged to report issues by e-mail, phone or social media. For maintenance issues reported through public input for this plan and identified by the Task Force, reference Section 5.4.

The Task Force recommends that staff install trail use counters to better monitor numbers of users on Mill Mountain Trails and Greenway as consistent data is not available at this time. The Task Force also recommends that staff continue to use Greenway Ambassadors and trail volunteers to report out monthly issues on the facilities to the Coordinator.

7.6 SIGNAGE, WAYFINDING, MARKING AND EDUCATION

Signage, wayfinding, education of trail users and trail markings are important components of a natural surface trail system to protect the resource and ensure a positive trail experience for trail users.



Wayfinding on Crystal Spring Trail

At the time of the Amendment, all trail intersections were signed with wooden wayfinding signs indicating the trail name and difficulty. Some signs, depending on location, also included the next connecting trail in the network.

Due to the urban nature of the Mill Mountain trails and the high use they receive, trails are “blazed” with paint in 2” wide by 6” long markings on trees. These blazes help users to identify that they are on an official trail and the blaze colors are listed on the map to confirm a user’s location on the mountain.



Blazing on Riser Trail



Kiosk at Riverland Road Trailhead

Mill Mountain Greenway does not have mile markers or wayfinding in the area that is the scope of this Amendment, but the Task Force recommends both of these be added to improve user experience.

Map kiosks currently exist at the Discovery Center, at the Star Overlook, and at the Riverland Road trailhead. These kiosks have a current map, basic trail yielding rules for multiple user groups, a thank you to volunteers for their help in maintaining the trails, and department contact information. Public input indicated a need for additional maps and kiosks throughout the system. The Task Force and staff suggested the following locations for kiosks: top of the Monument trail where it meets Mill Mountain Greenway and at the Hartsook entrance to Virginia Pine trail. Smaller maps were suggested at intersections throughout the trail system that can be added to wayfinding sign posts, be made of aluminum, and have a “You are Here” for additional information.

PlayRoanoke.com is the Roanoke Parks and Recreation website. Since the 2005 Trails Plan, web-based maps and web pages describing trails and greenways have grown in demand significantly. On PlayRoanoke.com, there is a page dedicated to the Mill Mountain Trails www.playroanoke.com/parks-facilities/mill-mountain-park/ that provides a downloadable trail map, an interactive trail map, trail descriptions and information about other facilities at the park. Mill Mountain Greenway has its own page due to its linear nature from Downtown Roanoke to the Star. This page www.playroanoke.com/mill-mountain-greenway/ is host to trailhead and parking locations, descriptions of different sections of the greenway and a downloadable map.

The Department’s Outdoor Recreation section leads many educational programs and clinics on Mill Mountain including but not limited to hiking and biking, backpacking, Leave No Trace education,

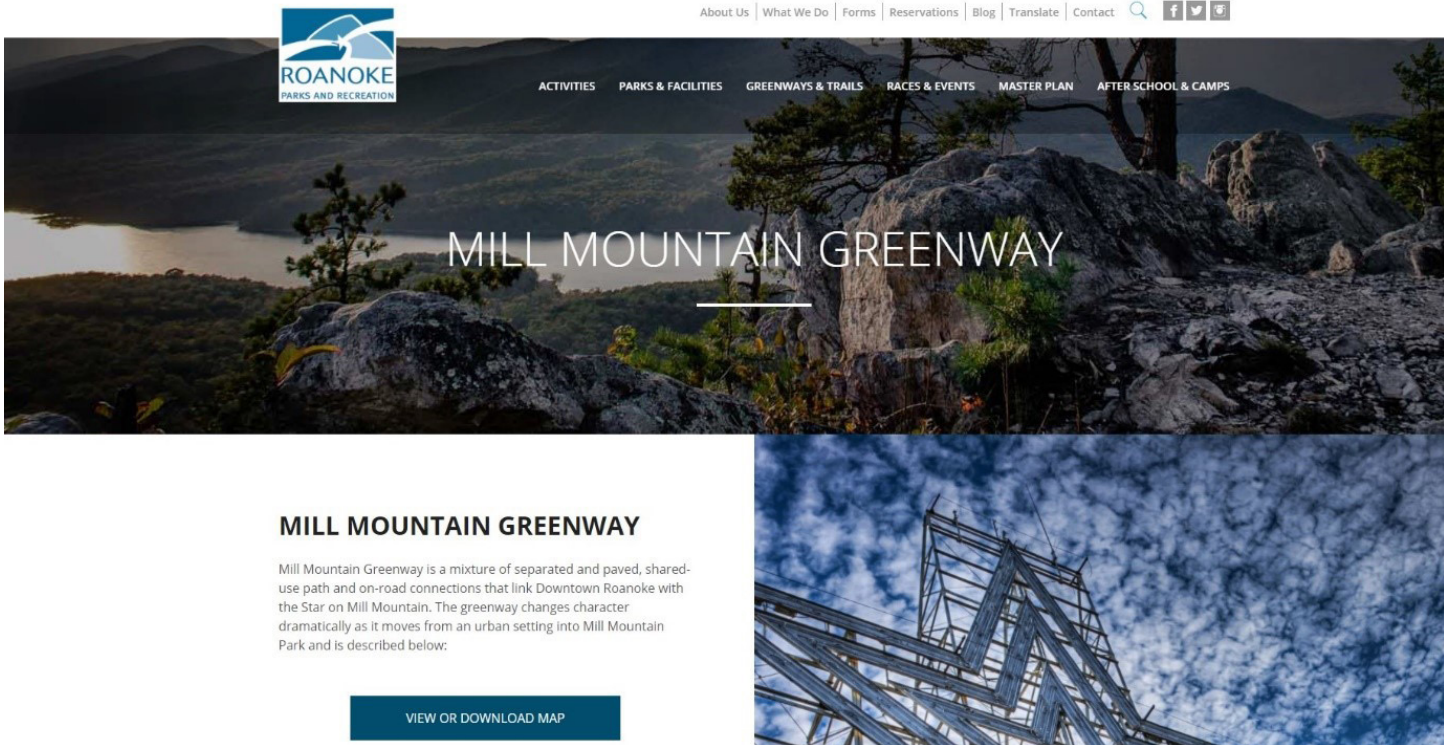


Figure 7.6: Mill Mountain Greenway Website Page Snapshot

survival skills and Summer Camp. Those programs focus on Leave No Trace Ethics as well as trail and road etiquette depending on the discipline.

The Youth Development section operates the Discovery Center, located on top of Mill Mountain Park. The Discovery Center operates as an environmental educational center focusing on local flora and fauna, the history of Mill Mountain, and as a trail resource and welcome center for the park. The Naturalists employed therein are charged with leading environmental education programs for the community, including but not limited to, plant identification classes, GPS navigation, local birds and animals identification classes, Leave No Trace principles and STEM (Science, Technology, Engineering and Math) education.

The Task Force for this Amendment recommends:

- Continue to sign intersections with wayfinding signs as new trails are constructed and new connections are made
- Continue to blaze trails on Mill Mountain with 2"x 6" colored blazes that match the map lines.
- Add wayfinding signage and mile markers to Mill Mountain Greenway
- Maintain current kiosks with updated maps and add a kiosk at Hartsook Boulevard, SE on Virginia Pine.
- Design, produce and install smaller maps for "You are Here" locations at various intersections throughout the trail system

- Continue to update the maps, website, and other resources for trail users to glean information on the Mill Mountain Greenway and Trail System
- Continue to work on educational materials, signage around user etiquette and campaigns to improve the user experience.
- Continue to utilize staff and programming at the Discovery Center to support the trail user experience
- Add trail use signage and yield triangles similar to Carvins Cove at all trail system entrance points for a more consistent message to trail users on these topics. Encouraging folks to slow down, verbally acknowledge other users and be courteous can go a long way to a happy and healthy trail town and community. Since many of our trails are multi-use, a “shared use ethic” needs to be in the forefront of users’ minds while recreating at Mill Mountain.

7.7 SPECIAL EVENTS AND GROUP USE

Mill Mountain is a popular park. Use of the park for special events is a relatively recent development that was not addressed in the 2005 Plan, but which has developed into a significant management concern. For example, in the spring of 2019, the Mill Mountain Greenway was used for the annual Blue Ridge Marathon, Half Marathon, and Star 10K, playing host to 3,240 runners from around the country. Mountain Junkies hosted the Mill Mountain Mayhem trail running 10K race in April with upwards of 200 participants. The Wednesday Night Disco Mountain Biking Race hosted upwards of 70 mountain bikers from around the region in a fun, after work race series to bring the community together. Roanoke Mountain Adventures currently holds the only commercial use contract for professional guiding on Mill Mountain Trails. The Star City Junior Mountain Bike Team currently contracts park trail use two evenings a week spring through fall for practice. Special events and contracted groups combined can significantly impact trail conditions, maintenance needs, and more importantly, passive use by the general public.

With the popularity of the trails to the individual user, a balance between events and retention of an open trail system is a challenge for Parks and Recreation staff.

The Task Force for this Amendment recommends:

- Limit the natural surface trail system to two events per month
- Require all commercial guiding companies to fill out a commercial use permit
- Establish permanent sign holders on the trails or at trailheads where closures can be posted in advance
- Limit the trails/park to three days of team or organization events per week. If there is demand from multiple organizations to use the mountain, restrictions of one day per organization may be enacted.
- Keep abreast of potential future issues or uses and seek citizen input on those before making major changes to the system

7.8 PARKING AND ACCESS

Parking and progress on parking are reviewed in Section 2.3. As in the 2005 Plan, this Amendment recognizes that there are multiple ways that people reach Mill Mountain and its trails – some drive from substantial distances, some take public transportation, some walk or bike to the trails, and others drive a short distance from their homes. The same issues exist today as in 2005: providing enough parking capacity, using parking capacity to help restrict use to acceptable levels, and preventing impacts to neighborhoods from excessive on-street parking.

The Task Force for this Amendment recommends:

- Have four parking lots that serve visitors and residents driving to the site for trail and park use:
 - Riverland Road Trailhead (formerly Star Trail Parking Lot)
 - Discovery Center Parking Lot, which also serves the Mill Mountain Zoo, Wildflower Garden, and the Discovery Center
 - Mill Mountain Star Overlook Parking Lot
 - Create a new small parking area on the north side of Yellow Mountain Road on the east side of the Blue Ridge Parkway. This area is already used socially by trail users in the neighborhood, was identified in the 2005 Plan as a need and is completely within City right of way.
- Utilize the small three to four car parking area near the top of Monument trail to serve trail users on a limited basis, with limited capacity
- Discourage on street parking due to narrow roads and a lack of turn around space in neighborhoods at other access areas and establish neighborhood connections identified in Section 6.4 to encourage use of the mountain from other connections
- Update on the ground signage, as well as the website and maps, to reflect parking lot and trailhead names and wayfinding signage as described in Section 6.4 Neighborhood Connections to reduce the need for additional parking on the mountain
- Ensure all trailheads and parking lots have street addresses for ease of finding.

Public input indicated a need for more parking and a grant application was approved through the STBG (Surface Transportation Block Grant) for an expansion of the Riverland Road Trailhead, paving of the access road, and a completed connection to Garden City Greenway to help address these needs.

The Task Force also felt staff should revisit the small on-street parking area on JB Fishburn Parkway at the Star Trail once corridors 4 and 6 were constructed. With an increase in traffic there, sightlines may be diminished if on street parking continues at this location. However, the Task Force felt parking should be retained here for administrative purposes of staff and volunteer trail work.

7.9 NATURAL RESOURCE PROTECTION

Mill Mountain Park is protected by a conservation easement (see Appendix F) due to its community value as scenery and as a large tract of forested recreational use land. However, trails can have a negative impact on this park if not implemented in conjunction with a forest management plan. Protecting the resources of the park overall needs to be a part of any trail decision.

Many areas of the park, especially the ones in the Scenic Protection Area, are on very steep grades and have large, mature trees with sensitive root structures in rocky soil. Many of the new corridor trails proposed in these areas are deemed “hand build only” to protect these areas. Machines will cause excess stress to root systems, causing deadfall and soil erosion in these areas.

Following sustainable trail guidelines, reviewed in detail in Section 4.3.3, will help maintain soil structure on the mountain. Reducing grades results in reduced erosion and managing water runoff will help the trails and the surrounding mountain soils stay intact for forest health.

In recent years, there have been an increasing number of severe weather events in the Roanoke Valley, including the derecho, hurricanes, heavy rains, windstorms, and more frequent river flooding. These events have caused erosion on trails, contributed to tree loss, and come at a price of repairs and staff time on cleanups.

Invasive species are also of concern to Parks and Recreation and park/trail users. Large tracts of the forest are fighting kudzu, privet, honeysuckle, emerald ash borer, and stilt grass. Additional trail building and park use in areas may cause the spread of these species, causing more stress on native species in the areas. Areas of deadfall where sunlight is hitting the forest floor have seen an increase of invasive species, reducing tree canopy loss can help fight the spread of these pests.

Several utility corridors cross or are located on Mill Mountain, including a power line, water and sewer lines, and communication towers near the Star. Maintenance of these facilities can impact the view of the mountain as well as the users who may be on the mountain. Owners of utility easements should work closely with Parks Division Staff on maintenance of these facilities to ensure good communication, restrict unannounced aerial spraying and saw work, and ensure all needs can co-exist on Mill Mountain.

The Task Force for this Amendment recommends:

- Focus on conservation with trail building. Follow the corridors explored by the Task Force, staff, and subject matter experts when adding new trails in the park.
- Keep with the “hand build only” recommendations in new trails and new connections. These were suggested with conservation of the forest in mind. See Section 6.2 for more information.
- Follow sustainable trail guidelines with new trail construction and maintenance.
- Utilize staff and volunteers to remove invasive species and reforesting Mill Mountain where possible with native tree species.



Tree Canopy and Invasive Species along Mill Mountain Greenway

- Coordinate with utility companies to use mechanical, rather than chemical, maintenance techniques and improve communication between the utilities and Parks Division Staff.
- Promote overall forest health and working in tandem with the Urban Forestry section of the Parks Division on projects on Mill Mountain to do so

7.10 PROHIBITED USES

The 2005 Plan laid out several illegal uses on Mill Mountain Trails. While doing assessments, the Task Force and staff found some of these have been mitigated since the 2005 Plan, while others still need more efforts to fully solve.

The 2005 Plan references “ATV and motor bike use, littering, dumping, and destruction of vegetation” (p. 23) as illegal activities. ATV and motor bike use have been curbed significantly since 2005. The addition of more trails in previously forested only areas has put more eyes on land previously used illegally in this manner. Problems with ATV use on the Garden City side of the mountain have been partially solved with adding a loop to Virginia Pine on an old road bed. Currently, the power line on the Garden City side of the park is the area that sees some ATV/motor bike traffic and

additional trails in that area should solve that issue. Littering and dumping have been reduced as well. Currently, littering along JB Fishburn Parkway, in areas around homeless camps and under the overlook at the Star onto the Watchtower trail are the big areas of concern.

Other activities that have had a negative impact on trails and the greenway as well as the park are illegal cutting of trees, debarking trees, and removal of planted shrubs and flowers. Cost of replacement on these can be high and hard to accomplish with existing operational budgets.

The Task Force for this Amendment recommends:

- Continue to improve signage regarding park and trail rules and restrictions at all entrance points to the trail system.
- Continue to coordinate with Roanoke Police Department and the Homeless Assistance Team to identify and work to provide services for homeless individuals living on the mountain.
- Work with volunteer groups and staff for regular trash cleanups as well as invasive species removal and re-forestation of the park
- Look for grant opportunities to help in all of these areas to augment tight budget lines

7.11 AMENDMENTS AND UPDATES TO THE PLAN

While a lot of time and work went into the 2021 Mill Mountain Trail Plan Amendment, Task Force Members and Staff are aware that Roanoke is a constantly changing City and the group of citizens and trail users that call it home are changing too. Inevitably, amendments and updates to both the plan and trail system are a reflection of growth and maturity.

The Task Force recommends revisiting the plan with citizens and trail users in ten years to be consistent with the other natural surface trail plan in the Roanoke Parks and Recreation System. This ensures a regular review of the needs of citizens and trail users and a consistent monitoring of the mountain's natural resources and how the trails and greenway complement, rather than detract from, the uniqueness of Mill Mountain Park.

MILL MOUNTAIN TRAILS PLAN

2021 AMENDMENT



APPENDICES



Trail Condition Form												Date of Review	6/27/2019			
Trail Name:		Big Sunny						Trail Length		0.73 mi.						
Trail Termini:		Mill Mountain Greenway to Robinhood Road						Assessment Team		Roger Holnback						
Trail Junctions:		Riser Trail								Shub Gideon						
Road Junctions:		MMG and Robinhood														
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions		Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features
Section 1: From Mill Mountain Greenway to Riser Trail - Overall Condition							0	0	0	0	1	1	0	0	0	0
Specific issues on Section 1 and approximate location																
60-120' kudzu encroachment and raspberry brambles under powerline																
3211' leaning tree fallen over trail, should remove																
some light brushing needed elsewhere from typical summer growth																
Section 2: From Riser Trail to Robinhood Road - Overall Condition							0	0	0	0	0	0	0	0	0	0
Specific issues on Section 2 and approximate location																
Additional Notes and Issues																
Provide Section and Location																

Trail Condition Form												Date of Review	7/10/2019			
Trail Name:		Connector Trail						Trail Length		0.24 mi.						
Trail Termini:		Riverland Road Trailhead to Star Trail						Assessment Team		Renee Powers						
Trail Junctions:		none								Kat Andrew						
Road Junctions:		none														
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions		Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features
Section 1: Riverland Road TH to Star Trail - Overall Condition							1	1	1	0	4	0	3	0		
Specific issues on Section 1 and approximate location																
Kudzu brush back needed at 0.05																
Drainage issues, grade reversal needed cleaned at 0.2																
Landfill items protruding in tread at 0.21																
Additional Notes and Issues																
Provide Section and Location																

Trail Condition Form												Date of Review	6/27/2019			
Trail Name:		Crystal Spring Trail						Trail Length		0.61 mi.						
Trail Termini:		Ivy St. to Woodcliff Road						Assessment Team		Roger Holnback						
Trail Junctions:		none								Shub Gideon						
Road Junctions:		Ivy St and Woodcliff Road														
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions		Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features
Section 1: Ivy St. to Woodcliff Road - Overall Condition							0	0	0	0	0	0	0	0	3	
Specific issues on Section 1 and approximate location																
gate is broken at Ivy St end																
Additional Notes and Issues																
Provide Section and Location																

Trail Condition Form											Date of Review	7/12/2019			
Trail Name:		Mill Mountain Greenway					Trail Length		~1.5 mi.	3.33 miles total but not only assessing this section for plan					
Trail Termini:		Walnut Street Bridge to Star					Assessment Team		Renee Powers						
Trail Junctions:		Monument Trail, Big Sunny Trail							Shub Gideon						
Road Junctions:		Discovery Center parking lot, Ivy St, Laurel St, Bellvue St. Hamilton Terrace													
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions	Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features
Section 1: Walnut Street Bridge to Monument Trail - Overall Condition 0'-2180'						1	0	0	0	1	0	3	3		
Specific issues on Section 1 and approximate location															
0' No wayfinding. Needs sidewalk/sharrows, ambiguous route.															
No crosswalk at Walnut and Hamilton															
162' No crosswalk or curb cuts at Bellevue and Walnut, brush over sidewalk															
762' cross walk needs repainted, no wayfinding															
1283' Old wayfinding post, but no sign, curb cuts but no crosswalk															
1754' old wayfinding															
1791' no wayfinding. In roadway on Sylvan															
2180' no wayfinding, still in road															
2439' 1st switchback on Sylvan--no wayfinding, brush on left side when climbing															
2750' no wayfinding at Monument															
whole section is sidewalk and in roadway along private land. Maybe use alley instead?															
Section 2: Monument Trail to Big Sunny Trail - Overall Condition 2181'-4933'						3	0	3	0	2	2	3	0	0	0
Specific issues on Section 2 and approximate location															
3120' not official pedestrian greenway sign, corrective wayfinding at street closed to thru															
traffic--maybe at Sylvan and Camilla? Guard rail starts here															
3588' Old driveway, fire road on left, toll booth, english ivy invasives on left															
3631' tree/wall damage															
3671' guard rail damage on right in several places, wall damage on left, culvert blocked															
with debris															
3878' culvert blocked															
4103' guard rail damage on right, dead tree on left															
4190' erosion on hillside on left, dead tree on right															
4234' wall damage, old landslide, tree leaning															
4297' wall damage															
4443' erosion on left															
4477' culvert blocked															
4555' erosion and wall damage on left															
4659' culvert blocked															
4771' culvert blocked															
4797' guard rail damage on right															
4933' Big Sunny intersection--no wayfinding, grey post no sign, erosion damage															
uphill side, some brushing needed, dead tree, wall damage															
Section 3: Big Sunny Trail to Understory Trail - Overall Condition 4934'-8430'						3	0	3	0	2	2	3	0	3 (bridge)	3 (stairs near GW)
Specific issues on Section 3 and approximate location															
5055' culvert blocked on right, wall damage, dead tree															
5336' pot holes															
5451' oak leaning															
5512' end of bad patching															
5580' culvert partially blocked, grate partially rotted															
5972' dead pine on left															
6182' culvert blocked on right, bad patching															
6327' dead tree on left															
6427' bad patching															
6563' guard rail damage															
6661' large patch with subgrade issues, lots of pot holes around it, culvert blocked on															
right side															
6963' bridge should get structural engineering check, winter ice hazard															
7100' Dye's house/view, rock fall															
8430' Understory intersection															
Section 4: Understory Trail to Discovery Center-Overall Condition 8430'-9159'						2	0	3	0	3	2	3	0	0	0
Specific issues on Section 4 and approximate location															
8617' lots of invasive plants (privet) along this stretch															
8733' triple bollards not locked, end of leafy section															
8779' zoo access road, no wayfinding															
8880' road split, no wayfinding															
8924' pavement cracking															
9040' needs wayfinding near wildflower garden, discovery center, zoo															
9128' bike fix station															
9159' wooden bollards, trail conditions sign, kiosk, bike rack at center															

Section 5: Discovery Center to Star-Overall Condition 9160'-10924'	1	0	3	0	1	1	3	0	0	0
Specific Issues on Section 5 and approximate location										
9239' mutt mitt station--box looking rough, post leaning, maybe move off island?										
9322' bollard, trash can, interpretive sign, no wayfinding										
9428' erosion ~10 yards of trail impacting lower stretch of greenway and hillside										
9508' sediment--need to address water flow										
9569' Rockledge overlook										
9609' trash can, continued erosion										
9753' trash can, playground entrance, continued erosion										
9826' bench and trash can, dead tree										
9878' riprap stones moved										
9988' bench and trash can										
10087' shelter access										
10147' bench										
10243' kiosk, bathroom, sidewalk, trash can, bollard										
10345' curb missing										
10368' star overlook and bench										
10401' start of gravel road/trash can--maybe add picnic facility here?										
10543' Watchtower trail intersection, erosion, powerline view										
10573' stairs--bike tech course?										
10649' social "wayside"										
10828' Star trail intersection										
10924' Star trail old sign and bollard/end of gravel--extend MMG to here and pave?										

Trail Condition Form											Date of Review	7/9/2019			
Trail Name:	Monument Trail					Trail Length	1.55 mi.								
Trail Termini:	JB Fishburn Parkway to Prospect Road					Assessment Team	Dick Clark								
Trail Junctions:	Star Trail						Liz Belcher								
Road Junctions:	J.P. Fishburn Parkway and Prospect Road														
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions	Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features
Section 1: Fishburn Parkway at Monument to Star Trail- Overall Condition						0	0	0	None	0	0	0	0	0	0
Specific issues on Section 1 and approximate location															
0-100 feet, minor washing from most recent very hard rains, running onto sidewalk						1									
Jungle area - ok condition, we whacked it some more															
Jungle to Star Trail - the rocky section - needs some deberming and rolling							1	1							
grade dips to prevent trenching the middle.															
Sign at the Star Trail - sign facing the Monument is damaged and broken; needs												2			
replacement but still functional															
Bench at Star Trail in good condition													0		
Section 2: Star Trail to Prospect Road - Overall Condition															
Specific issues on Section 2 and approximate location															
Near Prospect, there is a section that is now daylighted, due to trees having										1					
fallen. It will need periodic clipping (which we did) because of new light.															
Additional Notes and Issues															
Provide Section and Location															

Trail Condition Form											Date of Review	7/12/2019			
Trail Name:		Ridgeline					Trail Length		1.26 mi.						
Trail Termini:		Morrison St to Mill Mountain Discovery Center					Assessment Team		Renee Powers						
Trail Junctions:		Riser, Understory							James Revercomb						
Road Junctions:		Morrison St, NPS boundary crossing													
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions	Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features
Section 1: Morrison St to NPS Boundary - Overall Condition						4	0	3	*	0	0	1	0		
Specific issues on Section 1 and approximate location															
Fall line trail holding water															
0.1 miles social trail to parkway spur/Woodthrush															
Fall line erosion, steep															
Potential for water bars above steep section															
Section 2: NPS Boundary to Riser Trail - Overall Condition						2	1	2	0	0	0	0	0		
Specific issues on Section 2 and approximate location															
Fall line steep section towards the top that could use some water bars															
Section past crest on north side holds a little water and is fall line															
Section just south of Riser needs de-burming															
Section 3: Riser Trail to Understory Trail - Overall Condition						2	2	2	0	0	0	0	0		
Specific issues on Section 3 and approximate location															
De-burming needed towards beginning															
Deburming in rock garden and water bar															
Switchback needs work															
Feature above switchback might help to slow riders and reduce erosion--															
build an intentional rock garden?															
Section 4: Understory Trail to Mill Mtn Discovery Center- Overall Condition						1	1	1	0	3	0	0	0		
Specific issues on Section 3 and approximate location															
Could use water diversion in spots and minor de-burming															
Below Discovery Center, privet tunnel requires lots of brushing ~3 times a year															
Trail towards top in grass 2 paths in grass, migrates															
Additional Notes and Issues															
Provide Section and Location															

Trail Condition Form											Date of Review	7/9/2019			
Trail Name:		Riser Trail					Trail Length		0.31 mi.						
Trail Termini:		JB Fishburn Parkway to Big Sunny Trail					Assessment Team		Liz Belcher						
Trail Junctions:		Ridgeline, Big Sunny							Dick Clark						
Road Junctions:		JB Fishburn Parkway													
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions	Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features
Section 1: JB Fishburn Parkway to Big Sunny Trail - Overall Condition						0	0	0	None	0	0	0	0	0	
Specific issues on Section 1 and approximate location															
At Parkway - signs have algae & lichen. Could be cleaned but not essential															
Ridgeline intersection - some washing from Ridgeline onto Riser (hard rain)															
Along the way - numbered posts (3-6) as if a nature trail. Remove?															
Switchback - amazingly good condition															
Big Sunny intersection - woodpecker holes in one sign															
Additional Notes and Issues															
Provide Section and Location															
Dick recalls that this trail was built in 2006. He couldn't help because of an injury.															

Trail Condition Form												Date of Review	7/10/2019					
Trail Name:		Star Trail						Trail Length		1.38 mi.								
Trail Termini:		Connector Trail - Mill Mtn. Star Gravel Road						Assessment Team		Renee Powers								
Trail Junctions:		Monument Trail								Kat Andrew								
Road Junctions:		J.P. Fishburn Parkway																
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions		Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features		
Section 1: From Connector Tr. to Fish. Parkway (1333') - Overall Condition							2	0	2	2	3	0	0	1				
Specific issues on Section 1 and approximate location																		
Graffiti on bench at 0.01																		
Tread soft at 0.01																		
0.3 fall line section of trail leading to mud issues at bottom																		
Brushing back needed yearly and soft tread at 0.35																		
Section 2: From F.Parkway to Monument Trail (3041') - Overall Condition							4	0	3	2	1	0	1	3				
Specific issues on Section 2 and approximate location																		
General brushing back needed																		
Leaning tree over trail 0.1 mile in																		
Multiple points of trail braiding 0.3 fom last intersection																		
Brush bading needed yearly																		
Tread erosion from fall line and high use																		
Section 3: From Monument Tr. to Gravel Road (2914') - Overall Condition							4	0	3	2	1	0	1	3				
Specific issues on Section 3 and approximate location																		
Lots of braiding and trail erosion																		
Switchback cutting and water erosion around rock steps																		
Bench pulled out of trail, more erosion																		
*Draining from parking lot leading durectly to cutting switchbacks																		
Sign at top cracked																		
Additional Notes and Issues																		
Provide Section and Location																		
Thoughts about Star trail becoming multiuse and creating a new hiker only option																		
from Riverland Road Trailhead to the Star																		

Trail Condition Form												Date of Review	7/12/2019				
Trail Name:		Watchtower Trail						Trail Length		0.22 mi.							
Trail Termini:		Mill Mountain Greenway to Star gravel road						Assessment Team		Renee Powers							
Trail Junctions:		none								James Revercomb							
Road Junctions:		none															
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions		Trail Tread	Trail Berms	Drain Dips; Water-bars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features	Other Features	
Section 1: Mill Mountain Greenway to Star gravel road - Overall Condition							2	0	3	0	0	0	0	2			
Specific issues on Section 1 and approximate location																	
Erosion line starting at the top, drainage issues																	
Could use stairs as water diverters at the top, pave loop around star?																	
Additional Notes and Issues																	
Provide Section and Location																	

Trail Condition Form											Date of Review	7/16/2019			
Trail Name:		Woodthrush Trail						Trail Length		1.90 mi.					
Trail Termini:		Blue Ridge Parkway Spur Road to Star Trail/Connector Trail						Assessment Team		Dick Clark					
Trail Junctions:		Sidewinder Trail, Virginia Pine Trail								Liz Belcher					
Road Junctions:		BRP Spur													
Scale	0= Good Condition	1= Limited Minor Repairs	2= Extensive Minor Repairs	3= Major Repairs Needed	4= Hazardous Conditions	Trail Tread	Trail Berms	Drain Dips; Watebars	Social Trails	Brushing & Hazardous Plants	Trees	Trail Signs & Blazing	Steps, Benches, Crossings	Other Features - Bridge	Other Features
Section 1: BRP Spur Road to Virginia Pine Trail - Overall Condition						1	1	0	0	1	0	0	NA		
Specific issues on Section 1 and approximate location															
There is a social trail connection to Morrison St															
No sign at the BRP Spur Road												Needed			
0 - Regular trimming needed in the daylighted area										1					
1-100'; some washing and roots						1									
BRP culvert outfall - signs of water but no trail damage								0							
From outfall to VA Pine, trail is quite wide															
Old road connection to Yellow Mtn Road is less obvious than before.															
Sign at intersection has woodpecker holes												1			
Section 2: Virginia Pine Trail to Sidewinder Trail - Overall Condition						1	1	1	0	1	0	0	NA		
Specific issues on Section 2 and approximate location															
Some mud spots								1							
Kudzu starting in one daylighted spot										1					
Big drain with stone wall								0							
Next section - slight trenching							1								
Two tree islands, where users have bypassed trail on other side									1						
Close to Sidewinder, there is mudhole that needs deberming								1							
Signs												0			
Section 3: Sidewinder Trail to Star/Connector Trail Inter. - Overall Condition						2	1	1	1	0	0	0	NA	0	
Specific issues on Section 3 and approximate location															
Lots of leaves on inside of the old road bed - helps protect surface - OK															
Drainage crossing								0							
Uphill beyond crossing has some washing						1									
Social trail to the right toward knoll (close to 1st bridge)									1						
1st Bridge - big step off on one end														0-1	
Tree island									1						
Switchback/ S turn (just before bridge 2)- eroded; needs water diversion at top;						2		2							
water is caught															
Section 3: Sidewinder Trail to Star/Connector - Continued															
Bridge 2 - needs sand cleaned off deck (appears to come via tires on alternate														1	
bike line)															
Tight turn near creek behind houses - trash in creek, mudhole								1							2 (ugly)
Private bridge on right near sewer manhole									DK						
Broken tree across trail											1				
Drainage crossing at wet weather stream								0							
Social trail to the right at +50' from crossing									1						
Trail rocky on the hill - big washing						2-3									
Social trail at top of hill - has been blocked with tree but still evident									1						
Social trails cutting the switchback									2						
Social trails cutting the switchback									1						
Mountain bike alternate trail line over big rock - ok									0						
Sign at water tower												0			
Gravel part to Star intersection - washed						3									
Sign - needs replacing to change names												3			
Additional Notes and Issues															
Provide Section and Location															
Pre- Section 1 - There is pull-off parking on Morrison and a social trail connection.															

Trail Assessment Form										Date	11/4/2019			
Trail Name:	Fern Park							Trail Length	0.58	Half rule	0.0%	Exceeds	0.0%	
Trail Start:	Fern Park, at the sign on right; oak tree on left							Attractions/De- tractions		Close to neighborhood, natural and wooded, "off leash" area for dog walkers,				
Trail End:	Chestnut Ridge Trail near Yellow Mtn Rd									connects to Mill Mtn trails and Chestnut Ridge				
Trail Junctions:	none, but several old side roads							Sum of Grades			Sum of Surface		Sum of Width	
								0-5%	0.0%		Grass	0.0%	< 2 ft	0.0%
								6-10	0.0%		Gravel		2-4 ft.	0.0%
Assessment Team	Dick Clark, James Revercomb, Liz Belcher							11-15	0.0%		Cinder		4.1-8 ft.	0.0%
	Bob Simpson							16-20	0.0%		Hard soil	0.0%	8.1-12 ft	
								21-30			Soft soil		>12 ft.	
								>30%						
Station (ft)	Tread Width (in)	Tread X-slope -%=in +%=out	Hillside Slope %	Surface	Grade (+%)	Feat. No.	Feat. Station	Trail/View	Cond. 1=Good 5=Bad	Feature Type, Materials, Description, Details, Needs				
0						1	0	V	3	Trail Sign about Plant ID - trail map on sign is not accurate				
108	36	12.7	20	Natural	10	2	108	V	3	Tree ID Sign				
154	36	9.6	34	Natural	13	3		V	3	Tree ID Sign				
267	36	10.1	38	Natural	8	4		V	3	Tree ID Sign				
306	36	12.5	38	Natural	8	5	542	T	1	Trail to right to gravel road at Wilton - slightly overgrown; trenched				
489	30	8.4	57	Natural	8	6		V	3	Tree ID Sign				
542	30	0.4	60	Natural	11	7	754	T	2	Road to left (10' wide) joins and becomes the trail; road overgrown				
651	36	12.0	36	Natural	11	8	844	T	3	Trail in old road bed w/ semi ditch, trail cupped				
730	30	3.4	37	Natural	4	9	844	V	3	Tree ID Sign				
754	30	-1.9	45	Natural	-5									
844	36	0.2	-8	Natural	15									
894	36	1.0	-7	Natural	15		894			Road berm				
945	30	9.0	9	Natural	5									
969	24	9.2	40	Natural	-5	10	969+	V	3	Tree ID Sign				
1060	30	10.6	42	Natural	7									
1083	24	3.2	46	Natural	4									
1191	24	3.5	46	Natural	5			V	4	Tree ID Sign				
1345	30	0.5	37	Natural	3	11	1345	V	4	Tree ID Sign (Whie Pine)				
1556	30	5.8	40	Natural	5	12	1345+	V	3	"Invasive Man" has cut vines (input from a User)				
1587	30	5.8	26	Natural	-7	13	1345-1556	V		Roadbed visibile above				
1681	30	6.9	23	Natural	4	14	1345-1556	V	2	Tree ID - has its lid				
1715	36	0.1	76	Natural	-2	15	1675		2	Tree ID on left				
1798	36	1.4	13	Natural	-2	16	1798	V		Old house site on right				
1868	24	1.1	2	Natural	-5	17	1798+	V	2	Tree ID - on right, has its lid				
1964	36	0.4	7	Grassy	-1	18	1870	T	3	Powerline ROW - grassy, weeds				
2023	36	0.3	8	Natural	-1	19	2069+	V	2	Two Tree ID signs				
2069	42	3.8	22	Natural	11	20	2302	V	3	Tree ID sign				
2169	30	7.4	34	Natural	7	21	2418	V	2	Tree ID Sign				
2206	30	7.1	34	Natural	-3	22	2485		2	Powerline ROW				
2302	42	11.3	37	Natural	7	23	2664			Swale				
2357	36	1.7	40	Natural	-3	24	2664+	v	2	Tree ID on left				
2418	36	3.8	30	Natural	5	25	2811-2839	T	2	Climbing turn				
2463	36	6.8	30	Natural	3	26	2985	V	2	Tree ID Sign				
2538	36	0.9	35	Natural	-6	27	3043	V	2	Big sign with tree ID photos				
2611	36	5.1	30	Natural	-6	28	3050	V	5	Metal sign post on the ground needs removal				
2664	36	2.0	20	Natural	-2	29	3038-3053	T		Rocks lining trail edge				
2756	24	4.5	35	Natural	9	30	3053	T		Chestnut Ridge trail intersection; Fern Park terminus				
2811	36	-0.7	25	Natural	11									
2839	72	4.7	6	Natural	20									
2921	30	5.2	24	Natural	6									
2985	30	5.8	23	Natural	-1									
3053	48	3.3	24	Natural	7									

APPENDIX A: TRAIL INVENTORY AND ASSESSMENT FORMS

ROANOKE PARKS AND RECREATION

Trail Name:		Fern Park									
Computation of Width and Surface											
Station (ft)	Tread Width (in)	Surface	Length	< 2 ft	2<=4 ft.	4<=8 ft.	8<=12 ft	>12 ft.	HS	SS	Grass
0				0							
108	36	Natural	108	0	108	0			108		
154	36	Natural	46	0	46	0			46		
267	36	Natural	113	0	113	0			113		
306	36	Natural	39	0	39	0			39		
489	30	Natural	183	0	183	0			183		
542	30	Natural	53	0	53	0			53		
651	36	Natural	109	0	109	0			109		
730	30	Natural	79	0	79	0			79		
754	30	Natural	24	0	24	0			24		
844	36	Natural	90	0	90	0			90		
894	36	Natural	50	0	50	0			50		
945	30	Natural	51	0	51	0			51		
969	24	Natural	24	0	24	0			24		
1060	30	Natural	91	0	91	0			91		
1083	24	Natural	23	0	23	0			23		
1191	24	Natural	108	0	108	0			108		
1345	30	Natural	154	0	154	0			154		
1556	30	Natural	211	0	211	0			211		
1587	30	Natural	31	0	31	0			31		
1681	30	Natural	94	0	94	0			94		
1715	36	Natural	34	0	34	0			34		
1798	36	Natural	83	0	83	0			83		
1868	24	Natural	70	0	70	0			70		
1964	36	Grassy	96	0	96	0					96
2023	36	Natural	59	0	59	0			59		
2069	42	Natural	46	0	46	0			46		
2169	30	Natural	100	0	100	0			100		
2206	30	Natural	37	0	37	0			37		
2302	42	Natural	96	0	96	0			96		
2357	36	Natural	55	0	55	0			55		
2418	36	Natural	61	0	61	0			61		
2463	36	Natural	45	0	45	0			45		
2538	36	Natural	75	0	75	0			75		
2611	36	Natural	73	0	73	0			73		
2664	36	Natural	53	0	53	0			53		
2756	24	Natural	92	0	92	0			92		
2811	36	Natural	55	0	24	0			55		
2839	72	Natural	28	0	0	28			28		
2921	30	Natural	82	0	82	0			82		
2985	30	Natural	64	0	64	0			64		
3053	48	Natural	68	0	68	0			68		
			3053	0	2994	28	0	0	2957	0	96
				0	98.1%	0.9%			96.9%	0.0%	3.1%

Trail Name:		Fern Park						
Computation of Grade								
Station (ft)	Grade (+%)	ABS of Grade	Length	0-5%	6-10%	11-15%	16-20%	>21
0								
108	10	10	108	0	108	0	0	0
154	13	13	46	0	0	46	0	0
267	8	8	113	0	113	0	0	0
306	8	8	39	0	39	0	0	0
489	8	8	183	0	183	0	0	0
542	11	11	53	0	0	53	0	0
651	11	11	109	0	0	109	0	0
730	4	4	79	0	0	0	0	0
754	-5	5	24	0	0	0	0	0
844	15	15	90	0	0	90	0	0
894	15	15	50	0	0	50	0	0
945	5	5	51	0	0	0	0	0
969	-5	5	24	0	0	0	0	0
1060	7	7	91	0	91	0	0	0
1083	4	4	23	0	0	0	0	0
1191	5	5	108	0	0	0	0	0
1345	3	3	154	0	0	0	0	0
1556	5	5	211	0	0	0	0	0
1587	-7	7	31	0	31	0	0	0
1681	4	4	94	0	0	0	0	0
1715	-2	2	34	0	0	0	0	0
1798	-2	2	83	0	0	0	0	0
1868	-5	5	70	0	0	0	0	0
1964	-1	1	96	0	0	0	0	0
2023	-1	1	59	0	0	0	0	0
2069	11	11	46	0	0	46	0	0
2169	7	7	100	0	100	0	0	0
2206	-3	3	37	0	0	0	0	0
2302	7	7	96	0	96	0	0	0
2357	-3	3	55	0	0	0	0	0
2418	5	5	61	0	0	0	0	0
2463	3	3	45	0	0	0	0	0
2538	-6	6	75	0	75	0	0	0
2611	-6	6	73	0	73	0	0	0
2664	-2	2	53	0	0	0	0	0
2756	9	9	92	0	92	0	0	0
2811	11	11	55	0	0	55	0	0
2839	20	20	28	0	0	0	28	0
2921	6	6	82	0	82	0	0	0
2985	-1	1	64	0	0	0	0	0
3053	7	7	68	0	68	0	0	0
		Total	3053	1425	1151	449	28	0
		Percent		46.7%	37.7%	14.7%	0.9%	0

Trail Name:		Fern Park					
Computation of Half Rule							
Station (ft)	Hill-side Slope %	Grade (+%)	ABS of Grade	Length	<= Half hillside slope	> Half hillside slope	
0							
108	20	10	10	108	108	0	
154	34	13	13	46	46	0	
267	38	8	8	113	113	0	
306	38	8	8	39	39	0	
489	57	8	8	183	183	0	
542	60	11	11	53	53	0	
651	36	11	11	109	109	0	
730	37	4	4	79	79	0	
754	45	-5	5	24	24	0	
844	-8	15	15	90	0	90	
894	-7	15	15	50	0	50	
945	9	5	5	51	0	51	
969	40	-5	5	24	24	0	
1060	42	7	7	91	91	0	
1083	46	4	4	23	23	0	
1191	46	5	5	108	108	0	
1345	37	3	3	154	154	0	
1556	40	5	5	211	211	0	
1587	26	-7	7	31	31	0	
1681	23	4	4	94	94	0	
1715	76	-2	2	34	34	0	
1798	13	-2	2	83	83	0	
1868	2	-5	5	70	0	70	
1964	7	-1	1	96	96	0	
2023	8	-1	1	59	59	0	
2069	22	11	11	46	46	0	
2169	34	7	7	100	100	0	
2206	34	-3	3	37	37	0	
2302	37	7	7	96	96	0	
2357	40	-3	3	55	55	0	
2418	30	5	5	61	61	0	
2463	30	3	3	45	45	0	
2538	35	-6	6	75	75	0	
2611	30	-6	6	73	73	0	
2664	20	-2	2	53	53	0	
2756	35	9	9	92	92	0	
2811	25	11	11	55	55	0	
2839	6	20	20	28	0	28	
2921	24	6	6	82	82	0	
2985	23	-1	1	64	64	0	
3053	24	7	7	68	68	0	
			Total	3053	2764	289	
			Percent		90.5%	9.5%	

Trail Assessment Form										Date	8/7/2019				
Trail Name:	Sidewinder								Trail Length	0.52	Half rule	73%	Exceeds 1/2 rule	27%	
Trail Start:	JB Fishburn Parkway								Attractions/De-tractions	connection from Garden City side to downtown side of Mill mixture of easy climbing turns and technical features Generally good condition					
Trail End:	Woodthrush														
Trail Junctions:	JB Fishburn Parkway and Woodthrush								Sum of Grades						
									0-5%	39.7%		Sum of Surface		Sum of Width	
									6-10	35.5%		Wood	0.0%	< 2 ft	
Assessment Team	Renee Powers								11-15	17.4%		Gravel	0.0%	2-4 ft	74.5%
	Kat Andrew								16-20	5.2%		Cinder		4.1-8 ft	24.6%
	James Revercomb								21-30	5.6%		Hard soil	99.2%	8.1-12 ft	
									>30%	0.0%		Soft soil	0.8%	>12 ft	
Station (ft)	Tread Width (in)	Tread X-slope -%=in +%=out	Hillside Slope %	Surface	Grade (+%)	Feat. No.	Feat. Station	Trail/View	Cond. 1=Good 5=Bad	Feature Type, Materials, Description, Details, Needs					
0						1	0	T	1	Edge of pavement/BRP/Park sign					
0	48	2.3	2.5	Dirt	5	1	0	T	1	Sign - Sidewinder					
29	48	4.4	10	Dirt	17	3	29	T	3	turn					
48	60	19.6	22	Dirt	3	4	48	T	1	cut tree					
76	72	2.6	21	Dirt	8	5	76	T	3	switchback					
100	132	-2.3	2	Dirt	10	6	100	T	3	wide switchback before downed trees--needs work on bottom end from temp reroute					
160	48	-0.6	13	Dirt	5	7	160	T	5	big downed tree for almost a year					
194	72	2	8.3	Dirt	16	8	160-194	T	3	trail cupping					
212	36	9.3	20	Dirt	3	9	212	T	1	switchback top					
241	48	7.5	19	Dirt	3	10	241	T	1	switchback bottom					
275	60	14	19	Dirt	9	11	275	T	1	switchback below large tree					
312	60	13.5	24	Dirt	5	12	312	T	1	before temp reroute					
348	86	12.7	4	Dirt	14	13	348	T	1	hardpack switchback					
364	60	-5	17	Dirt	6	14	364	T	1	apex of switchback					
412	48	-4.5	11	Dirt	3	15	412	T	1	medium sized tree before next switchback					
435	48	0.8	14	Dirt	3	16	435	T	1	tree before entering switchback					
462	60	4.8	0	Dirt	15	17	462	T	1	top of switchback					
474	60	-3	15	Dirt	4	18	474	T	1	apex of switchback					
486	60	6.6	15	Dirt	4	19	486	T	1	bottom of switchback					
524	48	13.4	13	Dirt	3	20	524	T	1	straight away after switchback with blaze on tree					
585	48	10.1	14.5	Dirt	5	21	585	T	1	tree with blaze					
614	60	13.3	3	Dirt	16	22	614	T	1	entering switchback					
638	36	6.4	17	Dirt	2	23	638	T	1	apex of switchback					
666	48	7.7	10	Dirt	7	24	666	T	1	bottom of switchback					
707	48	7.1	6.5	Dirt	5	25	707	T	1	straight away, slight downhill					
749	48	6	5	Dirt	7.5	26	749	T	1	straight away, slight downhill					
773	48	6.9	9	Dirt	10	27	773	T	1	slight curve with small roots					
798	48	0.9	8	Dirt	10	28	798	T	1	small s curve					
818	36	7.3	12	Dirt	7	29	818	T	1	center of S					
847	36	11.5	3	Dirt	11.5	30	847	T	1	other S center					
883	36	6.4	12	Dirt	7	31	883	T	1	bottom of S curve					
917	36	-1.8	12	Dirt	7	32	917	T	1	rocky entrance to switchback					
944	36	9.8	0	Dirt	14	33	944	T	3	rutted switchback					
969	36	-5.4	15	Dirt	3	34	969	T	1	bottom of switchback					
1014	36	7.7	16	Dirt	0.5	35	1014	T	1	straightaway after switchback					
1072	48	3.4	16	Dirt	6	36	1072	T	1	flat trail before big down log					
1102	60	17.3	12	Dirt	13	37	1102	T	1	before switchback at down log/tree					
1122	48	6.9	16	Dirt	14	38	1122	T	1	middle of switchback					
1143	36	5.1	20	Dirt	6	39	1143	T	1	switchback					
1166	48	12.4	17	Dirt	6	40	1166	T	1	end of switchback at medium tree on left					
1221	48	5.5	25	Dirt	2	41	1221	T	1	straight away after switchback before curve					
1248	48	12.8	27	Dirt	3	42	1248	T	1	small curve before rock garden					
1288	48	17.7	33	Dirt	6	43	1288	T	2	soft tread before rock garden					
1321	36	11.2	22	Dirt	3	44	1321	T	1	after rock feature					
1331	48	13.3	32	Dirt	14	45	1331	T	1	after dip for feature					
1370	36	-6.9	35	Dirt	14	46	1370	T	1	middle of rock feature before large root					
1395	36	12.3	37	Dirt	7	47	1395	T	1	rocky section, slight downhill					
1434	60	17.3	32	Dirt	8	48	1434	T	3	rock section, wide two lines, braiding					
1458	36	8	35	Dirt	0	49	1458	T	1	sandy section, slight downhill					
1493	48	8	29	Dirt	11	50	1493	T	1	slight rise, rocky, down tree on the right					
1541	36	-0.8	34	Dirt	7	51	1541	T	1	slight downhill, rocky, before switchback					
1575	48	12.3	30	Dirt	9	52	1575	T	1	top of switchback					
1606	72	21.6	5	Dirt	20	53	1606	T	1	middle of switchback					
1623	60	8	15	Dirt	18	54	1623	T	1	middle of switchback					
1635	48	-2.3	22	Dirt	7	55	1635	T	1	bottom of switchback, rocky					
1660	24	3.3	22	Dirt	5	56	1660	T	1	sandy section, just out of switchback					
1713	60	6.2	23	Dirt	3	57	1713	T	1	entering small curve					
1737	60	5.8	25	Dirt	5	58	1737	T	1	small curve					
1762	48	12.2	30	Dirt	5	59	1762	T	1	blazed tree before steep switchback after rock					
1786	48	14.3	14	Dirt	18	60	1786	T	1	top of tight switchback					
1810	98	2.8	32	Dirt	13	61	1810	T	1	middle of switchback					
1846	48	14.3	28	Dirt	12	62	1846	T	1	bottom of switchback					
1918	48	5.9	25	Dirt	6	63	1918	T	1	slight downhill, sandy section					
1969	36	6.2	19	Dirt	8	64	1969	T	1	small curve before rocky turn					
2001	48	13	20	Dirt	3	65	2001	T	2	wider section before rocky turn					
2020	36	14.4	18	Dirt	11	66	2020	T	1	top of curve					
2065	36	5.1	22	Dirt	8	67	2065	T	1	middle of rocky turn					

2102	60	11.6	20	Dirt	6		68	2102	T	1	bottom of rocky turn
2140	60	-3	23	Dirt	4		69	2140	T	1	flat section before switchback
2188	72	20.8	8	Dirt	21		70	2188	T	2	top of switchback
2215	60	-6.8	16	Dirt	11		71	2215	T	1	apex of switchback
2238	48	3.5	1.5	Dirt	23		72	2238	T	1	sandy bottom of switchback
2303	48	15.3	21	Dirt	2		73	2303	T	1	slight rise, flattish section after switchback
2355	36	8.9	11	Dirt	2		74	2355	T	1	slight dip, at tree with blaze on right
2374	48	6.7	10	Dirt	5		75	2374	T	1	slight dip, sandy and rocky
2395	48	5.5	11	Dirt	5		76	2395	T	2	leaning dead tree between two trees on right
2424	72	2.7	8	Dirt	9		77	2424	T	2	top of S turn, some braiding in past
2454	48	-1.8	13	Dirt	12		78	2454	T	2	top of downhill S curve, fall line
2483	48	3.3	5	Dirt	10		79	2483	T	2	middle of S curve
2501	48	4.4	5	Dirt	10		80	2501	T	2	S curve at blaze
2528	48	1.7	10	Dirt	10		81	2528	T	2	rocky, toward bottom of S Curve with small stump
2547	48	1.6	8	Dirt	13		82	2547	T	1	at root and down tree on right
2572	60	0.8	10	Dirt	5		83	2572	T	1	sandy section next to down log before switchback
2615	48	7.9	6	Dirt/ Sand	12		84	2615	T	1	sandy apex of switchback
2630	48	1.6	14	Dirt	1		85	2630	T	1	exit curve of switchback
2673	48	0.1	16	Dirt	0		86	2673	T	2	soft dirt section after switchback
2703	48	4.1	16	Dirt	12		87	2703	T	1	rooty rise
2728	36	7.6	13	Dirt	12		88	2728	T	1	small rock rise at blaze
2743	36	5.1	9	Dirt	10		89	2743	T	1	small dip
2767	48	3.2	4	Dirt	9		90	2767	T	1	rocky section small curve before big turn
2803	36	-1.4	14	Dirt	7		91	2803	T	1	rocky turn
2834	48	4.8	12	Dirt	10		92	2834	T	1	blaze tree, rocky downslope
2864	36	14.2	24	Dirt	8		93	2864	T	3	rebench section
2894	72	17.5	27	Dirt	0		94	2894	T	3	rebench section
2949	36	19.7	25	Dirt	2.5		95	2949	T	1	flat section after down turn, big tree at small blaze
2965	48	13.3	27	Dirt	2		96	2965	T	2	small turn, soft/sandy soil
2983	48	16.2	20	Dirt	9		97	2983	T	1	soft, sandy soil
3008	48	9.8	24	Dirt	0		98	3008	T	1	flat section
3030	48	8.3	21	Dirt	10		99	3030	T	1	bottom of smallll turn
3079	48	11.3	29	Dirt	2		100	3079	T	1	winding turn
3110	48	10.7	32	Dirt	10		101	3110	T	1	winding turn
3156	48	13.3	26	Dirt	13		102	3156	T	1	rise before drop into Woodthrush intersection
3172											Woodthrush Intersection

APPENDIX A: TRAIL INVENTORY AND ASSESSMENT FORMS

Trail Name:	Sidewinder	Computation of Grade	Station (ft)	Grade (+%)	ABS of Grade	Length	0-5%	6-10%	11-15%	16-20%	21-29%	>30%
			0	5	5	0	0	0	0	0	0	0
			29	17	17	29	0	0	0	29	0	0
			48	3	3	19	19	0	0	0	0	0
			76	8	8	28	0	28	0	0	0	0
			100	10	10	24	0	24	0	0	0	0
			160	5	5	60	60	0	0	0	0	0
			194	16	16	34	0	0	0	34	0	0
			212	3	3	18	18	0	0	0	0	0
			241	3	3	29	29	0	0	0	0	0
			275	9	9	34	0	34	0	0	0	0
			312	5	5	37	0	0	0	0	0	0
			348	14	14	36	0	0	36	0	0	0
			364	6	6	16	0	16	0	0	0	0
			412	3	3	48	48	0	0	0	0	0
			435	3	3	23	23	0	0	0	0	0
			462	15	15	27	0	0	27	0	0	0
			474	4	4	12	12	0	0	0	0	0
			486	4	4	12	12	0	0	0	0	0
			524	3	3	38	38	0	0	0	0	0
			585	5	5	61	61	0	0	0	0	0
			614	16	16	29	0	0	0	29	0	0
			638	2	2	24	24	0	0	0	0	0
			666	7	7	28	0	28	0	0	0	0
			707	5	5	41	41	0	0	0	0	0
			749	7.5	8	42	0	42	0	0	0	0
			773	10	10	24	0	24	0	0	0	0
			798	10	10	25	0	25	0	0	0	0
			818	7	7	20	0	20	0	0	0	0
			847	11.5	12	29	0	0	29	0	0	0
			883	7	7	36	0	36	0	0	0	0
			917	7	7	34	0	34	0	0	0	0
			944	14	14	27	0	0	27	0	0	0
			969	3	3	25	25	0	0	0	0	0
			1014	0.5	1	45	45	0	0	0	0	0
			1072	6	6	58	0	58	0	0	0	0
			1102	13	13	30	0	0	30	0	0	0
			1122	14	14	20	0	0	20	0	0	0
			1143	6	6	21	0	21	0	0	0	0
			1166	6	6	23	0	23	0	0	0	0
			1221	2	2	55	55	0	0	0	0	0
			1248	3	3	27	27	0	0	0	0	0
			1288	6	6	40	0	40	0	0	0	0
			1321	3	3	33	33	0	0	0	0	0
			1331	14	14	10	0	0	10	0	0	0
			1370	14	14	39	0	0	39	0	0	0
			1395	7	7	25	0	25	0	0	0	0
			1434	8	8	39	0	39	0	0	0	0
			1458	0	0	24	24	0	0	0	0	0

1493	11	11	35	0	0	35	0	0	0	0	0	0
1541	7	7	48	0	48	0	0	0	0	0	0	0
1575	9	9	34	0	34	0	0	0	0	0	0	0
1606	20	20	31	0	0	0	31	0	0	0	0	0
1623	18	18	17	0	0	0	17	0	0	0	0	0
1635	7	7	12	0	12	0	0	0	0	0	0	0
1660	5	5	25	25	0	0	0	0	0	0	0	0
1713	3	3	53	53	0	0	0	0	0	0	0	0
1737	5	5	24	24	0	0	0	0	0	0	0	0
1762	5	5	25	25	0	0	0	0	0	0	0	0
1786	18	18	24	0	0	0	24	0	0	0	0	0
1810	13	13	24	0	0	24	0	0	0	0	0	0
1846	12	12	36	0	0	36	0	0	0	0	0	0
1918	6	6	72	0	72	0	0	0	0	0	0	0
1969	8	8	51	0	51	0	0	0	0	0	0	0
2001	3	3	32	32	0	0	0	0	0	0	0	0
2020	11	11	19	0	0	19	0	0	0	0	0	0
2065	8	8	45	0	45	0	0	0	0	0	0	0
2102	6	6	37	0	37	0	0	0	0	0	0	0
2140	4	4	38	38	0	0	0	0	0	0	0	0
2188	21	21	48	0	0	0	48	0	0	0	0	0
2215	11	11	27	0	0	27	0	0	0	0	0	0
2238	23	23	23	0	0	0	23	0	23	0	0	0
2303	2	2	65	65	0	0	0	0	0	0	0	0
2355	2	2	52	52	0	0	0	0	0	0	0	0
2374	5	5	19	19	0	0	0	0	0	0	0	0
2395	5	5	21	21	0	0	0	0	0	0	0	0
2424	9	9	29	0	29	0	0	0	0	0	0	0
2454	12	12	30	0	0	30	0	0	0	0	0	0
2483	10	10	29	0	29	0	0	0	0	0	0	0
2501	10	10	18	0	18	0	0	0	0	0	0	0
2528	10	10	27	0	27	0	0	0	0	0	0	0
2547	13	13	19	0	0	19	0	0	0	0	0	0
2572	5	5	25	25	0	0	0	0	0	0	0	0
2615	12	12	43	0	0	43	0	0	0	0	0	0
2630	1	1	15	15	0	0	0	0	0	0	0	0
2673	0	0	43	43	0	0	0	0	0	0	0	0
2703	12	12	30	0	0	30	0	0	0	0	0	0
2728	12	12	25	0	0	25	0	0	0	0	0	0
2743	10	10	15	0	15	0	0	0	0	0	0	0
2767	9	9	24	0	24	0	0	0	0	0	0	0
2803	7	7	36	0	36	0	0	0	0	0	0	0
2834	10	10	31	0	31	0	0	0	0	0	0	0
2864	8	8	30	0	30	0	0	0	0	0	0	0
2894	0	0	30	30	0	0	0	0	0	0	0	0
2949	2.5	3	55	55	0	0	0	0	0	0	0	0
2965	2	2	16	16	0	0	0	0	0	0	0	0
2983	9	9	18	0	18	0	0	0	0	0	0	0
3008	0	0	25	25	0	0	0	0	0	0	0	0
3030	10	10	22	0	22	0	0	0	0	0	0	0
3079	2	2	49	49	0	0	0	0	0	0	0	0

3110	10	10	31	0	31	0	0	0	0	0	0	0
3156	13	13	46	0	0	46	0	0	0	0	0	0
3172			16	16	0	0	0	0	0	0	0	0
				0								
				0								
				2587	902	1024	489	101	71	0		
				34.9%	39.6%	18.9%	3.9%	7.9%	0.0%			
				Total								
				Per-								
				cent								

APPENDIX A: TRAIL INVENTORY AND ASSESSMENT FORMS

Trail Name:	Computation of Half Rule		Sidewinder							
Station (ft)	Hillside Slope %	Grade (+%)	ABS of Grade	Length	< = Half hill-side slope	> Half hillside slope				
0	2.5	5	5	0	0	0				
29	10	17	17	29	0	29				
48	22	3	3	19	19	0				
76	21	8	8	28	28	0				
100	2	10	10	24	0	24				
160	13	5	5	60	60	0				
194	8.3	16	15.5	34	0	34				
212	20	3	3	18	18	0				
241	19	3	3	29	29	0				
275	19	9	9	34	34	0				
312	24	5	5	37	37	0				
348	4	14	14	36	0	36				
364	17	6	6	16	16	0				
412	11	3	3	48	48	0				
435	14	3	2.5	23	23	0				
462	0	15	15	27	0	27				
474	15	4	4	12	12	0				
486	15	4	4	12	12	0				
524	13	3	3	38	38	0				
585	14.5	5	5	61	61	0				
614	3	16	16	29	0	29				
638	17	2	1.5	24	24	0				
666	10	7	7	28	0	28				
707	6.5	5	5	41	0	41				
749	5	7.5	7.5	42	0	42				
773	9	10	10	24	0	24				
798	8	10	10	25	0	25				
818	12	7	7	20	0	20				
847	3	11.5	11.5	29	0	29				
883	12	7	7	36	0	36				
917	12	7	7	34	0	34				
944	0	14	14	27	0	27				
969	15	3	3	25	25	0				
1014	16	0.5	0.5	45	45	0				
1072	16	6	6	58	58	0				
1102	12	13	13	30	0	30				
1122	16	14	14	20	0	20				
1143	20	6	6	21	21	0				
1166	17	6	6	23	23	0				
1221	25	2	1.5	55	55	0				
1248	27	3	3	27	27	0				
1288	33	6	6	40	40	0				
1321	22	3	3	33	33	0				
1331	32	14	14	10	10	0				
1370	35	14	14	39	39	0				
1395	37	7	7	25	25	0				
1434	32	8	8	39	39	0				

1458	35	0	0	24	24	0				
1493	29	11	11	35	35	0				
1541	34	7	7	48	48	0				
1575	30	9	9	34	34	0				
1606	5	20	20	31	31	0				
1623	15	18	18	17	17	0				
1635	22	7	7	12	12	0				
1660	22	5	5	25	25	0				
1713	23	3	3	53	53	0				
1737	25	5	5	24	24	0				
1762	30	5	5	25	25	0				
1786	14	18	18	24	24	0				
1810	32	13	13	24	24	0				
1846	28	12	12	36	36	0				
1918	25	6	6	72	72	0				
1969	19	8	8	51	51	0				
2001	20	3	3	32	32	0				
2020	18	11	11	19	19	0				
2065	22	8	8	45	45	0				
2102	20	6	6	37	37	0				
2140	23	4	4	38	38	0				
2188	8	21	21	48	48	0				
2215	16	11	11	27	27	0				
2238	1.5	23	23	23	23	0				
2303	21	2	2	65	65	0				
2355	11	2	2	52	52	0				
2374	10	5	5	19	19	0				
2395	11	5	5	21	21	0				
2424	8	9	9	29	29	0				
2454	13	12	12	30	30	0				
2483	5	10	10	29	29	0				
2501	5	10	10	18	18	0				
2528	10	10	10	27	27	0				
2547	8	13	13	19	19	0				
2572	10	5	5	25	25	0				
2615	6	12	12	43	43	0				
2630	14	1	1	15	15	0				
2673	16	0	0	43	43	0				
2703	16	12	12	30	30	0				
2728	13	12	12	25	25	0				
2743	9	10	10	15	15	0				
2767	4	9	9	24	24	0				
2803	14	7	7	36	36	0				
2834	12	10	10	31	31	0				
2864	24	8	8	30	30	0				
2894	27	0	0	30	30	0				
2949	25	2.5	2.5	55	55	0				
2965	27	2	2	16	16	0				
2983	20	9	9	18	18	0				
3008	24	0	0	25	25	0				
3030	21	10	10	22	22	0				

3079	29	2	2	49	49	0				
3110	32	10	10	31	31	0				
3156	26	13	13	46	46	0				
3172			0	16	16	0				
				3172	2128	1044				
					67.1%	32.9%				

Trail Name:		Sidewinder											
Computation of Width and Surface													
Station (ft)	Tread Width (in)	Surface	Length	< 2 ft	2<=4 ft.	4<=8 ft.	8<=12 ft	>12 ft.	Gravel	HS	SS	Other	
0													
0	48	Dirt	0	0	0	0							
29	48	Dirt	29	0	29	0							
48	60	Dirt	19	0	0	19							
76	72	Dirt	28	0	0	28							
100	132	Dirt	24	0	0	0							
160	48	Dirt	60	0	60	0							
194	72	Dirt	34	0	0	34							
212	36	Dirt	18	0	18	0							
241	48	Dirt	29	0	29	0							
275	60	Dirt	34	0	0	34							
312	60	Dirt	37	0	0	37							
348	86	Dirt	36	0	0	36							
364	60	Dirt	16	0	0	16							
412	48	Dirt	48	0	48	0							
435	48	Dirt	23	0	23	0							
462	60	Dirt	27	0	0	27							
474	60	Dirt	12	0	0	12							
486	60	Dirt	12	0	0	12							
524	48	Dirt	38	0	38	0							
585	48	Dirt	61	0	61	0							
614	60	Dirt	29	0	0	29							
638	36	Dirt	24	0	24	0							
666	48	Dirt	28	0	28	0							
707	48	Dirt	41	0	41	0							
749	48	Dirt	42	0	42	0							
773	48	Dirt	24	0	24	0							
798	48	Dirt	25	0	25	0							
818	36	Dirt	20	0	20	0							
847	36	Dirt	29	0	29	0							
883	36	Dirt	36	0	36	0							
917	36	Dirt	34	0	34	0							
944	36	Dirt	27	0	27	0							
969	36	Dirt	25	0	25	0							
1014	36	Dirt	45	0	45	0							
1072	48	Dirt	58	0	58	0							
1102	60	Dirt	30	0	0	30							
1122	48	Dirt	20	0	24	0							
1143	36	Dirt	21	0	21	0							
1166	48	Dirt	23	0	23	0							
1221	48	Dirt	55	0	55	0							
1248	48	Dirt	27	0	27	0							
1288	48	Dirt	40	0	40	0							
1321	36	Dirt	33	0	0	33							
1331	48	Dirt	10	0	10	0							
1370	36	Dirt	39	0	39	0							
1395	36	Dirt	25	0	25	0							
1434	60	Dirt	39	0	0	39							
1458	36	Dirt	24	0	24	0							
1493	48	Dirt	35	0	35	0							
1541	36	Dirt	48	0	48	0							
1575	48	Dirt	34	0	34	0							
1606	72	Dirt	31	0	0	31							
1623	60	Dirt	17	0	0	17							
1635	48	Dirt	12	0	12	0							
1660	24	Dirt	25	0	25	0							
1713	60	Dirt	53	0	0	53							
1737	60	Dirt	24	0	0	24							
1762	48	Dirt	25	0	25	0							
1786	48	Dirt	24	0	24	0							
1810	98	Dirt	24	0	0	0							
1846	48	Dirt	36	0	0	36							
1918	48	Dirt	72	0	72	0							
1969	36	Dirt	51	0	0	51							
2001	48	Dirt	32	0	0	32							
2020	36	Dirt	19	0	33	0							
2065	36	Dirt	45	0	45	0							
2102	60	Dirt	37	0	0	37							
2140	60	Dirt	38	0	0	38							
2188	72	Dirt	48	0	0	48							
2215	60	Dirt	27	0	0	27							
2238	48	Dirt	23	0	23	0							
2303	48	Dirt	65	0	65	0							
2355	36	Dirt	52	0	52	0							
2374	48	Dirt	19	0	19	0							
2395	48	Dirt	21	0	21	0							
2424	72	Dirt	29	0	29	0							
2454	48	Dirt	30	0	30	0							
2483	48	Dirt	29	0	29	0							
2501	48	Dirt	18	0	18	0							
2528	48	Dirt	27	0	27	0							
2547	48	Dirt	19	0	19	0							
2572	60	Dirt	25	0	25	0							

2615	48	Dirt/Sand	43	0	43	0						
2630	48	Dirt	15	0	15	0						
2673	48	Dirt	43	0	43	0						
2703	48	Dirt	30	0	30	0						
2728	36	Dirt	25	0	25	0						
2743	36	Dirt	15	0	15	0						
2767	48	Dirt	24	0	24	0						
2803	36	Dirt	36	0	36	0						
2834	48	Dirt	31	0	31	0						
2864	36	Dirt	30	0	30	0						
2894	72	Dirt	30	0	30	0						
2949	36	Dirt	55	0	55	0						
2965	48	Dirt	16	0	16	0						
2983	48	Dirt	18	0	18	0						
3008	48	Dirt	25	0	25	0						
3030	48	Dirt	22	0	22	0						
3079	48	Dirt	49	0	49	0						
3110	48	Dirt	31	0	31	0						
3156	48	Dirt	46	0	46	0						
3172			16	0	16	0						
			3172	0	2362	780						
				0.0%	74.5%	24.6%						

Trail Assessment Form										Date	8/1/2019	
Trail Name:	Understory					Trail Length	0.39	Half rule	89%	Exceeds 1/2 rule	11%	
Trail Start:	Mill Mountain Greenway					Attractions/Detrac-tions		provides a loop for the top of the mountain more technical than other trails good views fo downtown				
Trail End:	Ridgeline											
Trail Junctions:	MMG and Ridgeline					Sum of Grades						
						0-5%	35.8%			Sum of Surface		
						6-10	31.3%			Wood	0.0%	
Assessment Team	Renee Powers					11-15	11.2%			Gravel	0.0%	
	Kat Andrew					16-20	18.0%			Cinder		
	Shub Gideon					21-30	10.0%			Hard soil	100.0%	
						>30%	0.0%			Soft soil	0.0%	
											Sum of Width	
											< 2 ft	
											8.6%	
											2-4 ft.	
											82.2%	
											4.1-8 ft.	
											8.9%	
											8.1-12 ft	
											>12 ft.	
Station (ft)	Tread Width (in)	Tread X-slope -%=in +%=out	Hillside Slope %	Surface	Grade (+%)	Feat. No.	Feat. Station	Trail/View	Cond. 1=Good 5=Bad	Feature Type, Materials, Description, Details, Needs		
0						1	0	T	1	Trail intersection with Mill Mountain Greenway		
0	48	2	0	Dirt	3.5	2	0	T	1	Sign - Understory		
31	30	8.5	36	Dirt	3.5	3	31	T	1	grade reversal		
110	36	9.3	35	Dirt	5.0	4	110	T	1	grade reversal		
184	48	14	33	Dirt	4.0	5	184	T	3	needs more benching, high outslope%		
228	38	9.1	31	Dirt	16.0	6	228	T	1	top of next rise near half broken tree		
262	96	11.2	30	Dirt	4.0	7	262	T	3	wide, lots of outslope		
293	40	4.6	33	Dirt	6.5	8	293	T	1	tree blaze		
314	36	10.6	34	Dirt	4.5	9	314	T	1	grade dip		
339	36	6.7	39	Dirt	3.0	10	339	T	1	tree at turn		
378	48	4	40	Dirt	13.5	11	378	T	1	tree on right		
402	36	3.3	40	Dirt	2.5	12	402	T	1	crest near tree		
425	30	1.6	34	Dirt	17.5	13	425	T	1	grade reversal and turn before powerline		
442	40	4.9	47	Dirt	8.0	14	442	T	1	edge of powerline		
473	28	3.6	44	Dirt	10.0	15	473	T	1	powerline center view		
513	30	-1	43	Dirt	9.0	16	513	T	1	edge of powerline		
535	36	7.4	42.5	Dirt	3.0	17	535	T	1	grade reversal		
559	48	4.4	41	Dirt	9.0	18	559	V	1	incline tower base		
594	28	11.2	44	Dirt	3.0	19	594	T	1	top of rise/dead tree		
613	20	-1.8	45	Dirt	7.5	20	613	T	1	grade reversal/burm		
637	36	9.6	43	Dirt	6.0	21	637	T	1	top of rise		
666	32	7.4	50	Dirt	6.0	22	666	T	1	straight section		
716	40	11.9	52	Dirt	10.0	23	716	T	1	big rock, dead log		
793	20	2.5	54	Dirt	13.0	24	793	T	1	grade reversal		
838	24	6.3	54	Dirt	5.5	25	838	T	1	tree with blaze		
875	30	6.7	55	Dirt	5.5	26	875	T	1	top of rise		
903	36	4.2	53	Dirt	19.0	27	903	T	1	dip with root		
930	14	16	54	Dirt	3.5	28	930	T	3	top of rise/needs more benching/too much backslope		
962	24	3.8	55	Dirt	11.0	29	962	T	1	grade reversal		
994	24	8.3	53	Dirt	3.0	30	994	T	2	edge of brush--needs brush back		
1022	28	5.8	52	Dirt	1.0	31	1022	T	1	edge of brush downhill side		
1054	28	1.9	51	Dirt	15.0	32	1054	T	1	root		
1090	20	-0.7	55	Dirt	9.0	33	1090	T	1	big rock on left		
1121	28	7.2	53	Dirt	1.5	34	1121	T	1	top of rise		
1172	28	4.6	53	Dirt	16.5	35	1172	T	1	grade reversal with leaves		
1190	36	6.9	54.5	Dirt	9.0	36	1190	T	1	small tree in curve		
1227	24	-6.1	56	Dirt	16.5	37	1227	T	3	grade reversal, cupping/deburming needed		
1258	34	7	52	Dirt	3.0	38	1258	T	1	tree in turn		
1305	32	9.6	52	Dirt	3.0	39	1305	T	3	tree with blaze near tech rocks/alternative lines forming need to address		
1328	48	9.4	50	Dirt	0.0	40	1328	T	1	before downhill		
1365	32	3.9	53	Dirt	17.5	41	1365	T	1	grade reversal between two trees		
1393	24	6.1	64	Dirt	0.5	42	1393	T	1	rock on right		
1435	38	6.7	73	Dirt	7.5	43	1435	T	1	big boulder on left		
1481	34	5.6	56	Dirt	1.5	44	1481	T	3	rock and tree--needs benching		
1522	36	5.8	46	Dirt	3.5	45	1522	T	1	big rock on right		
1542	42	7.1	38	Dirt	16.0	46	1542	T	1	tree half way to grade reversal		
1563	42	-4.9	48	Dirt	25.0	47	1563	T	3	cupping, tree in curve--deburm		
1587	36	6.1	50	Dirt	15.5	48	1587	T	1	rock in center of tread		
1618	42	-0.7	40	Dirt	22.0	49	1618	T	3	rocks on left, rutted and insloped		
1634	60	24	43	Dirt	9.0	50	1634	T	4	grade dip next to rock, trail widening around tech features		
1655	20	8.8	52	Dirt	3.5	51	1655	T	1	between two rocks		
1671	40	10.1	42	Dirt	14.0	52	1671	T	1	apex of curve		
1689	48	17.1	39	Dirt	8.0	53	1689	T	1	apex of turn with funky tree		
1712	28	0.6	39	Dirt	27.0	54	1712	T	1	turn near tree on left		
1750	26	-13.6	37	Dirt	11.0	55	1750	T	1	tree with hole		
1780	36	5.3	31	Dirt	19.0	56	1780	T	1	first tree on right		
1802	48	8	39	Dirt	16.0	57	1802	T	1	tree next to rock		
1821	36	12	32	Dirt	4.5	58	1821	T	1	tree on right		
1876	36	8.2	38	Dirt	5.5	59	1876	T	1	small rise with sun in morning		
1912	36	0.8	36	Dirt	9.0	60	1786	T	1	grade reversal		
1944	48	5.3	23	Dirt	7.0	61	1944	T	1	tree with big rocks		
1973	36	9.4	26	Dirt	19.0	62	1973	T	4	gravel runoff and erosion from zoo road		
2027	24	3.2	34	Dirt	5.5	63	2027	T	1	curve with tree on left		
2056	36	4.5	33.5	Dirt	1.5	64	2056	T	1	rise before intersection with Ridgeline		
2087	100	13.1	23.5	Dirt	17.0	65	2087	T	1	intersection with Ridgeline		

APPENDIX A: TRAIL INVENTORY AND ASSESSMENT FORMS

Trail Name:	Understory									
Computation of Grade	Grade (+%)	ABS of Grade	Length	Slope %						
				0-5%	6-10%	11-15%	16-20%	21-29%	>30%	
0										
0	3.5	4	0	0	0	0	0	0	0	0
31	3.5	4	31	31	0	0	0	0	0	0
110	5.0	5	79	79	0	0	0	0	0	0
184	4.0	4	74	74	0	0	0	0	0	0
228	16.0	16	44	0	0	0	44	0	0	0
262	4.0	4	34	34	0	0	0	0	0	0
293	6.5	7	31	0	31	0	0	0	0	0
314	4.5	5	21	21	0	0	0	0	0	0
339	3.0	3	25	25	0	0	0	0	0	0
378	13.5	14	39	0	0	39	0	0	0	0
402	2.5	3	24	24	0	0	0	0	0	0
425	17.5	18	23	0	0	0	23	0	0	0
442	8.0	8	17	0	17	0	0	0	0	0
473	10.0	10	31	0	31	0	0	0	0	0
513	9.0	9	40	0	40	0	0	0	0	0
535	3.0	3	22	22	0	0	0	0	0	0
559	9.0	9	24	0	24	0	0	0	0	0
594	3.0	3	35	35	0	0	0	0	0	0
613	7.5	8	19	0	19	0	0	0	0	0
637	6.0	6	24	0	24	0	0	0	0	0
666	6.0	6	29	0	29	0	0	0	0	0
716	10.0	10	50	0	50	0	0	0	0	0
793	13.0	13	77	0	0	77	0	0	0	0
838	5.5	6	45	0	45	0	0	0	0	0
875	5.5	6	37	0	37	0	0	0	0	0
903	19.0	19	28	0	0	0	28	0	0	0
930	3.5	4	27	27	0	0	0	0	0	0
962	11.0	11	32	0	0	32	0	0	0	0
994	3.0	3	32	32	0	0	0	0	0	0
1022	1.0	1	28	28	0	0	0	0	0	0
1054	15.0	15	32	0	0	32	0	0	0	0
1090	9.0	9	36	0	36	0	0	0	0	0
1121	1.5	2	31	31	0	0	0	0	0	0
1172	16.5	17	51	0	0	0	51	0	0	0
1190	9.0	9	18	0	18	0	0	0	0	0
1227	16.5	17	37	0	0	0	37	0	0	0
1258	3.0	3	31	31	0	0	0	0	0	0
1305	3.0	3	47	47	0	0	0	0	0	0
1328	0.0	0	23	23	0	0	0	0	0	0
1365	17.5	18	37	0	0	0	37	0	0	0
1393	0.5	1	28	28	0	0	0	0	0	0
1435	7.5	8	42	0	42	0	0	0	0	0
1481	1.5	2	46	46	0	0	0	0	0	0
1522	3.5	4	41	41	0	0	0	0	0	0
1542	16.0	16	20	0	0	0	20	0	0	0

1563	25.0	25	21	0	0	0	0	0	21	0
1587	15.5	16	24	0	0	0	24	0	0	0
1618	22.0	22	31	0	0	0	0	31	0	0
1634	9.0	9	16	0	16	0	0	0	0	0
1655	3.5	4	21	21	0	0	0	0	0	0
1671	14.0	14	16	0	0	16	0	0	0	0
1689	8.0	8	18	0	18	0	0	0	0	0
1712	27.0	27	23	0	0	0	0	23	0	0
1750	11.0	11	38	0	0	38	0	0	0	0
1780	19.0	19	30	0	0	0	30	0	0	0
1802	16.0	16	22	0	0	0	22	0	0	0
1821	4.5	5	19	19	0	0	0	0	0	0
1876	5.5	6	55	0	55	0	0	0	0	0
1912	9.0	9	36	0	36	0	0	0	0	0
1944	7.0	7	32	0	32	0	0	0	0	0
1973	19.0	19	29	0	0	0	29	0	0	0
2027	5.5	6	54	0	54	0	0	0	0	0
2056	1.5	2	29	0	0	0	0	0	0	0
2087	17.0	17	31	0	0	0	31	0	0	0
		Total	2087	748	654	234	376	75	0	0
		Percent		35.8%	31.3%	11.2%	18.0%	10.0%	0.0%	0

Trail Name:	Understory						Half Hillside	
Computation of Half Rule	Station (ft)	Hillside Slope %	Grade (+%)	ABS of Grade	Length	<= Half hillside slope	> Half hillside slope	
								0
0	0	0	3.5	3.5	0	0	0	
31	36	36	3.5	3.5	31	31	0	
110	35	35	5.0	5	79	79	0	
184	33	33	4.0	4	74	74	0	
228	31	31	16.0	16	44	0	44	
262	30	30	4.0	4	34	34	0	
293	33	33	6.5	6.5	31	31	0	
314	34	34	4.5	4.5	21	21	0	
339	39	39	3.0	3	25	25	0	
378	40	40	13.5	13.5	39	39	0	
402	40	40	2.5	2.5	24	24	0	
425	34	34	17.5	17.5	23	0	23	
442	47	47	8.0	8	17	17	0	
473	44	44	10.0	10	31	31	0	
513	43	43	9.0	9	40	40	0	
535	42.5	42.5	3.0	3	22	22	0	
559	41	41	9.0	9	24	24	0	
594	44	44	3.0	3	35	35	0	
613	45	45	7.5	7.5	19	19	0	
637	43	43	6.0	6	24	24	0	
666	50	50	6.0	6	29	29	0	

716	52	10.0	10	50	50	0
793	54	13.0	13	77	77	0
838	54	5.5	5.5	45	45	0
875	55	5.5	5.5	37	37	0
903	53	19.0	19	28	28	0
930	54	3.5	3.5	27	27	0
962	55	11.0	11	32	32	0
994	53	3.0	3	32	32	0
1022	52	1.0	1	28	28	0
1054	51	15.0	15	32	32	0
1090	55	9.0	9	36	36	0
1121	53	1.5	1.5	31	31	0
1172	53	16.5	16.5	51	51	0
1190	54.5	9.0	9	18	18	0
1227	56	16.5	16.5	37	37	0
1258	52	3.0	3	31	31	0
1305	52	3.0	3	47	47	0
1328	50	0.0	0	23	23	0
1365	53	17.5	17.5	37	37	0
1393	64	0.5	0.5	28	28	0
1435	73	7.5	7.5	42	42	0
1481	56	1.5	1.5	46	46	0
1522	46	3.5	3.5	41	41	0
1542	38	16.0	16	20	20	0
1563	48	25.0	25	21	0	21
1587	50	15.5	15.5	24	24	0
1618	40	22.0	22	31	0	31
1634	43	9.0	9	16	16	0
1655	52	3.5	3.5	21	21	0
1671	42	14.0	14	16	16	0
1689	39	8.0	8	18	18	0
1712	39	27.0	27	23	0	23
1750	37	11.0	11	38	38	0
1780	31	19.0	19	30	0	30
1802	39	16.0	16	22	22	0
1821	32	4.5	4.5	19	19	0
1876	38	5.5	5.5	55	55	0
1912	36	9.0	9	36	36	0
1944	23	7.0	7	32	32	0
1973	26	19.0	19	29	0	29
2027	34	5.5	5.5	54	54	0
2056	33.5	1.5	1.5	29	29	0
2087	23.5	17.0	17	31	0	31
				2087	1855	232
					88.9%	11.1%

Trail Name:		Understory									
Computation of Width and Surface		Length	< 2 ft.	2<=4 ft.	4<=8 ft.	8<=12 ft.	>12 ft.	Gravel	HS	SS	Other
Station (ft)	Tread Width (in)	Surface									
0											
0	48	Dirt	0	0	0						
31	30	Dirt	31	0	31	0					
110	36	Dirt	79	0	79	0					
184	48	Dirt	74	0	74	0					
228	38	Dirt	44	0	44	0					
262	96	Dirt	34	0	0	34					
293	40	Dirt	31	0	31	0					
314	36	Dirt	21	0	21	0					
339	36	Dirt	25	0	25	0					
378	48	Dirt	39	0	39	0					
402	36	Dirt	24	0	24	0					
425	30	Dirt	23	0	23	0					
442	40	Dirt	17	0	17	0					
473	28	Dirt	31	0	31	0					
513	30	Dirt	40	0	40	0					
535	36	Dirt	22	0	22	0					
559	48	Dirt	24	0	24	0					
594	28	Dirt	35	0	35	0					
613	20	Dirt	19	19	0	0					
637	36	Dirt	24	0	24	0					
666	32	Dirt	29	0	29	0					
716	40	Dirt	50	0	50	0					
793	20	Dirt	77	77	0	0					
838	24	Dirt	45	0	45	0					
875	30	Dirt	37	0	37	0					
903	36	Dirt	28	0	28	0					
930	14	Dirt	27	27	0	0					
962	24	Dirt	32	0	32	0					
994	24	Dirt	32	0	32	0					
1022	28	Dirt	28	0	28	0					
1054	28	Dirt	32	0	32	0					
1090	20	Dirt	36	36	0	0					
1121	28	Dirt	31	0	31	0					
1172	28	Dirt	51	0	51	0					
1190	36	Dirt	18	0	18	0					
1227	24	Dirt	37	0	37	0					
1258	34	Dirt	31	0	24	0					
1305	32	Dirt	47	0	47	0					
1328	48	Dirt	23	0	23	0					
1365	32	Dirt	37	0	37	0					
1393	24	Dirt	28	0	28	0					
1435	38	Dirt	42	0	42	0					
1481	34	Dirt	46	0	0	46					
1522	36	Dirt	41	0	41	0					
1542	42	Dirt	20	0	20	0					
1563	42	Dirt	21	0	21	0					

1587	36	Dirt	24	0	24	0					
1618	42	Dirt	31	0	31	0					
1634	60	Dirt	16	0	0	16					
1655	20	Dirt	21	21	0	0					
1671	40	Dirt	16	0	16	0					
1689	48	Dirt	18	0	18	0					
1712	28	Dirt	23	0	23	0					
1750	26	Dirt	38	0	38	0					
1780	36	Dirt	30	0	30	0					
1802	48	Dirt	22	0	22	0					
1821	36	Dirt	19	0	19	0					
1876	36	Dirt	55	0	55	0					
1912	36	Dirt	36	0	36	0					
1944	48	Dirt	32	0	32	0					
1973	36	Dirt	29	0	0	29					
2027	24	Dirt	54	0	54	0					
2056	36	Dirt	29	0	0	29					
2087	100	Dirt	31	0	0	31					
			2087	180	1715	185					
				8.6%	82.2%	8.9%					

Trail Assessment Form											Date	8/9/2019
Trail Name:	Virginia Pine Loop						Trail Length	0.39	Half rule	18%	Exceeds 1/2 rule	82%
Trail Start:	Virginia Pine, nearer to Wood Thrush						Attractions/De-tractions	Close to neighborhood, Downhill run for bikes				
Trail End:	Virginia Pine, near Hartsook											
Trail Junctions:	Virginia Pine - this is the lollipop of the loop						Sum of Grades					
						0-5%	65.8%			Sum of Surface	Sum of Width	
						6-10	32.5%			Wood	< 2 ft	
Assessment Team	Dick Clark, Liz Belcher, Renee Powers						11-15	1.7%			Gravel	2-4 ft. 100.0%
						16-20	0.0%			Cinder	4.1-8 ft.	
						21-30	0.0%			Hard soil	92.2% 8.1-12 ft	
						>30%	0.0%			Soft soil	7.8% >12 ft.	
Station (ft)	Tread Width (in)	Tread X-slope -%=in +%=out	Hillside Slope %	Surface	Grade (+%)	Feat. No.	Feat. Station	Trail/View	Cond. 1=Good 5=Bad	Feature Type, Materials, Description, Details, Needs		
0						1	0	T	1	Start of triangle leg at top of switchback on VA Pine Loop, headed down		
38	24	10.4	12	Pine needles	-4	2	85	T	1	End of triangle leg at VA Pine, sign there. Trail shows less use.		
85	24	17.3	20	Pine needles	-6							
0						1	0	T	1	Start of VA Pine loop, at VA Pine, with climbing turn		
23	36	1.7	10	Dirt	4	2	15	T		Rocks retaining the curve		
39	36	9.2	1	Dirt	13	3	23	V		Sign for the intersection		
54	36	1.8	16	Dirt	8	4	30	V		Rocks around tree		
80	24	4.9	8	Dirt	7	5	23-39	T	2	Climbing turn		
99	36	4.8	2	Dirt	12	6	39	T	1	Intersection with triangle leg (above)		
133	30	4.0	15	Dirt	4	7	80	T		Climbing turn 80-99		
169	30	0.7	18	Pine needles	7	8	169	V		Old road bed landing		
191	24	0.5	-3	Pine needles	-3							
211	24	0.5	0	Dirt	0							
232	30	1.7	0	Dirt	-4							
256	30	5.3	1	Dirt	-3							
284	36	0.2	3	Dirt	-5							
333	36	-5.2	-2	Dirt	-7	9	333	V		Old roadbed berms, water diverters		
417	36	0.2	2	Dirt	-8	10	417	V	1	VA Pine Trail below you		
466	36	1.4	5	Dirt	-5	11	460	V	2	Standing dead tree		
521	48	1.2	1	Dirt	-4							
564	36	0.1	1	Dirt	-3							
590	36	3.0	1	Dirt	-5							
666	36	1.3	3	Dirt	-7							
692	36	1.0	1	Dirt	-5							
763	24	3.1	0	Dirt	-7							
811	36	0.8	0	Dirt	-6							
836	30	0.9	2	Dirt	-6							
873	24	3.5	0	Dirt	-7							
904	30	0.9	0	Dirt	-3	12	904	V	3	Big ravine to the right alongside old road bed		
934	24	0.2	1	Sand	-1	13	904	V	2	Hornets nest		
971	36	1.4	2	Sand	0							
1029	36	0.3	13	Sand	-1							
1065	30	1.4	0	Sand	0	14	1065	V	2	Social trail up the hill to subdivision		
1087	24	5.7	0	Dirt	-1							
1117	30	3.2	0	Dirt	-1							
1146	24	1.8	0	Dirt	-2							
1172	24	2.1	0	Dirt	-3							
1198	36	0.5	0	Dirt	-2							
1232	30	3.3	0	Dirt	-3	15	1232	V	3	Road washed out		
1259	24	1.3	0	Dirt	-3							
1316	24	2.3	0	Dirt	-4							
1362	24	3.2	0	Dirt	-4							
1392	24	2.0	0	Dirt	-4							
1417	24	0.4	0	Dirt	-3							
1451	24	3.5	0	Dirt	-4	16	1451	T	2-3	Some washing of trail		
1488	24	7.0	6	Dirt	-4	17	1488	T		Drain comes into trail		
1516	36	2.6	7	Dirt	-2							
1591	30	2	5	Dirt	-4	18	1550	T		Cross drain across trail		
1637	24	5.3	0	Dirt	-4							
1685	30	0.1	0	Dirt	-5							
1727	30	1.8	6	Dirt	-4							
1753	24	2	0	Dirt	-5							
1820	30	-5.2	0	Dirt	-4	19	1930	V	4	Ravine to right		
1930	36	9.7	5	Dirt	-8	20	1950	V		Fallen tree across ravine/drain		
1976	48	6.9	5	Dirt	-8	21	1976	T		VA Pine Trail at the bridge		

Trail Name:	Virginia Pine Loop								
Computation of Grade	Grade (+%)	ABS of Grade	Length	0-5%	6-10%	11-15%	16-20%	21-29%	>30%
23	4	4	23	23	0	0	0	0	0
39	13	13	16	0	0	16	0	0	0
54	8	8	15	0	15	0	0	0	0
80	7	7	26	0	26	0	0	0	0
99	12	12	19	0	0	19	0	0	0
133	4	4	34	0	0	0	0	0	0
169	7	7	36	0	36	0	0	0	0
191	-3	3	22	22	0	0	0	0	0
211	0	0	20	20	0	0	0	0	0
232	-4	4	21	21	0	0	0	0	0
256	-3	3	24	24	0	0	0	0	0
284	-5	5	28	28	0	0	0	0	0
333	-7	7	49	0	49	0	0	0	0
417	-8	8	84	0	84	0	0	0	0
466	-5	5	49	49	0	0	0	0	0
521	-4	4	55	55	0	0	0	0	0
564	-3	3	43	43	0	0	0	0	0
590	-5	5	26	26	0	0	0	0	0
666	-7	7	76	0	76	0	0	0	0
692	-5	5	26	26	0	0	0	0	0
763	-7	7	71	0	71	0	0	0	0
811	-6	6	48	0	48	0	0	0	0
836	-6	6	25	0	25	0	0	0	0
873	-7	7	37	0	37	0	0	0	0
904	-3	3	31	31	0	0	0	0	0
934	-1	1	30	30	0	0	0	0	0
971	0	0	37	37	0	0	0	0	0
1029	-1	1	58	58	0	0	0	0	0
1065	0	0	36	36	0	0	0	0	0
1087	-1	1	22	22	0	0	0	0	0
1117	-1	1	30	30	0	0	0	0	0
1146	-2	2	29	29	0	0	0	0	0
1172	-3	3	26	26	0	0	0	0	0
1198	-2	2	26	26	0	0	0	0	0
1232	-3	3	34	34	0	0	0	0	0
1259	-3	3	27	27	0	0	0	0	0
1316	-4	4	57	57	0	0	0	0	0
1362	-4	4	46	46	0	0	0	0	0
1392	-4	4	30	30	0	0	0	0	0
1417	-3	3	25	25	0	0	0	0	0
1451	-4	4	34	34	0	0	0	0	0
1488	-4	4	37	37	0	0	0	0	0
1516	-2	2	28	28	0	0	0	0	0
1591	-4	4	75	75	0	0	0	0	0
1637	-4	4	46	46	0	0	0	0	0
1685	-5	5	48	48	0	0	0	0	0

1727	-4	4	42	42	0	0	0	0	0
1753	-5	5	26	26	0	0	0	0	0
1820	-4	4	67	67	0	0	0	0	0
1930	-8	8	110	0	110	0	0	0	0
1976	-8	8	46	0	46	0	0	0	0
		Total	1976	1318	623	35	0	0	0
		Percent		66.7%	31.5%	1.8%	0.0%		

Trail Name:	Virginia Pine Loop							<= Half hillside slope	> Half hillside slope
Computation of Half Rule	Station (ft)	Hillside Slope %	Grade (+%)	ABS of Grade	Length				
23		10	4	4	23	23	0	0	
39		1	13	13	16	16	0	16	
54		16	8	8	15	15	0	0	
80		8	7	7	26	0	26	0	
99		2	12	12	19	0	19	0	
133		15	4	4	34	34	0	0	
169		18	7	7	36	36	0	0	
191		-3	-3	3	22	0	22	0	
211		0	0	0	20	20	0	0	
232		0	-4	4	21	0	21	0	
256		1	-3	3	24	0	24	0	
284		3	-5	5	28	0	28	0	
333		-2	-7	7	49	0	49	0	
417		2	-8	8	84	0	84	0	
466		5	-5	5	49	0	49	0	
521		1	-4	4	55	0	55	0	
564		1	-3	3	43	0	43	0	
590		1	-5	5	26	0	26	0	
666		3	-7	7	76	0	76	0	
692		1	-5	5	26	0	26	0	
763		0	-7	7	71	0	71	0	
811		0	-6	6	48	0	48	0	
836		2	-6	6	25	0	25	0	
873		0	-7	7	37	0	37	0	
904		0	-3	3	31	0	31	0	
934		1	-1	1	30	0	30	0	
971		2	0	0	37	37	0	0	
1029		13	-1	1	58	58	0	0	
1065		0	0	0	36	36	0	0	
1087		0	-1	1	22	0	22	0	
1117		0	-1	1	30	0	30	0	
1146		0	-2	2	29	0	29	0	
1172		0	-3	3	26	0	26	0	
1198		0	-2	2	26	0	26	0	

1232	0	-3	3	34	0	34
1259	0	-3	3	27	0	27
1316	0	-4	4	57	0	57
1362	0	-4	4	46	0	46
1392	0	-4	4	30	0	30
1417	0	-3	3	25	0	25
1451	0	-4	4	34	0	34
1488	6	-4	4	37	0	37
1516	7	-2	2	28	28	0
1591	5	-4	4	75	0	75
1637	0	-4	4	46	0	46
1685	0	-5	5	48	0	48
1727	6	-4	4	42	0	42
1753	0	-5	5	26	0	26
1820	0	-4	4	67	0	67
1930	5	-8	8	110	0	110
1976	5	-8	8	46	0	46
				1976	287	1689
					14.5%	85.5%

Trail Name:		Virginia Pine Loop											
Computation of Width and Trail Surface													
Station (ft)	Tread Width (in)	Surface	Length	< 2 ft	2<=4 ft.	4<=8 ft.	8<=12 ft	>12 ft.	Gravel	HS	SS	Other	
0													
38	24	Pine needles	38	0	38	0				38			
85	24	Pine needles	47	0	47	0				47			
0													
23	36	Dirt	23	0	23	0				23			
39	36	Dirt	16	0	16	0				16			
54	36	Dirt	15	0	15	0				15			
80	24	Dirt	26	0	26	0				26			
99	36	Dirt	19	0	19	0				19			
133	30	Dirt	34	0	34	0				34			
169	30	Pine needles	36	0	36	0				36			
191	24	Pine needles	22	0	22	0				22			
211	24	Dirt	20	0	20	0				20			
232	30	Dirt	21	0	21	0				21			
256	30	Dirt	24	0	24	0				24			
284	36	Dirt	28	0	28	0				28			
333	36	Dirt	49	0	49	0				49			
417	36	Dirt	84	0	84	0				84			
466	36	Dirt	49	0	49	0				49			
521	48	Dirt	55	0	55	0				55			
564	36	Dirt	43	0	43	0				43			
590	36	Dirt	26	0	26	0				26			
666	36	Dirt	76	0	76	0				76			
692	36	Dirt	26	0	26	0				26			
763	24	Dirt	71	0	71	0				71			
811	36	Dirt	48	0	48	0				48			
836	30	Dirt	25	0	25	0				25			
873	24	Dirt	37	0	37	0				37			
904	30	Dirt	31	0	31	0				31			
934	24	Sand	30	0	30	0					30		
971	36	Sand	37	0	37	0					37		
1029	36	Sand	58	0	58	0					58		
1065	30	Sand	36	0	36	0					36		
1087	24	Dirt	22	0	22	0				22			
1117	30	Dirt	30	0	30	0				30			
1146	24	Dirt	29	0	29	0				29			
1172	24	Dirt	26	0	26	0				26			
1198	36	Dirt	26	0	26	0				26			
1232	30	Dirt	34	0	34	0				34			
1259	24	Dirt	27	0	27	0				27			
1316	24	Dirt	57	0	57	0				57			
1362	24	Dirt	46	0	46	0				46			
1392	24	Dirt	30	0	30	0				30			
1417	24	Dirt	25	0	25	0				25			
1451	24	Dirt	34	0	34	0				34			
1488	24	Dirt	37	0	37	0				37			
1516	36	Dirt	28	0	28	0				28			
1591	30	Dirt	75	0	75	0				75			
1637	24	Dirt	46	0	46	0				46			
1685	30	Dirt	48	0	48	0				48			
1727	30	Dirt	42	0	42	0				42			
1753	24	Dirt	26	0	26	0				26			
1820	30	Dirt	67	0	67	0				67			
1930	36	Dirt	110	0	110	0				110			
1976	48	Dirt	46	0	46	0				46			
			2061	0	2061	0	0	0	0	1900	161		
				0	100.0%	0.0%			0.0%	92.2%	7.8%		

Mill Mountain Trails Plan Corridor Assessments				
Corridor Number	Description	Feasibility and Details	Assessment Date	Assessors
1	South Roanoke Neighborhood Connection: Jefferson St to Crystal Spring Trail	Steeper than originally thought. Will need some switchbacks and sidewalk along Yellow Mountain Road. Keep a good buffer away from retaining wall, well, fenced area and good to go. Going to be a steep one.	12/23/2019	Renee, James, Roger Blankenship (WVWA)
2	New Trail: Crystal Spring to Big Sunny	Steeper terrain than we originally thought. Maybe not enough run unless there are switchbacks. Need to stay before powerline for sure.	12/23/2019	Renee, Roger
3	New Trail: Mill Mountain Greenway near Toll Booth to bottom of Monument	More feasible than originally thought. Lots of invasives and undergrowth, but good old roadbed from tollbooth to sewer man hole. Then good side hill to Monument	12/23/2019	Renee, Roger
4	New Trail: Where Star Trail crosses JB Fishburn to bottom of Monument	Would need to use existing crossing. Lower Star trail would need to be multi-use, good bench on the upper end, lots of rock and scree on the lower end.	12/27/2019	Renee, Liz, Roger
5	New Trail: Alley between Riverland and Walnut to 9th Street	Combine 5 and 6. Connection to 9th not feasible, but sidehill from alley to first switchback in Woodthrush is feasible.	02/04/2020 1pm at Riverland Road	Renee, James, Officers Comas and Hodges
6	New Trail: 9th Street to Riverland Road TH	see above	02/04/2020 1pm at Riverland Road	Renee, James, Officers Comas and Hodges
7	New Trail: Lower Knob area between Star Trail, Connector and Riverland Road	Coming up from Connector or Star would take us right through a landfill and be too steep. Use old Harstook Driveway off JB Fishburn, have the trail be a loop with an out and back to the knob "summit." Steep sidehills, but also some old terracing in some areas make it feasible.	12/20/2019	Renee, Liz, Roger
8	New Trail: Water Tower/Powerline area	Very feasible area. Lots of potential to do a hub and spoke machine built area to connect to Woodthrush, Crown Point, and Woodthrush again. 2 very established homeless camps off of the old contour road need to be addressed. Options for single or bi-directional machine built trail here.	1/27/2020	Renee, Shub, Officers Comas and Hodges
9	New Trail: Sidehill from Sidewinder to Woodthrush	Feasible if comes in near bottom of Sidewinder rather than top. Best Woodthrush intersection near bottom of first downhill before first bridge. 2 homeless folks living in area.	2/3/2020 At top of Sidewinder/Big Bikes noon	Renee, Shub, Liz, Officer Hodges, Sargent Martin
10	Garden City Neighborhood Connection: Hartsook to Woodthrush	Would need to be off of Virginia Pine a few hundred yards up since there is a sizable steep sided ravine near Hartsook. Otherwise, pretty good terrain, well spaced trees, easy to connect back to Estates or to Woodthrush.	01/31/2020 Hartsook TH	Renee and Roger
11	Garden City Neighborhood Connection: Estates to Woodthrush	Old road bed grading to old park boundary sign that is not in the right place. Should be a good easy build trending right to Woodthrush and left to connect to VP/Hartsook.	1/31/2020	Renee and Roger
12	New Trail: Incline	Not feasible. Grades are really steep, no existing scarred land from original incline and big trees. Significant existing erosion in powerline area would be a challenge. Over 50% grades would be hard to make something not have a lot of runoff, sediment, and maintenance. Also, would need AEP to agree to modify easement.	2/6/2020 1:30pm Discovery Center	Renee and Liz
13	Garden City Neighborhood Connection: Crown Point to Powerline/Water Tower area	Old road bed off of Crown Point extends toward old contour. Would be able to use some of the contour to get up to the #8 area, but would need to do more traversing in other areas. Very feasible land. Needs to be bi-directional.	1/27/2020	Renee, Shub, Officers Comas and Hodges
14	Garden City Neighborhood Connection: Crown Point to Woodthrush	Very feasible. Old road bed to a sidehill contour to come into Woodthrush near where #9 would take off. Machine or hand build OK. Needs to be bi-directional.	1/28/2020	Renee, Shub, Officers Comas and Hodges
15	Fern Park Neighborhood Connection: Fern Park to Nottingham to Big Sunny	Road crossing looked at and Transportation Division is OK with people crossing there. They are not willing to put in a crosswalk because it only meets sight distances on one side, but will sign it in advance.	12/20/2019	Renee, Hong Liu (Transportation)
16	New Trail: Some sort of top to bottom trail open to bikes	Feasible, but not in the corridor BROC proposed. The start at the top would work with a single swipe through the steeper area and then heading into the area between the Star trail and Monument at the top to the mountain. Good land between Monument and the road with the ability to tie into where the Star trail currently crosses. Concerns with proposed alignment with conservation easement, grades and user experience. Need to consider other alignments for this corridor.	2/14/2020 9:00am at the Star (top)	Renee, Shub, James, Dick, Dan, Bill
17	Woodthrush to Yellow Mountain Road	Great opportunity to connect to Yellow Mountain Road. Reasonable sidehill connection from near where Wood Thrush meets the Parkway spur. There is one culvert that drains the road that will need armoring. The neighboring property owner is excited about the connection.	3/16/2020	Renee, Dick and James

Date	Media Platform	User Name	E-mail	Feedback/Comments
5/23/2019	Online submission form	James Casey	jamesncasey@gmail.com	We would love to see a short singletrack connector trail below J P Fishburn Pkwy that connects the Mill Mountain Star Trailhead on Riverland Rd SE to the 9th St bridge traffic light. It would be a nice improved access towards Morningside trails. This would be a great connector trail, get bikers off a busy road, and an old forest road bed is already there, just overgrown. It's relatively small, but connects a need and would be great to solidify this and make it happen.
5/24/2019	Online submission form	Ben Hoyt	Bhoyt10@gmail.com	outdoor water fountain maybe an extension off Side Winder. maybe an extension off the Virginia pine loop. new log on Virginia pine (that one is rotted). Maybe add some other barriers throughout. maybe add a short trail that loops off another with logs and other barriers to test skills. a wood carved statue of Matt Allenbaugh.
5/24/2019	Online submission form	Matt Clements	mrclements430@gmail.com	Flow trail on mill mtn. if you want to attract many more mtn bikers building something like bakers creek preserve in Knoxville or the tannerys knob pumptrack in Johnson city would be huge. people like progressive trails. A Downhill traffic only, biker only trail would allow people to really progress and would make mill mtn even more of a destination due to its level of riding and proximity to downtown. this mountain is too big and too perfect to not utilize it to its fullest potential.
5/24/2019	Online submission form	Ronald Biagiarelli	rmbiag@cox.net	Some trail users are not following the Wood Thrush Trail as it passes behind several of the houses at the dead end of Estates RD, SE. They seem to think that the chain link fences on the resident's property denotes the boundary. This is incorrect. Many of the fences are set back from the boundary. There is also some left over concrete work in that area from when the land was destined to become another street in this neighborhood. There is also a very deep ravine behind that area. It is very unsafe to veer off of the trail and follow the fence line behind the houses. The Wood Thrush Trail should be clearly marked with a "no trespassing" or "stay on trail" sign in these areas. Also, the Virginia Pine Trail needs clear signage so users can access it from Garden City Blvd / Greenway through the Mill Mountain Estates Subdivision. The trail head is at the dead end of Hartsook Blvd. Users are crossing private property in other areas to access the trail. Signage from Garden City Blvd / Greenway and at the intersection of Hartsook and Estates, Hartsook and Markham, Hartsook and Rosemary and Hartsook and Gum Spring is needed needed to direct users through the neighborhood to the trail head. Part of the problem is the January 2009 Mill Mountain Trail Map itself has an inset overlaid that obscures the entrance and streets to the Mill Mountain Estates neighborhood showing the streets leading to the trail head.
5/24/2019	Online submission form	Adam Overstreet	Adamoverstreet91@gmail.com	The existing trails are great! They're fun, surprisingly varied, and they drain really well. Keep doing what you're doing. But I'd love to see more trails if the space would allow, especially if the Roanoke bike scene continues to blow up as much as it has in the last couple of years. Thanks!
5/24/2019	Online submission form	Blaise Ingram	blaiseingram03@gmail.com	I think Mill Mountain Trails should have more wooden features like skinnies and wall rides. It would also be nice to see jumps and a jump line trail.
5/24/2019	Online submission form	Austin Eells	Austin.Eells@gmail.com	Open up the Chestnut Loop to bikes. At the very least we need a trail connector (lower star trail?) from the bottom of Woodthrush up to parkway so we can get to Monument trail without pounding all that pavement up.
5/24/2019	Online submission form	Wesley Best	Wes@eastcoasters.com	I love this mountain! How lucky is Roanoke to have this in the middle of the city?! We can maximize the trail system's benefit to the community by expanding the *types* of trails. Right now Mill Mt has some great old school trails (old school in that they're mainly like hiking trails that are open to bikes). There's a big push in the mtb community to build new types of trails that incorporate more "flow" into them with some features that are built specifically for mountain bikers. There's a HUGE opportunity to do that on Mill Mt. Not only would that benefit our area but it would also be really appealing to the growing number of riders that are visiting our community. The more time they spend on Mill Mountain the more time they spend close to our downtown businesses. I'd also like to see a trail parallel to the Star Trail that has the same kind of trail surface as Star Trail but that's open to bikes. And lastly: the bottom part of Star Trail (where it cross Fishburn Parkway and heads toward the water tower) needs to be legal for bikes. It's a critical connection.
5/24/2019	Online submission form	Chad Trent	chad.trent@yahoo.com	I love the trails. I just want more trails. Longer trails, steeper trails, whatever. Just more.
5/24/2019	Online submission form	Brandon Montgomery	Bmontgomery87@hotmail.com	I'd love to see some more trails added to Mill Mountain. A trail running somewhat adjacent to star trail, but for mountain bikes, would be great. A revamp of sidewinder with some machine built berms would be awesome as well. A ton of money has been spent to market this area as a mountain bike Mecca but we don't have a single flow trail. We lack machine built trails with rollers and jumps. With the exception of our back country trails, we also lack challenging descents. We have an abundance of beginner and intermediate singletrack, it would be great to build a few trails that reflect the current direction of mountain biking. People don't drive 5 hours to pedal 20 miles of blue trails, they want machine built flow or challenging gnar.
5/24/2019	Online submission form	Phillip Mitchell	Pmitchell245@yahoo.com	Roanoke doesn't have a real machine built flow trail. Rock and roll at the cove is super pedally, think of Ridgeline at Dupont. Or a fun, rocky chunky descent that is one way - downhill only. Or both.
5/24/2019	Online submission form	Max Buyck	Maxvuyck@me.com	More challenging trails, anything but green/blue XC trails, Roanoke has more than enough of those. More rocks and features! incorporate the rocky aspects of the blue ridge into downtown Roanoke's token riding spot!
5/24/2019	Online submission form	Chris Martin	Teamnextgen@yahoo.com	The current trails on Mill Mountain are great, but the addition of machine built trails of varying skill level would round out the offerings. A mix of Morningside and the Up-pers at Carvin's Cove, incorporated into flowing trail(s) on the mountain would bring in riders who currently dismiss the Mill trail system as too tame, and could also help transition newer riders from the greenway and other trail systems into these more challenging trails - the next step from Morningside.
5/24/2019	Online submission form	Adrian Suppes	asupesph2021@gmail.com	We need more interesting and more challenging trails! If not that, then at least some good flow!!
5/24/2019	Online submission form	Aaron Garland	Johnaarongarland@gmail.com	The bottom of "Ridgeline" is washed out and probably should be re-routed for better drainage and ride-ability It would be great to have more mountain bike trails. I often ride the mountain in the morning and I have noticed that the trash cans have been emptied onto the ground most mornings presumably by a raccoon. City parks workers do a good job of cleaning up but it be better if tamper proof trash cans were installed.
5/24/2019	Online submission form	Emma Runquist	erunquist17@gmail.com	More variety of trails, more DH focused trails on Mill Mountain. I'd love more varied and difficult terrain. I think were good with in town green to blue XC trails

5/25/2019	Online submission form	Jen Divers	tix.chiggers@cox.net	How about a loop trail near the Star Trail Parking lot that stays below the road? It could branch off where the homeless camps are above the water tower, maybe intersect with Woodthrusch. Seems there would be room for some rollers in that section. Another idea might be to make some of the trails ONE-WAY on certain days. It would be fantastic to go walk on Monument without worrying about getting plastered by someone flying down hill. Another area I've wonder if there's area to develop is the left side. if you're going up Monument and pass the intersection of Star Trail. Thanks for asking.
5/25/2019	Online submission form	Glenn Klein	gklein1@gmail.com	I know there are politics involved, but open up ALL trails to ALL users. I get where the hike only and "no bikes" came from. But in a mountain town destination, restricted trail use has no place. There is a lot of realestate on Mill, while I don't think it all has to be used it would seem there is room for alternate trails both to the top but also working in some flow type trails. Mill MTN is off putting to a lot of beginners due to the fact there is nothing on the mountain that doesn't require a climb in one direction or the other (or both). Some flow trails would be a great addition, not "jump" lines as that would detract from the multi-use aspect and perpetuate the negative perception of the cycling community. More multi-use trails...and everybody getting along
5/25/2019	Online submission form	Paul Scott	Paulris@cox.net	There needs to be a sit down eating and drinking and enjoying the view place on the mountain. I know this was proposed previously and rejected with the mountain designated as off limits to change. This needs to be changed. The building should have glass on three sides with many seats. Sandwiches and wraps and appetizers served. Beer and wine served as well. Outside should be a large patio with many seats and tables. The patio is to be used by all, even those not making a purchase. The city should build it all. Any profits should be designated for the zoo. Yes, limited numbers of trees need to be removed but worth it. If there was no star there now and someone suggested it all would be horrified. As it is everyone loves it. The same will be true of a cafe. It needs to be done.
5/25/2019	Online submission form	Pam Keebler	pamelakeebler@gmail.com	I would love to see more trails! We have a huge community of mountain bikers, trail runners, and hikers who would benefit from a bigger trail system on Mill Mountain. Professionally built mtb specific flow trail would be a huge draw.
5/26/2019	Online submission form	Daniel Danko	Ddanko122@gmail.com	The current trail network has been a nice mix of trail. -Some trails are worn from bike use - perhaps an additional footpath only trail? -Longer trail to connect the Roanoke Mountain overlook with the Star -A LOT more signage for the Mill Mountain greenway. This is imperative to providing users (and especially visitors/tourists) with an easy way to recreate downtown from the star, and vice versa. As it currently stands, it is very confusing on how to get to the star on the greenway unless you have a phone or map handy. Mile posts, wayfinding signage, plaques sunk into the asphalt, etc.
5/26/2019	Online submission form	Johnny Goodwin	Tinkermountain@gmail.com	I think you do a great job, and appreciate the work you do. Thank you, that is all.
5/26/2019	Online submission form	Emily Jarrett	Dodsonjarrett@yahoo.com	Better signage and markers on trails- for hiking and biking!
5/26/2019	Online submission form	Charles Parmain	parmain@gmail.com	I'd love to see some additional natural surface trails at Mill Mountain. I mainly mtb there but run some as well. Such a great resource for Roanoke.
5/26/2019	Online submission form	Joshua England	joshua.r.england@gmail.com	I enjoy the mill mountain trails regularly as well as the old road to the star. It would be nice if the leaves were removed from the old road. Also, the star trail is not wide near the bottom so dodging the speedy bikers can be a challenge. I've almost been hit while they came around the bend. I'm not sure what you can do about that though. Sometimes out of towners are confused on how the loop works starting from the bottom through the trail then from the star down the old road. More signs may help showing all trails, including the road. Thanks!
5/26/2019	Online submission form	George Waldrop	gwaldrop2@cox.net	Extend the Riser Trail from the first big curve after its start at the Big Sunny Trail to the lower part of the Ridgeline Trail so you don't have to go up and down the "Humbler" part of The Ridgeline Trail. Also open the old trail that goes from the Star Trail to the Monument Trail and consider opening some of the unopened old fire/logging trails on the Garden City side of the mountain.
5/26/2019	Online submission form	Seth Thomas	stthomas@ferrum.edu	Mill Mountain is pretty much perfect as is. I use the trails for running at least two or three times per week. It would be nice to see a bigger parking lot at the base of the Star Trail, and of course additional trails would be nice, but given that Mill Mountain proper is not a huge area of land to work with, not sure if that is a realistic request. I would like to see a trail link up from the Crystal Spring Trail to Big Sunny, as I feel like Crystal Spring gets ignored sometimes as people don't know it's there. I love it, but it's hidden unless you know how to get to it. Short of that, can't think of much. Mill Mountain is a gem for running and other outdoor activities.
5/27/2019	Online submission form	Brad Conner	Bradleyaconner@gmail.com	Mill mountain is a great asset to Roanoke outdoors scene being so close to Downtown. While the trails are great I do feel that they may be too challenging for novice/early intermediate riders. I would love to see access to Chestnut Ridge trail or a similar type trail added to the current trail network. Obviously extending the current trail network would be great for Roanoke's growing outdoor scene and may provide a little relief to the heavy use the Cove receives.
5/27/2019	Online submission form	Chris Berry	berrychris1@gmail.com	I fully support the BROCR/RIMBA 2012 trails proposal.
6/19/2019	Online submission form	Chris Berry	berrychris1@gmail.com	We need trail connections that allow for a race lap option around the mountain that avoids the road. The uphill course for the Disco races is no fun. A connector trail between Big Sunny and Crystal Spring would make this possible.
5/27/2019	Online submission form	Brian Brydges	Brydgesbrian@gmail.com	Open Chestnut Ridge to mountain bikers, and let's link up the mill mountain trail system with explorer park via the existing horse trail.
5/28/2019	New Program Ideas form	Scott	Matapaloscott@hotmail.com	I d like to see more features on each trail. If we add teeter totters, tabletop jumps, skinny rails, etc. So that trails offer lines for all levels of riding ... Roanoke will become a bigger mtn bike destination. Ideally the rider could chose to do or not do each feature. Table top jumps are an excellent option because riders can simply ride over the jump without jumping or more aggressive riders could hit the jump. Make a mountain bike skills park similar to what they did in Bedford at Falling Creek Park. Pump track, obstacles, jumps, berm wall, etc
5/28/2019	Online submission form	Mickey Denoncourt	mickey.denoncourt@gmail.com	I support the updated BROCR trail plan: https://www.google.com/maps/d/viewer?mid=1oByir9zwwQonz2VvYoYOx3dxNcp1B-FkV&shorturl=1&ll=37.247783920612456%2C-79.93662367740478&z=15 Professionally designed and purpose built bike specific directional trails will go a LONG way toward making Mill Mountain a relevant trail destination for mountainbikers, as well as open up the possibility for high-quality cycling events in the middle of the city.
5/28/2019	Online submission form	Barbara Duerk	barbgary@cox.net	Hartsook driveway from Riverland should become a trail. Single track is good. Shared trails are also nice. Connect trails. Connect trails to neighborhoods.

5/28/2019	Online submission form	James Dick	james.dick@cox.net	More Trails...Until MM gets more trails, I will continue to ride CC as it is much closer and has easier access (with multiple parking lots) to a lot more trails.
5/28/2019	Online submission form	Troy Rech	Troy.rech@gmail.com	Add additional trails connecting to woodthrus and monument (would require crossing over road). Add new trail connecting bottom of ridge line with riser trail - traversing the side of mill mountain. Add a switchback trail in fern park to yellow mountain road to replace the current trail which is prone to drainage issues. Reincorporate the CRL and campground into the park system. Reopen camp ground and invest in infrastructure upgrades. Prepare plans for dealing with e-bikes on trail systems including Mill Mountain. Big Idea: create a straight up incline hiking trail from Carilion up to top of Mill Mountain like the trail outside of Vancouver.
5/28/2019	Online submission form	Stephen Ambruzs	steve@downshiftbikes.com	Please allow Class 1 pedal assist E-bikes on all trails. People are already riding e-bikes in the valley, and Roanoke is far behind the rest of the state, and nation, by restricting their use. If Roanoke wants to pride itself on being an outdoor-focused city, the prohibition of e-bikes on our trail systems does a lot to counteract that mentality. E-bikes are the quickest growing segment in the cycling industry and for good reason. They allow older folks, or people who are disabled or with limited fitness abilities the opportunity to get outside and enjoy nature while not having to worry about whether they can make it to the top of the next hill, or back home. Ski resorts wouldn't exist without lift systems. Not everyone needs to "earn it" to be a cyclist, and it's a hasty generalization to assume riders don't want the opportunity to use an e-bike. Allowing e-bikes on trails gets more people outside and presents an opportunity for Roanoke to be a leader in the cycling world. This is an area where we can stand out and attract more people to explore our wonderful city.
5/28/2019	Online submission form	Chad Riddleberger	Rivermedic57@gmail.com	I'm an avid user of the Mill Mountain Trail system and it is fantastic. It's been great to finally see Roanoke grow into its outdoor roots and use them for benefit just as Boise, Idaho did with its trail system. However, along with growth and advertising "Mountain Bike Captain of the East Coast" space can become a problem. I ride and run the trail system and for the most part it works without incident. I believe that the trail system may need to look out beyond just Mill Mountain and expand the trails just as the Greenway has. So my question is...Where can it grow too? Hopefully this provides some small input.
5/28/2019	Online submission form	Mark Feldmann	Mfeldma1@gmail.com	The mill mountain trail system is an absolutely amazing asset to our city! I have fallen in love with trail running in large part because of this resource. The convenience, variable terrain, and easy accessibility of the Mill Mountain Trail system make it a highly desirable place to recreate. It's a place where one can feel 1,000,000 miles away, right within the heart of the city, with the added bonus of the mill mountain star and views at the top. My only complaint is that there does not seem to be enough room for hikers/runners and Mountain bikers to use the trails simultaneously. As a runner, I find myself having to be constantly on the lookout for bikers coming down the mountain the other way. Likewise, I am sure it is frustrating for bikers having to slow up and navigate around runners and hikers. Some suggestions to Make the trail system more conducive to both bikers and runners/hikers: 1) widen certain trails where feasible to allow enough space for both 2) create parallel trails, where possible, designating one side for bikers, and the other for hikers/runners. 3) give certain trails designation as runners/hikers only, bikers only, or free use, open to bikers and or runners to use at their own risk. 4) consider certain time designations where a trail is open to either one or the other 5) consider adding "traffic" signage for bikers—"lookout for runners," slow zones, or even stop signs at heavily trafficked intersections.
5/28/2019	Online submission form	Robert Drinkwater	rdrinkwater@cbsbc.us	Work with the blue ridge parkway to create mountain bike trails to Roanoke mountain and around Roanoke mountain. Create runner / hiker only trails to Roanoke mountain, create running trails on Roanoke mtn. Create a trail on the old tram way - create a yearly hill climb race - very popular in Europe. Build a new trail from sidewinder across to woodthrus.
5/28/2019	Online submission form	Marty Winn	marty.winn@gmail.com	I love the trails. They do a good job of not getting muddy, they are well marked. The improvement that I can think of is just having more trails. My suggestion is that you have 2 other mini peaks on the property. One is to the east of Woodthrus, almost to Star trail. The other is to the east of the intersection of Fishburn Parkway and Star trail. Make trails up to these peaks.
5/28/2019	Online submission form	Mike Daly	mikegdaly@hotmail.com	Many would love to see the Mill Mtn Incline built into a trail.
5/28/2019	Online submission form	Gordon Zeigler	gz.1868@gmail.com	The trails are all great. I love the options that are foot travel only but also the many trails that allow MTB. The only improvement I would love to see would be an actual trail connection to Chestnut Ridge but that is probably not doable since CRT is NPS.
5/28/2019	Online submission form	Josh Gilbert	info@mountainjunkies.net	Any added trails to Mill Mountain would be great. Particular attention to trails that help make loops without having to cross or use Fishburn Parkway would be a priority (or minimizing the use of FP).
5/28/2019	Online submission form	Jeffrey Howe	howe5158@aol.com	Like to see the greenways keep getting better!!
5/28/2019	Online submission form	Steven McGonigal	Smcgonigal@aol.com	Adding more hiking/biking trails. There are some great trails now, but room for more. Chestnut loop be nice to bike on, as well as the horse riding and hiking.
5/29/2019	Online submission form	Cole Inman	eloc49@gmail.com	Bike specific trails. With Star City Cycling (an amazing program for kids) and regular trail users like me, some times there can up to 60 mountain bikers in the trail system at once! We've all seen that spooked and angry hiker as we fly down the Monument. We've ALL ridden the Star Trail, which is the only trail out there that is close to bike specific, ironically. I'm not asking for signs that say "Bikes Only" i'm asking for trails that are designed for bikes, by modern bikers, by people that have experience building machine built trail, people who ride outside of the area, people who go to lift access bike parks. The amount of skid marks from people slamming on brakes before turns on Sidewinder is telling that the turns are too sharp and are not bermed. Understory is monotonous bench cut that goes in a straight line, and is so tight it feels like it's a hiking trail. Both seem poorly designed and remind me of the 80 year old Civilian Conservation Corps trails that litter the Roanoke area. Nobody outside of VA rides trails like this anymore. Bike demo companies come here and call our trails "old school." Percy Warner Park in Nashville TN of all places has a modern trail system with jumps, flow, wood features, xc singletrack, and rock drops, all with under half the elevation of Mill Mt and probably a quarter of the space. We have more elevation than Highland Bike Park, lets use it! https://drive.google.com/open?id=1oByir9zwzQonz2VvyoYOx-3dxNcp1BFkV&usp=sharing

5/29/2019	Online submission form	Carlo Dy	carlomcdy@gmail.com	More mountain bike able trails varying in physical intensity as well as technical difficulty. It would be nice to see more trails that go across the mountain instead of just up or down it to allow for riders of a lower physical ability be opportunity to enjoy the trails. Also, on the other side, I have started to see an increase of advance level riders looking for more technical difficulty in some of the trails. So ideally we create trails on both ends of the spectrum. But with that, it would be nice to see some of the trails built a touch wider to allow for differing line options, so if a rider is not comfortable with handling a tricky section, there may be an alternate easier line beside it so they're not entirely required to ride it. Having options like that make a trail more welcoming to all rider skill levels. A flat skill section would be nice to see, I've noticed that there's a slightly level area to the left of sidewinder trail. Where you can incorporate skill building features like drops of varying size, log skinnies or various heights and lengths, berms, etc. a place to hone in skills that doesn't require you to ride down 300ft of elevation. I'd also like to see more hiker trail options. Give hikers more trails too, so they're more inclined to use them and balance out the trail usage on the mountain.
5/29/2019	Online submission form	Jim Mullens	jim@bundygroup.com	I'd love to see the following: 1) Connection between Crystal Spring trail and Big Sunny. 2) Parallel trail for bikes along the Star Trail, lower and upper. 3) Staired trail up the old trolley line.
5/29/2019	Online submission form	Travis Heystek	travis.heystek@gmail.com	Mill Mountain is a wonderful trail system. In my 4 1/2 years in Roanoke I tried to ride it at least 2-3 times a week. The biggest improvement I always hoped for was a more "flow trail" inspired route with more advanced features (jumps, berms, tables, man made features, natural drops, etc.). Some other things that would be awesome was a more advanced DH style route, opening the star-trail to bikes, and incorporating some sort of lift/shuttle system. The trails are already well marked and easily accessible as the current trails are great. I was somewhat disappointed when understory was not more aggressive.
5/29/2019	Online submission form	Chris Heslin	Cmheslin@gmail.com	I would love to see more mountain bike specific trails on Mill Mountain, even direction specific. There are plans I've seen suggesting both wood thrush and Star trail alternatives to reduce use/poaching of those trails.
5/29/2019	Online submission form	Ian Bongard	ianb199@gmail.com	Id like to see more connecting trails and a more progressive movement towards trails. A specific downhill trail would be an amazing draw to the area considering the proximity to downtown.
5/30/2019	Online submission form	Caroline Boughton	Vboughton@aol.com	A few covered rest spots with picnic tables, at least benches and trash cans. Maybe somewhere to take shelter for surprise storms.
5/30/2019	Online submission form	Johnathan McCoy	mccoy.jonathan17@gmail.com	Please make every effort to ensure that traditional hikers aren't being neglected in favor of mountain biking. As more mountain bikers come to the area and use trails that are meant for hiking it crowds hikers out and makes hiking no longer enjoyable. Please find a balance for both uses, even if it means segregating the trails by use.
5/30/2019	Online submission form	Kathleen Fort	distractedk@gmail.com	Suggestion: Curb cut on Garden City Greenway at across from Hartsook (for easy wheel access - bike, stroller, etc) and marked pedestrian crossing over Garden City Boulevard along with signage indicating access of Mill Mountain Virginia Pine Trail-head at the deadend of Hartsook as connection between Greenway and MM Trails.
5/30/2019	Online submission form	Hank Ebert	Hankbike1974@comcast.net	I would like to see a trail built that would suit beginner and older riders. When I rode (Monument Trail I seem to recall) I was unpleasantly surprised how narrow and rocky it was and how dangerous it was if you steered off the path. So, if you create new trails, I'd hope you take into consideration beginner riders as you plan the route. Thank you!
5/30/2019	Online submission form	George Mathews	Amathews0819@gmail.com	I would just suggest to add some educational placards on some trees for identification. I love the mountain identifier also so make sure to keep that!
5/30/2019	Online submission form	Christopher Runyon	runyoncm@gmail.com	I would like to see fun technical trail features littered onto some of the different trails with opt-out options for non-technical riders. I'd like to see more trails (of course) with new longer intermediate/advance descent with fun flow sections maybe rolldown to rollups connected with flat cornering/banks like a rollercoaster. Just enough take the momentum into the rolldown and up. I think riders want something that makes me want to hold onto their handlebars. Call it White Knucklin' or Knuck Norris! I'd love to see wooden berms and boardwalks to mix up the scenery and terrain. Rock gardens in VA are great but it would be nice to change it up a little. Adding wooden low boardwalk to drop would allow the rider to decide how much they want to boost into an open downhill area. Essentially I'd like to see splashes of small sections of Gravity Logic style features on a shoestring budget you might see that Bryce Mountain, Keystone, & Winter Park with rhythm roller sections and berms. Ryan Locher did a great job at Bryce and now they host fun events year-round. I know feature and trail maintenance would be something to think about along with rider education and safety. Love to see a whole campaign around that as well. If you could find natural rock coasters/drops and intertwine a trail near that would be a nice change of terrain. Something to look forward to after the fun climb and not always to head out of town to Carvins Cove. Chestnut Ridge needs to be open to mountain bikers, not just bootlegging it at night or early morning before hikers hit the trail. Garden City needs paved biking shoulder would be nice from nearby neighborhood access with signage. Nothing like uneducated residents taking off your arms because they don't want to share the road.
5/30/2019	Online submission form	Stuart La-Manna	Nwgreenguy@hotmail.com	Progressive mountain bike trails! We need to expand the trails on Mill Mountain to include mountain bike specific trails. These types of trails should be one directional trails. New trails on Mill Mountain would ease the congestion and over use of existing trails.
5/30/2019	Online submission form	Wil Cleveland	wccleveland@gmail.com	My #1 request would be more modern, expert-built trails with lots of fun features. I recently visited Asheville and rode a place called Kolo Bike Park. I think places like this are a great example of where Mill Mountain could go... lots of short, flowy, super well thought out trails that make maximum use of the space available. What I don't want to see is more trails for the sake of trails...I think the key is to have people involved who really know what they're doing, then use volunteer help to execute. I'm no trail builder, but would be happy to help build something I know has serious expertise behind it. I'm sure there are tons of people like me too. As a side note, it would be incredible to build trails that make more loop options possible without having to cross over the mountain to both sides. Mill Mountain could easily match Carvin's Cove if it had more trail - and it has the added benefit of draining AMAZINGLY well, so you can ride it pretty much any time. Let's make it even more awesome! Thank you so much for everything you guys do!
5/31/2019	Online submission form	Steve Powers	fishdoc.powers@gmail.com	I ride Mill Mountain about 12 times per year. At least a couple of times each year I find myself in/near downtown Roanoke with time to ride a bike. The rest of those rides are almost always due to wet conditions at Carvins Cove and National Forest trails. The trails at Mill Mountain are remarkably resilient in wet weather and are truly an exceptional resource when other trails in the area should not be ridden. They are also truly unique as nowhere else I have ever been has such high quality trails literally in a city the size of Roanoke. As much as I love the other trails in the Roanoke area, the trails at Mill Mountain are a unique asset for our area.
				The recent additions of Sidewinder and Understory and the addition to Virginia Pine trails have been a huge improvement at Mill Mountain. Not only to those trails add more miles to the trail system, but they also allow for a great loop from Riverland Road trailhead with minimal repeat. Before the addition of those trails, mountain bikers were forced to ride some trails as an out & back, or connect more with roads, or poach hiker only or social trails. Now there is a very enjoyable roughly 12 mile lollipop from Riverland Road with Woodthrush as the only repeated trail.

				A welcome addition would be a trail paralleling Woodthrush that could eliminate the repeat of Woodthrush for that lollipop from Riverland Road. If the terrain allows for it, this trail could also be built with a gentler grade than Woodthrush and serve as an easier climb for beginner riders. Currently, the Woodthrush climb has a short section that is steep and rocky, and likely a challenge for beginner riders.
				I think many trail users, including me, feel like our voices are being drowned out by the constant complaining from a relatively small number of riders in the gravity community and their call for more jump line trail. These complaints border on the absurd and make mountain bikers look like childish, spoiled fools. More than a few times I have read comments on social media complaining there aren't chairlifts on Mill Mountain and at Carvins Cove serving jump line trails. Lift served bike specific trails exist at ski resorts and ski resorts only. It is a way for those resorts to continue a revenue stream through the summer using largely existing infrastructure. I can't imagine a bigger waste of taxpayer dollars than installing lifts because some riders are too lazy to pedal their bikes. Even non-lift served bike parks are almost exclusively on private land including Windrock and Bailey. I am unaware of any public land that has more jump line trail than what is already found in the Roanoke area.
				Amongst a very small number of gravity riders, a toxic, truly hateful narrative has developed. I think this is creating a rift in the mountain bike community, and from conversations I have had with other volunteer trail workers, appears to be lowering motivation and morale among us. The comments and attempts to monopolize the time of others for their own specific wants is starting to feel like a cancerous tumor on the trail community. I have heard frustration from BROCC board members, bike shop owners, land managers, trail work volunteers, hikers, equestrians, and non-gravity oriented mountain bikers. I think most of us are growing tired if this very vocal, very demanding, tiny minority of trail users.
				I have a lot of respect for anyone that is willing to volunteer their time and build trail. I am especially grateful for the work put in at Carvins Cove by Randy Boush, John Farrell, Sean Castle, and Matt King as almost all of the volunteer hours building gravity trails at Carvins Cove are theirs. I ride Royalty often and think of it as a trail I really enjoy. I ride OG a few times each year and am grateful for the variety it adds to our trails. I respect Randy, John, Sean and Matt, and in conversations with them have detected even they are frustrated with most of the gravity community around Roanoke.
				Trail with jumps and berms takes a disproportionate amount of time and effort to build and maintain as it requires moving enormous amounts of dirt and largely rebuilding features following even a short period of very normal Virginia weather like torrential downpours and freeze/thaw conditions. Building more trail that will require much more maintenance than normal trail will continue to take away resources from existing trail that needs maintenance. As the small handful of gravity riders that do trail work have focused almost exclusively on building jumps the last few years, cutting deadfall, deberming trail, fixing mudholes, and other regular maintenance has fallen on other trail work volunteers. With more jumps and berms, this problem will only get worse.
				Trail users vote for their favorite trails using their feet and tires every time they go out. Visual inspection of the trails and occurrence of encountering other trail users makes it clear that jump line trails are not among the favorite trails in our area. The lower trails are by far the most heavily traveled trails at Carvins Cove followed closely by Four Gorges. Buck, The Gauntlet (not OG), and Lakeside all get far more mountain bike traffic than the downhill jump line trails. Trough is 50 yards from the Timberview trailhead, and I climb it about 50 times per year. I can't remember the last time I saw a local rider downhill it. If I had to guess, it has been about two years. The only downhill traffic I specifically remember of late is a couple from out of town that got lost and were just trying to get back to their car as quickly as possible. As part of bigger rides, I downhill Trough a few times a year and enjoy it, but I also liked it before the jumps and berms were installed. The lack of downhill traffic on Trough has made it a less than ideal descent as four berms are largely abandoned making for an awkward downhill experience. There is a clearly burned in line that goes straight down the mountain rather than onto the berms built adjacent to that burned in line. The riders on Trough have overwhelmingly chosen not to ride the built berms clearly preferring to just ride a more traditional line. I remember being part of the work crew that initially installed those first jumps and berms to make Trough less of an erosion problem and seeing the excitement among the gravity riders at the time. It is sad to think of that effort and a similar restoration a few years ago that has been largely unappreciated and unused by those constantly calling for more jumps and berms.
				Similarly, OG got a fair amount of traffic soon after its completion, but it doesn't get much now. I rode OG yesterday, and there is moss and grass all the way across the trail in one spot. It doesn't even get enough traffic to keep the grass and moss from growing in the main line of the trail. The upper portion of The Gauntlet serves as a clear alternative next to OG and is among the most heavily traveled trails at Carvins Cove. It is clearly burned in its entire length and is even suffering some erosion problems due to the high traffic volume. So, think about that. Why should more jump line trail get built when what we have doesn't get used as much as just regular old trail right next to it? Royalty got some decent traffic this winter after it was reworked, but it seems to be getting much less the last few weeks suggesting it may soon suffer the same lack of use as OG.
				In addition to jump line trails at Carvins Cove, there are jump line trails in Bedford County built by a truly talented trail builder, but they get very little traffic. Jump line trail has been built in Morningside Park and also Franklin County. There is already a large amount of jump line trail in Roanoke area, but it really just doesn't get much traffic. The pattern that has developed in the gravity community is to talk and post on social media about a project. Have a big event or push to get people to ride something. Then, after all the hype has gone away, not ride that trail again until there is another event. It is important to remember that a pump track was built in Norwich Park less than a decade ago and it almost immediately fell into disrepair due to lack of use.
				In summary, I applaud what is already on Mill Mountain. It is a spectacular and unique resource in several ways. The recent additions are appreciated, with my only suggestion for improvement being a paralleling trail to Woodthrush. As I am sure this comment period is also seeing a flood of complaints from a toxic few individuals, I would encourage those overseeing this process to take their comments with a grain of salt. If you really want to see what we need more of, go to a trailhead, see who is there, and ask them what trails they are using. That will provide a better gauge for what we need more of than catering to those who spend more time on their phones acting as internet trolls than they do on the trails.
6/1/2019	Online Submission Form	Dave West	David.h.west@gmail.com	First of all, Mill mountain trails are a great resource. It's awesome to have some worthwhile riding here in town that you can access without having to drive to. I use them a lot and really enjoy them. That having been said, it would be great to see some more advanced terrain opened up to add some variety and challenge to the existing trails. There are tons of opportunities to add in shorter connector segments with more challenging features like jumps or wooden freeride style structures. I think a great way to realize this is to look at adding segments here and there as variations to existing trails rather than full blown new trails. The wood thrush section of the mountain has a ton of potential for expansion with relatively minimal work.
6/2/2019	Online submission form	JP O'Connor	jpo@atwproductions.com	Please open Chestnut Ridge Loop Trail and The Star Trail to mountain biking.
6/2/2019	Online submission form	Howard Jones	bjones2225@cox.net	Crystal Spring and Big Sunny are good as is for elderly walkers. Technical difficulty for mtn. bikers need to be increased.

6/2/2019	Online submission form	Stephanie Agren	snagyagren@yahoo.com	after it rains, there are areas where glass shards are exposed. Ive cleaned them up several times when Ive been a trail marshal. the areas are big sunny where it meets the old road; the spot where riser meets ridgeline, and I think along watchtower. there are probably other spots too; since it's a city park. it would be good to have volunteers clean these up after a rain spell. thank you for your work on these trails.
6/3/2019	Online submission form	Danielle Cummings	Dk.cummings@yahoo.com	I enjoy hiking around on the trails. I would like to take my horse out on them too. I could be wrong but I don't think horses are currently allowed all over. It would be nice to be able to walk them on the parkway and circle in to mill mountain as part of the trip. Thanks for your time :)
6/7/2019	Online submission form	Tanya Sigmon	tsigmon@gmail.com	Just curious, could the mill mountain trail system be connected to Chestnut Ridge trail system or even the old campground?
6/7/2019	Online submission form	Ryan Sheets	Rsheets84@cox.net	Make the star trail biker friendly. If not more trails comparable to it. Keep up the great work!
6/7/2019	Online submission form	Michael Carriker	michaelcphoto@gmail.com	Add purposely built trails that are distinctively different from the surrounding trail systems. This area has a ton of similar trails. This isn't due to limiting terrain, rather a lack of creativity for trail design. The term "flow trail" is used a lot to describe fun riding trails. With that said, a proper flow trail could be on the top of the list. What flow really means might be subjective, the end goal is all the same, a fun trail with things to play on from top to bottom. Make note of "top to bottom." The trail does not need to be a full down hill or steep trail at all. Ideally, enough down to sustain speed with minimum effort. This trail would offer riders options the entire way: rock gardens, water brakes, roots, jumps (taller than 18") drops, berms (taller than 4") rhythm sections, and all of the other features you find across the country that people make trip for. This would be a good start.
6/7/2019	Online submission form	James Harshfield	harsh2612@cox.net	Across the street from the upper intersection of Yellow Mountain Road and Robin Hood Road is a badly eroded social trail that leads down to Fern Park. This trail is essential, as the only other way residents of Sherwood Forest and Yellow Mountain Road can access Fern Park requires a detour in excess of a mile. This very tiny trail needs full support by the city with some sort of erosion control. This trail is heavily used by both pedestrians and bikers alike. During heavy rains, fresh erosion causes more dirt and rock to be deposited into Fern Park.
6/7/2019	Online submission form	Tanner Whitesell	tw968@email.vccs.edu	Building in some feature on the trails like a drop or small jump for biking. Also I would like to volunteer to help build/work on the trails.
6/7/2019	Online submission form	Sandra Kelly	sbkelly@verizon.net	I live on Mill Mountain, and my property abuts Mill Mountain. I strongly encourage the city to begin considering conservation measures for the Mountain. During heavy rains, runoff has increased through the years as trails -- especially biking trails -- get more use. Recently, I had debris of tires, and other discards wash into my property from the mountain. Smaller items have washed down before. The mountain is fragile, and through the 50+ years I have lived alongside it, nothing has been done to reforest or make certain it was staying stable. I understand there is a movement to increase mountain biking trails in MM area. Before anything would be done -- or even considered -- any proposal should be brought to adjacent homeowners for discussion. I am happy to be on such a wonderful greenway, but I want to keep it wonderful. Thank you, Sandra Kelly, 1216 Sylvan Road SE
6/7/2019	Online submission form	Nathan Kerr	nkerr2@mac.com	These trails are amazing and absolutely my go-to. Obviously, opening up Chestnut to us would be the best. Outside of that, would love to see more trails developed on the other side of Woodthrush by the water tower. So much potential for even more trails there!
6/19/2019	Online submission form	Nathan Kerr	nkerr2@mac.com	I originally responded with just MTB trails in mind but an incline step trail up the mountain would be an unbelievable challenge and attraction!!!!
6/7/2019	Online submission form	Jeff Shauland	jeftone17@gmail.com	There is still so much space available on the Downslope side of fishburn, I'd love to see more mileage put in anywhere and everywhere. Whether that's trail that drops off of woodthrush then reconnects later or just some more loops like Virginia pine, it makes no difference. We just need more of what there already is! Thanks!
6/7/2019	Online submission form	Terri Allen	terriw1170@hotmail.com	Clean off the old railroad track on the Greenway so when the Greenway overflows people can still do the trail. Also on the trail overflows actually have a crew clean up the tires and debris instead of letting it load back over into the water off the bridge and into the river
6/8/2019	Online submission form	Houston Skipper	houstonskipper@gmail.com	All the trails are amazing and the trail maintenance is great! Keep up the good work.
6/9/2019	Online submission form	Ana Anderson	anaanderson60@gmail.com	It'd be awesome if Chestnut Ridge was open to mountain bikers. 1) mowed path between the end of gearhart rd se and gum spring rd se. (would connect neighborhoods) 2) trail from garden city rec center across parkway and up roanoke mt. (wishful thinking!) 3) twice now I have had coyote follow me yapping. Throwing rocks and yelling had little effect. Any suggestions? The trails are wonderful!!!!!!! Thank you for all your hard work!
6/9/2019	Online submission form	Jodi Austin	coleyjodi@gmail.com	For 20 years we lived close to the Mill Mountain Trails so we were walking the trails before they became popular for Mountain Biking. Now we live close to the Chestnut Ridge Loop Trail and mostly walk that trail now. What we like most about it is there are no bikes! Although a few bikers use the Chestnut Ridge Loop Trail it is more peaceful, like Mill Mountain used to be.
				I understand bikers using this trail to cut through from the Parkway to Peakwood or to West Ridge, however they should observe the rules for the rest of the trail. Aren't there enough trails for for bikes in the Mill Mountain area? I also realize the city doesn't manage The Chestnut Ridge Loop Trail and I am not aware of any future plans for the area but please do not propose to open the trail to bikes! My point is there should be as many trails just for hikers as for bikers. I don't know this ratio but please don't forget the people that want a peaceful walk without bikes blowing by and wondering when the next group is going to be upon you. Most bikers are considerate but the few who are not make it bad. Please consider all users of the trails.
6/9/2019	Online submission form	Patti Briggs	Briggspatti@gmail.com	I live at the bottom of Mill Mountain. I'm not interested in the trails so perhaps this isn't the correct place to state that I feel very strongly that up nearby the star there should be a nice restaurant or at least a bar with an outside deck overlooking Roanoke. I also love the idea of the old tram being brought back to the mountain. Both ideas would be income-producing & add a nice touch to our wonderful city! ☺
6/10/2019	Online submission form	Ryan Fedak	ryanfedak@hotmail.com	The ridgeline descent to Yellow Mountain Road experiences significant erosion during rain events. It would be nice if the City could get approval from the Parkway to re-route the trail in the same corridor. There is a trail at Explore Park that used to follow the ridge. It was re-routed to sweep back and forth across the ridge. It's now more sustainable and fun to hike / ride.

6/10/2019	Online submission form	Aaron Copeland	aaron@copelandexcavation.com	Steep descents like royalty Technical areas using the rock gardens and root systems like prickly pear and upper comet Flow lines pump sections and jump lines - Bank turns on D95 - Trail layout and Trail construction plans for riders to see at intersections to see what the future looks like. - Easy Trail for beginner kids to climb and descend the mtn. - Additional complimentary lines on already existing trails that allow for more Flow and faster turns for more advanced riders. i.e. woodthrush approach to wooden bridges having Bank turns or high routes to enter and exit on D98
6/11/2019	Online submission form	Carol Rowlett	carolrowlett@hotmail.com	Well done! I love the trail system on Mill Mountain. There does need to be better pedestrian access from the Roanoke River and Garden City greenways to the trail-head on Riverland. It's a short distance, but along a curvy busy street. Neighbors used to be nice about letting people cut through along their driveways, but attitudes have understandably changed as the greenway traffic has increased.
6/12/2019	Online submission form	Susan Kraughto	skraughto@yahoo.com	Moved to the area in 2010, live near base of Mill Mountain, one of the highlights! I enjoy hiking the trails in all seasons and photographing everything along the way. Mill Mountain is a spiritual home for me. I use to mountain bike the trails of the bay area in San Francisco, so I understand the appeal of bringing mountain biking to Mill Mountain. I just ask that you evaluate which trails are truly multi-use for safety, for both hikers and bikers. On several occasions, when walking and photographing on the Monument Trail, from the neighborhood to the Star Trail, I have been run off the trail in steep places by mountain bikers who are riding at top speeds down the trail. The trail, in several places in that area is narrow, with a steep uprising slope with large rocks on one side, and an immediate downward slope on the other side with fallen trees, in many places visibility down the trail, for both hiker and biker, is limited and poor. There literally is no place for the hiker to safely dodge the biker on parts of that trail and vice versa. When evaluating an existing hiking trail as "multi-use" to include mountain biking, please evaluate from the perspective of each user encountering each other, coming and going, along the trail....is this former hiking trail really adaptable and safe for mountain biking, especially for bikers coming down fast, encountering slower hikers (families with children, seniors, people stopped on trail to rest or take a picture). I know first hand, can be a dangerous combination, and makes me feel "on guard" instead of peaceful on my mountain trail walk.
6/12/2019	Online submission form	Bland Painter	blandpainter@gmail.com	Machine built trails with berms and jumps!
6/19/2019	Online submission form	Mike Ellery	mellery@gmail.com	I'd like the incline trail that was proposed a few years ago to be reconsidered!
6/19/2019	Online submission form	Rupert Bonhotel	rupertbonhotel@aol.com	I would like to see the trails extremely wider and possibly separating bike trails from walking trails. Also some possible achievement markers.
6/19/2019	Online submission form	Walter Sharpley	a6_rnner@yahoo.com	Honestly need to open up CRL (Chestnut Ridge Loop) to legal mountain biking. Being a trailsetting mountain bike destination you limit the "local" riding. There is little damage done by bikes and the vast number of riders take pride in maintaining trails. With the ever expanding trails at Explorer Mill Mountain will shine brighter and more trails to explore means more people riding/walking/running.
6/19/2019	Online submission form	Jeff Colignon	jeffcollignon@hotmail.com	I would love to see more mountain bike trails in general with varying levels of difficulty. Flow trails, easy ascent trails and more challenging trails to attract advance riders. Not many communities have an opportunity to have a trail end at the hospital! So much opportunity with that. Additionally it would be great to see an e-bike specific trail. Of course it would be open to all users much like horse trails are, but people would be notified that e-bike use is permitted. I would urge the trail be rated at class 1 ebike. Ultimately, i think more is better, and modern trails are what needs to be put there to maximize the natural resource we have right her downtown. Additionally, i think it would be great to have an XC trail that goes all the way back to the parkway if possible as well. That way you dont have to travel to get a good days riding in.
6/23/2019	Online submission form	Paul Workman	baylorbearpaul@aol.com	In no particular order: A) Add TONS of new trails through areas where the homeless now live. This is along the powerline mostly. Connect existing social trails in that area with a focus towards trying to make something fun and easy. B) Wind a trail up to the small summit west of the Star Trail parking lot. C) Connect the North end of Crystal Springs trail to the Old Road while staying on Park property. Also connect the south side of Crystal Springs trail down to the corner of Yellow Mtn Rd and Jefferson via singletrack and loop it around the old pond if possible. D) Create a flatter route around the Yellow Mtn summit. Ridgeline is annoyingly steep and an alternative would be welcoming. E) Turn the old incline into a trail!!! Please consider doing this for a small section of not willing to do it for all the length between Crystal Springs Trail to the top. I think an incline trail would a very popular feature. Just look at the success of the Maintou Incline trail as proof!
8/2/2019	Online submission form	Kyle Inman	kyleinman@me.com	While I'm generally opposed to single use trail (which is nearly 100% hiker only), like the Star Trail, I support a bike only, one way option as a counterpoint. It seems clear that there is far more mountain bike use of Mill Mountain trails than hiking, walking, running, so based simply on the numbers, this is a clear way forward. Why limit it to just one? Let's plan 4 minimum. Thank you for your consideration.
8/10/2019	Online submission form	Jeff Crenshaw	mountainriderjeff@gmail.com	I'd love to see a bike specific direction specific trail. No doubt there would tons of volunteers, including myself, to build a downhill specific trail in the heart of the city. This would help with traffic on Monument as well making it safer for hikers as it's the DH favorite on Mill Mt. No wants to be a jerk but it's too easy to get caught up in the speed and fun on Monument only to come around a blind turn and scare the crap out of a couple of unsuspecting hikers. A DH specific trail would also reduce, if not remedy all together, riders poaching Star trail instigating negative interactions between bikers and hikers.
10/23/2019	E-mail	Barbara Duerk	barbgary@cox.net	Thank you for facilitating a TEAM of Liz Belcher, Dick Clark and BRORC to lead discussion about updating the trails on Mill Mountain. These trails can be used for branding "Outdoor" in Roanoke, but can also be considered transportation if connected to residential and service areas in the Valley. I ask that the update to the Mill Mountain Trail Plan include easy, challenge and stretch goals. Some of the suggested included below are in each group.
				The Neighborhood organization has had in the past, and long past, had social trails and sanctioned/named trails that connect South Roanoke to Mill Mountain. Many of the current trails are on old logging roads and train lines used to move the ore from Ore Mountain. South Roanoke Sherwood Forest neighbors residing on Robin Hood, Nottingham and Fern Park access Big Sunny and Ridge Line. Mack Chick and Woodcliff also provide Big Sunny Connection in the Woodcliff section of South Roanoke. West Ridge/Peakwood and Fordham on Chestnut or Yellow Mountain should also legally connect neighborhood residents.
				Yellow Mountain Road can be part of loops and provide STREET CONNECTIVITY. There is/used to be behind the SW Virginia Water Facility legal access to Prospect Road. Many of these connectors are now been closed because of planning commission adjoining property owner request. Is there another way to move through this area? Carilion Expansion will go before planning commission in November. The City "alley" behind the Western Virginia Water Authority building at the Corner of Jefferson and Yellow Mnt Road used to be used. If access could be regained that would a good detour to avail the Carilion traffic. Perhaps, in support of the Carilion Healthy Living initiative, trail alignment can be identified.

				Yellow Mountain Road near the intersection of Nottingham/Robin Hood needs to have a crosswalk connection to lower FERN PARK. There is a bike warning sign when you head East near the Yellow Mountain Road intersection where the Fern Park Trail crosses Yellow Mountain Road and connects to the Mill Mountain Park Ridge Line trail. ADD a painted crossing here or reduce the speed of this section of Yellow Mountain Road between Nottingham/Robin Hood and the Parkway crossing. Bicyclists can use the Fern Park Trail, Ridge Line, Monument, Big Sunny and Yellow Mountain Road (or possibly an off road connector trail through Fern Park) to make a loop.
				Chestnut Ridge loop trail is off limits for bicycle use, but it is hard to enforce. There is a connector trail from Fordham to the Picnic hard service loop road. I think this land belongs to the water authority. Bicycles are not allowed on the Chestnut Ridge Loop Trail. This trail is a neighborhood connector through Water Authority Property marked by a sign NO Wheeled ACCESS (or something Like that) that connects to the picnic area. In some places it is marked with a RED blaze, but it is not part of the Chestnut Ridge Loop Trail that is marked in some places with red. Note: Wheeled vehicles are only allowed on paved roads in/on the Blue Ridge Parkway. There is another social trail that has been identified but not authorized at the intersection of West Ridge and Peakwood. This short trail connects to the Chestnut Ridge Loop Trail and the connector trail to the picnic area. The connector trail is not part of the Chestnut Ridge Loop Trail, but it is on Blue Ridge Parkway property. This trail is used by road cyclists to access the Mill Mountain Parkway connector to the Blue Ridge Parkway.
				This is from earlier correspondence: Connections to South Roanoke and ALL Neighborhoods should be planned. The HARTSOOK trail is on City property with access off of Riverland Road. The driveway should be included in the updated plan to connect Riverland/Walnut Hills.
				Correction: Peakwood, Fordham and EdgeHill residents in South Roanoke border the Blue Ridge Parkway properties. The Blue Ridge Parkway properties are used by walkers to connect to Mill Mountain Trails. There is an electrical right of way behind Peakwood properties. This might be a neighborhood connector to the Chestnut Ridge Loop Trail that provides access to the Mill Mountain Trails. The South Roanoke trailer Park, located in the county, has 5 social trails that connect to the Chestnut Ridge Loop Trail that allows walkers access to the Mill Mountain Trails.
				Projects for future: Historic Markers are needed at the Hartsook Home displaced with the building of the J.P. Fishburn Parkway. The footprint of the house is still visible. Another idea is an informational sign on the history of Ore Mountain and the ore mines still visible. Though: South Roanoke United Methodist sponsors Boy Scout troop 210. A member of this troop helped add tree identification signs on the Fern Park Trail.
11/14/2019	Online Submission Form	Tim Bradshaw	timbradshaw100@aol.com	please, please allow equine activities on the trails. I know that we're trying to become the mountain biking capital on the east coast, but we can coexist on the trails. Carvin's cove allows shared access. Please don't exclude us and deny us accessibility. Thank you One more thing, equine trails already exist on the Blue ridge Parkway near Mill Mountain. Connecting the trails would be great for horseback riders.
11/15/2019	Online Submission Form	Cecile Newcomb	cecile64@vt.edu	Please keep the trails as natural as possible. Mill Mtn. is an oasis in the city where one can get into nature quickly and away from man made surfaces and forms. It is an important component for mental and physical health. Please keep it green in all respects as much as possible.
11/17/2019	Online Submission Form	Troy Lenderking	troylenderking@mac.com	In case I can't make this meeting here are my thoughts... 1) More trails on certain parts of Mill Mountain (MM). The area between Rattle & Run to lower Star Trail is begging to be developed. This is the flattest topography on MM and perhaps it would yield some trails that are actually beginner friendly. It appears there used to be a road/parking area on the saddle on Woodthrush which could be really interesting to bring back. The bonus on developing this area will be to curb unwanted squatting which has been an on-going issue. 2) Some downhill courses would be super cool. Especially if we ever put in a shuttle/tram. Can't imagine how cool that would be. 3) I don't think we should attempt to segregate foot from bike trails. Realize that MM gets pretty crowded sometimes but don't think separating these is the way too go. 4) Pie in the sky. Get back Chestnut Ridge from the US Park Service. I know there is some financial challenges associated with taking over the campground but this would be sooooo huge. Thanks for all you guys are doing!
11/18/2019	Text to Michael	Kathryn Davis	none	Hi Michael. I am unable to attend the meeting tomorrow night but I want to say that I am definitely in support and favor of making the old railway up Mill Mountain steps.
11/20/2019	Online Submission Form	Andrew Harrison	aharrison5005@email.vccs.edu	I would like to see more trails developed for both Mt bikers and runners. May need to make some trails directional so people will not get hurt. Would be killer if we could get some trails lit up for night time use. bike lane on the spur road to the star. I would like to see a trail to the ruins of the old trolley system and old plane crash.
11/20/2019	Online Submission Form	Andrea Owens	Andrealowens@hotmail.com	I would love to see the old incline site made into a trail and am supportive of adding trails to the mountain, in general. Love using the MM trails!
11/18/2019	Online Submission Form	Jimbo Harshfield	harsh2612@cox.net	I love to hike a loop around the Mill Mountain trails, starting from Big Sunny trail, then to Riser trail, and then to Ridgeline trail, and then to the Fern Park trail, ending at Fern Park. Now to complete this loop I need to come back up from Fern Park crossing Yellow Mountain Road in order to get back to Nottingham Road. The tiny little trail rising up from Fern Park to Yellow Mountain Road is in a horrible state of repair! I don't care if this tiny little trail above Fern Park is deemed as a social trail or as an official trail, but it is vitally necessary! Erosion is extremely bad and needs repair immediately. Please help!

Date	Media Platform	User Name	E-mail	Feedback/Comments
9/9/2019	Public Input from RWH Neighborhood	Kathy Hill	sksbs7@cox.net	Very useful healthy for residents and enjoyable for everyone to get outside
				Pedestrian crossings at Walnut and crosswalks or flashing lights. Also cut back the growth at Mill Mountain Overlook
9/9/2019	Mapping activity			Visit the Star, drive. Overgrowth at Star overlook. Bike concerns near Monument, Mill Mountain Greenway, Walnut, Sylvan, alleys. More Mutt Mitt stations maybe near Big Sunny? Trash can on Mill Mountain Greenway. Signage/lights at Walnut near Blue Cow/Piedmont for Bike/Ped traffic. Speeding issues on Walnut. Bicycle etiquette in bike lane on JB Fishburn (riding two abreast rather than in lane)
9/9/2019	Mapping activity (from map)			Visit Star/walk Roanoke River Greenway/drive. Need a picnic pavilion at Piedmont Park. No bikes in alley between Walnut and Camilla, No parking on Sylvan or Walnut, No bikes on front (downtown side) of Mill Mountain or Sylvan.

Date	Media Platform	User Name	E-mail	Feedback/Comments
9/11/2019	Public Input at MMAB meeting	Sissy kegley	sissy.kegley@mac.com	So many options; well used; especially how much attention and oversight is dedicated by the City all conducted in an open and inclusive process
				More information available to users as in kiosks and wayfinding signage.
9/11/2019	Public Input at MMAB meeting	Matt Bullington	mattbullington@cox.net	Variety, connections, very accessible to Downtown
				A connector trail from Monument/Star Trail 4 way down to Woodthrush and/or Sidewinder trail
9/11/2019	Public Input at MMAB meeting	David Perry	dperry@brlc.org	Lots of options--it's come a long way in 20 years
				Greater accessibility to the medical district. Biggest growth area in the City. Lots of young people
9/11/2019	Mapping Activity			New trails needed for connectivity/homeless activity/good topography. More parking at Riverland Road/Star Trail. Need connectivity/direct to Rivers Edge South/Carilion. More kiosks, maybe wayfinding.
9/11/2019	mapping Activity (from map itself)			hike, drive, mainly hiking and running. More parking. Better connectivity with Medical District, wayfinding--something smaller than a kiosk? Signage at trails to catch eye, more kiosks.

Date	Media Platform	User Name	E-mail	Feedback/Comments
10/23/2019	Public Input at SR Neigh	Marianne Gandee	none	Lots of variety
				More parking with signage and better connectivity. Better access to amenities. People do not know what is available for free
10/23/2019	Public Input at SR Neigh	Rebecca Perdue	anv127@yahoo.com	Everything
				Control bicycle speeds!! And driving habits!! Keep pedestrians and joggers off Wiley Drive vehicle lane. Better enforcement that is official. Volunteers do nothing but walk and talk.
10/23/2019	Public Input at SR Neigh	Ryan Fedak	ryanfedak@hotmail.com	It's so wonderful to be able to walk, ride, or run from much of the City to many miles of trail. Great to be able to get kids out into the woods. Wonderful variety of trails.
				Add some bike specific trails, add more trail, work with feds to open Chestnut Ridge
10/23/2019	Mapping Activity			Most people visit, walk to Fern Park. Drive via Walnut. Drainage to Fern Park. Morrison Street and Yellow Mountain can have parking issues (per citizen that lives there). Need larger parking for Star Trail. Have group hikes. Need trail access into new Carilion project. Would like to see: Chestnut Ridge open to bikes, beginner friendly (add more), connectos between trails, Connection from Riverland Road to Star.
10/23/2019	Mapping Activity (from map)			Signed parking on Yellow Mountain near Ridgeline. Enlarge paring at Riverland Road. Sidewinder to Woodthrush Connection. Make one hour loops. Several new trail lines. Open Chestnut Ridge to Bikes, Additional trails at Yellow Mountain Park, flow trail, pumptrack, "beginner friendly" trails (kids), more connections and loop options, crossing to greenway from Riverland Road. Provide access to Morningside near 9th Street.

Date	Media Platform	User Name	E-mail	Feedback/Comments
11/12/2019	Public Input SEAF	Kevin Berry	kevindberry86@gmail.com	Accessibility, beauty/upkeep
				Lighting, road access
11/12/2019	Public Input SEAF	Cindy Pasternak	littletomgirlfarm@gmail.com	They are well kept and marked
				More safety features, solar lighting on the greenway. More art along the greenway
11/12/2019	Public Input SEAF	Roy Bedwell	none	It's in the Blue Ridge Mountains
				Sidewalk or pathway from 9th Street to Star trail lot
11/12/2019	Public Input SEAF	Toby Giles	tobyg601@gmail.com	The closeness to the river and the access for dog walking/running
				Rails to block from going onto others properties
11/12/2019	Public Input SEAF	Sean Adkins	sean.adkins@roanokeva.gov	One of the better kept public trailway/greenways in the area and Appalachian Trail overall. Oh, and Renee is awesome!
				If I had to pick--more dog waste stations
11/12/2019	Public Input SEAF	Hannah Adkins	hannah@uwrv.org	Quick, safe access around City for walkers/bikers and safe, designated spot for exercise
				More bike repair spots
11/12/2019	Public Input SEAF	Joshua Ijames	joshuaijames@gmail.com	Didn't know they really existed. I will explore!
				Information/signs to get to trailheads
11/12/2019	Public input SEAF	Karen McNally	mcknak@cox.net	Love the easy access and opportunity to explore the City!
11/12/2019	Public Input SEAF	Taylor Stone	taylorsealsroanoke@yahoo.com	Economic engine for Roanoke
				Safe places to park. Too many cars getting broken into.
11/12/2019	Public Input SEAF	Spence Robertson	spendoc789@gmail.com	Access from 9th Street to Star trail
11/12/2019	Public Input SEAF	Melissa Crigger	nhtnurse@gmail.com	It allows more exploration of Mill Mountain. Star trail provides additional access to Star.
				More advertisement of trails near the Garden City area. Was unaware of Virginia Pine trail. More access from 9th Street to Star trail. More wayfinding from Fern Park to Big Sunny.
11/12/2019	Public Input SEAF	none	none	Better access down 9th Street to Star Trail/bike lanes. Signs from greenway to trailheads
11/12/2019	Public Input SEAF	Steve Steffeh(?)	ssteffeh@gmail.com	I don't use it a ton and normally hike/bike to downtown. But if there was a more comfortable route from Elm/Bullitt to Star trail via 9th Street that would help. Solar lighting on the greenway.
				Maybe some signage from town to trail for wayfinding.
11/12/2019	Mapping Activity			Biking/hiking access via 9th Street. Connect Star Trail with Woodthrush. Wayfinding Garden City to Hartsook BLVD. Signage Fern Park to Big Sunny. Need sidewalk from 9th Street to Riverland Road TH. Information/signs how to walk/drive/arrive at to trailheads for visitors/newcomers. Parking off Sylvan Road.
11/12/2019	Mapping Activity (from map)			Sidewalk/greenway 9th Street to Mill, wayfinding Hartsook to GCG, Fern to Big Sunny wayfinding and trail fix,

Date	Media Platform	User Name	E-mail	Feedback/Comments
9/23/2019	Mill User Survey	Chuck Walz	crw1943@aol.com	I have a place to hike and the trails are usually clear.
				Hiking trails should be longer and new ones added. Trails are what I use. The greenway is too flat, but it is long which is good. Greenway should be completed!
9/23/2019	Mill User Survey	Benjamin MacDonald	benjmmac@gmail.com	Close to my house. Quiet. Good views.
9/23/2019	Mill User Survey	Jane Caffrey	jane.caffrey@gmail.com	Multiple trails, beautiful setting.
				All good!
9/23/2019	Mill User Survey	Vickie Thurston	none	Just very relaxing. Cool. The sidewalk incline is a good cardio workout. The views are amazing. Maybe more colorful flowers.
9/23/2019	Mill User Survey	Brian and Charlotte Strain	bstrain9@cox.net	Easy access, great views of valley and mountains, support zoo.
				Overgrowth from sides of trail--especially one we use a lot--Big Sunny.
10/1/2019	Mill User Survey	Liz belcher	liz.belcher@greenways.org	Shade, woods, birds, woodthrush, Virginia Pine Loop
				Signage on Greenway
10/1/2019	Mill User Survey	James Revercomb	jamesrevercomb@gmail.com	Location and access. Great to have a quality, multi-use trail system within the City limits. Good diversity of trail and descent connectivity. Great benefit to citizens of Roanoke's quality of life. Natural setting, mature forest, does not feel like being in City limits.
				A few more trails that improved connections on the mountain, specifically Woodthrush/Star trail/Parking Lot to the Monument/MM Greenway side. Better wayfinding from the Roanoke River Greenway. Bike only DH trail.
10/3/2019	Mill User Survey	Anna McCadden	atm22@aol.com	Scenery, quietness in early morning.
				Pavement needs re-done (referencing MMG)
10/3/2019	Mill User Survey	Travis Powell	roanoketp@yahoo.com	Location, location, location! Amazing to have such an amazing asset so close to my home in Wasena. Such a unique trail system so close to the City. Adding more trails and preserving what we have is key!
				1. Maintaining the old Star Road. 2. Educating people about respecting and preserving what we have in that trail system. Sadly, I see a lot of trash on the roads and trails.
10/3/2019	Mill User Survey	Mack McGhee	mcgheeiv@gmail.com	Trails--close to town, but feels like far away.
				Education for mountain bikers, especially those that use Chestnut Ridge Loop. Used to be real singletrack, now could drive a car on most of them. Close Star trail between the Star and Monument.
10/7/2019	Mill User Survey	Joe Darwin	none	Great trails, convenient location, well kept.
				No complaints
10/7/2019	Mill User Survey	Sam Robinson	rbnsb5@hotmail.com	Lots of variety, well maintained.
				Nothing? More trails? Maybe more mileage markers.
10/7/2019	Mill User Survey	Quintin Arner	quintin.arnner@gmail.com	Varied terrain, well maintained.
				Slightly wider trail perhaps?
10/23/2019	Mill User Survey	Maria Fraste	none	Well I live to run and enjoy the fresh
10/23/2019	Mill User Survey	C. Wayne Dalton	waynedalton@cox.net	The connecting trails/clean/variety.
				Take care of down trees, etc.
10/23/2019	Mill User Survey	Brooke Overby	brookeoverby1@cox.net	So many different places to go exercise around the area. The different trails are rated easy for those not used to hiking. I take the easy trail with my dogs.
				Some people up here enjoying the greenway don't follow leash laws.
10/23/2019	Mill User Survey	Annette Dalton	annettedalton@cox.net	Beautiful views, nice weather, great trails.
				Mileage. More trails if possible.
10/25/2019	Mill User Survey	Carol Cole	cloroxjugs@gmail.com	Accessibility--well maintained.
				Sunnyside (Big Sunny?) Needs shoring up. Greenway needs drainage improvements under Franklin Street Bridge.
11/6/2019	Mill User Survey	Shawn Holbrook	shawn778860@gmail.com	More trails, more parking. Great greenway--what a great natural resource. Keep it up!
				Add bathroom facility and water fountain at Star Trailhead. Make more parking at Star Trailhead. Access directly from Startrailhead parking lot over to Roanoke River Greenway across the street. Incline would be great tourist attraction for Roanoke.
11/7/2019	Mill User Survey	Mary Hastings	mary@hastingsdesign.com	Gorgeous nature walk right in the backyard. Love to hike, people are friendly and courteous. Makes Roanoke unique and special.
				I don't really see a need for improvement. Gully from Yellow Mountain to Fern Park can use some improvement.
11/7/2019	Mill User Survey	Lori Rakes	lorirakes71@me.com	I like/love it because it is so peaceful to start my day on walk in the woods each day with my dog. I come evryday!
				I think it is great--can't think of anything.
11/8/2019	Mill User Survey	Jonah Mortenson	none	Nice to have the trails here and the connection to the City. Well maintained.

Date	Media Platform	User Name	E-mail	Feedback/Comments
11/19/2019	MMDC Public Input	Martin Piedl	mpiedl@gmail.com	How close and convenient to City, Trails in good shape mostly, drains well in wet weather
				Maybe add another trail or two on the Woodthrush side, Allow bikes on Star, Maybe some more advanced trails
11/19/2019	MMDC Public Input	Devin Johnson	devinkathleen-johnson@gmail.com	Accessible to residential, builds our community and relationships as athletes and commuters, essential to our community
				Improved signage and wayfinding, add kiosk map at the big bikes, add QR codes for link to map pdfs (stickers would be easy), remove bike restrictions from Star and Watchtower, Formal wayfinding from Fern to Big Sunny, or up Chestnut or both, add any connector for Crystal Creek, remove "false" parking signs on maps--misleading (from tourism management side) i.e. Star trail parking and big bike parking, see map on back of survey*
11/19/2019	MMDC Public Input	David Tompkins	dmt1273@gmail.com	In town wilderness/backcountry feel, easy non vehicle (car) required access from town, connectivity to further trail systems and part of a larger multi-system concept with Chestnut Ridge loop and Explore Park and BRPKY Horse trail, Historic presence with old road, archway, and rockledge, parks, playgrounds, picnic shelter, zoo, wildflower garden, natural surface, multi-use trail system
				Additional loop trails off of Woodthrush, Forest Mangement plan ensuring healthy forests allowing for recreation, Garden City Access parking area-trail head at Virginia Pine?
11/19/2019	MMDC Public Input	Bobby Payne	rtbob2000@verizon.net	A lot! Convenience, easy to get to, good ride after heavy rain, view at top, bike stations
				More black diamond trails for MTB riders, MTB specific trails, more miles, double black diamond trails, muddy area on woodthrush that never seems to dry up
11/19/2019	MMDC Public Input	Kristine McCormick	kristine@gjcreative.com	That Mill Mountain Trails are greenway accessible so I don't have to drive. The feeling of seclusion in a mountain setting minutes from my front door.
				Connectivity for MTB so less time on the road. Star alternative trail. More trails off of Woodthrush. Downhill bike specific trail. Utilize old utility road that goes up the mountain from Riverland Road near the 9th Street bridge. Trails that go up the mountain from Crystal Springs trail. Signage from Fern Park to Big Sunny through the neighborhood.
11/19/2019	MMDC Public Input	Matt Moore	matthewconnor-moore@gmail.com	It's proximity to the City and ease of access. It's popularity with local riders and runners. The rocky and technical nature of the trails, rather than being purely "flow." The signage is attractive and helpful. The connectivity and ability to access the trails from a variety of points.
				Open all trails to MTB (the Star trail in particular). Build a trail up the incline/powerline
11/19/2019	MMDC Public Input	Steve Ambruzs	steve@downshift-bikes.com	Easy Access from Downtown/bike lane up new road. Picturesque views. Good network of mountain bike trails.
				E-bikes. Roanoke is behind Richmond, Bedford, Harrisonburg, Williamsburg, among many many other cities in the region with their prohibition of e-bikes. If Roanoke truly believes in being an inclusive city to everyone, they need to allow class 1 e-bikes on trails and greenways.
11/19/2019	MMDC Public Input	Jimbo Harshfield	jimbo.harsh803@gmail.com	Trails, signs, blazes
				Fern Park trail up to Yellow Mountain Road
11/19/2019	MMDC Public input	Mike Buehring	mike.buehring@yahoo.com	Ease of access. Somewhat beginner friendly trails
				More variety of MTB trails. Quicker support correcting large obstructions. More trail features for MTB. Repave old road.
11/19/2019	MMDC Public Input	Marty O'Connell	oconnell.marty.j@gmail.com	Accessibility from town. Variety of terrain. Well draining. Always open.
				Old road should be better maintained, wet leaves and trees can be scary on a bike going down. Plow for hikers and bikers in winter up old road. More distance.
11/19/2019	MMDC Public Input	Katie Smith	kssmith2789@gmail.com	Ease of access from greenway. All ability levels.
				More technical trails with features. More downhill traffic trails. Biking specific trails.
11/19/2019	MMDC Public Input	Jeff Suppes	jwsupes@yahoo.com	Ease of access from town. Trail network and variety of trails.
				I'd like to see some 1 directional bike only trails. Maybe a trail that works across mid-mountain that is flowy, opening Chestnut section to bikers and creation of new trails.
11/19/2019	MMDC Public Input	James Breakell	james.breakell@boxley.com	Close to home, easy, fun hikes to Star. Great view of City.
				A few more trails. Easy, moderate, switchbacks.
11/19/2019	MMDC Public Input	David Irby	dwi3f@virginia.edu	Mountain bike trails
				More bike trails. More built burms and rocks.
11/19/2019	MMDC Public Input	Ian Bongard	ianb199@gmail.com	Location, location, location.
				Downhill only trails. Trails to take pressure off Monument. Progressive trail.
11/19/2019	MMDC Public Input	Carol Rowlett	carolrowlett@hotmail.com	Easy access, safe, friendly people. A variety of trails. Bathrooms at the top. Generally peaceful. Connectivity to other trail systems. I like the set schedule for mountain biking events so I know when to stay off of certain trails. I also like that Mill Mountain is not overpopulated with trails. Except for trail intersections, I generally don't hear conversations from other trails.
				I'm still campaigning for a trash can down by the "big bikes" photo op. Better pedestrian access from Roanoke River Greenway. Tree identification trail near the zoo. Better use for the old Roanoke Mountain Campground.
11/19/2019	MMDC Public Input	Kemper Fant	kemperfant@gmail.com	That it is right in the City!!!

				1. Bike trail from Star Trail Parking lot up eastern side. 2. Sustainable Star trail improved for running. Loose rocks, etc.
11/19/2019	MMDC Public Input	Beth Oates	akoates4@gmail.com	Close to downtown. Generally well-maintained. Beautiful!
				More beginner-friendly trails. Allow access for e-bikes.
11/19/2019	MMDC Public Input	Andie Thompson	thompsonandie@yahoo.com	Easy access from downtown. Well maintained. Star and view from Star. Drains well so able to ride in most weather. Plenty of parking and access points.
				Maps at trailhead or access points.
11/19/2019	MMDC Public Input	David Gregg	dgreggus1@yahoo.com	Close to town. Parking availability. Well-maintained. Marked well. Multi-skill level trails.
				Open all trails to bikes. Overall map on trail somewhere. Expand the trail system.
11/19/2019	MMDC Public Input	John Corliss	corlissjdc@gmail.com	Friendly people. Well established multi-use trails.
				Add additional trails. All multi-use
11/19/2019	MMDC Public Input	Rob Issem	robertissem@gmail.com	Location is amazing.
				1. Add trail features: jumps, burms, skill features. 2. Downhill only trails (directional) safer and fun. 3. Add line options A line, B line. 4. Shuttle days! Regular. City feature.
11/19/2019	MMDC Public Input	Matt King	mtking@salemva.gov	The entire mountain needs to be considered as an opportunity. As much as my opinion or other folks opinion goes it shouldn't matter when it comes to specifics. Roanoke has a tremendous resource with Mill. The accessibility to neighborhoods and the greenway system is a home-run that other towns would kill for. The long lasting community impact and economic impact of this trail plan cannot be overstated. A professional WORLD CLASS plan needs to be implemented. With an opportunity such as this may and SHOULD involve some loss of "sacred cows." Not all trails currently in the ground should stay. A loss for the greater good of the network and mountain to prosper and increased enjoyment/connectivity. BIKE STUFF would be cool too.
11/19/2019	MMDC Public Input	Hillary Moore	hnicole.moore@gmail.com	Accessibility to town and neighborhoods.
				Add machine groomed trails that are flowy with built features (berms, beginner table top jumps, rollers, features!) Possibly above Woodthrush. Connect Yellow Mountain to Garden City Greenway for more neighborhood entrances and loop options. It's intimidating to bike on the road there. Allow e-bikes everywhere. Utilize the mountain and empty space while really minimizing tree loss. Directional trails.
11/19/2019	MMDC Public Input	Stephen Sinnes	ssinnes54@gmail.com	Access from many points in town.
				More trails, specifically lower elevation and flow style. Wooden and earth built features from beginner to advanced. More entry points into neighborhoods. Access into Blue Ridge Parkway.
11/19/2019	MMDC Public Input	did not say	(maybe Kyle Inman?)	It's in my backyard.
				Allow class 1 e-bikes. 26 states and the BLM now allow them where bikes are allowed. Establish new trail corridors with building guidance and let local groups like BROCC and BRG build the trails without immediate City supervision. Weekday trailbuilding sessions are not conducive to maximum participation.
11/19/2019	MMDC Public Input	Kimberly Patterson	kimberlybpatterson@gmail.com	Number of trails, various terrain.
				Would love to see a stairway along the old incline pass aka Manitou Springs, Colorado. Or along the powerline? More maps of trails.
11/19/2019	MMDC Public Input	Cole Inman	eloc49@gmail.com	Rocks, BRG bike presence, beautiful views, no reason given for e-bike ban (as far as I know)
				Wider/bike optimized trails, features, wood features, built rock gardens, berms, steep trails. More bike trails :) Class 1 e-bikes allowed.
11/19/2019	MMDC Public Input	Chip Cressman	Chipcressman@gmail.com	Convenient, challenging, "inclusive" we see all levels out there!
				Additional beginner/intermediate trails on the Woodthrush side.
11/19/2019	MMDC Public Input	Mary Harshfield	harsh2612@cox.net	The wide variety of trails. The easy accessibility so close to neighborhoods. Good birding on the top of Mill Mountain.
				Have a better connection to Fern Park from the Nottingham/Yellow Mountain Road intersection. Concern about fast bikers where people are walking. Good to hear bikers talk about one way trails or possibly some separate trails for bikes?
11/19/2019	MMDC Public Input	Derrick Quirin	derrickjamesquirin@gmail.com	Accessibility, signage.
				Easy, low grade trails contouring around the summit to provide easy/rewarding trail options near the summit for kids.
11/19/2019	MMDC Public Input	Jamie Nervo	nervojamie@gmail.com	Close to town--has options.
				More trails. Connect to Parkway.
11/19/2019	MMDC Public Input	Shelley Teer	shellbell1122@gmail.com	Open to ride--there is so much potential. So many places to take advantage.
				Add more trails--berms, progressive trails, offering more with rock and rough terrain, one way specific trails. Downhill specific trails as well. Don't have to have speed, just more techy stuff!!
11/19/2019	MMDC Public Input	Tyler Teer	tteer250r@gmail.com	Easy access for everyone around the area.

				Downhill specific trails--Monument is the most fun downhill-only trail, however becomes dangerous to everyone due to 30+ MPH speeds. Other trails could be made more downhill oriented to take this danger away--there are plenty of opportunities for amazing downhill-specific trails to keep everyone happy without the need to go so fast on such fast, popular walking trails.
11/19/2019	MMDC Public Input	Chris Berry	berrychris1@gmail.com	Convenient--nice variety of trails in heart of town.
				More trails to accommodate more users. I would like to see more connectivity options to create a good race loop.
11/19/2019	MMDC Public Input	Stuart LaMan-na	nwgreenguy@hotmail.com	It's near.
				Mountain bike only trails. One way parallel sidewinder to take downhill traffic off Woodthrush.
11/19/2019	Mapping Activity			Biking from Star Parking Lot to Star. Downhill specific trails bike only and directional. Flow trail parallel to Woodthrush. More trails on SE Side. Access from Mt. Pleasant. Fix Star trail to be sustainable. New trails that are machine built. Trail features--jumps, skinnies, etc. Alternate lines. Safety where bikers going down, hikers, going up, dog walkers.
11/19/2019	Mapping Activity			Double black trail from top of mountain (Star) to bottom. Fix Fern Park to complete loop (social trail/erosion). More secluded trail. Don't want to see trail packed side by side. Keep Star trail hiker only. So much family traffic. Ridgeline getting eroded (downhill section). Trash Can at Big Bikes. Want e-bikes allowed on trails. Better connectivity to Morningside Park (bike lane). Enduro/DH centered trails (release pressure from Monument). Raceable trails (promotional material). Machine built trails, no one wants more typical Roanoke singletrack. It's boring.
11/19/2019	Mapping Activity (from map itself)			Remove hobos (near Woodthrush), fix Sidewinder "burms", Erosion on Ridgeline, Fern Park connection to Yellow Mountain Road, several new lines for future trails.

Date	Media Platform	User Name	E-mail	Feedback/Comments
1/22/2021	Online	Andrea Owens	Andrealowens@hotmail.com	Is there any possibility of an incline as part of the trail system (where the old incline was for the access to the star years ago? Via the lift that I can't remember the term for right now) that would be such an amazing addition to hiking and running options on mill mountain!
1/22/2021	Online	Corey Heitz	crh3ff@gmail.com	On the proposed trails map, there is one trail that says "open to bikes." Given that it's the only one with that label, it's not clear to me if the rest are hiker-only or multi-use. Or is that supposed to denote a one-way downhill style trail?
1/22/2021	Online	Matt McKimmy	mckimmy.me@gmail.com	Overall I feel positive about this trail master plan. The main concern I have is that it isn't clear what uses would be allowed on which trails, with the exception of the top to bottom bike trail. Would all other new trails be open for people both hiking and biking? I appreciate the multi use nature of Mill Mountain and respect that some current trails are hiker only, but I hope that the majority of these new trails would be built with biking in mind. If the top to bottom trail is going to be designed as bikes-only that would be incredible. Currently descents down the mountain seem like the most likely instance where negative interactions may take place. Thanks for all your hard work on this and I look forward to seeing these plans come to fruition in the years ahead!
1/24/2021	Online	Matt McKimmy	mckimmy.me@gmail.com	Hello again! I realize I already gave some feedback, but I've been looking at the new trails more closely, thinking about what new combined route opportunities these new trails would create, and I have one more critical suggestion: In order to allow for connection between where the future trailhead where Star Trail, #4, #14 and #6 converge at JP Fishburn Parkway and the Woodthrush trail further around the mountain, the lower portion of the Star Trail should receive whatever improvements are necessary to allow both hiker and biker usage. As a respectful mountain biker I have never ridden on the Star Trail, and never intend to unless it is officially allowed. While the future biker-only top-to-bottom trail could be connected via #4 to Monument to climb back to the top, allowing riders to also connect back to the Woodthrush side of the mountain would allow for a much wider variety of routes. As our region's population and interest in hiking and biking continue to grow, both creating more trails AND providing more potential routes to connect trails in different configurations is very important. Giving bikers a route between the Woodthrush parking area and the new trailhead mentioned above would provide much better access to these new trails, as the Woodthrush parking area is a great place to expand parking options in the future for citizens and tourists alike.
1/22/2021	Online	Sue Williams	suewilliams00@gmail.com	Looks great to me. Thank you for pursuing this in such detail. It must be difficult to use this kind of terrain so intensively, without making people feel they're too close to others, and to other uses. Well done.
1/22/2021	Online	David	D91mart@gmail.com	Please build a mountain bike specific trail from the top of mill mountain all the way to the bottom with progressive features like jumps and drops, and have an option to ride around the features that way if you don't want to ride it you do not have too. Just my two cents.
1/22/2021	Online	Jameson Hinkle	Hinkyisme@gmail.com	You are missing out on millions of dollars in tourism dollars by not already having progressive trails built on mill mountain. There is no other "mountain" located IN a city like this on the east coast. I think a good model for a future trail park could be Ride Kanuga in North Carolina near Asheville, with directional trails for bikes and hikers alike. A full investment for mill mountain would also restore the tram to the top of the mountain. This consideration is decades past due.
1/22/2021	Online	Sam	Samwell.dotkom@gmail.com	Good evening, I'm an avid hiker , mountain biker, and snowboarder. Roanoke has 2 of those activities available right out of my door step. I live in downtown Roanoke and love it. Mill mountain has progressed so much since I was a child. I have run into other bikers in other states and when I mention I'm from Roanoke the 1st two things brought up are Mill and the Cove. Bikers love coming to Roanoke to enjoy the trails and beer tht are so close to the city. I would love to see more challenging trail on Mill. Some trails with features such as table tops, drops, skinny's , and kickers. The more challenges that we can put on a trail for riders to progress the more bikers will travel to ROA to explore. It has worked in many cities nation wide. It's the reason my friends and I will pack up for a long weekend and go out of state to visit a new city with progressive trails. I look forward to seeing all the new ideas and trails built so close to the city. My family owns several businesses in the Roanoke area and the more people that come to visit the more we help Roanoke and our fellow business owners grow. Thank you for reading my opinions and feedback. Love in all , Sam.
1/22/2021	Online	Martin Trussell	mdtrussell@gmail.com	They all look fun and BROC will build them. Turn us loose.
1/22/2021	Online	Scott Freeman	Sfreeman811@comcast.net	Link Mill mnt trails to new trails or horse trails to explorer park trails. Finally legit riding bikes on chestnut trail. Everyone rides it any way. Build rhythm dirt jumps at morning side small med large sets. Its easy to build and doesn't cost alot of money. And a pump track for God sakes. Allow and let more progressive trails be built at carvins cove, and trails in general. "don't dumb Everything down". Just because city officials can't ride it, or its not their style, don't ruin it for everyone else. It's not all about you. World class terrain here in the Roanoke area with lots of opportunities. IM SORRY, BUT GET YOUR HEADS OUT OF YOUR ASSES ROANOKE CITY. look at what is happening in Knoxville TN for a great example. This place could be world class. Oh, and while your at it, get rid of that death trap strainer low bridge in wasena Park that always floods. Build a nice arch bridge for spectating with a nice freestyle kayak play way below. There is a large WW kayaking community her in the Roanoke area. It would bring kayakers from all over the southeast for competitions there if buit right. Lots of money making opportunities for Roanoke City. It would not take a ton of money to build. Just my two cents from someone who has been in the outdoor scene for along time any always having to go somewhere else away from my hometown to see and do the real deal. Roanoke city and Roanoke in general always been a bunch of posers and no doers.
1/22/2021	Online	Carter Shumaker	Carter.Shumaker@gmail.com	Please add a bike specific trail from the top of Mill Mountain to road crossing on JP Fishburne Parkway.
1/22/2021	Online	Sean Castle	ICastle36@gmail.com	I'm writing in support of a bike optimized trail. Having Mill Mountain right in town is truly something other municipalities just can't replicate. There has clearly been a strong focus on outdoor recreation and more specifically mountain biking in this community. VBR's Capitol of the East marketing, City's paid trail maintenance staff, or simply the huge boost in numbers of riders on the trails are all evidence of the trail community's growth. The demand and support for a trail of this nature is there. The growth has been continuing over the years and that's been primarily built on multi use trail systems mostly optimized for foot traffic not bicycles. We still do not have many bike optimized trails in this area and these can be multi use as well. I've thought about a bike optimized trail of this nature on Mill Mountain for years. I was apart of a plan that was approved to build a trail of similar nature years ago. Now that there is a strong push for this in our area and clearly seeing the demand is there for more trails. All of the popular trails are over trafficed especially after the Covid outdoor recreation boom. It would be ideal to have a professionally built showcase trail off Mill Mountain. This should be done in my opinion by one of the better more established professional trail building companies in the U.S. even if it takes longer to raise the funds, I truly believe this needs to be done at a very high level if we really mean business about putting our community on the Mountain Bike Map. Which means the ability to have real core mountain bikers come here and actually want to come back because the quality of the trails actually support the marketing campaign. This should be a show case trail, not something someone is learning to build on. I'd advocate for a Green/Blue level bike optimized trail built to national standards. This style of trail is beginner friendly but will still offer more advanced riders opportunity to have fun and enjoy the trail. Trail building companies know these are the trails for the masses.

				If done right it will have an impact on the number of people coming to Mill Mountain which is already seemingly busy, may need to include additional parking plans in this discussion as well. However if this is the direction the community is going with the Mountain Biking Capitol of the East this should be THE absolute best built trail in the area. Showcase trail off the showcase mountain in the community. The trail name should also be something worth branding and marketing that fits with Roanoke's branding initiatives. I can go on and on. I'd love to see this happen. Wish you all the best. Sean Castle Roanoke, VA 540 797 6317
1/22/2021	Online	Dustin Trainer	dstrainr@gmail.com	Initiatives made in the city to embrace the mountain bike community have been a great enhancement to the area. One aspect of mountain biking in the star city that hasn't been an area of focus is progressive riders. Unless you are willing to commit vast amounts of hours during a ride to climb high elevations at Carvings Cove, the city lacks any sort of skills parks for mountain bikers. Morning side park is the closest trail to offer any sort of skills trail but it seems the expansion projects have been put on the back burner. I've been forced to travel outside the city to parks such as Tannery Knobs and Fountain Head to experience any sorts of higher skill jump trails. The city seems to be placing more focus on entry level riders rather than offer a mixed bag of trail systems. Please offer more of a variety of trail systems for the area riders. The Mill Mountain project could be the perfect location as this would provide all types of trails for different riding styles with the ability to have everything relatively centrally located. Giving the progressive riders ability to "lap" a skills trail while also offering traditional trails in one location, would bring a whole new crowd to the area
1/23/2021	Online	Jeremy Smalley	jeremy.c.smalley@gmail.com	Thanks for your work! Please consider adding mountain bike trail down the east side of the mountain connecting to Monument or Fishburne parkway, the way Star trail currently does.
1/23/2021	Online	Jim Casey	jamesncasey@gmail.com	<p>The backside/drop of ridgeline is really rutted and functionally a one-way trail downhill for bikes. A reroute would be more appealing and much more enjoyable for hikers and bikers.</p> <p>It would be wonderful to have a mountain-bike designed trail from the top of Mill mountain to the road crossing on JP Fishburn Pkwy.</p> <p>There is no good road crossing from the mill mountain trail parking lot across rte 116 towards Morningside park. It would also be very helpful to have signage in the parking lot off rte 116 informing people of the trails in Morningside/directions/map.</p> <p>There is an opportunity for an excellent trail build from the rte 116 parking lot to the water tower along the unused park hill/ridgeline on the edge of the park between the gravel road and the power lines, still within the property. The hillside looks great and could have a great flow trail built into the hillside.</p> <p>We need a trail connection from Carilion Hospital. It's so close but no connection directly from the valley.</p> <p>Also, the proposed trail map additions overall look very promising!</p>
1/23/2021	Online	Alex Wood	awood.tce@gmail.com	We live on Mill Mountain. I must say that the improvements to the existing trails have been wonderful. My kids grew up hiking to the Star. I am an avid MTB rider and hiker. I am sure you have recognized the trends here on "the MTN". I will include the Chestnut Ridge system as those trails are adjoining. I used to carry a trash bag on my rides, to pick up trash that folks left behind. I don't need to anymore. Generally speaking it appears that trail users are much more conscious about minimal impact. Can you believe it? I haven't seen horses in a long time. I am not going into the argument over hooves versus bike tire impact, but I really hate those giant horse cookies, and I still think they should be regarded as an impact issue. My point is, trails that are designated no bike, but horses allowed, should be deemed multiuse. The volume of users is way up. No question about it. There are some trails that require a lot of work. The IMBA are the folks for trail construction and maintenance. Look at the Carvin's Cove System. Back in the 70's it was nothing but goat paths for hunters. Now it is a destination for folks from all over. Kudos to everyone that is involved in this process. It represents the need to protect a wonderful resource, while at the same time make it accessible for all.
				If anyone would like to contact me, I am Alex Wood, 2742 Yellow Mountain Road, 540-353-8873. Thank you to everyone for all you are doing
1/23/2021	Online	Randy Boush	Rnoush123@gmail.com	The community is starving for a modern "progressive" mtn bike trail. Please give the community what it wants. We have plenty XC trail on this mountain.
1/23/2021	Online	David Dallas	ddmdjd@gmail.com	I would use 1 and 2 a lot. Love the idea of 13. 6 would be cool, I've wondered about that knob. It could be part of a "triple crown" on MMtn, using the knob, the Star and the Ridgeline trail. Or even harder using the Chestnut Ridge Trail up to Peakwood neighborhood and down Carolina.
1/23/2021	Online	Stephen Grammer	spgkws@yahoo.com	The Mill Mountain Trailway is not up to date with the ADA standards. It is not wheelchair accessible at all, which is a disgrace to individuals with disabilities who live in Roanoke community. I expect you to make the trail ADA accessible so that people with disabilities can have a relaxing time riding on the trail. People with disabilities deserve to have a life like yours, but how is this possible if the trail is not wheelchair accessible?
1/23/2021	Online	Mark Lynn Ferguson	mark.lynn.ferguson@mac.com	So happy to see maintenance of the old Mill Mountain road on this list, especially the historic stone retaining wall. It's charming and part of our heritage but in very rough shape. I hope it's among your first priorities. Also, please consider eliminating invasives. The English ivy is out control.
1/23/2021	Online	James Hogan	jaykili@cox.net	I am in favor of any trail maintenance and new trail construction on Mill Mountain that is mountain bike friendly.
1/24/2021	Online	Pamela Keebler	pamelakeebler@gmail.com	I'm so excited to see this new proposal, and I think the additions to the trail system will be wonderful! I would love to see a long, top to bottom, feature rich, bike specific trail built on Mill Mountain. I think it would be a huge draw for mountain bikers to have progressive skill features in a spot that's so accessible. A huge thank you to all of the folks that have volunteered to make Mill Mountain the wonderful trail system that it is- their time and expertise are deeply appreciated.
1/24/2021	Online	Scott Johnson	sdjisme@gmail.com	My husband and I stopped using the star trail several years ago, primarily because of erosion causing the hike to be too rocky. I would recommend repairing or improving the most heavily traveled parts of the trails in a way that would be permanent., such as pavement or decking on some stretches.
1/25/2021	Online	Elspeth Gunnoe	Elsphethgunnoe@gmail.com	It looks great! I'm so grateful for this park and that you all care enough to maintain it for our use. You make our city better! It looks great! I'm so grateful for this park and that you all care enough to maintain it for our use. You make our city better!
1/25/2021	Online	Patrick Boas	patrick.boas@roanokeva.gov	<p>I am curious if the trail numbers identified as #7, #8, #11 and #12 address some of the homeless issues we have on the mountain. Those areas in particular is where most find places to camp and I could not tell via the map (or I am not as familiar with the layout as much) if those trails would cut through any of those places.</p> <p>Thanks,</p>
1/25/2021	Online	Christopher Boehling	christopher.boehling@roanokeva.gov	Looks awesome...this trail network and it's proximity to downtown Roanoke is an absolute attraction to all levels of fitness seekers and naturalists Perhaps a bit of pebble like surface on the easy to moderate trails would make these more accessible to those with weak ankles or of advanced age
1/25/2021	Online	Amy Fox	afox@pricesimpsonharvey.com	Looks great! We love these trails and are excited to see new routes to explore in the future.

1/25/2021	Online	Warren Clark	clarkwg2@gmail.com	The plan looks great. Good use of public resource close to population center. Thanks for all your work in developing this during this pandemic year. I will look forward to using some of the new trails when they open.
1/25/2021	Online	Adrian Gilbert	trlbk77@gmail.com	Amazing plan. Thank you for your efforts!
1/25/2021	Online	David Stewart Wiley	dswiley7@gmail.com	Thanks to the team who prepared this excellent plan. As a 25-year Roanoke City resident who regularly uses these trails and has raised our kids walking them, a hearty thanks for preserving and expanding this precious resource. I support the "mixed use" model that includes mountain bikes, for I believe with education that we bikers have a special responsibility to be respectful of hikers and horseback riders, and to be aware of proper biking conditions for trail preservation. Here's to the next 6000+ years of shared trail enjoyment!
1/25/2021	Online	AA	AlpineAzalea1@gmail.com	Use of a hidden trail camera on trails commonly trashed by ATV use, litter, etc would be a very useful tool. Also the ATV users obviously live in an area nearby; canvas park neighbors describing violations and consequences of ATVs on trails. Signage requesting photos of illegal activity witnessed in park, on trails and using roads will be a strong deterrent. Public awareness of violators being made responsible for cost of trail repair, clean up, etc.
1/25/2021	Online	Taylor Petty	taylor.petty4@gmail.com	I don't know the Mill Mtn system very well at all and I need to fix that. I wanted to say though, that I support any sustainable expansion of existing trails in this area. Keep up the good work!
1/25/2021	Online	CJ Waasdorp	cjwazzy@gmail.com	Looks great!
1/25/2021	Online	Scott Ingram	matapaloscott@hotmail.com	I love the trails at Mill Mountain and I think the proposed improvements look good. I would like to add this. To really make the Mill Mtn. trail system World Class, it needs more FUN added. Things that make mountain biking more exciting and added in a way that allows all levels to participate or ride around. I think the addition of man made features like table top jumps, berms, rollers, bridges, logs, skinny rails etc. would make Mill Mtn. a true mountain biking destination. Thanks For listening, Scott
1/25/2021	Online	Marit Berntson	berntson@roanoke.edu	It's important to incorporate access to lower income areas, so I appreciate input from parts of SE Roanoke. Thank you for your hard work!
1/25/2021	Online	Dan Henry	Danshellyhenry@gmail.com	Renee and the task force have done an excellent job preparing this plan. I appreciate their hard work and their dedication to Mill Mountain, a treasured natural resource. Good job.
1/25/2021	Online	Chris Bryant	Chbryant1315@gmail.com	The plan basically look great. Two suggestions but these may have already been considered and found not doable. But here they are: 1. Have another "new street connection"-connecting to new path 11 and 12 going to same connection as street path 9 2.Connect new path 5 to path 3 somehow(on greenway?) for a loop. I like hiking loops.
1/25/2021	Online	John Pendleton	jpend1946@gmail.com	The Mill Mountain trail system is a gem and a valuable asset for all ages in our community. I greatly appreciate the suggested improvements and look forward to them.
1/25/2021	Online	Nathan Kerr	nkerr2@mac.com	I'm thankful for any/all trail improvements and additions. Mill Mtn trails are a huge part of my riding and I think a huge part of our story for the region. having trails this close to our urban core is amazing and there is still so much possibility for bigger/better/more. Thank you!
1/25/2021	Online	Ken Lyons	kenneth.lyons@scouting.org	THANK YOU, for the work that you are doing, as a frequent user of the trails on Mill Mountain, it is appreciated. In reviewing the proposed additions they all look great. I also do like the idea of keeping some of our trails for hikers only. Although I have found all of the mountain bikers I have come across on the trails to be courteous.
1/25/2021	Online	Christopher T Breeding	ctb23532@gmail.com	Love the expansion of trails on the mountain. As long as we dont over crowd I think its a great addition. One problem I have with enjoying these trails is actually getting to the trail heads from the north side of town. Does the trail plan account for public transportation access, remote vehicle parking, or onsite parking additions so I can get on these trails with increased frequency? Thank you
1/25/2021	Online	Kyle Inman	kyleinman@me.com	I'm not seeing a line for the proposed downhill, bicycle only trail from the dirt road near the star, working name "Neon." My hope is that it is planned, just not represented here. I would also like to see the line for an idea of how it lays across the mountain. Regarding Lower Knob (6): there has circulated a trail line that drops off the displayed loop and connects down-mountain to either Fishburn Parkway or Walnut (being the same road). I would be interested in that enhancement, or it could connect to the proposed Riverland-Walnut Alleyway trail (5). Furthermore, why would there NOT be a trail connecting 6 with 5? It's scrubby overgrowth that could use some functional use. Regarding Ridgeline, the steep bit near the terminus at Yellow Mountain Rd. I think an optional, lower grade switchback route, especially when climbing, would be a favorable enhancement. There is plenty of land to work with to circumvent the steepest section. I note this land is currently leased to the National Park Service. The planned Woodthrush/Yellow Mountain Road connector is NPS leased land as well, so I suppose there's an agreement to add that trail, so the Ridgeline ride-around I'm proposing might be feasible? Also, the last bit of Fern Park Trail is NPS, so a favorable precedent has been established it seems.
1/25/2021	Online	Ana Anderson	anaanderson60@gmail.com	Thank you for all your hard work and the hard work to come, implementing the final recommendations. I hike the trails multiple times a week and am very grateful! My only suggestion would be trails around Roanoke mt. And also between Yellow Mt Rd and the Chestnut Ridge trail across from Wellington. Trails in that area may get the homeless camps to move on. Maybe one day. :) Thanks again!
1/25/2021	Online	Michael Metz-bower	Michael.metzbower@gmail.com	Please add as many beginner friendly trails as possible, along with signage at all intersections that includes a map and where you are on the trails. Basic, but needed for new riders. I love riding Mill Mountain and do so at least 3 times a week.
1/25/2021	Online	Carol Rowlett	carolrowlett@hotmail.com	The plan looks great! I'm a big fan of adding trash cans and mutt mitt stations. I didn't immediately see a way to walk from the Roanoke River Greenway to the parking lot near the water tower, but that might have been because of the fine print on the map. Improving the access between these two trail systems would be a wonderful addition.
1/25/2021	Online	Ilana Waasdorp	ilana.waasdorp@gmail.com	I'm thrilled to see these updates, especially the expansion of the trail system and increasing mountain bike use. I particularly hope that mountain bike use will be allowed on the new trails 1,2,6,7,8,11 and 12. However, even as a mountain biker, I question opening up lower star trail to mountain biking. my experience is that this is a trail where a lot of pedestrians take their dogs and it's nice to have a zone that is protected from the types of clashes that occur between hikers of all abilities, families and dogs, and mountain bikes where there is not much shoulder room or visibility. Additionally, I'm happy to see better road maintenance and clearance on the parkway, but I don't see any initiatives that will add protection to road cyclists on an off and fast moving road. Please consider adding greater room and/or traffic calming measures for road cyclists when the road is repaved and painted. Thanks for all you do!
1/25/2021	Online	Tina Miller	Tina@walkaboutoutfitter.com	First, thank you so much for all the work that you are putting into this! Great job!!! Thank you, thank you. I thought I understood, early on, that equestrian trails were going to be put in as well as possible horse camping sites. Perhaps I missed it in the proposal but I don't see them- I may have looked too quickly. Please do consider equestrian trails as well. There are loads of city streets, city parks, regular parks, State Forests, etc where bicyclist and hikers can hit the trails (I do those activities too), but for equestrians it is extremely limited and horses on streets are extremely dangerous. With so few places for equestrians to enjoy getting out into nature, please do incorporate allowing them to get outside as well enjoying the bond between nature, their horse, and themselves. Thank you so much for this important consideration. Tina Miller (540)319-1492

1/25/2021	Online	Jason Saunders	74burritos@gmail.com	I really appreciate all the work the city has done on all trails. I hope we get even more trails like the ones proposed here for mill mountain. I would like to see as I know others would is a downhill directional mountain biking specific progressive jump line trail. Thank you for doing such good work and maintaining all these trails for all of us to use and enjoy.
1/25/2021	Online	Jason O'Donnell	76odonnell@gmail.com	Love the fact that you guys are adding more trails. Fantastic job! I would also love to see a down hill specific progressive jump line at Mill Mountain. Other locales are building these but they seem to be for the benefit of riders that are already accomplished at these types of obstacles. It would be great to have something that the youger kids (and older kids like myself being in the mid 40's) to learn on. Mill Mountain being the perfect location because there is more access from neighborhoods via bicycles than any other location. Thank you for a job well done and consideration of ideas from the public.
1/25/2021	Online	Tyler Lyon	wtlyon10@hotmail.com	Thanks for sharing this plan. For the most part, it looks very good. I think these concerns were addressed, but I wanted to emphasize them. The kudzu problem near the Riverland Rd parking area is out of control. If nothing is done about that, we will have to rename the mountain Kudzu Mountain in a few years, and nobody wants that. I think most of the new trail additions are sensible. I would be concerned about trail 8 because I know that is a very steep area for the most part and one of the largest remaining areas without a trail running through it for wild life. But the park is so heavily used already that I don't know how much of an issue that really is. Anyways, sounds good overall!
1/25/2021	Online	David Wickersham	skeezicks@wickersham.ws	Greetings, I am a frequent user of the Mill Mountain trails, as a hiker and on rare occasion as a biker. I have read the trail update plans and I have the following suggestions: -Skip the proposed art work on the greenway. - Keep the signage simple at intersections, i.e. trail names and color coded directional arrows only - maps only at major starting points, if at all. - Skip the proposed crosswalks and curb cuts along Walnut from Hamilton Terrace, SE to Sylvan Road, SE - a waste of time and money, would rarely, if ever, be used. - Regarding "social trails", if there are any that actually are laid out sensibly and serve a useful purpose, incorporate them into the trail network. Otherwise, using natural material somehow barricade them and cover them with brush or whatever it takes to discourage their use. Thank you for the work you are doing. David Wickersham
1/25/2021	Online	Deborah Ambler	dambler1@yahoo.com	Please, please, consider, collaborating with the, Blue Ridge Parkway, to open up "Roanoke Mountain Campground", for camping for the citizen's of the Roanoke Valley. We especially, now need an outlet from being indoor's, that is a healthy option, to escape, being indoors, all the time. We miss camping there so badly. It is close in, to Roanoke, and so much fun for families. Please open the campground, back up. I'm sure you can find a lot of volunteers, to help out, including my self. Thanks, in advance for your consideration! D. Ambler
1/25/2021	Online	Bonnie J Stidham	bonstid4400@gmail.com	Love all Roanoke trails--especially Lick Run. One of my son and I's favorite. Suggestion maybe more benches for resting. Love walking from Fallon Park to Wylie Dr., although always run out of water.
1/25/2021	Online	Phillip Mitchell	pmitchell245@yahoo.com	Dedicated mountain bike trail, preferably downhill directional trail only! We're an IMBA ride center and only have 1 directional, mountain bike only trail in our area. Another would be nice.
1/25/2021	Online	Wade	wwickline240@gmail.com	The plan looks great and I think should be taken into affect as soon as possible. It would give mill mountain more variety since there are only a hand full if trails at the moment
1/25/2021	Online	Tom Carr	oldcityplanner@gmail.com	It is great that the City is planning to expand the trail system! I hope that the references to dealing with social trails mean that the City plans on improving or replacing them with something better. We need to be inviting people into the park, not trying to exclude them (which will probably turn out to be a fool's errand). If we all followed the rules (and I love rules) all the time, would we have any trails? It struck me that there were no black faces in the picture of the meeting at the Discovery Center. I may have missed this, but adding wayfinding signage that invites people from the Greenway (maybe our most democratic institution) to the mountain would let everyone know what is available just a short walk or ride away. I'm not sure it is really a great idea to remove technical sections of Sidewinder (or other trails). Yes, we need beginner friendly and intermediate trails, but challenging trails are great, too. They let us overcome our fears and improve our abilities to run, ride, and hike. Please leave a few rough spots. All vanilla is, well, boring. Is Fern Park really off limit to bikes????? I hope not. Don't want to be a scofflaw. Don't forget about hammering the educational side of trail use. Good trail etiquette is something that we can teach. I think most of the stupid things I see on the Greenway or trails are not malicious, it's just a lack of understanding. Thanks for all the great work you are doing!
1/25/2021	Online	M Smith	osirus73@hotmail.com	The new trails connectors looks great! One thing I noticed in the long list of maintenance proposal is the lack of plans for the parking area off of Riverland SE lot. I don't feel my car is safe there since a hiker told me, some car's windows were broken by a thief while they were hiking . I hike elsewhere since. overall it needs expansion and some improvement in my opinion.
1/25/2021	Online	Gail Burruss	gailburruss@msn.com	The plan looks good. I would like to suggest that a new trail be named the "Betty Field trail", in honor and memory of someone who passionately loved the mountain.
1/25/2021	Website Leave a Message	David Eugene Vanderpool	DaveVanderpool@me.com	I love all of the plans to maintain the Mill Mountain trails. Thank you for this!!! I am curious, though, as to any possible plans for the Mill Mountain Campground. I loved camping there as a child, and have wished it were available to camp there with my own children. Living in Roanoke, this would be the perfect spot for a quick getaway. My wife and I utilize the campground for day trips, but adding overnights would be wonderful. Are there any plans at all whatsoever? And, if not, what would it take to get this on the books? And again, thanks for the work on the trails!
1/26/2021	Online	Ric	mrbartolome2@gmail.com	I have been in Roanoke for just over a month now and regularly walk up to Crystal Spring Trail. The newly proposed #1 & #2 trails would be really nice to have. Anything that improves access while reducing time spent walking on roadways would be a great addition. Having these trails has made my transition from the mountains of Idaho to the City of Roanoke a very pleasant one. It's much easier to get my kids to walk when they are on trails. Something about being on a trail is magical. I have made use of Crystal Spring Trail, but I have also hiked Mill Mountain Greenway, Monument Trail, Virginia Pine Trail, Woodthrush Trail, Sidewinder Trail, Ridgeline Trail, and Fern Park Trail.
1/26/2021	Online	Steve Powers	fishdoc.powers@gmail.com	This plan looks great. Thanks to all who made it happen. I am especially excited about trails 8, 12, 11, and 7 as they will make for more loop options with minimal repeating trails. As an urban trail system, Mill Mountain is primarily an "after work" destination for riders, hikers and runners. As such, maximizing route diversity is key to creating the best experience for the greatest number of users. I am happy to see more multi-use trail and no single-direction trail proposed in the plan. Single use and directional trail is a poor use of resources as it requires twice as much trail to provide the same amount of usable trail for a given user group. That means twice as much work to build and maintain a trail system for the same number of users. With an abundance of nearly deserted trails within a short distance of Roanoke, trail users who want solitude should go seek it out. Additionally, I am happy to see this document contain no plan to turn Mill Mountain into a bike park. Expecting tax payers to fund and often volunteers to build and maintain trail in a city park for a very small, vocal group of users that don't utilize the abundance of trail we already have is a poor use of resources. I applaud the task force for developing a trail plan that serves the entire trail user community. Thanks again for your work.

1/26/2021	Online	John Gray	53jgray@cox.net	As a regular user, I appreciate the effort made by the team! The process appears to have been thorough, and the proposals seem appropriate and very ambitious. I like the present trails and think the greatest emphasis must be crisp maintenance of what we have. Please don't develop new trails at the expense of maintaining old trails. Thanks again for your work, John
1/26/2021	Online	Lauren Williams	lduub@gmail.com	I simply wanted to say THANK YOU for all you're doing! Proposals look great!! I helped build part of the Greenway in the fall of 2001 as a freshman at Roanoke College during a service project and have been so very impressed to see the growth since then. My family and I use it all the time and are so grateful for these spaces.
1/26/2021	Online	Adam Overstreet	adamoverstreet91@gmail.com	First off, thanks for all your hard work and dedication in keeping current trails in good condition as well as in developing new trails for us to ride. It is much appreciated! Just to add my two cents, here are a few of my thoughts on the proposal: -Devoting resources to trail upkeep and signage is always important. I like that it appears to be represented in the proposed plan. -While I completely understand the need to reinforce trails to guard against erosion from water and trail users, I would hate to see the trails gentrified to a point where the janky sections are removed. I see you have plans to add technical features in certain places, but it looks like there are also plans for "rock removal" on parts of Understory and "repairing tread" and "smoothing out" other trails. I know some of that is necessary, but I just hope it doesn't go too far. I can only speak for myself and those I ride with, but the natural sections of the trail is what keeps things interesting at Mill mtn. I'd hate to end up with a bunch of smooth trail in an area so naturally rocky. -I like the idea of a technical section before the switchback between Understory and Ridgeline, although, to take it a step further, I think it could be cool to continue the technical section all the way through the corner (like you see in sections of Gateway trail in Blacksburg). I think this could eliminate the erosion problem, while also creating a fun feature in the trail, while climbing or descending. -Just in general, I'd love to see more advanced technical features throughout the trails at mill mtn. Even if there were "alternate line" options, I think it would be a good area to cater to advancing riders technical skills. Some of my favorite trails have been somewhat disadvantaged in terms of acreage, elevation, etc, but they pack a ton of interesting features in the space that they have, and manage to create something really interesting and challenging. Especially for a mountain that's right in "the backyard" and easy to ride after work several times a week, I think it would go a long way to pack in as many interesting features as possible. This could be anything from rock gardens, to wooden features, to steep, punchy corners to climb. And in the case of new trail, it could be as simple as not shying away from the steeper or rockier terrain.
				As for the proposal for new trails, my preference would be to see more trails built purely for the purposes of riding them rather than to allow for more access from surrounding areas. Being such a small mountain, it's easy enough to get onto the trail system from any one of the entrances in South Roanoke, Downtown, Garden City, SE, etc. I'd love to see priority given to building trails in whatever areas simply allow for the most mileage of trail. Again, thanks for all you do!
1/26/2021	Online	Will Moore	wumoore@gmail.com	Looks awesome! Great work to the whole task force, I'm already day dreaming ahead to when all this work is completed. It will make the mountain a gem!
1/26/2021	Online	Brian McCahill	Brian.r.mccahill@gmail.com	For the last 8 years or so, I've routinely run the Mill Mtn trail system (and Chestnut) two times a week and consider it one of my favorite parts of living in South Roanoke. It's a true asset for the City! I am floored by this plan. It is thoughtful, and practical and advances neighborhood and intra-trail connectivity by orders of magnitude. I particularly like the connectivity to the Garden City Greenway which is one I seldom use because there are no obvious connections for me without a vehicle. I really enjoy linking the trails on my long runs but after years of doing so, it can get repetitive. This plan enables so many interesting connections and loops that I can't imagine getting bored even with my frequent use. I commend the task force on this plan and fully support it. If there is any way that I can help, please let me know.
1/26/2021	Online	Russell Bailey	Russellbailey3@yahoo.com	The plan looks thorough and well thought-out. I agree with the locations of the new trails being good fits. I live on Jefferson St and ride the trails likely 75+ days a year. Making the connection via Fern Park to the trail system is very helpful. It is important to maintain the ability to cross the Blue Ridge Parkway Spur off Morrison Street. Alternatively, it would be ideal if the NPS was ok with bikes using the short spur from the end of Fern to cross to the Blue Ridge Parkway and use the Spur bridge to avoid having to use the at-grade crossing on Yellow Mountain. Alternatively, a cross-walk and flashing lights or similar at the top of Yellow Mountain would be something to consider. It would also be nice to be able to integrate some of the area under the powerlines on the east side of the park into the trail system. Thank you for your work.
1/26/2021	Online	Bob Peckman	bob@peckmanjazz.com	More great progress from Roanoke City. This fits right in with traffic calming and bike lanes making the city a livable space. Thank you for all you guys do!
1/27/2021	Online	Brian Batteiger	bbatteiger@hotmail.com	The plan looks pretty good. I assume that #14 is proposed but route is undecided at this time? Maybe set to be flexible in the plan? Maybe I am missing something, but I didn't see much discussion or text to the plan like the 2005 has. I looked over the existing trail assessment that seems good and has some details. But not much text on new trails and thoughts. I am wondering why #15 can not cross the spur instead of forcing people out onto Yellow Mt busy road. Can a huge shoulder be added? I am very happy about trail #4 and wish it was a priority 1 trail. Trail #3 is also very nice addition to make the existing loops much better. Not sure why 7 & 6 are priorities as they don't really connect anything. Are a bunch of people excited to get little mini loops that they can go around and around on? Did anyone explore the opportunity to reroute Ridgeline from Riser to Yellow Mountain to not be a fall line trail? Might be hard to fix in its current deep rutted condition. Great work! Thanks to all the people that put so much time into this. Nice to see a plan to make further improvements to Mill Mountain even if I don't head over there myself very often due to my current location near the Cove. Maybe with a bigger trail network it will be worth the drive a little more often. Combining the trip with visiting some restaurants after the ride on that side of town.
1/27/2021	Online	Jim & Bess Tennant	Jackalope96@aol.com	Thanks to all who have taken the time and effort maintaining and making improvements to the trails. We have quantity and quality trails in Lynchburg BUT it's the location and history that brings us back to the Mill Mountain/Explore Park area every year to ride. We are now weekday riders and enjoy all ur labors, just a little slower but we still ride all!! Thanks again!
1/27/2021	Online	Jill Hufnagel	jillhufnagel@mac.com	Many thanks for the thorough assessment and thoughtful plans you've developed for the trails. I use these trails a few times a week, year round, and they are a gem of this area and a centerpiece of my time outside. Worlds of gratitude for your past and future work on MM trails!
1/27/2021	Online	Larry Davidson	ldavidson@davidsonsclothing.com	All looks good. Big thanks to all who helped and to the future improvements.
1/28/2021	Online	John Partin	Johnpartin83@yahoo.com	I enjoy the current trail system and hope that it continues as stated. Keep up the good work. Thank you.
1/29/2021	Online	Zain Mirza	zainmirzaus@gmail.com	I like the look of the plan, I'm keen on bike-oriented single track

1/29/2021	Online	Aaron Copeland	aaron@copelandexcavation.com	Thank you for all of your hard work and diligence working with community to create a legacy for our kids and future humans. Mill mountain trails have shown how important they are during these troubled times caused by COVID. It has become more apparent to more people that human health is of utmost importance and not just external physical but also internal physical (lunes, blood, etc...) and mental. These trails help shape our community and its overall well being through their natural setting and convenience to the city all while being challenging due to topography and soil types. The layout you all have proposed is appreciated and necessary due to more users than ever. Below are a few questions comments. 1. Is there trail map on a topographic map that we can see? 2. I think we need a section that young riders can confidently ride. (see note 6, this may connect a lot of consistent contours to create a kid trail) 3. I think if you terminate loop 6 with out connecting to wood thrush or new trail line 5, riders are going to connect via star trail? 4. Are any trails going to be directional? If so, can star trail be opened for directional uphill use? (This could be eliminated if note 5 worked out) 5. Is there anyway to connect trail 8 to the Fishburne pkwy-monument? Being able to connect at that contour will help connect garden city side trails connect to s. rke side trails) 6. Is there a way to propose a trail that connects ridge line to riser with out having to climb to the top of riser, this will allow for older users on chestnut to access the south rke side of the trails and not have to climb as much elevation. Thanks again,
1/29/2021	Online	Willis Logan	gwillislogan@gmail.com	Hi We use these trails all of the time: biking, walking, cub scout activities, we take friends on them, and I think the ideas proposed are awesome and I'd even donate funds to speed up implementing them. Willis Logan //434-409-7433 City Resident.
1/28/2021	Online	Cecile Newcomb	cecile64@vt.edu	Thank you for this wonderful plan! I am in support of everything in the plan. However, there are a couple of things missing in the maintenance list: 1. The Ash trees are being killed by Ash Borers. There are many Ash trees on Mill Mountain, especially on the eastern slopes, and as they die there may be serious erosion and possibly other problems. The woodpeckers are thriving with the current situation, so I wouldn't want to remove them, but there should be a plan for replanting, or somehow mitigating erosion. 2. There is a large, nasty garbage dump in the ravine off of Wood Thrush. I reported this to the City, but I couldn't locate the exact spot from the road and they will not hike the trail to find it. It looks like a storage shed in one of the adjacent yards collapsed and all of its contents are in the ravine and on the slope behind their yard. It's probably behind a house on Estes Rd. or Hartsook Blvd.
1/29/2021	Online	Donald Langrehr	dlangreh@radford.edu	Many trees are dying and falling on the steep mountainside (Ash trees primarily). Should we be planning to revitalize the woods with new plantings? *Replace the zoo with a German-style biergarten ;) https://www.youtube.com/watch?v=p_jror0X8p8&feature=emb_logo

APPENDIX C: REFERENCES AND SUSTAINABLE TRAIL DESIGN RESOURCES

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APPENDIX D: CONSERVATION EASEMENT

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Prepared by: Virginia Outdoors Foundation
1108 E. Main St., Suite 700, Richmond, VA 23219, as revised by the City of Roanoke

TAX MAP NOs.: 4050306, 4060505, 4070507, 4070521, 4081201, 4160106, 4160107, 4170203, 4180102, 4180103, 4470101, 4480101, and 4360101

Exempted from recordation tax
under the Code of Virginia (1950), as amended,
Sections 58.1-811 (A) (3), 58.1-811 (D) and 10.1-1803
and from Circuit Court Clerk's fee under Section 17.1-266

THIS DEED OF GIFT OF EASEMENT (this "Easement"), made this ~~3rd~~ day of June, 2010, by and among the CITY OF ROANOKE, VIRGINIA ("Grantor") the VIRGINIA OUTDOORS FOUNDATION (VOF), an agency of the COMMONWEALTH OF VIRGINIA, and the WESTERN VIRGINIA LAND TRUST, a Virginia non-profit non-stock corporation (WVLT), ("Grantees") (the designations "Grantor" and "Grantees" refer to the Grantor and Grantees and their respective successors and assigns),

RECITALS:

R-1 Grantor is the owner in fee simple of real property situated in the City of Roanoke, Virginia, containing in the aggregate 568.0058 acres as further described below and desires to give and convey to Grantees a perpetual conservation and open-space easement over approximately 537.2798 acres of this property (the "Property") as herein set forth; and

R-2 VOF is a governmental agency of the Commonwealth of Virginia and a "qualified organization" and "eligible donee" under Section 170(h)(3) of the Internal Revenue Code of 1986, as amended (and corresponding provisions of any subsequent tax laws) (IRC) and Treasury Regulation §1.170A-14(c)(1), and is willing to accept a perpetual conservation and open-space easement over the Property; and

R-3 WVLT is a charitable corporation exempt from taxation pursuant to IRC § 501(c)(3) and a "qualified organization" and "eligible donee" under IRC §170 (h)(3), as amended, (and corresponding provisions of any subsequent tax laws) (IRC) and Treasury Regulation §1.170A-14(c)(1) and is willing to accept a perpetual conservation and open-space easement over the Property; and

R-4 The Virginia Conservation Easement Act, Chapter 10.2 of Title 10.1, §§10.1-1009 through 10.1-1016 of the Code of Virginia, authorizes a charitable corporation, association or trust exempt from taxation, pursuant to 26 U.S.C.A. 501 (c)(3) to hold a non-possessory interest in real property for the purposes of retaining or protecting natural or open-space values of real property and WVLT qualifies as such a charitable corporation; and

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R-5 Chapter 461 of the Acts of 1966, codified in Chapter 17, Title 10.1, Sections 10.1-1700 through 10.1-1705 of the Code of Virginia, as amended (the "Open-Space Land Act"), provides "that the provision and preservation of permanent open-space land are necessary to help curb urban sprawl, to prevent the spread of urban blight and deterioration, to encourage and assist more economic and desirable urban development, to help provide or preserve necessary park, recreational, historic and scenic areas, and to conserve land and other natural resources" and authorizes the acquisition of interests in real property, including easements in gross, as a means of preserving open-space land; and

R-6 Pursuant to Sections 10.1-1700 and 10.1-1703 of the Open-Space Land Act, the purposes of this Easement include retaining and protecting open-space and natural resource values of the Property, and the limitation on division, residential construction and commercial and industrial uses contained in Section II ensures that the Property will remain perpetually available for forest or open-space use, all as more particularly set forth below; and

R-7 Chapter 525 of the Acts of 1966, Chapter 18, Title 10.1, Sections 10.1-1800 through 10.1-1804 of the Code of Virginia, declares it to be the public policy of the Commonwealth to encourage preservation of open-space land and authorizes the Virginia Outdoors Foundation to hold real property or any estate or interest therein for the purpose of preserving the natural, scenic, historic, scientific, open-space and recreational lands of the Commonwealth; and

R-8 As required under Section 10.1-1701 of the Open-Space Land Act, the use of the Property for open-space land conforms to the City of Roanoke Comprehensive Plan adopted on August 20, 2001, and the Property is zoned "Recreation and Open Space" and is designated a Recreation and Open Space District on the city's future land use map; and

R-9 This open-space easement in gross constitutes a restriction granted in perpetuity on the use which may be made of the Property, and is in furtherance of and pursuant to the clearly delineated governmental conservation policies set forth below:

(i) Land conservation policies of the Commonwealth of Virginia as set forth in:

a. Section 1 of Article XI of the Constitution of Virginia, which states that it is the Commonwealth's policy to protect its atmosphere, lands and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth;

b. The Open-Space Land Act cited above;

c. Chapter 18, of Title 10.1, Sections 10.1-1800 through 10.1-1804 of the Code of Virginia cited above;

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d. The Virginia Land Conservation Incentives Act, Chapter 3 of Title 58.1, Sections 58.1-510 through 58.1-513 of the Code of Virginia cited above, which supplements existing land conservation programs to further encourage the preservation and sustainability of the Commonwealth's unique natural resources, wildlife habitats, open spaces and forest resources;

e. Grantees' formal practices in reviewing and accepting this Easement. Grantees have engaged in a rigorous review, considered and evaluated the benefits provided by this Easement to the general public as set forth in these recitals, and concluded that the protection afforded the open-space character of the Property by this Easement will yield a significant public benefit and further the open-space conservation objectives of Grantees and the Commonwealth of Virginia. Grantor believes that such review and acceptance of this Easement by Grantees tends to establish a clearly delineated governmental conservation policy as required under IRC Section 170(h)(4)(A)(iii);

(ii) Land use policies of the City of Roanoke as delineated in:

a. The Vision 2001-2020 Comprehensive Plan, adopted by City Council on August 20, 2001 to which plan the restrictions set forth in this Easement conform and which contains the following:

EC P1. Parks and recreation. Roanoke will develop, maintain, and manage parks and recreation facilities that enhance the City's and the region's quality of life.

EC P3. Viewsheds. Roanoke will protect steep slopes, ridgetops, and viewsheds within the City as important environmental and scenic resources and will cooperate regionally to protect such resources located outside of the City.

P6. Cultural and historic resources. Roanoke will support, develop, and promote its cultural resources. Roanoke will identify, preserve, and protect its historic districts, landmark features, historic structures, and archaeological sites.

EC P7. Blue Ridge Parkway. Roanoke will protect the Blue Ridge Parkway and the spur within the City from development.

b. The vision set forth in the Mill Mountain Park Management Plan, adopted by City Council as a component of the comprehensive plan on February 1, 2006, to which plan the restrictions set forth in this Easement conform and which contains the following objectives:

Mill Mountain will continue to enrich the quality of life for those who live in, work in, and visit the Roanoke Valley. It is an integral component of the green

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infrastructure of the region, of our urban fabric, and of the evolution of the City, that shall be honored and preserved. Through sound stewardship, Mill Mountain will offer environmentally sensitive educational, recreational, and civic opportunities while preserving its natural character and resources.

R-10 The Property is comprised of approximately 537.2798 acres of mostly forested mountain land with significant topographic variation in Virginia's Blue Ridge physiographic province, and is adjacent to the summit of Mill Mountain at 1,740 feet above sea level; and

R-11 The Property comprises a large portion of Mill Mountain Park, a publicly-accessible park located in the City of Roanoke and owned and managed by the City of Roanoke; and

R-12 The Property and Mill Mountain Park dominate much of Roanoke's southern horizon as seen from numerous places in the Roanoke metropolitan area, including highly travelled public roads, neighborhoods, and downtown Roanoke; and

R-13 The Property and Mill Mountain Park provide substantial outdoor recreation opportunities to citizens of both Roanoke and the Commonwealth, with approximately ten (10) miles of running, hiking, and mountain biking trails open to the public; and

R-14 The Property is adjacent to the Mill Mountain Star (an illuminated, 100 foot-tall neon star built in 1949 listed on both the National Register of Historic Places and the Virginia Landmarks Register), Mill Mountain Star Overlook, Mill Mountain Discovery Center, and Mill Mountain Zoo, which are all important tourist attractions to the Roanoke Valley; the Easement protects the viewshed of the mountainsides for the scenic enjoyment of travelers to these destinations; and

R-15 The Property lies in close proximity to the Roanoke River, which according to the Virginia Department of Conservation and Recreation Division of Natural Heritage, sustains rare natural communities and animals, and the provisions set forth in this deed, including the protection of ridges, steep slopes and feeder streams, and limits on new roads and construction will serve to protect these elements from degradation; and

R-16 The Property is visible from the Appalachian National Scenic Trail and the Blue Ridge Parkway and significantly contributes to the scenic views enjoyed by the public therefrom; and

R-17 Portions of the Property are significantly visible from Interstates 81 and 581, numerous state and US highways, and other heavily-travelled roads within the City of Roanoke and Roanoke County; and

R-18 This Easement will yield significant public benefit to the citizens of the Commonwealth as set forth in these recitals and in Section I below; and

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R-19 Grantor and Grantees desire to protect in perpetuity the conservation values of the Property as specified in Section I by restricting the use of the Property as set forth in Section II; and

R-20 Grantees have determined that the restrictions set forth in Section II (the Restrictions) will preserve and protect in perpetuity the conservation values of the Property and will limit use of the Property to those uses consistent with, and not adversely affecting, the conservation values of the Property and the governmental conservation policies furthered by the Easement; and

R-21 VOF, by acceptance of this Easement, designates the Property as property to be retained and used in perpetuity for the preservation and provision of open-space land pursuant to the Open-Space Land Act.

NOW, THEREFORE, in consideration of the foregoing recitals incorporated herein and made a part hereof and in consideration of the mutual covenants herein and their acceptance by Grantees, Grantor does hereby give, grant and convey to Grantees a conservation and open-space easement in gross (Easement) over, and the right in perpetuity to restrict the use of, the Property, which is described below and consists of 537.2798 acres located in the City of Roanoke, Virginia, to-wit:

All those certain parcels of real property located in the City of Roanoke, Virginia known as a portion of Mill Mountain Park and designated as Tax Parcel Numbers 4050306, 4060505, 4070507, 4070521, 4081201, 4160106, 4160107, 4170203, 4180102, 4180103, 4470101, 4480101, and 4360101, comprising a total of 537.2798 acres, as shown on the "Plat Showing Property of the City of Roanoke, Virginia, #4050306, #4060505, #4070507, #4070521, #4081201, #4160106, #4160107, #4170203, #4180102, #4180103, #4470101, and #4480101, 24,715,292 S.F. (567.3850 AC.) and Tax #4360101, 27,041 S. F. (0.6208 AC.) Situated on Mill Mountain, City of Roanoke, Virginia," dated May 10, 2010, consisting of 8 sheets, prepared by Lumsden Associates, P. C., and recorded simultaneously herewith in Map Book 1, Pages ~~1-8~~, not including Tax Parcel Numbers 4050308 and 4050309 and the 1,338,425 square feet (30.7260 acres) identified on the aforescribed plat as the "Property of the City of Roanoke Not Included in Conservation Easement," this plat being herein referred to as Exhibit A, and to be recorded simultaneously herewith. * 3599 thru 3606

As the Property consists of more than one parcel for real estate tax or any other purpose, it shall be considered one parcel for purposes of this Easement, and the restrictions and covenants of this Easement shall apply to the Property as a whole.

SECTION I - PURPOSE

The purpose of this Easement is to preserve and protect the conservation values of the Property in perpetuity by imposing the restrictions on the use of the Property set forth in Section II and providing for their enforcement in Section III. The conservation

values of the Property are described in the above recitals, are documented in the Documentation Report described in Section IV below and include the Property's open-space, scenic, natural, historic, educational and recreational values and its value as land preserved for rural uses such as forestry and open space. Pursuant to the Virginia Land Conservation Foundation's (VLCF's) Conservation Value Review Criteria the further purpose of this Easement is preservation of land for forestal use, historic preservation, natural resource-based outdoor recreation or education, and preservation of scenic open space.

SECTION II – RESTRICTIONS

Restrictions are hereby imposed on the use of the Property pursuant to the public policies set forth above. The acts that Grantor covenants to do and not to do upon the Property, and the restrictions that Grantees are hereby entitled to enforce, are and shall be as follows:

1. **DIVISION.** The Property (which currently consists of thirteen (13) separate tax parcels, which are considered one Property for purposes of this Easement) shall not be separately conveyed (in combinations or further subdivisions of the current parcels) as more than five new (5) parcels. Grantor shall give Grantees written notice prior to making any division of the Property. In the event of a division of the Property as provided in this Paragraph 1, the grantor making the conveyance retains the right to make any further permitted divisions of the Property, unless any permitted divisions are allocated likewise by that grantor in the instrument creating the division or other recorded instrument.

Boundary line adjustments with adjoining parcels of land are permitted and shall not be considered separate conveyances of portions of the Property or divisions or subdivisions of the Property, provided that Grantees approve such adjustments and they are made party to any deed creating a boundary line adjustment, and at least one of the following conditions is met:

- (i) The entire adjacent parcel is subject to a recorded open-space easement held by either Grantee; or
- (ii) The entire adjacent property is owned by the Western Virginia Water Authority, National Park Service, or successor organizations; or
- (iii) The proposed boundary line adjustment shall have been reviewed and approved in advance by the Board of Trustees of VOF and the Board of Trustees of WVLTA.

In the event that a permitted division of the Property requires a road or street dedication, such dedication shall not be considered a separate conveyance of a portion of the Property or a division or subdivision of the Property.

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2. BUILDINGS, STRUCTURES, ROADS, AND UTILITIES.

(i) No buildings, structures, roads or, utilities, other than the following, are permitted on the Property:

(a) **Buildings and Structures.** Buildings and structures that serve the purposes listed in Section II Paragraph 3 below, which buildings and structures shall not exceed an aggregate of 20,000 square feet of above-ground enclosed area without Grantees' prior review and written approval, which approval shall take into consideration the impact of the proposed increase in permitted square footage on the scenic and other conservation values of the Property. Such buildings and structures shall not individually exceed 1,500 square feet of above-ground enclosed area without Grantees' prior review and written approval, which approval shall take into consideration the impact of the size, height and siting of the proposed building or structure on the scenic and other conservation values of the Property. Buildings and structures currently existing on the Property shall be counted in the permitted aggregate square feet of above-ground enclosed area. Grantor shall give Grantees thirty (30) days' written notice before beginning construction or enlargement of any buildings or structure on the Property larger than 1,500 square feet of above-ground enclosed area. In the event of division of the Property as provided in Section II, Paragraph 1, permitted above-ground enclosed square footage shall be allocated among the parcels in the instrument creating the division or other recorded instrument. For the purposes of this easement, "above-ground enclosed area" refers to a building's enclosed interior square footage, including the individual enclosed building's footprint as well as the sum of any other above-ground enclosed floor areas, and does not include associated parking or road areas;

(b) **Roads.** Private roads to serve permitted buildings , private roads to parcels created by permitted divisions of the Property, public roads required to be constructed in conjunction with permitted divisions or subdivisions of the Property, and roads with permeable surfaces for other permitted uses, such as outdoor recreation or forestry, provided that Grantees determine that the construction of such roads will not impair the conservation values of the Property and give prior written approval of such construction, which approval shall not be withheld unreasonably;

(c) **Utilities.** Public or private utilities to serve permitted buildings or structures and public or private utilities to serve parcels created by permitted divisions of the Property. Public or private utilities to be constructed in whole or in part to serve other properties shall not cross the Property unless Grantees determine that the construction and maintenance of such utilities will not impair the conservation values of the Property and give their prior written approval for such construction and maintenance, which approval shall take into consideration the visibility and other impact of such utilities on the conservation values of the

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Property. Grantor reserves its separate rights to approve such public or private utilities.

(ii) Grantor shall have the right to construct new buildings, structures, roads, and utilities permitted in Section II, Paragraph 2 (i) above and to repair, maintain, renovate and replace all new and existing permitted buildings, structures, roads, and utilities on the Property, within the limitations set forth in this Easement.

(iii) To protect the scenic values of the Property, no building or structure larger than 500 square feet in above-ground enclosed area and no structure larger than 500 square feet of ground surface area shall be constructed within the "Scenic Protection Area" without Grantees' approval, which approval shall take into account the impact of the scenic conservation values of the Property. The "Scenic Protection Area" is defined as the portions of Tax Map Parcels 4050306, 4060505, and 4160107 which fall within the boundaries of the Property as described on Exhibit A.

(iv) No building or structure shall exceed twenty-five (25) feet in height, provided that in the Scenic Protection Area, no building or structure shall exceed fifteen (15) feet in height, unless permitted in writing by Grantees, which permission shall not be withheld unreasonably.

3. **PERMITTED USES OF THE PROPERTY.** The following activities are the only activities permitted on the Property:
- (i) nature education and related activities of nonprofit organizations and educational institutions, public recreation (including, but not limited to, horseback riding, camping, hiking, and bicycling) and facilities and uses accessory thereto, and trails for the same;
 - (ii) forestry;
 - (iii) small-scale incidental commercial operations related to activities set forth in (i) and (ii) above that Grantees approve in writing as being consistent with the conservation purpose of this Easement;
 - (iv) processing and sale of products produced on the Property as long as no additional buildings are required;
 - (v) temporary or seasonal outdoor activities that do not permanently alter the physical appearance of the Property and that do not diminish the conservation values of the Property herein protected; and
 - (vi) activities that can be and in fact are conducted within permitted buildings without material alteration to their external appearance.
4. **MANAGEMENT OF FOREST.** Best Management Practices, as defined by the Virginia Department of Forestry, shall be used to control erosion and protect water quality when any timber harvest (other than those in the following paragraph) or land-clearing activity is undertaken. All material timber harvest activities on the Property shall be guided by a Forest Stewardship Management Plan approved by Grantees. A pre-harvest plan consistent with the Forest

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Stewardship Management Plan shall be submitted to Grantees for approval thirty (30) days before beginning any material timber harvest, which approval shall be limited to determination of whether or not the pre-harvest plan is in compliance with the Forest Stewardship Management Plan and is consistent with the purpose of this Easement. Without limiting the foregoing requirement regarding submission of pre-harvest plans, Grantees shall be notified thirty (30) days prior to the clearing of over ten (10) acres of forestland for conversion into grassland or open space or in association with the construction of permitted buildings.

In order to protect scenic conservation values of the Property, no commercial timbering shall occur within the "Scenic Protection Area" described above without Grantees' prior review and written approval, which approval shall take into consideration the impact of the proposed timbering on the conservation values listed in Section I.

Neither a Forest Stewardship Management Plan nor a pre-harvest plan shall be required for the following permitted non-commercial activities: (i) cutting of trees for the construction of permitted roads, utilities, buildings and structures, (ii) cutting of trees for trail clearing, creation and maintenance, (iii) cutting of trees for firewood, or for other similar small scale uses of Grantor, (iv) removal of trees posing an imminent hazard to the health or safety of persons or livestock, (v) removal of invasive species, or (vi) the removal of trees for the purpose of maintaining scenic views to and from the Property and adjacent public lands and structures, including, but not limited to, scenic overlooks on Mill Mountain and the Mill Mountain Star.

5. **RIPARIAN BUFFER.** To protect water quality, riparian buffer strips shall be maintained as follows:

A 35-foot buffer strip shall be maintained along each edge of all intermittent streams as measured from the tops of the banks and as shown on the Garden City and Roanoke USGS Topographic Quadrangle Maps.

(i) Within the buffer strips there shall be (a) no buildings or other substantial structures constructed, (b) no storage of compost, manure, fertilizers, chemicals, machinery or equipment, (c) no removal of trees except removal of invasive species or removal of dead, diseased or dying trees, or trees posing a threat to human or livestock health or safety, and (d) no plowing, cultivation, filling, or other earth-disturbing activity, except as may be reasonably necessary for the activities set forth in Section II, Paragraph 5(ii) below.

(ii) Notwithstanding the foregoing, permitted within the buffer strips are (a) wetland or stream bank restoration, or erosion control, pursuant to a government permit, (b) fencing along or within the buffer strips, (c) construction and maintenance of stream crossings for pedestrians, livestock and vehicles that minimize obstruction of water flow, (d) creation and maintenance of trails with

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unimproved surfaces, (e) planting of non-invasive species, and (f) dam construction to create ponds.

(iii) Should the streams meander or change course naturally, the buffer strips shall remain the same width, but move relative to the movement of the streams. In such event, any buildings or structures that were outside of the original buffer strips and are determined to be within the new buffer strips shall not be considered in violation of these restrictions and may be maintained at such locations.

6. **GRADING, BLASTING, FILLING AND MINING.** Grading, blasting, filling, or earth removal shall not materially alter the topography of the Property except for (i) dam construction to create ponds, (ii) wetlands or stream bank restoration pursuant to a government permit, (iii) erosion and sediment control pursuant to an erosion and sediment control plan, (iv) as required in the construction of permitted buildings, structures, roads, and utilities or (v) as required in the maintenance of overlooks and other structures on adjacent public land with Grantees' approval. Best Management Practices, in accordance with the Virginia Erosion and Sediment Control Law, shall be used to control erosion and protect water quality in such construction. Grading, blasting, filling, or earth removal in excess of one acre for the purposes set forth in subparagraphs (i) through (iv) above require thirty (30) days' prior notice to Grantees. Generally accepted agricultural activities shall not constitute a material alteration. Surface mining, subsurface mining, dredging on or from the Property, or drilling for oil or gas on the Property is prohibited.
7. **SIGNAGE.** Display of billboards, signs, or other advertisements is not permitted on or over the Property except to: (i) state the name and/or address of the owners of the Property, (ii) advertise the sale or lease of the Property, (iii) advertise the sale of goods or services produced incidentally to a permitted use of the Property, (iv) provide notice necessary for the protection of the Property, (v) give directions to visitors, (vi) recognize historic status or participation in a conservation program, or (vii) provide interpretive or wayfinding information. Signs visible from outside the Property shall not individually exceed thirty-six (36) square feet in size.

SECTION III – ENFORCEMENT

1. **RIGHT OF INSPECTION.** Representatives of Grantees may enter the Property from time to time for purposes of inspection (including photographic documentation of the condition of the Property) and enforcement of the terms of this Easement after permission from or reasonable notice to Grantor or Grantor's representative, provided, however, that in the event of an emergency, entrance may be made to prevent, terminate or mitigate a potential violation of these restrictions with notice to Grantor or Grantor's representative being given at the earliest practicable time.

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2. **ENFORCEMENT.** Grantees have the right to bring an action at law or in equity to enforce the Restrictions contained herein. This right specifically includes the right (i) to require restoration of the Property to its condition at the time of the donation or to its condition prior to the violation, provided that such prior condition was in compliance with the Restrictions set forth herein; (ii) to recover any damages arising from non-compliance; and (iii) to enjoin non-compliance by *ex parte* temporary or permanent injunction. If the court determines that Grantor failed to comply with this Easement, Grantor shall reimburse Grantees for any reasonable costs of enforcement, including costs of restoration, court costs and attorney's fees, in addition to any other payments ordered by the court. Grantees' delay shall not waive or forfeit its right to take such action as may be necessary to ensure compliance with this Easement, and Grantor hereby waives any defenses of waiver, estoppel or laches with respect to any failure to act by Grantees. Notwithstanding any other provision of this Easement, Grantor shall not be responsible or liable for any damage to the Property or change in the condition of the Property (i) caused by fire, flood, storm, Act of God, governmental act or other cause outside of Grantor's control or (ii) resulting from prudent action taken by Grantor to avoid, abate, prevent or mitigate such damage to or changes in the condition of the Property from such causes.

SECTION IV – DOCUMENTATION

Documentation retained in the office of Grantees including, but not limited to, the Baseline Documentation Report ("Documentation Report"), describes the condition and character of the Property at the time of the gift. The Documentation Report may be used to determine compliance with and enforcement of the terms of this Easement; however, the parties are not precluded from using other relevant evidence or information to assist in that determination. Grantor has made available to Grantees, prior to donating this Easement, documentation sufficient to establish the condition of the Property at the time of the gift. The parties hereby acknowledge that the Documentation Report contained in the files of Grantees is an accurate representation of the Property.

SECTION V – GENERAL PROVISIONS

1. **DURATION.** This Easement shall be perpetual. It is an easement in gross that runs with the land as an incorporeal interest in the Property. The covenants, terms, conditions and restrictions contained in this Easement are binding upon, and inure to the benefit of, the parties hereto and their successors and assigns, and shall continue as a servitude running in perpetuity with the Property. The rights and obligations of an owner of the Property under this Easement terminate upon proper transfer of such owner's interest in the Property, except that liability for acts or omissions occurring prior to transfer shall survive transfer.

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2. **PUBLIC ACCESS.** Although this Easement will benefit the public as described above, nothing herein shall be construed to convey to the public a right of access to, or use of the Property. Grantor retains the exclusive right to control such access and use, subject to the terms hereof.
3. **TITLE.** Grantor covenants and warrants that Grantor has good title to the Property, that Grantor has all right and authority to grant and convey this Easement and that the Property is free and clear of all encumbrances (other than restrictions, covenants, conditions, and utility and access easements of record or shown on the survey plat (Exhibit A) described herein) including, but not limited to, any mortgages or deeds of trust not subordinated to this Easement.
4. **ACCEPTANCE.** Acceptance of this conveyance by Grantees is authorized by Virginia Code Sections 10.1-1801 and 10.1-1010 and is evidenced by the signature of a Deputy Director of VOF, by authority granted by its Board of Trustees and by the signature of the Executive Director of WVLT, by authority granted by its Board of Trustees.
5. **INTERACTION WITH OTHER LAWS.** This Easement does not permit any use of the Property which is otherwise prohibited by federal, state, or local law or regulation. Neither the Property, nor any portion of it, shall be included as part of the gross area of other property not subject to this Easement for the purposes of determining density, lot coverage or open-space requirements under otherwise applicable laws, regulations or ordinances controlling land use and building density. No development rights that have been encumbered or extinguished by this Easement shall be transferred to any other property pursuant to a transferable development rights scheme, cluster development arrangement or otherwise.
6. **CONSTRUCTION.** Any general rule of construction to the contrary notwithstanding, this Easement shall be liberally construed in favor of the grant to effect the purposes of the Easement and the policy and purposes of Grantees. If any provision of this Easement is found to be ambiguous, an interpretation consistent with the purpose of this Easement that would render the provision valid shall be favored over any interpretation that would render it invalid. Notwithstanding the foregoing, lawful acts or uses consistent with the purpose of and not expressly prohibited by this Easement are permitted on the Property.
7. **REFERENCE TO EASEMENT IN SUBSEQUENT DEEDS.** This Easement shall be referenced by deed book and page number, instrument number or other appropriate reference in any deed or other instrument conveying any interest in the Property. Failure of Grantor to comply with this requirement shall not impair the validity of the Easement or limit its enforceability in any way.
8. **NOTICE TO GRANTEES AND GRANTOR.** For the purpose of giving notices hereunder the current address of VOF is Capitol Place Building, 1108 East Main

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Street, Suite 700, Richmond, Virginia 23219, and the address of WVLT is 722 First St. SW, Suite L, Roanoke, VA 24016 and any notice to Grantor shall be given to the Roanoke City Manager, Room 364 Municipal Building, 215 Church Avenue, Roanoke VA, 24011. Failure to comply with this requirement shall not impair the validity of the Easement or limit its enforceability in any way.

Grantor agrees to notify Grantees in writing (i) before exercising any reserved right that Grantor believes may have an adverse effect on the conservation or open-space values or interests associated with the Property (the purpose of requiring such notice is to afford Grantees an adequate opportunity to monitor such activities to ensure that they are carried out in a manner consistent with the purpose of this Easement; such notice shall describe the proposed activity in sufficient detail to allow Grantees to judge the consistency of the proposed activity with the purpose of this Easement); and (ii) at or prior to closing on any *inter vivos* transfer, other than a deed of trust or mortgage, of all or any part of the Property.

9. **MERGER.** Grantor and Grantees agree that in the event that Grantees, or either of them, acquire a fee interest in the Property, this Easement shall not merge into the fee interest, but shall survive the deed and continue to encumber the Property.
10. **ASSIGNMENT BY GRANTEES.** Grantees may not transfer or convey this Easement unless Grantees condition such transfer or conveyance on the requirement that (1) all restrictions and conservation purposes set forth in this Easement are to be continued in perpetuity and (2) the transferee then qualifies as an eligible donee as defined in Section 170(h)(3) of the IRC as amended and the applicable Treasury Regulations.
12. **GRANTEES PROPERTY RIGHT.** Grantor agrees that the donation of this Easement gives rise to a property right, immediately vested in Grantees, with a fair market value that is equal to the proportionate value that the perpetual conservation restriction at the time of the gift bears to the value of the Property as a whole at that time.
13. **EXTINGUISHMENT, CONVERSION, DIVERSION.** Grantor and Grantees intend that this Easement be perpetual and acknowledge that no part of the Property may be converted or diverted from its open-space use except in compliance with the provisions of Section 10.1-1704 of the Open-Space Land Act which does not permit extinguishment of open-space easements or loss of open space. Nevertheless, should an attempt be made to extinguish this Easement, such extinguishment can be made only by judicial proceedings and only if in compliance with Section 10.1-1704.
14. **AMENDMENT.** Grantees and Grantor may amend this Easement to enhance the Property's conservation values or add to the restricted property, provided that no amendment shall (i) affect this Easement's perpetual duration, (ii) conflict with or

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be contrary to or inconsistent with the conservation purpose of this Easement, (iii) reduce the protection of the conservation values. No amendment shall be effective unless documented in a notarized writing executed by Grantees and Grantor and recorded among the land records of the City of Roanoke, Virginia.

- 15. **SEVERABILITY.** If any provision of this Easement or its application to any person or circumstance is determined by a court of competent jurisdiction to be invalid, the remaining provisions of this Easement shall not be affected thereby.
- 16. **ENTIRE AGREEMENT.** This instrument sets forth the entire agreement of the parties with respect to this Easement and supersedes all prior discussions, negotiations, understandings, or agreements relating to the easement.
- 17. **CONTROLLING LAW.** The interpretation and performance of this Easement shall be governed by the laws of the Commonwealth of Virginia, resolving any ambiguities or questions of the validity of specific provisions in order to give maximum effect to its conservation purpose.
- 18. **RECORDING.** This Easement shall be recorded in the land records in the Circuit Court Clerk's Office of the City of Roanoke, Virginia, and Grantees may re-record it any time as may be required to preserve their rights under this Easement.
- 19. **COUNTERPARTS.** This Easement may be executed in one or more counterpart copies, each of which, when executed and delivered shall be an original, but all of which shall constitute one and the same Easement. Execution of this Easement at different times and in different places by the parties hereto shall not affect the validity of the Easement.

WITNESS the following signatures and seals:

[Counterpart signature pages follow]

Appointed to form:
 William M. - [Signature]
 City Attorney

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[Counterpart signature page 1 of 3]

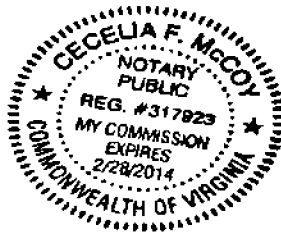
[Handwritten Signature]
Grantor
CITY MANAGER

COMMONWEALTH OF VIRGINIA,
CITY/COUNTY OF Roanoke, TO WIT:

The foregoing instrument was acknowledged before me this 23 day of June, 2010 by Christopher P. Merrill; City Manager.

[Handwritten Signature]
Notary Public

(SEAL)



My commission expires: 2/28/14
Registration No. 317923

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[Counterpart signature page 2 of 3]

Accepted:
VIRGINIA OUTDOORS FOUNDATION.

By: Tamara A Vance

COMMONWEALTH OF VIRGINIA,
CITY/COUNTY OF Montgomery, TO WIT:

The foregoing instrument was acknowledged before me this 19th day of July, 2010 by Tamara A. Vance, a Deputy Director of the Virginia Outdoors Foundation.

Jennifer D. Hubbard
Notary Public

My commission expires: 30 June 2013
Registration No. 7283689

I was commissioned notary as
Jennifer L. Ducote



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[Counterpart signature page 3 of 3]

Accepted:
WESTERN VIRGINIA LAND TRUST,

By: *R. B. Holback*
Executive Director, Western Virginia Land Trust

COMMONWEALTH OF VIRGINIA,
CITY/COUNTY OF *Roanoke*, TO WIT:

The foregoing instrument was acknowledged before me this *30th* day of
June, 2010 by *R. B. Holback*, Executive Director, Western
Virginia Land Trust.

Susan N. Johnson
Notary Public



My commission expires: *6/30/14*
Registration No. *206402*

INSTRUMENT #100006658
RECORDED IN THE CLERK'S OFFICE OF
ROANOKE CITY ON
JULY 19, 2010 AT 04:05PM
BRENDA S. HAMILTON, CLERK
RECORDED BY: KMT

APPENDIX E: GUIDELINES AND ETIQUETTE FOR TRAIL USERS

In order for a multi-use trail system to work well, all users must exhibit high standards of behavior and protect the resource they use. The following guidelines for trail etiquette are widely accepted standards for each user group. The Mill Mountain Trail Plan 2021 Amendment encourages users to learn these guidelines and staff to create brochures and share information on websites and social media to educate users on trail etiquette and practices.

Etiquette and Safety for All Trail Users

The following guidelines are taken from the Leave No Trace Center for Outdoor Ethics. Leave No Trace is a national non-profit organization dedicated to promoting and inspiring responsible outdoor recreation through education, research and partnerships. These principles can be applied for mountain bikers and horseback riders as well hikers.

1. **Plan Ahead and Prepare:** Adequate planning and preparation helps trail users accomplish recreation goals safely and enjoyably, while simultaneously minimizing damage to the land. Poor planning often results in miserable trail users and damage to natural and cultural resources. Land Managers often encounter trail users who, because of poor planning and unexpected conditions, degrade resources and put themselves at risk.

Why Is Planning Important?

- It helps ensure your safety.
- It prepares you to Leave No Trace and minimizes resource damage.
- It contributes to accomplishing your goals safely and enjoyably.
- It increases self-confidence and opportunities for learning more about nature.
- Due to the urban nature of Mill Mountain, part of planning is knowing the other uses of the park, check schedules frequently

Elements to Consider:

- Weather
- Terrain
- Regulations/restrictions
- Private land boundaries
- Your average speed and anticipated food consumption
- Group size

- 2. Travel on the Trail:** The goal of travel in the outdoors is to move through natural areas while avoiding damage to the land or waterways. Travel damage occurs when surface vegetation or communities of organisms are trampled beyond recovery. The resulting barren area leads to soil erosion and the development of undesirable and social trails.

Land management agencies construct trails to provide identifiable routes that concentrate user traffic. Constructed trails are themselves an impact on the land; however, they are a necessary response to the fact that people want to travel through natural areas.

Concentrating travel on trails reduces the likelihood that multiple routes will develop and scar the landscape. It is better to have one well-designed route than many poorly chosen paths. Encourage trail users to stay within the width of the trail and not shortcut trail switchbacks (trail zigzags that climb hillsides) or go around technical trail obstacles like rocks or roots.

- 3. Dispose of Waste Properly:** Proper disposal of human waste is important to avoid pollution of water sources, avoid the negative implications of someone else finding it, minimize the possibility of spreading disease and maximize the rate of decomposition. There are restroom facilities located at the Star and the Discovery Center for trail users to avoid going in the woods of the park.

“Pack it in, Pack it out” is a familiar mantra to seasoned trail users. Pack out all trash and garbage. There are several trash receptacles located at the top of the mountain near the Star and Discovery Center as well as the shelter.

Carry plastic bags to haul your trash (and maybe someone else’s). Invite the kids in your group to make a game out of scavenging.

- 4. Leave What You Find:** Allow others a sense of discovery by leaving rocks, plants, archaeological artifacts and other objects of interest as you find them.

Avoid Damaging Live Trees and Plants

Picking a few flowers does not seem like it would have any great impact and, if only a few flowers were picked, it wouldn’t. But, if every visitor thought “I’ll just take a few,” a much more significant impact might result. Take a picture or sketch the flower instead of picking it.

Leave Natural Objects and Cultural Artifacts

Natural objects of beauty or interest such as antlers or colored rocks add to the mood of the park and trails and should be left so others can experience a sense of discovery.

5. **Minimize Campfire Impacts:** Fires are not allowed in Mill Mountain Park. Visit LNT.org for more information about this principle for areas that allow fire.
6. **Respect Wildlife:** Learn about wildlife through quiet observation. Do not disturb wildlife or plants just for a “better look.” Observe wildlife from a distance so they are not scared or forced to flee.

Quick movements and loud noises are stressful to animals. Travel quietly and do not pursue, feed or force animals to flee. In hot or cold weather, disturbance can affect an animal’s ability to withstand the rigorous environment. Do not touch, get close to, feed or pick up wild animals. It is stressful to the animal, and it is possible that the animal may harbor rabies or other diseases.

7. **Be Considerate of Other Visitors:** One of the most important components of outdoor ethics is to maintain courtesy toward other visitors. It helps everyone enjoy their outdoor experience. Many people come to the outdoors to listen to nature. Excessive noise, uncontrolled pets and damaged surroundings take away from the natural appeal of the outdoors.

The feeling of solitude, especially in open areas, is often enhanced when group size is small, contacts are infrequent and behavior is unobtrusive.

In many places, there’s an expectation that hikers will yield to equestrians, and that bicyclists will yield to both hikers and equestrians on trails. Stay in control when mountain biking. Before passing others, politely announce your presence and proceed with caution.

Keep pets under control at all times. Please pick up dog feces from trails. Just a reminder that Mill Mountain Park requires dogs to be on a leash at all times.

www.lnt.org/why/7-principles/

Etiquette and Safety for Equestrians

These guidelines are posted by Equisearch: For People Who Love Horses, originally from the Maryland Horse Council.

- Make sure your horse has the temperament and training for riding on congested public trails. Busy multi-use trails are not the proper place for schooling green horses.
- Advise other trail users of your horse’s temperament, e.g. a horse with a tendency to kick should always wear a red ribbon on the tail or a stallion should wear a yellow ribbon. Assume that not everyone will know what these ribbons mean, so be prepared to explain or take the necessary precautions to avoid trouble.

- Obey posted speed/gait limits and use common sense in crowded areas. Canter/galloping on crowded trails endangers everyone.
- Move to the right to allow faster trail users to pass.
- Announce your intentions to pass other trail users and reduce speed in order to pass safely. Pass on the left only.
- Remove your horse from the trail if you begin experiencing behavior problems.
- Stay on equestrian approved trails.
- As a courtesy to others in your group, use appropriate hand signals for turning, slowing, etc., and give verbal warning for dangers on the trail (e.g. holes, low branches).
- Remember that other trail users may not be familiar with horses or their reactions to new experiences. Your horse may be another trail users introduction to horses, what you do is a reflection of the local horse community. Cheerfully answer questions about your horse. You are an ambassador for the entire equestrian community.
- If you trailer to a location, do not clean out your trailer in the parking area.
- On multiple use trails, step off the trail (if possible) if your horse needs to relieve himself or kick the droppings off the trail.

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Responsible Riding: IMBA Rules of the Trail

The International Mountain Bicycling Association guidelines are recognized around the world as the standard code of conduct for mountain bikers. IMBA launched its Rules of the Trail in 1988 to educate mountain bikers and serve as a pro-bike advocacy tool. These guidelines for responsible riding have been adopted by land-management agencies nationwide. Actions of mountain bikers have critical impacts on the landscape, the trails, the animals and other trail users. Pledge to ride friendly; ride prepared; ride responsibly; ride lightly.

- 1. Respect the Landscape:** Respect your local trail builders and be a good steward of the physical environment. Keep singletrack single by staying on the trail. Practice Leave No Trace principles. Do not ride muddy trails because it causes rutting, widening and maintenance headaches. Ride through standing water, not around it. Ride (or walk) technical features, not around them.
- 2. Share the Trail:** Most of the trails you ride are multi-use. Mountain bikers yield to horses and foot traffic, and descending riders yield to climbing riders. This yield triangle has been formally adopted by land managers since the late 1970s and is a significant reason why you have the access you do. There are some regional differences and unique rules on single-use, directional mountain bike trails—know the code where you ride. Be nice. Say hi.
- 3. Ride open, Legal trails:** Poaching trails, building illegal singletrack or adding unauthorized trail features are detrimental to your access. Poorly-built features could also seriously injure other trail users. If you believe there aren't enough trails or variety near you, it's time to get involved. Your engagement will be welcomed because it takes a village to create, enhance and protect

great places to ride.

4. **Ride in Control:** Speed, inattentiveness and rudeness are the primary sources of trail conflict among user groups. Use extra caution around horses, which are unpredictable. Be extra aware when riding downhill trails with poor sight lines and blind corners. Make sure you can hear what's going on around you and be prepared to stop for other trail users.
5. **Plan ahead:** Be prepared and self-sufficient. Every mountain biker should carry what they need for the ride they're undertaking, and know how to fix a flat tire and make minor repairs. Download a GPS trail app on your phone for navigation or carry a map in unfamiliar locations. Ride with a partner or share your riding plan with someone if you're heading out solo.
6. **Mind the animals:** When it comes to wildlife, live and let live. In some places disturbing wildlife are serious offenses. There is a leash law on Mill Mountain and riding with a dog is in violation of that. A hike is a more suitable activity for recreation with a dog.

www.imba.com/ride/imba-rules-of-the-trail