

Appendix B – Minnewaska State Park Preserve Trails Plan

Final Trails Plan

for

Minnewaska State Park Preserve

*Towns of Wawarsing, Gardiner, Rochester, Shawangunk
Ulster County*

Prepared by
The New York State Office of Parks, Recreation
and Historic Preservation

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Minnewaska State Park Preserve Trails Plan

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Introduction

Minnewaska State Park Preserve is a 21,000 acre Preserve located along the Shawangunk Ridge in Ulster County, NY. It is an area of diverse recreational, natural, historical and cultural resources. Its proximity to major population centers in the Hudson Valley and the New York City metropolitan area and the variety of experiences provided make the Preserve a highly visited destination, especially in the summer months.

Minnewaska is the largest landholding within the Shawangunk Mountain ecosystem. It is characterized by spectacular scenery associated with steep cliffs, rock ledges, expansive pine barrens and pine plains, wilderness areas, numerous streams and waterfalls, three high elevation "Sky Lakes" - Minnewaska, Awosting and Mud Pond (Haseco Lake) and a multitude of scenic vistas. The Preserve was the location of a 19th century resort complex around Lake Minnewaska. Part of the development of this complex included the construction of an extensive carriage road system designed with low grades which enabled the hotel guests to tour Minnewaska lands by horse-drawn carriages. A number of footpaths were also developed during this time, providing greater access to the wilderness areas. This network of historic carriage roads and footpaths remains today, comprising the trail system and providing visitors access to the interior of the Preserve and its many resources.

In recent years, two large adjacent parcels were acquired by the Palisades Interstate Park Commission (PIPC) and have been incorporated into the Preserve's management area (managed by OPRHP/PIPC). These parcels are the Awosting Reserve (2,518 acres) in the south and the Mine Hole Area (1,711 acres) in the north. Other protected properties adjacent to Minnewaska State Park Preserve include Sam's Point Preserve (separate parcels owned by PIPC and the Open Space Institute (OSI); both parcels managed by The Nature Conservancy (TNC)), Mohonk Preserve and Witch's Hole State Forest (NYS Department of Environmental Conservation). These adjacent parcels contain a number of footpaths and carriage roads that extend into the Preserve land. They provide additional recreational opportunities for visitors to the Preserve but their management will not be included in this plan.

Trail-related recreational activities currently permitted in the Preserve include: hiking, biking, horseback-riding (by permit), snowshoeing and cross country skiing. Most carriage roads allow hiking, biking, and equestrian use, while the footpaths allow hiking only. The most prevalent usage in the summer months is walking, hiking and biking. Some carriage roads are groomed in the winter months for cross country skiing, while snowshoeing is allowed on the ungroomed carriage roads and all footpaths. The Preserve has a snowshoe rental program for use by patrons.

The trail system is also used for interpretation, nature enjoyment, and for access to hunting and fishing areas and other destinations in the Preserve, such as the beaches, scenic vistas, and water falls. Rock climbers utilize footpaths to access the cliffs in the Peter's Kill Climbing Area.

The Long Path, which currently extends from the George Washington Bridge north to the John Boyd Thacher State Park near Albany, traverses the Preserve land entering from the south through Sam's Point Preserve and heads in a northeasterly direction past the Lake Awosting area continuing to the northern border of the Preserve. The Long Path is maintained by the New York-New Jersey Trail Conference and provides a through-hiking-only trail experience.

As part of the master planning process, it was identified that due to the extensive carriage roads, footpaths and wood roads systems located throughout the Preserve, the diversity of recreational opportunities allowed, the increased use of the Preserve facilities, the natural and cultural resources located in the Preserve, and the recent acquisition properties, a trails plan should be developed in conjunction with the master plan. Recreational and educational experiences need to be balanced with natural and cultural resource protection. With the extensive use of the trail system, changing environmental conditions, and expanded information on significant ecological communities and rare and endangered species throughout the Preserve, this trails plan provides direction and guidance for Preserve staff for development, management and maintenance of a sustainable multi-use trail system. The trail system should meet the needs of the users while protecting the resources and integrity of the Preserve. A draft document, “A Multi-Purpose Trails Plan for the Footpaths and Carriageway System of Minnewaska State Park Preserve,” was developed in August 1998 by a diverse group consisting of staff from the Preserve, the Palisades Interstate Park Commission, other agencies and a number of volunteers representing trail organizations. The plan was not adopted but was used as a resource document for this plan.

Providing recreational opportunities compatible with the character of the Preserve and its resources is a goal identified in the master plan. As part of the master planning process, public comments regarding trails and recreation in the Preserve were received at two public information meetings held in July 2008 in New Paltz and Ellenville and during a public comment period which ended in August 2008. These comments have helped to guide the development of this trails plan.

This trails plan is provided as a supporting document to the master plan. The plan provides an existing inventory of footpaths, wood roads and carriage roads, some general trail maintenance recommendations, and proposed modifications to the existing system. Additional trail opportunities are identified for recent acquisition properties. The plan describes interpretive programs offered at the Preserve, as well as, future opportunities and coordination efforts with user groups for development and maintenance of the trail system. Also included are sections on trail standards and an evaluation, assessment and monitoring process to be used in trail development and trail modifications.

Note: Carriage Roads/ Carriageways: Historically, these routes were called carriage roads due to the constructed design for horse-drawn carriages during the resort era. In recent years, as these routes have been utilized for multi-use recreational activities, excluding horse-drawn carriages, the term carriageways has been more widely accepted. For the purposes of consistency in this plan and historical accuracy, the term carriage roads will be used, although signage and brochures may continue to utilize the term carriageways until various publications and signage are updated.

Existing Trail System

Figure 1 depicts the existing trails system comprising over 65 miles of carriage roads and designated footpaths (most of the carriage roads are maintained while some remain unmaintained). This extensive network of trails provides vast opportunities for recreation, nature viewing, physical fitness, education, and interpretation. The trails system provides access to many areas of the Preserve of scenic, historic, cultural and natural significance, as well as, provides connections to adjacent properties and external systems. There are a number of undesignated footpaths (in this case, social

trails) located in the Peter's Kill and the Stony Kill Falls areas. There is an undesignated historic footpath in the Lake Minnewaska area.

There are additional miles of undesignated historic footpaths and wood roads located on the recent acquisition properties. No signage currently exists on these undesignated trails. Although Parks rules and regulations stipulate that all patrons are to remain on designated paths, these new areas of the Preserve have been opened to the public. Once designated trails have been created in these areas only the designated trails will be permitted for public use. These undesignated trails are generally utilized by a small number of local residents for a variety of recreational uses including hiking and hunting in the Mine Hole Area and hiking, biking and horseback-riding in the Awosting Reserve Area. These undesignated footpaths and wood roads are also utilized for search/rescue and fire management operations.

The Lake Minnewaska area is the primary focal point for the trails system providing access to numerous footpaths and carriage roads and to the Nature Center. This is the main entrance area into the Preserve which includes a number of parking areas located at the top of the hill just north of Lake Minnewaska and the Awosting parking lot (located along Route 44/55) all combined providing 500 parking spaces. The Peter's Kill parking area (100 spaces), although used extensively by climbers, also provides access into the trails system. There are a number of small parking areas in the Preserve providing additional access points.

The designated footpaths throughout the Preserve have been maintained by staff and volunteer groups who utilize these hiking paths, performing such work as clearing brush and installing bridges. The undesignated footpaths and wood roads generally remain unmaintained. Preserve staff maintain the carriage roads network. The historic nature of the development of the carriage roads has meant extensive upkeep and maintenance work on 8-12 foot wide crushed shale surface routes. Most of the shale needed for resurfacing of carriage roads is mined from an on-site quarry; additional carriage road materials are purchased from local vendors. Due to limitations in staff, equipment and funding, though, many miles of carriage roads remain unmaintained. Some sections have fallen in disrepair and are in need of major rehabilitation. An extensive carriage road restoration project has been started, with a private consultant providing an existing conditions assessment. A long term investment and substantial funding is necessary to conduct rehabilitation of 35 miles of carriage roads, and provide adequate funding for annual maintenance requirements.

Signage for the trails system consists of a few kiosks at key locations around the Preserve, signage at trailheads and trail intersections and markers along designated trails. Trail signage currently only provides names and lengths of trails.

In April 2008, the Preserve experienced a 3,000-acre forest fire. Bulldozers were used to create fire breaks (shown in Figure 1 as Fire Breaks 2008) in an effort to contain the fire. Corridors of vegetation were removed by bulldozers to establish these fire breaks. In addition, sections of both the Smiley and Stony Kill carriage roads (which are currently unmaintained) were bulldozed in an effort to contain the forest fire. The fire breaks remain to date as open corridors.

Rock climbing is a popular recreational activity at both Minnewaska and at the Mohonk Preserve. In Minnewaska, it is currently allowed by permit in the Peter's Kill Climbing Area only. The Preserve operates all climbing opportunities from the Peter's Kill Office at the Peter's Kill parking lot. This climbing area contains a network of use-specific trails to access the climbing cliffs. These use-specific trails are not addressed in this Trails Plan but are addressed in the Master Plan (see Chapter

5 – Analysis and Alternatives). The Master Plan incorporates the management of these trails including the addition of trail segments into its analysis, specifically expansion of climbing to the Dickie Barre Area. The Peter’s Kill Climbing Management Plan defines management practices for this area based on research and studies. A revised plan draft is expected by December 2010.

A. Inventory and assessment of footpaths and wood roads

Inventory

Footpaths

Table 1 is an inventory list with general description of the approximately 30 miles of footpaths contained within the 21,000 acres of the Preserve. Most of the footpaths are designated and marked or blazed. Hiking is the only allowed use on these trails (snowshoeing is allowed during the winter months). Footpaths are currently maintained by the New York-New Jersey Trail Conference.

The Long Path traverses the Preserve property co-aligned with four different footpaths (as noted in the table below). The total mileage for the Long Path within the Preserve and Sam’s Point Preserve (PIPC-owned land) is 12.4 miles. It is signed with the standard Long Path turquoise emblem. The entirety of the Long Path is maintained by the New York-New Jersey Trail Conference.

Table 1: Footpath Inventory

Trail Name	Mileage	Blazing	General description
Beacon Hill (BH)	0.70	Yellow	Follows along eastern edge of escarpment, offering numerous scenic vistas of Hudson Valley; connects the Beacon Hill Carriage Road turnaround to Lake Minnewaska Carriage Road.
Berry Picker (BP)	2.2	Blue	Part of trail is located within Sam’s Point Preserve; provides hiking only route connecting High Point and Smiley Carriage Roads.
Blueberry Run (BR)	2.2	Blue	Narrow trail connecting Castle Point, Upper Awosting and Lower Awosting Carriage Roads and Mossy Glen footpath
Bull Wheel (BW)	0.50	White	Trail behind Peter’s Kill climbing area leading to High Peter’s Kill and following along old ski area trails
Gertrude’s Nose (GN)	2.7	Red	Challenging cliff edge route features numerous scenic vistas of Palmaghatt Kill Ravine; loop trail off of Millbrook Mountain Carriage Road.
High Peter’s Kill (HPK)	2.8	Blue	Scenic cliff edge route connects Lower Awosting Carriage Road to Peter’s Kill Climbing area via Bullwheel trail.
Jenny Lane (JL)	2.9	Aqua	Connects Preserve lands on north and south sides of Route 44/55. Traverses area of 2008 forest fire and also leads to old millstone quarry area; co-aligned with most of northern section of the Long Path.

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Meadow Paths	2.9	Orange and white	Short loop trails located on the old golf course of the Minnewaska Resort; a quiet haven for wildlife and an abundant source of blueberry bushes; connects to Resort's old orchard; broad scenic vistas; connect to Upper Awosting and Castle Point Carriage Roads and Lake Minnewaska parking areas.
Millbrook Mountain (MM)	1.2	Red	Follows picturesque tributary to end at escarpment that features broad scenic vistas of Hudson Valley; provides eastern section for Millbrook Mountain loop experience; southern section located in Mohonk Preserve.
Mossy Glen Path (MG)	1.7	Yellow	Follows alongside Peter's Kill stream and features many picturesque rock outcroppings and small waterfalls; connects Awosting parking area to Blueberry Run trail.
Old Minnewaska (OM)	1.7	Aqua	Extends west from High Peter's Kill Trail crossing Jenny Lane; northern section co-aligned with Long Path.
Point Lookout Trail (PL)	0.93	None	Although this is not a designated footpath, it is a fairly established trail to access the Point Lookout scenic vista in the Mine Hole Area.
Rainbow Falls (RF)	2.0	Aqua	Leads to bridal veil type waterfall and connects Upper and Lower Awosting Carriage Roads; co-aligned with Long Path.
Red Loop (RL)	0.77	Red	Scenic loop connects Peter's Kill area trails to small waterfalls along Peter's Kill stream; a reroute of the southern section of the trail was approved in 2006 but has only been partially developed.
Scenic Trail (ST)	4.3	Aqua	Connects Castle Point Carriage Road to High Point Trail; co-aligned with Long Path.
Spruce Glen (SG)	0.20	None	Short connector trail from Lake Awosting Carriage Road to Scenic Trail and provides potential access to Awosting Reserve area.
Yellow Connector (YC)	0.19	Yellow	Follows along verdant edge of Peter's Kill stream connecting Red Loop and High Peter's Kill trails.
Wolf Jaw Connector (WF)	0.43	None	Short connector trail from Castle Point Carriage Road to Scenic Trail and provides potential access to Awosting Reserve area.
Total Mileage	30.32		

There are a number of undesignated footpaths (in this case, social trails) located in the Peter's Kill and the Stony Kill Falls areas. There is an undesignated historic footpath in the Lake Minnewaska area, as well as a couple of them located in the Mine Hole Area. Management of these undesignated footpaths is addressed in Section III – Trail System Alternatives.

Wood Roads

Wood roads consist of old logging trails which were developed and used through the years by previous owners. Most of these wood roads are found within the Awosting Reserve in the south. A few roads are located in the Mine Hole Area in the north as well. Currently, these roads are not marked as trails and have no designated trail uses associated with them. The areas are open to the public but in general only a few local residents utilize these trails for hiking, biking, horseback-riding and for hunting access.

Assessment

As part of the trails plan and in conjunction with the Master Plan for Minnewaska, an existing conditions assessment of the footpaths and wood roads is recommended. In Spring/Summer 2009 an assessment of all footpaths and wood roads will be conducted by volunteers under the supervision of OPRHP staff.

The Preserve staff will work with the OPRHP's Geographic Information Systems (GIS) field staff to coordinate volunteer user groups in doing conditions assessments covering the lengths of the footpaths and wood roads in the Preserve. Volunteer groups will be trained by GIS staff in methods and procedures for collecting survey data. Groups will walk each trail taking waypoint locations using Global Positioning System (GPS) units to note the site locations of conditions such as erosion, washouts, wet areas, and excessive slope.

The assessment forms to be used for these surveys are included as Appendix A. Once completed, these forms will be submitted to the GIS staff in the Albany office for data entry and development of trail assessment maps. A report will be produced by the OPRHP Trails Planner with recommendations for trail maintenance and projects. In general, the report will include recommendations of assuring that footpaths and wood roads meet use standards and that trail maintenance to be performed utilize acceptable and standard practices and methods for maintaining sustainable trails (see Section V – Standards).

The report will be used by Preserve staff to develop maintenance plans for the footpaths and wood roads. Major re-alignments are not expected from this process. Should a major re-alignment of a section of trail be recommended, the project will need to be evaluated through a review and approval process shown in Figure 1 (see Section VI – Evaluation, Assessment and Monitoring).

Although a thorough assessment of the footpaths and wood roads is scheduled for the Spring/Summer 2009, there is some general assessment information for some of the footpaths based on current knowledge of Preserve staff. These to date assessments are provided in Table 2 listed by trail.

Table 2: General Assessment of Footpaths

Trail Name	Assessment to Date
Blueberry Run (BR)	Remove abandoned utility poles; requires regular inspection of the foot bridge over Peter’s Kill.
Bull Wheel (BW)	Remove old ski lift cables.
High Peter's Kill (HPK)	Requires regular inspection of foot bridges over Peter’s Kill; contact NYS Department of Transportation regarding development of a cross walk and/or installation of signage to provide safe access across highway from the Awosting parking lot to the trail.
Jenny Lane (JL)	Requires regular monitoring for invasive plant species in area of 2008 forest fire
Millbrook Mountain (MM)	Implement water management measures near stream at eastern end to alleviate erosion problems.
Point Lookout Trail (PL)	Assess current alignment of trail regarding sustainability and any ecological concerns; designate trail.
Red Loop (RL)	2006 approved reroute on southern section of trail needs to be completed; NYNJTC is working on development of this section.
Yellow Connector (YC)	Install better signage.

Many sections of wood roads on the recent acquisition properties were generally constructed along fall lines (going straight down a hill regardless of grade). They have significant erosion issues and are unsustainable. This should be taken into consideration should these roads be considered for a designated trail system. Until trail assessments are complete, all wood roads should be kept passable for use in emergency situations.

B. Inventory and assessment of Carriage Roads

Inventory

The carriage road network within the Preserve consists of approximately 35 miles of carriage roads. Traditionally, the carriage roads provided the means for vehicular (i.e. carriage) touring, and the linking of Lake Minnewaska with other places such as Lake Awosting, local communities, scenic escarpments and the Mohonk Preserve. The network still provides connections between the Mohonk Preserve, Minnewaska State Park Preserve and Sam’s Point Preserve. Carriage roads are generally shared by walkers, joggers, hikers, bikers, and equestrians. In winter, about 20 miles of carriage roads are groomed for cross country skiing. Snowshoeing is allowed on the ungroomed carriage roads.

Most of the carriage roads are accessed from the Lake Minnewaska area including a number of parking areas on the top of the hill, as well as the Awosting parking lot along Route 44/55. Lake Minnewaska Carriage Road is the most heavily used, with Lake Awosting, Castle Point, and numerous scenic vistas and waterfalls being other popular destinations.

Table 3 is an inventory list of the carriage roads by whether they are maintained or not with a general description for each. Those carriage roads that are unmaintained are in major disrepair and much of the shale surface has washed away by erosion.

Table 3: Carriage Road Inventory

Maintained - Name	Mileage	Blazing	Allowed Uses	General description
Awosting Falls (AF)	1.3	Red	Hiking, biking, equestrian, snowshoeing, cross country skiing	Provides access to Awosting Falls, a popular destination within the Preserve; offers access through hemlock forest.
Beacon Hill (BC)	0.66	Orange	Hiking, biking, equestrian, snowshoeing, cross country skiing	Currently has four accessible parking spaces; scenic vista located at end point; interpretive signage has been developed for this trail.
Castle Point (CP)	3.9	Blue	Hiking, biking, equestrian, snowshoeing (if ungroomed), cross country skiing	Offers route to one of the highest points in the Preserve, and provides numerous scenic vistas. Adjacent to Palmaghatt Kill Ravine.
Lake Awosting (LC)	3.5	Black	Hiking, biking, equestrian, snowshoeing, cross country skiing	Provides access around Lake Awosting.
Lake Minnewaska (LM)	1.9	Red	Hiking, biking, equestrian, snowshoeing (if ungroomed), cross country skiing	Provides access around Lake Minnewaska, and provides trail head intersections for several other carriage roads and trails.
Lower Awosting (LA)	2.7	Black	Hiking, biking, equestrian, snowshoeing (if ungroomed), cross country skiing	Provides access to Lake Awosting via the Awosting parking lot.
Millbrook Mountain (MC)	2.2	Yellow	Hiking, biking, equestrian, snowshoeing (if ungroomed), cross country skiing	Provides access to highest cliff escarpment along the ridge. Access to three footpath intersections located along this carriage road. Provides connection with adjacent Mohonk Preserve. Portions of carriage road traverse along Palmaghatt Kill Ravine, several scenic vistas exist.
Sunset (SS)	0.8	Orange	Hiking, biking, equestrian, snowshoeing, cross country skiing	Provides alternative access for patrons to the Lake Minnewaska area from the Awosting parking lot.
Upper Awosting (UA)	3.1	Green	Hiking, biking, equestrian, snowshoeing (if ungroomed), cross country skiing	Provides access to Lake Awosting; carriage road corridor is heavily wooded. Intersects with a number of footpaths.

Unmaintained - Name	Length (miles)	Blazing Color	Allowed Uses	General description
Hamilton Point (HP)	3.7	Yellow	Hiking, snowshoeing	Current conditions only permit hiking as carriage road surface conditions do not meet adequate standards to offer mountain biking, equestrian or cross country skiing use. Offers scenic vistas along route.
High Point (HC)	2.9	None	Hiking, cross country skiing, snowshoeing	Significant portion of carriage road located in Sam's Point Preserve (managed by The Nature Conservancy).
Smiley (SC)	7.4	None	Hiking, snowshoeing	Current conditions only permit hiking as carriage road surface conditions do not meet adequate standards to offer mountain biking or equestrian use. Western portion of carriage road located in Witch's Hole State Forest and Sam's Point Preserve (managed by The Nature Conservancy).
Stony Kill (SK)	1.5	None	Hiking, snowshoeing	Current conditions only permit hiking as carriage road surface conditions do not meet adequate standards to offer mountain biking or equestrian use. Connects Smiley Carriage Road to the Stony Kill Falls area.
Total Mileage	35.56			

Assessment

The carriage roads require extensive maintenance and restoration on an annual basis. Carriage road maintenance takes place throughout the year with the majority of improvements being accomplished from Spring to Fall. General maintenance projects include ditch cleaning, drainage improvements, culvert replacement, shoulder support, hauling shale and base materials to improve crown of carriage road, and brush and tree removal. Maintenance of the carriage roads is completed by Preserve staff.

In general, the carriage roads are over a hundred years old and are in need of major restoration. In this effort, OPRHP and the Mohonk Preserve (which also has an existing network of historic carriage roads) have embarked on a carriage road restoration project. The carriage roads underwent a thorough conditions assessment by Barton & Loguidice, P.C. in Fall 2008. A final assessment report will be provided in 2009. Some expected results of the report are the development of standard construction details of the carriage road system, vegetation and drainage management, and standards for maintenance. Following the completion of the report, the Preserve will develop a prioritization list of carriage roads and projects. Determinations of project priorities will be mostly based on the extent of disrepair of carriage roads, use levels, and on available funding for staffing, equipment and capital improvements of the carriage road network. In some cases, projects will be conducted by Preserve staff while some projects may require contract work. Implementation of the carriage road restoration project will undergo supplemental environmental review as per the Master Plan. Some coordination will take place with the Mohonk Preserve and Sam's Point Preserve staff in regards to the Preserve carriage

roads such as repair of carriage roads that extend on to Sam's Point or for rental of large maintenance equipment. The restoration project is considered a long term plan with significant funding needed to complete the project. Adequate funding for equipment, materials, major capital restoration needs, and staffing on an annual basis are required to improve the condition and safety of the carriage roads and will be an on-going challenge.

Although a thorough assessment of the carriage roads has been conducted and a final report is expected to be completed in 2009, Table 4 provides some general assessment information based on current knowledge of Preserve staff. Improvements to the carriage roads will be analyzed and planned sequentially in conjunction with the final assessment report.

Table 4: General Assessment of Carriage Roads

Maintained – Name	Assessment to Date
Awosting Falls (AF)	<ul style="list-style-type: none"> ▪ Needs improved mountain bike and hiking connection to Peter’s Kill parking area and trailhead (see Trail System Alternatives) ▪ Improve trailhead signage
Beacon Hill (BC)	<ul style="list-style-type: none"> ▪ Install interpretive panels ▪ Total length of trail has been assessed for accessibility using the Universal Trail Assessment Process (UTAP) ▪ Provide accessibility information (including trail characteristics, slopes) to the public ▪ Limiting factor to designating as wheelchair accessible is 100 foot section of 12% slope halfway between parking lot and scenic vista (end point) ▪ Restore southern section of the scenic vista for improved viewing
Castle Point (CP)	<ul style="list-style-type: none"> ▪ Maintain at high recreational use standard for shared use by mountain bikers, equestrians and hikers/walkers ▪ Improve trailhead and intersection signage
Lake Awosting (LC)	<ul style="list-style-type: none"> ▪ Improve drainage on southeast section ▪ Situate black trail markers for better visibility ▪ Improve trailhead and intersection signage
Lake Minnewaska (LM)	<ul style="list-style-type: none"> ▪ Maintain at high recreational use standard for shared use by mountain bikers, equestrians and hikers/walkers ▪ Improve trailhead and intersection signage
Lower Awosting (LA)	<ul style="list-style-type: none"> ▪ Replace collapsed drainage pipe at causeway, and reconstruct causeway; maintain access from Awosting parking lot to Lake Awosting ▪ Situate black trail markers for better visibility ▪ Water management and drainage improvements needed for Cardiac Hill ▪ Investigate separation of uses for hikers and bikers on Cardiac Hill section ▪ Improve trailhead and intersection signage
Millbrook Mountain (MC)	<ul style="list-style-type: none"> ▪ Maintain at high recreational use standard for shared use by mountain bikers, equestrians and hikers/walkers ▪ Improve trailhead and intersection signage
Sunset (SS)	<ul style="list-style-type: none"> ▪ Establish connection to Tennis Court parking area and Wildmere Parking Lot at the top of the hill (included in master plan design) ▪ Improve trailhead and intersection signage
Upper Awosting (UA)	<ul style="list-style-type: none"> ▪ Maintain at high recreational use standard for shared use for mountain bikers, equestrians and hikers/walkers ▪ Regular inspections of bridge over Polly Mill Stream required ▪ Improve trailhead and intersection signage

Unmaintained – Name	Assessment to Date
Hamilton Point (HP)	<ul style="list-style-type: none"> ▪ Maintain for hiking/walking, snowshoeing ▪ In need of major restoration - repair to necessary standards and open to biking, equestrian, and cross country skiing
High Point (HC)	<ul style="list-style-type: none"> ▪ Coordinate maintenance and use of High Point Carriage Road with Sam’s Point Preserve, including search and rescue and forest fire access ▪ Blaze/mark trail ▪ In need of major restoration - repair to necessary standards
Smiley (SC)	<ul style="list-style-type: none"> ▪ Construct new footbridge across Fly Brook ▪ Re-construct Shingle Gully Bridge for purposes of emergency access and public safety ▪ Blaze/mark trail ▪ In need of major restoration - repair to necessary standards and open to biking, equestrian, and cross country skiing ▪ Manage drainage problems ▪ Coordinate maintenance and use with NYS DEC on Forest Preserve segment ▪ Coordinate maintenance and use with Sam’s Point Preserve
Stony Kill (SK)	<ul style="list-style-type: none"> ▪ Provide appropriate connection to proposed trailhead in the Stony Kill Falls area ▪ Blaze/mark trail ▪ In need of major restoration - repair to necessary standards and open to biking, equestrian, and cross country skiing ▪ Manage drainage problems

○ **Sam’s Point Preserve**

Sam’s Point Preserve consists of two parcels owned by PIPC and OSI adjacent to the west side of the Preserve. A number of footpaths and carriage roads extend from the Preserve property into these adjacent lands, as well as, some footpaths and wood roads are located wholly within these parcels. Both parcels of land and all trails and trail segments located upon these properties are managed by The Nature Conservancy. Table 5 lists the footpaths and wood roads and Table 6 lists the carriage roads which are located on the Sam’s Point Preserve Property with a breakdown by trail and property owner.

Table 5: Sam’s Point Preserve Footpaths and Wood Roads Inventory

Trail Name	Length (miles)	Blazing color	Property ownership
Berry Picker Trail (BP)	2.2	Blue	½ of trail in Sam’s Point - PIPC property
High Point Trail (HT)	2.4	Red	PIPC property
Ice Caves Road (ICR)	0.38	None	OSI property
Ice Caves Trail (ICT)	0.56	None	OSI property
Indian Rock Trail (IR)	0.55	Yellow	PIPC property
Loop Road (LR)	3.0	None	OSI property
South Gully Trail (SGL)	2.6	Aqua	OSI property
Verkeerder Kill Falls Trail (VK)	2.0	Aqua	PIPC and OSI properties

Table 6: Sam’s Point Preserve Carriage Roads Inventory

Trail Name	Length (miles)	Blazing color	Property ownership
High Point (HC)	2.2	None	Most of trail in Sam’s Point - PIPC property
Smiley (SC)	1.0	None	PIPC property

As noted earlier, the management of these trails and trail segments will not be included in this trails plan, although discussions are being held with The Nature Conservancy during the master planning process to assure that uses and management across the properties remain consistent.

Trail System Alternatives

The Minnewaska State Park Preserve trails system consists of a network of over 80 miles of designated footpaths and carriage roads, with additional mileage of undesignated footpaths and wood roads. The system provides for single and multi-use trail experiences. Allowed uses in the Preserve include hiking, biking, equestrian, cross country skiing and snowshoeing. The Lake Minnewaska, Lake Awosting, and Peter’s Kill areas currently receive the highest visitor use.

One of the recreational goals of the Master Plan is to integrate a sustainable year-round trail system for a diversity of trail users that is compatible with the resources of the Preserve. Footpaths, carriage roads and wood roads in the Preserve were mapped using Global Positioning Systems (GPS). OPRHP staff assessed the conditions of some of the trails and areas. A more thorough assessment of footpaths and wood roads will be performed in Spring/Summer 2009. A final assessment report for the carriage roads will be provided by Barton & Loguidice, P.C. in 2009. The existing conditions maps, assessment information to date, Natural Heritage Data (showing locations of rare and endangered species and ecological communities) and public comments received at two public information meetings and during the public comment period in 2008 were all analyzed by OPRHP staff.

It was determined that, in general, the trails system in the Lake Minnewaska and Lake Awosting areas meet the needs of the diversity of trail users while remaining compatible with the resources of the Preserve. There were some areas that required additional analysis. These included the recent acquisition properties, potential reroutes of sections of trails, potential connector trails that would improve visitor circulation and access to high use areas, and providing public access to sensitive ecological areas. The analysis of these areas follows below.

Recent Acquisitions

Awosting Reserve	
<p>Background for Analysis: This 2,518-acre parcel was acquired in 2006. A matrix of wood roads currently exists on the property (Figure 2). The main entry road from the Aumick Road parking area is a two-lane gravel road which is in fairly good condition. Many sections of the interior wood roads are located along fall lines, experience substantial erosion, and are not currently maintained. The roads are not marked as trails and have no designated trail uses associated with them.</p> <p>There are a number of waterfalls and scenic vistas located on this parcel that are not easily accessible. The area is open to the public but in general only a few local residents utilize it for hiking, biking and horseback-riding. The roads are used by Preserve staff for emergency access to the area. There are generally no ecological concerns in this area, although the eastern edge is adjacent to the Palmaghatt Kill Ravine which contains important natural resources and is currently prohibited to general public access.</p>	
Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • No designation of trails • Limited access for visitors • Sections of existing trails are not sustainable

<p>2. Alternative A – Develop a multi-use trail system based on existing wood roads network</p>	<ul style="list-style-type: none"> • No additional staff labor involved in developing trail system • Utilizes existing corridors • Would be open to hiking, biking and equestrian use • Trail system could be accessed from either Lake Awosting area or Aumick Road parking area. • Sections located along fall lines need substantial work to bring up to trail standards requiring staff time, heavy equipment, and materials • Provides additional multi-use recreational opportunities in Preserve dispersing visitor use • Parking area has room for expansion to accommodate more users and can be used as overflow parking area on busy days • Corridors will act as firebreaks in the area
<p>3. Alternative B – Design and develop a single track, biking-only trail system through the parcel while maintaining the wood roads trail system for multi-use and for emergency vehicle access</p>	<ul style="list-style-type: none"> • Would be open to mountain biking only and would accommodate a large user group • Trail system could be accessed from either Lake Awosting area or Aumick Road parking area • Alignment could include access to scenic vistas and waterfalls • Access to Mud Pond needs to remain hiking only due to sensitive ecological areas • Provides type of trail experience not offered in other sections of Preserve • User group has expressed interest in helping to develop trails • Parking area has room for expansion to accommodate more users and can be used as overflow parking area • Corridors will act as fire breaks in the area
<p>Preferred Option: A combination of Alternative A and Alternative B is the preferred alternative. Portions of the wood roads system will be upgraded to accommodate hiking, mountain biking and equestrian use (see Figure 3). This will require substantial work to bring the roads up to trail standards and to maintain them for emergency vehicle access. Upgrades would require extensive drainage improvements requiring ditch improvements, culvert placement, and resurfacing. Sections of wood roads which are completely unsustainable due to layout (along fall lines) will require rerouting. Rerouting to develop sustainable sections may include removal of some vegetation and trees however impacts will be minimized to the fullest extent possible. General maintenance will involve trimming brush on sides of wood roads, improving drainage, repairing washouts, and improving surface conditions. Some wood road sections will be closed and allowed to revegetate. The connector trails from the Lake Awosting area, Spruce Glen and Wolf Jaw, will be restored to carriage road standards to provide main connector corridors into the Awosting Reserve area and to accommodate multiple-uses. In both cases, short sections of the Scenic Trail will need to be brought up to multi-use standards to provide access to the wood roads in the Awosting Reserve area. A hiking only connection will be maintained between the Awosting multi-use trails and the Scenic Trail at Mud Pond (Mud Pond Access Trail) due to sensitive ecological resources at Mud Pond. A tear drop trail loop will be developed near the junction of this access trail to the wood road system to deter users other than hikers from accessing the Mud Pond area.</p> <p>In addition, a single track mountain biking only trail system will be designed and developed to provide a type of trail experience not offered in the Preserve and to accommodate a large user group. The development of the single track system will in general require clearing and grubbing,</p>	

with the expectation of minimal tree removal. Layout will consider development of a sustainable trail system while minimizing impacts to surrounding vegetation, in addition to utilizing some sections of the wood roads system. Established trail design and development guidelines will be followed. Final layout and design will include input and approval by Natural Resource Staff. An appropriate distance between the newly developed trails and the Palmaghatt Kill Ravine will be incorporated into the trail system to deter public access to this sensitive area. A conceptual single track trail design is provided in Figure 4 consisting of approximately 12 miles of trail. Consistent with the Master Plan, the parking area along Aumick Road will be expanded to accommodate users in this area.

Mine Hole Area

Background for Analysis: The Mine Hole Area (1,711 acres) was acquired as three separate parcels in 2003 - 2004. There are some existing undesignated footpaths and wood roads on this parcel (Figure 5). Although there are no designated trails, there is a fairly established and well used trail from the Foordmore Road parking area to the Point Lookout scenic vista. Some trails in this area are used by local residents for hiking and hunting access. ATV use has been noted on the property. Populations of rare and endangered species have been documented recently in this area of the Preserve.

The New York-New Jersey Trail Conference submitted a proposal for designating routes in this area including rerouting the Long Path (will be addressed separately below in **Potential Reroutes of trails**), designating the historic Tombstone Trail, Mine Hole Road and a trail connecting lower Mine Hole Road to Berme Road.

Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • No designation of trails • Limited access for visitors • Existing trails may not be sustainable • Possible continued ATV use due to lack of trail signage and regulation
2. Alternative A – Approve NYNJTC proposed routes	<ul style="list-style-type: none"> • Utilizes some existing corridors to increase connections and recreational opportunities in this area • Existing trails may not be sustainable • Disperse visitor use throughout Preserve • Does not consider recent ecological data • Tombstone Trail was recently found to be mostly overgrown • OPRHP has not fully assessed trail conditions and opportunities in this area
2. Alternative B – Assess, analyze and develop/designate trail system	<ul style="list-style-type: none"> • Thorough assessment of existing trails and wood roads is scheduled for Spring/Summer 2009 • May utilize sustainable sections of existing trails to minimize impact on natural resources • Increased connections and access to Preserve resources for visitors • Increased recreational opportunities • Disperse visitor use throughout Preserve • Increased presence in area may deter illegal ATV use

Preferred Option: Alternative B is the preferred alternative due to the need for further assessment and analysis of existing trails and wood roads in this parcel. It has been determined though, based on current knowledge of Preserve Staff, that the trail connecting the Foordmore Road parking area to the Point Lookout should be designated as an official trail (Point Lookout Trail). Consideration of natural resources and ecological data should be taken into account to determine the final alignment of the Point Lookout Trail as well as for siting of future trail locations. Guidelines provided by the Natural Heritage Program will be followed in order to minimize impact to rare and endangered species.

Potential Reroutes of trails

Long Path proposed reroute	
<p>Background for Analysis: In 2004, the New York-New Jersey Trail Conference submitted a proposal to OPRHP for the reroute the Long Path through the Preserve (Figure 6). Currently the Long Path is co-aligned with four footpaths in the Preserve: the Scenic Trail, Rainbow Falls, Jenny Lane and Old Minnewaska. The reroute would instead follow from the south the High Point and Berry Picker footpaths, aligning with Smiley Carriage Road (SC) until the junction with Mine Hole (MH) Road. It would follow MH Road for a short distance before veering off to the left continuing through the western side of the Mine Hole Area on a newly proposed trail to connect to Berme Road. This reroute would eliminate 12 miles of road walk from the Long Path and would follow the Vernooey Kill to then connect to Vernooey Kill State Forest.</p> <p>In 2005, the section of the proposed reroute including the High Point and Berry Picker Trails was approved by OPRHP. The northern section of the proposed reroute was not approved at that time.</p> <p>Recent surveys by the Natural Heritage Program and OPRHP staff have recorded populations of rare and endangered species in the western section of the Mine Hole Area in close proximity to the NYNJTC proposed reroute.</p>	
Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • Maintain current alignment of the Long Path • No additional development of trail
2. Alternative A – Approve the northern section of the NYNJTC proposed route	<ul style="list-style-type: none"> • This route was already explored and flagged • Provides connection from Smiley Carriage Road to the newly proposed Berme Road parking area (in Master Plan) • Proposed trail section requires construction of a trail • Proposed trail section travels through sensitive ecological areas
3. Alternative B – Approve a modified version of the proposed reroute: to follow Mine Hole Road as general corridor connecting to Foordmore Road parking and utilizing existing wood road to then connect to Berme Road	<ul style="list-style-type: none"> • Southern section of MH Road is narrow trail providing expected trail experience • Would utilize sustainable sections of MH Road and reroute unsustainable sections • No impact to natural resources and sensitive ecological areas in western section of parcel • Provides connection from Smiley Carriage Road to newly proposed Berme Road parking area (in Master Plan)
<p>Preferred Option: Alternative B is the preferred alternative (Figure 6) as it relocates a large</p>	

section of the Long Path off the road by utilizing portions of an existing corridor to limit impact to sensitive ecological areas. Alternative A was not chosen due to the location of the proposed trail section through sensitive habitat for rare and endangered species. Further assessment is required to determine the final alignment of the section of trail to be designated the Mine Hole Trail (from Smiley Carriage Road to the Foordmore Road parking area). Consideration of natural resources will be taken into account for siting final trail alignment. The wood road connecting the new Mine Hole Trail to the proposed Berme Road parking area will be designated as the Mine Hole Extension Trail. Guidelines provided by the Natural Heritage Program will be followed in order to minimize impact to rare and endangered species. These trails will be open to hiking and snowshoeing only to remain consistent with uses on adjacent trails.

Scenic Trail (Long Path) proposed reroute around Mud Pond (Haseco Lake)

Background for Analysis: The current alignment of the Scenic Trail (Long Path) follows along the north and west sides of Mud Pond (Figure 7). One portion of this section runs through DEC regulated wetlands. There are approximately 12 bog bridges currently constructed along this section of trail. Populations of rare and endangered species have been noted in the vicinity of this section of trail. It has been proposed to reroute this section of trail back to its original location on the southeast side of the pond to avoid this sensitive area.

Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • Maintain the current alignment of the trail through the wetland area • Bridges require general maintenance on an on-going basis • Potential negative impacts to sensitive ecological resources due to trail proximity
2. Alternative A – Reroute the Scenic Trail around the southeast side of Mud Pond to its original location	<ul style="list-style-type: none"> • Clearing and grubbing required to reopen original trail • Requires removal of bridges and closure of existing trail • Reduces user impacts to sensitive ecological area

Preferred Option: Alternative A is the preferred alternative and is shown in Figure 7. This option will provide a more sustainable trail alignment away from sensitive ecological areas. The bridges should be removed and the area restored. This alternative will require less maintenance over the long term. This trail will be maintained as a hiking only footpath due to the sensitive nature of the Mud Pond area.

Note that per the above preferred alternative of the Long Path reroute, this section of trail will no longer be considered part of the Long Path.

Potential connector trails

Proposed Power House Trail

Background for Analysis: The Red Loop Trail in the Peter’s Kill area (Figure 8) was approved for a reroute in 2006. This trail provides a connection between the Peter’s Kill parking lot and the Peter’s Kill. Due southwest of the Red Loop Trail, there is an historic Power House and two water falls along the stream, the Peter’s Kill Falls and Sheldon Falls. Currently, there is no designated trail providing access to these historic and natural resources. Due to the location of the falls, this is a high use area and a myriad of social trails has therefore developed (not all shown on Figure 8).

Social trails are generally unsustainable and can negatively impact natural resources due to the alignments and the number of trails created.

The historic Power House provides a unique opportunity for interpretation and the falls represent some of the natural beauty that exists at Minnewaska State Park Preserve. The potential exists to develop a sustainable trail to provide a connection from the Peter’s Kill parking lot (via the Red Loop Trail) to the Power House and the two falls.

Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • No designation of a trail in this area • Limited access to historic and natural resources of the Preserve • Continued use of unsustainable social trails causing continued negative environmental impacts
2. Alternative A – Designate a connection trail utilizing one of the existing social trail alignments	<ul style="list-style-type: none"> • Provides designated trail access to historic and natural resources in this area • Potentially decreases the continued development of additional social trails • Existing social trails may be unsustainable causing negative environmental impacts • Provides potential connection route to Awosting Falls Carriage Road
3. Alternative B – Further assess and designate an appropriate sustainable alignment of a connection trail	<ul style="list-style-type: none"> • Provides designated trail access to historic and natural resources in this area • Potentially decreases the continued development of additional social trails • May utilize sustainable sections of existing social trails • Includes closing unsustainable sections and additional social trails • Provides potential connection route to Awosting Falls Carriage Road

Preferred Option: Alternative B is the preferred alternative as it provides the opportunity to establish a sustainable trail and provides designated access to connect the Peter’s Kill parking to historic and natural resources of the Preserve. This is the proposed Power House Trail (Figure 8). This alternative requires further assessment of the existing trails and terrain to determine an appropriate alignment. The remaining social paths will be closed using appropriate standard procedures. Interpretation will be provided at the Power House location. This will be a hiking only trail remaining consistent with uses on adjacent trails in the Peter’s Kill area.

Designation of a trail in this vicinity provides the added potential for developing a connection route across Route 44/55 to the Awosting Falls Carriage Road. Patrons have historically and currently utilize an existing social trail which extends southwest past the water falls. This route crosses a large rock outcropping, which becomes very slippery when wet, and connects to Route 44/55 near a wide curve in the highway presenting a safety hazard. A preferred connector route (proposed Power House Extension Trail – Figure 8) has been identified by utilizing the existing wood road extending southeast from the Power House to cross Route 44/55 along more of a straightaway and then proposed development of a short section of trail just south of Route 44/55 to connect to the carriage road. The feasibility for creating a designated pedestrian crossing of the highway at this juncture requires discussions and coordination with the NYS Department of Transportation (DOT). This would be a hiking only crossing.

Proposed Awosting Falls Access Route	
<p>Background for Analysis: There is currently no designated trail from the Peter’s Kill parking lot to the Awosting Falls Carriage Road. The Peter’s Kill parking lot is a high use facility providing an additional parking area for trail users. Route 44/55 runs in between the Peter’s Kill parking lot and the main area of the Preserve where most trails are located. Patrons currently cross Route 44/55 near the parking area when trying to access the Awosting Falls Carriage Road and the main trails system from the Peter’s Kill parking lot. This in conjunction with the lack of a designated crossing presents a safety hazard. In addition, the social trail that has developed to make this connection crosses private land (see Figure 8).</p>	
Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • No designation of a trail route • Continued safety issues from crossing Route 44/55 • Continued use of social trail across private land
2. Alternative A – Designate a trail connection and appropriate highway crossing	<ul style="list-style-type: none"> • Improves visitor access and circulation between the two areas • Decreases potential for social trails and crossing of private land • Would ensure utilization of a sustainable route • Provides safer crossing of Route 44/55
<p>Preferred Option: Alternative A is the preferred alternative based on the need to develop a safe trail connection between the Peter’s Kill parking lot and the Awosting Falls Carriage Road. This will provide additional access into the trails system in the main area of the Preserve. The proposed Awosting Falls Access Route (Figure 8) crosses the highway near the parking lot entrance and then follows along the south side of the highway for approximately 100 meters within the highway right of way. It then connects to an old wood road located on Preserve property which leads to the Awosting Falls Carriage Road. Discussions and coordination with DOT will be required to determine the feasibility for creating a designated crossing of the highway and developing a trail along the highway right of way. This would potentially provide a hiking and biking access route. This area needs further survey work to determine Preserve boundaries and final alignment of a trail. In general, this route will utilize existing corridors causing little impact to surrounding vegetation.</p>	

Proposed Stony Kill Falls Trail and Falls Spur Trail

Background for Analysis: Stony Kill Falls (Figure 9) is located in the northern section of the Preserve and is considered a significant scenic resource. Patrons access the area by car from a four car parking area on the side of Shaft 2A Road or by foot along the Stony Kill Carriage Road approximately 6 miles from the Awosting parking lot (Figure 9). Patrons typically access the Falls by parking along Shaft 2A Road and walking through a large, shale covered, flat open area and into the woods. They proceed along several undesignated trails (not all shown on the map) to access the base of the Falls. To access the top of the Falls from below, people climb up a near vertical slope to the east of the Falls. These routes are also utilized for hunting access.

The Master Plan calls for the development of the Stony Kill Falls Area. It recommends providing safe, limited access for patrons to enhance their experiences within the Preserve. A 20 car parking lot and a safe and designated trail from the parking area will allow people with varying abilities to have relatively convenient access to a significant natural feature as well as to connect into the Preserve trails system. The construction of a trail connecting the top and bottom of the Falls will minimize the safety and erosion issues from patrons creating their own paths up the slope.

Prior to 2002, the NYNJTC submitted a proposal to connect the small parking area on Shaft 2A Road to the Stony Kill Carriage Road. This proposed trail (shown in Figure 9) was approved by OPRHP in 2002 but was never implemented. It has since been documented that the vicinity surrounding the approved route contains sensitive ecological resources. In conjunction with the recommendations of the Master Plan, this Trails Plan analyzes the designation of appropriate trail alignments.

Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • No designation of trails in this area • Continued use of unsustainable social trails increases erosion and impacts to ecological resources • Social trails up steep cliff present safety hazards and are not sustainable • Visitors may disturb sensitive areas if no designated trail is marked
2. Alternative A – Implement the 2002 approved NYNJTC trail route proposal from Shaft 2A Road to the Stony Kill Carriage Road	<ul style="list-style-type: none"> • Provides added access route into Preserve trail system • Does not include a sustainable access route from the Master Plan proposed parking area to the Falls • Route has since been noted to cross through sensitive ecological areas
3. Alternative B – Develop and designate a sustainable trail from the new parking area to the top of the Falls to connect to the Stony Kill Carriage Road and a spur trail to connect to the bottom of the Falls	<ul style="list-style-type: none"> • May use sustainable sections of existing social trails • Designating sustainable trails will promote appropriate use of area and minimize continued impact to natural resources and sensitive ecological areas • Trail alignments will be guided by up-to-date knowledge of locations of existing rare and endangered species to avoid impacts • Provides added access route to scenic resources and Preserve trail system

Preferred Option: Alternative B is the preferred alternative based on the location of the new parking area recommended in the Master Plan and taking into account additional ecological survey information gained since 2002. Figure 9 shows the proposed general locations of the Stony Kill Falls Trail (from the proposed parking lot to the top of the Falls) and the Falls Spur Trail (to connect the Stony Kill Falls Trail to the bottom of the Falls). Further assessment is required to determine the most sustainable final alignments of these trails. A stream crossing will need to be constructed along the Stony Kill Falls Trail to cross the Stony Kill. Figure 9 identifies the vicinity within which a trail will be designated up the slope to the east of the Falls. These will be hiking only trails due to the steep and rocky terrain.

Proposed Fire Break Trail

Background for Analysis: In April 2008, the Preserve experienced a 3,000-acre forest fire. Bulldozers were used to create fire breaks in an effort to contain the fire (shown in Figure 1). Corridors of vegetation were removed by bulldozers to establish these firebreaks. In addition, sections of both the Smiley and Stony Kill carriage roads (which are currently unmaintained) were bulldozed in an effort to contain the forest fire.

The firebreaks that were created through the vegetation are located between the Smiley Carriage Road and the northern boundary of the Preserve. They remain to date as open corridors. If left unmaintained, these corridors will re-vegetate naturally over time. These corridors present an opportunity for additional designated trails while maintaining established fire breaks in case of future fire. Currently, allowable uses on adjacent trails (Smiley and Stony Kill Carriage Roads) are hiking and snowshoeing.

Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • Allow dozer line corridors to re-vegetate naturally • No designation of trails along these corridors • Carriage roads will remain as fire breaks in this area
2. Alternative A – Maintain dozer lines between Smiley Carriage Road and northern Preserve boundary as established fire breaks and designate as trails	<ul style="list-style-type: none"> • Establishes permanent fire breaks in case of future forest fires • Maintained for emergency vehicle access • Utilizes existing fire break corridors to establish trails • Requires development of a bridge crossing over the Stony Kill at the connection to the Stony Kill Carriage Road • Creates a hiking and snowshoeing loop trail with Smiley and Stony Kill carriage roads • Provides alternate access routes to the Stony Kill Falls • Populations of rare and endangered species have been noted in the vicinity of some of the corridors
3. Alternative B – Maintain and develop western most fire break as a trail and close the remaining fire breaks	<ul style="list-style-type: none"> • Establishes permanent fire break in case of future forest fires • Maintained for emergency vehicle access • Utilizes existing fire break corridor to establish trail • Requires development of a bridge crossing over the Stony Kill at the connection to the Stony Kill Carriage Road • Creates a hiking and snowshoeing loop trail with Smiley and Stony Kill carriage roads • Provides alternate access route to the Stony Kill Falls • Populations of rare and endangered species have been noted in

	<p>the vicinity of the corridor</p> <ul style="list-style-type: none"> • Allows additional fire breaks to re-vegetate decreasing fragmentation of vegetated areas
<p>Preferred Option: Alternative B is the preferred alternative due to the larger loop trail opportunity while maintaining a fire break. Figure 10 shows the preferred option for the development of the Fire Break Trail while closing additional fire break corridors. The trail will be maintained for vehicle access. Further assessment is required to finalize the alignment. Some rerouting may be required for sections that are close to sensitive ecological areas and ridges. Some clearing and grubbing may be needed to establish the rerouted portions of the trail. Further evaluation will be required to site an appropriate stream crossing location over the Stony Kill with potential development of steps up the slope to the new trail. Hiking and snowshoeing will be the only allowed use on this trail to remain consistent with the adjacent unmaintained carriage roads. If these adjacent carriage roads are upgraded in the future and uses are expanded, uses allowed on this trail will be reconsidered.</p> <p>The remaining firebreaks will be allowed to re-vegetate naturally and close in. The entrances from established trails to these remaining firebreaks will be closed utilizing acceptable practices to deter visitor access.</p>	

Proposed re-opening of the historic Witch's Cave Trail

Background for Analysis: The Awosting parking lot experiences high visitor use. Currently, visitors are directed back along the busy access road to connect to the Sunset Carriage Road or the main entrance road for access to the Lake Minnewaska area. Both of these routes require maneuvering along Preserve traffic and present safety concerns as well as a diminished visitor experience.

The Master Plan includes development of a new carriage road to parallel the access road providing visitors a no traffic alternative to access the Awosting Falls area and the Sunset Carriage Road.

The historic Witch’s Cave Trail (Figure 11) runs from the current location of the Lower Awosting parking lot to the beach area at Lake Minnewaska. The Witch’s Cave refers to a low-hanging roofed rock shelter along the trail alignment. The northern section of the historic trail currently runs along a power line corridor from the parking area and provides a gently-sloped sustainable section of trail. It then cuts south through the woods for a short distance to connect to the bottom of a cliff edge passing by Witch’s Cave and finally linking up to the Upper Awosting Carriage Road just west of the Lake Minnewaska Beach. This section is fairly narrow and requires some scrambling across steep rock faces. This historic trail does, however, provide a very direct connection route from the Lower Awosting parking lot to the Lake Minnewaska Beach area.

Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • Maintain one access route to the Lake Minnewaska area from the Lower Awosting parking lot via the new carriage road paralleling the access road and the Sunset Carriage Road. • High visitor use is expected to continue at this parking area and along this route
2. Alternative A – Re-open the historic Witch’s Cave Trail as a secondary access	<ul style="list-style-type: none"> • Provides an additional and more direct access route to the Lake Minnewaska area • Helps to disperse visitors accessing the Lake Minnewaska area • Alignment of the trail along the bottom of the cliff face is fairly

route	narrow and steep and presents safety concerns • Requires construction of two stream crossings along route
3. Alternative B – Re-open the historic Witch’s Cave Trail as a secondary access route with a modified alignment	<ul style="list-style-type: none"> • Would reroute west of the cliff bottom through forested area to avoid steep section along cliff face • Provides an additional and more direct access route to the Lake Minnewaska area • Helps to disperse visitors accessing the Lake Minnewaska area • Utilizes the section of trail that follows the power line corridor • Requires construction of two stream crossings along route • Requires construction of approximately 12 steps near southern connection to historic trail
<p>Preferred Option: Alternative B is the preferred alternative based on the development of an alternate access route to the Lake Minnewaska area while considering safety concerns of visitors. The proposed modified alignment is shown in Figure 11. Development of two stream crossings is required over a small stream southeast of the Awosting parking lot. Clearing and grubbing would be required for the new section of trail in addition to the construction of some steps on a steeper section of trail. The trail section along the bottom of the cliff face would be closed using acceptable practices to deter visitor access. This will be a hiking only access route to the Lake Minnewaska area due to the existence of steps on the trail.</p>	

Uses on footpaths

Additional use on footpaths	
<p>Background for Analysis: Currently, hiking is the only allowed use on footpaths in the Preserve, while snowshoeing is allowed on footpaths during winter months. Many of the footpaths were developed during the 19th century resort era to provide hiking access to the wilderness areas. The footpaths were constructed to hiking standards often crossing steep and rocky cliff areas. Hiking is the only allowed use on footpaths of adjacent properties.</p> <p>It has been proposed to open footpaths to biking as an allowed use.</p>	
Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • Continue to allow hiking only on all footpaths (snowshoeing in the winter) • Hiking only on footpaths remains consistent with uses on footpaths of adjacent properties
2. Alternative A – Add biking as a use on footpaths	<ul style="list-style-type: none"> • Provides additional trail mileage and added access to Preserve resources for significant user group • Presents safety issue with users on steep sections of trail • Requires significant number of reroutes around steep, rocky areas to provide sustainable biking trail routes • Increased user based erosion will occur with a higher volume of traffic • User conflict will occur along high use footpaths
3. Alternative B – Design and develop a single track biking only trail system	<ul style="list-style-type: none"> • Provides additional trail mileage and added access to Preserve resources for significant user group • Allows for design and construction of trails specifically for mountain biking as the designed use

Preferred Option: A combination of the Status Quo and Alternative B is the preferred alternative based on the designed use of the existing footpaths and remaining consistent with uses on footpaths of adjacent properties as well as accommodating a large user group of the Preserve.

A single-track biking only trail system will be designed and developed in the Awosting Reserve area.

Access to sensitive ecological areas

Access to the Palmaghatt Kill Ravine	
<p>Background for Analysis: There are historic trails (not shown on maps) that run through the Palmaghatt Kill Ravine. These trails and the ravine area itself are currently prohibited from general public access (except for researchers who have obtained permission from the Preserve) due to the existence of rare plants and animals and important old-growth forest. The old-growth forest in this ravine is the only officially documented example of old growth in southeastern New York State outside of the Catskills.</p> <p>It has been proposed to reopen these historic trails to the general public.</p>	
Alternatives	Considerations
1. Status Quo	<ul style="list-style-type: none"> • Continue to prohibit general public access to the historic trails in the ravine area • Limited impacts to sensitive ecological resources
2. Alternative A – Reopen historic trails and allow general public access to the ravine area	<ul style="list-style-type: none"> • Provides additional trail mileage for recreational and interpretive opportunities in the Preserve • Potential user impacts to sensitive ecological resources • Would utilize existing trail corridors, minimizing impacts of new trail development
<p>Preferred Option: The Status Quo Alternative is the preferred alternative due to the existence of rare plants and animals and important old growth forest. In addition, this limitation will prevent the possible spread of invasive plant species, whose seeds can be transported by recreationists. Limited access to the Palmaghatt Kill Ravine for research and educational purposes will be granted through permission from the Preserve.</p> <p>Trails to be developed in the adjacent Awosting Reserve will be aligned away from the ravine area to minimize the potential for public access into the ravine and to direct users away from this area.</p>	

The character of the Preserve and the trail system will be maintained since the density of the trails system in the Lake Minnewaska and Lake Awosting and Peter’s Kill areas will not change significantly. Newly acquired properties require some designation of trails and will include the utilization of existing sustainable sections of footpaths and wood roads. In addition, a single-track mountain biking only trail system will be developed in the Awosting Reserve area to provide a type of trail experience not currently existing in the Preserve. Additional trails will be designated in certain locations to increase safety and access to Preserve resources as well as improve visitor circulation.

Trails will be designed and/or rerouted to protect significant ecological resources throughout the Preserve. Staff and trail crew volunteers will be educated regarding identification of some of the rare

and endangered species so as to help minimize or avoid potential negative impacts to these resources.

Further assessment and reports will be provided for all trails in the coming months. Maintenance plans will then be developed by OPRHP staff per the conditions assessments.

Additional signage in the form of trailhead and intersection signs as well as kiosks at main parking areas, entrance points and major trailheads will be developed to improve the overall trail signage system, visitor orientation and to encourage visitors to remain on trails. Signage will be developed in conjunction with the Trail Signage Guidelines for the NY State Park System.

Due to its environmental sensitivity, access to the Palmaghatt Kill Ravine will be limited. Permission for access may be granted by the Preserve for research and educational purposes. The Agency does not plan to provide trail access through this area in order to minimize the disturbance of significant ecological communities.

These modifications to the existing trail system are deemed to be appropriate and necessary to meet the needs of users while still maintaining the integrity of the Preserve's resources as well as best meet the goals for the Preserve as laid out in the Master Plan.

Final Trails Plan

A. Trail System

1. Trails

The trail system consists of approximately 80 miles of existing and proposed trails (Figure 12). The trail system is made up of footpaths, carriage roads and proposed multi-use and single-use trails in the Awosting Reserve area which altogether provide a variety of trail experiences for hikers, bikers, equestrians, cross country skiers and snowshoers. Footpaths remain designated for hiking and snowshoeing only. In general, maintained carriage roads accommodate hiking, biking, equestrian, cross country skiing and snowshoeing, while unmaintained carriage roads accommodate hiking and snowshoeing and cross country skiing (High Point Carriage Road only). The multi-use trails (utilizing existing wood roads) in the Awosting Reserve area will be designated for hiking, biking, equestrian, and snowshoeing. Single track trails will be developed in the Awosting Reserve area for mountain biking only. The following tables provide a breakdown by trail type, designated uses and total mileage for the existing trail system (Table 7) and for the Final Trails Plan (Table 8).

Table 7: Mileage by trail type for the Existing Trail System

Trail Type	Type of use	Mileage
Footpaths	Hiking, Snowshoeing	30.32
Carriage Roads – Maintained	Hiking, Biking, Equestrian, Cross country skiing, Snowshoeing (if ungroomed)	20.06
Carriage Roads – Unmaintained	Hiking, Snowshoeing, Cross country skiing (HC only)	15.5
Total trail mileage		65.88

Note: Mileage includes those sections of footpaths and carriage roads located in Sam’s Point Preserve (OPRHP property) although management of these trail sections is not included in this plan.

Table 8: Mileage by trail type for the Trails Plan

Trail Type	Type of Use	Mileage
Footpaths	Hiking, Snowshoeing	37.08
Carriage Roads – Maintained	Hiking, Biking, Equestrian, Cross country skiing, Snowshoeing (if ungroomed)	20.69
Carriage Roads - Unmaintained	Hiking, Snowshoeing, Cross country skiing (HC only)	15.5
Multi-use Trails – (Awosting Reserve Area)	Hiking, Biking, Equestrian, Snowshoeing	6.16
Total trail mileage		79.43

Note: Mileage includes those sections of footpaths and carriage roads located in Sam’s Point Preserve (PIPC property) although management of these trail sections is not included in this plan. The mileage for the proposed single track mountain biking only trails for the Awosting Reserve area is not included in these calculations because this plan exists in conceptual form only at this time.

The Final Trails Plan will add approximately 13.5 miles of trail to the existing trail system. The approximately 7 mile increase in footpaths is due to the designation of currently undesignated footpaths over half of which is the designation of the Mine Hole Trail (3.6 miles) and which includes the utilization of a fire break corridor (1.3 miles). There will be some rerouting of unsustainable segments of these undesignated footpaths and corridor but the majority will remain as existing corridors. The 0.5 mile increase in maintained carriage roads is due to the upgrade of the Spruce Glen and Wolf Jaw Trails as main access routes into the new trail system in the Awosting Reserve Area. The remaining approximately 6 miles of added trails consists of the multi-use trails in the Awosting Reserve Area which will utilize the existing wood road network with some expected reroutes along unsustainable sections.

The following tables provide a breakdown of trails by trail type, trail name, mileage and trail uses.

Table 9: Footpaths – Hiking and snowshoeing only

Trail Name	Mileage
Beacon Hill (BH)	0.70
Berry Picker (BP)	2.2
Blueberry Run (BR)	2.2
Bull Wheel (BW)	0.50
Falls Spur (FS)	0.10
Fire Break (FB)	1.3
Gertrude’s Nose (GN)	2.7
High Peter's Kill (HPK)	2.8
Jenny Lane (JL)	2.9
Meadow Paths (MP)	2.9
Millbrook Mountain (MM)	1.2
Mine Hole (MH)	3.6
Mine Hole Extension (MHE)	0.70
Mossy Glen Path (MG)	1.7
Mud Pond Access (MPA)	0.35
Old Minnewaska (OM)	1.7
Point Lookout (PL)	0.93
Power House (PH)	0.40
Rainbow Falls (RF)	2.0
Red Loop (RL)	0.86
Scenic (ST)	4.3
Stony Kill Falls (SK)	0.25
Witch’s Cave (WC)	0.60
Yellow Connector (YC)	0.19
Total	37.08

The proposed Awosting Falls Access Route and the Power House Extension Trail are not included above due to the need to work with DOT to determine feasibility and location of highway crossings for these proposed connectors.

The rerouted Long Path will co-align with the Verkeerder Falls, High Point and Berry Picker Trails, a short section of the Smiley Carriage Road, the majority of the Mine Hole Trail and the Mine Hole Extension Trail. The total mileage for the Long Path within the Preserve and Sam’s Point Preserve (PIPC property) is 10.2 miles.

Table 10: Carriage Roads

Maintained - Name	Mileage	Type of Use
Awosting Falls (AF)	1.3	Hiking, biking, equestrian, snowshoeing, cross country skiing
Beacon Hill (BC)	0.66	Hiking, biking, equestrian, snowshoeing, cross country skiing
Castle Point (CP)	3.9	Hiking, biking, equestrian, snowshoeing (if ungrooved), cross country skiing
Lake Awosting (LC)	3.5	Hiking, biking, equestrian, snowshoeing, cross country skiing
Lake Minnewaska (LM)	1.9	Hiking, biking, equestrian, snowshoeing (if ungrooved), cross country skiing
Lower Awosting (LA)	2.7	Hiking, biking, equestrian, snowshoeing (if ungrooved), cross country skiing
Millbrook Mountain (MC)	2.2	Hiking, biking, equestrian, snowshoeing (if ungrooved), cross country skiing
Spruce Glen (SG)	0.20	Hiking, biking, equestrian, snowshoeing
Sunset (SS)	0.8	Hiking, biking, equestrian, snowshoeing, cross country skiing
Upper Awosting (UA)	3.1	Hiking, biking, equestrian, snowshoeing (if ungrooved), cross country skiing
Wolf Jaw Connector (WF)	0.43	Hiking, biking, equestrian, snowshoeing
Total	20.69	
Unmaintained - Name	Mileage	Type of Use
Hamilton Point (HP)	3.7	Hiking, snowshoeing
High Point (HC)	2.9	Hiking, snowshoeing, cross country skiing
Smiley (SC)	7.4	Hiking, snowshoeing
Stony Kill (SK)	1.5	Hiking, snowshoeing
Total	15.5	

Wood roads in the Awosting Reserve that will be designated as multi-use trails are shown in Table 11 below. The proposed mountain biking single track trail system for the Awosting Reserve Area is currently in conceptual form and is therefore not broken out by trail names below. This trail system will be fully developed in the future.

Table 11: Multi-use Trails in Awosting Reserve Area

Name	Mileage	Type of Use
Awosting Access (AWA)	1.7	Hiking, biking, equestrian, snowshoeing
Awosting Loop (AWL)	3.0	Hiking, biking, equestrian, snowshoeing
Awosting Loop Access (ALA)	0.36	Hiking, biking, equestrian, snowshoeing
Awosting Loop Connector (ALC)	0.10	Hiking, biking, equestrian, snowshoeing
Mud Pond (MP)	1.0	Hiking, biking, equestrian, snowshoeing
Total	6.16	

2. Connections

High use areas

Lake Minnewaska is the primary focal point for the trail system. This is the main entrance area into the Preserve. It includes parking areas at the top of the hill near the lake, the Awosting, and the Master Plan proposed Visitor Center parking area, all of which will provide over 500 parking spaces for visitors, which is the current parking capacity for the Preserve. (The Wildmere parking area at the top of the hill will be removed and planted with native plants as part of the Master Plan implementation.) There are six equestrian parking spots in the Awosting parking lot. All of the trail user groups have access to trails from this main entrance area. The current Nature Center is located adjacent to the existing Wildmere parking area. The proposed Preserve Office and Visitor Center will be located at the former Phillips' house just above Lake Minnewaska. These centers do and will provide the opportunity for trail users to gain an understanding of the Preserve and its many resources. Environmental and cultural programs that utilize the trails system originate from this location as well. This area also provides access to picnic areas and the two beaches which are very popular destinations in the Preserve.

The Peter's Kill Climbing Area is another highly used area. The cliff edges provide technical climbing opportunities. Per the Master Plan, the Peter's Kill parking area capacity will be evaluated to determine the need for expansion based on possible increased demand resulting from possible climbing expansion (a maximum of 20 additional spaces upon demand – conceptual design in Master Plan). The network of trails in this vicinity allows access along the bottom and top of the ridges for climbers within the designated climbing area. The Peter's Kill parking area also serves as an access point for hikers to various footpaths within the area and will connect to the Awosting Falls Carriage Road as part of this plan.

An expanded parking area at the southern tip of the Awosting Reserve adjacent to Aumick road will provide increased access to this newer acquisition property with proposed designated trails for multiple user groups. The expanded parking area will be designed to provide equestrian parking as well. In addition to providing more direct access to the Awosting Reserve parcel, this parking area may be used as overflow parking on busy summer days when the Lake Minnewaska parking lots are filled to capacity.

External systems

The existing trails have connections to trail systems outside of the Preserve boundaries.

The Long Path

The Long Path currently extends from the George Washington Bridge in New York City north to John Boyd Thacher State Park near Albany, traversing the Preserve about midway. The Long Path travels from the southwest corner to the northeast section of the Preserve co-aligned with four different footpaths for hiking only. Per the Trails Plan, the Long Path will be rerouted more directly north to co-align with the High Point and Berry Picker Trails and the proposed Mine Hole Trail to connect to Berme Road.

Sam's Point Preserve and Witch's Hole State Forest

Several of the footpaths and carriage roads extend into adjacent properties which are either owned or managed by different entities. Along the western border of the Preserve, the Berry Picker footpath extends into Sam's Point Preserve area (PIPC-owned, managed by TNC) connecting to the High Point Trail and Carriage Road. The Scenic Trail continues on to private property extended by the Verkeerder Kill Falls Trails connecting into Sam's Point Preserve (OSI-owned), then again extended by the South Gully Trail (entirely on OSI property). The Smiley and High Point Carriage Roads are partially located in the Sam's Point Preserve, with a section of Smiley also located in Witch's Hole State Forest. The Smiley Carriage Road also connects into Berme Road Park in Ellenville.

Mohonk Preserve

On the eastern border of the Preserve, there are additional connections to an external trail system. The Awosting Falls Carriage Road, the Millbrook Mountain Trail and the High Peter's Kill Trail provide connections between Minnewaska and the Mohonk Preserve.

D&H Canal Corridor

The D&H Canal Corridor is located just outside of the northwestern boundary of the Mine Hole Area paralleling between the Rondout River and Berme Road. Ulster County, along with local communities, is currently working toward developing the D&H Canal into a trail corridor. A number of sections not adjacent to Preserve property have already been completed and others are in progress. Preserve staff should remain in contact with Ulster County as development of the D&H Canal Trail progresses.

Mass Transportation

Due to the remote location of the Preserve, there currently exist no connections to mass transportation at the Preserve. A bus stop at the Preserve entrance would provide more access to the Preserve's resources, as well as, could be a way to assist in alleviating congestion during days of high use. Parking could be provided at an alternate location with shuttle services to and from the Preserve. Most Ulster County buses are equipped with bicycle racks providing the opportunity for bikers to utilize the Preserve trails as well. It is recommended to pursue discussions with the Ulster County Area Transit regarding the possibility of developing a bus stop at the main entrance along Route 44/55.

B. Interpretation and Education

Minnewaska State Park Preserve has many significant cultural and natural resources to interpret. Currently, interpretive programs are offered year-round on the trails, ranging from six to over 25 programs per month. The Nature Center provides a central location and starting point for the educational and interpretive programs of the Preserve. Hikes are often combined with learning activities such as lectures and nature center activities.

Although the Preserve receives many visitors who utilize all of the trails, the carriage roads around Lake Minnewaska are currently the most heavily utilized.

1. Cultural Interpretation and Education

With a rich cultural history dating back to the Native Americans of the 16th century and including the resort era development of the 19th and 20th century, Minnewaska State Park Preserve offers many opportunities for cultural interpretation. Currently, the Nature Center includes a timeline exhibit and a more hands-on scrap book style collection of photos and historical publications is in development. Numerous cultural education programs are offered for the public year-round. These programs generally include an introductory lecture at the Nature Center, followed by a walking tour of significant sites in the Preserve via carriage road or footpath. These sites include the former location of the hotels, the former resort golf course and numerous historic scenic vistas. Topics discussed on these tours include the history of the berry pickers, the resort era, Native American culture and the former millstone industry.

To further the cultural interpretive and educational programming of the Preserve, interpretive signage with accompanying maps and brochures will be developed to highlight the historic and cultural resources. Artifacts will be recovered from the former resorts' landfill prior to closure. These items, such as hotel plates, will be used to add a tangible element to historic interpretive programming. In addition, more educational tours that focus on the culture and history of Minnewaska will be developed. These programs will take place on existing trails and carriage roads and may include topics such as the architecture and archeology of the Wildmere and Cliffhouse hotels, Native American history and an exploration of the Smiley's naturalist ethic and its connection to current land use policies in the Preserve. Locations for interpretive walking tours include the berry picker areas. Self-guided tours of key sites of cultural interest on designated trails with an accompanying trail guide should be developed and made available at the OPRHP website and on site.

2. Environmental Education and Interpretation

The goal of the education department is to increase the environmental awareness of patrons through hands-on environmental education and interpretive programming, most of which takes place and will take place on the Preserve's trails and carriage roads.

Minnewaska State Park Preserve represents a unique natural resource within 100 miles of New York City. This proximity to a major population hub presents an excellent opportunity to foster environmental stewardship in patrons who may not regularly be exposed to the beauty and wonder of the natural world. Through environmental education programming, the staff hopes to persuade visitors to care about the ecology and wildlife of the Preserve and to encourage visitors to become involved in the preservation of natural areas and resources.

Environmental education programming is offered to various audiences ranging from school groups and clubs, such as Boy Scouts, to pre-school children with parents and senior citizens. Topics of interest include the unique geology of the Shawangunk Ridge and the rare plant communities and wildlife that inhabit the Preserve, including programs on topics such as fern, lichen, bird and butterfly identification, wildlife tracking, forest fire ecology, and amphibian surveying. Student Conservation Association (SCA) interns conduct interpretive walks and environmental education programs under direction of the education department of the Preserve.

Future programming will focus on current topics of interest to the public including climate change, sustainability, fire ecology, invasive species and species diversity. Programs will be

expanded and designed for the general public, as well as school groups and clubs and other targeted user groups. Brochures, nature center displays, educational kiosks with interpretive signs and other interpretive tools will continue to be developed in order to support the environmental education programming.

C. Support Facilities

Table 12 identifies the existing and proposed parking facilities that provide access to the trail system. The location of these facilities throughout the Preserve encourages the distribution of trail users which results in an enhanced trail experience. As noted in Table 12, several parking lots will be improved and/or expanded as recommendations of the Master Plan. Table 13 identifies adjacent municipal and not-for profit parking facilities.

Table 12: Support Facilities

Location/ Description	Existing Car Capacity (Horse trailer capacity)	Other Accommodations	Recommended Improvements of Master Plan	Car Capacity with improvements (Horse trailer capacity)
Lake Minnewaska (Wildmere, Tennis, Terrace)	200	Picnic tables, port o Johns, informational kiosk, trail access warming hut, Nature Center	Develop new Visitor Center parking lot at old park office area and install flush toilets in new VC; remove (Wildmere) or reconfigure (Tennis/Terrace) existing parking areas; Design and Construct year round restroom facilities to serve Tennis and Terrace lots, and Wildmere picnic area to include potable water and heat for year round use.	340
Awosting	200 (6)	Bus parking allowed; port o Johns	Redesign, asphalt parking areas; improve circulation from main entrance; currently installing self composting toilets	270(6)
Peter’s Kill	100	Park Office; restrooms; pay phone	Asphalt	100 with expansion to 120 dependent upon need
Jenny Lane	6	Year-round access to Jenny Lane, Old Minnewaska and High Peter’s Kill footpaths; used by hunters during big game season	Expand; rehab Jenny Lane Road - seasonal hunting access	10
Beacon Hill Carriage Road	4 handicap accessible spaces only	Trail access to Beacon Hill Carriage Road	Improve access from parking area to trail; install accessibility signage	4
Foordmore Road	3	None	Expand; install informational kiosk	6
Berme Road (proposed)	0	None	Develop parking area	4
Awosting Reserve – Aumick Road	6	Trail access to newly designated trail system; hunting access	Expand; provide informational kiosk	20 (4)
Old Minnewaska Trail	3	None	None	3
Stony Kill Falls	4	None	Expand; install informational kiosk	15

Table 13: Adjacent municipal and not-for profit parking facilities

Location/ Description	Existing Car Capacity
Sam's Point Preserve	64 cars, 2 buses
The Mohonk Preserve	450
Berme Road Park (Town Park)	50

D. Coordination

Maintenance of the trail system is generally carried out by Preserve staff in conjunction with volunteer groups. Carriage roads are generally maintained by the Preserve staff, while footpaths are generally maintained by the New York-New Jersey Trail Conference. Trail duties include regular inspections, maintenance of footpaths, repair of carriage roads and ditches, and tree and brush clearing.

The primary duties for Rangers are: maintenance of carriage roads, patrol and inspections of carriage roads and trails during peak visitation times, security and safety, assisting patrons, responding to emergencies, and helping with environmental education and interpretation programs and special projects as needed. In winter, with good snow conditions, all personnel are used for ski operations and maintenance. This includes snow grooming of ski trails, as needed, snow plowing and maintenance of parking lots and public areas, operating of contact stations and maintenance and repair of equipment. Regular safety meetings concerning personal protection equipment, power tool use, etc. are conducted. Expanded maintenance training on waterbars, erosion control, rock walls or steps and culvert placement would be advantageous. All staff should be informed on the unique and historical aspects of the carriage roads.

Operations and maintenance of Minnewaska's trail system receive significant support from the activities of volunteer organizations and special programs. Typical activities include:

- Inspection and light maintenance of footpaths and carriage roads
- Advising patrons on user ethics, rules and regulations, outdoor clothing/footwear
- Handing out maps and/or giving directions
- Regular patrols and search and rescue operations
- Maintaining radio contact with rangers, park police and management
- Acting as public liaisons.

The New York-New Jersey Trail Conference (NYNJTC) is a federation of member clubs and individuals dedicated to providing recreational hiking opportunities in the region, and representing the interests and concerns of the hiking community. The Conference is a volunteer-directed public service organization committed to: developing, building, and maintaining hiking trails; protecting hiking trail lands through support and advocacy; and educating the public in the responsible use of trails and the natural environment. NYNJTC maintains the footpaths and raises funds for specialized projects including foot bridges and informational kiosks. The NYNJTC is also called upon to assist with storm damage clean up when needed.

The Gunks Mountain Bike Association (GUMBA) is a group of mountain bikers dedicated to preserving the privilege of riding in the Shawangunk Mountains. As a member of the International Mountain Biking Association (IMBA), GUMBA educates mountain bikers in appropriate trail etiquette, the IMBA rules of the trail, and land management regulations. GUMBA works to improve mountain bikers' relationship with the non-riding public, land management, and other trail user groups at Minnewaska.

Participants in Ulster County Alternative Sentencing and inmates from the Eastern Correctional Facility in Napanoch are called upon periodically to assist with storm damage, clean-up and maintenance.

Continued coordination with and participation by a variety of organizations and user groups is recommended to assist the Preserve with the operation and maintenance of the trails system. Volunteer groups should meet periodically with Preserve staff. As funds are made available, improvements will be made by OPRHP/PIPC. Trail groups may also provide funding or resources to make improvements to the trail system.

Volunteers will be called upon to assist in the conditions assessment of footpaths and wood roads in Spring/Summer 2009 as well as for future maintenance projects. Upon receipt of the final carriage roads assessment report, the Preserve will coordinate with Sam's Point Preserve and the Mohonk Preserve regarding carriage road restoration projects.

E. *Preserve Rules*

The full text of the Rules and Regulations established to govern the conduct of the public upon the lands at Minnewaska State Park Preserve is available for inspection at the Administration Building, Palisades Interstate Park Commission in Bear Mountain, NY. The following is an abbreviated version of the rules that apply to trails and trail use.*

- The Preserve opens daily at 9 a.m.
- Bicyclists must wear helmets, remain on carriage roads, and yield to and warn pedestrians and horses. Speed limit for bikers is 15 miles per hour.
- Bicycling is not permitted on hiking paths.
- Hiking is permitted on clearly marked paths and carriage roads.
- Horseback riding is permitted on maintained carriage roads subject to the issuance of a permit. Keep carriage roads and parking lots clean.
- Pets are permitted on carriage roads and paths. Pets must remain on a leash at all times. Pets are not permitted on any beaches.
- Rock climbers require a permit and must stay on designated climbing access trails in the Peter's Kill Area.
- Cross country skiing is permitted on all maintained carriage roads.
- Hiking, bicycling, snowshoeing and pets are not permitted on groomed cross country ski trails.
- When unsafe conditions exist on carriage roads, bicycling and equestrian use is not permitted.
- Snowshoeing is permitted on hiking trails, ungroomed carriage roads, and in the Jenny Lane and Peter's Kill Areas. It is not permitted on groomed ski trails (carriage roads) except where trails utilize carriage roads as connectors.
- Carriage roads, footpaths, and overlooks throughout the Preserve are adjacent to steep descents and cliffs. Exercise extreme caution in all areas. Keep away from cliff edges.

* These rules will be modified as the multi-use and single-use trail systems are developed in the Awosting Reserve area.

F. *Special Events – Permits*

A permit is required for special events utilizing the trail system. Each permit application is evaluated to determine potential impacts and compatibility with the natural, cultural, and recreational resources of the Preserve. Each application is reviewed and approved or disapproved

by Preserve management and regional administration. Certain permit requests will have various requirements and associated fees.

G. Enforcement

Preserve staff, and in particular the State Park Police and Park Rangers, will conduct the primary enforcement of proper use on the trails. However, Preserve staff will rely on the user groups to be self-watching and alert park officials of any concerns.

H. Implementation

To facilitate the improvement of the trail system as laid out in this plan, an implementation process has been developed. Based on current staff knowledge, sections of trail that require maintenance or rehabilitation are identified in the inventory and assessment sections of Section II – Existing Trail System. Future reports will provide more in depth assessments and required upgrades to trails. Other improvements to the trail system of the Preserve include development of trails or trail sections, opening of closed trails and bringing newly designated trails up to user standards. The implementation steps necessary are outlined in this section (Tables 14-16).

Improvements and reroutes should be completed prior to expanding multiple use opportunities. In some cases, further environmental review, beyond the scope of the Trails Plan, may be required before work on the trail can be conducted. This would include trails that require re-alignments but no route has been identified. A review and approval process has been developed for rerouting, relocating and developing new trails (Section VI.A. New Trails and Re-alignment of Existing Trails).

A process for approving annual maintenance has been developed as well as a monitoring program (Section VI.B. Monitoring Program). Most maintenance of the trails system will be done by Preserve staff in conjunction with volunteers from different trail organizations.

New and existing trails that require maintenance/repair will be designed or modified to maximize the opportunity to improve accessibility for persons with disabilities. The existing trail system will be assessed to determine whether the trails meet accessibility guidelines and actions that need to be taken to make the trails accessible, if appropriate and possible. Informational material will be provided at trailhead kiosks and in trail brochures identifying the characteristics (i.e. slope, terrain, etc.) of the trails.

Table 14: Implementation Steps for Footpaths (hiking and snowshoeing only)

Trail Name	Mileage	Blazing	Implementation Steps
Beacon Hill (BH)	0.70	Yellow	• Routine trail maintenance, as necessary
Berry Picker (BP)	2.2	Blue	• Routine trail maintenance, as necessary
Blueberry Run (BR)	2.2	Blue	• Remove abandoned utility poles • Regular inspection of the foot bridge over Peter’s Kill
Bull Wheel (BW)	0.50	White	• Remove old ski lift cables
Falls Spur (FS)	0.10	TBD	• Determine final trail alignment • Clearing and grubbing as necessary • Improve to use standards

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			<ul style="list-style-type: none"> • Blaze trail • Close social trails
Fire Break (FB)	1.3	TBD	<ul style="list-style-type: none"> • Determine final trail alignment • Clearing and grubbing as necessary • Restoration of portions to be closed • Evaluate appropriate stream crossing location over the Stony Kill and construct • Evaluate potential need for development of steps up the slope from the Stony Kill and construct • Improve to use standards and maintain width for vehicle access • Blaze trail • Close entrances to other fire breaks and allow to revegetate
Gertrude's Nose (GN)	2.7	Red	<ul style="list-style-type: none"> • Monitor populations of rare and endangered species along this trail and reroute trail as needed to avoid environmental disturbance
High Peter's Kill (HPK)	2.8	Blue	<ul style="list-style-type: none"> • Regular inspection of foot bridges over Peter's Kill.
Jenny Lane (JL)	2.9	Aqua	<ul style="list-style-type: none"> • Routine trail maintenance, as necessary
Meadow Paths (MP)	2.9	Orange and white	<ul style="list-style-type: none"> • Routine trail maintenance, as necessary
Millbrook Mountain (MM)	1.2	Red	<ul style="list-style-type: none"> • Implement water management measures near stream at eastern end to alleviate erosion problems
Mine Hole (MH)	3.6	TBD	<ul style="list-style-type: none"> • Determine final trail alignment • Clearing and grubbing as necessary • Restoration of portions to be closed • Improve to use standards • Blaze trail
Mine Hole Extension (MHE)	0.70	TBD	<ul style="list-style-type: none"> • Improve to use standards • Blaze trail
Mossy Glen Path (MG)	1.7	Yellow	<ul style="list-style-type: none"> • Routine trail maintenance, as necessary
Mud Pond Access (MPA)	0.35	TBD	<ul style="list-style-type: none"> • Improve to use standards • Blaze trail • Install signage at intersection with Mud Pond Trail for hiking only from this point
Old Minnewaska (OM)	1.7	Aqua	<ul style="list-style-type: none"> • Routine trail maintenance, as necessary
Point Lookout Trail (PL)	0.93	TBD	<ul style="list-style-type: none"> • Determine final trail alignment • Improve to use standards • Install trailhead signage • Blaze trail
Power House (PH)	0.40	TBD	<ul style="list-style-type: none"> • Determine final trail alignment • Clearing and grubbing as necessary • Improve to use standards • Blaze trail • Close social trails

			<ul style="list-style-type: none"> • Provide interpretation about the Powerhouse
Rainbow Falls (RF)	2.0	Aqua	<ul style="list-style-type: none"> • Routine trail maintenance, as necessary
Red Loop (RL)	0.86	Red	<ul style="list-style-type: none"> • Complete reroute of southern trail section
Scenic Trail (ST)	4.3	Aqua	<ul style="list-style-type: none"> • Re-open original trail alignment around Mud Pond • Remove bog bridges and restore area • Close existing trail section • Bring two short sections connecting to the Awosting Reserve up to multi-use standards
Stony Kill Falls (SK)	0.25	TBD	<ul style="list-style-type: none"> • Determine final trail alignment • Clearing and grubbing as necessary • Construct stream crossing over the Stony Kill • Improve to use standards • Blaze trail • Close social trails
Witch’s Cave (WC)	0.60	TBD	<ul style="list-style-type: none"> • Clearing and grubbing required along new section • Improve to use standards • Construct two stream crossings and steps • Blaze trail • Close trail along cliff bottom
Yellow Connector (YC)	0.19	Yellow	<ul style="list-style-type: none"> • Routine trail maintenance, as necessary

Types of Use: H (Hiking), B (Biking), E (Equestrian), CC (Cross country skiing), S (Snowshoeing), SU (Snowshoeing if ungroomed)

Table 15: Implementation Steps for Carriage Roads

Maintained	Mileage	Blazing	Type of Use	Implementation Steps
Awosting Falls (AF)	1.3	Red	H, B, E, CC, S	<ul style="list-style-type: none"> • Improve trailhead signage • Work with DOT to develop safe highway crossings to connect with Peter’s Kill area • Mark connector trail to Peter’s Kill area
Beacon Hill (BC)	0.66	Orange	H, B, E, CC, S	<ul style="list-style-type: none"> • Install interpretive panels • Provide accessibility information (including trail characteristics, slopes) to the public • Conduct additional survey and assessment for 100 foot section of trail of 12% grade and develop plan to bring trail up to wheelchair accessibility standards (see Section V.D. Accessibility) • Install benches along trail • Restore the southern section of the scenic vista for improved viewing
Castle Point (CP)	3.9	Blue	H, B, E, CC, SU	<ul style="list-style-type: none"> • Maintain at high recreational use standard for hikers, bikers and equestrians • Improve trailhead and intersection signage
Lake Awosting (LC)	3.5	Black	H, B, E, CC, S	<ul style="list-style-type: none"> • Improve drainage on southeast section • Situate black trail markers for better

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				visibility <ul style="list-style-type: none"> • Improve trailhead and intersection signage
Lake Minnewaska (LM)	1.9	Red	H, B, E, CC, SU	<ul style="list-style-type: none"> • Maintain at high recreational use standard for hikers, bikers and equestrians • Improve trailhead and intersection signage
Lower Awosting (LA)	2.7	Black	H, B, E, CC, SU	<ul style="list-style-type: none"> • Replace collapsed drainage pipe at causeway, and reconstruct causeway • Situate black trail markers for better visibility • Water management and drainage improvements needed for Cardiac Hill • Investigate separation of uses for hikers and bikers on Cardiac Hill section. • Improve trailhead and intersection signage
Millbrook Mountain (MC)	2.2	Yellow	H, B, E, CC, SU	<ul style="list-style-type: none"> • Maintain at high recreational use standard for hikers, bikers and equestrians • Improve trailhead and intersection signage
Spruce Glen (SG)	0.20	TBD	H, B, E, S	<ul style="list-style-type: none"> • Blaze/mark trail • Restore to carriage road standards
Sunset (SS)	0.8	Orange	H, B, E, CC, S	<ul style="list-style-type: none"> • Establish connection to Tennis Court parking area and Wildmere Parking Lot (included in Master Plan) • Improve trailhead and intersection signage
Upper Awosting (UA)	3.1	Green	H, B, E, CC, SU	<ul style="list-style-type: none"> • Maintain at high recreational use standard for hikers, bikers and equestrians • Regular inspections of bridge over Polly Mill Stream required • Improve trailhead and intersection signage
Wolf Jaw Connector (WF)	0.43	TBD	H, B, E, S	<ul style="list-style-type: none"> • Blaze/mark trail • Restore to carriage road standards
Unmaintained	Mileage	Blazing	Type of Use	Assessment to Date
Hamilton Point (HP)	3.7	Yellow	H, S	<ul style="list-style-type: none"> • Maintain for hiking, snowshoeing • In need of major restoration - repair to necessary standards and open to biking, equestrian, and cross country skiing
High Point (HC)	2.9	TBD	H, CC, S	<ul style="list-style-type: none"> • Coordinate maintenance and use with Sam's Point Preserve, including search and rescue and forest fire access • Blaze/mark trail • In need of major restoration - repair to necessary standards
Smiley (SC)	7.4	TBD	H, S	<ul style="list-style-type: none"> • Construct new footbridge across Fly Brook • Re-construct Shingle Gully Bridge for purposes of emergency access and public safety. • Blaze/mark trail • In need of major restoration - repair to

				necessary standards and open to biking, equestrian, and cross country skiing <ul style="list-style-type: none"> • Manage drainage problems • Coordinate maintenance and use with NYS DEC on Forest Preserve segment • Coordinate maintenance and use with Sam's Point Preserve
Stony Kill (SK)	1.5	TBD	H, S	<ul style="list-style-type: none"> • Blaze/mark trail • In need of major restoration - repair to necessary standards and open to biking, equestrian, and cross country skiing • Manage drainage problems

Improvements to the carriage roads will be analyzed and planned sequentially in conjunction with the final assessment report to be provided in 2009. The Preserve will develop a prioritization list of carriage roads and projects. Determinations of project priorities will be mostly based on the extent of disrepair of carriage roads, use levels, and on available funding for staffing, equipment, and capital improvements of the carriage road network. In some cases, projects will be conducted by Preserve staff while some projects may require contract work. Implementation of the carriage road restoration project will undergo supplemental environmental review as per the Master Plan. Some coordination will take place with the Mohonk Preserve and Sam's Point Preserve staff in regards to the Preserve carriage roads such as repair of carriage roads that extend on to Sam's Point or for rental of large maintenance equipment.

Table 16: Implementation Steps for Multi-use Trails (Awosting Reserve area)

Name	Mileage	Blazing	Type of Use	Implementation Steps
Awosting Access (AWA)	1.7	TBD	H, B, E, S	<ul style="list-style-type: none"> • Maintain for authorized vehicle access • Maintain for designated use standards • Blaze trail
Awosting Loop (AWL)	3.0	TBD	H, B, E, S	<ul style="list-style-type: none"> • Assess need for rerouted sections • Reroutes may require vegetation removal • Improve drainage (may include ditch improvements, culvert placement and resurfacing) • Repair washouts • Maintain for authorized vehicle access • Maintain for designated use standards • Blaze trail
Awosting Loop Access (ALA)	0.36	TBD	H, B, E, S	<ul style="list-style-type: none"> • Assess need for rerouted sections • Reroutes may require vegetation removal • Improve drainage (may include ditch improvements, culvert placement and resurfacing) • Repair washouts • Maintain for authorized vehicle access • Maintain for designated use standards • Blaze trail
Awosting Loop	0.10	TBD	H, B, E,	<ul style="list-style-type: none"> • Assess need for rerouted sections

Connector (ALC)			S	<ul style="list-style-type: none"> • Reroutes may require vegetation removal • Improve drainage (may include ditch improvements, culvert placement and resurfacing) • Repair washouts • Maintain for authorized vehicle access • Maintain for designated use standards • Blaze trail
Mud Pond (MP)	1.0	TBD	H, B, E, S	<ul style="list-style-type: none"> • Develop teardrop loop trail near western junction with Mud Pond Access Trail • Install appropriate signage at same junction • Assess need for rerouted sections • Reroutes may require vegetation removal • Improve drainage (may include ditch improvements, culvert placement and resurfacing) • Repair washouts • Maintain for authorized vehicle access • Maintain for designated use standards • Blaze trail

Implementation of the development of the single track mountain biking only trails in the Awosting Reserve area will include layout and flagging of the trails corridors. Established trail design and development guidelines will be followed. Layout will consider development of a sustainable trail system while minimizing impacts to surrounding vegetation, in addition to utilizing some sections of the wood roads system. Final layout and design will include input and approval by Natural Resource Staff. The development of the single track system will in general require clearing and grubbing, with the expectation of minimal tree removal. An appropriate distance between the newly developed trails and the Palmaghatt Kill Ravine will be incorporated into the trail system to deter public access to the prohibited area.

Standards

A. Trailheads, Kiosks, Signage

All trailhead and kiosk signage and trail markers should be developed in conjunction with the Sign Design Guidelines for the NY State Park System. A kiosk or similar structure providing information about the Preserve and the trail system will be located at each trailhead. All trails will be named and marked with colored blazes located on trees or other structures at a height that will reduce the level of vandalism but that is still readily visible.

B. Design

Trail development and maintenance of footpaths and wood roads will be guided by design standards as follows in Table 17.

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Table 17: Trail Development Guidelines

Trail Type	Vertical Clearance	Corridor Clearance	Treadway Width	Surfacing Materials	Trail Length	Sight Distance	Slope	Turning Radius	Users/ Mile
Biking Class I (Path)	8-10 feet	5-6 ft. (1 lane) 8-10 ft. (2 lane)	2-3 ft. (1 lane) 6-8 ft. (2 lane)	Smooth pavement, asphalt, concrete, crushed stone, clay or stabilized earth.	Min. – 5 mi. loop (1.5-2 hour) 15-25 mi. of linear or loop trails (day trip)	Min. of 50 ft. up to 100 ft. on downhill curves or road crossings	0-5% Max: 5-10% sustained 15% shorter than 50 yd. Outslope of 2-4%	8-14 feet depending upon speed.	40
Mountain Biking	8-10 feet	1.5 – 6 ft. (1 lane)	Novice-36 in. Intermediate-24-30 in. Advanced-12-18 in.	Firm natural surface including soil, rocks, wood; hardened surface for wet areas.	Min. – 5 mi. loop (1.5-2 hour) 15-25 mi. of linear or loop trails (day trip)	Min. of 100 ft. up to 150 ft. on downhill curves or road crossings	Over all grade not to exceed 10%. Climbing turns not to exceed 7-12%. Out slope of 3-5%	Novice/ Intermediate - 8 ft. min. Advanced – 6 ft min.	10
Hiking (Developed Interpretive, group or connector)	8-10 ft	4 –8 ft	4-6 ft	Bare soil, rocks, stone dust, or wood chips. May have hardened surface (concrete, asphalt or boardwalks) in high use areas.	0.25 – 5 mi. (1/2 day) 5-15 mi. (full day)	Not critical barrier on reverse curves may be used	0-5% Max – 15% sustained 40%+ shorter than 50 yd. Outslope – 4% max	N/A	0-30
Hiking (Primitive Back-packing)	8-10 ft.	4-6 ft.	18 –30 in.	Bare soil, rocks, gravel, wood; hardened surface for wet areas.	Min – 5 mi. 5-15 mi. (full day) 15 – 25+ mi. (multi-day)	Not critical	1-5% Max - 15% sustained 40-50% shorter than 50 yd.	N/A	1-5
Horse	10-12 ft.	5-6 ft. (1 lane)	18-30 in. (1 lane)	Soils having a large percentage of rocks, clay and/or organic matter. Void of rocks football sized or larger. Little treadway development required if soils are appropriate. In problem areas, water control measures may be installed. Brush and saplings should be cut flush or below ground level. Remove dead or leaning trees.	Min – 5 mi. (1-1.5 hours) 15-25 mi. of looped trails (full day)	Not critical unless 2 way traffic. 50-100 ft. 100-200 ft. at motorized road crossings.	0-10% Max – 10% sustained 20% shorter than 50 yd. Outslope 4% max.	Min. 6 ft. Wider turns preferred.	5-15

Trail Type	Vertical Clearance	Corridor Clearance	Treadway Width	Surfacing Materials	Trail Length	Sight Distance	Slope	Turning Radius	Users/ Mile
Snowshoe	8-10 feet above snow depth (10-12 ft. in summer)	8 ft. (1 Lane) 10-12 ft. (2 Lane)	4-6 ft. (1 Lane) 7-8 ft. (2 Lane) 8-10 ft. up and down hill	Snow with underlying bare soil, rocks or wood chips. Outsloped underlying material. No grooming is needed.	0.3 mi. loops; 4-8 mi. (2-4 hr. trips)	N/A	0-5% Max. - 10% sustained 15-25% shorter than 50 yds. for experienced snowshoers	N/A	5-30
Cross-country Skiing	8-10 ft. above snow depth. (10-12 ft in summer)	8 ft (1 lane) 10-12 ft. (2 lane)	4-6 ft. (1lane) 7-8 ft. (2lane) 8-10 ft. (up and down hill)	Snow with underlying bare soil, rocks or wood chips. Outsloped underlying material. Can be groomed or ungroomed.	0.5-3 mi. loops up to 4-8 mi. (2-4 hour trip)	Down hill runs, stream or road crossings 50 ft. Otherwise not critical	0-5% Max – 10% sustained 15-25% shorter than 50 yd. 25-40% shorter than 50 yd., experts only Outslope – 0-2%	Avoid sharp turns. Never locate a turn at the base of a downhill run. Min. - 50 ft. Preferred – 100 ft.	5-30

The final report due out in 2009 from the Carriage Road Restoration Project will include the development of standard construction details for the carriage road system.

Implementation of this plan includes the closure of sections of trails, including some social trails. When this is the case, trails will be restored to a natural state via sensitive transplanting, reseeding, possible temporary deer fencing or other methods, and a monitoring program implemented. All plantings will be with native, non-invasive species. Vegetation should be allowed to grow on the abandoned trail where it intersects with a designated trail. Brush, rocks and other natural material should be placed on the abandoned trail for a distance so the linear characteristic of the trail can not be readily identifiable. These abandoned trails should not be identified on trail maps.

C. Maintenance

Maintenance of the trails will be conducted by Preserve staff in partnership with various trail user or Friends groups. Trail maintenance standards will utilize acceptable practices and methods in the maintenance of trails to the particular uses of the trails. Maintenance activities include:

- Maintain drainage structures
- Water management: such as installation of water bars, minor rock rearrangement to divert water off of a trail.
- Surface treatment
- Clearing and grubbing to maintain height and width clearances
- Maintaining bridges and other structures
- Maintaining signage

These activities should be coordinated with the Preserve manager. Activities that go beyond normal maintenance will require the approval of the Preserve manager. Staff will maintain the parking lots and support facilities.

The following manuals may be used as resource guides for trail maintenance:

- *Trail Planning, Design & Development Guidelines*. 2006. State of Minnesota, Department of Natural Resources.
- *Trail Maintenance Manual, 7th Edition Revised*. 2007. New York-New Jersey Trail Conference, Inc. <http://www.nynjtc.org/volunteers/vresource.html>.
- *Trail Construction and Maintenance Notebook*. 2007 Edition. Forest Service, US Department of Agriculture. <http://www.fhwa.dot.gov/environment/fspubs/07232806/index.htm>.
- *Lightly on the Land: The SCA Trail-Building and Maintenance Manual*. 2006. Robert C. Birkby, The Student Conservation Association.
- *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*. 2004. International Mountain Bicycling Association.

The final report due out in 2009 for the Carriage Road Restoration Project will include information on vegetation and drainage management and standards for maintenance for the carriage road system.

D. Accessibility

New trails and existing trails that require maintenance/repair should be designed or modified to improve accessibility for persons with disabilities when possible. Proposed accessibility guidelines for trails have been developed by the Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas.

The proposed accessibility guidelines are for newly constructed and altered trails connected to accessible trails or designated trailheads. There are some departures from the technical provisions that are permitted. The following is an abbreviated listing of the proposed trail guidelines without the exceptions:

- Surface – The trail surface shall be firm and stable.
- Clear Tread Width – The clear tread width of the trail shall be 36 inches minimum.
- Openings – Openings in trail surface shall be of a size that does not permit passage of a ½ inch diameter sphere. Elongated openings shall be placed so that the long dimension is perpendicular or diagonal to the dominant direction of travel.
- Protruding Objects – Protruding objects on trails shall have 80 inches minimum clear head room.
- Tread Obstacles – Where tread obstacles exist, they shall not exceed 2 inches high maximum.
- Passing Space – Where the clear tread width of the trail is less than 60 inches, passing spaces shall be provided at intervals of 1000 feet maximum. Passing spaces shall be either 60 inches minimum by 60 inches minimum space, or an intersection of two walking surfaces which provide a T-shaped space provided that the arms and stem of the T-shaped space extend at least 48 inches beyond the intersection.
- Slopes – Slopes shall comply with the following:

- Cross Slopes – The cross slope shall not exceed 1:20 maximum.
- Running Slope – Running slope of trail segments shall comply with one or more of the provisions of this section. No more than 30 percent of the total trail length shall exceed a running slope of 1:12.
- Running slope shall be 1:20 or less for any distance.
- Running slope shall be 1:12 maximum for 200 feet maximum. Resting intervals shall be provided at distances no greater than 200 feet apart.
- Running slope shall be 1:10 maximum for 30 feet maximum. Resting intervals shall be provided at distances no greater than 30 feet apart.
- Running slope shall be 1:8 maximum for 10 feet maximum. Resting intervals shall be provided at distances no greater than 10 feet apart.
- Resting Intervals – Resting intervals shall be 60 inches minimum in length, shall have a width at least as wide as the widest portion of the trail segment leading to the resting interval, and have a slope not exceeding 1:20 in any direction.
- Edge Protection – Where edge protection is provided along a trail, the edge protection shall have a height of 3 inches minimum.
- Signs – Newly constructed and altered trails and trail segments that are accessible shall be designated with a symbol at the trail head and all designated access points. Signs identifying accessible trail segments shall include the total distance of the accessible segment and the location of the first point of departure from the technical provisions.

In addition, there will be information displayed at the trailhead that will provide basic information about the trails. This will allow the trail user the opportunity to determine if the trail is appropriate for their abilities. This information will be available for all trails regardless of whether they meet the accessible guidelines.

Evaluation, Assessment and Monitoring

The following guidelines will be utilized in the review and approval process for new trails or the re-alignment of existing trails and implementation of a monitoring system.

A. New Trails and Re-alignment of Existing Trails

There is a specific procedure for the reroute and development of trails and the annual maintenance of trails. Chart 1 outlines procedures to follow for the reroute of existing trails and the development of new trails. The scope and associated impacts of the proposed project will determine the extent of the review process. Larger proposals that may have an impact on environmental or cultural resources will require the review of the Agency's Resource Management Group (RMG). A SEQR determination will be made to determine if an Environmental Assessment would be required.

Annual maintenance encompasses routine functions, such as minor drainage control, trimming, and treadway maintenance. In most cases, this is reviewed and approved at the park level (Chart 2).

For some trails, State Parks partners with trail organization(s) for development and/or maintenance. It is important that clear lines of communication are maintained among all involved

parties. This will ensure that the work that is performed has gone through the review process and is under the direction of the Preserve management.

Chart 1: Reroute / Relocation / New Trail Project

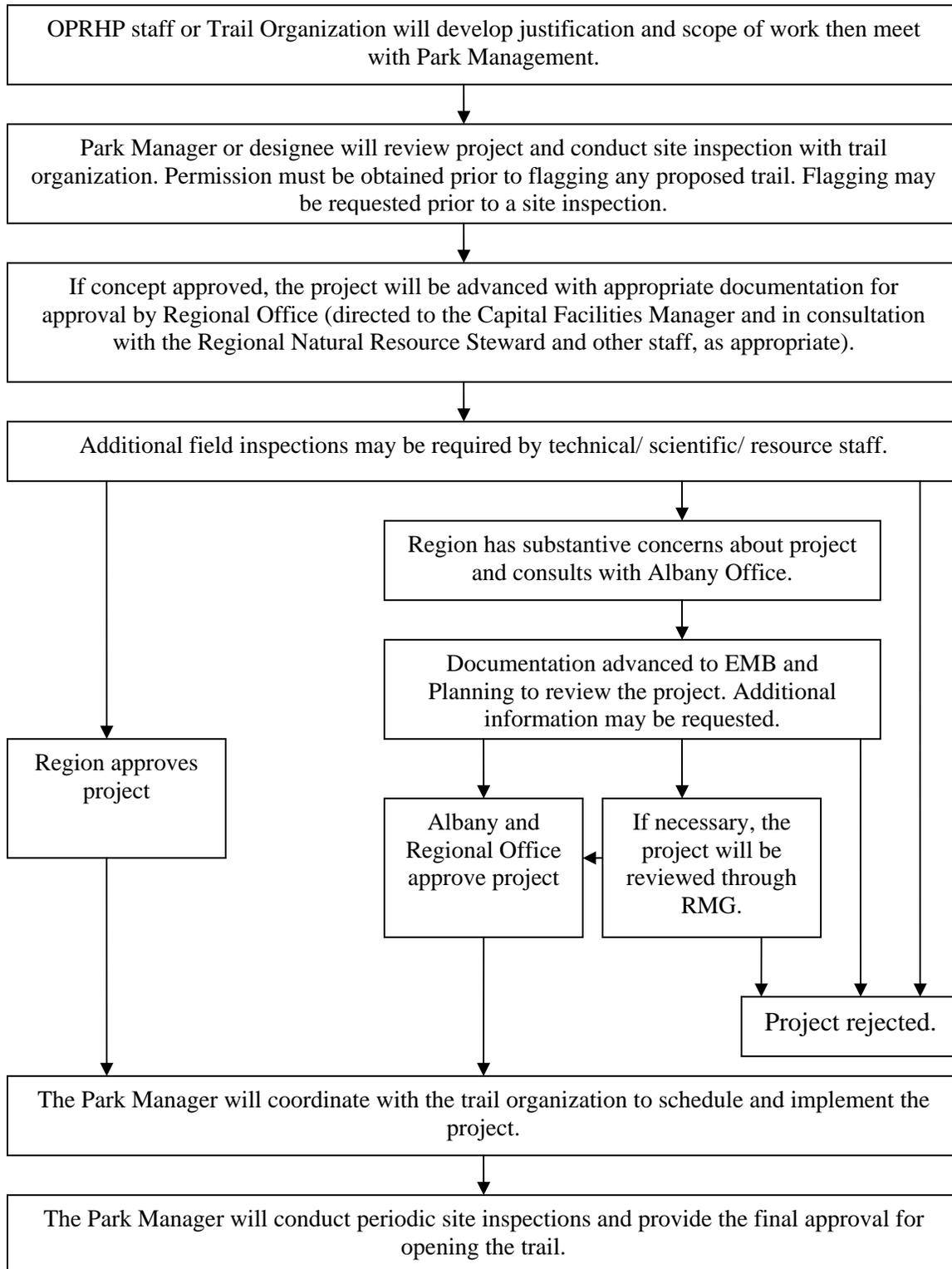
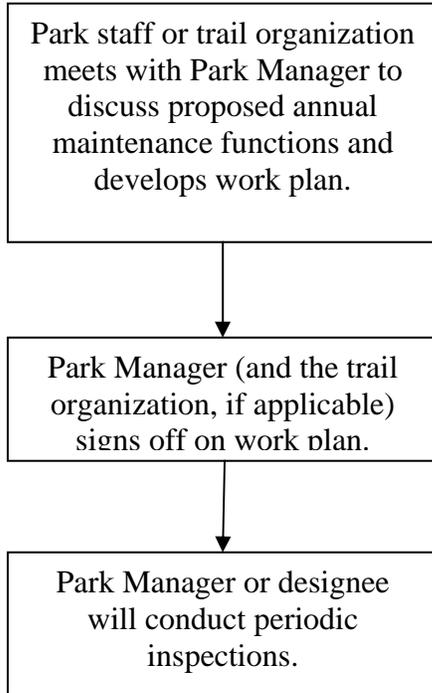


Chart 2: Trail Maintenance



B. *Monitoring Program*

A monitoring program will include an annual inspection of all of the trails and periodic inspections of the trails throughout the year. The Managing Visitor Use model or a similar program will be utilized to monitor trail conditions.

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Appendix A

Trail Assessments at Minnewaska State Park Preserve

Tools: Assessment Forms, GPS unit, Clinometer, Tape Measure, Pens, Clipboards, Trail map, Digital Camera

Instructions:

1. Fill out the top of the Assessment Form (please print clearly).
2. Take a waypoint (#1) at the trailhead using GPS unit (latitude and longitude).
3. Locate issue/feature along trail and take a waypoint.
4. Only for major issues such as complete washout of trail: Take a photo of the location/issue - include Photo Number (PN) with fingers held up in image or Photo Number written on paper.
5. Identify type of issue/structure using categories provided (see descriptions below).
6. Measure: Bridges, Culverts, Eroded sections, Washouts, Wet Areas, and diameter of fallen trees.
7. If excessive slope (> 15%) in conjunction with erosion, utilize clinometer for % slope.
8. Provide additional description/comments about issues/structures as noted below.
9. Continue process for length of trail.
10. Take a way point at end of the trail and enter it on first page (latitude/longitude).
11. Drop off equipment and assessment forms at the Main Office.
12. Email any photos to nancy.stoner@oprhp.state.ny.us with reference to what trail on what date.

Trail Assessment Descriptions:

Code	Description
B	Bridges, puncheon, bog bridges, turnpikes. <i>Note construction material, length/width (feet) and condition of bridge.</i>
UC	Unimproved Crossing (stream crossing). <i>Note if wading or rock steps and any maintenance required (unstable stepping stones).</i>
C	Culvert – open or closed drain across the trail. <i>Note condition of culvert, length/diameter and if sufficient size for situation.</i>
E	Erosion - look for exposed roots, rocks, or gullies on trail. <i>Describe situation (exposed roots, gullies on tread, located on fall line (going straight down a hill regardless of grade) and length of eroded section (if greater than 25 ft, approximate distance). If excessive slope (>15%) in conjunction with erosion: measure steep slopes with clinometer (if numerous steep rocky slopes, no need to measure each one – note that trail has numerous steep sloped sections)</i>
EC	Erosion Control Devices – check dams, water bars. <i>Note type and condition of structure.</i>
WO	Washout - section of trail has been mostly/completely washed away. <i>Note length/width/depth and any hazards associated with washout. Take photo.</i>
WA	Wet Area/standing water (larger than 3ft diameter). <i>Note length/width.</i>
OB	Obstacle – fallen tree or other obstacle blocking treadway (include broken branches or trees about to fall over trail (“widow makers”). <i>Note diameter of tree trunk.</i>
IB	Insufficient Blazing/Marking – if can’t see next blaze/marker as you are moving past a blaze/marker or hard to locate next blaze/marker. <i>Note if blazes/markers missing or worn off.</i>
SI	Signage – <i>Identify if Trailhead, Directional or Interpretive and if in need of repair. Note type of repair.</i>
AC	Additional Comment – specific locations that warrant noting such as a scenic vista, unique feature (caves, mines, rock wall). <i>Note type of feature.</i>

Development Standards for Footpaths:

Vertical Clearance: 8-10 ft; Corridor Clearance: 4-6 ft; Tread width: 18-30 inches.

Trail Assessment Forms

Date: _____

Trail Name: _____

Team leader:

Name: _____

Phone #: _____

Assessment Team Members:

Average Tread Width (in/ft) _____

End Point (Lat/Long): _____

****Decimal Degrees Datum: (circle one)**

NAD27, NAD83 or **WGS84** (preferred)

(PN) Photo Number	(WO) Washout
(B) Bridge	(WA) Wet Area/Standing Water
(UC) Unimproved Crossing	(OB) Obstacle – fallen tree
(C) Culvert	(IB) Insufficient Blazing
(E) Erosion	(SI) Signage (Trailhead, Directional or Interpretive) and repair needed
(EC) Erosion Control Devices	(AC) Add. Comments (vista/unique feature)
Measure: Bridges, Culverts, Eroded sections (excessive slope %), Washouts, Wet Areas, and diameter of fallen trees	

Way Point #	Lat	Long	PN	Code	Measure in feet or % Slope	Description/ Details/ Comments (as appropriate)
(Start Point)						

