

Chapter 7 – Environmental Impacts and Mitigation

Introduction

Consistent with the intent of the State Environmental Quality Review Act (SEQRA), environmental factors were considered in evaluating the plan alternatives and in selecting the preferred plan. This chapter is a summary of potential impacts associated with the preferred alternative. Environmental information useful in understanding the type and extent of potential impacts can be found in Chapter 3 (Environmental Setting) and Chapter 5 (Analysis of Alternatives). Chapter 5 includes identification and analysis of potential environmental effects associated with alternatives. Chapter 7 contains a summary of the potential impacts identified in Chapter 5. The focus of this Chapter is a description of the environmental impacts associated with implementation of the Draft Master Plan, which is described in detail in Chapter 6.

Impacts of Alternatives

In Chapter 5 (Analysis and Alternatives), alternative management and development directions were developed for the Preserve using information developed on existing conditions, the analysis of recommended directions for activities and constraint and considerations identified in the resources analysis. The preferred alternative for the entire Preserve (the Draft Master Plan) consists of the best alternative for each identified activity and resource.

Much of the information on the environmental impacts of alternative actions is discussed in the analysis of the alternatives section. The following is a summary of the findings from the impact analysis which make up the preferred alternative and the Status Quo alternative

Status Quo Alternative

This alternative consists of the current facilities, programs and practices as described in Chapter 3 (Environmental Setting). Under this alternative, the current resource protection, operation, and facility management practices would continue. The increasing demands on the Preserve will not be met or mitigated nor would the resources be adequately protected.

The Status Quo alternative would not result in any additional adverse environmental impacts. The potential for long-term indirect adverse environmental impacts is likely, however, since there would be no plan to guide use, protection and development of the Preserve. As more Preserve visitors seek to use the Preserve, additional demands will be placed on its natural, cultural and recreational resources. Without the guidance provided by the Master Plan, which directs use and development toward areas with higher capacity for such use (and away from the more sensitive areas of the Preserve), the potential for adverse impacts on environmental resources increases.

Preferred Alternative and the Draft Master Plan

The preferred alternative is the compilation of the preferred recreation activity and resource stewardship options identified in Chapter 5. This compilation was subject to a final evaluation to assure that there was consistency among the various alternatives. The Draft Master Plan provides considerable recreational and resource protection benefits. It also identifies potential adverse impacts, both short and long term, as well as ways to, if not eliminate them, minimize them to the fullest extent possible through appropriate mitigation measures. From a long-term perspective, implementation of the master plan will result in a beneficial environmental impact by insuring that the most sensitive areas of the Preserve will be identified, monitored and provided appropriate stewardship.

Potential Environmental Impacts Associated with Implementation of the Master Plan

Traffic and Access

The Master Plan does not significantly change traffic patterns or access to the Preserve. The main entrance to the Preserve will continue in its present location off Route 44/55, approximately one half mile west of the Peter's Kill entrance. The proposed improvements for the entrance are very similar to those proposed in the 1993 plan and will significantly improve traffic circulation and safety. The existing contact station is located very close to the highway. On high visitation days, traffic backs up along both sides of the highway as patrons wait to enter the Preserve. The Master Plan proposes that the entrance roadway be reconfigured and the contact station be relocated farther to the west along the interior park drive leading to the Awosting lot. This suggested alignment will provide additional vehicular stacking capacity for cars waiting to access the Preserve, while also eliminating the existing dangerous vehicular stacking that currently occurs along the highway. The new contact station area will also be more efficient by providing two lanes for payment of parking fees during busy times. Similar to the 1993 Plan, a new carriage road will be constructed parallel and just south of the entrance road between the Awosting lot and the main entrance. This will provide walkers, hikers, bikers and equestrians a safe route to the Awosting Falls area and to the Sunset carriage road to the Lake Minnewaska area.

Access to the Peter's Kill Area will not change. The current design for access and parking is considered adequate for the existing use and the proposed expansion of climbing in this area. If determined via increased visitor use that the parking facilities are continually filling to capacity during busy times, an additional 20 parking spaces will be added to the east of the existing parking area. All the other access points to the Preserve are relatively small and access from the road systems has been determined to be adequate.

The plan proposes improvements, some expansion and reconfiguration of the existing Awosting and Lake Minnewaska parking lots. These improvements and the overall number of parking spaces are consistent with what was proposed in the 1993 Plan while also remaining consistent with the carrying capacity determined to be sustainable in the 1993 Plan. The Awosting lot will have a similar parking design with slightly smaller foot print than was proposed in 1993. The lot will be paved in asphalt, with parking rows separated from each other using vegetated islands. This new design will create more organized parking and eliminate the need for staff to direct vehicle parking, while also enhancing the aesthetics of the area. The existing Lake Minnewaska parking lots will be reconfigured and expanded slightly. Similar to the 1993 Plan, the Wildmere parking lot will be relocated to eliminate the view of cars from around Lake Minnewaska. The parking will be expanded along the terraced areas below the Wildmere area and also near the Maintenance building. New parking areas will be added to the area east of the proposed Preserve office and visitor center. This new parking layout will provide better vehicle circulation with improved and more efficient parking for visitors.

Implementation of the Trails Plan will result in an expanded trails system, which will continue to accommodate a variety of uses including walking/hiking, biking, equestrian, snowshoeing and cross-country skiing, together which will provide expanded visitor access to the Preserve. The extensive system of carriage roads and footpaths within the main area of the Preserve will remain essentially the same. Uses in this area will remain the same; the carriage roads will continue to be multi-use while the footpaths will allow hiking and snowshoeing only. Within the new properties acquired since the 1993 Plan, the Trails Plan proposes restoring some of the existing carriage roads and

adding new trails that would be used by both hikers and bikers. Implementation of the Trails Plan will also provide improved connections to both the Mohonk Preserve and Sam's Point Preserve.

Recreation/Open Space

The implementation of the Master Plan will result in substantial beneficial recreation and open space impacts. The plan provides for a variety of new and improved recreation facilities and visitor amenities including such items as expanded picnic areas in the Lake Minnewaska area, additional climbing and bouldering opportunities within the Dickie Barre area adjacent to the Peter's Kill climbing area and an expanded trail network including the creation of a sustainable mountain bike trail system. Hiking and horseback riding opportunities will be expanded on the woods roads within the former Awosting Reserve. Hiking will be expanded in the Mine Hole Area. A climbing management plan will also be developed for the Park Preserve indicating areas suitable and unsuitable for rock climbing. A new Preserve office and visitor center in the former Phillips House will provide improved visitor services, while also incorporating sustainable design initiatives in protecting and reusing an existing building in the Preserve. The new Preserve office and visitor center will allow for expanded educational opportunities while improving the operation of the Preserve. The use of existing Preserve buildings allows for the expansion of recreation opportunities without the loss of open space required by new construction.

Future land acquisition would provide additional open space for the Preserve and the potential for improved trail connections, along with the benefits of open space and resource protection.

Land

The plan will result in some physical change to the land, particularly where new recreation facilities and trails will be constructed or segments of trails relocated. Most new recreation facilities, such as the expanded picnic area and parking areas will be located in areas that were previously disturbed and require little ground disturbance. The plan proposes restoration of the Wildmere parking area to a picnic area. This will include scarifying and removal of the existing asphalt pavement, some additional regrading in certain areas, followed up with a planting of native plants and trees within these disturbed areas. Five new gazebos that are modeled after the original ones will be constructed at historic locations. These will be located mostly on rock outcrops in previously known areas.

Expanded parking in the Awosting Lot and in the Lake Minnewaska Area will require some minor clearing. An erosion control plan will be prepared for any construction project that has the potential to disturb park soils or result in erosion. Some measures anticipated to be used include: minimizing soil disturbance and vegetation clearing; the use of silt fencing and certified weed-free straw bales where needed; preservation of vegetated buffers; and seeding and mulching of disturbed areas as soon as possible following work. Because the Lake Minnewaska, Peter's Kill and Awosting parking areas are expected to receive frequent and maximum use, they will be paved. When detailed plans are prepared for these areas, they will include sustainable site design features. Stormwater control measures will be part of the design, to assure that adjacent natural areas are not negatively impacted. These may include techniques such as vegetated drainage swales and the use of porous pavement. Other small, new or expanded parking areas in areas such as the Awosting Reserve or Tillson Lake will be installed using a gravel or pervious surface material. These erosion control and storm water management techniques will also be incorporated into the design of these areas. The Design Guidelines incorporated into the Plan (Appendix D) shall also provide direction for environmentally sensitive design and construction of new and renovated facilities. The plan proposes removal of several buildings which are in poor condition and which are no longer needed. Removal will be

carried out either by Preserve staff or by contract. All materials will be disposed of off-site in an approved and acceptable manner.

New trail sections may require some vegetation removal and leveling. Disturbance will be limited primarily to the required width of the trail corridor. As noted in the Trails Plan, trail builders will follow the policy and guidelines for trail building that have been established by recognized trail organizations and governmental agencies. By following these established guidelines, work will be completed in a manner that maximizes the protection of the resources of the Preserve. The carriage road system is currently under going a thorough conditions assessment and analysis. The final assessment report will establish for the Preserve and its ridge-wide partners detailed standards and designs for construction and maintenance of the carriage road system including vegetation and drainage management. The guidance provided in this assessment will assure that any work on the restoration of the carriage road system will be protective of the Preserves important resources. The historic nature of carriage roads requires 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 on-site quarries, with additional carriage road materials occasionally purchased from local vendors. Shale mining will continue within the Preserve. OPRHP/PIPC have a permit from NYS DEC to mine shale from the Lyons Road shale pit. This is not adequate or convenient to all the carriage roads that will require maintenance and/or reconstruction. The Shaft 2a area has a significant amount of shale that could be mined and used for the carriage road system. Other areas in the Preserve that have been mined for shale, including the Wolf's Jaw shale pit, may provide sources for shale that are closer to the outlying carriage roads. As work identified in the carriage road restoration plan is prioritized, consideration will be given to reopening some of these former shale mine areas. Before mining can begin at any of these areas, OPRHP/PIPC will conduct a through evaluation of the area and will consult with DEC and obtain all required permits.

Water Resources

It is not anticipated that the plan will have any adverse environmental impacts on the lakes, streams or wetlands within the Preserve. The protection of the water resources in the Preserve is a major goal of this plan and new development and sited restoration proposed has been sited so as to assure this. Improvements to the main recreation and access areas including the Lake Minnewaska area, Peter's Kill and main entrance areas, are designed to prevent any impacts to the Preserves water resources. Erosion control and storm water management techniques will be incorporated into the detailed site designs for these areas. The Design Guidelines will also provide significant direction and guidance for any construction and restoration projects proposed within this plan. The plan proposes that potable water will be provided through the drilling of new wells. If wells do not provide adequate capacity, water from Lake Minnewaska will be used to supply potable water. Studies of lake water capacity completed prior to the 1993 Master Plan determined that the lake has adequate water to supply the potable water needs of the development proposed in the Lake Minnewaska Area, and that proposed use levels will be well below "historic use levels". In addition, all plans must be approved by both DEC and the Department of Health.

As would be expected, many of the trails and carriage roads within the Preserve run parallel to or cross streams or are located close to wetlands or lakes. Some have drainage and erosion problems. As noted above, the carriage roads system is currently undergoing a thorough conditions assessment and analysis. The guidance provided in this assessment for drainage and culvert design will assure that work on the restoration of the carriage road system will be protective of the Preserve's important water resources. The trails system will have a similar assessment. Detailed condition assessments that will be conducted as part of this process will identify any areas that require water abatement measures. Any work undertaken will use established guidelines found in the Trail Maintenance

manuals referenced in the Draft Master Plan. Areas that require more than routine measures will be identified through the Approval Process identified in Chapter 6 and will be planned in conjunction with the Palisades Region Design and Construction staff. This includes construction of bridges and/or boardwalks. Following construction, the trails will be monitored to ensure that drainage and erosion control measures are working effectively.

The plan recognizes the significance of the lakes within the Preserve and all efforts will continue to be made to maintain the water quality of the “sky” lakes. Monitoring of water quality of Lakes Minnewaska and Awosting will continue in partnership with the Mohonk Preserve. Swimming will not be expanded beyond current levels. Current uses including SCUBA and non-motorized boating will continue. No fishing will be permitted so that no more bait fish are allowed to escape into the lakes. Studies will be initiated to determine the effects of the golden shiners found in Lake Minnewaska in 2008. Standard stormwater and erosion control methods will be used in all projects to maintain water quality and control runoff from carriage roads and other facilities.

Improvements proposed in the Tillson Lake area are designed to protect the lake. The boat launch will be improved with a gravel surface. NYS DEC will be consulted during the design process and any required permits will be obtained. The dam will be maintained and repaired in order to retain current lake levels.

Protection of the wetlands and vernal pools is important to the biodiversity of the Preserve. Monitoring will continue, particularly of those wetlands near trails or carriageways. As identified in the Invasive Species Management Plan for the Preserve, invasive species will be identified and removed quickly to avoid spread and impairment of habitat.

Biological Resources/Ecology

It has been documented by many organizations, including the NY Natural Heritage Program (NHP) and the Shawangunk Ridge Biodiversity Partnership, that the Preserve contains very significant natural resources. The importance of these resources is recognized in this plan starting with the overall vision and goal and carrying through with the specific recommendations that recognize the significance of the resources. Overall, this plan will have a positive impact on these resources. The Park Preserve designation will be extended to include all the newly acquired lands. The BCA designation will also be expanded to include the lands acquired since the 2006 designation of the Preserve as a BCA. In addition, the entire Preserve, with the exception of the Tillson Lake area, will be designated a Natural Heritage Area in recognition of the many rare species and significant communities of the Preserve. OPRHP/PIPC are working with ridge-wide partners on three major issues affecting natural resources and biodiversity on the Ridge: deer management, fire management and invasive species control. Ridge-wide efforts in all three areas will provide major benefits to the Preserve’s natural resources. With funding from a State Wildlife Grant, the Mohonk Preserve is heading the SRBP’s efforts to identify deer impacts and to develop strategies to protect the important natural resources and biodiversity of the Ridge. Staff of TNC at Sam’s Point, working with OPRHP, DEC and the SRBP, is developing a Fire Management Plan for the Ridge. Lack of fire has been identified as a threat to several important ecological communities that depend on fire. The Fire Management Plan will provide a framework for prioritizing and conducting prescribed burns and mechanized fuel reduction treatments, maintaining firebreak networks and ensuring that fire hazard is reduced. Ongoing implementation of the Invasive Species Management Plan for the Preserve will focus efforts to control the impacts of invasive species in the Preserve.

Limited new development proposed within the plan is focused in areas that have already been disturbed and which have the least sensitive vegetation and habitat types. Direct impacts associated with proposed improvements such as expanded picnicking, the new Preserve office and visitor

center, expanded parking and trailhead areas will be minimal since the proposed improvements have been sited in areas with previous development, limited environmental sensitivity and which generally possess accessibility to, and use of, existing infrastructure and structures. The Trails Plan recognizes the importance of the Preserve's natural resources and incorporates measures to inventory new trail routes and review of proposed new trail routes to assure trail use does not result in any significant adverse impacts. In addition, the Palmaghatt Ravine will remain undeveloped with no trails in order to protect the old growth forest.

Ecological Communities

Nearly every area of the Preserve contains communities that have been documented as significant by the NHP. Trail use and climbing are the two main recreation activities that occur within these areas and have the most potential to affect them. Almost every trail follows through some type of significant ecological community and climbing also takes place in the midst of these communities. The NHP report provided several management recommendations regarding recreational activities in the Preserve along with considerations for protecting biodiversity and maintaining the ecological integrity of the area. Recreational overuse was recognized as a threat that could potentially degrade the natural communities and threaten rare plant and animal populations. Many of the communities that are the most fragile and are most susceptible to user impacts are also some of the most popular destinations for trail users. The NHP report recommended that hikers be encouraged to remain on the trails. Special care will be taken in those community types that are most sensitive to trail use such as the pitch pine-oak-heath rocky summit and the dwarf pine ridges. These are communities that are particularly susceptible to erosion from excessive foot traffic, particularly in large areas of bare rock. Impacts will be monitored along the recreational trails and carriage roads. A visitor education program will be implemented that emphasizes the fragile nature of these areas and the importance of remaining on marked trails. Proposed routes for new trails will be carefully located using appropriate design and construction methods, as identified in the Trails Plan. The location of existing trails and carriage roads will remain basically unchanged. New trails are planned in the Awosting Reserve and Mine Hole Areas of the Preserve. Proposed routes for new trails will be carefully located using appropriate design and construction methods, as identified in the Trails Plan. The plan proposes expansion of climbing in the Dickie Barre area next to the existing Peter's Kill climbing area. Current rules governing climbing in the Peter's Kill Area will be expanded to include climbing activities in the Dickie Barre area. Biological surveys identified two rare plants in the climbing area: state threatened mountain spleenwort (*Asplenium montanum*) and Appalachian sandwort (*Minuartia glabra*). As was done in the Peter's Kill area, cliff areas containing these plants will be marked as off limits for climbing and signage will be used to explain the reasons for the closures. In addition, the area will be monitored periodically to assess these protection measures. The climbing management plan that will be developed for the Preserve will identify areas suitable and unsuitable for rock climbing. Additional biological surveys will be conducted as part of the plan. This plan will take into consideration resource and operational concerns and will include environmental review.

Vegetation/Plants

The parking and improvements at the Awosting Entrance Area and the Peter's Kill Area will use existing cleared areas to the greatest extent possible; however, some clearing of vegetation may be required. These are areas that have been determined to have no rare species or habitats. Following guidance in the Design Guidelines, landscaping will use plants indigenous to the area, providing a more natural look to these areas. Any invasive species found in these areas will be removed and disposed of in a manner that will protect the existing native plants populations. Care will be taken to assure no invasive species are transported during construction.

Improvements in the Lake Minnewaska Area, including expanded picnicking, a new comfort station and expanded parking will also make use of previously disturbed areas as much as possible. Some trees will be removed for construction of the parking area near the Preserve office and visitor center and for the new septic field next to the existing Maintenance building. The parking areas will include landscaping with indigenous plants. Drainage plans will be developed prior to construction to assure that adjacent natural areas are not impacted. Improvements to the smaller trailhead parking areas will also require some vegetation removal. Designs will minimize vegetation removal and all new plantings in all areas of the Preserve will use indigenous, non-invasive plants. In addition, wherever appropriate, non-native and/or invasive plants will be removed and replaced.

Expanded climbing in the Dickie Barre area will impact some vegetation in areas adjacent to cliff faces as climbers make use of these areas for staging and top roping. Vegetation will also be lost from the cliff faces along established climbing routes. As a percentage of the total cliff face area, the impacted areas are anticipated to be insignificant. When this area is opened for climbing, vegetation will be monitored for impacts in a manner similar to the existing Peter's Kill Area.

The Shawangunk Gateway Campground project will require some vegetation removal. However, campsites and structures have been sited so as to require as little vegetation removal as possible. Plant surveys were conducted as part of the preliminary design phase of the campground. No rare plants were found.

Management of viewing areas and scenic vistas will require selective removal of tree limbs and branches as well as some trees and shrubs. A clearing plan will be developed to, over time, open up scenic vistas. Guidance will be provided through the Design Guidelines and from the regional landscape architects. Resource inventories will also be conducted prior to any clearing to assure that sensitive habitat or species will not be impacted.

Rare Plants

The NHP identified forty-eight rare plant populations in the Preserve representing nineteen species. Trail use and rock climbing have the greatest potential for impacting these plants. The plan has recognized this possibility by focusing expansion of the trail system in newly acquired lands, in requiring additional plant surveys along new trail routes and in the expanded rock climbing area. The plan calls for monitoring impacts to rare plants along existing trails and carriage roads. Any indications of impacts will be addressed through consultation with agency staff and NHP staff. In addition, plans for trail reroutes and improvements will take into consideration protection measures for the plants, in particular, moving trails farther away from plants. There will also be an effort to provide information on rare plants in the overall education materials provided to visitors and park staff.

As noted above, the cliffs in the Park Preserve have known populations of the state threatened mountain spleenwort (*Asplenium montanum*), Appalachian sandwort (*Minuartia glabra*) as well as potential habitat for several other rare species. Climbers could potentially impact the spleenwort by scraping or dislodging the plants off the cliff. In the Dickie Barre area, the area proposed for expansion of climbing, surveys have identified some areas with rare plants. Protective measures will be taken, similar to those already in place at the Peter's Kill cliffs. This will include marking certain areas as off limits and providing additional signage and education materials. Lichens are also found on the cliff faces. More study is required to determine how or if these are affected. As information is developed, additional protective measures may be put in place.

Additional biological surveys will be conducted as part of the climbing management plan. The location of rare plant populations will be an important consideration in the development and review of this plan.

Invasive Species

Hiking, boating and other recreational uses can facilitate the spread of invasive species. Implementation of the Invasive Species Management Plan will focus on identification of invasive species and in particular early detection and rapid response. OPRHP/PIPC will work closely with the trail organizations and their volunteers to monitor the extent and spread of invasive plants along the trails system as well as identify appropriate control measures where needed. Invasive species management and preservation of the Preserve's natural resources is an integral part of this plan. New construction projects as well as day to day Preserve operations also have the potential for spreading invasive species. Preserve staff are very knowledgeable regarding the impacts of invasive species and ongoing education and training will improve their ability to prevent the spread of invasive species. In addition, all equipment, soils, hay, straw and other construction materials used in the Preserve will be inspected to assure it is not transporting invasive species.

Animals

The Preserve contains both common and rare species and includes significant wildlife habitat areas and migratory corridors. New and improved facilities and recreational uses proposed within the plan are located primarily in areas that are already developed for recreational use. Improvements to the Awosting Entrance Area and the Lake Minnewaska Area are primarily within the existing foot print of these areas and will have little impact on the wildlife in the area. The proposed campground will displace some wildlife; however, the area the campground will occupy is relatively small. It is on the edge of a large forested open space area which should provide adequate area for displaced wildlife to use.

The Dickie Barre area, which is proposed for expanded climbing, is the subject of ongoing wildlife surveys and to date no rare animals have been identified. The protocol for the climbing areas monitors the area for nesting Common Ravens and other cliff nesting birds. If ravens or other birds are found to be nesting in the area, appropriate protective measures will be taken including closing cliff areas. The climbing management plan that will be developed for the Park Preserve will identify areas suitable and unsuitable for rock climbing and will be subject to additional environmental review. The biological surveys required for this plan will include wildlife surveys.

The Trails Plan calls for new trails and reopening of currently closed carriage roads. The Implementation section of the Trails Plan for the Preserve calls for inventories of new trail routes and reopened carriage roads to identify any potential for affecting rare animals or important habitat areas. Overall the number of new trails will be small in comparison to the large area of land within the Preserve.

The Preserve also contains a wide diversity of birds. In 2006, the Preserve was designated a Bird Conservation Area (BCA) and as part of this plan the designation will be expanded to the areas acquired since that designation. The Preserve was designated because it is a migratory concentration site, a diverse species concentration site, a species at risk site, and a bird research site. The Management Guidance Summary for the BCA provides recommendations relating to habitat protection, access, operation and education and outreach programs focusing on the protection of birds and bird habitats within the Preserve. These recommendations will be considered in the implementation of the plan and can be found in Appendix M.

Rare Animals

The NHP identified twenty-eight populations of nine rare animals within the Preserve. Minnewaska State Park Preserve also contains populations and potential habitat for a number of rare vertebrates and invertebrates. In particular, the timber rattlesnake (*Crotalus horridus*), a NY State Threatened species, is found throughout the Preserve and sometimes encountered along some trails and carriage roads. This species aggregates in winter at hibernacula or “dens” and then disperses in warmer months, often traveling a mile or more to forage solitarily in forested habitat. Shedding (which may occur once or twice per active season) and pregnant timber rattlesnakes typically occupy open rocky habitats where solar radiation allows them to maintain higher body temperatures. In some locales, gestating females will gather in open rocky habitat from mid-late summer, forming a “birthing rookery”. While the potential exists to encounter a timber rattlesnake on many of the Preserve’s trails, such encounters are infrequent due to this species’ generally solitary habits, cryptic coloration, and secretive behavior. However, the probability for encounter increases when trails intersect or come in close proximity to established snake travel routes and dispersal corridors; overwintering sites, birthing rookeries and skin-shedding sites. The plan aims to mitigate potential Preserve visitor/rattlesnake interactions by siting any new trails away from these predictable rattlesnake use areas. However, because the existing network of trails and carriage roads will remain the same, Preserve staff will work closely with DEC, the SRPB, and trail groups to identify measures to protect the snakes. Ongoing field studies of timber rattlesnake spatial ecology and habitat use within the Preserve will help guide decisions on measures needed to protect both visitors and snakes. Rerouting sections of trails may be one alternative. Consideration will be given to closing certain trails for a short time in the spring and fall when the snakes move from their dens out to forage. State Park biologists will make the determination as to which sections of trails may need this short term closure and the Preserve will provide information in a variety of venues to notify park users of any closures.

As noted above, the climbing management plan that will be developed for the Park Preserve will require additional wildlife surveys. These will include the timber rattlesnake and other rare animals such as the peregrine falcon. The location of rare animal habitat will be an important consideration in the development and review of this plan.

Populations of two rare moths also have been found in the Preserve. Continuation of current Preserve practices of very limited overnight lighting or use of pesticides will be very important to protection of these moth species as well as the bats found in the Preserve.

Cultural/Archeological Resources

The Master Plan recognizes and protects the important historic and cultural resources within the Preserve. The carriage road network as well as the hydroelectric plant complex and the stable are important elements dating from the resort period. They have been determined to be eligible for the State and National Register of Historic Places and as such will be maintained, preserved and protected. The historic carriage road system is currently being evaluated and a plan being developed that will provide Preserve staff with appropriate construction and maintenance standards including vegetation and drainage management. This plan is being developed with input from OPRHP’s Historic Preservation Field Services Bureau (FSB) and the guidance and standards developed will be consistent and protective of the historic resources. In addition to the carriage roads and the two structures, the Preserve contains many historic viewing points and landscape features that are important to maintaining the historic character of the Preserve. The plan proposes restoring many of the viewing points and replacing several of the gazebos. The Design Guidelines will be used to direct this work and staff will consult with FSB as appropriate.

In addition to the historic resources associated with the resort period, the Preserve contains many other historic structures. Some have been initially assessed by FSB; however, many still require further investigation and consultation with FSB before a decision is made to stabilize, mothball or remove them. OPRHP/PIPC are also considering establishment of a Resident Curator which could be another alternative for preserving some of the structures appropriate for residential use. For example, the Aumick House/Farmhouse (Awosting Reserve) complex, including the main house, outbuilding, barn, and stone piers and other features has been determined to be National Register eligible for its representation of historic uses of the park before the recreational uses of the later 19th century. The Lake House at Tillson Lake is also National Register eligible. To assure protection of the historic resources of the park, FSB staff will be consulted regarding all structures with potential for inclusion in the National Register. Any mitigation measures or recommendations will be implemented.

As part of the 1993 Plan, a Phase 1A archeological survey was conducted which identified that the Preserve contains important cultural resources. A similar Phase 1A study has not been conducted on the more recent acquisitions; however, one will be conducted in the future. In the meantime, to assure there are no adverse impacts, any project that could result in ground disturbance and thus potentially affect the cultural resources of the Preserve will be reviewed by FSB. Any mitigation measures or recommendations for additional archeological surveys will be implemented. A site specific archeological survey was conducted of the area proposed for expanded hiking in the Dickie Barre area. The implementation of this project will require an additional field evaluation of prehistoric shelter sites. Findings from such evaluations will be taken into consideration in the development of final plans for the climbing routes opened at Dickie Barre and trail network. The climbing management plan will evaluate and take into consideration the significant cultural resources within the Park Preserve. The Shawangunk Gateway Campground project is currently in the design phase. This project has had a field evaluation for prehistoric and cultural resources as a component of the consultant design. The campground project area has had a field evaluation for prehistoric and cultural resources as a component of initial design. No significant prehistoric or cultural resources were found on the property so no further surveys are required.

Scenic Resources

Implementation of the plan will not result in any adverse impacts on significant scenic resources in the Preserve. The recommendations in the plan for protection of the natural, historic and recreational resources, also results in the protection of the scenic resources. Restoration and improvements to the carriage road and trail system will assure visitors have access to the many spectacular views and landscapes within the preserve. The plan proposes restoration of several historic vistas to enhance the experience of visitors. A clearing plan will be developed to, over time, open up these scenic vistas. The plan for the Lake Minnewaska area includes several elements to improve the views. The parking lots will be reconfigured so that they will not be seen from the trails along the cliffs around the lake. Special attention will also be given during the design phase to the views from the Shawangunk Mountains Scenic Byway along Route 44/55. A vegetative buffer will remain in place along the highway and native tree and shrub plantings will provide visual breaks within the lot further screening cars from view.

Public Health and Safety

Public health and safety are an important element in Preserve operations. Facility design and construction will meet applicable health and safety codes, including compliance with the Americans with Disabilities Act. OPRHP's Recreation Services program places strong emphasis on visitor safety. For example, lifeguards at the Preserve beaches must be certified through a Red Cross safety

training programs such as Advanced First Aid and CPR. Rules regarding climber safety have been put in place. Information on ticks, fire danger, trail conditions and noxious plants are posted on kiosks. Persons injured in minor accidents will be administered to the Preserve's first aid station. More serious injuries or accidents may require the assistance of park police, or local fire protection or ambulance services.

Unavoidable Adverse Effects

The proposed Master Plan will result in some unavoidable adverse impacts. There will be some minimal permanent loss of pervious soil surface and vegetative cover as a result of improvements to the parking areas and the development of new trails connections. This will be monitored by Preserve personnel and action will be taken, if necessary, to prevent any significant impacts from occurring.

In addition to the impacts outlined above, there will also be temporary adverse air and noise impacts (i.e., fugitive dust, noise from construction machinery, etc.) associated with construction of proposed improvements.

Irreversible and Irretrievable Commitments of Resources

The planning, development and implementation of the Master Plan, including construction of new restroom facilities and parking areas, additional infrastructure and a slightly expanded trail system has and will involve the irreversible and irretrievable commitment of public resources in the form of time, labor and materials. It will also require a commitment to the long term operation and maintenance costs of the Preserve.

Growth Inducement

Implementation of the Master Plan will result in some increased recreational use of the Preserve. This increased recreational use will be carefully managed in an effort to support the vision and goals established to maintain the quality of the Preserve's important natural, scenic and historic resources. There will be positive, on-going, economic impacts to the communities surrounding the Park, in the form of increased business investment in the communities. Tourism related expenditures, for activities such as day-use, hiking, biking and climbing are a major element in the economic vitality of localities. The Preserve, with its significant natural resources and its location near major interstate, state and county roadways, helps to make this a reality.

Supplemental Environmental Review

Portions of this Master Plan, such as the trail proposals in the newly acquired areas, are somewhat general or conceptual. Decisions regarding the type and extent of certain actions will be dependent on the findings from more specific studies or analysis still to be completed. For example, a proposed trail reroute may require additional analysis or study such as vegetation surveys. The findings from these site specific evaluations may identify impacts that were not adequately addressed in this plan/EIS. Under such a circumstance, an additional or supplemental environmental review will be required. As part of our responsibility under the State Environmental Quality Review Act, OPRHP/PIPC will review proposed implementation projects with respect to consistency with this plan and EIS. Projects found by OPRHP/PIPC to be consistent with the plan can go forward without any additional review. Other types of proposals may require additional review ranging from completion of an environmental assessment form to perhaps a site specific environmental impact statement.

To assist in this consistency evaluation, the following types of actions have been identified as likely to require additional review under SEQR:

- Any new actions not addressed within the Master Plan that do not meet the Type II categories with Part 617, the rules and regulations implementing SEQR;
- Any change from the preferred alternative for recreational and facility elements of the plan which would result in significant environmental impacts;
- Any leases, easement, memoranda of understanding, or other agreements between OPRHP and private entities or other agencies that affect resources in a manner that is not sufficiently addressed in this plan;
- Implementation of the carriage road restoration plan
- Implementation of new or rerouted trails as identified in the Trails Plan, such as proposed new trails in the Awosting Reserve area.
- Development of a Climbing Management Plan.
- Any new proposals to mine shale in areas not currently covered under existing DEC mining permits.