Final Master Plan/
Final Environmental Impact Statement

For

Grafton Lakes State Park

January 25, 2012

Appendices

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Governor

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List of Appendices

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A. Appendix A - Analysis and Alternatives

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Introduction

This appendix contains the results of the planning team discussions on natural resource protection, recreation resource development and operations proposed for the park. Each proposal is analyzed using the inventory information (Chapters 2 and 3), park goals, and other factors. Projects or activities in place at the park will be assessed for their compatibility with recreation uses and resource protection. Any facility or activity that may result in adverse effects will be identified, and approaches to mitigation applied to if not eliminate then minimize adverse impacts. The analysis results in considerations as to the appropriateness of each alternative for the park. Findings from this analysis are used in identifying preferred alternatives for each of the resource categories. The status quo, alternatives, considerations and preferred alternative for individual issues are described in tabular form.

A complete description of the park master plan that results from these preferred alternatives is found in Chapter 6 of this document.

Resource Analysis and Alternatives

Natural Resource Protection Strategies/Management

Park Preserve/Preservation Area

Article 20 of the Parks, Recreation and Historic Preservation Law, also known as the "Park Preserve Law", allows the Commissioner of OPRHP to designate park land as part of a Park Preserve System. This law applies only to lands under the jurisdiction of OPRHP. Designations of park land into the Park Preserve System are being considered within the master plan process. The law outlines the process for designation of entire parks or portions of parks as part of a statewide park preserve system. Portions of parks may be designated as Park Preservation Areas (PPAs).

Background for Analysis:
Grafton Lakes State Park contains several areas of significant ecological communities (Figure 13). Most of these areas are part of the greater forested areas of the Rensselaer Plateau. The recreation resources at the park are concentrated in a central area, leaving the rest of the park mostly undeveloped except for roads and trails.

Part of the park's trail system is a component of the state snowmobile trail system. This includes a major north-south route (C9) and several east-west off shoots of that route. The trail system is described in detail in Appendix B, the trails plan.

The Park Preserve Law (PRHPL Law Article 20) provides for recognition of park land containing wildlife, flora, scenic, historical and archaeological sites that are unique and rare in New York State. Designating the Park as a preserve would provide legal protection to all of the park's resources—natural, scenic, historic and archeological. A park-wide designation comes with restricting the creation of developed areas. A developed area is considered any portion of the park that is paved or has another hard surface, or an area that contributes to the built environment of the park, or an area that is landscaped and not managed for habitat protection. This designation would also preclude moderate and high recreational use from occurring at the park. Existing compatible recreational uses can continue.

The designation of a Park Preservation Area would provide legal protection for the area of the park with the highest ecological value. It would entail everything stated in the aforementioned paragraph, but the restrictions to development are more inclusive and would apply only to the selected area.

Alternatives	Considerations
Alternative 1 Status Quo	No Park Preserve or Park Preservation Area will be created.
Alternative 2 Designate the entire park as a Park Preserve	The level of development and type of activities in the park do not support the creation of a Park Preserve
Alternative 3 Create a Park Preservation Area (PPA) in a selected area of the park. The selected area includes all parkland south of Rt 2 including Martin Dunham Reservoir. Exclude snowmobile routes C9 and S99E to provide continued availability of existing uses. Eliminate snowmobile route S99F. (Details of this removal and addition of snowmobile routes elsewhere in the park are available in the trails plan (Appendix B)).	Creates a PPA in Grafton Lakes State Park according to PRHPL section 20. Passive and low intensity recreational activities will be supported. Existing active recreation can be excluded from the preservation area by providing buffered corridors to allow continued availability of existing uses.
Alternative 4 Same as alternative 3 but with the addition of a PPA in the watershed of Shaver Pond	Would afford additional protection to a sensitive ecological area. Existing and planned development reduce the area that can be designated so much that the PPA would not be effective or meet statewide criteria.

Preferred Alternative – Alternative 3
Alternative 3 affords a level of protection to a sensitive area of the park and allows continuation of existing active recreation uses. Figure 16 is a map of the proposed Park Preservation Area in Grafton Lakes State Park.

Bird Conservation Area (BCA)

The Bird Conservation Area (BCA) program aims to integrate bird conservation into agency planning, management and research projects, within the context of the agency mission. Bird Conservation Areas are described under Article 11, Title 20 of the Environmental Conservation Law (ECL). The creation of a BCA does not preclude existing or future land use proposals, nor should it prohibit park development or operational needs. In addition to recognizing the importance of bird conservation within the planning process, a BCA can create heightened public awareness of the site's important bird community, as well as funding opportunities for bird related education, research and conservation.

Background for Analysis:

There is currently no BCA within Grafton Lakes State Park. In order to qualify as a BCA, a site must meet at least one of the nine criteria outlined in the ECL. Following staff evaluation of the bird community and habitat as well as existing outside data, it was determined that the park meets three of the nine BCA criteria as shown below and that the entire park is eligible for a BCA.

Migratory Concentration Site – Primarily the forests, but also the shrublands and wetlands of Grafton Lakes State Park provide significant stopover habitat for migratory songbirds during both spring and fall migration. A minimum of 43 species of Neotropical migratory songbirds have been shown to use the park as a stopover location. (OPRHP 2011)

Diverse Species Concentration Site – The large extent of interior forest habitat at Grafton Lakes State Park, combined with a mix of other wetland and open canopy habitat types, attract a high diversity of bird species. Based on data from the NYS DEC and personal observations by park staff and qualified visitors, over 190 different species of birds have been observed within the park boundaries. (OPRHP 2011)

Species at Risk Site – The contiguous, high-quality forests found at Graton Lakes State Park are exception native habitats that support populations of rare bird species that are dependent on those very forests, making their preservation very important. Thirteen different species of rare birds, listed as either Threatened or of Special Concern as determined by the NYS DEC, have been shown to use the park. (OPRHP 2011)

Alternatives	Considerations
Alternative 1	
Status Quo	There will be no statewide recognition of the park and its importance to bird populations.
Alternative 2	
Create a BCA in selected areas of the park.	This will provide statewide recognition of the park's importance in selected areas but not the park as a whole. There are three different criteria within the BCA law that have been met at Grafton Lakes State Park. Delineation of areas for

Alternatives	Considerations
	each would be difficult at best.
Alternative 3	
Create a BCA covering the entire park.	This will provide statewide recognition of the importance of the park as a whole to bird populations. Site-specific recommendations for the different areas of the park will be developed as part of the BCA-required Management Guidance Summary.

Preferred Alternative – Alternative 3

This alternative provides the opportunity for greater recognition of the park as an important habitat for resident and migratory bird populations. This alternative also most easily responds to the best examples of bird habitat and responds to changes that may occur through natural processes. This alternative also recognizes that areas of the park that have been altered for intensive patron recreation and park operations still provide habitat and resources for many bird species, and therefore these areas should also be included as part of the BCA, with specific recommendations in the Management Guidance Summary to address the dual nature of these areas.

Lake Water Quality

Background for Analysis

The lake water quality in Grafton Lakes State Park varies from lake to lake. Water quality monitoring has been conducted in the lakes by the Water Quality Unit within the Environmental Management Bureau from 2002 through 2010. Based on this monitoring, a Lake Water Quality report (Husson, Lyons and Terbush, 2011) has been prepared. Information from this report and other studies is summarized in Table 3 of Chapter 3. The water quality monitoring results indicate that the lakes have good to excellent water quality, being located within watersheds that are mostly forested and relatively undeveloped. The few developed areas include the parking areas and the beach and bath house complex at the southern end of Long Pond. The park boundaries encompass the watersheds for almost all of the lakes except for portions of the Martin Dunham Reservoir and White Lily Pond watersheds. All of the lakes are mesotrophic or oligo-mesotrophic, except White Lily Pond, which is eutrophic. Plant survey results indicate a good balance of macrophyte biodiversity in all of the lakes. Current uses in all of the lakes are consistent with their trophic status.

However, a preliminary "desktop" analysis of nutrient carrying capacity of Long Pond (Hartney, 1981) indicated that the lake may be near the threshold for acceptable nutrient loading. This suggests that additional significant development requires close evaluation of nutrient inputs to ensure that water quality levels are maintained and protected.

Due to the importance of the water quality to recreation and natural resources, continued close monitoring and protection of all of the parks' lakes is recommended. Potential nutrient inputs associated with future development proposals should be closely evaluated to assure that they will not significantly adversely affect the water quality of the lakes. This is particularly important with respect to Long and Shaver Ponds as they are key recreational and scenic resources within the park.

The Lake report also indicates a need for a study of White Lily Pond to determine if its eutrophic status is due to natural or cultural reasons.

There is no current program of testing in the lakes for nutrient loading. Long Pond is the only lake with a swimming beach and is considered to have good water quality for contact recreation, boating and fishing. The beach on Long Pond is tested weekly for *E. coli* as per the State Sanitary Code.

Preferred Alternative – Status Quo.

Routine water quality monitoring on all the ponds in the park by the Water Quality Unit will continue.

Long Pond is affected by the presence of the beach activity at the southern end. Long Pond may be affected if a camping area is established in its watershed (see analysis of Camping in this appendix), and the Shaver Pond watershed could be affected by development of a proposed Nature Center. Due to concerns that introduction of substantial new development within the watersheds of the park's ponds could lead to undesirable changes in trophic status, a meeting was held with NYS DEC. The general consensus of the meeting was that impacts on lake water quality would not be substantially large if development plans included proper design of wastewater treatment, satisfactory setback from the lake's shoreline, and only modest increase in patron use. Nutrient monitoring will be conducted on all of the lakes in 2011 to establish the current levels of nutrients in the lakes. Additional nutrient monitoring will be conducted periodically following construction of new facilities to confirm that there are no impacts and address impacts if they occur. In addition, an analysis of possible increases in nutrient loading from proposed new developments will be initiated using an up to date nutrient loading model recommended by DEC.

White Lily Pond will be studied more closely to determine if its eutrophic status is natural or man-made.

Stormwater Runoff

The US EPA defines stormwater runoff in this way: "Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater runoff from naturally soaking into the ground." This rush of water over the ground poses several environmental problems 1) stormwater runoff typically flows over developed areas where it can often pick up pollution such as chemicals, excess nutrients, or litter, carrying them to nearby waterbodies, 2) stormwater runoff can also transport sediment such as sand and gravel from upland areas to nearby waterbodies, 3) water flowing over hot pavement is often heated, leading to warmer water conditions at the outlet, and 4) stormwater runoff can increase the volume of water and the speed at which that water reaches the nearest waterbody, which can overwhelm those waterbodies, leading to erosion and flooding (EPA, 2011).

Beach Area

Background for Analysis:

The more impervious surfaces in an area, the more stormwater runoff is generated. In an area like Grafton Lakes State Park, relatively little area has been paved or made otherwise impervious, so stormwater runoff is not much of a problem. However, the concrete decking surrounding the bathhouse and the pathways leading to the beach on Long Pond do create a stormwater runoff problem that is creating an operations issue. Stormwater runoff from the deck and pathways flows freely down the pathways directly onto the beach. During heavy rain events, the large quantity of stormwater funneled down these paths and onto the beach allows the water to scour out sand from the beach, transporting it into the lake. This not only removes sand from the beach, requiring the park to purchase new sand and work to reposition the sand to fill in the eroded areas, but the lost sand that being transported into the lake has caused the sand to expand out into the lake beyond the swimming area. With each storm, this additional sand continues to expand into areas that are intended to be managed in a natural condition for wildlife habitat and activities such as fishing and boating.

A series of trench drains were constructed across the paths to intercept stormwater runoff before it crossed onto the beach. As designed, water flowing into these drains was then funneled through a series of subsurface catch basins and drainage pipes to an outlet. However, at some point these trench drains were filled in, allowing some stormwater runoff to bypass the drainage system. Since the catch basins and drainage pipes are still present, repair of the trench drains would restore this system to a functional state. This system solves the problem of erosion on the beach, but does little to address other issues that are likely associated with stormwater runoff at this location such as increased temperatures and increased overall stormwater speed and volume.

A "green infrastructure" approach would be to create a system, such as a series of rain gardens, where the stormwater runoff would be funneled into a highly porous area where it could infiltrate back into the ground. In such a system, any heated water would have time to cool off and the increased speed and volume of the runoff would be negated as the water slowly percolates through the soil, directly into the water table. The trench drains would be restored and directed into the rain gardens while the existing catch basins and drainage pipes could be incorporated as an overflow system in case the green infrastructure is overwhelmed in large storm events.

Alternatives	Considerations
Alternative 1	
Status Quo	Sand will continue to be washed away, causing operational and environmental problems. Impacts from heat and changes in water flow velocity and volume will continue.
Alternative 2	
Repair trench drains and reconnect to existing subsurface drainage.	Excess stormwater runoff will be funneled into the subsurface drainage system, away from the lake. Sand erosion caused by stormwater runoff will be greatly diminished. Excess flow volume and velocity as well as heat will impact outflow point.
Alternative 3	
Repair trench drains and connect to newly installed rain gardens. Utilize existing subsurface drainage system for overflow control. Raingardens will be constructed utilizing current drainage swales and low points in the existing lawn areas.	Excess stormwater runoff will be allowed to infiltrate through the soil, into the groundwater, not the lake. Depth to water table needs to be assessed. Sand erosion caused by stormwater runoff will be greatly diminished. Excess flow volume and velocity as well as heat will be greatly reduced as the stormwater runoff infiltrates into the soil. Green infrastructure practices such as rain gardens will take up some usable space in the lawn uphill from the beach. The rain gardens will be designed to be attractive gardens using native plantings of flowering plants and/or shade-providing trees. Rain gardens will require some specialized maintenance similar to maintaining an ornamental garden, but overall workload should not be more than proper routine maintenance required for traditional drainage infrastructure.

Preferred Alternative – Alternative 3 (pending assessment of existing depth to water table)

This alternative provides a solution to the beach sand erosion issue while also addressing the additional environmental impacts caused by excessive stormwater runoff. The area of lawn that will be taken up by this project will be in low areas that already collect water and are not optimal for patron use. These areas will be transformed into beautiful gardens capable of absorbing excess stormwater runoff. An educational display will accompany the installation to teach the public about this relatively novel technology.

Invasive Species Management

A statewide invasive species control program (ISCP) has been established in OPRHP with goals to preserve biodiversity and reduce the threat of invasive species to the quality of the natural, recreational, cultural, and interpretive resources within State parkland.

In November, 2010 and July, 2011 OPRHP staff from the statewide invasive species control program visited Grafton Lakes State Park and found a very low level of invasive species. The reports of those visits recommend creating an Invasive Species Prevention Zone (ISPZ) at the park. (O'Brien, 2011 and O'Brien, 2011a)

The NY Natural Heritage Program (NHP) survey report for Grafton Lakes State Park (Lundgren and Smith 2010) recognizes the potential for the appearance of non-native invasive species. The report recommends developing an Invasive Species Management Plan specific to the park as an aid to park staff and education for visitors to the park.

Due to the potential negative impacts that invasive species could have on the ecology of the Shaver Pond significant community, the NHP report (Lundgren and Smith, 2010) voices concern for the possibility of inadvertent introduction of invasive species to Shaver Pond. The report cites the important role that the education of visitors plays in the prevention of invasive species introduction.

Aquatic Invasive Species

Background for Analysis:

The (ISCP) reports specify that the most immediate threat comes from Eurasian watermilfoil (*Myriophyllum spicatum*). These populations are currently relatively small. Monitoring of the park's lakes and wetlands is being done to detect presence and spread of invasive aquatic flora and fauna species. The reports recommend further measures which are noted below in the analysis.

Alternatives	Considerations
Alternative 1	
Status Quo	Eurasian watermilfoil will most likely continue to spread to the point of impairing aesthetics, boating and swimming or to other lakes not currently infested.
Alternative 2	
Create an aquatic ISPZ for the park's lakes.	Boat launch entrances are not gated.
Install aquatic invasive species information at all boat launches and fishing access points.	Power washing all boats for invasives before entering the park's lakes.
Invasive species disposal bins will be installed at all launches.	Provides ability to respond to and control the invasive species before it causes major impairments.
Install power boat wash at park control point and at the Long Pond boat launch.	Potential control options include mechanical harvesting (hand or suction pulling), biological controls, use of benthic barriers, and other
Develop early detection/rapid response plan for aquatic invasives at the park.	

Visual surveys for aquatic plants and invasive species conducted annually. In particular, levels of invasives in Long Pond and Second Pond will be assessed. If invasives appear to be increasing, a more detailed survey will be conducted. Based on the survey results, management recommendations will be made and implemented immediately.	methods.

Preferred Alternative – Alternative 2

The presence of aquatic invasives in the lakes should initiate a more stringent approach to aquatic invasives at the park. Involvement of boaters and fishers will improve chances of preventing the spread of invasives into the park's other lakes from internal and external sources. Installing power washers at critical points will help boaters prevent the spread of aquatic invasives in and out of the park.

Terrestrial Invasive Species

Background for Analysis:

Recent assessments by park staff (O'Brien, 2011 and O'Brien, 2011a) of trails and other areas in spring and summer of 2011 revealed no large instances of invasive plant or animal species. Only small numbers of seven terrestrial invasive species were found in the park, including spotted knapweed, multiflora rose, bush honeysuckle, Japanese barberry, garlic mustard, and common reed. Because the park is relatively free of wide spread infestations, the recommendation was made to delineate an invasive species prevention zone at the park.

Alternatives	Considerations
Alternative 1	
Status Quo	No program for treatment of existing populations or early detection/rapid response for invasive species currently exists. Existing populations of invasives will continue to spread. New invasive species may be introduced, un-noticed into the park. Large and established invasive species populations are inefficient and possibly ineffective to deal with as compared to recently established/new invasions. No inventory of current invasives will be undertaken. No plan to educate staff and visitors about invasive species will be developed.
Alternative 2	
Create an invasive species prevention zone ISPZ and early detection/rapid response plan for the entire park including the lakes. Inventory existing invasives. Establish monitoring program to detect new invasions, particularly in the Hemlock communities. Education of staff and visitors on invasive species identification and iMap data entry.	Promotes efficient use of available resources. Early detection/rapid response will identify existing and new invasive populations before they spread and are harder to contain/remove. Inventory will produce action plan for existing invasives. Promote early detection and removal of new invasions. There may be an increase in the vulnerability of the park with increased user numbers. Visitors educated and less likely to bring invasives into the park.

	Provides protection of park's biodiversity. Staff is assisted with knowledge about invasives.

Preferred Alternative – Alternative 2 – This raises the level of priority on identifying and dealing with invasive species at the park considering that the park has such a low level of invasive infestations at this time.

Rare, Threatened and Endangered Species

Background for Analysis:

No state or federally endangered or threatened species have been recorded in the park to date. Four state listed raptor species of Special Concern have been observed nesting in the park in recent years. These birds prefer deep forest habitat and often nest in the same location from one year to the next. No recent surveys have been done on raptors nesting in the park.

The 2010 recommendations from the NHP (Lundgren and Smith, 2010) include minimizing activity in the location of known nests during the breeding season of March – June and to minimize fragmentation of large forest areas. In addition the report recommends surveying any areas prior to cutting, trail building, or new construction in the woodlands.

Alternatives	Considerations
Alternative 1	
Status Quo	No changes to practices regarding state listed raptor species of concern
Alternative 2	
Develop guidelines based on NHP report and DEC recommendations.	Monitoring of active nests needed. Increased awareness of raptor nesting sites in forested areas. Temporary closures or re-routing of trail sections close to nests. Assists park staff in decision making.

Preferred Alternative – Alternative 2

Further protects sensitive species.

Reduced Mowing

Background for Analysis:

Reduction of lawn mowing has been tried as a protocol in other parks in the Saratoga-Capital District park region. This has resulted in savings related to fuel, maintenance and labor costs. It is also part of the sustainability effort as the reduction in mowing results in reduction of fossil fuel consumption and emissions.

As part of the agency's sustainability initiative, Grafton Lakes State Park has initiated a mowing reduction program that eliminated 20.34 acres of lawn mowing. This reduction has resulted in reduced labor and fuel expenses. In one year, the savings in fuel expenses is estimated to be approximately $1,100 by eliminating the need for 260 gallons of diesel fuel. This will also reduce carbon emissions in the park by over 5,700 lbs.

Lawn areas that come under the reduced mowing protocol may revert to more native wildflowers and other open field native plants which provide food sources for various wildlife species.

Reduced mowing is not used in areas where mowed lawn is necessary for recreation such as picnic areas, ball fields, etc.

Preferred Alternative – Status Quo

The reduction of use of fossil fuels and resulting decrease in cost and emissions is important to the goals of the park, the region and the agency. In addition this practice increases populations of native wildflowers and grasses. The reduced mowing protocol will remain in effect and additional areas will be considered to be added in the future.

Recreation Resource Development/Management

The recreation resource development alternatives primarily focus on the recreation use areas of the park. They also include developed areas, roads, and trails. These areas currently constitute approximately 2.75 percent of the park. This section of the chapter includes other forms of recreation including such activities as hunting, fishing, camping and environmental education. Each recreation and support element is discussed individually. There is a brief discussion of the existing condition and the alternatives considered. This is followed by a description of the preferred direction.

Camping

Definitions

Traditional campsites are state park campsites that are accessible by motor vehicle and are distributed along road "loops" with each site providing its own parking area. Sites are separated from each other by having a certain "frontage" along the loop road and may be in open or forested areas. Each of the campsites provides a level area for tent or camping vehicle, a picnic table and a fire ring. These areas have sites which may or may not provide electricity and water. The loops have support facilities such as potable water sources; refuse containers, rest rooms and showers.

Carry-in/primitive camping is similar to traditional camping except that it involves campsites that are located away from the main camping area and do not provide parking or vehicle access immediately adjacent to, or as part of, the campsite. The patron parks in a designated parking area and carries all camping equipment to the campsite. These campsites are typically provided with picnic tables and fire rings, with no electric or water.

RV camping is a variation of the traditional state park campsites with additional accommodations for recreational vehicles. This may include utility hookups and pull through sites. There is no plan for specifically designed RV campsites at Grafton Lakes State Park.

Campsites – Traditional and Carry-In/Primitive

Background for Analysis:

Grafton Lakes State Park is currently a day use park with no overnight camping facilities available. Occasional special use permits are issued to allow organized groups to stay overnight in their own tents or other equipment. These permits are generally issued in relation to a formal event or service project. The Deerfield picnic area is usually used when this need arises. Early plans of the park included camping areas on both sides of Long Pond and elsewhere in the park. Those facilities were never developed. Additionally, park staff have submitted proposals for camping in the park in recent years. These proposals have not been acted on.

There are 23 commercial, state and national campgrounds within 30 miles of the park (Chishti, 2011 – Appendix F) with a total of approximately 1,100 campsites (combined RV and tent) and 11 cabins. Most of these are further then 20 miles from the park. Although the trend in the commercial campgrounds is toward accommodating large RVs, most of them provide campsites which are suitable for tents, pop-up trailers and smaller RVs as well. Other amenities provided at many campgrounds include electric and water at some of the sites, laundry facilities, swimming in ponds and pools, Wi-Fi, and camp stores. Another popular trend is to provide season-long rentals, cable television and various organized activities such as movies, and musical entertainment.

Alternatives	Considerations
Alternative 1	
Status Quo	Park will continue to be a day use park. No camping facilities will be created in the park.
Alternative 2	
New camping area on west side of Long Pond Road in area indicated in Figure A4.	Park will become 24 hr park during camping season.
The proposed conceptual design includes traditional and carry-in camping loops (Figure A4)	Need increased staff for various camping functions. Camper registration point needed.
Detailed design of a final facility will include more details of aspects such as setbacks from the lake, minimization of soil and canopy tree removal and other measures to mitigate possible environmental impacts.	Location can get electricity from existing power lines. New facilities needed for wash houses, potable water.
Camping loops closest to lakes will be carry-in, those closest to the road will be traditional.	New wells and septic fields needed. Within a short walking distance to beach.
A new camper registration building will be built on the main park road, and a new connector road will be built to carry camper traffic to Long Pond Road and the campground. (Final Master Plan Map)	Increased traffic on Long Pond Road during camping season. Increased beach use and beach parking lot use during camping season.
Consider acquisition of Long Pond Road	Increased visitors to surrounding area amenities such as Dyken Pond, Peace Pagoda, Bird Paradise, hamlet of Grafton businesses. Location is within a forest type identified by the Natural Heritage Program as a significant ecological community which is part of forest stands noted for their exceptional quality and expansive coverage on the Rensselaer Plateau.
Alternative 3	
Same as Alternative 2 but located on east side of Long Pond Road near stone house location.	Same considerations as Alternative 2 plus the following: Not walk-able to beach for many patrons. New electric service needed. State and NWI wetlands in this area. Not in a significant ecological community, this location is within a forest stand that has been impacted by logging in the relatively recent past.

Alternative 4	
New camping area located north of the Long Pond beach complex. (Figure A5) The concept would be traditional camping sites with an emphasis on family style camping Sites would be set up only for tents and tent trailers with no hook ups available. Follow agency guidelines for spacing. Follow constraints of site. Include additional cabins in this area – not 4-season cabins.	Area has access to existing electric, water and sewer utilities. Water and sewer facilities will need to be expanded. Terrain is rough, with site constraints of steep slopes, bouldery soil which may limit the scope of developed camping area. Easy pedestrian access to beach area. No physical or jurisdictional changes to Long Pond Road. Will not need new connector road. Requires operational and design changes to the beach parking lot and entry gate. Part of Water Tower trail needs to be relocated. Some impacts to Beech Maple Mesic and Hemlock Northern Hardwood communities. Possible raptor habitat. Easy control and access through existing road system.

Preferred Alternative – Alternative 4

Provides camping at the park in a part of the Grafton region where few traditional campsites are presently available to the public (Appendix F). Offering camping at the park will increase patron participation in park services and activities. Although sited in a forest stand identified by the NHP as a significant ecological community, this forest type is not rare. The high quality forest will make an inviting site for a relatively low-impact camping area designed to minimize impacts to the forest and lakes.

Cabins

Background for Analysis:

There are no rental cabins at Grafton Lakes State Park. Opportunities for overnight camping within 30 miles of the park include approximately only 11 cabins for rent at commercial sites. (Chishti, 2011 – Appendix F)

With year-round visitation, there are opportunities to provide four-season rental cabins in the park.

Alternatives	Considerations
Alternative 1	
Status Quo	No new cabins will be built at the park. Current levels of facilities in the area will remain the same.
Alternative 2	
Provide up to seven new cabins for year round overnight accommodations at White Lily Pond. (Figure A6)	The proposed location is currently a successional old field and was the site of a former YMCA overnight camp, minimizing the ecological impacts of construction. Some clearing of brush and small trees will be necessary for building foot prints, parking and driveways. New septic system needed. Good access to trail system for all trail uses. (for new proposed trail locations see Appendix B, the trails plan) Good access to White Lily Pond and road. Need water and electricity, heating in winter.

Preferred Alternative – Alternative 2

This alternative provides an overnight experience not currently available at the park in a form (cabins) that are not readily available in the immediate vicinity. Environmental impacts will be minimized by the selection of a previously disturbed site.

Nature Center

Background for Analysis:

The environmental education program aims to provide experiential learning opportunities that inspire participants' sense of wonder about the natural world. The hope is that through engaging with nature directly, participants develop an appreciation which leads to a desire to explore further, and to take care of the wonders they have found.

To achieve these ends the development of a nature center where year-round programming could be based seems appropriate. A variety of perspectives on the natural world could be encouraged so as to reach the broadest number of patrons. A science lab, an exhibit of native live animals, touch and explore activities, environmental history and sustainability will all be potential themes of this center. With the support of this new space and other resources, the education program could also grow interest in the outdoors. This will happen through park sponsored nature and citizen-science clubs for a variety of age groups, opening the doors of the center into the surrounding park for deep and stimulating journeys of discovery. This connection will be facilitated by a small amphitheater and connections to park trails. These activities, which foster nature discovery and peer-to-peer education, could include collecting data on local amphibian populations, bird counts, and service projects in the park for local scouting troops.

Grafton Lakes State Park is in high demand for environmental education and interpretation programs. Although many varied and well attended programs are operated from existing facilities, local school districts, service organizations, scouting groups, families and individuals have all voiced a desire for additional programming.

Currently environmental education programs originate from two facilities in the park. Both of these are inadequate to meet the growing demand. First, at the beach area is a beach nature room. This is a small room (approximately 150 square feet) which houses some equipment and display space. The educator may be present at the room during beach hours and some scheduled programs are taught there.

The second facility is the Shaver Pond Nature Center which is west of the main park on Shaver Pond Road. The building houses one small meeting room and also serves as the home of a DEC air quality monitoring station. It also acts as a meeting point for some education programs but is inappropriate as an office space or exhibit space because of the distance from the main part of the park.

Other programs occur throughout the park as field trips. These field trips presently do not have a central location for meeting and giving orienting talks.

More programs and improved education opportunities could be provided if there were better facilities in the park. The park is well situated to provide a major year round environmental education facility for the area.

Locations mentioned in the analysis refer to Figure A1. Figures A2 and A3 indicate proposed sketch site plans.

Alternatives	Considerations
Alternative 1 - Status Quo	Education programs will continue at the present level
	No increase of offerings could be made to meet public demand
	No new classroom or exhibit space will be built
Alternative 2	
Expand Shaver Pond Nature Center	Adaptive use of existing building
	Distance from the main part of the park is undesirable
	Limited utilities at this spot
	May need to move DEC Air Quality Monitoring station
Alternative 3	
New Nature Center at Location A	Education programs could be expanded and increased to meet public demand
	New classrooms, meeting rooms and exhibit space will be built to provide better education opportunities
	New utilities (water, electric, septic) will be needed. Currently no utilities are available in this area in the off season.
	Area is currently developed and there will be a loss of some picnic area
	Location will not be use able year round
	Nature Center will open into picnic areas instead of parkland
	Not connected to trails
Alternative 4	
New Nature Center at Location B	Same considerations as Alternative 3
Alternative 5	
New Nature Center at Location C	Education programs could be expanded and increased to meet public demand
	New classrooms, meeting rooms and exhibit space will be built to provide better education opportunities
	Proximity to existing comfort facilities

Alternatives	Considerations
	Not connected to trails
	Not year round location
Alternative 6	
New Nature Center at Location D (Woodland Trail Location)	Education programs could be expanded and increased to meet public demand.
Provide beach area satellite "ambassador" site for programming.	New classrooms, meeting rooms, amphitheatre and exhibit space will be built to provide better education opportunities and outdoor classroom.
Include small amphitheatre at the nature center site as an outdoor classroom and for programming.	Center opens into parkland and is connected with trails.
Use Nature Center as a warming hut in winter months.	Year round location.
	Need new well and septic designed for year-round use.
	Distance from main beach area.
	Area is currently undeveloped and there will be a loss of some trees which could be kept to a minimum through design.
	Ambassador site (beach season only) will keep an education program presence at the beach which may interest patrons not otherwise aware of the park's programs.
	New ambassador site will not require utilities in the winter as it will be operated according to the beach schedule.

Preferred Alternative – Alternative 6

This new nature center meets the needs of the environmental education and interpretation program at the park. Year round programming, connection to the environment, proximity to the beach, and accessibility make this the preferred alternative.

Swimming Beaches/Expansion

Background for Analysis:

The beach at the southern end of Long Pond is the only swimming beach in the park. The beach is perceived to be filled to capacity several times during the year. At times, even when the swimming areas are below the maximum capacity set by the (health department?) the beach may be perceived to be overcrowded.

The addition of camping to the park is being considered in this master plan. When implemented, this will add to the current park patrons and bathers at the beach.

New York State Department of Health (DOH) rules and regulations call for 35 square feet of land area per bather (NYCRR Section 6-2.19 (4.4) – Bathing beach design standards). The current sand area is approximately 125,500 square feet. This equates to a calculated capacity of 3,585 bathers. Taking into consideration the additional 62,300 square feet of lawn area, the combined sand and lawn area at the beach (minus the area of paved walkways) totals approximately 187,800 square feet, yielding a capacity of approximately 5366 bathers based on land area. This does not account for other bathers that may be in the picnic groves.

The same rules and regulations specify that water surface area shall be 25 square feet per bather with 75 square feet per bather in areas over four feet deep. The swimming areas at the park beach are composed of 7 sections. Each section has approximately 16,200 square feet of surface area. The total water surface area is approximately 113,400 square feet with ¼ of that over four feet deep. This yields a total capacity of 3400 bathers based on water surface area.

Based on current configurations and DOH rules and regulations, the beach sand capacity exceeds the swimming area capacity by approximately 185 bathers. If lawn areas are taken into account, the surrounding land capacity exceeds the swimming area capacity by approximately 1,966 bathers.

The master plan calls for changes to the stormwater runoff management system in the beach area. The preferred alternative is to install raingardens as part of the new system. When these are installed it will mean a reduction of the available lawn area of approximately 6000 square feet. This is a reduction in capacity of approximately 170 bathers as compared to the overall capacity of land area at the beach. With this change, the capacity of the sand area would not change while the combined land area surrounding the beach would still be able to accommodate approximately 1,794 more bathers than are allowed in the swimming area.

The parking lot has 555 standard spaces and 20 ADA spaces. When parking exceeds this capacity, patrons park at other parking lots further from the beach area.

Alternatives	Considerations
Alternative 1 Status Quo	No changes to current beach configuration.
Alternative 2 Expand current beach on Long Pond to the north or south.	Encroachment on existing picnic areas. Disruption of shoreline aquatic habitat (depending on site specific design) and removal

	of vegetation.
Alternative 3	
Status Quo plus feasibility study for new beach on Long Pond.	Current beach has sufficient capacity and will remain as is. Another beach on long pond, possibly adjacent to new camping areas. Additional nutrient loading to the lake. Additional loss of shoreline and submerged natural habitat. Additional resources needed – bath house, life guards, parking, waste water systems, potable water source. Feasibility study and supplemental EIS will be needed.

Preferred Alternative – Alternative 3

The capacity of the sand and lawn areas is adequate and will not be changed. The possibility of a new beach on long pond will be studied for impacts and location.

Picnicking

Picnic Groves

Background for Analysis:

There are two main picnic groves in the park; one at the north end of the Long Pond beach which has become overgrown and is unused and one at the south end, part of which has also become overgrown and unused. The north area is being cleaned of equipment and allowed to revert back to natural habitat.

These groves are in wooded areas with sites that include a picnic table and charcoal grill. In the groves that are currently used, the use of these sites is on a first come first served basis. The south end grove also includes a pavilion used as an amphitheater for park programs such as EE&I or musical events.

On busy weekends the picnic groves are full, with more patrons waiting for tables as they become available.

Picnic areas are also available at Deerfield and Rabbit Run Pavilions. The pavilions are used by reservation but are available to the general public if not reserved.

Alternatives	Considerations
Alternative 1	
Status Quo	No change to number or location of picnic groves. Those groves that are unused will remain unused. The north area will continue to be dismantled and allowed to revert. Patrons may continue to be kept waiting for tables and grills at the busiest times.
Alternative 2	
Rehabilitate picnic facilities at south area. Include new playground in south area. Include larger pavilion to replace Amphitheater Pavilion. (See Pavilions analysis in this appendix) Dismantle north area and allow it to revert to natural community.	Increase of usable picnic tables in an existing picnic area close to main activities and beach. Keep appropriate distances between tables for privacy.
Alternative 3	
Alternative 2 plus new picnic tables added at site of new pavilion near Deerfield area.	Site chosen for new pavilion facility will include picnic tables.

Preferred Alternative – Alternative 2 (3 if new pavilion area is built)

The choice of Alternative 2 is made because of the high usage of existing picnic groves. The expansion of the south grove provides additional opportunities for family picnicking in the park and new playground facilities. If a new pavilion is constructed in the park at Deerfield there would be an additional advantage with new picnic tables at that location as well.

Picnic Pavilions/Tents

Background for Analysis:

There are three pavilions and four tents at the park. Details of these facilities can be found in Chapter 3, Table 5. The pavilions and tents are available for rent by reservation. They are often fully booked during the season. When they are not reserved they are open to the public.

Alternatives	Considerations
Alternative 1	
Status Quo	No new capacity for pavilion rentals will be added.
Alternative 2	
Replace all tents with permanent pavilions.	New pavilions will provide more weather resistant and durable structures.
Add one more picnic pavilion in area A near Deerfield as indicated on Figure A8.	Can share driveway/entrance/parking/rest rooms with Deerfield.
Include picnic table area.	Proximity to new nature center and beach area.
Minimize impacts to Shaver Pond watershed by directing stormwater runoff away from the pond and by using green infrastructure where possible.	Increased stormwater runoff and sanitary waste water. Added picnic table capacity as well as new pavilion.
Replace Amphitheatre pavilion in south area with larger pavilion.	Room for more tables and larger groups.
Alternative 3	
Add one more picnic pavilion in area B as indicated on Figure A8.	Good access from Long Pond Road and main park road.
Minimize impacts to Shaver Pond watershed by directing stormwater runoff away from the pond and by using green infrastructure where possible	Increased stormwater runoff and sanitary waste water.
New septic system to be located away from the pond.	
Replace Amphitheatre pavilion in south area with larger pavilion.	Room for more tables and larger groups.
Alternative 4	
Add one more picnic pavilion in area C as indicated on Figure A8.	Same as Alternative 3 except this location is closer to main park road and closer to new nature center.
Replace Amphitheatre pavilion in south area with larger pavilion.	Room for more tables and larger groups.

Preferred Alternative – Alternative 2

This alternative provides additional pavilion rentals in locations that are close to the main activity area of the park. For the new pavilion at Deerfield the shared drive and other facilities with will help lower costs and reduce impacts. New picnic table areas will help increase availability for that activity.

The addition of a larger pavilion at the south picnic area will allow for larger group rentals and more picnic tables.

Court and Field Games

Background for Analysis:

Court and field games at the park are located at the picnic pavilion areas.

- Deerfield – basketball (1/2 court), volleyball, horse shoes, and softball
- Beach Tent - volleyball
- Rabbit Run - volleyball and horse shoes
- North Area and Amphitheater - horse shoes

There are no facilities available for organized sports.

Alternatives	Considerations
Alternative 1 Status Quo	Park will continue as is with some games available for renters at pavilion areas. No new sports facilities will be installed.
Alternative 2 New full basketball court at Rabbit Run Complete full basketball court at Deerfield. New Bocce courts as a pilot project at Deerfield.	Adds recreational facilities which are in demand at the park.

Preferred Alternative – Alternative 2

Installing basketball courts at Rabbit Run and Deerfield will make these areas more attractive to park patrons. Bocce is a popular activity which currently has no outlet in the park. A pilot project of bocce courts at Deerfield will indicate user interest in this sport.

Playgrounds

Background for Analysis:

A new playground has been installed at the north end of the main parking lot and at Deerfield Pavilion.

New and expanded picnic facilities as recommended in the master plan have no playground in proximity.

Alternatives	Considerations
Alternative 1	
Status Quo	No new playgrounds will be built.
Alternative 2	
Install new playground in conjunction with rehabilitation of the south picnic area.	New picnic area patrons will be able to utilize picnic area close by. Close to Rabbit Run Pavilion. Increases attractiveness of this area.

Preferred Alternative – Alternative 2

Provides recreational facility to a newly rehabilitated picnic grove. This increases the attractiveness for patrons using this area with families and children.

Hunting

Background for Analysis:

Hunting is recognized as a recreational opportunity in State parks. Hunting opportunities are available in the park outside of the central recreation area. An area immediately adjacent to the high use areas is closed to hunting and is clearly marked. This includes the beach area, all picnic areas and pavilion areas.

Hunters are required to get a park hunting permit and to comply with park regulations, DEC regulations and license requirements Park hunting regulations are more restrictive than statewide regulations. Hunters are informed of the regulations through information booklets and maps issued with the mandatory park hunting permit.

The park deer seasons (shotgun, archery and muzzleloader) coincide with the rest of the surrounding area.

Deer hunting represents the largest type of hunting in the park in terms of permits issued. Since 1964, the annual number of permits issued for deer hunting has ranged from 2,610 to 7,039. The park represents an extensive area of public hunting opportunity within the central Rensselear Plateau.

Alternatives	Considerations
Alternative 1 - Status Quo	
All current hunting opportunities and regulations will be maintained. The availability of game species will vary depending on habitat and other natural conditions. The restricted zone will be maintained and adjusted appropriately to maintain the health and safety of the park patrons.	The current level of providing recreation opportunities for hunters and non-hunters will be maintained.

Preferred Alternative – Status Quo – no changes to habitat management or hunting regulations are anticipated for the park except for changing the restricted zone if recreational facilities are changed.

Fishing and Ice Fishing

Background for Analysis:

Warm and cold water fishing opportunities are provided by the lakes and streams within the park.

Fishing and ice fishing is permitted on all park lakes with proper DEC fishing license. No park permit is required. The boat launches provide access to the lakes and there are areas for shoreline access as well. Accessible fishing platforms have been installed at various locations in the park.

DEC provides stocking for additional fishing opportunities in some of the lakes. The park also participates with Trout Unlimited in the "Trout in the Classroom" project which involves students raising trout for eventual release at the park. Fish habitat improvement projects such as additions of submerged woody debris for foraging and sheltering fish have been conducted in Long Pond near the dam area.

Alternatives	Considerations
Alternative 1 - Status Quo	The current level of fishing opportunities will be maintained. Continues coordination of stocking programs with DEC.
Alternative 2 Same as Alternative 1 with improved fishing access areas selected within the park	Improves public access to fishing areas.

Preferred Alternative – Alternative 2

Public access to all fishing areas will be improved to allow a greater segment of the population to take advantage of this activity

Cultural Resource Protection Strategies/Management

Cemeteries

Background for Analysis:

There are four inactive family cemeteries in the park. (see the cultural resources map, Figure 14) All of these are on park property and have been assessed by the OPRHP bureau of historic sites. (Flagg, 2002) One of the cemeteries has deed restrictions specifying types of access to the cemeteries and management practices. The 2002 study recognizes the burial sites as one of the few remaining features of this region's early post-colonial occupation.

The 2002 study makes several general (for the cemeteries as a whole) and specific (for each individual site) recommendations based on the assessment. The general recommendations include:

- preserving and protecting the historic character of the burial grounds by managing the landscape toward slowly re-establishing an open clearing (except the Hicks cemetery)

- initiating a comprehensive and detailed survey of all four cemeteries

- instituting a cyclical maintenance and inspection program

- re-set toppled, loose and severely leaning gravestones

- research and develop interpretive materials for the cemeteries.

Other, more specific recommendations were made which can be found in the document.

Alternatives	Considerations
Alternative 1 - Status Quo	No changes to the management of the cemeteries will occur. The cemeteries may continue to be overgrown and un-interpreted. Loss of information about the region's history. Unmaintained sites are often a target for vandalism.
Alternative 2 Proceed with the recommendations made in the 2002 report. Update information through additional survey and assessment. As recommended in the report.	More information available about the region and its early settlement history. Cemeteries will be monitored, surveyed and interpreted. Historic gravestones will be repaired, less of a target for vandalism.

Preferred Alternative – Alternative 2

Realizes the potential of these cemeteries to illustrate portions of the region's history not available elsewhere. Preservation of the history of the area is one of the goals of the park, the region and the agency.

Dickinson Hill Fire Tower Restoration

Background for Analysis:

The Dickinson Hill Fire Tower is the newest and possibly the most valuable historic and scenic resource in the park. It was erected and placed into service in 1924 as part of the network of fire protection observation posts. The City of Troy contributed funds for the original construction to protect the watershed that supplied its water supply. The tower also saw some limited duty in the Aircraft Warning Service during the Second World War. Grafton resident, Helen Ellett, was hired as the first woman fire observer in New York State. She worked at the tower for 18 years beginning in 1943. It is the only remaining fire tower in Rensselaer County and provides an unparalleled 360 degree view. (Leahy Institute, 2010)

Restoration: For years the structure of the tower has been neglected. In 2010 an agreement was made between the New York State Police, who control the land where the tower is located, and OPRHP, transferred control of the tower itself to Grafton Lakes State Park. The Friends of Grafton Lakes State Park has agreed, and begun, to carry out the necessary work to restore the tower so that it can be a permanent and publicly accessible feature of the park. In March, 2011 the tower was placed on the New York State Register of Historic Places and was accepted for nomination to the National Register of Historic Places.

Access: Access to the tower from the park is by foot, biking and horseback riding on Fire Tower Road. The road is accessed from the park by trail. The town does not maintain the road in the park and the road condition immediately outside the park and illegal ATV and vehicle use on the trail is causing erosion issues. Fire Tower Road also serves an adjoining property owner who uses the property seasonally.

Vehicles may access Fire Tower Road from the East. Parking near the entrance to the driveway that leads to the Fire Tower is extremely limited. People sometimes park on adjacent private property, blocking access for that landowner. This situation can cause conflict with the park's neighbors at that location.

Alternatives	Considerations
Alternative 1	
Status Quo	The friends group and the park will continue with restoration activities at the fire tower site. This will interpret the tower for the public and open the tower for public access. Access will continue to be along Fire Tower Road which is connected to the Fire Tower Trail in the park. User conflict with neighbors when walking on Fire Tower Road. Vehicles sometimes left on neighbors' property. Fire Tower Trail will continue to erode and degrade over time.

Alternatives	Considerations
Alternative 2	
Continue Restoration with upgrades to Fire Tower Connector Trail. Ask town to abandon Fire Tower Road in the park. Fence Fire Tower Road at property line to prevent vehicular access but allow pedestrians and hikers and other non-motorized summer uses. Provide parking area on Fire Tower Road for access from the East.	Erosion problems stemming from road conditions and steep trail conditions. Controls illegal vehicular access to the park. Conflict with neighbors may still occur with walkers accessing the Fire Tower on Fire Tower Road. Need to work with town on parking area and abandonment of the road.

Preferred Alternative – Alternative 2 - Continue Restoration with upgrades to Fire Tower Trail and town abandonment of Fire Tower Road in the Park.

The tower will be restored and become a valuable asset in the history of the area. Trail access and erosion problems will be dealt with. Agreements with the town need to be arranged and communication with adjacent property owners needs to be maintained.

For details on the trails aspect of this alternative please see the Final Trails Plan – Appendix B.

Scenic Resources Protection Strategies/Management

Background for Analysis:

Grafton Lakes State Park has two excellent sources of scenic vistas, the first is the near ground view of hills surrounding the park's lakes and the second is the Dickinson Hill Fire Tower.

Ground level vistas at the lakes, along trails and on hill tops afford views of the rolling hills and moderate slopes and valleys that are typical of the Rensselaer Plateau. These landforms produce scenic qualities that are of high value. Expansive lake views and views from hilltops enhance the scenic desirability of the park.

Other vistas at the park include views at either end of Long Pond and the expansive views around the Dunham Reservoir. Both of these views take in surrounding unbroken hilltop profiles that express the nature of the rolling topography in this area.

The Dickinson Hill Fire Tower provides the major vista in the park. The view is a sweeping 360 degree view of the surrounding lands including the Rensselaer Plateau and the Adirondack, Catskill, Green, Helderberg and Taconic Mountain ranges. The view encompasses parts of three states – New York, Massachusetts and Vermont. The tower has been nominated for placement on the National Register partly due to the value of the scenic and historic views available.

Currently there are no specific acquisition plans or other programs in place to protect the viewshed of the Dickinson Hill Fire Tower. Potential acquisitions from willing sellers would be investigated on a case by case basis. Changes to any views entirely within the park are controlled and assessed by OPRHP.

Alternatives	Considerations
Alternative 1	
Status Quo	Changes in the viewshed outside the park will continue to be assessed on a case by case basis.
Alternative 2	
For the fire tower – develop a comprehensive scenic resource management plan which includes action items for viewshed protection. This can include:	Fire tower is on the state register and nominated for the federal register.
An inventory of the scenic resources as seen from the fire tower.	
Inventory of possible threats to the continued value of the resource.	
Identification of priority land acquisitions within the viewshed where willing sellers exist.	
Management of trees and vegetation close to the fire tower which have potential to degrade the	

resource.

For the vistas within the park:

Maintain the lake shoreline and hilltop views by limiting the visibility of any new development at or near the shoreline.

Maintain hilltop views by managing vegetation where it impinges on the views.

Maintain a policy of commenting on and protecting the park from development outside the park which may negatively impact the scenic resources.

Preferred Alternative – Alternative 2 – Guidelines will help protect scenic resources external and internal to the park. Scenic easements are needed to insure continued value of the view from the fire tower and restrictions within the park will protect the landscape value of lake shorelines and hill tops.

Infrastructure Development

Shaver Pond Nature Center

Background for Analysis:

The Shaver Pond Nature Center (the Center) is located on Shaver Pond Road approximately 1 mile north of NYS Rt. 2. It is not accessible by motor vehicle from the rest of the park without exiting the park. The building is accessible from the park trails system and is close to Shaver Pond. A major portion of the building and grounds is taken up by a DEC air quality monitoring station which operates under an MOU between OPRHP and DEC. The rest of the building consists of a kitchen, small meeting room and rest room. The building is fully accessible.

Currently the building is used by the park for meetings and some environmental education functions.

Alternatives	Considerations
Alternative 1	
Status Quo	No changes to function or usage of the Center.
Alternative 2	
Adapt building for other park operation function.	DEC monitoring station may have to be moved. Adaptive re-use of existing building. Renovations needed to make the building suitable for other park operations function.

Preferred Alternative – Alternative 2

This alternative will provide facilities needed for other park administrative uses. Re-use of existing infrastructure is part of the sustainability objective in the agency.

Maintenance Area

Background for Analysis:

The Maintenance Area is a compound of four buildings and related exterior service areas which house the various maintenance functions of the Park. The Lumber Barn predates State ownership, and is used for materials storage. The Old Maintenance Shop also predates State ownership, and is used for material and vehicle storage. The Maintenance Shop was built in 1974, and includes spaces for vehicle maintenance, workshop area, a restroom, and a break room / office. Finally, the Pole Barn was constructed in 2009 and is used for equipment storage.

The Old Maintenance Shop is showing its age, and is in need of a general rehabilitation, including new siding, windows, roofing, insulation, lighting, etc.

The Maintenance Shop is generally in good condition, but is undersized for its current uses. The single restroom, which includes a shower, is shared by both male and female employees. The location of the Maintenance Supervisor's office space within the small break room makes for less than ideal working conditions. The size of the current break room is too small to accommodate a Maintenance Supervisor's office or a suitable area for employees to eat lunch. Firewood is stored in a makeshift shed addition off of the rear of the building.

Alternatives	Considerations
Alternative 1	
Status Quo	Maintenance area will remain in current configuration.
Alternative 2	
Expand Maintenance Shop to include an additional workshop bay, maintenance supervisor office and gender specific restrooms. Install lunchroom and changing room to accommodate staff. Upgrade Old Maintenance Shop to increase storage space.	Park maintenance is outgrowing current space. New campground will increase needs for storage, shop services and staff. Men and women need separated restrooms, showers, changing areas.
Construct a new standalone woodshed west of the maintenance shop.	Adequate storage for tools and supplies.
Remove existing makeshift shed, and construct a new permanent addition to the west for equipment and tool storage.	

Preferred Alternative – Alternative 2

The growing demand on the maintenance staff and facilities is best met by this alternative. Added space for storage and staff will benefit the efficiency of the maintenance operations at the park. The increased responsibilities and maintenance tasks expected with the addition of camping will be better met with new and well designed facilities.

Vehicular Entrance Control/Access/Park Office

Background for Analysis:

During the summer months the vehicular entrance to the main part of the park is on NYS Route 2 about .7 miles west of the Grafton village center. This entrance has a contact station which is open during the season.

The configuration of the entry includes a "jug handle" loop which allows vehicles coming from the west to exit Route 2 without blocking through traffic at a point approximately 230 yards west of the park and then positions them onto a nearly perpendicular intersection. Vehicles must then cross over both east and westbound lanes of Rt. 2 to enter the park. Those travelling from the east turn right directly onto Grafton Lake State Park Way. (Figure A7)

New York State Department of Transportation (DOT) safety evaluations report that accidents have occurred at the jug handle entrance. All were right angle accidents involving a west bound vehicle on Route 2 and a vehicle entering the park from the jug handle. From March 1, 1998 to April 30, 2001 there were four such accidents reported and from Jan 1 1996 thru Sept 31, 1999 there were five. (Private communication from DOT)

Recently the speed limit in this area has been reduced to 40 mph and DOT has approved a permanent installation of electronic radar speed signs.

During the winter months Grafton Lakes State Park Way is not plowed and the main vehicular entrance is moved to Long Pond Road just north of the village center. This entrance routes vehicles past the Grafton town center, the park office, the park maintenance area and the park police headquarters. There is no vehicle use fee collected at this entrance.

Alternatives	Considerations
Alternative 1 - Status Quo	
Alternative 2	
Leave existing contact station for day users Build new park office with camper registration facilities north of existing contact station on Grafton Lake State Park Way. Office will also supply patrons with more information services such as maps, schedules and park information. Current office will remain for park services. Per New York State DOT, install permanent speed indicators east and west of park entrance on Route 2. Begin discussion with DOT and town officials to determine if an alternative design for the park entrance intersection can be implemented.	Better service to park patrons with improved access to maps and other information. Registration for camping and cabins. Increased traffic safety at this intersection is an important goal.
Alternative 3	
Move park entrance to Long Pond Road with new contact station/visitor center complex where the park road leaves Long Pond Road	Increased traffic on Long Pond Road during park season. Registration center for camping and cabins. Improved safety with less cars turning on Route 2. Two contact stations needed. View at entrance – office building, park manager's house, maintenance sheds, police headquarters. Existing building (shed) can be adapted for re-use.

Preferred Alternative – Alternative 2 provides services for the separation of camper registration from day user traffic. This will improve the efficiency of the park entrance for all patrons. The new park office will allow easier access for users who wish to apply for permits, find out about program schedules, park information and other functions. Talks with DOT and the town will help to produce an alternative to the jug handle design.

Martin Dunham Reservoir Dam Outlet Trail Crossing

Background for Analysis:

The Double Bit trail crosses the outflow structure of the reservoir. Currently the crossing is covered with flowing water making the crossing difficult. The trail formally ends at the crossing from either direction. A plan exists for the rehabilitation of the dam and outflow in compliance with DEC regulations. This rehabilitation is part of the Saratoga-Capital District park region capital facilities plan. (Civil Dynamics, 2008)

Alternatives	Considerations
Alternative 1	
Status Quo	The trail will continue to end on either side of the reservoir outflow structure.
Alternative 2	
No immediate changes or action. Feasibility study for the outflow structure and trail crossing alternatives is recommended.	No action will be taken immediately to formalize a crossing at this point on the trail. Future crossings may be considered after the rehabilitation and the feasibility study is completed.

Preferred Alternative – Alternative 2. While no immediate action is recommended, this alternative allows for future recommendations to provide a continuous trail across the outflow of the reservoir.

Comparison of Status Quo and Preferred Master Plan Alternatives

Table 1 Comparison of Status Quo and Preferred Master Plan Alternatives

Element/Topic	Status Quo Alternative	Preferred Master Plan Alternative
Park Preserve/Park Preservation Area	No preserve or preservation area	Create a park preservation area encompassing all of the park south of NYS Route 2.
Bird Conservation Area (BCA)	No BCA at the park	A BCA consisting of the entire park is created.
Lake Water Quality	Water quality monitoring has been done by OPRHP staff.	Continue and enhance water quality monitoring protocols.
Stormwater Runoff – Beach Area	Erosion of beach sand and inadequate system	Repair trench drains and install new rain gardens.
Aquatic Invasive Species	No plan in place	Alternative 2 – Create aquatic ISPZ for all the lakes in the park. Plan for early detection/rapid response. Install power washing stations at control point and Long Pond boat launch. Educate boaters, fishers and park staff. Monitor lakes
Terrestrial Invasive Species	No plan in place	Alternative 2 - Create an Invasive Species Prevention Zone at the park covering the part north of NYS Route 2
Wildlife Resources and Nuisance Wildlife	Park follows state guidelines	Status Quo
Rare, Threatened and Endangered Species	No specific park guidelines but park follows state and federal regulations	Alternative 2 - Develop specific park guidelines based on NHP report and DEC recommendations.
Reduced Mowing	Some reduced mowing areas	The current reduced mowing program will continue and additional lawn areas will be considered for inclusion in the program.

Element/Topic	Status Quo Alternative	Preferred Master Plan Alternative
Camping- Traditional and Primitive/Carry-In	No camping at the park	Alternative 4 – A new campground will be installed north of the beach along Water Tower Road in Figure A5.
Cabins	No cabins at the park	Alternative 2 – Provide cabins for year round overnight accommodations at White Lily Pond area. (Figure A6)
Nature Center	No central adequate facility for Environmental Education & Interpretation.	Alternative 6 – A new nature center with amphitheatre will be built at the Woodland Trail trailhead. The beach nature center will become an "ambassador center" for the new nature center with a new pavilion or tent and the existing room will be used by the lifeguards.
Swimming Beach Expansion	Existing beach area approximately 187,800 square feet accommodates 5366 bathers	Alternative 3 – status quo plus a feasibility study for a new beach on Long Pond, location to be determined.
Picnic Groves	North and south areas have overgrown, unusable portions.	Alternative 2 – allow north area to revert, rehabilitate south area that is overgrown. Add picnic tables to possible new pavilion at Deerfield.
Picnic Pavilions/Tents	Three pavilions and four tents at the park. Filled to capacity during the season.	Alternative 2 – Replace all tents with permanent pavilions, replace Amphitheater pavilion with larger structure.
Court and Field Games	Half court basketball at Deerfield, various other games at other pavilions.	Alternative 2 – build new full basketball court at Rabbit Run pavilion, complete full basketball court at Deerfield Pavilion. Install Bocce courts at Deerfield as a pilot project.
Playgrounds	Existing playground north of main parking lot and at Deerfield Pavilion	Install new playground equipment at Rabbit Run Pavilion.

Element/Topic	Status Quo Alternative	Preferred Master Plan Alternative
Hunting	Hunting is allowed in the park under certain regulations, DEC licensing and outside of a demarked active recreation zone.	Status Quo.
Fishing and Ice Fishing	Fishing is allowed in all park lakes and streams with proper DEC license.	Alternative 2 – maintains fishing access and provides improved access areas selected in the park.
Cemeteries	Guidelines for the cemeteries have been received from SHPO. Only minor active management of the cemeteries.	Alternative 2 – Proceed with recommendations from SHPO.
Dickinson Hill Fire Tower – Restoration and Access	Tower being restored with volunteer partnership, to be open to public when complete. Access by foot on driveway.	Alternative 3 - Continue Restoration of tower. Request town abandonment of Fire Tower Road in the park. Make recommended upgrades to Fire Tower Trail.
Scenic Resources Protection	No comprehensive plan for scenic resource protection	Alternative 2 – Implement guidelines as outlined in the analysis.
Shaver Pond Nature Center	Currently used as small meeting space and to house DEC air quality monitoring equipment.	Alternative 2 – Rehabilitate for other park uses. Re-locate DEC equipment to new nature center to take advantage of public education opportunity.
Maintenance Area	Older buildings, some inadequately sized and designed for efficient maintenance operations.	Alternative 2 – Improvements will be made to maintenance facilities to develop functionality and better meet staff needs.
Vehicular Entrance, Control/Access	Main summer entrance to the park is on Route 2 with “jug handle” entrance. Winter entrance is from Long Pond Road.	Alternative 2 - Main entrance will remain in present location. A new park office will be built north of the current contact station with facilities for camper registration. Discuss safety of current configuration with DOT.
Martin-Dunham Reservoir Dam Outlet Trail Crossing	Outflow is water covered, impacting trail connectivity, and	No changes at this time, recommend feasibility study

Element/Topic	Status Quo Alternative	Preferred Master Plan Alternative
	therefore difficult for trails to cross. Existing plan for dam rehabilitation exists.	for trail crossing and proceeding with dam rehabilitation for compliance with DEC regulations, according to the 2008 study.

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B. Appendix B – Final Trails Plan

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Final Trails Plan

for

Grafton Lakes State Park

January 2012

New York State Office of Parks, Recreation and Historic Preservation

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Introduction

Grafton Lakes State Park is a 2,545 acre park located in the Town of Grafton in Rensselaer County, New York. The park is located on the Rensselaer Plateau, a regionally unique, largely forested area of approximately 105,000 acres. The plateau is one of the largest and most ecologically intact native habitats in New York State. The park is divided into two parts, north and south, by New York State (NYS) Route 2. There are five lakes (Shaver Pond, Long Pond, Second Pond, Mill Pond and White Lily Pond) located within or adjacent to the northern portion of the park and one lake (Dunham Reservoir) located within the southern portion of the park.

Grafton Lakes State Park offers a variety of recreational opportunities including swimming, boating, fishing, hunting and trail-related activities. There are over 21 miles of designated trails in the park. Trail-related recreational activities include: hiking, biking, horseback riding, cross-country skiing, snowshoeing and snowmobiling. Trails range from singletrack trails (trails with a tread width of approximately 18-30 inches) to 8-12 foot wide trails that accommodate snowmobiles and other winter uses. The vast majority of the trail system accommodates multiple uses throughout the year.

Trails are also used for environmental interpretation and educational programming. Nature hikes on various themes are held throughout the year including birding, environmental history and animal tracking on snowshoes in the winter. There are nature interpretive signs along an accessible trail northeast of Long Pond beach and numbered posts for self-guided interpretive tours along two other trails. School groups are engaged through formal programming, themed hikes and treasure hunts. Trails are used for other group events such as the XTerra Triathlon and weekly bike rides led by the Capital MTB, a group advocating and promoting mountain biking in the New York State Capital Region and beyond.

The Grafton Lakes State Park trail system has benefitted from the existence of a Trails Advisory Committee (TAC) established in the mid 1990s. The TAC is composed of members of trail-user groups of the park (representing summer and winter uses) as well as park and regional staff. Local groups include the Capital MTB (mountain bicyclists), Grafton Trail Riders (equestrians) and the Grafton Trail Blazers (snowmobilers). The TAC monitors trail conditions, organizes trail clean-up days, helps to maintain the trail system in conjunction with park staff, and prioritizes trail projects.

As part of the master planning process, it was identified that, due to the variety of trail experiences offered at the park, the extensive use of the trail system and the potential impact of recreational use on the park's natural resources, a trails plan should be developed. With year-round use of the trails, changing environmental conditions, and expanded information on natural resources in the park, this trails plan provides direction and guidance for staff in the development, management and maintenance of a high quality trail system that meets the needs of the users while protecting the resources and integrity of the park.

The Final Trails Plan has been developed concurrently with and as a supporting document to the master plan. Surveys were conducted in summer 2010 to capture information about the public's use and expectations of the park. Public comments regarding trails and recreation in the park were received at a public information meeting held on January 27, 2011, as well as during the public comment period during January and February 2011 as part of the master planning process. A Trails Plan Subcommittee, comprised of OPRHP staff, was formed in August 2010 to provide input during

the trails planning process and to make recommendations on proposals for the Final Trails Plan. The Trails Plan Subcommittee met with the Trail Advisory Committee in March 2011 to gain additional user input. All of the comments received by OPRHP have helped to guide the development of the Trails Plan. Other factors that were taken into consideration in the development of the plan include current trail conditions, current uses, undesignated trails, needs and trends, current and future demands, and natural resource protection.

Existing Trail System

The existing trail system consists of over 21 miles of designated trails throughout the park. Designated trails are defined generally as trails that are named, marked and maintained for specific uses. When trails are designated, they have allowed uses assigned to them; trails are to be maintained to use standards per OPRHP trail standards (see Appendix 1). Allowed trail uses in the park include hiking, biking, horse-back riding, snowshoeing, cross-country skiing and snowmobiling.

Figure 1 – Existing Trail System depicts the locations of designated trails, their allowed uses and parking areas in the park. The trail system provides access to many areas of scenic, historic, cultural and natural significance, as well as, provides connections between the high use areas (lakes, beach and picnic pavilions). Figure 1 also depicts undesignated trails consisting of a trail under construction and social paths that have developed over the years.

Figure 2 – Winter Trail System shows the allowed winter uses for each trail in the park. Most trails provide for multiple uses in the winter months. Snowshoeing is allowed on all trails. Trails that allow cross-country skiing and snowshoeing only are not groomed. Snowmobile trails are groomed and are part of the larger statewide snowmobile system. **Figure 3** – Snowmobile Trail System depicts a regional view of snowmobile trails that include trails within Grafton Lakes State Park.

The main access to the trails in the northern portion of the park is along the Grafton Lakes State Park Way and the large parking lot near the beach. Additional parking areas are located at each of the nearby pavilions and a small parking lot is adjacent to the toll booth along the Park Way. Five other parking areas located at various locations around the border of the park provide multiple entry points into the park and the trail system. The southern portion of the park also has a number of parking areas located around the park boundaries. In the winter months, the Park Way is closed off to vehicular use and the main access is located at the winter entrance accessed from Long Pond Road. During the summer months the park is accessible from Troy by bus operated by the Capital District Transportation Authority.

Horse trailer parking is allowed at three locations along Long Pond Road: the Mill Pond parking lot, an open field across from the Second Pond boat launch and the north end of Long Pond. In the main area of the park, trailer parking is allowed at two picnic area lots and the main parking lot at the beach area (although horse trailer parking is not allowed here during the busy summer months). On the south side of NYS Route 2, horse trailer parking is available at the southern terminus for the Double Bit Path Trail along Dunham Road.

Snowmobile access to the park is by trailer and by connections to external snowmobile trail systems through Corridor 9 to the north and south. Secondary snowmobile trails access the park on Fire Tower Road, Ward Hollow Road, Johnston Road and Long Pond Road. The Park Way is not plowed from Route 2 to the park office/shop intersection and becomes a wide section of Corridor 9 snowmobile trail. Snowmobile trailer parking is located at the main parking lot near the beach, the parking area at the park office/shop, Mill Pond parking area, near the boat launch at Second Pond and at the Stone House on Long Pond Road.

Trails in the park are maintained by park staff in conjunction with various user groups and volunteers. The Trail Advisory Committee and members of the Friends of Grafton Lakes State Park work on trail development and maintenance projects on an on-going basis. The park hosts an annual

National Trails Day event usually focusing on one or two specific trail projects. Local scout troops often provide trail cleanup efforts. The Student Conservation Association (SCA) has occasionally conducted week-long trail work projects on site.

a) Inventory

There are over 21 miles of trails in Grafton Lakes State Park. Table 1 is an inventory list of all designated trails in the park. The table includes the names of the trails, marker colors, allowed uses, and trail length for each trail.

Table 1 Grafton Lakes State Park Trails Inventory

Trail Name	Blaze	Allowed Uses	Mileage
Chet Bell (CB)	Yellow	H, B, E, SS, XC, SM	0.59
Criss Cross (CC)	Red	H, B, SS	0.20
Crossover (CO)	Tan	H, SS, XC	0.40
Deer Run (DR)	Not marked	H, SS, XC	0.40
Double Bit Path (DB)	Red	H, B, E, SS, XC	1.62
Fire Tower Connector (FTC)	Not marked	H, SS	0.11
Fire Tower (FI)	White	H, B, E, SS, XC, SM	0.90
Fishing Access (FA)	Yellow	H, SS, XC	0.27
Gartler's (GA)	Yellow	H, B, E, SS, XC, SM	1.40
Granville Hicks (GH)	White	H, SS, XC	0.21
Hicks Beltway (HB)	White	H, B, E, SS, XC, SM	0.19
Little Johnny's (LJ)	Tan	H, B, E, SS, XC, SM	2.33
Long Pond Connector (LPC)	Not marked	H, SS, XC	0.19
Long Pond (LP)	Orange	H, B, SS, XC	2.53
Mill Pond (MP)	Yellow	H, B, E, SS, XC	0.47
NIMO (NM)	Red	H, SS, SM	1.00
Perkins (PK)	White	H, SS, XC	0.51
Scout (SC)	White	H, B, E, SS, XC	0.33
Shaver Pond Nature (SN)	Tan	H, B, E, SS, XC	0.14
Shaver Pond (SP)	Red	H, E, SS, XC	2.00
South Dunham (SD)	Orange	H, B, E, SS, XC, SM	1.44
Spruce Bog (SB)	Orange	H, B, E, SS, XC	2.38
Water Tower (WT)	Yellow	H, B, SS, XC	0.87
White Lily (WL)		H, SS	0.16
Wildwood (WW)	Orange	H, SS, XC	0.25
Woodland Nature (WN)	Tan	H, SS, XC	0.23
		Total Mileage	**21.12**

Type of Use: H (Hiking), B (Biking), E (Equestrian), SS (Snowshoeing), XC (Cross-country skiing), SM (Snowmobiling).

Trails that allow cross-country skiing are additionally marked with green or blue markers depicting easy and intermediate skill difficulty levels for that particular use.

In 2008, OPRHP approved the construction of a few new trails and trail reroutes. Through the efforts of the Trail Advisory Committee, the Friends Group, park staff and other volunteers some of these approved changes are already part of the designated system or are currently being constructed while others remain in the conceptual stage. Currently, one trail and a trail section reroute are under construction. Shown as an undesignated trail on Figure 1 is the future Red Eft

Trail connecting the Scout Trail to Shaver Pond Road. This trail was being constructed to provide an off-road multi-use trail connection between the north and south sections of the park. The 0.77 mile long trail is not yet opened for use; some final tread work and blazing are required prior to designating the trail; this plan includes further analysis of this trail connection in light of other considerations. A section of the Spruce Bog Trail is being rerouted to avoid a long muddy section of existing trail.

b) Assessments

OPRHP staff conducted trail condition assessments in November 2010 and Spring 2011. The trail assessment team used hand-held Trimble GeoXT Global Positioning System (GPS) units to accurately collect assessment information along each trail. Trails were assessed for general condition, areas of erosion, ease of travel, adequacy of signage and issues with water on the treadway. **Figures 4 and 5 –** Trail Assessments (North and South respectively) depict the results of these assessments and represent the conditions found along the trails at that point in time. Additionally, locations and conditions of bridges and culverts and locations of invasive species along the trails were noted although this information is not included in this plan.

Staff knowledge and these condition assessments were used to develop the maintenance recommendations provided in the Implementation section (page B-28) for each trail. More in depth analysis of major trail issues and the trail system as a whole is provided in Trail System Alternatives section (page B-13).

Note: In August 2011, Hurricane Irene impacted a large region of the northeast. There was widespread damage sustained by many parks. These conditions assessments do not take into account damage that may have occurred along the trails at Grafton Lakes State Park during this storm.

c) Recreational (Trails) Needs Assessment

Other state lands within 20 miles of Grafton Lakes State Park that provide multi-use trail opportunities include Cherry Plain and Schodack Island State Parks, Pittstown, Tibbits, Taconic Ridge, and Berlin State Forests and the Capital District Wildlife Management Area. Peebles Island State Park and Dyken Pond both provide hiking only trails. Across the border in Vermont, the Green Mountain National Forest provides multi-use trails while Mount Greylock in Massachusetts provides hiking only trails.

As stated in the master plan (Chapter 2 Park Background), the majority of park users come from Rensselaer and Albany counties with a few patrons from other nearby counties. Based on the 2010 survey findings, the master plan identifies Rensselaer and Albany counties as the service area of the park. As shown in Table 1 of the master plan, trail activities including biking, equine activities, hiking, cross-country skiing, and snowmobiling all have at or above-average demand for each particular activity within these two counties.

Many comments received during the public information meeting and during the public comment period expressed great interest in the existing trail system at Grafton Lakes State Park. Positive and constructive comments were received from all trail user groups of the park to depict how the multi-use trail system works well. In addition, user groups provided recommendations for trail

system improvements to provide enhanced trail opportunities. These comments and public interest support the need for the trail system at Grafton Lakes State Park.

Trail System Alternatives

The alternatives and analyses presented here are the result of discussions on resource information provided in the previous chapter as it was analyzed to develop recommended directions for the trail system in the park. All trails in the park were mapped using Global Positioning Systems (GPS). A conditions assessment of all trails was conducted by OPRHP Staff. The existing conditions maps, assessment information, Natural Heritage Data and public comments received from the master plan public information meeting and public comment period were all analyzed by OPRHP staff. The following factors were considered in the analysis process:

- Types of trail experiences
- Minimizing user conflicts
- Needs and desires of trail users
- Compatibility with and protection of significant natural and cultural resources
- Accessibility to persons of all abilities
- Support facilities
- Connections within high-use areas
- Linkages to external trail systems and adjacent communities
- Adequacy of parking
- Sustainability
- Parallel trails
- Density of trails
- Opportunities for environmental education and interpretation
- Park operations and management

The status quo, alternatives, considerations, and preferred alternative for specific areas of the park are described in tabular form below.

Scout Trail

Background for Analysis: The southern portion of the Scout Trail is a well-compacted and eroded old road bed that remains wet and muddy much of the year. The trail is located such that water runs off the side hill onto the trail tread. The trail has a shallow grade and follows the fall line (generally aligned straight down a hill and therefore, more prone to erosion).

The Student Conservation Association (SCA) completed some upgrades to this section of trail in Fall 2009 including a culvert replacement and construction of a turnpike at the base of the trail and construction of a series of knicks and rolling grade dips along the trail to direct water off the treadway. The culvert and turnpike remain in great condition. Some of the knicks and rolling grade dips are now compacted and no longer span the width of the trail tread. Although these structures have funneled water off the trail, the trail remains muddy.

This trail provides a main connection from the Parkway, the parking lot at the toll booth and the Perkins Trail to the Shaver Pond area and allows for multiple trail loop opportunities.

Alternatives	Considerations
Alternative 1 - Status Quo	• Trail remains wet and muddy • Continued erosion and impacts to resources • Negative user experience

Alternative 2 – Repair knicks and rolling grade dips and construct more of them	• Will funnel more water off the trail reducing muddiness • Maintains fall line alignment • May improve user experience
Alternative 3 – In-fill the trail bed with soil and crushed stone to raise the trail tread and reestablish the outslope to shed water	• Will be expensive due to length and depth of trail bed • Maintains fall line alignment necessitating construction of ditches and use of culverts • Improves user experience
Alternative 4 – Reroute the southern portion of the trail and close existing alignment	• Will develop trail with sustainable grades • Improves user experience • Will reduce impacts to natural resources with closure of fall line section

Preferred Alternative – Alternative 4 is the preferred alternative due to the desire to maintain this trail connection while providing a more sustainable alignment.

A conceptual alignment for the reroute is shown on **Figure 6**. The reroute will start north of the turnpike and culvert so as to utilize this already upgraded section. The existing alignment will be closed once the reroute is complete.

Perkins Trail Extension, Red Eft Trail and Route 2 crossing

Background for Analysis: In 2008, OPRHP approved a number of trail projects. One was the development of an extension to the Perkins Trail that would provide a multi-use trail parallel to the Park Way (which is heavily traveled during the summer months) and provide a more direct connection between the main day-use area and the south section of the park. The proposed trail alignment was flagged in 2008 but has not yet been constructed. Upon review of the proposed trail, it was noted that the western section follows the fall line and connects to Route 2 east of the main entrance.

Another approved project was the development of a trail to connect Shaver Pond and the Scout Trail to Shaver Pond Road, thus allowing a connection across Route 2 to link to the Gartler Trail. This trail, known as the Red Eft Trail, was laid out and constructed in 2009, although there remain some isolated areas still in need of rock work prior to designating and opening the trail for use.

With the desire to provide a safe and designated trail crossing of Route 2 and to provide a trail connection between the north and south sections of the park, these approved trail projects were re-analyzed.

Alternatives	Considerations
Alternative 1 - Status Quo	• Develop the two trails as proposed and flagged. • Creates two trail intersections along Route 2 that are not at the main entrance. • The Perkins Extension Trail has a fall line section.
Alternative 2 – Develop only the Red Eft Trail and provide one Route 2 crossing.	• Shaver Pond Road is not an ideal Route 2 crossing location - would require road walk for

	trail users to main entrance. • Does not accommodate need for a parallel trail to the Park Way and more direct access from main day-use area to south section of the park.
Alternative 3 – Develop a stone dust trail alongside the Park Way instead of the Perkins Extension Trail.	• Moves trail users off of the busy Park Way entrance road. • Drainage ditch constricts use of this corridor.
Alternative 4 – Develop both trails with realigned western sections and provide one Route 2 crossing at the main entrance.	• Provides off-Park Way trail connection to the south section of the park. • Provides an additional loop by connecting these two trails. • Provides a more sustainable alignment for the Perkins Extension Trail.

Preferred Alternative – Alternative 4 is the preferred alternative due to the desire to develop both trails while establishing only one Route 2 crossing point at the main entrance. Alignments for the two trails and the alignment of the Route 2 crossing are shown on **Figure 6**. The already developed western section of the Red Eft Trail will be closed once the realigned section has been constructed.

Spruce Bog Reroute

In 2008, OPRHP approved rerouting a poorly drained section of the Spruce Bog Trail (see **Figure 6**). The reroute has been flagged and partially constructed through efforts of the Trail Advisory Committee. The trails planning process included review of this flagged route. It was noted that the eastern-most section of the flagged route runs through a damp hummocky area. It is recommended to further assess the alignment for this eastern-most section of trail. Further assessments may find a more appropriate alignment or if not, will determine what type of upgrades will be required for the trail tread prior to opening for use. Figure 6 highlights the section of trail requiring further assessment.

Fire Tower Connector Trail

The Fire Tower Connector Trail is a short mostly fall line trail that connects Long Pond Road to Long Pond Trail. The trail will be rerouted to provide a more sustainable alignment and appropriate connection. The trail will be rerouted to align across from the Fire Tower Trail and in the direction of the beach area. This alignment will accommodate increased use from the main day-use area as upgrades and promotion of the Fire Tower continue. A conceptual alignment for this trail reroute is shown on **Figure 6**.

White Lily Pond

The recently acquired White Lily Pond parcel currently provides a short trail from the parking area to the waterfront. The Trail Advisory Committee has worked with park and regional staff recently proposing a loop trail to connect into the Spruce Bog Trail from the White Lily parking area. The proposed trail has been flagged by TAC members and the alignment is shown on **Figure 6**. There is a short section on the eastern leg that appears to align off park property which will require some re-

alignment. Due to recommendations given in the master plan, future assessment for the alignment of the western leg of the trail will be required (see **White Lily Pond Area – Winter Use** below for more details).

In addition, this plan recommends further research into developing a trail and bird viewing platform and/or boardwalk along the southeast section of White Lily Pond near the wetland. Future on-site assessment and research is required for the feasibility and appropriate location of this trail and viewing area.

Gartler's Trail and Extension

Background for Analysis: The Gartler's Trail provides a multi-use trail connection between a small parking area on Route 2 and Johnson Road. This connection at Johnson Road is the only trail connection between Route 2 and the trails around Dunham Reservoir. The northern section of trail provides access to the large blueberry field and connects to Route 2 at the jug handle. There is a short spur trail located about halfway along the trail which provides a connection to the Grafton Trail Riders (horse club) adjacent land parcel. This spur trail runs through a wetland area and across the Mill Pond Stream at the park boundary. It appears that there have been no upgrades to stabilize the trail tread or stream crossing. There has been damage to the wetland area and the along the banks of the stream due to trail use.

The Grafton Trail Riders requested the development of a trail from the existing spur trail along the Mill Pond Stream that follows the eastern park boundary to the park entrance to provide a more direct connection from their parcel to Route 2. This potential trail could also create a loop opportunity around the blueberry field for a shorter loop trail experience.

Alternatives	Considerations
Alternative 1 - Status Quo	• The Gartler's Trail remains an out and back trail. • Use of the spur trail continues to degrade the wetland area and stream banks.
Alternative 2 – Upgrade the existing spur trail.	• Uses an existing trail and stream crossing. • Reduces impacts to wetland resources and stream banks
Alternative 3 - Develop a trail along the stream connecting the spur to the main entrance.	• Area adjacent to the stream is fairly low elevation and spongy along some sections. • The southern half of the trail alignment would create a parallel trail to the Gartler's Trail.
Alternative 4 – Develop a loop trail to connect the east side of the Gartler's Trail to the main entrance and small parking area and relocate the spur trail to connect off the new loop trail.	• Provides a short loop trail opportunity from Route 2 parking area as well as for trail users coming from the south. • Requires development of a new trail section and spur trail with stream crossing. • Reduces impacts to wetland resources and stream banks.

Preferred Alternative – Alternative 4 is the preferred alternative due to the desire to provide a loop trail opportunity on this southern parcel and develop a sustainable trail connection to the Grafton

Trail Riders parcel. Conceptual alignments for the proposed new section and spur trail are shown on **Figure 7**. Final alignments will be determined with future on-site assessment. The stream crossing will include trail hardening (armoring) along the banks at minimum.

South Dunham Trail and Dunham Hill vicinity

Background for Analysis: The South Dunham Trail is an out and back trail connecting Johnson Road to Dunham Road. The southern trailhead is located about two-tenths of a mile southeast of the small parking area/boat launch at the southern tip of the Dunham Reservoir. The southern portion of the South Dunham Trail (an old road bed) has a ¼ mile stretch of extremely muddy, rutted and eroded trail. Trail assessments also noted tread widening and a social path adjacent to the trail caused by trail users avoiding wet and muddy trail conditions.

This trail is currently designated for all trail uses in the park (hiking, biking, horseback riding, cross-country skiing, snowshoeing and snowmobiling). This trail is considered part of the state snowmobile trail system although it receives very little use. Currently, there is no snowmobile trailer parking area available along Dunham Road.

The master plan recommends removing snowmobiling from the South Dunham Trail and creating a park preservation area encompassing all of the park south of Route 2 (excluding the C9 corridor). See master plan for more details.

Alternatives	Considerations
Alternative 1 - Status Quo	• Trail alignment remains in place and allowed uses remain. • Diminished visitor experience and negative impact to natural resources if trail is not upgraded. • Would be very expensive to upgrade this section of trail for all uses. • Southern trailhead remains disconnected from parking area; no trailer parking exists.
Alternative 2 – Snowmobile use is removed from the trail; current alignment remains for non-motorized uses.	• Diminished visitor experience and negative impact to natural resources along the southern section of trail.
Alternative 3 – Snowmobile use is removed from the trail; the southern section of the trail is rerouted along the side hill above the reservoir to connect directly at the southern parking area. The original alignment is closed.	• Enhanced visitor experience and reduced impact to natural resources. • Location of trailhead at parking area better accommodates trail use.
Alternative 4 – Develop a trail looping off of South Dunham Trail up and around Dunham Hill.	• Provides an approximately 1.5 mile loop opportunity from nearby trailheads. • Trail alignment near bedrock spines located along the ridge line may provide a unique visitor experience.

Preferred Alternative – A combination of Alternatives 3 and 4 is the preferred alternative due to the enhancement of the visitor experience, creation of a loop opportunity and reduction of negative impacts on the area's natural resources. Conceptual alignments for the reroute and new trail are shown on **Figure 7**. Final alignments will be determined with future on-site assessments. Winter use changes are shown on **Figure 9**. Snowmobiling will continue to be allowed along the C9 corridor but is illegal for all other portions of the park south of Route 2 including the Dunham Reservoir itself.

Day-Use Area

Background for Analysis: The main day-use area of the park, including the beach on Long Pond and pavilion areas, is heavily used by patrons throughout the summer. These areas are highly used by families with young children and persons with varying abilities. The Long Pond Trail is 2.5 miles long and rugged in some areas and does not generally accommodate young children or inexperienced trail users.

There exists a need to develop short easy loop trails (i.e. short family hike) in this vicinity that would accommodate a variety of visitors.

Alternatives	Considerations
Alternative 1 – Status Quo	• No designated short loop trails exist for the main day-use area of the park.
Alternative 2 – Develop short loop trails near the beach and pavilion areas.	• Enhances use of day-use area for families with young children and patrons with varying abilities. • Includes use of some existing sections of trails.

Preferred Alternative – Alternative 2 is the preferred alternative due to the desire to enhance the use of the day-use area for families with children and persons with varying abilities and experiences. **Figure 8** shows the three proposed trails. One will be constructed to ADA standards and loop off of the southeast section of the Long Pond Trail providing scenic views of the northern section of Second Pond. A viewing platform will be constructed at a site along Long Pond to provide a destination and viewing location. The other trail will provide a loop from the Rabbit Run pavilion area and follow portions of an existing path along the shoreline of Second Pond. The third will be developed in the Deer Run pavilion area just east of Shaver Pond.

NIMO Trail and extension

Background for Analysis: Currently, snowmobilers who park at Mill Pond or the Park Office/shop area access the NIMO Trail by using a section of S99 along Long Pond Road. Only one lane of the road is plowed during the winter to accommodate snowmobile use. This in turn only allows one lane for vehicular traffic, often causing delays and backups as vehicles come in and out of the area to access the Second Pond and Stone House parking areas.

Alternatives	Considerations

Alternative 1 - Status Quo	• Snowmobile access remains on this section of Long Pond Road.
Alternative 2 – Designate Mill Pond Trail for snowmobile use to replace use of Long Pond Road in this section.	• Requires widening the trail corridor which is adjacent to Mill Pond. • Adds motorized use south of Mill Pond; currently only non-motorized uses are allowed in this vicinity.
Alternative 3 – Develop and designate the power line corridor from the Park Office/shop to the NIMO Trail as a snowmobile trail. Move S99 to run adjacent to the winter park entrance road and along the power lines replacing use of Long Pond Road in this section.	• Allows two-lane plowing of this section of Long Pond Road and reduces vehicular congestion. • Uses an existing wide corridor. • Requires construction of a bridge over the Second Pond outlet. • Maintains non-motorized uses on the south side of Mill Pond.

Preferred Alternative – Alternative 3 is the preferred alternative due to the use of an existing corridor and eliminating snowmobile use on a section of Long Pond Road to reduce vehicular congestion. This NIMO Trail extension, shown on **Figure 9**, will be designated for snowmobile use only. The corridor will initially be cleared and then brush-hogged each fall in preparation for snowmobile grooming.

In addition, it is recommended to upgrade the NIMO Trail treadway to better accommodate snowmobiles during the entire snow season, as well as all uses year-round. This will provide additional loop trail options and to allow trail users to travel off of Long Pond Road. Upgrades will require fill and culvert work for tread development in some areas. Once the NIMO Trail is upgraded, C9 will be moved off of Long Pond Road to the NIMO Trail and allow for two lane plowing up to the Stone House.

Proposed loop trail off of Fire Tower Trail

Background for Analysis: In 2008, a loop trail was proposed to be developed off of the Fire Tower Trail starting at the intersection with Spruce Bog Trail, heading northeast and to then connect in at the northern end of the Chet Bell Trail. This proposed trail would provide an alternate loop for cross-country skiers off of the Fire Tower Trail, which is heavily used by snowmobilers. The trail would also then be open to hiking, biking and horseback riding the remainder of the year. To date, this trail has not been flagged.

The Chet Bell Trail is located in this vicinity and provides a similar loop off of the Fire Tower Trail. The Chet Bell Trail currently allows cross-country skiing and snowmobiling for winter uses. The trail is not part of the designated state snowmobile trail system. Snowmobiles are allowed on the Fire Tower Trail and Long Pond Road that connects to the northern end of the Chet Bell Trail.

Further consideration was required for the original proposal.

Alternatives	Considerations
Alternative 1 – Status Quo	• The Fire Tower and Chet Bell Trails remain designated for both cross-country skiers and

	snowmobilers.
Alternative 2 – Construct the proposed additional loop trail northeast of the Chet Bell Trail.	• Requires new trail construction in currently undisturbed section of the park. • Provides a non-motorized trail for winter use in this section of the park.
Alternative 3 – Remove snowmobile-use from the Chet Bell Trail and allow non-motorized uses only.	• Uses an existing corridor with no additional trail development. • Provides a non-motorized trail for winter use in this section of the park. • Snowmobiles continue to use Fire Tower Trail and Long Pond Road to provide through trail connection in this vicinity. • Reduces snowmobile trail mileage by 0.6 miles and eliminates small loop trail opportunity.

Preferred Alternative – Alternative 1 – Status Quo is the preferred alternative due to the Chet Bell Trail already allowing an alternate cross-country skiing route to the higher use Fire Tower Trail and the use of an already existing wide corridor that supports both trail uses.

White Lily Pond Area – Winter Use

The master plan recommends development of year-round cabins near the White Lily Pond parking area. To help promote winter use and provide access to the park's trail system, a multi-use trail, including snowmobiles, is needed for this area. Multiple alternatives were discussed to connect the cabin area to the Fire Tower Trail. The TAC previously flagged a proposed loop trail in this vicinity. The alignment of the western leg of the proposed trail will be further assessed and somewhat `straightened out' to provide a snowmobile accessible connection from the White Lily area to Fire Tower Trail including a short section of the Spruce Bog Trail. A conceptual alignment for the western leg is shown on **Figure 9**. Final alignment will be determined through future assessments. This trail as well as the eastern leg will also be open to cross-country skiing and snowshoeing.

Fire Tower Trail

The Fire Tower Trail will continue to provide access from the park to the fire tower and be part of the state snowmobile trail system. The fire tower is currently being restored and, when completed, will be open for public access. This plan recommends requesting the town to abandon the section of Fire Tower Road in the park. A fence and gate will be installed at the park boundary on Fire Tower Road to prevent unauthorized vehicular traffic. Future management and maintenance projects on this trail will partially depend on the outcome of this recommendation.

Little Johnny's Trail – stream and wetland crossing

There has been an existing need for an upgraded stream and wetland crossing at one location along this trail. This has been a challenging crossing point especially for equestrians. Various alternatives have been discussed over the years including types of crossing and/or alternate locations for the crossing. This plan recommends that the crossing be upgraded at its current alignment with a rock

bridge or boardwalk. This is a year-round multi-use trail and the crossing will accommodate all uses including for horses. Details regarding the structure type and construction plans will be determined upon further assessment.

Double Bit Path and Dam outlet crossing

The alignment for the Double Bit Path currently crosses the Martin-Dunham Reservoir Dam outlet as well as the inlet over the Shaver Pond Stream. A variety of alternatives including alternate crossing locations, upgrades to the outlet structure, and a floating bridge were explored for developing a safe trail crossing in this vicinity. The master plan is recommending a future feasibility study for establishing a suitable trail crossing. Signage will be installed and notations included on mapping to alert users of the existing trail conditions in the interim.

Water Trail

A water trail exists for Long Pond, Second Pond and Mill Pond with canoe-carries in between. Signage is either in need of repair or missing and consideration for transport of aquatic invasive species between water bodies is important. Upgrades will take place to enhance use and reduce potential impacts for use of the water trail.

Final Trails Plan

d) Trail System

Trails

The Final Trails Plan recommends approximately 26.3 miles of existing and new trails that provide a variety of trail experiences for hikers, bikers, equestrians, cross-country skiers, snowshoers and snowmobilers (see **Figure 10** for summer uses and **Figure 11** for winter uses). The trail system includes singletrack trails, wider accessible trails and wood road trails. Table 2 provides a comparison breakdown by mileage and use for the existing trail system and the Final Trails Plan.

Table 2 Comparison of Mileage by trail for use for Designated Trails

Type of use	Existing Trail System (mileage)	Final Trails Plan (mileage)***
Hiking/Snowshoeing	21.1	26.3
Equestrian	13.8	19.9
Biking	15.4	25.1
Cross-country skiing	19.6	24.4
Snowmobiling	7.9**	7.9**
Total trail mileage*	**21.1**	**26.3**

* Various trails accommodate multiple uses.
** This represents only designated trails. Park roads or areas adjacent to park roads are additionally used for snowmobiling.
*** Mileage calculations include portions of conceptual trail alignments. Final mileage calculations may differ when trails are developed.

The Final Trails Plan will increase the total mileage of designated trails from the existing trail system by 5.5 miles of trail. This calculation includes development of 1.5 miles of previously approved (2008) trails, 4.5 miles of new trail (including 0.9 miles of reroutes), designating 0.9 miles of existing corridors and closure of 1.7 miles of trail.

Table 3 below provides an inventory of trails for the Final Trails Plan by trail name, trail uses, and mileage.

Table 3 Inventory of Trails for the Final Trails Plan

Trail Name	Designated Uses*	Mileage
Beaver Lodge (BL)	H, B, SS, XC	0.27
Beechnut (BT)	H, B, E, SS, XC	1.00
Chet Bell (CB)	H, B, E, SS, XC, SM	0.59
Conklin Way (CW)	H, B, E, SS, XC	0.34
Criss Cross (CC)	H, B, SS	0.20
Crossover (CO)	H, B, E, SS, XC	0.40
Double Bit Path (DB)	H, B, E, SS, XC	1.30
Dunham Hill (DH)	H, B, SS	0.86
Fire Tower Connector (FTC)	H, B, SS, XC	0.21

Fire Tower (FI)	H, B, E, SS, XC, SM	0.90
Fishing Access (FA)	H, B, E, SS, XC	0.27
Fruit Loop (FL)	H, B, E, SS, XC, (SM)	0.66
Gartler's (GA)	H, B, E, SS, XC, SM	1.40
Granville Hicks (GH)	H, SS, XC	0.21
Hicks Beltway (HB)	H, B, E, SS, XC, SM	0.19
Little Johnny's (LJ)	H, B, E, SS, XC, SM	2.33
Long Pond Connector (LPC)	H, B, SS, XC	0.19
Long Pond (LP)	H, B, SS, XC	2.53
Mill Pond (MP)	H, B, E, SS, XC	0.47
NIMO (NM)	H, B, E, SS, XC, SM	1.00
Perkins (PK)	H, B, E, SS, XC	0.84
Power Line (PL)	SM	0.51
Rabbit Run (RR)	H, SS	0.37
Red Eft (RE)	H, B, E, SS, XC	0.61
Scout (SC)	H, B, E, SS, XC	0.38
Shaver Pond Nature (SN)	H, B, E, SS, XC	0.14
Shaver Pond (SP)	H, B, E, SS, XC	2.00
South Dunham (SD)	H, B, E, SS, XC	1.52
Spruce Bog (SB)	H, B, E, SS, XC, (SM)	2.55
Water Tower (WT)	H, B, SS, XC	0.87
White Lily (WL)	H, B, E, SS, XC, SM	0.74
Wildwood (WW)	H, B, E, SS, XC	0.25
Woodland Nature (WN)	H, SS, XC	0.23
	Total	26.3

Designated Uses: H (Hiking), B (Biking), E (Equestrian), SS (Snowshoeing), XC (Cross-country skiing), SM (Snowmobiling)
*Uses noted in ( ) indicate only a portion of that trail is open to the use.

Connections

External systems

The Grafton Lakes State Park trail system has existing external connections to other trail systems. There are two unmaintained town roads along the northern boundary of the park that provide multi-use connections to the New York State Department of Environmental Conservation's (DEC) Pittstown State Forest, which has many miles of currently unmaintained multi-use trails. Volunteers from the Saratoga Mountain Bike Association (SMBA) recently signed an Adopt-A-Natural-Resource Agreement with DEC to become stewards of the State Forest and help maintain the trail system. Signage will be improved to highlight these connections. OPRHP is willing to work with Rensselaer Polytechnic Institute (RPI), which owns property directly adjacent and north of the park, to explore options for trail easements to potentially make additional connections to Pittstown State Forest.

Snowmobile trails in Grafton Lakes State Park are part of the larger statewide snowmobile trail system which connects to Cherry Plains State Park and also extends through Pittstown State Forest. Dyken Pond Environmental Center is located within a few miles of the park and offers miles of hiking only trails. An on-road connection can be made between Grafton and Dyken Pond trails.

Mass Transportation

During the summer months the park is accessible from Troy by bus operated by the Capital District Transportation Authority. The park and region will work with CDTA on increasing publicity and enhancing visibility of bus stops for this route and to consider extending bus service throughout the year.

Organized Trail Events

Two large recreational events are annual traditions at the park. The nationally known Xterra Triathlon brings triathletes from all over the country in mid-July. The 5k Run for the Roses benefits the Grafton Community Library while filling the park with hundreds of community residents the second Sunday in August, and it just completed its 25th run.

e) Support Facilities

Trailhead Signage and Kiosks

It is important that trail users have access to information regarding trails to enhance their experience. Trail information can be disseminated in a wide variety of formats, including kiosks, brochures, websites, guidebooks, and on-trail signs and blazes. But even with good trail guides and websites available, trail signage is indispensable. If trail users are uncertain about trail location or direction, they may become disoriented, or they may create new trails that damage the environment and become a challenge to rehabilitate.

A standardized sign system is a means of creating a cohesive and consistent image for the Park, enhancing its overall appearance, and providing simple guidelines that managers can follow to sign trails. The design and usage of all trailhead and kiosk signage and trail markers will be guided by the *Trail Signage Guidelines for the New York State Park System (**http://www.nysparks.state.ny.us/recreation/trails/technical-assistance.aspx**)*. This document includes information on naming and assessing trails, etiquette and safety, materials and techniques, trail symbols, types of signage, kiosks, sign maintenance, and other resources.

A kiosk or similar structure providing information about the park 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. Existing signs and kiosks at trailheads that are in disrepair or outdated will be updated and improved to enhance visitor orientation and safety. Information regarding the surface conditions of the trail will be provided on trailhead signage so as to give users a better understanding of the expected experience.

All cross-country ski trail difficulty level markers will be removed throughout the park. Additional signage will be installed to educate users on proper winter trail use etiquette, such as, cross-country skiers to the right and snowshoers to the left and the requirement of snowshoes for hiking on trails in winter.

Parking and other support facilities

Table 4 identifies the existing parking facilities and capacities for the park that provide access to the trail system. The table includes some proposed changes to the existing system regarding trailer parking locations. The location of these facilities throughout the park encourages the distribution of trail users which results in disbursed use and an enhanced trail experience.

Table 4 Parking Facilities

Parking Area	Capacity	Horse Trailer Parking	Snowmobile Trailer Parking
Beach	555 and 20 ADA	Yes (except during high-use season)	Yes
Rabbit Run	90	Yes	No
Deerfield	90 and 5 ADA	Yes	Yes
Mill Pond	No formal delineation	Yes	No (proposed)
Second Pond Boat Launch	No formal delineation	Yes (across road)	Yes (across road)
Long Pond Boat Launch (north end)	No formal delineation	Yes	No
Shaver Pond Nature Center	No formal delineation	No	No
White Lily Pond	No formal delineation	Yes (proposed)	Yes (proposed)
Maintenance Area/Park Office	No formal delineation	No	Yes
Entrance booth on Park Way	Minor trailhead parking	No	No
Dunham Reservoir North (at Double Bit trailhead)	Minor trailhead parking	No	No
Dunham Reservoir North (at S. Dunham trailhead)	Minor trailhead parking	No	No
Dunham Reservoir South (at Double Bit trailhead)	Minor trailhead parking	Yes	No
Dunham Reservoir South (at S. Dunham trailhead)	Minor trailhead parking	Yes (proposed)	No
Gartler's trailhead	Minor trailhead parking	No	No
Shaver Pond Fishing Access	Minor trailhead parking	No	No
Stone House	Minor trailhead parking	No	Yes
Fire Tower trailhead along Long Pond Road	Minor trailhead parking	No	No

Details regarding number of additional spaces and delineation of spaces for proposed changes to the existing parking facilities will be determined in the future with further site design. The new nature center will act as a warming hut for winter trail use (see master plan).

Signage will be installed at the beach area parking lot noting that horse trailer parking is not allowed during the high-use summer season. Hitching posts will be installed at various locations throughout the park to accommodate equestrian users. Locations include: the Fire Tower, each outhouse location, and future interpretive kiosks or signage near the Mill Pond and Hick's Beltway cemeteries.

f) Interpretation and Education

Grafton Lakes State Park includes a wide variety of cultural, historical, and natural resources. Current environmental education and interpretative programming provides experiential learning opportunities throughout the park. Programming serves summer camps, beach visitors, community residents, schools and other community organizations.

Trails are used throughout the year for various programs. During spring, many school programs utilize the trail system for accessing water bodies. Pre-kindergarten through third graders are the primary ages that come to the park for the popular amphibian life cycle programs. The park raises trout from October through April, when they are stocked into Shaver Pond with the assistance of local school classes participating in Trout Unlimited's Trout in the Classroom program. Interpretive nature hikes on various themes, including environmental history, are offered throughout the year. In the winter, snowshoe hikes, full moon snowshoe hikes, animal tracking and winter birding programs are offered regularly.

The park offers a few self-guided interpretative trail opportunities. Nature interpretative signs are posted along the accessible trail that begins on the north side of Long Pond beach. There are two trail guides that have recently been revised and follow identification posts along the Shaver Pond Nature Trail and Woodland Nature Trail. Interpretative signage is also located at the Granville Hicks Trailhead.

The master plan recommends development of a new nature center in the vicinity of the main parking area and beach near the Woodland Nature Trail. Due to the location and scope of the new nature center, expanded interpretative and educational programs would reach a larger audience and include a wider variety of topics. The trail system will play an integral role in expanded programming.

Increased access and interpretation are recommended for the cemeteries located in the park as well as for the fire tower. Scenic vistas that have been identified as potential locations for interpretive signage or as destination locations include views of Long, Shaver, and White Lily Ponds, the beaver lodge on Second Pond, Dunham Reservoir and within the fire tower (once restored). Interpretation of the cultural, historical and natural resources of the park will be provided through guided and self-guided tours and installation of kiosks and interpretive signage.

Educational signage about invasive species will be installed at key access locations to the Shaver Pond Trail and at canoe/kayak launch sites at each pond. Equestrian use and proper disposal of horse droppings especially around Shaver Pond will be addressed. Boat washing stations will be installed at key locations as well.

g) Coordination

Operation and management of the trail system involves a wide variety of activities that include the need to:

- Oversee basic maintenance of trails, support facilities, and amenities
- Ensure that special events will be a compatible and environmentally sustainable use of trails and that event participants are aware of expectations
- Ensure enforcement of rules and regulations along trails
- Establish and oversee regular trail patrols to monitor trail use and conditions and to educate and assist users
- Provide trail information to the public
- Assist with search and rescue operations
- Ensure that trail design, construction and maintenance is compatible with natural resources
- Limit the impact of invasive species due to trail use
- Ensure remediation of trails or sections of trail that are considered unsustainable
- Maintain contact with all staff involved with trail operations
- Act as liaison with public agencies and private organizations
- Provide outreach to additional organizations to assist with operation and maintenance of the trail system
- Develop a process to evaluate and modify the trail system
- Develop a training program for trail stewards
- Otherwise implement this plan

The park manager will continue to coordinate trail maintenance and management efforts in association with other park staff, and volunteer groups, such as the Trail Advisory Committee, the Friends of Grafton Lakes State Park, and regional scout groups among others. It is recommended that volunteer groups sign a written Memorandum of Agreement (or Adopt-A-Trail agreement) with OPRHP for trail development and maintenance purposes (see **Appendix 2** – Sample Memorandum of Agreement). This will help establish roles and responsibilities for the continued maintenance of the trail system.

In addition, it is recommended that volunteer groups submit an "Annual Project Work Plan" form (see **Appendix 3**) to the park manager for approval of all trail work beyond standard maintenance practices. This plan recommends that the OPRHP Regional Natural Resource Steward continue to be involved in the trail development and maintenance work programs in the park in terms of work schedules and timing of projects.

Volunteer groups should meet periodically with park staff and help provide a coordinated approach to maintaining and improving the trail system. Continued coordination with and participation by a variety of organizations and user groups is recommended to assist park staff with the operation and maintenance of the trail system. Any existing agreements should be maintained and new partnerships developed with trail organizations and user groups.

As funds are made available, improvements will be made by OPRHP. Trail groups may also provide funding or resources to make improvements to the trail system. Prioritization of trail building activities will occur on an annual basis and be coordinated through the park manager.

h) Park Rules and Enforcement

Visitors to the park are expected to follow general park rules. These rules are as follows:

- The park opens at sunrise and closes at sunset.

- Carry out and take home everything you bring with you. Maintaining a quality trail experience requires keeping the trails free of litter and the environment undisturbed. Collection of plants and animals is prohibited.
- Remain on trails for your own safety and to minimize impact on the natural surroundings.
- Trails are designed to be used by many different outdoor enthusiasts. For the safety of all users, please exercise safety and caution when approaching other users. For instance, bikers should sound a warning when approaching pedestrians.
- Dogs Must Be Kept on a Leash, No Longer Than 6' Long.
- Park in Designated Areas Only.

These rules will be posted on trailhead kiosk panels to promote appropriate use of park facilities.

Trail users are expected to obey all New York State Parks Rules and Regulations and any park specific signage as posted. Problems or concerns regarding the trail system should be reported to the park office. Emergencies, such as injuries, hazardous situations or criminal activity, should be reported directly to the park police. The park police are responsible for the enforcement of park rules and regulations. However, park staff rely on user groups to be self-watching and alert park officials of any concerns.

i) Special Events – Permits

A permit is required for any organized event or outing within the park, including those that use park trails. This helps limit trail use to a level that is environmentally sustainable and ensures that event participants are aware of their responsibilities. For additional information or to obtain a permit application, please call (518) 279-1155.

j) Implementation

Implementation of this plan will be guided by staff and volunteer knowledge of trails, the trail assessment information collected in 2010-11 and the agency's standards and guidelines for trails which are located in **Appendix 1**.

Trail work proposals as submitted on the Annual Project Work Plan – Trails form (**Appendix 3**) will be reviewed by the Park Manager for consistency with this Trails Plan. All trail work beyond standard maintenance practices (blazing, clearing brush from treadway/tree pruning and maintaining erosion control structures) on existing designated trails must be approved prior to commencement of work. For many trails, OPRHP partners with trail organization(s) for development and/or maintenance. It is important that clear lines of communication are maintained among all involved parties. The Park Manager will meet with Trail Groups on an annual basis, at minimum, to discuss proposed trail development/maintenance plans and review the consistency of those plans with this Trails Plan. The Trail Advisory Committee will remain an integral partner in the development and maintenance of the trail system.

If a trail proposal is not within the scope of this Trails Plan then additional review, including environmental review, may be required. In these circumstances the Manager will consult with Regional and Albany office staff regarding next steps.

Prior to trail construction, review of final trail layouts will be conducted in the field by appropriate agency staff (e.g. Park Manager, Regional Natural Resource Steward) to ensure consistency with trail standards and protection of sensitive resources. Trail construction will follow the policies and guidelines for trail building that have been established by recognized trail

organizations and government agencies (Refer to Appendix 1). The Park Manager will be responsible for periodic inspections of all trail projects to ensure that they are being carried out in accordance with approved plans.

Improvements and reroutes should generally be completed prior to expanding multiple use opportunities. Priority is generally given to basic maintenance and rehabilitation of existing trails, as well as, trail re-routes and closures to correct unsustainable conditions and/or to protect sensitive environmental areas. Priorities for new trails will be based on availability of funding and resources.

The following projects have been identified as **Phase I priority projects** for the Trails Plan implementation. The prioritization process considered safety, highest use areas and ecological concerns. Prioritization of all remaining trail projects will be determined in the future.

Phase I priorities:
- Blazing and installation of signage and kiosks
- Little Johnny's Trail bridge or boardwalk construction
- Long Pond Trail upgrades
- Hicks Beltway – ditching, regrading and drainage swales
- NIMO Trail upgrades and trail extension to park office for snowmobile use (includes bridge construction over Second Pond outlet)
- Shaver Pond Trail upgrades
- Spruce Bog Trail reroute

Existing undesignated trails that have been identified for designation will be improved and utilized as much as possible in the implementation of this trails plan. Trails (new trails and rerouted sections of trails) will be designed to protect the natural resources of the parks. Sensitive ecological areas will be considered during new trail alignments. Rerouted sections will be closed using appropriate closure techniques as laid out in the *OPRHP Guidelines for Closing Trails*. Undesignated trails that are not part of the proposed trail system will also be closed. Additional signage in the form of trailhead and trail intersection signs as well as kiosks at main parking areas 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*. Both documents can be found on the OPRHP website at: **http://www.nysparks.state.ny.us/recreation/trails/technical-assistance.aspx**.

New trails and altered trails connected to an accessible trail or designated trailhead should be designed 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 feasible. Informational material will be provided at trailhead kiosks and in trail brochures identifying the characteristics (i.e. slope, terrain, etc.) of the trails.

In order to provide guidance on implementation of this plan for park staff and volunteer groups, the following table provides a listing of all existing and new trails and specific actions that were identified during the planning process with regard to maintenance, rehabilitation, re-routing or additional construction of each trail.

Table 5 Implementation Steps for Trails at Grafton Lakes State Park

Trail Name	Blaze	Allowed Uses	Mileage	Implementation Steps
Beaver Lodge (BL)	TBD	H, B, SS, XC	0.27	• Determine final trail alignment. • Clearing and tread construction required (develop trail to meet federal accessibility guidelines); mark trail. • Develop a viewing platform along Long Pond.
Beechnut (BT)	TBD	H, B, E, SS, XC	1.00	• Determine final trail alignment (short section appears to cross park boundary; consider best placement for a number of seasonal stream crossings). Assure final alignment accommodates all non-motorized trail uses. • Clearing and tread construction required; mark trail
Chet Bell (CB)	Yellow	H, B, E, SS, XC, SM	0.59	• Water management and erosion control techniques, such as development of knicks and rolling grade dips, could be used to reduce erosion and wet areas along this trail.
Conklin Way (CW)	TBD	H, B, (E), SS, XC	0.34	• Determine final trail alignment between existing Deer Run and Shaver Pond Trails. This trail will consist of formerly Deer Run Trail and the new trail section. • Connectors will be developed between the Deerfield pavilion and the Conklin Way trailhead as well as the playground area and the former Deer Run Trail to the west of the playground. These connector trails will allow for easier access and visibility of the trail system. The section to the north of the playground will be closed.
Criss Cross (CC)	Red	H, B, SS	0.20	• Replace any flagging with markers. • One section of trail requires additional clearing and defining of the trail corridor.
Crossover (CO)	Tan	H, B, E, SS, XC	0.40	• Monitor the bridge crossing for needed repairs. • Upgrade trailhead and intersection signage. • Remove widow maker near intersection with Spruce Bog.
Double Bit Path (DB)	Red	H, B, E, SS, XC	1.3	• Conduct feasibility study for reservoir outlet trail crossing. Notify public through signage and maps of existing trail conditions (no outlet trail crossing) in interim. • Install blazing in areas with insufficient markers. • Remove numerous fallen trees and widow makers. • Install directional signage or continue blazing between this and Gartler's Trail to show the connectivity of the trail system.
Dunham Hill (DH)	TBD	H, B, SS	0.86	• Determine final trail alignment. • Clearing and tread construction required; mark trail
Fire Tower Connector (FTC)	Not marked	H, B, SS, XC	0.21	• Determine final trail alignment for reroute. • Clearing and tread construction required; mark trail • Close original alignment. • Install directional signage for Fire Tower when opened.

Fire Tower (FI)	White	H, B, E, SS, XC, SM	0.90 (on park property); 1.24 total	• Request town abandonment of Fire Tower Road within park. • Install fence and gate at boundary. • Remove flagging and install markers along one section. • Water management and erosion control techniques, such as development of knicks and rolling grade dips, could be used to reduce erosion and wet areas along this trail. • Work with town on major drainage issues near park boundary.
Fishing Access (FA)	Yellow	H, B, E, SS, XC	0.27	• Water management and erosion control techniques, such as development of knicks and rolling grade dips, could be used to reduce erosion and wet areas along this trail.
Fruit Loop (FL)	TBD	H, B, E, SS, XC, (SM)	0.66	• Determine final trail alignment including spur trail to Trail Riders parcel. • Clearing and tread construction required; mark trail • Tread and bank stabilization required at stream crossing.
Gartler's (GA)	Yellow	H, B, E, SS, XC, SM	1.40	• Install trailhead signage at the parking area on Route 2. • Install blazing where insufficient. • Section of trail southeast of blueberry fields will require significant fill, drainage and grading. • Water management and erosion control techniques, such as development of knicks and rolling grade dips and installation of culverts, could be used to reduce erosion and wet areas along this trail. • Install directional signage between this trail and Double Bit and South Dunham trails to show trail system connectivity.
Granville Hicks (GH)	White	H, SS, XC	0.21	• Remove numerous fallen trees and widow makers. • Install rustic-looking viewing platform at Shaver Pond.
Hicks Beltway (HB)	White	H, B, E, SS, XC, SM	0.19	• Ditching, regrading and installation of drainage swales required to deal with erosion issues. • Install signage to show trail connectivity to Pittstown State Forest.
Little Johnny's (LJ)	Tan	H, B, E, SS, XC, SM	2.33	• Construct bridge or boardwalk at major stream/wetland crossing. • Monitor smaller stream crossing for necessary upgrades. • Install blazing where insufficient; reattach blazing where markers are misplaced on trees (markers should be seen by oncoming trail users and not placed facing the trail tread itself). • Remove numerous widow makers. • Install intersection signage including directional signage at junction with Long Pond Extension Trail to indicate Pittstown State Forest. • Water management and erosion control techniques, such as development of knicks and rolling grade

				dips and installation of culverts, could be used to reduce erosion and wet areas along this trail. • Reestablish outslope in areas where water is standing on trail.
Long Pond Connector (LPC)	TBD	H, B, SS, XC	0.19	• Monitor water flow with upgrades of the NIMO Trail and utilize water management techniques when necessary.
Long Pond (LP)	Orange	H, B, SS, XC	2.53	• Install markers where insufficient. • Remove fallen trees and widow makers. • Where small streams or seeps cross the trail, consider constructing rock culverts (open or closed), tread hardening techniques (rock armoring or large stepping stone placement*(see note below)) or construction of boardwalks or bog bridges. In some cases, minor reroutes may be required.
Mill Pond (MP)	Yellow	H, B, E, SS, XC	0.47	• Remove widow maker. • Reestablish outslope where water is standing on trail.
NIMO (NM)	Red	H, B, E, SS, XC, SM	1.00	• Upgrade tread for year-round multiple uses. Will require clearing rocks from tread and fill and culvert work. • Monitor existing culverts; some erosion was noted along the tread.
Perkins (PK)	White	H, B, E, SS, XC	0.84	• Consider developing turnpikes to alleviate muddy conditions along existing trail. • Determine final trail alignment of extension to Route 2. • Clearing and tread construction required; mark trail • Install Route 2 crossing markings and other recommendations per the master plan.
Power Line (PL)	TBD	SM	0.51	• Clear trail tread of debris (fallen trees, rocks and vegetation). Do fill and culvert work if needed. • Construct bridge over Second Pond outlet. • Mark trail.
Rabbit Run (RR)	TBD	H, SS	0.37	• Utilize existing trail alignment where possible while providing a buffer between trail and shoreline. • Remove fallen trees and widow makers. • Mark trail.
Red Eft (RE)	TBD	H, B, E, SS, XC	0.61	• Determine final alignment for short reroute and connect to Perkins Trail. • Upgrade seasonal stream crossing near reroute intersection. • Clearing and tread construction required; mark trail • Close original alignment.
Scout (SC)	White	H, B, E, SS, XC	0.38	• Determine final alignment for reroute. • Clearing and tread construction required; mark trail • Close original alignment.
Shaver Pond Nature (SN)	Tan	H, B, E, SS, XC	0.14	• Repair or replace intersection signage with Shaver Pond Trail.
Shaver Pond (SP)	Red	H, B, E, SS, XC	2.00	• Reestablish the out slope in a number of wet areas. • Water management and erosion control techniques,

				such as development of knicks and rolling grade dips, could be used to reduce erosion. • Reset numerous uplifted or crushed culverts along the trail; provide adequate fill over culverts to hold them in place and protect structural integrity. • Upgrade trail to meet federal accessibility guidelines as is feasible in conjunction with trail connection to future nature center (see master plan); consider realigning sections of trail along eastern side, where feasible, to create wider buffer between the trail and Shaver Pond.
South Dunham (SD)	Orange	H, B, E, SS, XC	1.52	• Install markers where insufficient. • Remove fallen trees and widow makers. • Remove snowmobile signage along trail. • Determine final alignment for reroute of southern section. • Clearing and tread construction required; mark trail. • Close original alignment. • Water management and erosion control techniques, such as development of knicks and rolling grade dips, could be used to reduce erosion on the northern section; consider rerouting if water management techniques fail. • Monitor stream crossings.
Spruce Bog (SB)	Orange	H, B, E, SS, XC, (SM)	2.55	• Remove widow makers. • Further assess trail alignment for eastern section of reroute; assure alignment accommodates all designated uses with adequate corridor width. • Clearing and tread construction required; mark trail. • Close original alignment. • Monitor stream crossings. • Upgrade eastern section of trail for snowmobile use in conjunction with development of the White Lily Trail.
Water Tower (WT)	Yellow	H, B, SS, XC	0.87	• Consider installing directional signage at the main park area directing patrons to access the trail system via the park road. • Remove fallen trees and widow makers. • Install markers where insufficient. • Remove blazes from original alignment of very short rerouted section. • Trail alignment may be impacted when camping site design takes place (see master plan).
White Lily (WL)	TBD	H, B, E, SS, XC, SM	0.74	• Determine final trail alignment that accommodates designated uses; consider seasonal stream crossings and wet areas carefully. • Clearing and tread construction required; mark trail. • Further research the feasibility and appropriate location for a potential bird viewing platform or boardwalk along the southeast section of the pond.

Wildwood (WW)	Orange	H, B, E, SS, XC	0.25	• Install markers where insufficient.
Woodland Nature (WN)	Tan	H, SS, XC	0.23	• Upgrade trail to meet federal accessibility guidelines with nature center development (see master plan).
Total Mileage**			**26.3**	

Types of Use: H (Hiking), B (Biking), E (Equestrian), SS (Snowshoeing), XC (Cross-country skiing), SM (Snowmobiling).
**Uses noted in ( ) indicate only a portion of that trail is open to the use.*
*** Mileage calculations include portions of conceptual trail alignments. Final mileage calculations may differ when trails are developed.*

With the creation of the park preservation area for all of the park south of Route 2 (excluding the C9 corridor), snowmobiling will continue to be allowed along Gartler's Trail and a short section of the Fruit Loop Trail from the Route 2 entrance. Snowmobiling is considered illegal on any other portion of the park south of Route 2 including the Dunham Reservoir itself. Signage will be installed to inform the public of this.

General trail system recommendations

Upgraded or new trailhead signage is needed at all trailheads (see Trailhead Signage and Kiosks section – page B-24). Intersection signage will be developed using a numbering or grid system to provide a safer and more organized trail system. Local law enforcement and emergency response agencies will be provided with updated trail maps and information. Directional signage will be placed at key points in the park to highlight destination vistas or resources, such as the Fire Tower, views of Long, Shaver Pond and White Lily Ponds, and cemeteries.

Recommendations regarding marking trails from the *Trail Signage Guidelines for the NYS Park System* include:
• Use aluminum nails for attaching markers. Aluminum resists corrosion better than other metals and will not damage a saw when a future cut is made across a hidden nail.
• When driving nails into trees, be sure to leave a sufficient length protruding (approximately ½ inch) to allow for future tree growth. An exception can be made in areas of frequent vandalism or theft.
• Place waymarks at eye level of the user, when possible. Eye level will be different depending on the type of trail user and amount of snow cover. (Waymarks should be placed higher on horse and cross-country ski trails.)
• Be sure to mark trails in both directions, first from one direction and then from the opposite direction, in order to gain each perspective. It may not be appropriate to simply put markers on opposite sides of the same tree.
• Trails need to be continuously marked, including when they follow roads. Mark trails such that the next waymark is clearly visible from the previous one. However, avoid placing waymarks so that more than one is readily obvious from the previous. One wellplaced blaze or marker is better than several poorly placed blazes or markers.
• Be sure to keep vegetation pruned from in front of waymarks at all times, sufficiently allowing for summer growth.

• A double blaze, one above the other, signifies a sharp turn in the trail. Double blazes may be offset to signify the direction of the turn such that  signifies a right turn and  signifies a left turn.

During trail assessments, it was noted that in a number of areas on the Long Pond Trail numerous rocks had been placed at wet areas to provide stepping stones for trail users. Unfortunately, the size and placement of the rocks is causing water to pool in these areas further exacerbating the issue. Very large rocks that require carrying by four people with a sling or the use of mechanized equipment is required. Rocks need to be placed deep in the ground to maintain stability and channels for water flow need to be incorporated into the armoring process. For additional information, refer to trail development and maintenance manuals listed in Appendix 1.

Water Trail

The water trail that exists for Long Pond, Second Pond and Mill Pond will be better publicized. Signage will be installed to highlight the opportunity and the water trail will be noted on park trail maps. Directional signage for water trail carry routes will be upgraded. Invasive species removal stations, along with educational signage regarding aquatic invasive species, will be installed to alert water trail users to the necessity of removing invasive species such as Eurasian water milfoil from boats when docking and between uses.

k) Monitoring and Future Development

The following guidelines will be utilized in the implementation of a monitoring system and the approval process for future modification of this plan.

Monitoring Program

A monitoring program will be developed to monitor trail conditions. A monitoring program will include an annual inspection of all trails and periodic inspections of trails throughout the year. Volunteers may aid in this process in many cases. The monitoring program should include:

- Monitoring trail use to avoid user conflicts and to ensure sustainability.
- Monitoring trail conditions, educating trail users, and utilizing other methods to identify and report the locations of invasive species.
- Where overuse is occurring, providing remediation through the use of water control and trail hardening techniques, by relocating sections of trail, and/or by limiting trail use.

Future Trails Development

Proposals for modification of the Grafton Lakes State Park trail system beyond what is specified in this plan will be evaluated by the Park Manager in consultation with the trails planning unit. All future proposals for trail development projects, including the relocation of existing trails, development of new trails, and new uses of existing trails, may need to go through a formal review process. Routine trail maintenance does not need to be addressed within this process. The scope and associated impacts of the proposed project on natural and cultural resources will determine the extent of the review process. In most cases, park-level review is sufficient. In some

cases, a more extensive environmental review will be required under the State Environmental Quality Review Act (SEQR).

I) Environmental Review

This Final Trails Plan, as an appendix to the Grafton Lakes State Park Final Master Plan, is the subject of an environmental review process under the State Environmental Quality Review Act (SEQR). Environmental impacts are addressed in Chapter 7 of the Master Plan. For the purposes of SEQR compliance, the entire Final Master Plan/ Final Environmental Impact Statement satisfies the requirements for an environmental impact statement as specified in Part 617, the rules and regulations implementing SEQR.

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Appendix 1

Trail Standards and Guidelines

A primary goal for all State Park Trails Systems is to develop sustainable trails that have minimal impacts on the environment, require little maintenance, and meet the needs of the users. Standards and guidelines are provided here for design, development, and maintenance techniques that help ensure a sustainable trail system, including guidelines for design and accessibility, trail monitoring, and trail closure.

1. Design

Trails should be developed using appropriate design standards based on desired uses. Considerations should be made for either a single or multiple treadway, tread width and surface, corridor and vertical clearance, sight distance, grades, and turning radius to provide an appropriate trail experience for expected users and levels of use.

Trail development and maintenance will be guided by design standards as provided in the table below for various types of uses. These standards should be used as a starting point and modified as necessary to address the natural characteristics of the resource and specific needs.

Trail Development Standards

Trail Type	Vertical Clearance	Corridor Clearance	Treadway Width	Surfacing Materials	Trail Length	Sight Distance	Slope	Turning Radius	Users / Mile
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
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
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	1-30
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
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
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	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

				trees.					
Snowmobile	8-12 feet above snow depth	1A - 14- 16 ft. 1B - 14-16 ft. C - 8-12 ft. D - 8 ft. min.	1A – 12 ft. 1B – 8-12 ft. C – 4-8 ft. D – 4ft. min.	Groomed snow Groomed snow Groomed snow Ungroomed snow	50 – 80 mi.	Min – 50 ft. 100+ ft.	10 – 15% Max - 25% sustained 40% shorter than 50 yd.	Min. 50 ft. 100 ft.	15

2. Accessibility

New trails and altered trails connected to an accessible trail or designated trailhead should be designed to improve accessibility for persons with disabilities. Trail conditions, including topography, geology, and ecology, and expected experience will limit the number of fully accessible trails. The *Draft Final Accessibility Guidelines for Outdoor Developed Areas* (AGODA), published in 2009 by the federal Architectural and Transportation Barriers Compliance Board ("Access Board"), contains the most recent standards used to design and construct pedestrian trails to be accessible, and to assess accessibility. There are some departures permitted from the technical provisions. Although the AGODA only applies to federal agencies or for trails that are designed or constructed using federal funds, OPRHP will follow the proposed guidelines as closely as practicable and apply standards consistently on all State Park pedestrian trails. For further details, refer to the AGODA at **http://www.access-board.gov/outdoor/index.htm**. The following is an abbreviated listing of the proposed standards 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, for concrete, asphalt or boards, they shall not exceed ½ inch in height; for all other surfaces, they shall not exceed 2 inches in height.
- 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 extend at least 48 inches beyond the intersection.
- Slopes – Slopes shall comply with the following:
    - Cross Slopes – For concrete, asphalt or boards, the cross slope shall not exceed 1:48; for all other surfaces, the cross slope shall not exceed 1:20.
    - 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.
    - The running slope of any segment of a trail shall not be steeper than 1:8.
    - Where the running slope of a segment of a trail is steeper than 1:20, the maximum length of the segment shall be in accordance with the table below, and a resting interval shall be provided at each end of the segment.

Running Slope of Trail Segment		Maximum Length of Segment
Steeper than	But not Steeper than	
1:20	1:12	200 feet (61 m)

1:12	1:10	30 feet (9 m)
1:10	1:8	10 feet (3050 mm)

- Resting Intervals – Resting intervals shall be 60 inches minimum in length and shall have a width at least as wide as the widest portion of the trail segment leading to the resting interval. Where the surface is concrete, asphalt, or boards, the slope shall not be steeper than 1:48 in any direction; for all other surfaces, the slope shall not exceed 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.
- Where gates or barriers are constructed to control access to trails, gates and barriers shall provide a clear width of 32 inches minimum.

In all cases, it is recommended that basic information about trail characteristics be displayed at the trailhead. This allows the trail user the opportunity to determine if the trail is appropriate for their abilities. This information should be available for all trails regardless of whether they meet the accessible guidelines.

The following is a recommended list of information that should be displayed at the trailhead:

- Trail Symbol
- Total trail length (in linear feet)
- Length of trail segments meeting accessible standards (in linear feet)
- Location of the first point of exception to accessible standards
- Running slope (average and maximum)
- Maximum cross slope
- Minimum clear tread width
- Surface type, firmness, and stability
- Tread obstacles that limit accessibility
- Elevation (trailhead, maximum, and minimum)
- Total elevation change

3. Trail Maintenance

Maintenance of the trails is carried out by park staff in conjunction with volunteer groups. Trail maintenance standards utilize acceptable practices and methods in the maintenance of trails to the particular uses of the trails. Maintenance activities may include:

- Using established water management techniques, such as installation of knicks, rolling grade dips, or waterbars, to divert water off of a trail.
- Using established trail construction techniques to stabilize trail surfaces.
- Trimming trees and brush to maintain height and width clearances.
- Maintaining drainage structures, such as culverts.
- Maintaining bridges and other structures.
- Maintaining signage.

These activities will be coordinated with the park manager. Activities that go beyond normal maintenance will require the approval of the park manager (see *Appendix B*). Park staff will maintain the parking lots and support facilities.

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

- *Trail Planning, Design, & Development Guidelines*. State of Minnesota, Department of Natural Resources, 2007. Trails and Waterways Division. **http://www.dnr.state.mn.us/index.html**
- *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. **http://www.thesca.org/**
- *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*. 2004. International Mountain Bicycling Association. **http://www.imba.com/index.html**
- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*. December 2007. US Department of Agriculture, Forest Service - Missoula Technology and Development Center. **http://www.fhwa.dot.gov/environment/Fspubs/07232816/index.htm**

4. Trail Closure

Sometimes it is necessary to close or reroute a trail due to poor initial design, overuse, illegal use, or other natural factors having caused some type of degradation. Reclamation strategies include closure, stabilization, recontouring, revegetation, and monitoring. Each site should be evaluated individually for its potential to be rehabilitated. Trail restoration needs to be carefully planned, and the consequences of each strategy should be evaluated. Restoration can be as simple as blocking a closed section of trail and passively allowing the vegetation to recover, or include more complex projects, such as removing any trace of the tread, actively planting native vegetation, and constructing check dams to help stop erosion. Careful monitoring of a restored section of trail is then needed to ensure that little evidence remains of the old trail.

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.

The *OPRHP Guidelines for Closing Trails* (**http://www.nysparks.state.ny.us/recreation/trails/technical-assistance.aspx**) provides the detailed process to be taken to close trails in state parks.

Appendix 2

Memorandum of Agreement

Between
Trails Organization #1
And
Trails Organization #2
And
Trails Organization #...
And
The New York State Office of Parks, Recreation and Historic Preservation

By this agreement, #1, #2, …. and the New York State Office of Parks, Recreation and Historic Preservation confirm and acknowledge the following:

1. The _____Trail, a linear trail located within _____ State Park, is under the jurisdiction of the New York State Office of Parks, Recreation and Historic Preservation (hereinafter referred to as "PARKS"), an agency of the Executive Department of New York State government.
2. The #1, #2, and …., nonprofit trail organizations have a joint interest in the _____ Trail and in coordinating their efforts as a single group, hereinafter known as the Friends of xxxx Trail (the "FRIENDS").
3. The FRIENDS and PARKS have mutual and complimentary interests in the development and maintenance of the trails and associated facilities and program within _____ State Park.
4. The FRIENDS acknowledge that the liaison for PARKS with the FRIENDS for all programmatic and business relations shall be the Regional Director or his/her designee (hereinafter referred to as the Park Manager), who shall be invited to attend all meetings of the FRIENDS, its Board of Directors and committees. The Park Manager not serve as an ex-officio member of the Board of Directors of the FRIENDS. PARKS acknowledges that the representative of the FRIENDS for all official programmatic and business relations shall be the President of the FRIENDS or the President's designee.
5. The FRIENDS, in furtherance of its purpose to support and supplement development, maintenance, preservation and public education programs at the Park, shall keep PARKS fully informed as to its activities and plans and shall do so through the Park Manager either directly or as provided for in the By-Laws of the FRIENDS.
6. Development and maintenance activities proposed by the FRIENDS must be reviewed and approved by PARKS prior to implementation.
7. Prior to commencing any pre-approved work, each member of the FRIENDS shall sign a volunteer service form through the Park Manager, a sample of which is attached to this Agreement as Exhibit A. Such form shall be kept confidential. PARKS and the FRIENDS acknowledge that by filing a volunteer service form, the FRIENDS will receive New York State Worker's Compensation benefits for any injuries sustained during the course of volunteer work. Filing a volunteer service form also extends the protections offered pursuant to the Public Officers Law in the event they are sued with regard to their negligence during the course of their volunteer work.
8. In the event that there is an access fee to the Park, FRIENDS shall have access to the Park at no charge upon the authorization of the Park Manager, and only in connection with pre-approved volunteer work at the Park.

9. The term of this Memorandum of Understanding shall be five years. Either party may terminate this agreement at any time prior to the expiration of the five year term upon ninety(90) days' written notice to the other party. This agreement shall terminate automatically in the event of the dissolution of the FRIENDS or if the FRIENDS become incorporated within as a 501 (c) 3 organization at which time a new Agreement will be required.
10. This agreement may not be amended, modified or otherwise changed unless done so in writing and signed by both parties.

Appendix 3

Annual Project Work Plan - Trails

(Submit to Park Manager for review and approval prior to commencing work)

For ALL trail work beyond standard maintenance practices (blazing, clearing brush from treadway/tree pruning, maintenance of erosion control structures) on existing designated trails.

State Park Name: Year: 20__

Organization:
Contact Name:
Contact Address:
Contact Phone #:
Contact Email Address:

Trail Name:
Description of location of trail section to be worked on (if applicable):

GPS coordinates if available (Lat/Long):_____
(Format: Decimal Degrees; Datum (circle one): NAD27, 83 or WGS84 (preferred)

Type of work (check all that apply):
□ Re-alignment/relocation of trail section
□ New trail development (includes designating new trails)
□ Tread upgrades including installation of water management structures
□ Bridge construction/replacement
□ Trail Closure
□ Other: _____

Scope of work included in Trails Plan: □ Yes □ No (If no, requires additional review of proposal)

Description of work: (be specific including rock moving, tree cutting, trail work within 100 ft. of a water body/wetland, bridge work (*may require DEC permit*), construction of switchbacks or retaining walls, culvert and turnpike installation, etc.)

Work Schedule:

□ Attached map depicting area of work (required).
□ Digital photo (before) □ Digital photo (after)

_____
__

Submitted by (print name): Signature:
Date:

_____
__

Approved by Park Manager (print name): Signature:
Date:

Forward copy to Regional Natural Resource Steward and Capital Facilities Manager.

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C. Appendix C – Soils

Soil Descriptions

BrA—Brayton very stony silt loam, nearly level*

Component: Brayton, poorly drained (50%)

The Brayton, poorly drained component makes up 50 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions. The parent material consists of loamy till derived mainly from granite, phyllite, schist, slate, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 6s. This soil meets hydric criteria.

Component: Brayton, somewhat poorly drained (35%)

The Brayton, somewhat poorly drained component makes up 35 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions. The parent material consists of loamy till derived mainly from granite, phyllite, schist, slate, and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 11 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

BuC—Buckland very stony loam, sloping

Component: Buckland, very stony (75%)

The Buckland, very stony component makes up 75 percent of the map unit. Slopes are 8 to 15 percent. This component is on ridges, hills. The parent material consists of loamy till derived mainly from phyllite and schist with a small amount of limestone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, May. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

BuD—Buckland very stony loam, moderately steep

Component: Buckland, very stony (85%)

* All soil descriptions were generated online using NCRS Web Soil Survey (NCRS, 2010)

The Buckland, very stony component makes up 85 percent of the map unit. Slopes are 25 to 35 percent. This component is on hills, ridges. The parent material consists of loamy till derived mainly from phyllite and schist with a small amount of limestone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, May. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

GlC—Glover very stony loam, very rocky, sloping

Component: Glover, very stony (75%)

The Glover, very stony component makes up 75 percent of the map unit. Slopes are 8 to 15 percent. This component is on hillsides or mountainsides. The parent material consists of loamy till derived mainly from interbedded schist and phyllite. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

GlD—Glover very stony loam, very rocky, moderately steep

Component: Glover, very stony (75%)

The Glover, very stony component makes up 75 percent of the map unit. Slopes are 15 to 25 percent. This component is on hillsides or mountainsides. The parent material consists of loamy till derived mainly from interbedded schist and phyllite. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

LoA—Loxley and Beseman mucks, 0 to 1 percent slopes

Component: Loxley (60%)

The Loxley component makes up 60 percent of the map unit. Slopes are 0 to 1 percent. This component is on swamps, marshes. The parent material consists of organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, March, April, May, November, December. Organic matter content in the surface horizon is about 75 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria.

Component: Beseman (25%)

The Beseman component makes up 25 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions. The parent material consists of organic material over loamy glacial drift. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is occasionally ponded. A seasonal zone of water saturation is at 0 inches during February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 62 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria.

Soil Limitations

The soils of the survey area are rated in this table according to limitations that affect their suitability for various recreation types. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in the table can be supplemented by other information, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

Camp Areas, Picnic Areas, and Playgrounds

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (Ksat), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, Ksat, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and

not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, Ksat, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, Ksat, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, Ksat, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, Ksat, and toxic substances in the soil.

Paths and Trails

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodability. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer. *Off-road motorcycle trails* require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodability, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Figure 1 Selected Soil Interpretations - Rensselaer County, New York

Selected Soil Interpretations– Rensselaer County, New York							
Map symbol and soil name	Pct. of map unit	Urb/rec - camp areas		Urb/rec - paths and trails		Urb/rec - picnic areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BrA—Brayton very stony silt loam, nearly level							
Brayton, poorly drained	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.96	Large stones content	0.53	Slow water movement	0.96
		Large stones content	0.53			Large stones content	0.53
Brayton, somewhat poorly drained	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.96	Large stones content	0.53	Slow water movement	0.96
		Large stones content	0.53			Large stones content	0.53
BuC—Buckland very stony loam, sloping							
Buckland, very stony	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.98	Large stones content	0.53	Slow water movement	0.96
		Slow water movement	0.96	Depth to saturated zone	0.44	Depth to saturated zone	0.75
		Slope	0.63			Slope	0.63
		Large stones content	0.53			Large stones content	0.53

Selected Soil Interpretations– Rensselaer County, New York							
Map symbol and soil name	Pct. of map unit	Urb/rec - camp areas		Urb/rec - paths and trails		Urb/rec - picnic areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BuD—Buckland very stony loam, moderately steep							
Buckland, very stony	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Slope	1.00	Too steep	1.00
		Depth to saturated zone	0.98	Large stones content	0.53	Slow water movement	0.96
		Slow water movement	0.96	Depth to saturated zone	0.44	Depth to saturated zone	0.75
		Large stones content	0.53			Large stones content	0.53
GIC—Glover very stony loam, very rocky, sloping							
Glover, very stony	75	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Large stones content	0.53	Depth to bedrock	1.00
		Slope	0.63			Slope	0.63
		Large stones content	0.53			Large stones content	0.53
GID—Glover very stony loam, very rocky, moderately steep							
Glover, very stony	75	Very limited		Somewhat limited		Very limited	
		Too steep	1.00	Large stones content	0.53	Too steep	1.00
		Depth to bedrock	1.00	Slope	0.50	Depth to bedrock	1.00
		Large stones content	0.53			Large stones content	0.53
LoA—Loxley and Beseman mucks, 0 to 1 percent slopes							
Loxley	60	Not rated		Not rated		Not rated	
Beseman	25	Not rated		Not rated		Not rated	
W—Water							
Water	100	Not rated		Not rated		Not rated	

Source – NRCS, 2011

Septic Tank Absorption Fields

Septic tank absorption fields are subsurface systems of perforated pipe or similar devices that distribute effluent from a septic tank into the soil. New York State Department of Health regulations allow installation of septic system absorption fields of varying designs, depending upon the depth of suitable soil material above any limitation in the natural soil at a site (New York State Department of Health, 1990). Where necessary, imported fill material may be used to elevate absorption trenches to at least the minimum distance of 24 inches above limiting soil horizons. The depth ranges of suitable material and corresponding types of absorption systems allowed are as follows:

- Less than 12 inches-no system allowed

- 12 to 24 inches-alternative raised trench
- 24 to 48 inches-conventional shallow trench
- More than 48 inches-conventional system

The ratings in this interpretation are based on evaluation of the soil between depths of 12 and 48 inches. In addition, the bottom layer of the soil is evaluated for risk of seepage. This interpretation does not evaluate bedrock below the soil. The soil properties and site features considered are those that affect absorption of the effluent, construction and maintenance of the system, and public health.

The soil properties and qualities that affect the absorption and effective treatment of wastewater effluent are saturated hydraulic conductivity (Ksat), depth to a seasonal high water table, depth to bedrock, depth to dense material, and susceptibility to flooding. Stones and boulders and a shallow depth to bedrock or dense material interfere with installation. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas. In addition, the hazards of erosion and sedimentation increase as slope increases.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 2 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, ground water may be contaminated.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. “Not limited” indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. “Somewhat limited” indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. “Very limited” indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00). The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

The information in this interpretation is based on criteria developed specifically for soils in New York. The information is not site specific and does not eliminate the need for onsite investigation of the soils.

Figure 2 Septic Tank Absorption Fields - Summary by Map Unit

Septic Tank Absorption Fields (NY)— Summary by Map Unit — Rensselaer County, New York (NY083)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
BrA	Brayton very stony silt loam, nearly level	Very limited	Brayton, poorly drained (50%)	Depth to saturated zone (1.00)	388.7	17.4%
				Restricted permeability (0.78)		
				Surface rock fragments (0.60)		
			Brayton, somewhat poorly drained (35%)	Depth to saturated zone (1.00)		
				Restricted permeability (0.78)		
				Surface rock fragments (0.60)		
BuC	Buckland very stony loam, sloping	Very limited	Buckland, very stony (75%)	Depth to saturated zone (1.00)	969.1	43.5%
				Restricted permeability (0.71)		
				Surface rock fragments (0.60)		
				Slope (0.20)		
BuD	Buckland very stony loam, moderately steep	Very limited	Buckland, very stony (85%)	Depth to saturated zone (1.00)	192.8	8.6%
				Slope (1.00)		
				Restricted permeability (0.71)		
				Surface rock fragments (0.60)		
GlC	Glover very stony loam, very rocky, sloping	Very limited	Glover, very stony (75%)	Depth to bedrock (1.00)	196.4	8.8%
				Surface rock fragments (0.60)		
				Slope (0.20)		
GlD	Glover very stony loam, very rocky, moderately steep	Very limited	Glover, very stony (75%)	Depth to bedrock (1.00)	68.7	3.1%
				Slope (1.00)		
				Surface rock fragments (0.60)		

Septic Tank Absorption Fields (NY)— Summary by Map Unit — Rensselaer County, New York (NY083)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
LoA	Loxley and Beseman mucks, 0 to 1 percent slopes	Very limited	Loxley (60%)	Ponding (1.00)	90.2	4.0%
				Depth to saturated zone (1.00)		
			Beseman (25%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Restricted permeability (0.13)		
W	Water	Not rated	Water (100%)		324.7	14.6%
Totals for Area of Interest					**2,230.5**	**100.0%**

Source – NRCS, 2011

D. Appendix D - Flora, Fauna and Endangered Species Lists

Plant Species Found In Grafton Lakes State Park

(Alphabetical by scientific name)

SCIENTIFIC NAME	COMMON NAME
Abies balsamea	balsam fir
Acalypha virginica var. rhomboidea	three-seeded mercury
Acer negundo	box-elder
Acer pensylvanicum	striped maple
Acer platanoides	Norway maple
Acer rubrum var. rubrum	red maple
Acer saccharum	sugar maple
Acer spicatum	mountain maple
Acer x freemanii	soft maple
Achillea millefolium var. millefolium	common yarrow
Achillea ptarmica	sneezeweed
Acorus americanus	sweetflag
Actaea pachypoda	white baneberry
Adiantum pedatum	maidenhair fern
Aegopodium podagraria	goutweed
Agrimonia gryposepala	common agrimony
Agrostis capillaris	colonial bent
Agrostis gigantea	redtop
Agrostis hyemalis	southern hairgrass
Agrostis perennans	autumn bent
Agrostis stolonifera var. palustris	creeping-bent
Ajuga reptans	carpet-bugleweed
Alisma subcordatum	water-plantain
Alliaria petiolata	garlic mustard
Allium schoenoprasum	wild chives
Alnus incana ssp. rugosa	hazel alder
Alnus serrulata	smooth alder
Alopecurus pratensis	meadow foxtail
Ambrosia artemisiifolia	ragweed
Amelanchier arborea	shadbush

SCIENTIFIC NAME	COMMON NAME
Amelanchier laevis	smooth shadbush
Anaphalis margaritacea	pearly everlasting
Anemone virginiana var. alba	thimbleweed
Angelica atropurpurea	purple stem angelica
Antennaria neglecta	Everlasting
Antennaria plantaginifolia	everlasting
Anthoxanthum odoratum	sweet vernalgrass
Apocynum androsaemifolium	spreading dogbane
Aquilegia vulgaris	blue columbine
Arabis glabra	tower-mustard
Aralia nudicaulis	wild sarsaparilla
Arctium minus	common burdock
Arenaria serpyllifolia	thyme-leaf sandwort
Arisaema triphyllum ssp. stewardsonii	Jack-in-the-pulpit
Aronia melanocarpa	black chokeberry
Artemisia vulgaris	felon-herb
Asarum canadense	wild ginger
Asclepias incarnata	Swamp milkweed
Asclepias syriaca	common milkweed
Aster acuminatus	mountain aster
Aster cordifolius	blue aster
Aster divaricatus	white wood aster
Aster ericoides	white wreath aster
Aster laevis var. laevis	smooth blue aster
Aster lanceolatus var. simplex	tall white aster
Aster lateriflorus var. lateriflorus	calico aster

SCIENTIFIC NAME	COMMON NAME
Aster macrophyllus var. macrophyllus	bigleaf aster
Aster novae-angliae	New England aster
Aster pilosus var. pringlei	heath aster
Aster puniceus var. puniceus	purple-stemmed aster
Athyrium filix-femina var. angustum	northern lady fern
Barbarea vulgaris	cress
Berberis thunbergii	Japanese barberry
Berteroa incana	hoary alyssum
Betula alleghaniensis	yellow birch
Betula lenta	sweet birch
Betula papyrifera	paper birch
Betula populifolia	gray birch
Bidens cernua	stick-tights
Bidens connata	beggar-ticks
Bidens frondosa	beggar-ticks
Bidens tripartita	beggar-ticks
Botrychium virginianum	rattlesnake fern
Brachyelytrum erectum	bearded-shorthusk
Brasenia schreberi	Watershield
Bromus inermis	smooth brome
Bromus latiglumis	Canada brome
Calamagrostis canadensis var. Canadensis	bluejoint grass
Calla palustris	water arum
Callitriche palustris	water-starwort
Caltha palustris	marsh marigold
Calystegia sepium ssp. sepium	hedge-bindweed
Campanula aparinoides	marsh bellflower
Campanula persicifolia c.v. "alba"	willow bellflower
Campanula rapunculoides	creeping bellflower
Capsella bursa-pastoris	shepherd's-purse
Cardamine diphylla	two-leaf toothwort
Cardamine pensylvanica	Pennsylvania bittercress
Carex aestivalis	Sedge
Carex annectens var. annectens	Sedge
Carex appalachica	Sedge
Carex arctata	Sedge
Carex atlantica ssp. atlantica	Sedge
Carex bebbii	Sedge
Carex bromoides	Sedge

SCIENTIFIC NAME	COMMON NAME
Carex brunnescens var. brunnescens	Sedge
Carex canescens	Sedge
Carex communis	Sedge
Carex comosa	Sedge
Carex conoidea	Sedge
Carex crinita	Sedge
Carex cristatella	Sedge
Carex debilis var. rudgei	Sedge
Carex deweyana	Sedge
Carex digitalis	Sedge
Carex disperma	Sedge
Carex echinata	sedge
Carex folliculata	sedge
Carex gracillima	sedge
Carex gynandra	sedge
Carex hirsutella	sedge
Carex intumescens	sedge
Carex laxiculmis	sedge
Carex laxiflora var. laxiflora	sedge
Carex leptalea	sedge
Carex lupulina	sedge
Carex lurida	sedge
Carex normalis	sedge
Carex novae-angliae	sedge
Carex pallescens	sedge
Carex pedunculata	sedge
Carex pensylvanica	sedge
Carex plantaginea	plantain-sedge
Carex prasina	sedge
Carex projecta	sedge
Carex radiata	sedge
Carex rosea	sedge
Carex rostrata var. utriculata	sedge
Carex scabrata	sedge
Carex scoparia var. scoparia	sedge
Carex stipata	sedge
Carex stricta	tussock-sedge
Carex swanii	sedge
Carex tenera	sedge
Carex tribuloides	sedge
Carex trisperma var. trisperma	sedge
Carex vesicaria var. vesicaria	sedge
Carex virescens	sedge

SCIENTIFIC NAME	COMMON NAME
Carex vulpinoidea	sedge
Carpinus caroliniana ssp. virginiana	hornbeam
Carum carvi	caraway
Carya ovata	shagbark hickory
Catalpa speciosa	catalpa
Caulophyllum thalictroides	blue cohosh
Celastrus orbiculata	Oriental bittersweet
Centaurea maculosa	bushy knapweed
Cephalanthus occidentalis	buttonbush
Cerastium fontanum	common mouse-ear
Chamaedaphne calyculata	Leatherleaf
Chamaesyce maculata	Eyebane
Chamaesyce vermiculata	hairy spurge
Chelidonium majus	greater celandine
Chelone glabra	turtle-heads
Chenopodium album var. album	lamb's-quarters
Chenopodium simplex	maple-leaf goosefoot
Chimaphila umbellata ssp. Cisatlantica	pipsissewa
Chrysosplenium americanum	golden saxifrage
Cichorium intybus	chicory
Cicuta bulbifera	water-hemlock
Cicuta maculata	water-hemlock
Cinna latifolia	drooping woodreed
Circaea alpina	dwarf enchanter's nightshade
Circaea lutetiana ssp. canadensis	enchanter's nightshade
Cirsium arvense	Canada thistle
Cirsium vulgare	bull-thistle
Claytonia caroliniana	carolina spring-beauty
Clematis virginiana	virgin's-bower
Clinopodium vulgare	basil
Clintonia borealis	woodlily
Convallaria majalis	lily-of-the-valley
Conyza canadensis var. Canadensis	horseweed
Coptis trifolia	goldthreads
Corallorhiza trifida	pale coral-root
Cornus alternifolia	green osier
Cornus canadensis	bunchberry
Cornus foemina ssp. racemosa	gray dogwood

SCIENTIFIC NAME	COMMON NAME
Coronilla varia	crown-vetch
Corylus cornuta	beaked hazel
Crataegus [undetermined]	hawthorn
Cyperus bipartitus	cyperus
Cyperus strigosus	galingale
Cypripedium acaule	pink ladyslipper
Dactylis glomerata	orchard grass
Danthonia compressa	northern oatgrass
Danthonia spicata	poverty-grass
Daucus carota	Queen-Anne's-lace
Dennstaedtia punctilobula	hay-scented fern
Deparia acrostichoides	silvery spleenwort
Dianthus armeria	Deptford pink
Dianthus barbatus	sweet-william
Dicentra cucullaria	Dutchman's-breeches
Diervilla lonicera	bush honeysuckle
Digitalis purpurea	purple foxglove
Digitaria ischaemum	smooth crabgrass
Digitaria sanguinalis	tall crabgrass
Dryopteris carthusiana	spinulose wood fern
Dryopteris cristata	crested wood fern
Dryopteris intermedia	fancy fern
Dryopteris marginalis	marginal wood fern
Dryopteris x boottii	Boott's wood fern
Dryopteris x pittsfordensis	wood fern
Dryopteris x triploidea	wood fern
Dryopteris x uliginosa	spinulose crested wood fern
Dulichium arundinaceum	three-way sedge
Echinochloa muricata var. microstachya	cockspur grass
Echium vulgare	blue-devil
Elatine minima	lesser waterwort
Eleocharis acicularis	hairgrass
Eleocharis elliptica var. elliptica	slender spikerush
Eleocharis obtusa var. obtusa	spikerush
Eleocharis palustris	creeping spikerush
Elodea canadensis	waterweed
Elodea nuttallii	waterweed
Elymus riparius	marsh wild-rye
Elytrigia repens	quackgrass
Epifagus virginiana	beech-drops
Epilobium ciliatum ssp. ciliatum	willow-herb
Epilobium coloratum	purple-leaf willow-herb

SCIENTIFIC NAME	COMMON NAME
Epilobium leptophyllum	willow-herb
Epipactis helleborine	helleborine
Equisetum arvense	common horsetail
Equisetum fluviatile	water horsetail
Equisetum sylvaticum	woodland horsetail
Eragrostis pectinacea	lovegrass
Erechtites hieracifolia var. hieracifolia	fireweed
Erigeron annuus	daisy-fleabane
Erigeron philadelphicus	fleabane
Erigeron strigosus	daisy-fleabane
Eriocaulon aquaticum	white-buttons
Erysimum cheiranthoides	wormseed-mustard
Erythronium americanum	yellow adder's-tongue
Eupatorium maculatum var. maculatum	spotted joe-pye-weed
Eupatorium perfoliatum	thoroughwort
Eupatorium rugosum	white snakeroot
Euthamia graminifolia	bush goldenrod
Fagus grandifolia	American beech
Festuca filiformis	hair fescue
Festuca rubra ssp. rubra	red fescue
Festuca subverticillata	nodding fescue
Fragaria virginiana	wild strawberry
Fraxinus americana	white ash
Fraxinus nigra	black ash
Galeopsis tetrahit	hemp-nettle
Galinsoga quadriradiata	quickweed
Galium asprellum	rough bedstraw
Galium lanceolatum	wild-licorice
Galium mollugo	white bedstraw
Galium palustre	ditch bedstraw
Galium tinctorium	bedstraw
Galium trifidum ssp. trifidum	small bedstraw
Galium triflorum	sweet-scented bedstraw
Gaultheria procumbens	wintergreen
Gaylussacia baccata	black huckleberry
Geranium robertianum	herb-robert
Geum canadense	white avens
Geum laciniatum	rough avens
Geum rivale	purple avens
Glechoma hederacea	ground-ivy
Glyceria borealis	northern mannagrass
Glyceria canadensis	rattlesnake grass
Glyceria grandis	reed meadowgrass

SCIENTIFIC NAME	COMMON NAME
Glyceria melicaria	slender mannagrass
Glyceria striata	fowl mannagrass
Gnaphalium uliginosum	low cudweed
Goodyera tesselata	rattlesnake plantain
Gratiola neglecta	mud-hyssop
Gymnocarpium dryopteris	oak fern
Hamamelis virginiana	witch-hazel
Hedeoma pulegioides	mock-pennyroyal
Hemerocallis fulva	orange day-lily
Hesperis matronalis	dame's-rocket
Hieracium aurantiacum	orange hawkweed
Hieracium caespitosum	king-devil
Hieracium paniculatum	hawkweed
Hieracium pilosella	mouse-ear hawkweed
Hieracium piloselloides	king-devil
Hieracium scabrum	hawkweed
Holcus lanatus	velvet grass
Humulus lupulus	common hop
Huperzia lucidula	shining firmoss
Hydrangea paniculata c.v. "grandiflora"	pee gee hydrangea
Hydrocotyle americana	pennywort
Hydrophyllum virginianum	Virginia waterleaf
Hypericum ellipticum	pale St. John's-wort
Hypericum majus	Canadian St. John's-wort
Hypericum mutilum	dwarf St. John's-wort
Hypericum perforatum	common St. John's-wort
Hypericum punctatum	St. John's-wort
Hypochaeris radicata	cat's-ear
Ilex verticillata	black alder
Impatiens capensis	spotted jewelweed
Inula helenium	elecampane
Iris versicolor	blue flag
Isoetes echinospora	stiff quillwort
Isoetes engelmannii	Engelmann quillwort
Isoetes tuckermanii	Tuckerman's quillwort
Juncus acuminatus	sharp-fruited rush
Juncus articulatus	jointed rush
Juncus brevicaudatus	narrow-panicled rush
Juncus bufonius	toad-rush
Juncus effusus var. solutus	common rush

SCIENTIFIC NAME	COMMON NAME
Juncus tenuis	slender yard-rush
Juniperus communis var. depressa	spreading juniper
Kalmia angustifolia	sheep laurel
Lactuca biennis	wild lettuce
Lactuca canadensis var. canadensis	wild lettuce
Laportea canadensis	wood-nettle
Larix kaempferi	Japanese Larch
Larix laricina	tamarack
Leersia oryzoides	rice cutgrass
Leersia virginica	whitegrass
Lemna minor	duckweed
Leontodon autumnalis	fall-dandelion
Leonurus cardiaca	motherwort
Lepidium campestre	cow-cress
Lepidium virginicum	wild peppergrass
Leucanthemum vulgare	ox-eye daisy
Linaria vulgaris	butter-and-eggs
Lindera benzoin	spicebush
Lindernia dubia var. dubia	false-pimpernel
Lobelia cardinalis	cardinal-flower
Lobelia dortmanna	water lobelia
Lobelia inflata	Indian-tobacco
Lolium arundinaceum	tall fescue
Lolium perenne var. perenne	English ryegrass
Lolium pratense ssp. pratense	meadow fescue
Lonicera canadensis	fly honeysuckle
Lonicera morrowii	fly honeysuckle
Lonicera tatarica	Tartarian honeysuckle
Lonicera x bella	fly honeysuckle
Lotus corniculata	bird's-foot trefoil
Ludwigia palustris	water purslane
Luzula campestris var. multiflora	common wood-rush
Lycopodium annotinum var. annotinum	bristly clubmoss
Lycopodium clavatum	running-cedar
Lycopodium dendroideum	northern tree clubmoss
Lycopodium digitatum	running pine
Lycopodium hickeyi	Hickey's clubmoss
Lycopodium obscurum	ground-pine
Lycopodium x habereri	Haberer's ground-pine
Lycopus americanus	water-horehound

SCIENTIFIC NAME	COMMON NAME
Lycopus uniflorus	water-horehound
Lyonia ligustrina	maleberry
Lysimachia ciliata	fringed loosestrife
Lysimachia nummularia	moneywort
Lysimachia quadrifolia	whorled loosestrife
Lysimachia terrestris	swamp-candles
Lysimachia thyrsiflora	tufted loosestrife
Lythrum salicaria	purple loosestrife
Maianthemum canadense	false lily-of-the-valley
Maianthemum racemosum	false Solomon's-seal
Malaxis unifolia	green adder's-mouth
Malus pumila	common apple
Malva moschata	musk-mallow
Matricaria discoidea	pinapple-weed
Matteuccia struthiopteris	ostrich fern
Medeola virginiana	Indian cucumber-root
Medicago lupulina	black medick
Melampyrum lineare	cow-wheat
Melilotus alba	white sweet-clover
Melilotus officinalis	yellow sweet-clover
Mentha arvensis	field mint
Mentha x piperita	peppermint
Mimulus ringens	common monkeyflower
Mitchella repens	partridge-berry
Monotropa hypopithys	pinesap
Monotropa uniflora	Indian-pipe
Muhlenbergia frondosa	wirestem muhly
Muhlenbergia mexicana	satin-grass
Myosotis laxa	wild forget-me-not
Myosotis scorpioides	forget-me-not
Myosoton aquaticum	giant chickweed
Myriophyllum [not determined]	milfoil
Myriophyllum spicatum	eurasian milfoil
Najas flexilis	naiad
Najas gracillima	naiad
Narcissus poeticus var. recurvus	poet's narcissus
Nemopanthus mucronatus	mountain holly
Nuphar variegata	common yellow cowlily
Nymphaea odorata	Fragrant water-lily
Nymphoides cordata	floating-heart
Oenothera biennis	common evening-primrose

SCIENTIFIC NAME	COMMON NAME
Oenothera perennis	sundrops
Onoclea sensibilis	sensitive fern
Osmunda cinnamomea	cinnamon fern
Osmunda claytoniana	interrupted fern
Osmunda regalis var. spectabilis	royal fern
Ostrya virginiana	hop hornbeam
Oxalis dillenii ssp. filipes	woord sorrel
Oxalis montana	common wood-sorrel
Oxalis stricta	lady's-sorrel
Panax trifolius	dwarf ginseng
Panicum acuminatum	panic grass
Panicum boreale	northern panic grass
Panicum capillare	witchgrass
Panicum commutatum	panic grass
Panicum dichotomiflorum var. dichotomiflorum	smooth panic grass
Paraleucobryum longifolium	longleaf paraleucobryum moss
Parthenocissus vitacea	Virginia creeper
Peltandra virginica	arrowleaf
Penstemon digitalis	false-foxglove
Phalaris arundinacea	reed canary-grass
Phegopteris connectilis	northern beech fern
Philadelphus inodorus	mock-orange
Phleum pratense ssp. pratense	timothy
Phlox subulata	moss phlox
Phragmites australis	common reed
Picea abies	Norway spruce
Picea glauca	white spruce
Picea rubens	red spruce
Pilea pumila	richweed
Pinus nigra	Austrian pine
Pinus resinosa	red pine
Pinus rigida	pitch pine
Pinus strobus	white pine
Plantago lanceolata	buck-horn plantain
Plantago major	common plantain
Plantago rugelii	pale plantain
Platanthera clavellata	green woodland orchid
Platanthera lacera	ragged fringed orchid
Platanthera orbiculata	round-leaved orchid
Platanthera psycodes	purple fringed orchid

SCIENTIFIC NAME	COMMON NAME
Poa alsodes	speargrass
Poa annua	annual bluegrass
Poa compressa	Canada bluegrass
Poa nemoralis	bluegrass
Poa palustris	fowl bluegrass
Poa pratensis	Kentucky bluegrass
Poa saltuensis	old-pasture bluegrass
Poa trivialis	rough bluegrass
Podophyllum peltatum	May-apple
Polygonatum pubescens	Solomon's-seal
Polygonum arifolium	arrowleaf tearthumb
Polygonum aviculare	knotweed
Polygonum buxiforme	knotweed
Polygonum cespitosum var. longisetum	low smartweed
Polygonum cilinode	fringed bindweed
Polygonum convolvulus	black bindweed
Polygonum cuspidatum	Japanese bamboo
Polygonum hydropiper	common smartweed
Polygonum hydropiperoides var. hydropiperoides	mild water-pepper
Polygonum pensylvanicum	pinkweed
Polygonum persicaria	lady's-thumb
Polygonum punctatum var. confertiflorum	water smartweed
Polygonum ramosissimum var. ramosissimum	knotweed
Polygonum sagittatum	tearthumb
Polypodium appalachianum	Appalachian polypody
Polypodium appalachianum x virg	rock polypody
Polypodium virginianum	rock polypody
Polystichum acrostichoides	Christmas fern
Pontederia cordata	pickerelweed
Populus deltoides	cottonwood
Populus grandidentata	big-toothed aspen
Populus tremuloides	quaking aspen
Populus x jackii	balm-of-Gilead
Potamogeton amplifolius	pondweed
Potamogeton bicupulatus	pondweed
Potamogeton epihydrus	pondweed
Potamogeton pusillus var. tenuissimus	pondweed
Potamogeton spirillus	pondweed
Potentilla argentea	silvery cinquefoil

SCIENTIFIC NAME	COMMON NAME
Potentilla norvegica ssp. norvegica	rough cinquefoil
Potentilla recta	sulfer cinquefoil
Potentilla simplex	common cinquefoil
Prenanthes altissima	rattlesnake-root
Prenanthes trifoliolata	gall-of-the-earth
Proserpinaca palustris var. palustris	mermaid-weed
Prunella vulgaris	self-heal
Prunus pensylvanica	pin-cherry
Prunus serotina	black cherry
Prunus virginiana	choke-cherry
Pseudotsuga menziesii	Douglas fir
Pteridium aquilinum var. latiusculum	bracken
Puccinellia distans ssp. distans	alkali-grass
Pyrola americana	wild lily-of-the-valley
Pyrola elliptica	shinleaf
Quercus alba	white oak
Quercus coccinea	scarlet oak
Quercus palustris	pin oak
Quercus rubra	red oak
Ranunculus abortivus var. abortivus	kidney-leaf crowfoot
Ranunculus acris	common buttercup
Ranunculus hispidus var. caricetorum	swamp buttercup
Ranunculus recurvatus	hooked buttercup
Ranunculus repens	creeping buttercup
Raphanus raphanistrum	wild radish
Rhamnus cathartica	common buckthorn
Rhinanthus minor	yellow-rattle
Rhododendron prinophyllum	early azalea
Rhus hirta	staghorn sumac
Ribes cynosbati	dogberry
Ribes glandulosum	skunk currant
Ribes lacustre	bristly black currant
Ribes rubrum	northern red currant
Robinia pseudo-acacia	black locust
Robinia viscosa	clammy locust
Rorippa nasturtium-aquaticum	watercress
Rorippa palustris ssp. fernaldiana	marsh watercress
Rorippa sylvestris	creeping yellow-cress

SCIENTIFIC NAME	COMMON NAME
Rosa centifolia c.v. "Common Moss"	Moss rose
Rosa multiflora	multiflora rose
Rosa palustris	swamp rose
Rubus allegheniensis	northern blackberry
Rubus arundelanus	sand blackberry
Rubus canadensis	thornless blackberry
Rubus flagellaris	American dewberry
Rubus hispidus	swamp dewberry
Rubus idaeus ssp. strigosus	wild raspberry
Rubus occidentalis	black raspberry
Rubus pubescens	dwarf raspberry
Rubus setosus	bog blackberry
Rudbeckia hirta var. pulcherrima	black-eyed-Susan
Rumex acetosella	sheep sorrel
Rumex crispus	curly dock
Rumex obtusifolius	bitter-dock
Sagina procumbens	pearlwort
Sagittaria latifolia	wapato
Salix alba	white willow
Salix atrocinerea	ashy willow
Salix bebbiana	beaked willow
Salix discolor	pussy-willow
Salix eriocephala	stiff willow
Salix nigra	black willow
Salix pentandra	bay-leaf willow
Salix petiolaris	slender willow
Salix sericea	silky willow
Sambucus racemosa ssp. pubens	red elderberry
Sarracenia purpurea	pitcher-plant
Saxifraga pensylvanica	swamp saxifrage
Schizachne purpurascens	false melic
Schizachyrium scoparium ssp. scoparium	little blue-stem
Scirpus atrocinctus	northern bulrush
Scirpus atrovirens	bulrush
Scirpus cyperinus	woolgrass
Scirpus hattorianus	bulrush
Scirpus microcarpus	bulrush
Scirpus pedicellatus	bulrush
Scirpus tabernaemontani	soft-stem bulrush
Scutellaria galericulata	common skullcap
Scutellaria lateriflora	mad-dog skullcap
Sedum telephium	live-forever
Senecio aureus	golden ragwort
Setaria pumila	yellow foxtail

SCIENTIFIC NAME	COMMON NAME
Setaria viridis	green foxtail
Silene latifolia	white campion
Sisyrinchium angustifolium	blue-eyed grass
Sisyrinchium atlanticum	blue-eyed grass
Sisyrinchium montanum var. crebrum	blue-eyed grass
Sium suave	water-parsnip
Solanum dulcamara	trailing nightshade
Solidago bicolor	white goldenrod
Solidago canadensis var. canadensis	Canada goldenrod
Solidago gigantea	late goldenrod
Solidago juncea	early goldenrod
Solidago nemoralis	rough goldenrod
Solidago puberula	downy goldenrod
Solidago rugosa ssp. rugosa var. rugosa	tall hairy goldenrod
Sonchus asper	spiny sow-thistle
Sorbus americana	American mountain ash
Sparganium americanum	bur-reed
Sparganium angustifolium	bur-reed
Sparganium erectum	bur-reed
Sparganium eurycarpum	bur-reed
Spiraea alba var. latifolia	meadow-sweet
Spiraea tomentosa var. tomentosa	hardhack
Spiraea x vanhouttei	spiraea
Spiranthes cernua	nodding lady's-tresses
Spirodela polyrhiza	giant duckweed
Sporobolus vaginiflorus	poverty-grass
Stellaria graminea	common stitchwort
Stellaria media	common chickweed
Symphoricarpos albus var. laevigatus	snowberry
Syringa vulgaris	lilac
Tanacetum vulgare	tansy
Taraxacum officinale	common dandelion
Taxus canadensis	American yew
Thalictrum pubescens	tall meadow-rue
Thelypteris noveboracensis	New York fern
Thelypteris palustris var. pubescens	marsh fern
Thymus pulegioides	wild thyme
Tiarella cordifolia	foamflower

SCIENTIFIC NAME	COMMON NAME
Tilia americana var. americana	basswood
Torreyochloa pallida var. fernaldii	pale mannagrass
Toxicodendron rydbergii	giant poison ivy
Tragopogon pratensis	yellow goat's-beard
Triadenum virginicum	marsh St. John's wort
Trientalis borealis	starflower
Trifolium arvense	rabbit's-foot clover
Trifolium aureum	yellow clover
Trifolium campestre	hop-clover
Trifolium hybridum	alsike clover
Trifolium pratense	red clover
Trifolium repens	white clover
Trillium erectum var. erectum	purple trillium
Trillium undulatum	painted trillium
Tsuga canadensis	hemlock
Tussilago farfara	coltsfoot
Typha angustifolia	narrow-leaf cat-tail
Typha latifolia	common cat-tail
Typha x glauca	cat-tail
Ulmus americana	American elm
Utricularia gibba	cone-spur bladderwort
Utricularia macrorhiza	common bladderwort
Uvularia sessilifolia	wild-oats
Vaccinium angustifolium	lowbush blueberry
Vaccinium angustifolium x cory	Blueberry
Vaccinium corymbosum	highbush blueberry
Vaccinium myrtilloides	sour-top blueberry
Vallisneria americana	tapegrass
Veratrum viride	false or white hellebore
Verbascum thapsus	mullein
Verbena hastata	blue vervain
Veronica americana	American speedwell
Veronica arvensis	corn speedwell
Veronica longifolia	speedwell
Veronica officinalis	speedwell
Veronica peregrina ssp. peregrina	neckweed
Veronica scutellata	marsh speedwell
Veronica serpyllifolia ssp. serpyllifolia	thyme-leaf speedwell

SCIENTIFIC NAME	COMMON NAME
Viburnum acerifolium	maple-leaf viburnum
Viburnum dentatum var. lucidum	southern arrowwood
Viburnum lantanoides	hobblebush
Viburnum lentago	sheepberry
Viburnum nudum var. cassinoides	withe-rod
Vicia cracca ssp. cracca	cow-vetch
Vinca minor	common periwinkle
Viola blanda	sweet white violet
Viola canadensis	tall white violet
Viola conspersa	American dog-violet
Viola cucullata	blue marsh violet
Viola macloskeyi ssp. pallens	pale violet
Viola pubescens	yellow violet
Viola renifolia	northern white violet
Viola rotundifolia	round-leaf violet
Zizia aurea	Golden alexander

Sources:
Natural Heritage Program (2003)
Rensselaer Land Trust (1998)
David Hunt, PhD. Personal Observations

Animal Species Found in Grafton Lakes State Park

Explanation of letters in parenthesis. (e) – Endangered, (t) – Threatened (s) – Species of special concern. All three as defined in 6NYCRR Part 182.

Amphibian & Reptile Species:

Eastern American Toad

Bullfrog
Gray Treefrog
Green Frog
Northern Leopard Frog
Pickerel Frog
Northern Spring Peeper
Wood Frog

Northern Dusky Salamander
Northern Red-Backed Salamander
Red-Spotted Newt
Spotted Salamander
Two-lined Salamander

Common Snapping Turtle
Eastern Box Turtle (s)
Painted Turtle
Wood Turtle (s)

Common Garter Snake
Northern Brown Snake
Northern Red-Bellied Snake
Northern Ring-Necked Snake
Smooth Green Snake
Eastern Milk Snake

Source: New York State Reptile and Amphibian Atlas Project (1990-1999)

Fish Species:

Alewife
Black Crappie
Bluegill
Bluntnose Minnows
Brown Bullhead
Brown Trout
Chain Pickerel
Creek Chub
Fallfish
Golden Shiner
Largemouth Bass
Pumpkinseed
Rainbow Trout
Redbreast Sunfish
Rock Bass
Smallmouth Bass
Tessellated Darter
Walleye
White Sucker
Yellow Perch

Source: DEC Fisheries Surveys (1990-2007)

Mammals:

American Mink
Beaver
Black Bear
Coyote
White footed Mouse
Eastern Chipmunk
Eastern Cottontail
Fisher
Grey Fox
Gray Squirrel
Red Squirrel
Meadow Vole
Moose
Muskrat
North American Porcupine
Northern Raccoon
Red Fox
River Otter
White-tailed Deer
Striped Skunk
Woodchuck

Source: Staff of Grafton Lakes State Park Observations (Animals or Sign)

Bird Species:

Acadian flycatcher
Alder flycatcher
American bittern (s)
American black duck
American coot
American crow
American goldfinch
American kestrel
American pipit
American redstart
American robin
American tree sparrow
American wigeon
American woodcock
Bald eagle (t)
Baltimore oriole
Bank swallow
Barn swallow
Barred owl
Bay-breasterd warbler
Belted kingfisher
Bicknell's thrush
Black and white warbler
Black-bellied plover
Black-billed cuckoo
Blackburnian warbler
Black-capped chickadee
Blackpoll warbler
Black-throated blue warbler
Black-throated green warbler
Blue jay
Blue-gray gnatcatcher
Blue headed vireo
Blue-winged teal
Blue-winged warbler
Baltimore oriole
Boblink
Bohemian waxwing
Bonaparte's gull
Boreal chickadee
Broad-winged hawk
Brown creeper
Brown thrasher
Brown-headed cowbird
Bufflehead
Canada goose
Canada warbler

Cap may warbler
Carolina wren
Cedar waxwing
Chestunt-sided warbler
Chimney swift
Chipping sparrow
Cliff swallow
Common goldeneye
Common grackle
Common loon
Common merganser
Common nighthawk (s)
Common raven
Common redpoll
Common snipe
Common yellowthroat
Connecticut warbler
Cooper's hawk (s)
Dak-eyed junco
Double-crested cormorant
Downy woodpecker
Easstern bluebird
Eastern kiingbird
Eastern meadowlark
Eastern phoebe
Eastern screech owl
Eastern towhee
Eastern wood-pewee
European starling
Evening grosbeak
Field sparrow
Fox sparrow
Gadwall
Golden eagle (e)
Golden-crowned kinglet
Gray catbird
Gray-cheeked thrush
Great black-backed gull
Great blue heron
Great crested flycatcher
Great egret
Great horned owl
Greater scaup
Greater yellowlegs
Green heron
Green-winged teal
Hairy woodpecker
Hermit thrush
Herring gull
Hooded merganser
Horned grebe
Horned lark (s)
House finch
House sparrow
House wren
Indigo bunting
Killdeer
Least flycatcher
Least sandpiper
Lesser scaup
Lesser yellowlegs
Lincoln's sparrow
Louisiana waterthrush
Magnolia warbler
Mallard
Merlin
Mourning dove
Mourning warbler
Mute swan
Nashville warbler
Nnorthern flicker
Norhtern parula
Norhtern saw-whet owl
Northern cardinal
Northern goshawk (s)
Northern harrier (t)
Northern mockingbird
Northern pintail
Northern rough-winged swallow
Northern shrike
Northern waterthrush
Olive-sided flycatcher
Osprey (s)
Ovenbird
Palm warbler
Pectoral sandpiper
Peregrine falcon (e)
Philidelphia vireo
Pied-billed grebe (t)
Pileated woodpecker
Pine grosbeak
Pine siskin
Pine warbler
Prairie warbler
Purple finch
Red crossbill

Red-bellied woodpecker
Red-breasted nuthatch
Red-eyed vireo
Red-shouldered hawk (s)
Red-tailed hawk
Red-winged blackbird
Ring-billed gull
Ring-necked duck
Rock dove
Rose-breasted grosbeak
Ruby-crowned kinglet
Ruby-throated hummingbird
Ruffed grouse
Rusty blackbird
Savannah sparrow
Scarlet tanager
Semipalmated sandpiper
Sharp-shinned hawk (s)
Snow bunting
Snow goose
Solitary sandpiper
Solitary vireo
Song sparrow
Spotted sandpiper
Swainson's thrush
Swamp sparrow
Tennessee warbler
Tree swallow
Tufted titmouse
Turkey vulture
Veery
Virginia rail
Warbling vireo
Whip-poor-will (s)
White-breasted nuthatch
White-crowned sparrow
White-throated sparrow
Wild turkey
Willow flycatcher
Wilson's warbler
Winter wren
Wite-winged crossbill
Wood duck
Wood thrush
Yellow warbler
Yellow-bellied flycatcher
Yellow-bellied sapsucker
Yellow-billed cuckoo
Yellow-rumped warbler

Sources: Breeding Bird Atlas (2005)

Grafton Lakes State Park Checklist of Birds (1997)

Staff of Grafton Lakes State Park Observations

E. Appendix E – Grafton Lakes State Park Infrastructure

Table 1 Grafton Lakes State Park Building Information

Building	Year Built	Bldg. Sq. Ft.
Barn	Unk.	1269
South Comfort Station	1969	717
Contact Station	1969	668
Concession Building	1969	1710
Garage-Long Pond Rd	Unk.	480
Mens Locker Room	1969	754
Dunham Dam Gate House	1911	100
Lifeguard Office	1969	884
Agan Rd House (Nature Center)	Unk.	740
Rabbit Run Picnic Shelter	1974	1472
Pump House		63
Sewage Treatment Plant	1969	168
Steel Storage Building	Unk.	2730
Park Managers Residence	Unk.	1994
Womens Locker Room	1969	1080
Deerfield Comfort Station	1974	693
Park Office	Unk.	2296
Long Pond Rd House (Stone House)	Unk.	2400
North Comfort Station	1969	717
Womens Restroom (Beach)	1969	940
Mens Restroom (Beach)	1969	940
Maintenance Building	1974	3577
Water Treatment Plant		140
Boat Rental Building		133
Garage-Long Pond Rd	Unk.	400
Amphitheater		320
Picnic Pavilion (Deerfield)	1974	1472
Composting Toilet Bldg	2002	100

Beach Nature Center: Located between the main parking area and swimming beach. Open from Memorial Day through Labor Day providing hands on activities and nature teachings by the Park Naturalist. This building does not have a public bathroom but there is a staff bathroom. The center is handicapped accessible.

Beach First Aid Station: Attached to the Beach Nature Center this building is where the lifeguard first aiders keep all daily logs and assist patrons when dealing with injuries. This building is open

when the beach is open from 10am to 6pm Friday through Tuesday from Memorial Day until Labor Day.

Stone House: Grafton Trail Blazers have a lease agreement with the state park under which they have rehabilitated this former residence into a clubhouse for their snowmobile group. It is available during the winter months as a warming hut to the general public or fellow clubs by contacting the Grafton Trailblazers.

Shaver Nature Center: Meeting space located on Shaver Pond Road that includes a kitchen area, bathroom facility for meetings up to 30 people in size. The building and grounds are handicapped accessible. Spacious lawn and front and back decks allow for smaller groups to have a casual setting. This building has two parking lots and direct access to the popular Shaver Pond Nature Trail. Reservations are required and can be obtained by calling the park office.

Concession: A private concessionaire provides a variety of foods during the on season from Memorial Day through Labor Day. There are no set hours, but usually open daily from 10am to 6pm. The concession building is handicapped accessible and has outdoor, umbrella covered tables, bathrooms are located close by in the bath houses.

Main Area Bath Houses: Showers and changing rooms with lockers are available for park patrons in the bathroom facilities located at the main beach. This facility is open from Memorial Day through Labor Day seven days a week and is handicapped accessible.

Park Office: Located off of the main park road where staff is available with trail maps and park information to answer any questions park patrons may have. All permits including hunting, shelter and tent, fishing, alcohol, and recreation bags are available at the office. During the winter months snowshoe rentals are available as well. A bathroom facility is located in this building that is open to the public year round and handicapped accessible. Regular Park Office Hours are 8am – 4:30pm seven days a week.

Composting toilets: A composting toilet is available throughout the year in the parking area at the end of Long Pond Rd. A composting toilet in the main parking lot is available only during winter months. The electricity demand on these facilities is met by solar panels.

Maintenance Shop: This building is used year round by the park maintenance crew. A wood burning boiler heats the shop and there is electricity in the building. There are four bays one includes the carpentry shop and the other side contains the mechanic's lifts and equipment. The building also contains a staff bathroom and small break room. The maintenance shop is only accessible to the general public during the annual Winter Festival in January.

Old Maintenance Shop: Large open space where the electric vehicles, cleaning equipment and large program displays are stored. It is only accessible to park staff. The building is not heated, there is electric for lighting.

Park Police Building: This is the newest facility on the property where zone B park police are stationed. The park police patrol all of the Rensselaer County state parks. This building has holding areas, male and female changing rooms and bathrooms, as well as office space for sergeants and officers. This building also contains one bathroom for the general public. Park patrons can go to the station and access exterior areas and discuss concerns through the window but are not allowed in the main station. There are no set hours or operation dates for the station.

Pole Barn: This building is only open to the general public once a year during the annual Winter Festival event. The rest of the time this building is used for storing equipment and as a maintenance work space. There is electric but no heat in this building.

Lumber Barn: This building is used for storing park lumber for projects and equipment that is being used for the current season. There is no heat in this building and is not open to the public.

Utilities

Telephone and Internet

- **Verizon, Albany, NY**

Electricity

- **National Grid, Buffalo, NY**

Petroleum Products and Storage

- **Unleaded Gasoline, Kerosene and Fuel Oil - Main-Care Energy, Albany, NY**
- **Diesel Fuel - Warex Terminals Corporation, Newburgh, NY**

Table 2 Petroleum Bulk Storage Inventory at Grafton Lakes State Park.

Tank #	Size(gal)	Product Stored
1	2500	Unleaded gasoline
2	250	Diesel
3	275	#2 Fuel Oil
4	300	Kerosene
5	1000	#2 Fuel Oil
6	275	#2 Fuel Oil
7	250	#2 Fuel Oil

Renewable Energy Systems

- 3 kW grid-tied photovoltaic system mounted on roof of Park Police Substation
- Exterior wood boiler at Maintenance Shop
- Wood stove at Park Police Substation
- Wood stove at Park Manager's Residence

Roads and Bridges

- Entrance Road: Asphalt, 1.56 miles
- Long Pond Road is maintained by the Town of Grafton

- There are no road bridges within the Park.

Parking Areas

- **Beach:** Asphalt surface in good condition. 555 standard spaces, 20 ADA spaces.
- **Rabbit Run**: Asphalt surface in fair condition. 90 standard spaces.
- **Deerfield**: Asphalt surface in fair condition. 90 standard spaces, 5 ADA spaces.
- **Mill Pond:** Gravel parking area, no formal delineation of spaces.
- **Second Pond Boat Launch:** Gravel parking area, no formal delineation of spaces.
- **Long Pond Boat Launch:** Gravel parking area, no formal delineation of spaces.
- **Shaver Pond Nature Center:** Gravel parking area, no formal delineation of spaces.
- **White Lily Pond:** Gravel parking area, no formal delineation of spaces.
- **Maintenance Area / Park Office:** Gravel parking areas, no formal delineation of spaces.
- **Minor trailheads:** Dunham Reservoir South, Dunham Reservoir North, Gartler Trailhead, Shaver Pond Fishing Access.

Dams and Culverts

Table 3 Long Pond Dam

Dam ID						
	Dam Name:	Long Pond Dam		State ID:	243-1447	
	Facility:	Grafton Lakes		Federal ID:	NY00908	
	County:	Rensselaer		Hazard Class:	C-High	
Dam Characteristics						
	River or Stream:	Tr-Quacken Kill		Dam Length:	250'	
	Dam Type:	Earth		Dam Height:	13.9'	
	Year Constructed:	1918		Structural Height:	11.1'	
	Year Modified:	2002		Hydraulic Height:	8'	
	Spillway Type:	Riprap		Spillway Width:	11'	
Hydraulics						
	Surface Area:	122	acres	Drainage Area:	0.8	sq miles
	Normal Storage:	2200	acre-ft	Max Storage:		
	Max Discharge:	585	cfs			

Table 4 Second Pond Dam

Dam ID					
	Dam Name:	Second Pond Dam	State ID:	243-1444	
	Facility:	Grafton Lakes	Federal ID:	NY01313	
	County:	Rensselaer	Hazard Class:	C-High	

Dam Characteristics						
	River or Stream:	Tr-Quacken Kill		Dam Length:	260'	
	Dam Type:	Earth		Dam Height:	10'	
	Year Constructed:	1910's		Structural Height:	9.8'	
	Year Modified:	1979		Hydraulic Height:	7.3'	
	Spillway Type:	Drop Inlet		Spillway Width:	3'	
Hydraulics						
	Surface Area:	31	acres	Drainage Area:	1.2	sq miles
	Normal Storage:	415	acre-ft	Max Storage:	415	acre-ft
	Max Discharge:	1325	cfs			

Table 5 Mill Pond Dam

Dam ID						
	Dam Name:	Mill Pond Dam		State ID:	243-1442	
	Facility:	Grafton Lakes		Federal ID:	NY00906	
	County:	Rensselaer		Hazard Class:	C-High	
Dam Characteristics						
	River or Stream:	Tr-Quacken Kill		Dam Length:	150'	
	Dam Type:	Earth		Dam Height:	10.8'	
	Year Constructed:	1918		Structural Height:	9.5'	
	Year Modified:			Hydraulic Height:	6.6'	
	Spillway Type:	Concrete		Spillway Width:	10'	
Hydraulics						
	Surface Area:	18	acres	Drainage Area:	1.4	sq miles
	Normal Storage:	173	acre-ft	Max Storage:	173	acre-ft
	Max Discharge:	1637	cfs			

Table 6 Dunham Reservoir Dam

Dam ID						
	Dam Name:	Martin Dunham Reservoir Dam		State ID:	243-1430	
	Facility:	Grafton Lakes		Federal ID:	NY00672	
	County:	Rensselaer		Hazard Class:	C-High	
Dam Characteristics						
	River or Stream:	Quacken Kill		Dam Length:	640'	
	Dam Type:	Earth		Dam Height:	52.4'	
	Year	1913		Structural	50.2'	

	Constructed:			Height:		
	Year Modified:			Hydraulic Height:	45'	
	Spillway Type:	Concrete		Spillway Width:	100'	
Hydraulics						
	Surface Area:	91	acres	Drainage Area:	9.95	sq miles
	Normal Storage:	4084	acre-ft	Max Storage:	4500	acre-ft
	Max Discharge:	23248	cfs			

F. Grafton Area Camping Facilities Report

Prepared for Office of Parks, Recreation and Historic Preservation (OPRHP), Planning Unit by Salim Chishti, Park Planner
June, 2011

Introduction

An informal statistical analysis was conducted by OPRHP planning staff to determine the existence of campgrounds in the Grafton Lakes State Park vicinity. An area with a 30 mile radius around the park was chosen as the study area.
In addition, information about campground amenities, types of camping and other information about these facilities was also collected where available. .
The relative index of need (RIN) for camping activities in the park's service area, defined as Albany and Rensselaer Counties, is at or above the state average(OPRHP, 2009). This indicates that the population most served by the park desire and/or take part in camping as an activity.
Although this effort reports only on the camping facilities within 30 miles of the park, it is known, through zip code survey and other on site means, that some of the park users come from further than 30 miles. Those users would have access to campgrounds between the park and their point of origin which we have not surveyed. In addition, potential park users from local origin may elect to travel outside the 30 miles radius of this study to access campgrounds in other areas.

Methods

Internet search and Recreation Facilities Inventory.

Findings

Number of camping facilities.

A total of 24 campgrounds were found within 30 miles of Grafton Lakes State Park. No distinction was made between private or commercial, state or national camp grounds. Table 1 shows the distribution of these facilities in miles from the park.

Table 7

Distance from the Park in miles	Number of Campgrounds
0 – 5	0
5 – 10	2
10 – 15	5
15 – 20	4
20 - 30	13

These findings show that 17 of the 24 campgrounds (over 70%) are further than 15 miles from the park.

Number of camp sites and cabins.

Of those facilities where the information is available there are approximately 1100 camp sites and 11 cabins at campgrounds within 30 miles of the park. Table 2 shows the geographic distribution of those known campsites and cabins.

Table 8

Distance from the Park in miles	Number of	
	Sites	Cabins
0-5	0	0
5-10	227	0
10-15	60	1
15-20	45	0
20-30	772	10
Total	1104	11

These results are similar to the number of campgrounds. Most of the camp sites (817 of the total 1104, or almost 75%) are 15 miles or more from the park. The cabin distribution is more striking in that 10 of the 11 cabins counted (a little over 90%) are over 20 miles from the park.

Some campsites in the Green Mountains National Forest of Vermont and Mount Greylock State Reservation in Massachusetts are backpack campsites with no or few amenities. Those camp sites are more than 20 miles from Grafton Lakes State Park.

Types of Campsites:

All of the campgrounds, except for the backpack only facilities provide campsites suitable for a range of camping experiences from tent camping to large recreational vehicles (RVs). No accurate numbers were available at the time of this writing and so a quantitative analysis of the types of campsites was not done. From the narrative descriptions of the facilities, however, it can be deduced that RV camping was the major market segment that was being sought. Campgrounds with large pull through camp sites prominently displayed that fact on their websites and advertising. If tent camping was supplied, it was often listed as an afterthought or “also available”. The amenities provided (see below) were also geared toward an RV camping experience.

Cabins and Seasonal Camping.

Cabin rentals are a growing trend in the campgrounds analyzed. Most of them either have already added cabins (some very recently) or have plans to do so. Cabin amenities that are available include microwaves, linen service, kitchen and dining service. Some also have private bathrooms and TV with cable service. Cabins generally sleep 4-6 people. In many cases trailers or RVs are also available for rental at the campground.

Some cabins are in the more primitive range, better classified as a “lean-to” with no amenities.

Another trend which seems to be growing in popularity among the campgrounds that were analyzed is seasonal rental. In this type of situation the site is rented for an entire season (e.g. Memorial Day to Labor Day) at a reduced rate. The renter is free to come and go as they please. The popularity of this among trailered RV users is mostly due to the elimination of constant hook-up and disconnects which is necessary when moving from site to site or leaving and coming back for weekend use only. Most campgrounds will also let seasonal campers “personalize” the site by adding flowers, decorations, gazebos and etc.

Campground amenities.

Below is a list of common amenities and services the campgrounds studied provide for the comfort and convenience of their customers.

- Water and electric is provided at least to some of the sites in all but the backpack campgrounds.
- All campgrounds provide swimming in either a pool or natural water feature or both. In two cases the swimming is off site but within walking distance.
- Six of the campgrounds have on-site laundry facilities
- Nine provide Wi-Fi, some for free and some for a fee. Some only cover the area around the office or camp store and others cover the entire campground
- Three campgrounds provide cable TV hookups at some of their sites.

Conclusions

The lack of campgrounds within 20 miles of the park, combined with an RIN of 5 may be good indicators that Grafton Lakes State Park is a logical location for new camping facilities. This conclusion is based on the findings that over 70% of the known campgrounds within a 30 mile radius are more than 15 miles away from the park.

Trends in commercial campgrounds are moving towards providing recreational vehicle camping experiences and associated amenities. Although these areas do not preclude tent camping or small trailers (pop-up style), there is a certain ambience associated with large RVs which may not necessarily be attractive to tent and pop-up camping patrons. A new campground in Grafton Lakes State Park could be designed for and marketed to tent/pop-up trailer camping, taking advantage of the lack of this type of site in the immediate area. Use of large RVs would not necessarily be prohibited but simply, site size and design would not be attractive to them.

A campground at the park designed for tents and pop-up trailers would not necessarily need to provide every amenity that is provided at commercial campgrounds. Facilities such as Wi-Fi, laundry, camp store, entertainment and etc. could be provided by entrepreneurs in the hamlet of Grafton or close by in Petersburg or Brunswick. The existing day use activities (swimming, hiking, biking and picnicking) and environmental education programming at the park would also be available to campers. Standard campground amenities such as shower buildings, and potable water supplies would be included. Some camping loops or a select number of sites may be designed to provide electric service.