

Appendix B – Green Lakes State Park Trails Plan

Final Trails Plan

for

Green Lakes State Park

March 23, 2011



**New York State Office of Parks, Recreation
and Historic Preservation**

Prepared in conjunction with the Final Master Plan/Final Environmental Impact
Statement for Green Lakes State Park 2011

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Rose Harvey
Commissioner

Andy Beers
Executive Deputy Commissioner

Tom Alworth
Deputy Commissioner for Natural Resources

Robert Hiltbrand
Regional Director, Central Region

Master Plan Core Team and Trails Plan Committee Members

Central Region Staff

Tom Hughes, Natural Resource Steward (Biologist)

Don Peters – Landscape Architect

Jim Semar – Park Manager

Wendy VanDerBogart – Landscape Architect

Chris Williams – Assistant Park Manager (former)

Albany Staff

Mark Hohengasser, Park Planner

Thomas Lyons, Director of Resource Management

Robert Reinhardt, Director of Planning (retired)

Nancy Stoner, Trails Planner

Janet Zuckerman, Assoc. Environmental Analyst

Other OPRHP Staff Contributors

Charles Barthe, Senior Drafting Technician (retired)

Diana Carter, Associate Natural Resource Planner

Nathan Krish, Park and Recreation Aide

Julie Lundgren, Natural Heritage Ecologist

Richard Riesdorph - Capital Facilities Manager

Kimberly Smith, Natural Heritage Botanist

TABLE OF CONTENTS

I.Introduction	1
II.Existing Trail System	3
III.Trail System Alternatives	8
IV.Final Trails Plan.....	19
A. Trail System	19
1. Trails	19
2. External Connection.....	20
B. Interpretation and Education.....	21
C. Support Facilities	22
D. Coordination and Partnerships.....	23
E. Park Rules	23
F. Special Events – Permits.....	24
G. Enforcement.....	24
H. Implementation	24
I. Monitoring and Future Development	30
1. Monitoring Program.....	30
2. Future Trails Development	30
J. Environmental Review	31
V. Bibliography.....	32

Appendix 1 Trail Standards and Guidelines

List of Tables

Table 1: Mileage by trail use for the Existing Trail System	19
Table 2: Mileage by trail use for the Trails Plan	19
Table 3: Trail names, mileage and use in Trails Plan	20
Table 4: Parking Capacity at Green Lakes State Park	23
Table 5: Implementation Steps for Trails	26
Table 6: Implementation steps for Connectors	29

List of Figures

Figure 1	Existing Trail System
Figure 2	Winter Ski Trails
Figure 3	Trail Assessment
Figure 4	Western Trails
Figure 5	Green Lake Area
Figure 6	Mid-Park Area
Figure 7	Southern Trails
Figure 8	Final Trails Plan – Short Term
Figure 9	Final Trails Plan – Long Term
Figure 10	Final Trails Plan - Winter Trails

I. Introduction

Green Lakes State Park is an approximately 1,774 acre park located in the Town of Manlius in Onondaga County, NY. The Park is located approximately 5 miles east of Syracuse making it a highly visited park in the region. It is noted for its recreational, cultural and natural resources, most significantly Green and Round Lakes, two of only eleven known meromictic lakes in the United States. Round Lake has also been designated as a National Natural Landmark.

Green Lakes State Park contains nine distinct ecological community types and two significant natural communities including the meromictic lakes and 140 acres of old growth forest. Green Lakes State Park also contains the largest grassland habitat within the New York State Park system at 300 acres. The park supports a rich and diverse plant community and supports a number of common mammal species as well as a large variety of bird species. The park boasts a rich cultural history, including rock formations that may have been used by Native Americans settled in the area, as well as a variety of scenic viewpoints of both interior landscapes (the lakes) and exterior landscapes (surrounding valleys).

Green Lakes State Park offers a multitude of recreational opportunities including camping, boating, swimming, fishing, golfing, disk-golfing, and trail-related activities. There are 17 miles of trails in the park from 8-10 foot wide trails surrounding both Green and Round Lakes, to trails winding through the forested areas including some old growth forests and 8 foot wide mowed trails through old agricultural fields in the western half of the park. Trail uses permitted in the park include hiking, biking, cross-country skiing and snowshoeing. Some trails are designated for hiking only, including the two lake trails, while some trails are designated as multi-use (hiking and biking). There is no motorized trail use in the park. Most trails are used by runners (*classified under hiking as the trail use for the purposes of this plan and maps*) with the lake trails receiving the highest use. Cross-country skiing is allowed on most trails in the park while snowshoeing is allowed on all trails. The trail system is also used for education and interpretation, nature enjoyment, bird-watching, as well as there are connectors for pedestrian access between the campgrounds, the beach, the lakes and picnic pavilions.

In May 1998, the Green Lakes State Park administration produced the *Management Plan for a Pilot Multiple Use Trail Program at Green Lakes State Park*. A 1994 Regional Order restricted biking to paved trails and roadways on the park land due to unacceptable social and environmental impacts caused by bicyclists on the lake trails. The Management Plan was developed in response to growing public concern about availability of off road biking opportunities in the park. The purpose of the Management Plan was to document objectives for management, implementation, monitoring and evaluation of biking as a recreational use on select trails in the park over a two year period. In a follow up report in December 1999, *Ecological Communities at Twelve Monitoring Points for Pilot Multiple Use Trail Program*, after a year of biking use on the selected trails, there were found to be no noted impacts caused by the addition of biking

as a recreational use on the trails. There has been no additional monitoring since that time and biking continues to be an allowed use on the selected trails.

As part of the master planning process, it was identified that the high use of the trail system and the diversity and sensitivity of the natural resources in the park warranted development of a trails plan in conjunction with the master plan. With the extensive use of the trail system, changing environmental conditions, and additional information on ecological communities in the park, this trails plan provides direction and guidance for staff to use in the development, management and maintenance of a sustainable multi-use trail system. The trail system is designed to meet the needs of the users while protecting the resources and integrity of the park.

Providing recreational opportunities compatible with the character of the Park and its resources and complimentary to the opportunities provided within the surrounding area is a goal identified in the master plan. Public comments regarding trails and recreation in the park were received at a public information meeting held in July 2009 as well as during the public comment period as part of the master planning process. These comments have helped to guide the development of this trails plan.

This trails plan is provided as a supporting document to the park master plan. The trails plan describes the existing trail system based on inventory and assessments, provides general trail maintenance recommendations and proposes some modifications and improvements to the existing system. The plan also describes interpretive programs offered at the park, as well as, future opportunities and coordination efforts with user groups for the development and maintenance of the trail system. Sections on trail standards and an evaluation, assessment and monitoring process to be used in trail development and trail modifications are also included.

II. Existing Trail System

The existing trail system consists of 17 miles of designated trails throughout the park. Figure 1 – Existing Trail System depicts the location of the trails along with their allowed uses (hiking and biking). This network of trails provides opportunities for recreation, nature viewing, physical fitness, education, and interpretation. The trail system provides access to the many areas of scenic, historic, cultural and natural significance in the park, as well as, provides connections between the high use areas (campgrounds, lakes, beach, and picnic pavilions). There are a number of undesignated trails (social trails) that have been identified in the park and these are shown on Figure 1 as well.

There are 17 miles of winter ski trails at Green Lakes State Park. Figure 2 – Winter Ski Trails shows the designated ski trails throughout the park. These trails are not groomed. Most of the trails are designated one-way to minimize conflicts between users. Snowshoeing is allowed on all trails throughout the park although snowshoers are asked to stay off of the ski trail tracks. The campground loop road is closed to public vehicular traffic in the winter but is plowed by park staff to provide a trail for walkers. The park road east of the lakes along the golf course is closed to public vehicular traffic during winter months but is used by park vehicles; it is not maintained for walkers.

The area surrounding Green Lake is the highest use area in the park due to the location of the beach, numerous parking lots, concessions, bathhouse and the trails surrounding the meromictic lake. Two camping areas and seven cabins are located due west of the lakes and also provide access into the trail system at multiple entry points. A small Nature Center is located in the Pine Woods Camping Area and is open seasonally. Trails are used for staff-guided interpretive and educational hikes highlighting the natural resources of the park.

All designated trails in the park are marked with color markers. Trails are currently maintained by park staff. The two lake trails require the most intensive maintenance due to the high visitor use and storm water which flows down the side slopes above the trails causing persistent wet areas and erosion. The approximately 8 foot wide mowed trails mostly located in the western half of the park are mowed every 3-5 weeks dependent on weather conditions. Other trails in the park include 6 foot wide trails to single track trails (generally 18-30 inch tread width for hiking and biking trails).

The Green Lakes State Park trail system provides an external connection to the Old Erie Canal State Park trail via a crossing of Route 290 next to the main park entrance. There are additional access points to the park's trail system from surrounding neighborhoods. Currently in some cases, park staff maintain the connections to surrounding neighborhoods, while in other cases, residents informally keep the connections cleared.

Inventory and Assessment

The following inventory list provides the mileage, marker color, allowed uses, and a conditions assessment for each of the designated trails in the park. The assessment information is based on trail condition assessments performed by OPRHP staff utilizing GPS units to identify locations of trail tread issues, such as, erosion and wet areas and staff knowledge. Assessments were conducted during August 2009 and represent conditions found along the trails at that point in time (see Figure 3 – Trail Assessment Summary). It should be noted that some erosion assessment points in the western portion of the park were areas where trail use had worn a path through the grass layer; these locations are not necessarily considered an erosion issue. Both designated and undesignated trails were assessed during this process. Trail intersections are generally poorly signed. Trailhead and directional trail signage is generally lacking throughout the park as well.

Staff knowledge and these condition assessments were used to develop the maintenance recommendations provided in Chapter IV. H. – Implementation for each trail. More in depth analysis of major trail issues and the trail system as a whole is provided in Chapter III – Trail System Alternatives.

Trail Name	Mileage	Blazing	Allowed Uses	Assessment
Brookside (BS)	0.90	Blue	Hiking	• The northern section runs down the fall line along the edge of a stream to connect to the Round Lake Trail; this section is eroding with shallow gullies currently existing. Due to topography, an alternate alignment is not feasible. • The mid section of the trail has numerous muddy spots along the trail tread. • The southern third of the trail due to its location through a peat/swamp wetland is persistently muddy. Corduroy (series of logs laid perpendicular to the trail tread) has been placed along some muddy sections but is no longer an effective treadway. (Corduroy is generally considered a short term solution to dealing with muddy trail sections.) Trail widening and social trails have developed on the side slope up hill over time as users bypass the muddy areas. • Although this trail is currently not open to biking, there were signs of bike use in the muddy areas.
Deer Run (DR)	2.12	Yellow	Hiking, Biking	• This trail has a number of sections located along fall lines (perpendicular to the contours); there are some mildly eroded sections of trail with a couple of deep gullies formed as well.
Farmers Hill (FH)	1.37	Blue	Hiking, Biking	• A narrow dirt path runs through the grass in many areas due to tread wear. There are a few areas of mild erosion along this trail.
Golf Course Connector (GC)	0.18	White	Hiking	• Trail is lacking a sign at the trailhead along the park road. • There is no designated parking area at the trailhead. • There is mild erosion along one short section of this trail.
Green Lake (GL)	1.88	Blue	Hiking	• Many locations along this trail have erosion occurring across the trail tread and along the shoreline due to water run off from the side hills. • A number of muddy spots were located along the trail tread. • Many social trails lead from this trail up the side hills to picnic,

Green Lakes State Park Trails Plan

Trail Name	Mileage	Blazing	Allowed Uses	Assessment
				parking and camping areas; continued use of these trails is leading to disturbance of soil and vegetation and causes erosion and destabilization of the side hills and may potentially impact the lake. • On the east side, a ravine with social trails located between the Green Lake Trail and the park service road near the Tulip Hill parking area has become extremely eroded with deep gullies; a large culvert funnels storm water down the ravine; some check dams have been installed but are largely ineffective. • On the west side, there is an area of severe erosion across the trail tread and along the shoreline due to storm water run off; there is a metal hand railing and orange safety flagging currently in place to alert users to the unstable trail surface and safety concern. The footers for the fence posts are exposed due to the erosion taking place. This is the only section of this trail that doesn't meet federal accessibility guidelines due to trail grade. • This trail experiences a very high volume of foot traffic (hikers, runners) due to its proximity to the lake, beach, main parking areas and other facilities and its wide flat treadway. The trail tread (crushed stone dust) requires on-going maintenance and resurfacing every couple of years. Trail users also cause erosion along the shoreline in many places as they access the lake for fishing or explore closer to the lake edge. Dead Man's Point is a prime example of this user/shoreline effect. In addition, storm water runoff, both naturally occurring and that funneled by culvert systems, is causing erosion on many trails around or near the lakes.
Hernia Hill Bypass (HH)	0.23	White	Hiking	• The western portion of the trail has a steep sloped section with erosion occurring; this section follows the fall line. • The eastern portion of this trail is gentler sloped and in good condition.
Lake Connector (LC)	0.15	White	Hiking	• Shallow gullies are located along the trail tread caused from water running down the North Connector Trail on to this trail.
North Connector (NC)	0.16	Yellow	Hiking	• Trail appears in good condition.
Old Growth (OG)	2.66	Orange	Hiking; Biking (portion)	• This trail has a number of sections of fall line trail where there are signs of erosion including gullies in the trail tread. • There are a number of muddy trail sections as well. • A short eastern section of this trail co-aligns with the golf course maintenance facility road which is generally unappealing as a trail experience with the road surface and visibility of construction material/debris along the road and the maintenance buildings. • Trail signs are missing at some trail intersections. • Trampling and cutting of vegetation have been noted along the trail corridor on occasion.
Overlook (OL)	1.03	Red	Hiking, Biking	• A narrow dirt path runs down the center of this mowed grass trail in many areas due to tread wear. There are a few locations noted with erosion.
Powerline (PL)	1.02	White	Hiking, Biking (portion)	• The eastern trailhead along the park road is a grassy opening with a No Parking sign and a large electric box. • There are many shallow gullies along this trail due to erosion; the east-west section that runs under the Powerline is a fall line trail and is steep and gullied. At the 90 degree turn in the trail, there is a

Green Lakes State Park Trails Plan

Trail Name	Mileage	Blazing	Allowed Uses	Assessment
				severe washout of the trail tread that continues as a deep gully north for over 50 ft. The western half of the trail that runs along the Powerline corridor (location of Hernia Hill) is very steep and has gullies forming down the center of parts of the trail; it is generally located along the fall line.
Rolling Hills (RH)	1.62	Yellow	Hiking, Biking	- Most of the eastern mowed portion of the trail has a narrow dirt path running through the grass due to tread wear; this portion is mostly located along the fall line up the main hill and has many areas and longer stretches of erosion. - The mid-portion of this trail near the campground also has numerous instances of erosion and a few areas of muddiness. - The western portion, located closer to the top of the hill, has many areas of muddiness. - Blazing was found to be insufficient in a couple of locations along this trail. - This trail provides the most direct access from the park office and the main parking areas to the trail system in the western half of the park; it is the only trail that allows biking to make this connection (the Old Growth Trail is designated for hiking only).
Rolling Hills Connector (RC)	0.17	Yellow	Hiking, Biking	Trail is in good condition.
Round Lake (RL)	0.92	Red	Hiking	- Numerous locations along this trail have erosion occurring across the trail tread and along the shoreline due to water run off from the side hills. - Many social trails lead from this trail up the side hills to the camping areas leading to disturbance of the vegetation and erosion of the slopes. There is currently no direct trail connection between the Rolling Hills Camping Area and Round Lake. In addition, there is little signage directing visitors to appropriate trail connections. - Appropriate blazing or signage is missing at a couple of trail intersections. - This trail experiences a high volume of foot traffic (hikers, runners), although not as much as the Green Lake Trail, due to its proximity to the lake, beach, main parking areas and other facilities and its wide flat treadway. The trail tread (wood chips) requires on-going maintenance and resurfacing. Trail users also cause erosion along the shoreline in many places as they explore closer to the lake edge and may trample vegetation. In addition, storm water runoff, both naturally occurring and that funneled by culvert systems, is causing erosion on many trails around or near the lakes.
South Connector (SC)	0.14	Yellow	Hiking	The trail is in good condition. Erosion was noted in one location across the trail tread due to water run off from the side hill.
Vista (VA)	1.36	Green	Hiking, Biking	- This mowed path running mostly along the hill top has a few areas of mild erosion. - A narrow dirt path runs through the grass in the center of the tread in many areas due to tread wear. - The western portion of the trail dips down into a ravine with steep eroded sections on both sides and muddy trail at the bottom of the ravine area.

Green Lakes State Park Trails Plan

Trail Name	Mileage	Blazing	Allowed Uses	Assessment
Yellow Jacket Spur (YJ)	0.19	Unmarked	Hiking, Biking	• This new short single track trail was developed by the Sprockids/CNY DIRT organizations in 2009 in conjunction with the park management. • Trail is in good condition.
Unnamed (BK)	0.67	Black	Hiking	• This trail, although unnamed, is blazed and appears on the park trail map. • There are a number of eroded sections along this trail mostly along a fall line section on the NE section. • An emergency access road extends from this trail to the western boundary where it ends at a locked gate adjacent to private property. There was some erosion noted in this section.
Unnamed (BW)	0.36	Black/White	Hiking	• This trail, although unnamed, is partially blazed and appears on the park trail map. • The mowed northern section of trail has no markers along its alignment. • The southern half single track section is marked and is in very good condition.
Unnamed (WH)	0.16	White	Hiking	• There is a lack of signage at the road connection. • Minor erosion is occurring across the trail tread.

III. Trail System Alternatives

The Green Lakes State Park trail system creates a network through the wide variety of ecological communities that cover the park land. Trails range from wide flat trails around the two meromictic lakes, to trails that meander through forested areas to mowed trails in the western half of the park through old agricultural fields. Allowed uses in the park include hiking, biking, cross country skiing and snowshoeing.

The existing conditions assessment information developed in August 2009, Natural Heritage Data and public comments received from the master plan public information meeting were all analyzed by OPRHP staff and used to develop specific trail proposals. Following are some of the factors considered in the development of these proposals and analysis of alternatives to determine a preferred direction for the trails at Green Lakes State Park:

- 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
- Opportunities for environmental education and interpretation
- Park operations and management

It was determined that, in general, the trail system meets the needs of the number of trail users but that some of the integrity of the ecological resources of the park may be compromised by the amount of use on certain trails and the location of trails within sensitive ecological areas. Other issues identified included the need to designate some sustainable trail connections from the Lake Trails to picnic and camping areas, addressing some unsustainable trails and trail sections while developing other trail connections within the trail system. The analysis of these issues follows below in tabular form.

Lake Trails – Use and connections

Lake Trails and user impacts
Background for Analysis: The Green and Round Lake Trails are the most highly used trails in the park due to their proximity to the lakes, beach, main parking areas, campgrounds and other facilities. The treadway of both trails is 8-10 feet wide and very flat. A large number of walkers/hikers and runners utilize both trails although the Green Lake Trail is the more highly used. A number of large running events take place on the lake trails due to the flat terrain and the proximity to parking and

Green Lakes State Park Trails Plan

other facilities. Trail conflicts have been noted on the trails due to the high use and different use types. Trail users also cause erosion along the shoreline in many places as they access the lake edge, especially near Dead Man's Point. The trail tread requires on-going maintenance and resurfacing every couple of years.

In addition to the effects of heavy use of the trails, storm water runoff, both naturally occurring and that funneled by culvert systems, is causing significant erosion to the slopes above the lake basin, across the trail tread in numerous locations and along the shores of the lakes. Storm water management around and above the lakes is addressed within the master plan.

The trails located in the western half of the park include additional mileage and opportunities for recreational use, scenic vistas, cultural resources and opportunities for interpretation. Most of the trails are mowed and are approximately 8 feet wide. The nearest day-use parking area providing access to these trails is located at the park office and beach area which is over one mile away.

Alternatives	Considerations
Alternative 1 - Status Quo	• Green Lake and Round Lake trails continue to be the most heavily used trails in the park. • Nearest day-use parking access to the western trails remains in the eastern part of the park. • Limited numbers of users access the recreational and interpretive opportunities offered by the western trails. • High use and detrimental environmental impacts continue on the lake trails.
Alternative 2 – Provide greater access to and promote the trails in the western half of the park for increased recreational and interpretive opportunities; includes development of an accessible trail from the future day-use/trailhead area into the western park area; includes upgrades to Lake Trails to promote sustainability and reduce erosion.	• Coincides with master plan recommendation to develop day-use area/trailhead at existing Rolling Hills Camping Area. • Wide relatively flat trails (mowed trails) can accommodate large groups of users. • Enhances accessibility to park resources. • Reduction in number of users and conflicts on lake trails. • Reduction in user impacts to the lake trails and the lakes. • Helps to disperse users throughout the park land and enhances visitor experience. • Re-alignment of some trail sections will increase sustainability of trail system, reduce impacts to natural resources and improve access to cultural resources.

Preferred Alternative: Alternative 2 is the preferred alternative due to the need to reduce pressures on the lake areas, disperse users throughout the park, and enhance accessibility to resources in the western half of the park. As per the master plan, in the short-term a small day-use/trailhead gravel lot will be developed across the park road from the Pine Woods Camping Area; the long-term plan includes relocating the Rolling Hills Camping Area and developing a day-use/trailhead in its stead. Figure 4 – Western Trails shows the proposed conceptual re-alignments of trails. The final alignment for all trails, including an accessible trail, will be determined by future on-site assessments including assessments of the cultural resources in the vicinity for interpretive opportunities. The accessible trail will be developed to meet federal accessibility standards and will be surfaced with stone dust. The proposed alignment follows the Rolling Hills Trail from the future day-use area and then around the Farmers Hill Trail loop. Mowed trails will be maintained as 8 foot wide paths in the western section. The mowed trails will be promoted for large groups of users and trail events. Mileage markers will be installed to enhance the user experience and safety. All trails in the western section of the park will be designated for hiking and biking.

Additional preventive and maintenance measures will be implemented along the lake trails to address

Green Lakes State Park Trails Plan

water management and natural and user-based erosion.	
Lakeview and Tulip Hill Picnic Areas connections to the Green Lake Trail	
Background for Analysis: There are existing undesignated trails that connect both the Lakeview and Tulip Hill Picnic areas to the Green Lake Trail. These trails are bench cut into the side hills below each picnic area (they may be remnant CCC trails) and are in fairly good condition. They connect down into the ravine that separates the two picnic areas to a trail that runs from the park service road to the Green Lake Trail. This trail is fairly eroded near the connection to the service road due to storm water runoff. There are no signs at the picnic areas or along the lake trail to direct users to appropriate designated connectors between these areas. Evidence shows that people are cutting across vegetated areas to access the lake trail, creating additional social trails and causing detrimental impacts to the natural resources. In the case of Tulip Hill, users are jumping over the fence along the ridge and sliding down the side hill to access the lake trail. This ravine receives large amounts of water funneling through a culvert underneath the service road; there is significant erosion occurring across and alongside the trail toward Green Lake. Storm water management around and above the lakes including this ravine area is addressed in the master plan.	
Alternatives	Considerations
Alternative 1 - Status Quo	Impacts of vegetation trampling and soil erosion continue on the side hills below the two picnic areas as users continue to slide down hills and create additional social trails to access the lake trail.
Alternative 2 – Designate the existing connector trails between the facilities to connect to the trail in the ravine.	- The two existing main trails from each of the picnic areas are in fairly good condition. - Trails would require minor upgrades to trail use standards. - Culvert installation under trail in ravine would be required. - Installation of signage at picnic areas and along the lake trail. - Reduces impacts to the natural resources. - Enhances visitor experience.
Preferred Alternative: Alternative 2 is the preferred alternative. See Figure 5 – Green Lake Area. Upgrades may include some bench cutting, outslowing, debarment including some removal of vegetation on the side hill trails to bring the trails up to use standards. These trails will connect to the existing trail in the ravine. The eroded section of trail between this intersection and the service road should be closed. Development of retention ponds/artificial wetlands in this area will help control the flow of water and will provide wetland educational opportunities. Additional storm water management measures will be implemented per the master plan to manage the flow of water to and through this ravine. The service road will continue to provide a connection between the two picnic areas. Appropriate signage will be installed at the picnic areas and along the lake trail to direct users to the designated trails. These trails will be designated as hiking only. A connection will be maintained between the Tulip Hill and the Hill Side picnic areas with appropriate signage.	

Lakeview Picnic area to Dead Man’s Point Trail connection
Background for Analysis: Remnants of an old park road exist as a large corridor on the southern end of the Lakeview picnic area continuing as a trail toward the direction of Dead Man’s Point. Although this is no longer used for vehicle access, the corridor remains and is used by visitors to access areas along the top of the ridge above Green Lake. In addition, evidence shows that users are creating a large number of social trails by scaling down the steep slopes to access the Green Lake Trail and Dead Man’s Point. Park police and staff patrol this area but continued use of this corridor

Green Lakes State Park Trails Plan

has been noted.	
The steep side hills above Green Lake experience natural erosion through sheet flow; this is exacerbated by the delicate and highly erodible soils in the area, a lack of understory growth due to deer browsing and user impacts through the creation of social trails.	
Alternatives	Considerations
Alternative 1 - Status Quo	Visitors continue to access the old park road corridor and cause impacts to sensitive natural resources.
Alternative 2 – Designate a trail using the old park road corridor to connect Lakeview to Dead Man’s Point.	- Directs visitors to one main trail and reduces the number of social trails created. - Reduces user impacts to the side hills. - Directs visitors directly from picnic area to unique and sensitive location on the lake.
Alternative 3 – Close the old park road trail and provide an alternate connection.	- Alternate connection may utilize an existing trail. - Reduces user impacts to the natural resources. - Does <u>not</u> funnel visitors directly from picnic area to unique and sensitive location on the lake.
Preferred Alternative: Alternative 3 is the preferred alternative. The proposed designated trail identified above to connect Lakeview picnic area to the Green Lake Trail will be the designated connection (see Figure 5 – Green Lake Area). Appropriate signage will be installed at the picnic area to alert visitors of the appropriate route to take for Dead Man’s Point. The old park road trail will be closed following standard OPRHP Closure of Trails guidelines. The wide entrance area to the corridor will be blocked by vegetative plantings/screenings to alter the visual cue and deter continued use of the corridor.	

Reserve Shelter to Green Lake Trail connection	
Background for Analysis: The Reserve Shelter provides an opportunity for large group events at a scenic viewpoint overlooking Green Lake. There is a black fence that runs along the ridge next to the Shelter and above the steep drop off. There is an existing social trail that runs along or near the ridge north between the Shelter and the stairs down to the Green Lake Trail. Users are impacting the vegetation and causing erosion along the ridge of this sensitive area. In addition, during heavy rain events, storm water runs along the road next to the Reserve Shelter and funnels onto the trail causing increased erosion (storm water management is addressed in the master plan). Through trail users often pass by the Reserve Shelter and/or enjoy the scenic viewpoint at the Shelter during special events; this may cause disruption of private gatherings. An alternate undesignated route exists between the Shelter restroom building and the stairs to Green Lake that brings users away from the ridge area and the Shelter.	
Alternatives	Considerations
Alternative 1 - Status Quo	- Through trail users continue to impact private gatherings at the Shelter. - Users continue to impact the vegetation and sensitive ridge line above Green Lake.
Alternative 2 – Re-align the trail further back away from the ridge and close existing trail.	- Through trail users continue to impact private gatherings at the Shelter. - Trail construction/disturbance would occur right above lake with potential impacts. - Reduces user impacts closer to ridge.

Green Lakes State Park Trails Plan

Alternative 3 – Designate the alternate route for access between the Shelter restrooms and the stairs to Green Lake and close the trail along the ridge.	• Utilizes/designates an existing sustainable trail and closes an unsustainable trail. • Directs through trail users away from the Reserve Shelter and private gatherings. • Restores vegetation and soil stability along ridge above lake. • Reduces user impacts closer to ridge.
Preferred Alternative: Alternative 3 is the preferred alternative due to the desire to restore the trail corridor along the ridge for protection of resources. See Figure 5 – Green Lake Area. The existing trail along the ridge will be closed using appropriate closure techniques. The black fencing will be re-aligned around the Shelter area and extended to the restroom building to block access to the ridge. A designated sustainable scenic viewing area will be developed next to the shelter to reduce impacts to the resources. Signage and markers will be placed at appropriate locations (including the restroom building and the top of the stairs) to direct users to the newly designated route. Per the master plan, the long-term recommendation is for an educational center to be developed near the Reserve Shelter to serve the park and the region, as well as allowing the shelter to be reservable for patrons. An additional connector trail will be developed to the east of the Reserve Shelter once the education center is developed.	

Connection between Rolling Hills Camping Area and Round Lake Trail	
Background for Analysis: There currently exists no direct connection between the Rolling Hills Camping Area and the Round Lake Trail. Very high and steep slopes exist between the two areas. Evidence shows that some visitors are creating unsustainable social trails down the side of the steep slopes above Round Lake and trampling vegetation and increasing soil erosion in these areas. There is minimal signage at the camping area directing users to appropriate designated routes for access to the lake. There exists an undesignated but well established and well used trail that runs between the Cabin Colony west above Round Lake past the camping area connecting to the Old Growth and Brookside Trails to the southwest of Round Lake. This trail is in fairly good condition; it is unmarked and unsigned.	
Alternatives	Considerations
Alternative 1 - Status Quo	• Designated access between the two areas is maintained via the North Connector and Old Growth Trails. • Visitors continue to impact sensitive natural resources in the area.
Alternative 2 – Develop a staircase or more direct trail between the two areas.	• Ridges are exceedingly high above the lake. • No sustainable feasible options exist for direct trail access. • Staircase was not deemed a feasible alternative.
Alternative 3 – Designate the existing social trail that runs west above Round Lake for hiking only to provide more direct access than existing routes.	• Utilizes an existing trail. • Directs users to appropriate designated route. • Reduces user impacts on steep side slopes and helps to protect natural resources. • Requires some upgrades and safety measures along ridge top. • Appropriate signage to be installed to direct users.
Preferred Alternative: Alternative 3 is the preferred alternative due to the desire to designate an alternate sustainable connection between the top of the ridge to the Round Lake Trail and reduce potential impacts to the natural resources. See Figure 6 – Mid Park Area for the proposed Ridge Trail. Due to the sensitive nature of this area (within the old growth forest and near Round Lake), final trail alignment will be determined by further on the ground assessments. There are some sections that run quite close to the ridge and may pose a safety issue; slight reroutes, fencing or	

installation of signage will address these areas. There are a couple of short steep eroded sections that may need to be slightly rerouted and/or potentially have a culvert installed. This trail will be designated for hiking only to limit user numbers and impacts in this area.

Just before the junction of this trail to the Old Growth and Brookside Trail intersection, there is a side hill above the Brookside Trail leading down to Round Lake. This side hill is a sensitive habitat area that may support unique flora and fauna and could be impacted by heavy off-trail traffic. Development of a short connector trail was considered on this side hill to more directly access the Round Lake Trail and to reduce development of social trails in this sensitive area. In lieu of a new trail, signage will be installed along the trail at the top of this area to alert users as to the sensitive resources and directing them to the appropriate trail access for Round Lake. Should these efforts prove unsuccessful, park management may reconsider developing a short connector trail in this area.

Potential re-routes, connectors and closures

Brookside Trail	
Background for Analysis: A section of the Brookside Trail currently aligns along/through the edge of a NYS designated wetland (ecological community type - Rich hemlock-hardwood peat swamp) between the entrance on the southern boundary and the Powerline Trail. This trail section is persistently muddy. Corduroy (a series of logs laid perpendicular to the trail tread) has been placed along some muddy sections but no longer provides an effective treadway. (Corduroy is generally considered a short term solution to dealing with muddy trail sections.) Trail users have both widened the trail tread and created social paths on the side slope slightly up hill from the trail to avoid these wet sections. In both cases, vegetation has/is being trampled. This is a very well used trail providing park and trail access for neighborhoods directly south of the park. The trail is used year-round for hikers, bikers, cross-country skiers and snow-shoers. (Although biking is not currently a designated use for the trail, this trail offers the only southern trail access for bikers in to the park.) The existing topography (steep slopes to the west; wetland to the east) limits the potential trail corridor in this area.	
Alternatives	Considerations
Alternative 1 - Status Quo	• The trail remains within the NYS designated wetland causing impacts to sensitive areas. • User experience is diminished due to wet, muddy conditions.
Alternative 2 – Upgrade the existing alignment to raise the trail tread above the wetland area (ex. geogrids, turnpikes, boardwalk).	• Potential construction material costs. • Potential short term impacts to the wetland area during construction. • Reduces user impacts to the wetland. • Utilizes existing corridor. • Wetland area can be protected. • Enhances user experience.
Alternative 3 – Re-route the trail to the eastern side of the wetland.	• No appropriate public access site available due to adjacent private land. • Additional trail development impact close to a wetland area. • Wetland area can be restored.
Alternative 4 – Re-align the trail section further up the hill to the west.	• A natural bench in the topography of the side hill is appropriate location for re-alignment and would decrease the necessary amount of bench construction during trail development.

Green Lakes State Park Trails Plan

	• Reduces user impacts to the wetland. • Wetland area can be restored. • Enhances user experience.
Alternative 5 – Close this trail section.	• Designated trail access point along southern boundary of the park; serves a number of neighborhoods. • Diminished user experience by closure of park access. • Users may continue to use corridor and impact wetland area. • Wetland area can be restored.
Preferred Alternative: Alternative 2 is the preferred alternative due to the use of an existing corridor. This option will provide a sustainable trail tread above the wetland areas. If this is not successful, rerouting the trail (Alternative 4) will be considered. This trail will be designated for hiking and biking.	

Intersection of the Brookside Trail and the Powerline Trail	
Background for Analysis: This intersection is the location of the outlet for the wetland (peat swamp) along the Brookside Trail. There is a 12 inch culvert (approx. 15-20 feet long) that serves this outlet. The trail right above the culvert and the trails in this general vicinity are consistently wet/muddy. This is perhaps caused by overflow from the wetland, soil type, the flat terrain, and/or water running down the Powerline Trail into this area. It appears that the size and shape of the culvert may be hindering the flow of water and perhaps wildlife that utilize the wetland habitat.	
Alternatives	Considerations
Alternative 1 - Status Quo	• The trail section continues to be wet/muddy. • Diminished user experience. • Partial water flow and wildlife blockage at the wetland outlet.
Alternative 2 – Remove the existing culvert and upgrade drainage and grading in existing location.	• Includes development of knicks and check dams along the Powerline Trail above this intersection to shed water off the side of the trail and reduces water flow down the trail into this area. • Maintains the existing alignment of the trail intersection. • Enhances user experience. • Allows for water and wildlife movement under the trail tread.
Alternative 3 – Move the stream crossing further north away from the wetland area and construct a bridge.	• Includes development of knicks and check dams along the Powerline Trail above this intersection to shed water off the side of the trail and reduces water flow down the trail into this area. • Moves users away from the wetland area. • Allows for water and wildlife movement from wetland into stream corridor without hindrance. • Additional ground disturbance within the old growth area. • Cost of bridge construction.
Preferred Alternative: Alternative 2 is the preferred alternative due to the need to address this situation while limiting additional construction/disturbance within the old growth area and utilizes an existing connection.	

Powerline Trail/Hernia Hill Bypass
Background for Analysis: The section of the Powerline (PL) Trail between the Old Growth (OG)

Green Lakes State Park Trails Plan

Trail and the Farmers Hill (FH) trail is very steep (hence the name Hernia Hill) and eroded providing an unsustainable and diminished trail experience for users. The portion of the Hernia Hill Bypass (HH) Trail that connects into the PL Trail is also very steep and provides a challenge for the average user.	
Alternatives	Considerations
Alternative 1 - Status Quo	• Trails continue to erode and impact natural resources. • Diminished user experience along these trails.
Alternative 2 – Close the PL Trail between OG and FH Trails and the steep section of the HH Trail and develop an alternate sustainable single track trail to make this connection.	• Closes unsustainable trail sections reducing potential impacts to natural resources. • Enhances user experience. • Utilizes sustainable section of existing trail (portion of HH Trail). • Maintains an east-west trail connection in southern portion of the park. • Provides additional single track trail experience in park. • Re-routing and trail construction within the old growth forest area.
• Preferred Alternative: Alternative 2 is the preferred alternative due to the desire to close unsustainable trail sections but maintain a trail connection between OG and FH Trails. Figure 7 – Southern Trails shows the proposed conceptual trail connection and the sections of trail to be closed. The PL and the upper section of the HH Trail will be closed using appropriate trail closure techniques, such as, water bars and revegetation. Development of the single track trail will use sustainable practices and follow established OPRHP trail development standards for use. This trail will be designated for hiking and biking.	

Indian Ovens access trail	
Background for Analysis: The existing trail from the Powerline (PL) Trail to the Indian Ovens (a unique rock formation) consists partially of a mowed path and partially of single track trail and is in very good condition. It is currently an out and back hiking only trail ending at the Indian Ovens formation. The Indian Ovens formation is an archaeological structure that may have been used by Native Americans. The PL Trail just to the north runs along fall line, is very steep up and down hills and has some significant erosion issues impacting natural resources in the area and providing a diminished user experience. The opportunity exists to develop a loop trail by extending the trail down the side hill using some switchbacks and connect into an existing trail.	
Alternatives	Considerations
Alternative 1 - Status Quo	• The existing trail remains an out and back hiking only trail.
Alternative 2 – Extend the Indian Ovens Trail down the side hill to provide a loop to the Powerline Trail.	• Extension of trail would be a sustainably built single track trail. • Provides an alternate trail experience to the steep, eroded PL Trail. • Retains an unsustainable trail (PL Trail); negative impacts to natural resources and diminished user experience remain.
Alternative 3 – Extend the Indian Ovens Trail down the side hill to connect to the Old Growth (OG) Trail and close	• Extension of trail would be a sustainably built single track trail. • Provides a loop opportunity off of the OG Trail. • Enhances visitor experience by providing a sustainable alternative to the steep eroded PL Trail and provides a loop

Green Lakes State Park Trails Plan

the PL Trail in this area.	opportunity to a cultural/archaeological resource (Indian Ovens). • Closes and restores an unsustainable trail section to reduce impacts to the natural resources.
Preferred Alternative: Alternative 3 is the preferred alternative due to the desire to provide a loop opportunity and close an unsustainable trail. A conceptual alignment for the extension of the trail (to be designated the Indian Ovens Trail) is shown in Figure 7 – Southern Trails. The loop trail will not align next to or through the rock formation; a spur trail will remain to the rock formation to limit through trail users and impacts. Final alignment will be determined by on-site visits. There are areas of swallow wort in the vicinity of the proposed trail. To avoid spread of this invasive species, large areas of swallow wort will be avoided during final alignment; small areas of swallow wort may be removed during trail construction. The loop trail will allow hiking and biking; the spur trail will remain for hiking only. This is to deter bikers from riding on the formation for safety reasons and potential impacts. Signage will be installed at the junction of the spur trail to indicate that bikes are not allowed past this point. Biking will be added as a use to sections of the Old Growth and Brookside Trails in this vicinity to accommodate additional loop opportunities for this use. Biking will not be added as a use on the Brookside Trail between the Old Growth and Round Lake Trails. Appropriate signage will be installed at this trail intersection. The Powerline Trail will be closed using appropriate trail closure techniques, including check dams and revegetation measures.	

Re-route of section of Old Growth Trail near golf course maintenance area	
Background for Analysis: A short section of the Old Growth (OG) Trail currently co-aligns with the golf course maintenance area road loop. The road is wide and passes by debris and brush piles and does not provide a very pleasant trail experience. There are remnants of CCC structures located near the trail south of the maintenance area.	
Alternatives	Considerations
Alternative 1 - Status Quo	• Trail alignment remains along maintenance road. • Diminished visitor experience. • Remnants of CCC structures provide interpretive opportunity.
Alternative 2 – Re-align this section of trail to the west through forested area.	• Separates trail users from maintenance area. • Enhances visitor experience. • Steep ravine exists in this area; bridge construction may be required.
Alternative 3 – Re-align this section of the trail around to the east of the maintenance area buildings utilizing a portion of the GC Trail and close the Powerline (PL) Trail from park road to OG Trail intersection.	• Utilizes portions of existing trails. • Most of trail remains in forested area with only maintenance access road crossing. • Enhances visitor experience. • Eliminates PL Trailhead (currently located at a large electric box). • Eliminates parallel trails. • Southern section of trail is re-aligned to more sustainable grade and provides a buffer between the trail and the park boundary/residences.
Preferred Alternative: Alternative 3 is the preferred alternative due to the desire to re-align the trail off the maintenance road onto a sustainable route while eliminating parallel trails and an unsightly trailhead (electric box). See Figure 7 – Southern Trails for conceptual routing. This modification will in turn move the winter ski trail access to the golf course from the existing PL Trailhead to the maintenance area access road. Trail sections will be closed using appropriate trail closure techniques.	

There are a couple of additional undesignated trails within the park that are recommended to become a part of the designated trail system providing additional and appropriate trail connections.

1. *Vista Connector Trail* – This well established short trail is a main connector between the Rolling Hills Trail and the Vista Trail, is fairly wide and bypasses an old water pit. This trail is generally in good condition with sometimes wet conditions. It may require some maintenance (as is proposed to the western portion of the Rolling Hills Trail) to raise the tread using geogrid to alleviate wet conditions. This trail will be designated for hiking and biking. This trail may become part of the proposed accessible trail.

2. *Fawn Run Trail* – This undesignated single track trail provides loop opportunities by bisecting the Deer Run and Overlook Trails. Portions of the trail are in good condition. The section that runs down the hill on the west side is fairly steep, eroded and is not considered sustainable. This section will require a re-alignment down the hill to achieve sustainable and appropriate grades. This trail will be designated for hiking and biking.

The eastern half of the Rolling Hills Trail will be re-aligned to accommodate the re-location of the Rolling Hills Camping Area and the *modifications to the park office* (as per the master plan) and to provide a more sustainable trail (portions of the current alignment follow the fall line).

A neighborhood connector will be maintained from Golden Heights Drive into the Old Growth Trail. There is potential for an official neighborhood connector from the Signal Hill neighborhood into the trail system. This connection would require the approval of the Homeowners' Association and would have to allow public access. Park staff will follow up on this issue.

Winter Trails – In general, the winter trail system will remain the same. Cross-country skiing is allowed on most trails while snowshoeing is allowed on all of the trails (walkers are to remain on plowed park roads). There will be minor adjustments to the system based on the new alignments of some of the trails. Additional signage will be installed to educate users on proper trail etiquette, such as, cross-country skiers to the right and snowshoers to the left. In addition trail markers will be installed along the trail across the golf course to direct users to the designated route.

Snowmobiling is currently not allowed in the park. Snowmobiling within the park was suggested during the public input process. As per the master plan, snowmobiles will not be allowed access into the park.

Trails (new trails and rerouted trails) will be designed to protect the natural resources throughout the park. Additional signage in the form of trailhead and intersection signs as well as kiosks at main parking areas and entrance points to the trail system 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*.

Green Lakes State Park Trails Plan

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

IV. Final Trails Plan

A. Trail System

1. Trails

The Green Lakes State Park Trails Plan recommends approximately 19 miles of existing and proposed trails that provide a variety of trail experiences for hikers, bikers, cross-country skiers and snow-shoers (see Figure 8 – Final Trails Plan – Short Term and Figure 9 – Final Trails Plan – Long Term). The short-term plan, as laid out in the master plan and trails plan, includes development of a small day-use/trailhead gravel lot across the park road from the Pine Woods Camping Area. The lot will hold approximately 25 vehicles with potential for another 25 in a mowed area. The long-term plan consists of relocating and replacing the Rolling Hills Camping Area with a day-use/trailhead area. Details for these specific plans will be determined by future on-site assessments.

The proposed Green Lakes State Park trail system includes wide flat trails around the two meromictic lakes, a mixture of wider and narrower trails through the old growth forest area, mowed trails on the western half of the park and some single track trails. These trails accommodate hiking and most trails biking as well, through most of the year. Winter trails are depicted in Figure 10 - Final Trails Plan – Winter Trails providing over 17 miles of ungroomed trails for cross-country skiing and snow-shoeing during winter months. The following tables provide a breakdown by mileage and use for the existing trail system (Table 1) and for the Trails Plan (Table 2).

Table 1: Mileage by trail use for the Existing Trail System

Trail use	Mileage
Hiking/Snowshoeing	17.3
Biking	10.7
Cross-country skiing	16.3
Total trail mileage*	17.3

* Various trails accommodate several uses.

Table 2: Mileage by trail use for the Trails Plan*

Type of Use	Mileage**
Hiking/Snowshoeing	19.0
Biking	12.7
Cross-country skiing	16.3
Total trail mileage***	19.0

* Mileages are calculated based on the map depictions including conceptual proposed alignments for rerouted and new trails. The alignment for Rolling Hills and Rolling Hills Connector Trails will be modified upon development of the new camping loops (long-term plan). Mileage totals will change in the future.

** *Connectors*, as shown in Figure 9, are not included in these calculations as they are not considered designated trails and simply provide access from one location to another as opposed to providing a trail experience.

*** Various trails accommodate several uses.

Green Lakes State Park Trails Plan

The Trails Plan will increase the total designated trail mileage from the existing trail system by 1.7 miles of trail. The net increase incorporates newly developed and newly designated trails (existing undesignated trails) minus those trails that will be closed. The increase in trail mileage is due generally to the designation of currently undesignated Fawn Run (0.5 miles), Ridge (0.6 miles), and Vista Connector (0.2 miles) trails as well as the development of the Farmers Hill Connector Trail (0.5 miles) and the extension of the Indian Ovens Trail (0.4 miles). Other additions include the re-alignment of the Black, Vista, and Old Growth Trails. The Trails Plan includes the closure of 3.5 miles of trail which includes re-aligned portions of trails, the emergency access route off the Black Trail, remaining undesignated trails as well as the closure of the Powerline and Hernia Hill Bypass Trails.

The following table provides a breakdown of trails by trail name, mileage and trail uses.

Table 3: Trail names, mileage and use in Trails Plan

Trail Name	Mileage	Type of Use*
Black (BK)	0.86	H, B, XC, SS
Brookside (BS)	0.90	H, SS (portion for B and XC)
Deer Run (DR)	2.12	H, B, XC, SS
Farmers Hill (FH)	1.43	H, B, XC, SS
Farmers Hill Connector (FC)	0.54	H, B, SS
Fawn Run (FR)	0.47	H, B, SS
Golf Course Connector (GC)	0.08	H, B, SS
Green Lake (GL)	1.84	H, XC, SS
Indian Ovens (IN)	0.82	H, SS, (portion for B)
Lake Connector (LC)	0.15	H, XC, SS
North Connector (NC)	0.16	H, SS
Old Growth (OG)	2.86	H, XC, SS (portion for B)
Overlook (OL)	1.02	H, B, XC, SS
Ridge (RI)	0.60	H, SS
Rolling Hills (RH)	1.84	H, B, XC, SS
Rolling Hills Connector (RC)	0.17	H, B, SS
Round Lake (RL)	0.92	H, XC, SS
South Connector (SC)	0.14	H, XC, SS
Vista (VA)	1.41	H, B, XC, SS
Vista Connector (VC)	0.15	H, B, XC, SS
White (WH)	0.37	H, SS
Yellow Jacket Spur (YJ)	0.16	H, B, SS

*Types of Use: H (Hiking), B (Biking), XC (Cross country skiing), S (Snowshoeing)

2. External Connection

The trail system connects to the Old Erie Canal Towpath in the Old Erie Canal State Historic Park via a crossing of Route 290 at the main entrance near the park office. There is a short trail and a bridge crossing to the north of Route 290 to access the towpath.

Parking is available at the park office for visitors to access the Old Erie Canal trail without paying an entrance fee.

B. Interpretation and Education

Green Lakes State Park has many significant natural and cultural resources to interpret. Currently, interpretive and educational programming is coordinated from the park office and a small nature center located in the Pine Woods campground. The lakes and old growth trails are the most popular destinations for patrons interested in learning about the unique natural features in the park. The trails located on the park's western end offer spectacular vistas and rich cultural resources, including old farm fields, foundations and military tracts.

Cultural Resources Interpretation and Education

Native American habitation has been documented within this portion of the Central region. The "Indian Ovens" is one of the most popular cultural features of the park. The Indian Ovens are unusual rock formations that spread across the landscape in such a way that they may have served as shelter and provided ideal locations for Native Americans to cook over open fires. In 1781, much of central New York, including the land that is now Green Lakes State Park, was part of a Military Tract: land set aside as payment to servicemen for their participation in the Revolutionary War. Later in the 1800s, much of this area became farmlands. Remnants of these historic tracts can be seen today delineated by hedgerows and stone walls within the western portion of Green Lakes State Park.

Green Lakes had a Civilian Conservation Corps (CCC) camp that was active between 1933 and 1941. Several trails throughout the park traverse areas where artifacts and old foundations for barracks, dining halls, and other structures can be seen.

The trail system includes access to these historic and cultural resources although in most cases there is no formal interpretation provided. To enhance the cultural interpretive and educational programming of the park, interpretive signage with accompanying maps and brochures may be developed. Guided and self-guided tours along the trail system would provide an opportunity for visitors to gain a much better appreciation for the rich history of this area.

Environmental Education and Interpretation

Environmental education programs and guided nature hikes are developed and led by seasonal naturalists and other partners from the local conservation community. Programming topics have included native flora and fauna, invasive species, old-growth forest habitat, and lake ecology and geology. Educational panels about the natural resources are located throughout the park along trails, especially around the lakes and within the old-growth forest. As the interpretive programs expand in the future and satellite locations for nature center programs are established, trails will be examined more

closely for environmental features and the placement of additional kiosks or other signage.

Round Lake was designated as a National Natural Historic Landmark in 1975, and it is often a focus for interpretive programming. In contrast to Green Lake, there is no swimming, fishing or boating. A hiking trail loops around the lake that connects the old-growth forest with a pedestrian bridge at the southern end of Green Lake. Patrons enjoy a quiet, scenic experience while at Round Lake and have great opportunity to view wildlife. There is an interpretive kiosk in close proximity to the pump house, the only structure near the lake.

A program entitled “*Project Enrich*” was developed at Green Lakes SP which is designed to train environmental educators and teachers to lead self-guided field trips to the park. The *Project Enrich* environmental education packets include a teacher’s manual, self-guiding brochures, and ecology journals. While the *Project Enrich* program still remains, its self-guided trails and materials need updating. Also, more teachers and educators need to be formally trained to sustain the program.

The park also hosts an event called *Environmental Field Days (EFD)* which is held annually in October. *EFD* consist of fun-filled environmental presentations and activities designed to fit the science curriculum for 5th and 6th grade classes from the greater Syracuse area. The trails around the west beach parking lot at Green Lake and the Reserve Picnic Shelter are highly utilized for these activities.

The trails are often the focus of natural resource stewardship and park improvement projects where patrons can get directly involved with nature interpretation, natural resource management and park operations. Stewardship projects include trail maintenance (e.g., pruning and spreading wood chips), invasive species removal and trash pickup. These programs will continue in the future.

C. Support Facilities

Table 4 identifies the existing parking facilities in the park. All but the golf course parking lot provide direct access into the trail system. There is currently ample parking available for trail users, although the nearest day use parking area offering access to the western trails is over a mile away from the trailhead. As part of the master plan, a day-use parking area is recommended to be established in the current location of the Rolling Hills Camping Area (to be relocated). A temporary day-use parking area (approximately 25 spaces with room for expansion) will be established on the west side of the park road across from the Pine Woods Camping Area to meet the more immediate needs of users and to encourage use of the western trail system.

Table 4: Parking Capacity at Green Lakes State Park

<i>Parking Lot</i>	<i>Quantity</i>
Park Office	20
East Beach	378
West Beach 1	103
West Beach 2	116
West Beach 3	285
Golf Course	159
Tulip Hill	196
Lakeview	136
Reserve Picnic Area	105
Route 290 Trailhead	6
Parking Capacity Total	<u>1504</u>

D. Coordination and Partnerships

Maintenance of the trail system is generally carried out by park staff. In some cases, volunteers have been engaged in trail projects. Volunteers continue to be important to park maintenance and resource protection, and State Parks encourages such coordination and partnerships. Successful programs, however, require leadership, a focused plan, and ongoing commitment on the part of the volunteers under the guidance from State Parks in order to be effective. Viable groups interested in organizing volunteer efforts for Green Lakes should contact the park office.

Coordination with volunteer groups is expected with future maintenance and upgrades to the existing trails as well as with development of future trails. Future coordination efforts may include developing a volunteer Trails Working Group which would help with monitoring and maintaining trails in a more scheduled and organized way. The group would meet periodically with park staff. This would provide a coordinated approach in managing and improving the trails. Examples of tasks for such a group may include weekend trail projects (larger projects), trail monitors, and a 'Green Crew' which would focus on trail clean-up.

Additional partnerships will be encouraged to assist with operational, resource protection and funding needs. These include, but are not limited to, the creation of partnerships with local utility companies to assist with erosion control, invasive species management and the reintroduction of native vegetation on their right of way corridors that impact the park.

E. Park Rules

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.

- 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.
- No Motorized Vehicles Allowed on Trails.
- 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.

F. Special Events – Permits

A permit is required for special events utilizing the trail system with an expected attendance of 25 persons or more. Each permit application is evaluated to determine potential impacts and compatibility with the natural, cultural, and recreational resources of the park. Each application is reviewed by park management and regional administration. Certain permit requests will have various requirements and associated fees. Examples of activities that may take place on the trail system but require a special use permit include: races/walks (ex. fundraisers, scholastic competitions), geo-caching and research/educational projects. Any questions regarding whether a permit is required for a group or activity should be directed to the park office.

G. Enforcement

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.

H. Implementation

Implementation of this plan will be guided by staff knowledge of trails, the trail assessment information collected during 2009, additional detailed assessments of trail conditions and the agency's standards and guidelines for trails which are located in Appendix 1 (Trail Standards and Guidelines). All existing trails may not completely meet every provision of the OPRHP trail standards. Trail characteristics in some cases are modified from the standards to address natural characteristics of the resource and specific needs.

Trail work proposals 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. The Park Manager

Green Lakes State Park Trails Plan

will meet with Trail Groups on an annual basis, at minimum, to discuss proposed trail development and maintenance plans and review the consistency of those plans with this Trails Plan.

If the 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 staff and if deemed necessary the OPRHP Trails Planner. See *Trail Project Approval Process for NYS Parks* at: <http://nysparks.com/recreation/trails/technical-assistance.aspx>.

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.

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. 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.

Improvements and reroutes should be completed prior to expanding multiple use opportunities. Priority will be 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.

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 park. 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* (<http://www.nysparks.com/recreation/trails/technical-assistance.aspx>). 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* (<http://www.nysparks.com/recreation/trails/technical-assistance.aspx>).

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

Green Lakes State Park Trails Plan

In order to provide guidance on implementation of this Plan for park staff and volunteer groups, Tables 5 and 6 below provide 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 for each trail.

Table 5: Implementation Steps for Trails

Trail Name	Mileage	Blazing	Type of Use*	Implementation Steps
Black (BK)	0.9	Black	H, B, XC, SS	• Alter mowed alignment of trail to follow contours. • Allow sections to be closed to grow in; consider appropriate closure techniques. • Mark final trail alignment. • Close existing dirt road that leads to private property (existing emergency entrance); explore opportunity for alternate emergency access point.
Brookside (BS)	0.9	Blue	H, SS (portion for B and XC)	• Section between RL and OG Trails: Water management techniques, such as development of knicks and rolling grade dips, to be implemented to reduce erosion on trail. • Mid-section: Trail maintenance, such as debarming and reestablishing the out slope, to be implemented. • Upgrade existing alignment in/near wetland to raise trail tread above wet area. • Restore wetland along trail. • Remove existing culvert at intersection with OG Trail and upgrade drainage and grading.
Deer Run (DR)	2.1	Yellow	H, B, XC, SS	• Water management and erosion control techniques, such as development of knicks and rolling grade dips, could be used to reduce erosion on the trail. • Minor trail re-alignments may be considered to along fall line sections of trail to follow the contours, provide sustainable grades and then closing sections that run down the fall line
Farmers Hill (FH)	1.4	Blue	H, B, XC, SS	• Portions of trail alignment to be modified with future construction of accessible trail and further assessment of cultural resources in vicinity. • Trail to be upgraded to meet accessibility standards during development of accessible trail.
Farmers Hill Connector (FC)	0.5	White	H, B, SS	• Determine final trail alignment for new section (single track). • Clearing and tread construction required. • Close upper portion of HH Trail and PL Trail using appropriate trail closure techniques including check dams and revegetation. • Mark trail.
Fawn Run (FR)	0.5	TBD	H, B, SS	• Reroute section on hillside to sustainable grades (single track).

Green Lakes State Park Trails Plan

Trail Name	Mileage	Blazing	Type of Use*	Implementation Steps
				• Close existing trail on hillside with check dams and revegetation. • Improve trail to use standards. • Mark trail.
Golf Course Connector (GC)	0.1	White	H, B, SS	• Install sign along park road at trailhead. • Water management techniques, such as knicks and rolling grade dips, to be implemented to reduce erosion. • Old Growth Trail to be re-routed along portion of this trail.
Green Lake (GL)	1.8	Blue	H, XC, SS	• Storm water management techniques to be implemented in conjunction with master plan recommendations. • Fill low spots, re-establishing the out slope and/or de berming to address muddy spots along the trail. • Assess options for upgrading and re-grading short western section of trail to address safety, sustainability and natural resource protection needs and meet federal accessibility guidelines; include storm water management above ridge. • Assess site specific locations for low cedar log wall/edge construction to reduce surface runoff into lake. • Enhance vegetative buffers along edge to stabilize soil. • Dead Man's Point – cedar or placed boulder erosion control along bank to minimize erosion; install appropriate signage to educate users to significance of site and deter access on reef. • Assess and consider alternate surfacing options (Considerations will include: type of trail experience (soft vs. hard surface), cost of surfacing material, type of material and effects to lake quality, plant/animal life.)
Indian Ovens (IN)	0.8	Black/ White	H, (portion for B), SS	• Determine final trail alignment for new section (single track). • Clearing and tread construction required. • Mark trail including mowed portion. • Close Powerline Trail using appropriate trail closure techniques including check dams and revegetation; knicks and rolling grade dips should also be used to shed water from the trail tread to alleviate wet conditions on the Brookside Trail.
Lake Connector (LC)	0.2	White	H, XC, SS	• Water management techniques, such as knicks and rolling grade dips, to be implemented to reduce erosion.
North Connector (NC)	0.2	Yellow	H, SS	• Water management techniques, such as knicks and rolling grade dips, to be implemented to reduce erosion.
Old Growth	2.9	Orange	H, XC, SS	• Water management techniques, such as knicks and rolling grade dips, to be implemented to reduce

Green Lakes State Park Trails Plan

Trail Name	Mileage	Blazing	Type of Use*	Implementation Steps
(OG)			(portion for B)	- erosion. - Deberming and re-establishing the out slope may alleviate wet areas on side slopes. - Persistent flat wet areas may require raising of the trail tread via a turnpike or use of geogrids (Closure of the PL Trail should alleviate some water issues.) - Re-route section off of golf maintenance road; clearing and tread construction required. - Close sections of this trail and the PL Trail south of maintenance area. - Mark final alignment. - Install appropriate signage at intersections, especially where specific uses are not allowed on certain trails and at access points at the golf course maintenance road.
Overlook (OL)	1.0	Red	H, B, XC, SS	Water management techniques, such as knicks and rolling grade dips, to be implemented to reduce erosion.
Ridge (RI)	0.6	TBD	H, SS	- Determine final trail alignment of this single track trail considering sustainability, sensitivity of resources and user safety with close proximity to ridge. - Minor re-routes, culvert installation may be required. - Install signage, fencing as appropriate. - Upgrade trail to use standards. - Mark trail. - Install appropriate signage regarding sensitive resources above sidehill and Brookside Trail.
Rolling Hills (RH)	1.8	Yellow	H, B, XC, SS	- Upgrade western section of trail by raising trail tread, using geogrids or other measures to alleviate wet conditions. - Portion of trail to be upgraded to meet accessibility standards during development of accessible trail. - Re-establish outslope and/or re-align with rolling grade dips the section northwest of Rolling Hills Camping Area to alleviate wet trail conditions. - Eastern section of trail to be re-aligned in conjunction with re-location of Rolling Hills Camping Area (see master plan).
Rolling Hills Connector (RC)	0.2	Yellow	H, B, SS	- Trail to be re-aligned with future development of the re-located Rolling Hills Camping Area and modification of the park office (see master plan). - Install directional signage for park office at junction with RH Trail.
Round Lake (RL)	0.9	Red	H, XC, SS	- Storm water management techniques to be implemented in conjunction with master plan recommendations. - Fill low spots, re-establishing the out slope and/or deberming to address muddy spots along the trail. - Assess site specific locations for low cedar log wall/edge

Green Lakes State Park Trails Plan

Trail Name	Mileage	Blazing	Type of Use*	Implementation Steps
				- construction to reduce surface runoff into the lake. - Enhance vegetative buffers along edge to stabilize soil. - Assess and consider alternate surfacing options (Considerations will include: type of trail experience (soft vs. hard surface), cost of surfacing material, Natural Landmark Management Plan parameters, type of material and effects to lake quality, plant/animal life.)
South Connector (SC)	0.1	Yellow	H, XC, SS	Storm water management techniques to be implemented in conjunction with master plan recommendations.
Vista (VA)	1.4	Green	H, B, XC, SS	- Re-align mowed trail around the ravine area. - Close/restore trail tread in ravine area with appropriate closure techniques to stabilize the hillsides and restore vegetation. - Short portion of trail to be upgraded to meet accessibility standards during development of accessible trail.
Vista Connector (VC)	0.2	TBD	H, B, XC, SS	- Upgrade trail to use standards if necessary. - Mark trail. - Trail to be upgraded to meet accessibility standards during development of accessible trail.
White (WH)	0.4	White	H, SS	- Install sign along the road. - Water management techniques, such as knicks and rolling grade dips, to be implemented to reduce erosion.
Yellow Jacket Spur (YJ)	0.2	TBD	H, B, SS	- Develop single track connection to rerouted VA Trail to east of the ravine. - Mark the trail.

*Type of Use: H=Hiking, B=Biking, XC=Cross country skiing, SS= Snowshoeing

Table 6: Implementation steps for Connectors (Hiking only)

Connector	Implementation Steps
Lakeview and Tulip Hill Picnic Areas to the Green Lake Trail	- Upgrades may include some bench cutting, outsloping, debanking including some removal of vegetation on the side hill to bring the trails up to use standards. - Install appropriate signage including access to Dead Man's Point. - Close the upper sections of undesignated trails in the area near the service road; develop retention ponds/artificial wetlands in this area as part of storm water management strategies. - Close the undesignated trail between Lakeview and Dead Man's Point; install vegetative plantings/screenings to alter the visual cue and deter use of the corridor; on-going monitoring will be required.
Tulip Hill Picnic Area to Hill Side Picnic Area	Assess appropriate connector option (i.e. maintain existing trail, re-align trail, install stairs).
Reserve Shelter Area (with future educational center) to	- Close the existing trail along the ridge using appropriate techniques. - Move and extend the fencing around the Shelter area to the restroom building. - Address storm water management issues near Shelter.

Green Lake Trail	• Develop sustainable scenic viewing area of lake near Shelter. • Install appropriate signage to direct users.
Old Growth Trail to Reserve Shelter	• Short term: grade and reseed area; put brush and signage at both ends to direct users to designated routes. • Long term: (with development of the educational center) develop sustainable connector.
Neighborhood Connector – Golden Acre Drive	• Maintain connection by mowing and general maintenance.
Neighborhood Connector – Signal Hill	• Contact Homeowners’ Association regarding providing public trail access.

In addition to the above implementation steps, this plan recommends an updated assessment to take place following up on the 1998 Pilot Multiple-use Trail Program and the 1999 report. Assessments should mirror the locations originally documented as closely as possible as well as may utilize the same methods for conducting the assessments. This update could be part of an annual monitoring plan. The results of these updates will help to document trail use and impacts to the resources and provide future management strategies.

I. 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.

1. 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.

2. Future Trails Development

Proposals for modification of the Green Lakes State Park trail system beyond what is specified in this plan will be evaluated by the Park Manager in consultation with Regional staff and if deemed necessary the OPRHP Trails Planner. 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).

J. Environmental Review

This Final Trails Plan, as an appendix to the Green 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.

v. Bibliography

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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 signage, accessibility, trail monitoring, and trail closure.

Trailheads, Kiosks, Signage

Directional signage and trailhead signage is lacking in many areas of the park. Signage at trailheads and trail intersections, and in some cases mileage markers, will be installed to enhance the user experience and for safety and emergency purposes. The design and usage of all trailhead, kiosk and other trail signage will be guided by the *Trail Signage Guidelines for the NY State Park System* (<http://www.nysparks.state.ny.us/recreation/trails/technical-assistance.aspx>). These guidelines provide 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. Information regarding the difficulty levels of trails may be included on trailhead and intersection signage as well.

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.

Green Lakes State Park Trails Plan - Appendix

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	0-30
Hiking (Primitive Back-packing)	8-10 ft.	4-6 ft.	18 –30 in.	Bare soil, rocks, gravel, wood; hardened surface for wet areas.	Min – 5 mi. 5-15 mi. (full day) 15 – 25+ mi. (multi-day)	Not critical	1-5% Max - 15% sustained 40-50% shorter than 50 yd.	N/A	1-5
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

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:
 - o 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.
 - o 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.
 - o The running slope of any segment of a trail shall not be steeper than 1:8.
 - o 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.

Green Lakes State Park Trails Plan - Appendix

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

Maintenance

Maintenance of the trails will be conducted by Park staff and in some cases in partnership with volunteers. Trail maintenance standards will utilize acceptable practices and methods in the maintenance of trails to the particular uses of the trails. Maintenance activities include:

- Maintaining drainage structures
- Water management such as development of knicks, rolling grade dips to divert water off of a trail
- Surface treatment
- Clearing and grubbing to maintain height and width clearances
- Maintaining bridges and other structures
- Maintaining signage
- Using established trail construction and maintenance techniques to control water flow and stabilize trail surfaces.

The following manuals may be used as resource guides for trail 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>

Green Lakes State Park Trails Plan - Appendix

- *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>

Trail Closure

Implementation of this plan includes the relocation and closure of sections of trails, including some social trails. Reclamation strategies include closure, stabilization, recontouring, revegetation, and monitoring. Each site should be evaluated individually for its potential to be rehabilitated. Reclamation of former trails 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. 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. Careful monitoring of a restored section of trail is then needed to ensure that little evidence remains of the old trail. Guidance in proper methods of closing trails is provided in the document, *OPRHP Guidelines for Closing Trails* (<http://www.nysparks.state.ny.us/recreation/trails/technical-assistance.aspx>). These abandoned trails should not be identified on trail maps.