DRAFT
ENVIRONMENTAL IMPACT STATEMENT

for the

TRI-LAKES RELIABILITY PROJECT

November 30, 2005

TRI-LAKES RELIABILITY PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT
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ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
ACOE	U.S. Army Corps of Engineers
APA	Adirondack Park Agency
APE	Area of Potential Effect
APLUDPM	Adirondack Park Land Use and Development Plan Map
APSLMP	Adirondack Park State Land Master Plan
ATV	All terrain vehicle
BMP	Best Management Practices
CO	carbon monoxide
DEIS	Draft Environmental Impact Statement
EMT	Emergency Medical Technician
EPA	U.S. Environmental Protection Agency
EWP	Environmental Work Plan
HDD	horizontal directional drill
HDPE	high density polyethylene
km	kilometer
kV	kilovolt
LLUP	Local Land Use Plan
MMI	Modified Mercalli Intensity
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NHL	National Historic Landmark
NO_2	nitrogen dioxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NY	New York
NYCRR	New York Conservation Rules & Regulations
NYISO	New York Independent Systems Operator
NYNHP	New York Natural Heritage Program
NYOPRHP	New York Office of Parks, Recreation and Historic Preservation
NYPA	New York Power Authority
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOT	New York State Department of Transportation
NYSEG	New York State Electric & Gas
NYSPSC	New York State Public Service Commission
O_3	ozone
OATT	Open Access Transmission Tariff
Pb	lead
PM	Project Manager
PM_{10}	particulate matter
ppm	parts per million
Project	Tri-Lakes Reliability Project
PVC	polyvinyl chloride
RM	reference marker

ROW	Right-of-way
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Officer
SEQRA	State Environmental Quality Review Act
SLUMP	State Land Use Master Plan
SO_2	sulfur dioxide
SPDES	State Pollution Discharge Elimination System
SRHP	State Register of Historic Places
SRV	Standards for Review of Variance
SVC	static var compensator
Tetra Tech	Tetra Tech EC, Inc.
The LA Group	The LA Group, Landscape Architecture and Engineering, P.C.
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Vanderweil	R.G. Vanderweil Engineers, Inc.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

In response to initiatives of elected and municipal officials and interested citizens in the Tri-Lakes Region, an Agreement was executed in September 2004 by and among the villages of Lake Placid and Tupper Lake, Niagara Mohawk now also known as National Grid ("Niagara Mohawk"), and the New York Power Authority ("NYPA") to help alleviate longstanding power problems in the region through short- and long-term solutions. The proposed 46 kilovolt (kV) line is one of the long-term solutions identified by Niagara Mohawk and NYPA. The proposed line is to be located in the Adirondack Park in St. Lawrence County, New York. The purpose of the proposed Tri-Lakes Reliability Project ("Project") is to increase the reliability of the electric system in the region through improvements to capacity and delivery.

The Project is being developed as a cooperative effort between NYPA and Niagara Mohawk. NYPA is the applicant for all permits and approvals required for construction and operation of the new 46 kV line and associated facilities. Niagara Mohawk is responsible for design, engineering, procurement, construction, installation, testing, and overall project management. Niagara Mohawk will operate and maintain the new line after it is energized. NYPA will be owner of the line until 2012 at which time the line will be sold to Niagara Mohawk.

The need for the proposed Project is immediate and real. With certain exceptions, the major infrastructure that supplies electricity to the Tri-Lakes Region of New York State has not been upgraded or expanded since the late 1970s, although the demand for electricity has grown continuously. As a result, the existing electric system has reached its limit to reliably serve the load in the region. The result is frequent power outages during periods of high demand, which in this region often occur during the severely cold winter months. Section 1.1.2 of this Draft Environmental Impact Statement (DEIS) presents a discussion of project need.

To identify the most appropriate long-term solution to the reliability problem, Niagara Mohawk and NYPA reviewed a number of options, including construction of a power plant in the region and alternate routes for power delivery. The process was conducted with input from representatives of the Adirondack Park Agency, the New York State Department of Environmental Conservation, local municipalities, non-governmental organizations, local residents, and the general public, to ensure that the concerns of these parties were addressed in the siting and design process. The Tri-Lakes Reliability Project proposed in this DEIS was determined to be the best option to meet the needs of the region based on environmental, engineering, and economic considerations. Section 1.1.3 provides a discussion of the studies that were performed to identify the Preferred and Alternate Routes evaluated in this DEIS. Section 2 presents alternatives to the proposed action that were examined but not selected, along with the reasons why they were not selected.

The proposed 46 kV line along the Preferred Route will be approximately 26 miles long. Project facilities include 15.6 miles of overbuild,[1] carrying both existing electric distribution lines (less than 15 kV) and the new 46 kV line, located along existing distribution corridor and new 46 kV facilities within about 10.4 miles of new rights-of-way (ROW). The Preferred Route begins in Parishville, NY, at the proposed 115/46 kV Stark Falls Substation which will be constructed for this Project and will interconnect with the existing 115 kV system. The Preferred Route connects to a new regulator station near the existing Piercefield Substation where the line ends. The Alternate Route begins in Clifton, NY at a new 115/46 kV Newton Falls Substation and also ends at the Piercefield Substation. Wood pole structures will carry the facilities. Section 1.1.5 describes the proposed project facilities and ROW configurations.

[1] Overbuild refers to combining the new 46 kV line and existing distribution lines on one set of wood pole structures.

This DEIS describes existing conditions within the anticipated Project Area and identifies the potential impacts of project construction and operation. Existing conditions are described in Section 3. In general, the Project Area land use is forested rural lands, on rolling to steep topography with development around small communities like Newton Falls, Cook Corners, Sevey Corners, Childwold, and Piercefield. The effects of construction and operation are discussed in Sections 4 and 5, respectively, along with any proposed techniques for impact mitigation.

During construction of the proposed 46 kV line, impacts will generally occur in the immediate vicinity of the ROW. Project construction will affect resources such as forest lands, wetlands, and wildlife habitat. However, these impacts are anticipated to be mitigated through the careful placement of project facilities and the use of appropriate construction techniques. Construction will also result in certain noise and fugitive dust, air emissions, and increase in local traffic, associated with ROW clearing and preparation and structure placement and stringing of conductors. However, these impacts will be short-term and minimized by the timing of these activities (weekdays and winter months) and continuous movement of construction activities along the ROW.

During operation, occasional limited impacts will occur as a result of inspection and maintenance or due to storm restoration of damaged facilities. The most significant operational impact is the potential for incremental long-term visual effects. The majority of the Preferred Route is located along existing highway/utility corridors and will be overbuilt with existing utilities in approximately the same location as existing structures. Portions of the route that are not following existing ROW are primarily not visible to the general public. Using wood poles (similar to existing structures) along existing corridors and minimizing new corridors will significantly reduce potential impact. Careful structure placement and appropriate ROW vegetation management should further reduce potential visual impact.

The 46 kV line ROW, regulator station, and substation sites have been carefully chosen to minimize the potential for adversely affecting sensitive resources. Final pole placement within the ROW will minimize impacts on sensitive resources such as wetlands. Where avoidance of sensitive resources is not possible, construction techniques, as described in the Environmental Work Plan (EWP) in Appendix E, will be employed to minimize impacts.

Project operation is anticipated to have a beneficial effect on the Tri-Lakes Region. The Project will enhance the reliability of the power delivery system in the villages and the region and should significantly reduce the number of power outages in the area. Benefits of increased reliability include fewer outages during the winter when the loss of heat can create significant public safety concerns, fewer lost days of school, and fewer losses to area businesses from closure due to outages.

This Project is being developed in compliance with applicable state and federal environmental regulations, including review under the State Environmental Quality Review Act (SEQRA) and the Adirondack Park Agency Act. To ensure that state and local environmental concerns and issues over this proposed action are addressed in this document, a series of scoping (public information) meetings were held with local officials, representatives of the Adirondack Park Agency and New York State Department of Environmental Conservation, various non-governmental organizations, and the public at large. Based on those meetings and discussions, a scoping document (Appendix G) was developed that provided the basic outline for the environmental studies that were conducted for and the discussions that are presented in this DEIS.

SECTION 1
PROJECT DESCRIPTION

SECTION 1 PROJECT DESCRIPTION

1.1 General

1.1.1 General Project Description

In response to initiatives of elected and municipal officials and interested citizens in the Tri-Lakes Region, an Agreement ("Agreement") was executed in September 2004 by and among the villages of Lake Placid and Tupper Lake, Niagara Mohawk, now also known as National Grid ("Niagara Mohawk"), and the New York Power Authority ("NYPA") to help alleviate longstanding power problems in the region through short-term and long-term solutions. One of the long-term solutions identified by Niagara Mohawk and NYPA as required for this area, and included in the agreement, is to upgrade and expand the existing Tri-Lakes Region electricity delivery facilities by installing a new 46,000-volt/46 kilovolt (kV) line within the Adirondack Park in St. Lawrence County (see Figure 1.1-1, Project Location Map). The purpose of the Tri-Lakes Reliability Project ("Project") is to increase the reliability of the electric system in the region through improvements to capacity and delivery.

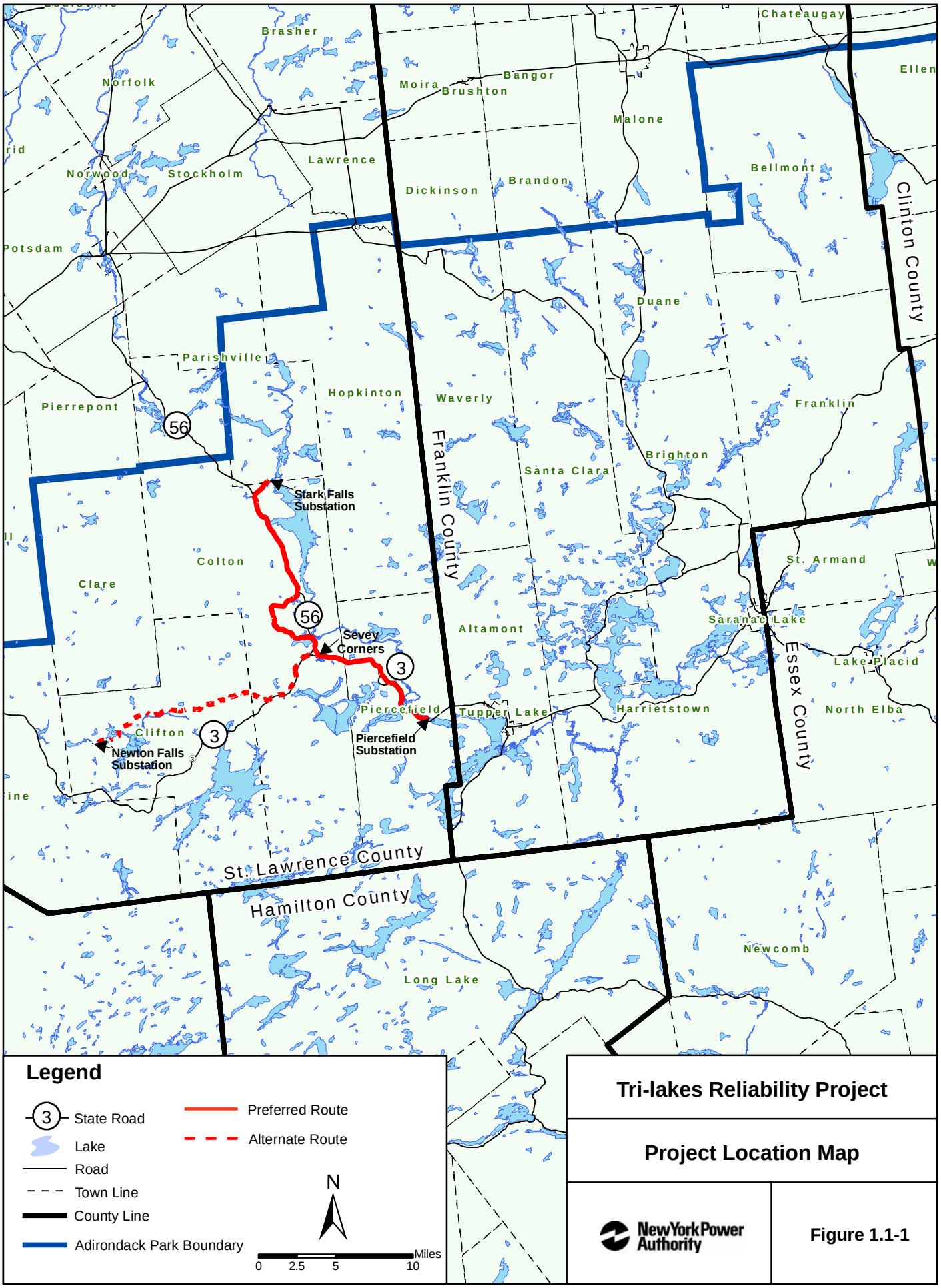
For the purposes of this Draft Environmental Impact Statement (DEIS), the term "Project" refers to all proposed components of the Project including wood pole structures, conductors, hardware, and regulator and substation facilities, as well as the Project rights-of-way (ROW) and access roads. The term "Project Area" is the geographical area encompassing the Project, including alternate routes considered (see Section 2.0).

The proposed Project consists of a combination of existing electric distribution lines and new 46 kV line sharing wood pole structures and ROW in some locations and only new 46 kV lines on wood poles within new ROW in others. The Preferred Route is approximately 26 miles long and begins in the Town of Parishville, NY, at a new 115/46 kV substation that interconnects with the existing 115 kV system, and ends in Piercefield at the existing Piercefield Substation (new regulator station). The Alternate Route is approximately 28 miles long and begins in Clifton, NY at a new 115/46 kV Newton Falls Substation and also ends at the Piercefield Substation.

Operating voltage defines line designation. The Niagara Mohawk subtransmission system operates in the range of 22 kV to 69 kV. For voltages above 69 kV the systems are identified as being part of the transmission system. The distribution system includes lines and electric systems below 22 kV. The choice of operating voltage is made using engineering planning criteria to analyze the electrical load to be served, the distance between the generation and the load, the performance of the system, and economics. The size of the proposed line was selected due to the electrical conditions of the electric system in the area. A 46 kV line was selected as it fits into the area's current electrical system and would be sufficient to carry the forecasted load with smaller ROW requirements than a larger one. The next larger sized line compatible with the area's current electric system, 115 kV, could carry more load but would be more expensive and require a significantly wider ROW.

An analogy to help explain why the 46 kV line size was chosen would be to consider the need to build a new four-lane highway into the region versus a new two-lane highway. While the four-lane highway would greatly serve the traffic needs, it would be very disruptive, costly, and not appropriate to build considering all of the Park concerns for development. In much the same way, the two-lane electrical highway is being built that serves the needs of the residents of the Adirondack Park with minimal disruption to the Park.

1.1-1.mxd



Tri-lakes Reliability Project

Project Location Map

New York Power Authority

Figure 1.1-1

Under current loading conditions, the line from Malone can only support 103 megawatts (MW), of which 24 is used to support Tupper Lake loads. In contrast, with the new 46 kV line and two Static Var Compensators (SVCs),[1] installed under worst case loading conditions, the existing line from Malone will have the capability to support 150 MW of load and the new line, about 35 MW. When the new 46 kV line and SVCs are complete, Tupper Lake's load will be removed from the Malone line, so Tupper Lake's peak load of 27 MW will be served by the 35 MW from the new line, making an additional eight MW available to Tupper Lake. The Malone line will then have 47 MW available to Lake Placid and the Niagara Mohawk native load.

The Tri-Lakes Reliability Project is being developed in compliance with applicable state and federal environmental regulations including review under the State Environmental Quality Review Act (SEQRA) and the Adirondack Park Agency (APA) Act. Table 1.1-1 identifies the state and federal agencies that are involved in the review of this Project.

Table 1.1-1: State and Federal Agencies Reviewing the Tri-Lakes Project

Adirondack Park Agency	Involved agency for review of the Draft Environmental Impact Statement (DEIS). Issues Adirondack Park Agency Act, Section 814 Order for construction of new facilities in the Adirondack Park by a state agency. Issues Wild, Scenic and Recreational Rivers System Act Permit. Issues Article 24 Wetland Permit.
NYS Dept. of Environmental Conservation	Involved agency for review of DEIS. Consults and comments on potential impacts to rare, threatened and endangered species. Issues Section 401 Water Quality Certificate. Issues State Pollution Discharge Elimination System (SPDES) permit for construction stormwater.
NYS Dept of Transportation	Involved agency for review of DEIS. Issues Highway Work Permit for any work in state roads.
NY Office of Parks, Recreation and Historic Preservation	Consults with Project regarding potential impacts to historic properties and archeological sites.
U.S. Army Corps of Engineers	Issues Section 404 (Clean Water Act) permit for work in wetlands. Issues Section 10 (Rivers and Harbors Act) Navigable Water Crossing permit.
U.S. Fish and Wildlife Service	Consults with Project concerning potential impacts to federally listed threatened and endangered species.

1.1.2 Project Need

With certain exceptions, the major infrastructure that supplies electricity to the Tri-Lakes Region has not been upgraded or expanded since the period immediately prior to the 1980 Winter Olympics when a 115 kV line was extended from Lake Colby to Lake Placid. The existing electric transmission lines and

[1] As part of a response to address the issue of outages, Niagara Mohawk is licensing and installing two static var compensators (SVCs). A new 115 kV SVC at the Lake Colby Substation and a new 46 kV SVC at the Tupper Lake Substation will be installed to help manage voltage swings that occur in the Tri-Lakes Region electrical system and diminish the capacity of the system to carry electricity. The SVCs adjust for voltage swings to restore the voltage level to the transmission line and the power distribution system. This SVC project is independent of the proposed NYPA 46 kV line, but both actions help to improve electrical reliability in the Tri-Lakes Region.

associated facilities in the current configuration have reached their limit to reliably serve the load in the region, while the total load of the Tupper Lake and Lake Placid municipal electric systems continues to grow. Additionally, the Malone-Lake Colby 115 kV transmission line from the north delivers most of the electricity to homes and businesses in the Tri-Lakes Region. If service is interrupted on the Malone-Lake Colby transmission line or the subtransmission and distribution lines it feeds, an area-wide outage results.

Peak demand for electricity on the transmission and subtransmission systems in the Tri-Lakes Region occurs in the winter months, during severely cold weather, when outages can cause the loss of heat, light and water in residences, schools and businesses. These events can create significant concerns for public health and safety. In particular, Tupper Lake has been the location of many of the problems with the system. The Electric Superintendent of Tupper Lake has logged a total of sixty-seven outages of electricity in the village since November of 1988 totaling over 350 hours (Bouck, 2004). Between January 1, 2000 and April 30, 2005 the Village of Tupper Lake experienced seven momentary outages (outages lasting less than 5 minutes) and five outages of longer duration that lasted a combined total of just over 20 hours.

Residential consumers are the dominant customer type for both Lake Placid and Tupper Lake, accounting for 45 percent and 61 percent, respectively, of annual electric sales. Sales to commercial customers, including hospitality facilities, account for 34 percent of Lake Placid's 2004 annual sales, while government and institutional customers, including the Olympic Redevelopment Authority, account for 20 percent of sales. Tupper Lake's commercial customers account for 7 percent of its annual sales, with industrial customers using an additional 26 percent.

Within the residential sector, space heating energy use accounts for approximately 61 percent of a typical household's annual energy use, followed by water heating (17 percent), and lighting and appliances (20 percent). Lake Placid utility managers estimate that the electric heat penetration is approximately 65 percent.

Average residential consumption of energy is somewhat lower in New York State than in the US as a whole. In 2003, monthly average residential consumption of electricity was 571-kilowatt hours (Kwh) in New York State, versus an average of 906 Kwh for the country.

In addition to the public health and safety issues, the lack of reliable electricity also has significant repercussions on area businesses. Local businesses can incur large financial losses when outages and voltage problems shut down basic business, computer and communication systems. For example, Altrista/Unimerk, a plastic extrusion facility located in Tupper Lake, estimates that outages cost the company about $1500 per hour in lost sales and about $250/hour in lost wages (the company employs an average of about 100 people in a three-shift/day operation). After about three hours of outage, employees are sent home without pay. After a one-hour outage it takes the company three hours to restart production. Thus, the loss for a one-hour outage is really equivalent to about four hours of lost production. Similarly, Tupper Lake Hardwood, a sawmill also located in Tupper Lake, estimates losses of sales and wages in the order of $850 per hour for each loss, with an additional one hour loss of production due to restart time requirements (Bouck, 2005).

In 1974, power demand at Lake Placid and Tupper Lake was 4.4 MW and 4.6 MW, respectively, and the system was served by 46 kV facilities. Today, power demand in Lake Placid and Tupper Lake is 50 MW and 24 MW, respectively, and over the same period of time, population has grown 10 to 15 percent. Using industry forecasting methods, its own customer forecasts and NYPA customer forecasts, Niagara

Mohawk estimates the new line and voltage support actions (two SVCs) will provide reliable service for about 25 to 30 years.[2]

Load growth in the Villages of Lake Placid and Tupper Lake is projected to increase by about 9 percent and 27 percent respectively, between 2004 and 2014 (Brown, 2005). Anticipated additions to load in Tupper Lake include the Natural History Museum, the Adirondack Club and Resort, and the Wood Product Industrial Park, which would create the additional demand for about 4.0 MW of electricity. Without the addition of the proposed 46 kV line to support the existing 46 kV system, the anticipated growth is likely to create an untenable situation with regular outages and frequent rolling brownouts. (See Section 3.14 for additional information on population projections and anticipated building construction in the region that will benefit from this Project.) Table 1.1-2 summarizes actual and projected winter load forecast for the Tri-Lakes Region.

Analyses performed by Niagara Mohawk show that the SVCs installed at Tupper Lake will provide an extra margin of 10 MW to the existing 46 kV system by taking advantage of the power correction capabilities of the SVCs. In a similar manner, by introducing the 115 kV SVC at Lake Colby, the Tri-Lakes Region benefits from an additional 15 MW capacity. While this is a clear benefit to the Tri-Lakes Region, it must be equally understood that Tupper Lake remains vulnerable because the village is served by the #38 line that originates at Lake Colby and essentially follows Routes 3 and 30 some 26 miles into Tupper Lake. If any part of this line is removed from service (e.g., tree branch falls onto the line, car hits a pole, lightning strike, etc.) the SVC becomes inoperable and Tupper Lake has no power.

Table 1.1-2: Winter Non-coincident Load Forecast/Actual (MW)

	2001-2002[3]	2002-2003[1]	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Tupper Lake[4]	20.09	24.88	24.82	26.20	26.75	27.66	28.07	28.49
Lake Placid[5]	34.68	46.66	50.00	50.50	50.50	51.00	51.00	52.00
Niagara Mohawk[6]	48.47	56.09	57.00	57.99	58.86	59.82	60.79	61.77
Total	103.24	127.56	131.82	134.63	136.11	138.47	139.86	142.26

Conversations with the director of the Lake Placid Chamber of Commerce indicate that Lake Placid has seen an increase of approximately 210 hotel rooms in the past five years, which includes the completion of the White Face Lodge. Approximately 90 to 95 rooms will be added when the Marriott Courtyard opens in 2006. Many smaller motels and motor lodges have been transformed and upgraded, but overall the growth in the area has been in the form of second homes and condominiums, which the Chamber does not track. In addition to the growth of tourist housing, the Governor has called for the remodeling of the Conference Center in Lake Placid and the Plattsburgh Airport is becoming an International airport, both of which could further increased tourist visitation to the area (M. Smith, Telephone Notes, 10/05).

It is estimated that well over $2.0 million has been spent on proactive conservation and demand side management programs that have been implemented in the Villages of Tupper Lake and Lake Placid over

[2] Assumes there are no new large electric users which could shorten the forecast, or other future improvements to the electric system (i.e., use of more local generation, load transfers, demand side management, etc.) which could lengthen the forecast.
[3] Actual loads.
[4] Tupper Lake load data supplied by Niagara Mohawk in the March 14, 2003 forecast.
[5] Lake Placid load data supplied by Lake Placid on July 11, 2003.
[6] Niagara Mohawk load is Malone network, Lake Colby, and Raybrook loads. Niagara Mohawk load forecast at area 10-year historical rate of 1.162 percent from 1993-2002 winter peak loads, beginning with the2002 peak load. Non-coincident peak (1,000 volt amps) loads were converted to MW utilizing a 98 percent power factor.

the past 20 years to reduce demand and thus relieve system constraints. Representative programs are described in Table 1.1-3. Recent, more extensive measures include a moratorium on the installation of new electric boilers in Lake Placid and on the installation of electric heat in new homes in Tupper Lake Village. Helping to reduce the potential for outages are: voltage reductions and rolling blackouts during periods of peak demand; a system of public appeals to residents and businesses from the local electric utilities; and the villages of Tupper Lake and Lake Placid requesting reduced use is instituted when the forecast calls for extremely cold temperatures. In addition to energy conservation programs, Niagara Mohawk has also conducted a number of studies and develops regular (monthly during peak demand periods) plans for load shedding and peak shaving as part of its overall load management planning.

Table 1.1-3: Demand-Side Management and Alternative Power Source Initiatives Implemented in the Villages of Tupper Lake and Lake Placid, NY

Action	When implemented
Village of Tupper Lake	
NYPA's WattBuster program for residential customers – had a 37% participation rate with a load reduction in excess of one megawatt	Late 1980s and early 1990s
Small Cities Rehabilitation Program – over 300 residential housing units rehabilitated in Tupper Lake with energy conservation components	1975 through present
Replacement of street lighting with high efficiency fixtures for electricity savings of at least 50%	1988-1992
Creation of a time-of-day rate for industrial class customers	
Installation of standby / distributed generation for specific municipal facilities and medical facilities In Tupper Lake	
Village of Lake Placid	
Load Management System on hot water heaters	1979
WattBuster Program to insulate older homes	1985
Installation of Supervisory Control and Data Acquisition (SCADA) System to reduce voltage 5% at peak times	1996
Independent Energy Efficiency Program for lighting programs for municipal buildings, schools, and street lighting upgrades	2000
Purchase of an Infra-red Scanner to detect loose connections in the system to reduce system losses.	2001

From 1989 through 1994 Niagara Mohawk offered its customers an extensive Demand-Side Management program. The program, offered to residential, commercial and industrial customers, covered a wide range of technologies and rebate offerings. Niagara Mohawk spent between $30-$50 million annually on rebates and programs to increase customer efficiency. A partial listing of program offerings included energy audits, lighting, high efficiency motors, variable speed drives, refrigerator round-up, water heating wraps, custom measures, HVAC, farm efficiency and load management. A significant reduction in megawatt-hours resulted from the programs, with significant participation from all customer classes.

During the past few winters, the combination of public appeals and the addition of diesel generators, changes to the configuration of the electric system, and new equipment to help boost voltage levels have helped to maximize the capability of the local electric system during periods of extreme cold and have helped postpone the need for rolling blackouts. However, these temporary measures provide only interim relief and are inadequate to meet the region's electric needs over the longer term.

Also, temporary measures have been implemented to prevent outages and/or significant voltage decline during winter months including transfer of load to New York State Electric & Gas (NYSEG), and the installation and operation of diesel generators at the Tupper Lake Substation, and at Raybrook/Federal

detention centers. Under extreme winter loading conditions, Niagara Mohawk and the municipal utilities (Lake Placid and Tupper Lake) may institute load shedding and rotating outages to prevent loss of power to the region. Even with the new 46 kV line in place, energy conservation will still be an important factor in meeting future load requirements and there may be situations where load shedding is still necessary.

1.1.3 Project Location

The proposed 46 kV line and associated facilities will be built, in eastern St. Lawrence County within the Adirondack Park in the towns of Parishville, Colton, and Piercefield, St. Lawrence County (Preferred Route) or in the towns of Clifton, Colton, and Piercefield, St. Lawrence County (Alternate Route). This portion of the Adirondacks is part of the St. Lawrence River drainage and is characterized by rolling terrain with numerous small watercourses and wetlands. This is a transition area between the St. Lawrence River Valley and the Adirondack high peaks, and is considered the Adirondack lowlands. Figure 1.1-1, shows the location of the Project within the region.

Major waterways in the area include the Grasse (South Branch), Oswegatchie, and Raquette Rivers. The South Branch Grasse River is listed as a Scenic River, the Raquette River is a Scenic and Recreational River in the project area, and the Oswegatchie is a Study River.

Two state highways are located in this area. State Route 3 is an east-west connector between Saranac Lake (east) and Watertown on the west. A north-south state highway, State Route 56, starts at State Route 3 at Sevey Corners and terminates in Massena. Section 3.15 provides information on transportation systems in the Project Area.

Land development is regulated on both public and private land. Private land development is controlled by the Adirondack Park Agency (APA) Act. Section 814 of the Act also provides for limited review of State agency projects on state or private land. Overall, APA land use classification and review is based on the natural resource capability to sustain development without significant adverse environmental impacts. The state land is also controlled by the Adirondack Park State Land Use Master Plan (SLMP) and the unit planning process is initiated by NYSDEC in consultation with the APA. Section 3.11 provides information on area land use and the various regulations that are applicable to the Project Area.

1.1.4 Routing Studies

A review of options to improve electric service to the area identified the proposed 46 kV line from the west or north to the existing Piercefield Substation as the most effective way to enhance reliability. The routing analysis conducted for this Project considered environmental, social, engineering and economic factors, while meeting the specific needs of the area and the intent of the Agreement among NYPA, Niagara Mohawk and the Villages of Lake Placid and Tupper Lake. Routing alternates were considered to avoid potentially significant environmental resources and to take advantage of existing utility and transportation corridors, using site-specific engineering solutions (e.g., different structure configurations and materials, underground segments, long spans) in environmentally sensitive locations where routing options were limited. The routing process was conducted with input from representatives of the APA, New York State Department of Environmental Conservation (NYSDEC), U.S. Army Corps of Engineers (ACOE), State Historic Preservation Office (SHPO), local municipalities, non governmental organizations, local residents, special interest groups, and the general public to ensure that local concerns were addressed in the siting and design process. Section 2 provides information on the routing, design and system alternatives that were considered as part of this review and the rationale for their rejection. Appendix A, Alternate Routing Studies Report, summarizes the process used to select the Preferred and Alternate Routes.

1.1.4.1 Pre-Feasibility Route Identification and Evaluation

To increase the reliability of the existing electric transmission system within the region, a new 46 kV line was initially proposed by Niagara Mohawk and the NYPA that was to be located between a new 115/46 kV substation near Newton Falls and a new regulator station near the existing Piercefield Substation. The existing 46 kV line between Piercefield and Tupper Lake Substation is adequate to connect the new line to the Tri-Lakes Region at the Tupper Lake Substation. At the pre-feasibility level, two alternates to the Newton Falls route were identified, one proposed between a new 115/46 kV substation near the Stark Falls Hydro Station in the Town of Parishville and the proposed regulator station near the existing Piercefield Substation in the Town of Piercefield and a second originating at Browns Falls Hydro Station in the Town of Fine and also terminating at the proposed regulator station near the Piercefield Substation (see Section 2, Figure 2.3-2, Map 5 of 11).

Pre-feasibility route identification used a combination of existing paved and unpaved roadways, logging or snowmobile trails and existing electric distribution corridors. Opportunities to follow Niagara Mohawk's existing local distribution corridors became a logical extension of following existing roads since, for the most part, these existing facilities are located within or immediately adjacent to roadways. Combining proposed utilities with roadway corridors is consistent with the "consolidation concept" of planning linear facilities within the Adirondack State Park. The three pre-feasibility alignments were considered the starting point for the alternate routing studies. The next phase of planning involved a preliminary review of each route, including windshield surveys, mapping and documentation review.

After this initial investigation of the three pre-feasibility routes, the Browns Falls Alternate was dropped from further consideration (see Section 2.3 for alternate routes that were identified but dropped from consideration). In comparison to the other two alternates, it offered no advantages and would result in more environmental impact. This alternate traverses approximately 1.5 miles through one State Forest Preserve with no viable routing alternates to avoid this constraint. Also, this alternate is approximately 10-12 miles longer than the Newton Falls Alternate and traverses similar terrain and ecologically sensitive areas. It was assumed that its increased length would result in a commensurate increase in environmental impacts and costs.

On March 3 and 4, 2005, NYPA held a meeting with the APA and the NYSDEC, to present the proposed project to agency representatives and to gather input from them on the Stark and Newton Falls routes, the two remaining pre-feasibility alternates. During the course of this two-day session, two key environmental issues that needed to be addressed became evident: visual resources and wetland resources. Specific concerns, including water and wetland crossings, visibility from sensitive resource areas and proximity to State designated rivers were identified during this meeting.

As a result of this meeting, an Alternate Route was developed for that portion of the Stark Route passing along State Route 56 over the Raquette Boreal State Forest Preserve. This alternate alignment passes to the west of and around the State Forest Preserve. This alternate avoids routing along State Route 56 over the same State Forest Preserve. This routing option, along with several other "sub-alternate routes," was identified in response to input received from the regulatory agencies. Options identified during the Pre-application meeting were given further study and the results were presented at a follow-up agency meeting three weeks later on March 24, 2005.

The Route 56 Alternate ("Route 56 Alternate"), which would have sited the 46 kV line entirely along State Route 56, was not selected as part of the Preferred Route because of potential delays that might result from that option's selection. Specifically, there are concerns about a potential need for an amendment to the New York State Constitution if the 46 kV line were sited entirely along State Highway Route 56 ROW, which passes over 1.8 miles of Forest Preserve (see Appendix A, Section 2.4.5). NYPA engaged in research concerning the viability of this option, which appeared to entail less environmental impacts and be in keeping with constitutional and regulatory requirements (see Appendix A,

Sections 2.4.2 to 2.4.4). During the public outreach process, however, there were concerns expressed that the Route 56 Alternate would go through Forest Preserve lands and abrogate the "Forever Wild" clause of Article XIV, Section 1 of the NYS Constitution. On March 30, 2005, NYPA met with representatives of NYSDOT, including the NYSDOT Regional Utility Engineer, in Watertown, NY. NYSDOT provided information concerning the history of Route 56 and NYSDOT's 1998 permitting of the Verizon underground fiber optic cable (see Appendix A, Section 2.4.3) along that portion of Route 56 ROW sited over Forest Preserve. NYPA then met with representatives of the NYSDEC Legal Department in Albany, NY on May 12 to discuss Route 56 and the Forest Preserve. NYSDEC expressed concern that siting along this route might require a constitutional amendment. Ultimately, the time which would be required to resolve this issue made the option less attractive than the Preferred Route. A subsequent routing analysis revealed other considerations which made the alternate less viable (see Appendix A, Section 2.4.8).

1.1.4.2 Sub-Alternate Route Identification and Analysis

Additional agency meetings were held, and field reviews conducted to refine sub-alternate routes and to continue to identify issues that might influence Alternate Route selection. In particular, underground options were identified for consideration if a Stark Falls Alternate alignment were to follow State Route 56 over the State Forest Preserve. Safety and future road construction issues were also raised by the NYSDOT, as they would relate in particular to the portions of State Route 3 between Sevey Corners and Piercefield.

Aerial reconnaissance of the Project Area route alternates and sub-alternates was conducted on April 4, 2005. During the reconnaissance, locations for river crossings were confirmed, significant wetlands to the west of the State Forest Preserve were observed, and land use, topography and vegetative cover in inaccessible areas were identified.

In addition to meetings with the APA and NYSDEC, NYPA held a series of public outreach meetings with municipalities and non-governmental agencies in the study area and a public open house in Tupper Lake. One of the most important objectives of these meetings was to solicit comment from the participants on the proposed location of the Alternate Routes. The information obtained at the meeting was made part of the decision making process in terms of selecting between sub-alternate routes and between a Preferred and Alternate Route.

An analysis of sub-alternate routes is presented in Appendix A. The sub-alternate locations were studied in detail to determine which of several sub-alternate routes were more acceptable based on an analysis of several factors including length, engineering design, wetlands, cultural resources, visual resources, vegetation and public comment.

1.1.4.3 Preferred and Alternate Route Identification and Evaluation

Once decisions were made on the various sub-alternates, the remaining two complete routes that would connect the proposed Regulator Station near the Piercefield Substation to a new 46/115 kV substation at either Stark Falls or Newton Falls were then compared to determine a Preferred Route and an Alternate Route. The Preferred Route represents the alignment that is considered to be most advantageous when collectively considering all the factors analyzed. The remaining Alternate Route may not be as advantageous, but is still considered to be a viable option. The Preferred and Alternate Routes are depicted on Figure 1.1-2, Maps 1 through 5.

PARISHVILLE

COLTON

HOPKINTON

ADIRONDACK PARK BOUNDARY

ADIRONDACK PARK BOUNDARY

Stark Falls Substation

Raquette River Road

Joe Indian Road

Stark Falls Hydro Station

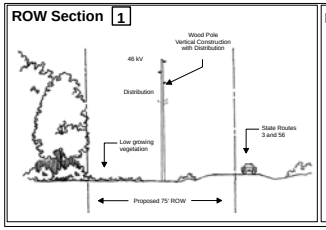
Carry Falls Reservoir

Raquette River

MATCHLINE SHEET 4

MATCHLINE SHEET 2

ROW Section 1



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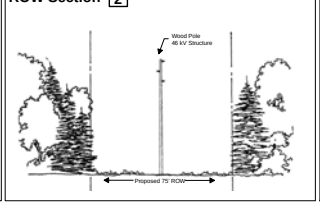

Legend

- Preferred Route
- Alternate Route
- Reference Markers
- ROW Section Divider
- Town Line
- County Line
- State Route
- State Forest Preserve
- Existing Transmission Line
- Adirondack State Park Boundary

Data Sources Include:
1. Shared Adirondack Park Geographic Information CD-ROM ver. 1.0 July 2001 (disks 1 and 2)
2. National Geographic 1:24,000 USGS Quadrangles

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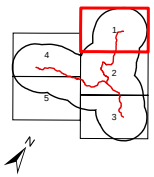

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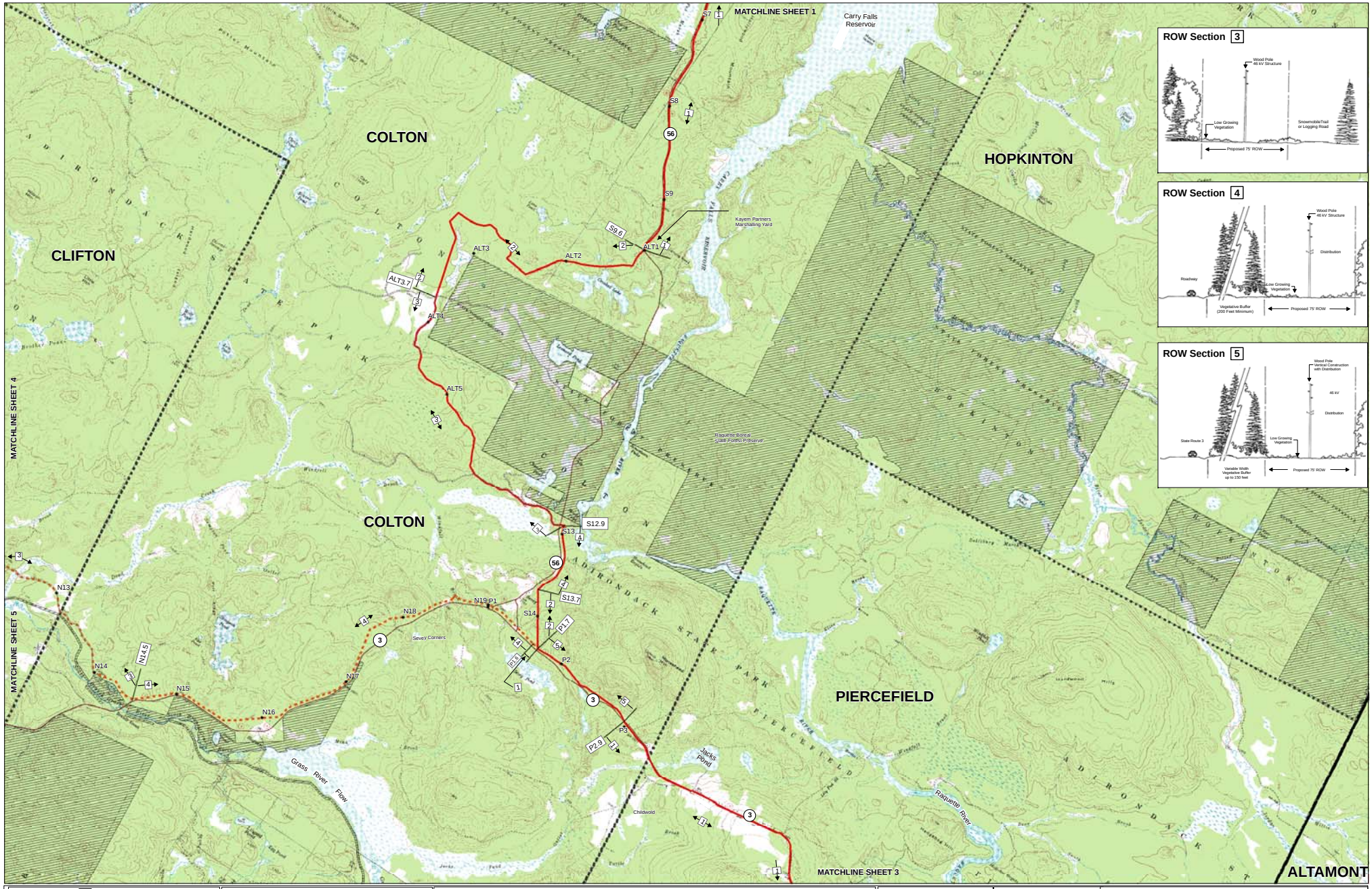
Tri-Lakes Reliability Project

Preferred and Alternate Routes

New York Power Authority

November 2005

Figure 1.1-2
Map 1 of 5



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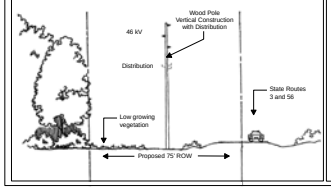

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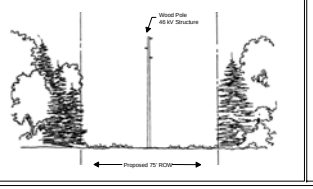

Legend

- Preferred Route
- Alternate Route
- Reference Markers (P3)
- ROW Section Divider
- Town Line
- County Line
- State Route (56)
- State Forest Preserve
- Existing Transmission Line
- Adirondack State Park Boundary

Data Sources Include:

1. Shared Adirondack Park Geographic Information CD-ROM ver. 1.0 July 2001 (disks 1 and 2)
2. National Geographic 1:24,000 USGS Quadrangles

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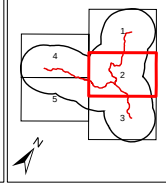

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Tri-Lakes Reliability Project

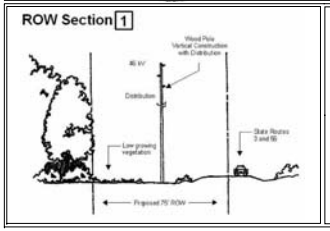
Preferred and Alternate Routes

New York Power Authority

November 2005

Figure 1.1-2
Map 2 of 5

ROW Section 1



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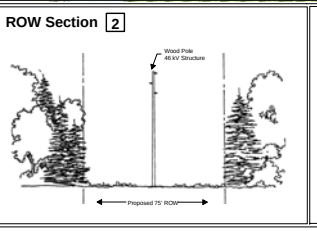

Legend

- Preferred Route
- Alternate Route
- P3 Reference Markers
- ROW Section Divider
- Town Line
- County Line
- 56 State Route
- State Forest Preserve
- Existing Transmission Line
- Adirondack State Park Boundary

Data Sources Include:
1. Shared Adirondack Park Geographic Information CD-ROM ver. 1.3 July 2001 (slides 1 and 2)
2. National Geographic 1:24,000 USGS Quadrangles

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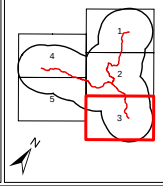

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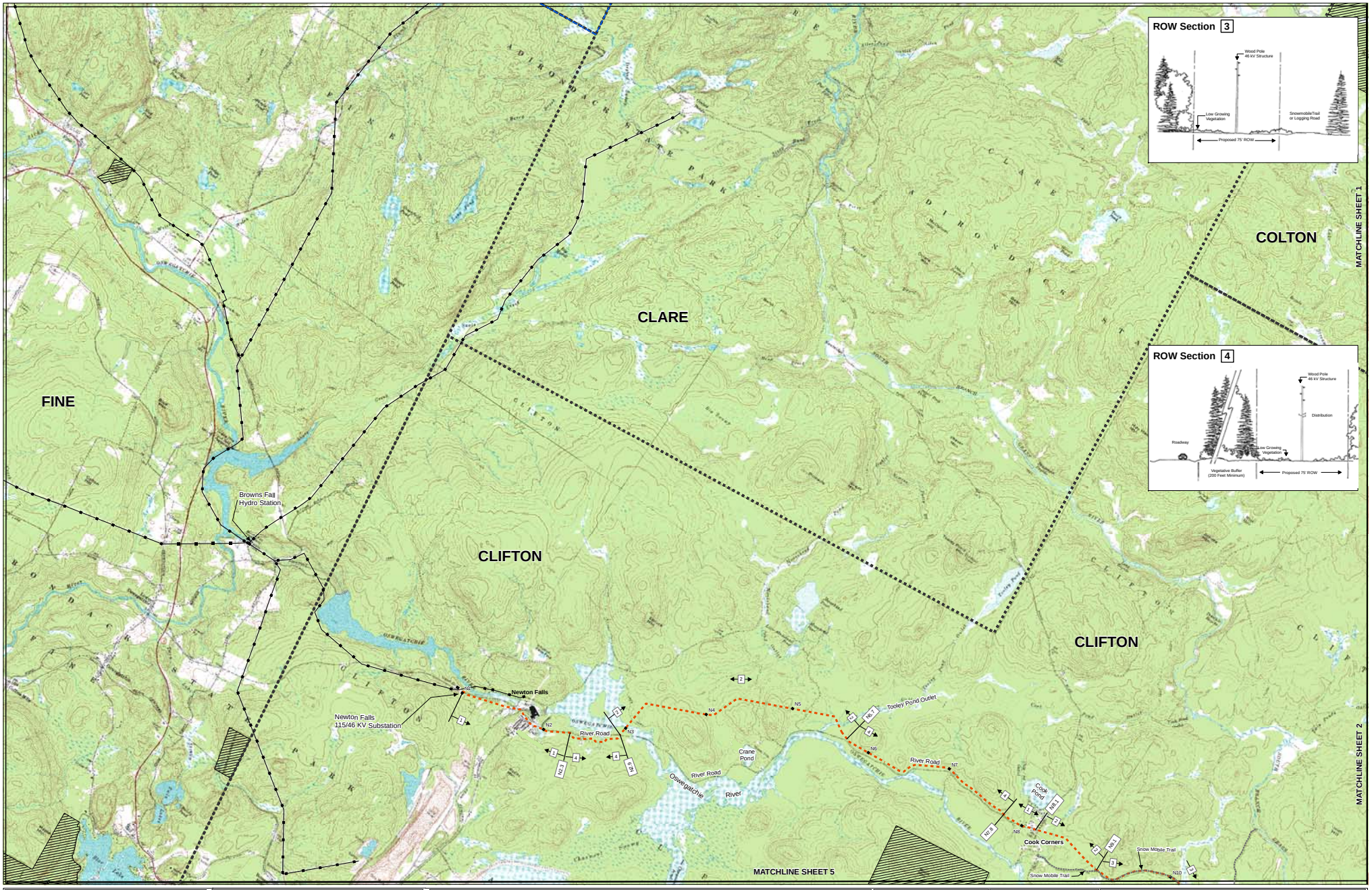
Tri-Lakes Reliability Project

Preferred and Alternate Routes

New York Power Authority

November 2005

Figure 1.1-2
Map 3 of 5



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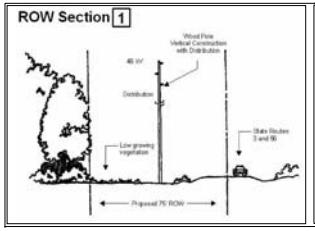

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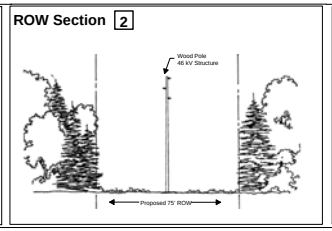

Legend

- Preferred Route
- Alternate Route
- P3 Reference Markers
- ROW Section Divider
- Town Line
- County Line
- 56 State Route
- State Forest Preserve
- Existing Transmission Line
- Adirondack State Park Boundary

Data Sources Include:
1. Shared Adirondack Park Geographic Information CD-ROM ver. 1.0 July 2001 (slides 1 and 2)
2. National Geographic 2-24,000 USGS Quadrangles

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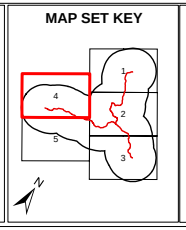

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Tri-Lakes Reliability Project

Preferred and Alternate Routes

NewYorkPower Authority

November 2005

Figure 1.1-2
Map 4 of 5

MATCHLINE SHEET 4

CLIFTON

Cranberry Lake

Snow Mobile Trail

South Branch

Grass River

N11

N12

MATCHLINE SHEET 2

Cranberry Lake

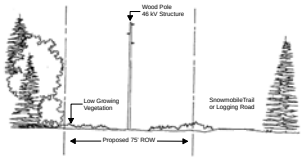
FINE

CLIFTON

COLTON

MATCHLINE SHEET 3

ROW Section 3



Legend

- Preferred Route
- Alternate Route
- P3 Reference Markers
- B B ROW Section Divider
- Town Line
- County Line
- 56 State Route
- State Forest Preserve
- Existing Transmission Line
- Adirondack State Park Boundary

Data Sources Include:
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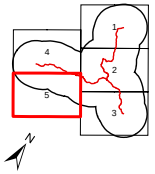

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Tri-Lakes Reliability Project

Preferred and Alternate Routes

NewYorkPower Authority

November 2005

Figure 1.1-2
Map 5 of 5

The final routing analysis (described in Appendix A) identified the Stark Falls Route as Preferred and the Newton Falls Route as the Alternate. In terms of total length and proposed ROW configurations, the Preferred (Stark Falls) route has many advantages including shortest length, greater percentage of overbuild and ROW adjacent to paved roadway and lowest amount of new ROW, including cross-country alignment.

The Preferred Stark Falls Route is approximately 1.4 miles shorter than the Newton Falls Alternate and includes approximately 6.1 more miles of overbuild construction (wood pole structures with existing distribution lines and the proposed 46 kV line), or a total of approximately 15.6 miles, that is consistent with APA guideline that encourages consolidation of facilities within a single corridor or ROW. This represents minimizing the introduction of new ROW into areas not previously disturbed. The Preferred Route traverses the least amount of land designated by the APA Act as Resource Management and the greatest amount of Utility Corridor Consolidation.

Construction of a major public utility is a secondary compatible use in Rural and Resource Management lands. As a secondary compatible use, a major public utility, (the Preferred Route) can be permitted to be constructed in those areas when it is determined, due to the nature and intensity of the use, that it does not affect the resources of the Park. The resources of the Park are all lands, land uses, and activities that take place within the boundary of the Park and, that, by their variety and interrelationships make the Park unique. To be compatible, the impacts of the Preferred Route cannot be widely visible or make a significant change in the visual setting that would impact the open space character or change the intensity of land use.

To accomplish this, the Preferred Route follows existing road corridors where there are existing overhead utilities, combines existing utilities with proposed facilities where possible, and uses to the fullest extent practicable, existing cleared utility rights-of-way. The Preferred Route also quickly transitions from the State Route 56 corridor to a cross-country ROW around the Boreal State Forest Preserve, crossing gently rolling, primarily upland areas along a nearly complete network of existing woodland roads. Here there will be no long distance views of the ROW from State Route 56 nor will there be lengthy durations of views at reference markers Alt 1 and Alt 6 (see Figure 1.1-2, Map 2 of 5) where the ROW leaves and re-enters the State Route 56 corridor).

Construction along that portion of the Preferred Route around the Boreal State Forest Preserve will use a network of existing trails for access, will take maximum advantage of currently logged over areas, and will reuse existing crossings of water resources. Any potential changes to the open space character of this portion of the Preferred Route have been minimized by taking the fullest advantage of existing roads and trails and logging activities along this segment.

The open space atmosphere of the Rural Use and Resource Management areas of the remaining portion of the Preferred Route has been protected through the use of 16.2 miles of previously developed road corridor. The development of a wider ROW that involves pushing the tree line back from the roadway does not change the transition from developed to undeveloped land. The transition from undeveloped land to developed properties is an important component of open space, showing the change in environmental condition. The new tree line will remain a definitive beginning of the undeveloped land and will not alter the overall context of it in relation to the road corridor.

The Preferred Route crosses fewer streams under and over 5 feet wide and/or of high quality; and contains less threatened and endangered species habitat. In comparison to the Newton Falls Alternate, there are approximately eight less miles of new ROW and approximately 50 fewer acres of clearing along the Stark Falls route. The Stark Falls route also has more ROW adjacent to paved road and will not require any underground or underwater segments. The overall cost savings (not including ROW acquisition, licensing or detailed engineering and design) is estimated to be about $2.6 million. Table 1.1-4 compares the Preferred and Alternate Routes.

Table 1.1-4: Preferred and Alternate Route Comparison

Description	Route			
		Stark Falls Piercefield		Newton Falls Piercefield
Total Length	+	**26.8 mi.**	-	**28.2 mi.**
Configuration				
Overbuild	+	15.6 mi.	-	9.5 mi.
New ROW miles[1]	+	11.2 mi.	-	18.4 mi.
Underground	+	0.0 mi.	-	0.4 mi.
Adjacent to Existing Roads	+	16.2 mi.	-	9.5 mi.
Land Use				
Hamlet	-	0.7 mi.	+	1.3 mi.
Moderate Intensity	-	2.3 mi.	+	2.9 mi.
Low Intensity	+	0.5 mi.	+	0.5 mi.
Rural	-	12.0 mi.	+	3.9 mi.
Resource Management	+	9.9 mi.	-	19.4 mi.
New Utility Corridor	+	10.7 mi.	-	18.4 mi.
Consolidation of Utility Corridors	+	15.6 mi.	-	9.5 mi.
Ecological				
Wetland – Temporary Impact	+	3.0 mi.	-	3.1 mi.
Clearing	+	13.7 acres	-	20.2 acres
Cover Type Forested[2]	+	10.7 acres, 2.1 mi.	-	12.8 acres, 1.8 mi.
Cover Type Non-forested[3]	+	2.9 acres, 0.9 mi.	-	7.5 acres, 1.3 mi.
Wetland – Permanent Fill	+	7,930 square feet	-	13,995 square feet
Total Acres Cleared/Upland and Wetland		119.4 acres		173.5 acres
Stream Crossings < 5 feet	+	22	-	31
Stream Crossings > 5 feet	+	9	-	10
High Quality Stream Crossings[4]	+	13	-	30
T&E Species	+	2	-	3
Rare/Special Concern Species	-	2	+	1
Exploitably Vulnerable Species[5]	-	15	+	10
Visual				
Overbuild	+	15.0 mi.	-	9.5 mi.
New ROW[6]	+	11.2 mi.	-	17.7 mi.
Cross Country only	+	5.6 mi.	-	12.2 mi.
Sensitive Crossings	+	0.0 mi.	-	3 mi.[7]
Cultural				
Surface Sites	+	21	-	26
No Recommended Testing	+	16.0 mi.	-	13.2 mi.
Phase IB Testing or Avoid	+	5.2 mi.	-	6.7 mi.
Direct Cost[8]	+	**$8,900,000**	-	**$11,500,000**

Notes:

[1] Includes new overhead, cross-country, and offset.

[2] Includes any wetland that contains a palustrine forested wetland (PFO) component.

[3] Includes any wetland that contains no PFO component.

[4] Based on stream classifications according to best usage under 6 NYCRR Part 701 as follows:

Class A: waters are suitable for drinking, primary and secondary contact recreation and fishing.

Class B: waters are suitable for primary and secondary contact recreation and fishing, and for the survival and propagation of fish.

Class C: waters are suitable for fishing and the survival and propagation of fish.

(Does not include Class D streams)

[5] Total number of exploitably vulnerable species observed during field efforts, not the number of occurrences of each species. Exploitably Vulnerable listed species are native plants that are not necessarily rare or uncommon, but may be desirable for commercial use and could become rare, threatened, or endangered if subjected to unchecked commercial exploitation.

[6] Includes offset, new overhead and cross-country.

[7] Grasse River crossing underground and substantially invisible.

[8] Does not include costs for Licensing/Permitting support, right-of-way-acquisitions or easements, or Detailed Engineering and Design.

(+) Favors selection of route.

(-) Does not favor selection of route

1.1.4.4 Preferred Route

As a result of the analysis summarized above and described in Appendix A, a Preferred and an Alternate Route were selected. The Preferred Route for the Tri-Lakes Reliability Project is approximately 26.8 miles long. The description for the Preferred Route is presented below in two segments, Stark Falls – Sevey Corners and Sevey Corners - Piercefield. The alignments of the Preferred and Alternate Routes are shown on Figure 1.1-2, Maps 1 through 5.

Stark Falls – Sevey Corners - The Preferred Route originates at the proposed Stark Falls Substation located approximately 3,100 feet north of Joe Indian Road on the east side of Raquette River Road. The proposed line exits the new 115/46 kV substation to the west crossing to west side of Raquette River Road at which point it turns southwest and proceeds about 3,300 feet to the intersection with Joe Indian Road (S1.6) and an existing distribution line (see Figure 1.1-2, Map 1 of 5). In this segment, a new set of wood pole structures will be installed to overbuild the existing distribution line with the proposed 46 kV line.

From the intersection of Joe Indian Road (S1.6), the Preferred Route proceeds in a southwesterly direction on new ROW about 3800 feet to the west side of State Route 56 (S2.4). This is a cross-country section that has a new ROW 75 feet wide with just the 46 kV line on wood pole structures.

Once adjacent to State Route 56, the Preferred Route then continues for about 7.1 miles south (S2.4 to S9.6) adjacent to this highway. In this segment, the existing line and the proposed lines will be carried on overbuild configuration wood pole structures.

At this location (S9.6/Alt. 1.0), the Preferred Route leaves State Route 56 and proceeds on a new ROW to the north, west, and south of the existing Raquette Boreal State Forest Preserve and then back to State Route 56 about 1.2 miles north of Sevey Corners as shown on Figure 1.1-2, Map 2 of 5. This section of the Preferred Route, which bypasses the State Forest Preserve, is approximately 6 miles in length. More specifically, after leaving State Route 56, this route turns south and then southwest on new ROW passing north of Crooked Lake for just over 2 miles to the western boundary of the State Forest Preserve as shown on Figure 1.1-2, Map 2 of 5. At the western end of the State Forest Preserve, the Preferred Route turns south southeast and then east on new ROW for approximately four miles crossing to the east side of State Route 56. Approximately 3.3 miles of these 4-miles are situated along an existing logging road. The entire 6 miles of this portion of the 46 kV line will be carried on vertically configured structures supporting only the proposed line.

Once on the east side of State Route 56 (S12.9), the proposed line turns south and continues about 0.8 miles parallel and offset 200 feet from the highway. Just north of State Route 3 (reference marker S13.7) the Preferred Route turns south and east and proceeds cross-country on single circuit, 46 kV wood pole structures on 75 feet of new ROW to join State Route 3 (reference marker P1.7) about 0.6 miles east of its interconnection with State Route 56 as shown on Figure 1.1-2, Map 2 of 5.

Sevey Corners – Piercefield – This segment for the Preferred Route is approximately 9.8 miles long. From its beginning on the north side of State Route 3 (reference marker P1.7), approximately 0.7 miles east of its intersection with State Route 56, the Preferred Route continues for 4.5 miles in an overbuild configuration to a point about 3,000 feet north of Gale at Catamount Pond (reference marker P6.7) (see Figure 1.1-2, Map 3 of 5). At this point, the proposed 46 kV line passes southeast on single circuit structures on new ROW for approximately 4,300 feet to rejoin State Route 3 south and east of Gale (reference marker P7.4). From this intersection, the Preferred Route parallels State Route 3 for about 2.6 miles to a location 2,800 feet southeast of Dead Creek (reference marker P10.0). At this point, the route leaves State Route 3 to avoid extremely steep slopes, and an area pending primitive designation by APA, and traverses 3,800 feet on new 75 foot ROW. The Preferred Route rejoins State Route 3 (reference marker P10.8) proceeding into Piercefield and the proposed regulator station near the Piercefield Substation, first in an overbuild arrangement (2,200 feet) and then on new ROW (1,500 feet) (see Figure 1.1-2, Map 3 of 5).

1.1.4.5 Alternate Route

The Alternate Route is also comprised of two segments including Newton Falls-Sevey Corners (17.7 miles) and Sevey Corners-Piercefield (10.5 miles), totaling 28.2 miles (see Figure 1.1-2, Maps 4 and 5 of 5).

Newton Falls – Sevey Corners – The Alternate Route begins at the proposed Newton Falls Substation located approximately 4,000 feet west of Newton Falls. The proposed line exits the new 115/46 kV substation to the east and proceeds for about 2.3 miles in a vertical wood pole overbuild configuration (Figure 1.1-2, Map 4 of 5) through this community and on to River Road. The Alternate Route then continues in a vertical wood pole configuration northeast for about 0.6 mile, offset 200-300 feet on the south side of River Road to a location (reference marker N2.9) where the route angles northward and crosses River Road and the Oswegatchie River. The river in this location is less than 300 feet wide. Once across the Oswegatchie River, the Alternate Route continues in a vertical wood pole configuration cross-country north and east for approximately 2.6 miles before crossing Tooley Pond Outlet. This segment passes through woodlands to the west of Crane Pond at varying distances of 1000 to 3,500 feet north of River Road. After crossing Tooley Pond Outlet, the Alternate Route approaches the north side of River Road about 1,500 feet east of its crossing of the Outlet (reference marker N5.8). The route parallels the north side of River Road for about 2.0 miles as a vertical wood pole configuration to the west side of Cook Corners (reference marker N7.8) and is typically offset from the road by approximately 200 feet. The Alternate then proceeds for about 1,700 feet to Tooley Pond Road in an overbuild configuration.

East of Tooley Pond Road, the Alternate traverses cross-country for 0.8 miles east to an existing snowmobile trail. This route continues east generally following the snowmobile trail for 5.4 miles to the trailhead at State Route 3. In this segment, the Alternate Route would cross the South Branch Grasse River underground via a directional bore and open trench construction, with the remainder of new ROW utilizing vertical wood pole structures.

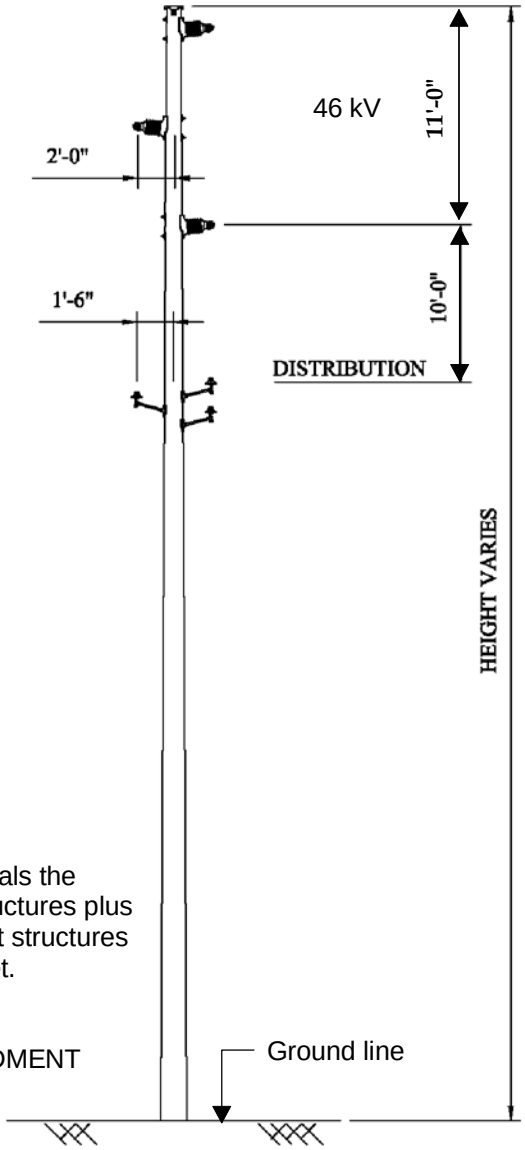
The Alternate Route then parallels the west side of State Route 3 as new overhead offset construction on vertical wood poles from the snowmobile trailhead on State Route 3 east to a point approximately 3,400 feet east of Sevey Corners. Along this approximate 5.0-mile length, the proposed offset varies between 100 and 400 feet in width. From this point there is an approximate 300 foot segment of vertical wood pole overbuild configuration where the Alternate Route then rejoins the same route as previously described for the Sevey Corners – Piercefield segment of the Preferred Route (see Figure 1.1-2, Maps 2 and 5 of 5).

1.1.4.6 Proposed Project Structures and ROW Configuration

Structures to be included in the proposed Project include standard Niagara Mohawk wood pole structures (poles), conductors, a regulator, and substation facilities. The proposed line will include new 46 kV structures, and structures with a combination of existing electric distribution facilities and the new 46 kV line (overbuild).

In general either a vertical, or a flat configuration (see Figures 1.1-3 through 1.1-7) will be used. The choice of a specific structure location and pole height will depend on terrain, and a variety of engineering and environmental factors. In locations where electric distribution facilities exists, new taller poles will replace the existing poles either in the same location, or in close proximity, if better suited based on engineering and environmental considerations. On the average, the vertical configuration is approximately 10 feet taller than the flat configuration structure. Six alternative configurations, shown in Figures 1.1-3 through 1.1-8 were considered, and are listed below.

- Wood-Pole Vertical Configuration with Candlestick Distribution (46 kV overbuild), Figure 1.1-3
- Wood-Pole Vertical Configuration, Figure 1.1-4
- Wood-Pole Flat Configuration with Crossarm Distribution (46 kV overbuild), Figure 1.1-5
- Wood-Pole Flat Configuration, Figure 1.1-6
- Wood-Pole Flat Configuration with Candlestick Distribution (46 kV overbuild), Figure 1.1-7
- 3-Pole Deadend-Horizontal Construction, Figure 1.1-8



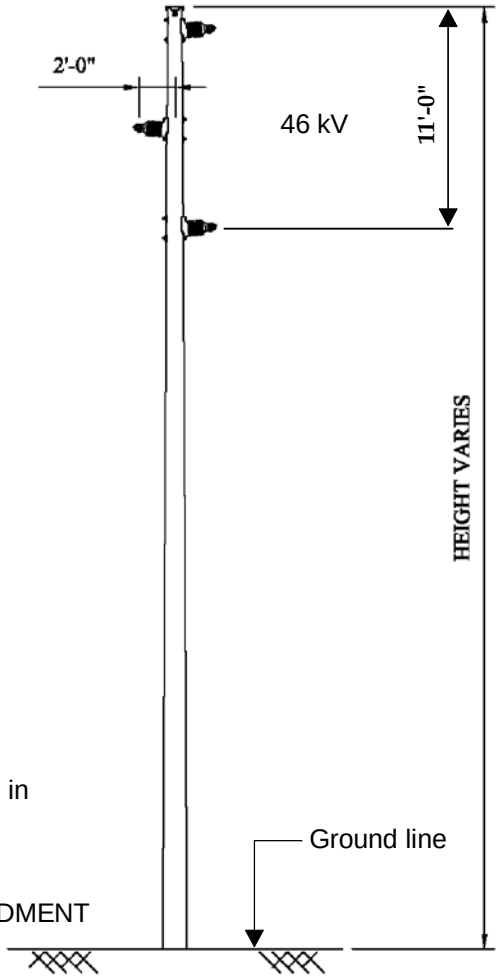
HEIGHT: Height of structure equals the height of existing distribution structures plus 21 feet of the 46 kV circuit. Most structures will be in th range of 55 to 70 feet.
TYPICAL SPAN: 300'
VOLTAGE: 46 kV
FOUNDATION: DIRECT EMBEDMENT

Tri-Lakes Reliability Project

Wood-Pole Vertical Configuration with Candlestick Distribution

New York Power Authority

Figure 1.1-3



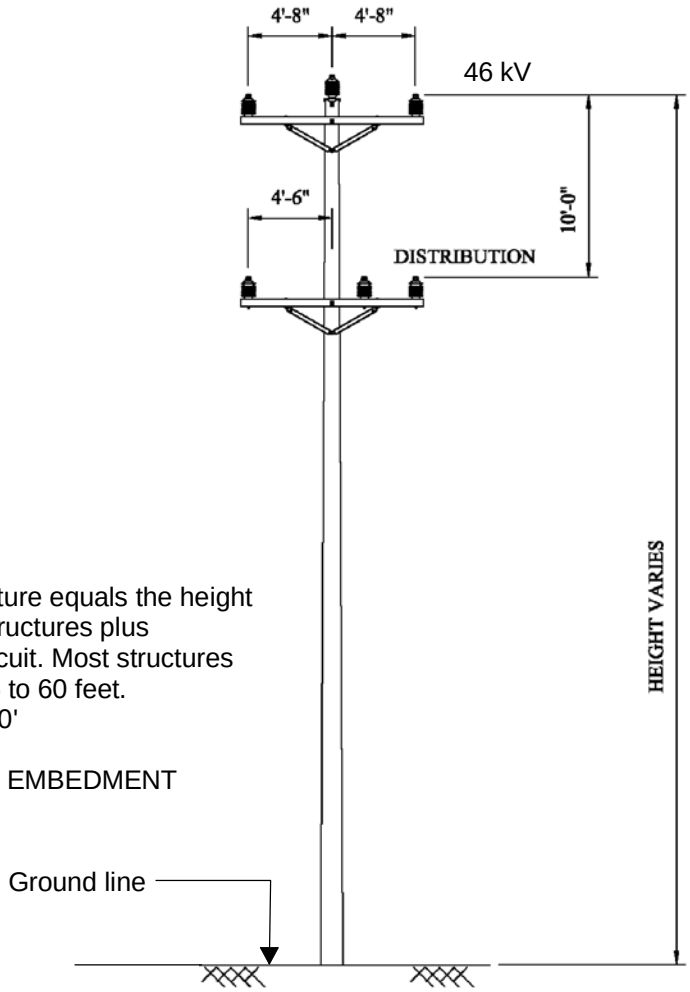
HEIGHT: Most structures will be in the range of 48 to 66 feet.
TYPICAL SPAN: 300'
VOLTAGE: 46 kV
FOUNDATION: DIRECT EMBEDMENT

Tri-Lakes Reliability Project

Wood-Pole Vertical Configuration

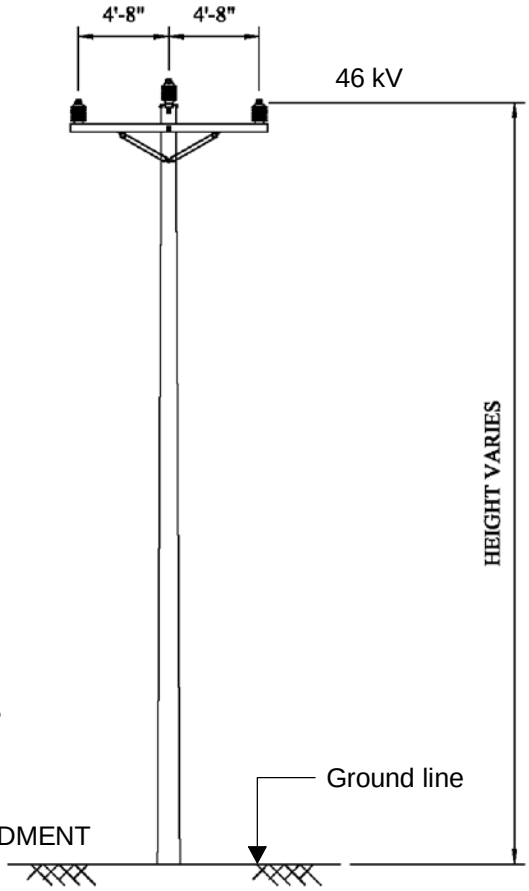
New York Power Authority

Figure 1.1-4



HEIGHT: Height of structure equals the height of existing distribution structures plus 10 feet for the 46 kV circuit. Most structures will be in the range of 45 to 60 feet.
TYPICAL SPAN: 200-250'
VOLTAGE: 46 kV
FOUNDATION: DIRECT EMBEDMENT

Tri-Lakes Reliability Project	
Wood-Pole Flat Configuration with Crossarm Distribution	
New York Power Authority	**Figure 1.1-5**



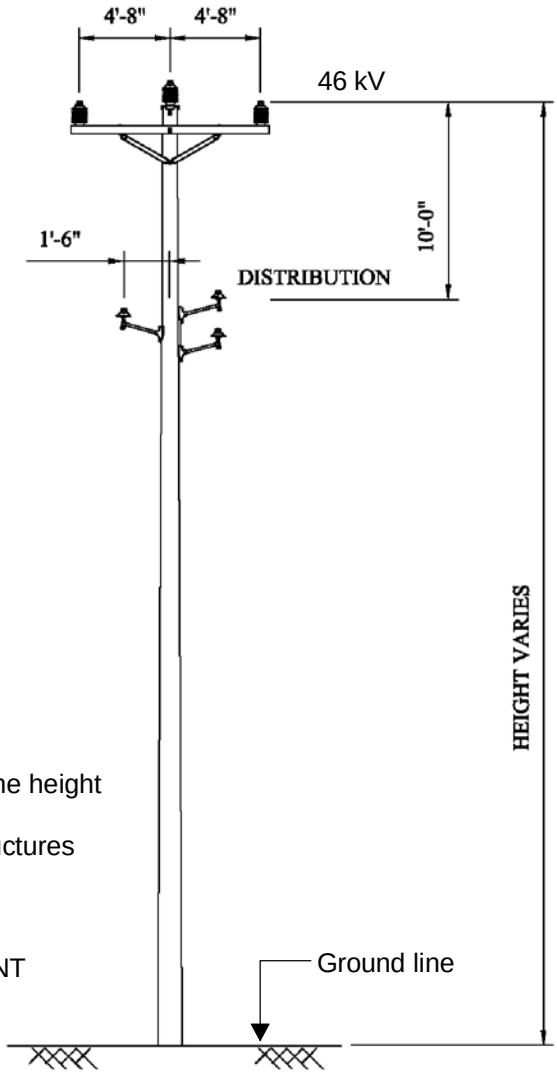
HEIGHT: Most structures will be
in the range of 39 to 57 feet.
TYPICAL SPAN: 300'
VOLTAGE: 46 kV
FOUNDATION: DIRECT EMBEDMENT

Tri-Lakes Reliability Project

Wood-Pole Flat Configuration

New York Power Authority

Figure 1.1-6



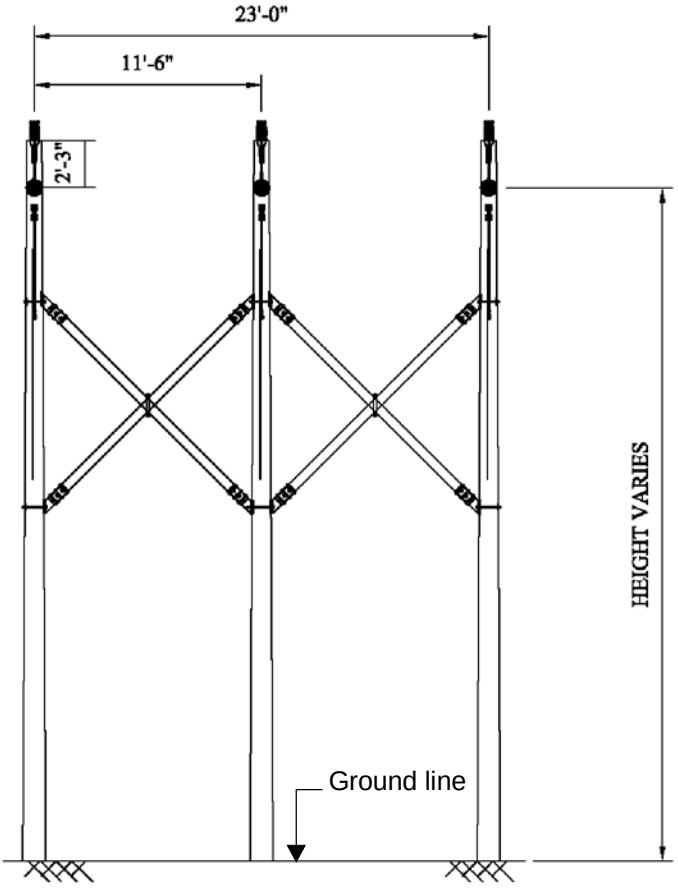
HEIGHT: Height of structure equals the height of existing distribution structures plus 10 feet for the 46 kV circuit. Most structures will be in the range of 45 to 60 feet.
TYPICAL SPAN: 300'
VOLTAGE: 46 kV
FOUNDATION: DIRECT EMBEDMENT

Tri-Lakes Reliability Project

Wood-Pole Flat Configuration with Candlestick Distribution

New York Power Authority

Figure 1.1-7



HEIGHT: Most structures will be
in the range of 50 to 70 feet.
SPAN: Varies 500' to 800' to accomodate
Highway/Wetlands Crossing
VOLTAGE: 46 kV
FOUNDATION: DIRECT EMBEDMENT

Tri-Lakes Reliability Project	
3-Pole Deadend-Horizontal Construction	
New York Power Authority	**Figure 1.1-8**

Although horizontal and vertical configurations exist in the Project Area, the vertical configuration is preferred. It is the more reliable structure based on its ability to withstand extreme ice loads, long service life expectancy, and the ability to avoid electrical outages that are the result of falling limbs/trees (see Appendix H for further documentation). The use of porcelain horizontal post insulation with a galvanized steel base, a controlled material, instead of a wood crossarm, an organic product, eliminates the loss of strength associated with the degradation of the wood crossarm, over time. The vertical configuration utilizes a support at each conductor location that is more compact and is better suited to accommodate spans in the range of 300 feet to 400 feet with the anticipation of heavy ice storms typical in the Project Area during the winter months. The compact construction also decreases the likelihood that a limb will make contact with the phase conductors, or cause the phases to slap together in the event that a limb does contact the line. Based on these concepts, and on a comparison of outage performance of operating lines supported by either vertical or horizontal configuration, the vertical configuration was selected as the Preferred Structure type (Figures 1.1-3 and 1.1-4).

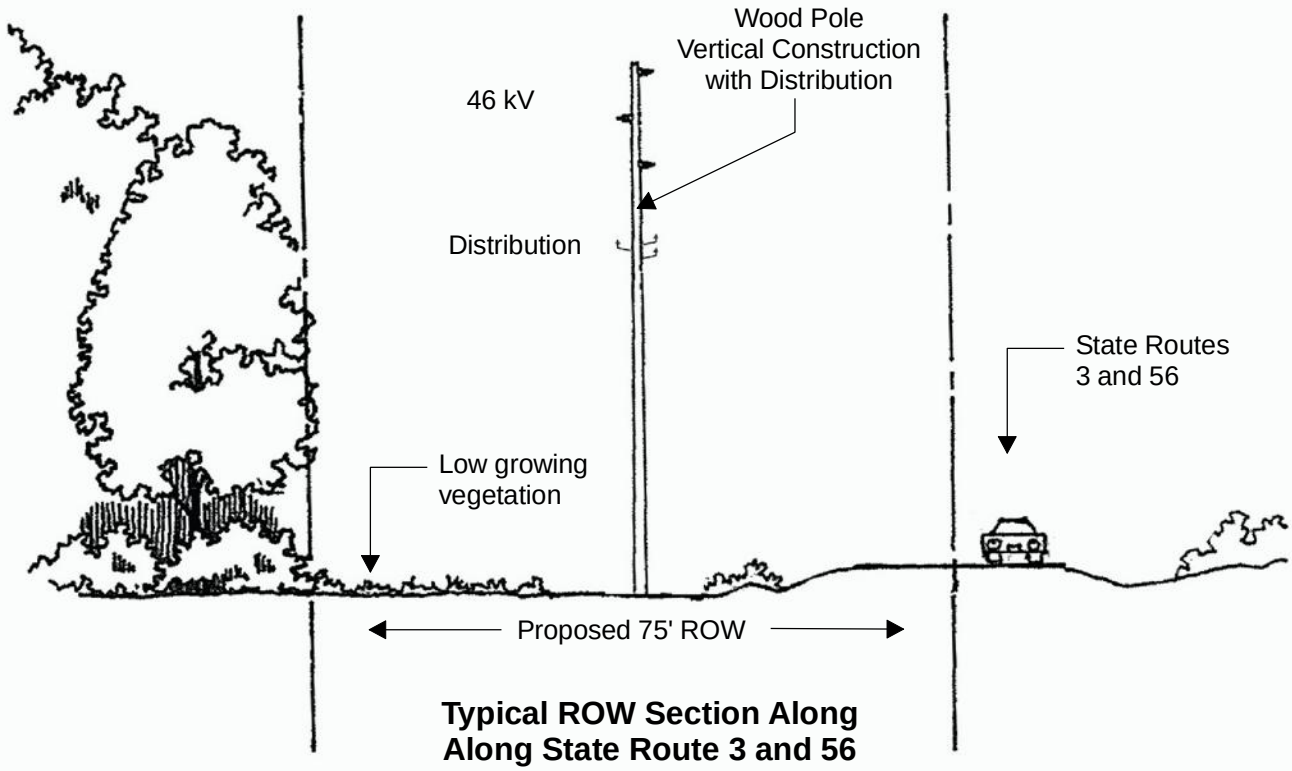
For shorter spans in the range of 200 feet to 250 feet that are in combination with existing distribution (46 kV as overbuild), and located adjacent to roadways, the flat configuration with a double crossarm can accommodate the heavy ice storms, and can be easily accessed if crossarm replacement is required. The flat configuration as shown on Figures 1.1-5 and 1.1-6 will be utilized as circumstances warrant as shown in Appendix E (EWP). Figure 1.1-7 provides a third overbuild structure with a crossarm on the top and candlesticks for distribution lines.

For long spans in the range of 500 feet to 800 feet, a three pole wood structure with a single conductor per pole is preferred as shown in Figure 1.1-8. Guys will be required to anchor the structure in the longitudinal direction.

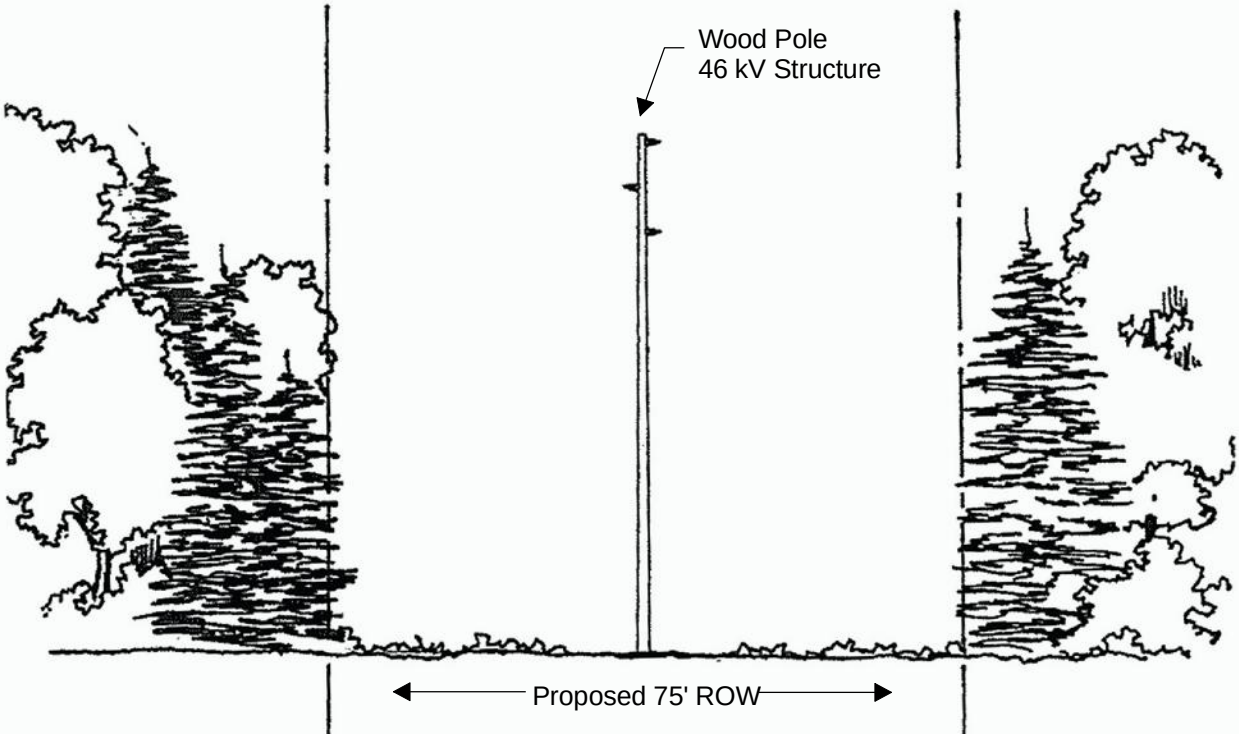
1.1.4.7 Right-of-Way Configurations

Several ROW configurations will be used depending on location and existing conditions. Figure 1.1-9 presents a typical ROW section where the proposed 46 kV line and existing distribution lines will be carried on one set of structures (overbuild) adjacent to State Routes 3 and 56. This figure represents the condition along Routes 56 and 3 where the existing distribution poles are approximately 15 feet from the edge of pavement. In these instances the new 46 kV line will be installed with the distribution using pole for pole replacement. The 75-foot 46 kV line ROW will include approximately 55.5 feet of the existing state route ROW including pavement and shoulders and existing cleared and uncleared area. An additional approximate 25 feet of clearing will be required to ensure that trees will not fall on the line and compromise reliability. Figure 1.1-9 also represents a typical cross-country ROW section with 46 kV wood pole structures centered on a 75-foot ROW. This ROW configuration will be used along the Preferred Route in portions of the route that bypasses the Raquette Boreal State Forest Preserve.

Shown on Figure 1.1-10 are two additional ROW cross sections. The top part of the figure represents a typical ROW section adjacent to logging roads or snowmobile trails. The poles will be offset 37.5 feet from the outside edge of the snowmobile or logging road to allow space to install guy wires without encroaching upon the trail. In areas of wetlands or stream crossings, where pole guys are not required, it will be feasible to share some of the 46 kV line ROW with the snowmobile trail. The figure also illustrates locations where the ROW will be offset from existing roads with a minimum 200-foot buffer. This ROW configuration will be used for the Preferred Route along Route 56 south of the Raquette Boreal State Forest Preserve. Figure 1.1-11 shows the proposed 46 kV line with existing distribution lines on one set of poles (overbuild) offset from a state route by approximately 150 feet. This ROW configuration occurs along the Alternate Route adjacent to State Route 3.

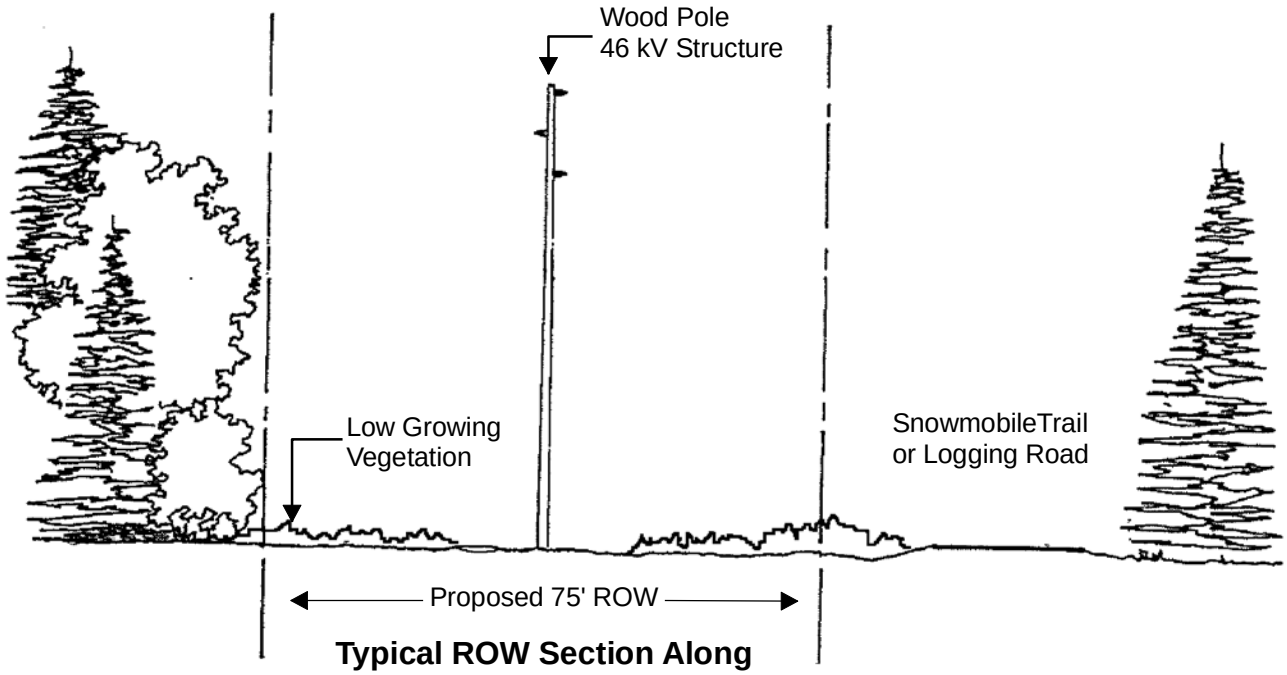


Typical ROW Section Along Along State Route 3 and 56

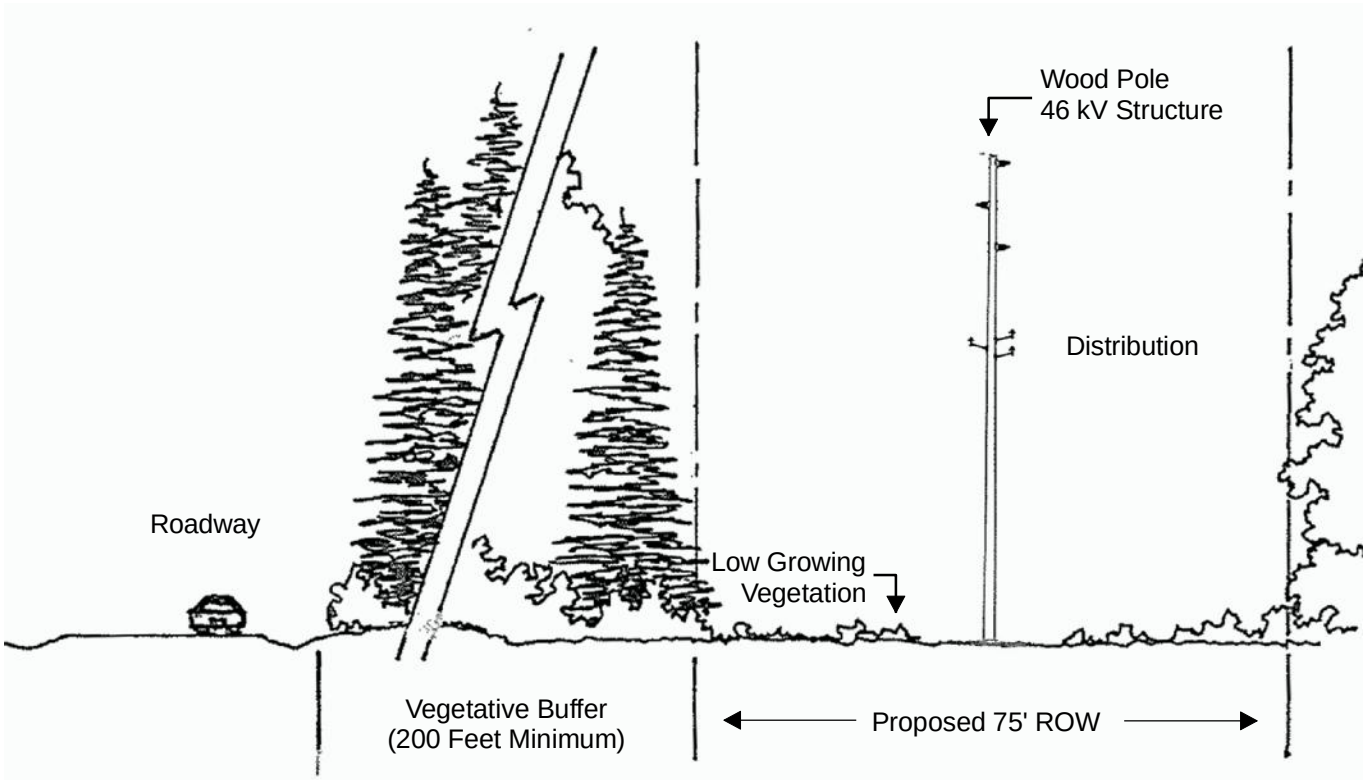


Typical Cross Country ROW Section

Tri-Lakes Reliability Project	
Typical ROW Cross Sections	
New York Power Authority	**Figure 1.1-9**

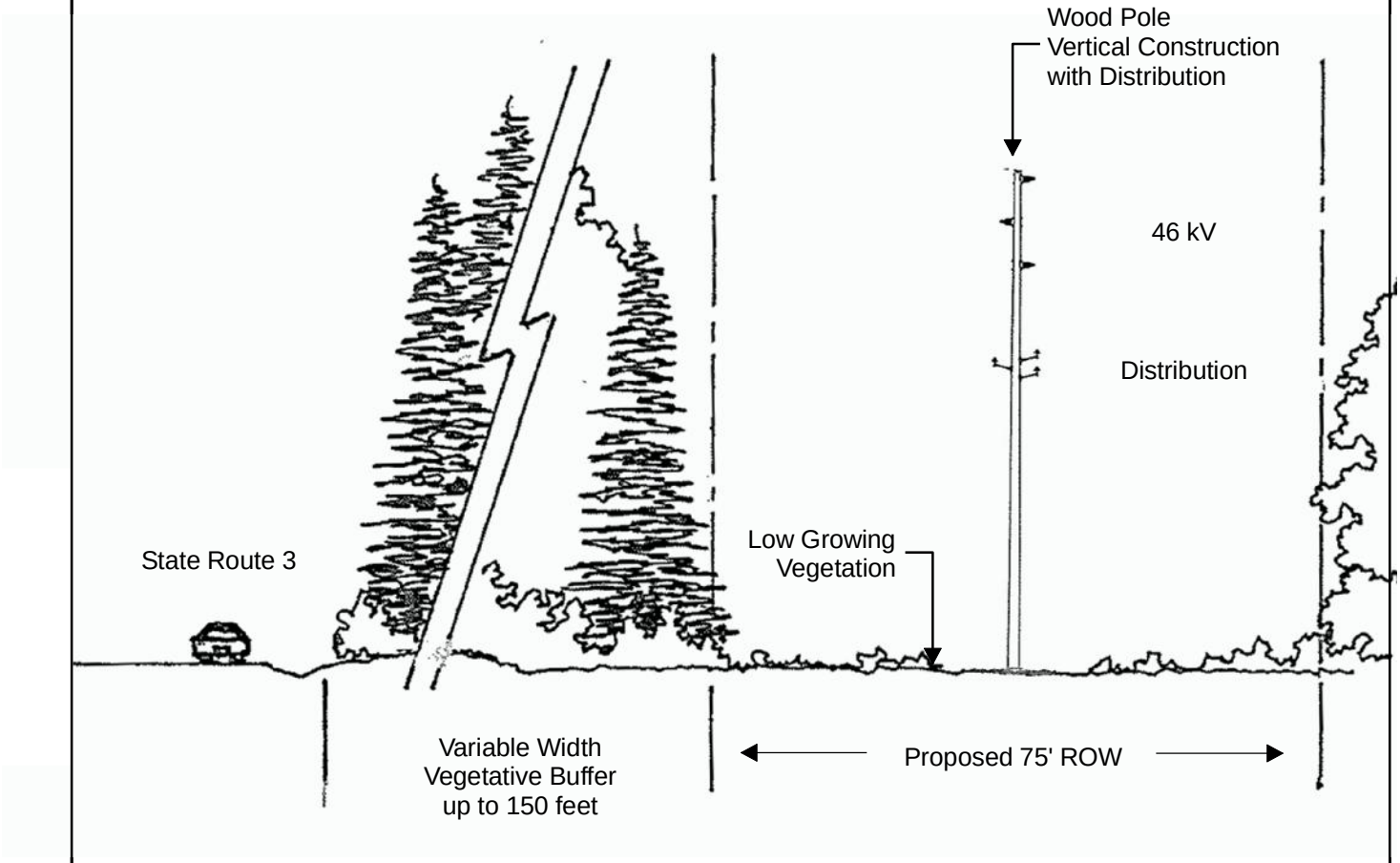


Typical ROW Section Along Snowmobile Trail or Logging Road



Typical Offset ROW Section

Tri-Lakes Reliability Project	
Typical ROW Cross Sections	
New York Power Authority	**Figure 1.1-10**



Typical Offset Row
Along Route 3

Tri-Lakes Reliability Project	
Typical ROW Cross Section	
New York Power Authority	**Figure 1.1-11**

Work trails will be developed along the ROW when the wood pole structures are not readily accessible from the road system to enable emergency repairs, when required. The work trails will be capable of supporting rubber tire equipment normally used for operation and maintenance of electric lines. Access to the work trails will be from local roads and from the numerous driveways or access roads running into the backlands. The work trails in the ROW will be 12-14 feet wide and will be constructed of appropriate materials necessary to stabilize the road for truck use.

1.1.4.8 Underground/Underwater Configuration

The South Branch Grasse River in the Newton Falls to Sevey Corners segment of the Alternate Route is the only location where an underground/underwater crossing is proposed, using a 46 kV insulated solid dielectric cable. The crossing is approximately 1,600 feet long and consists of three segments: 1) An underground segment on the west side of the river, approximately 350 feet in length; 2) the underwater river crossing, approximately 900 feet in length; and 3) an underground segment on the east side of the river, approximately 350 feet in length. Plan view of the underground/underwater crossing is depicted in Figure 1.1-12. The underground portion of the configuration will require a staging area 50 feet by 200 feet to accommodate equipment and vehicles for a horizontal directional drill as described in Section 1.1.4.8.2.

Wood pole riser structures will be located at each end of the overall segment to transition from the underground cable to overhead conductors. The riser structures include switches, and lightning arresters. The area around each riser structure will be grounded and fenced.

1.1.4.8.1 Underground Portion

The underground portions of the South Branch Grasse River crossing will be concrete encased duct banks, as shown in Figure 1.1-13. Each trench will be approximately 3.5 feet wide by 7 feet deep, and will contain six polyvinyl chloride (PVC) conduits, three for the cables, and three spare ducts to provide space for cable replacement.

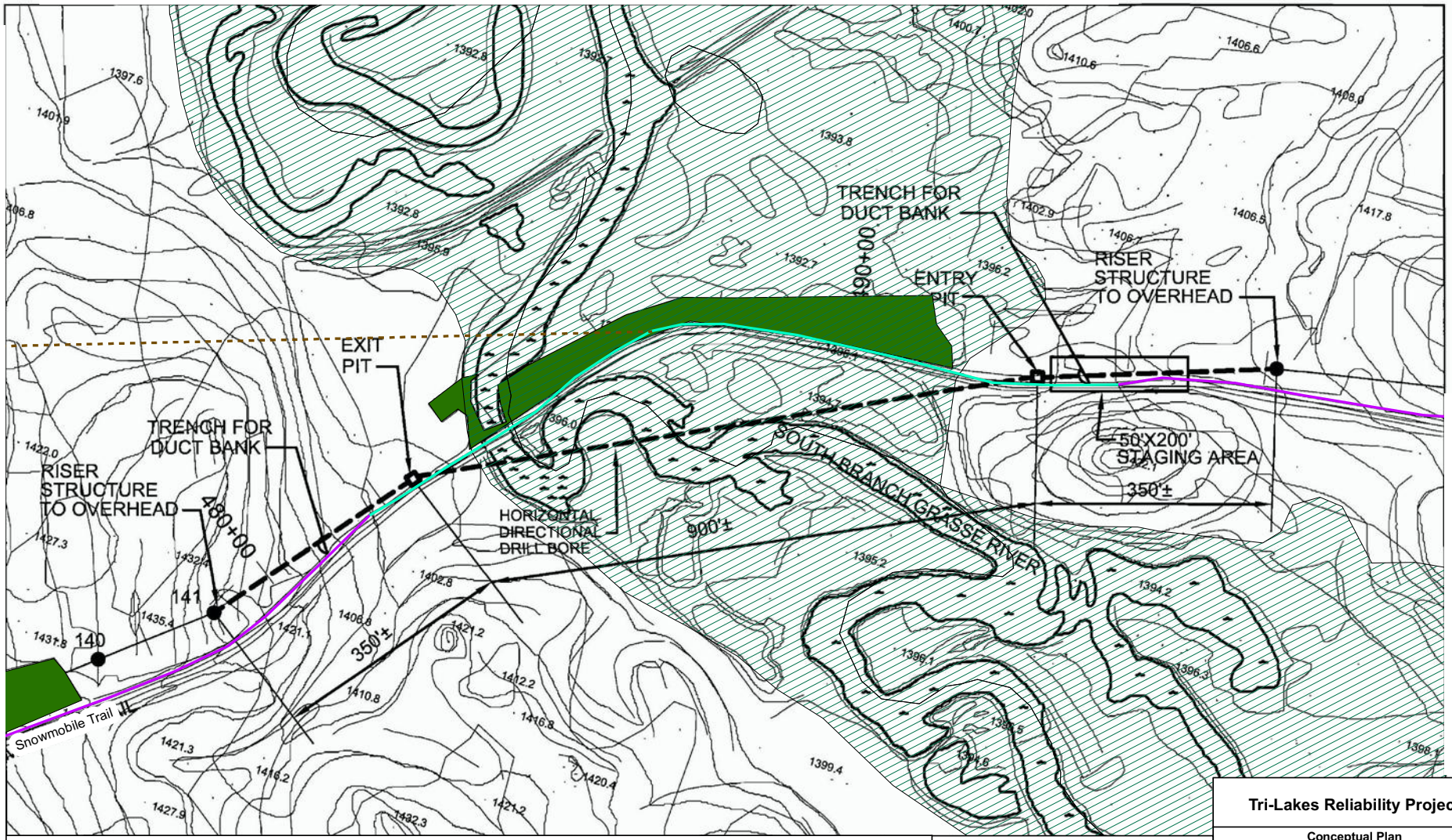
The duct bank will be buried approximately 5 feet below grade, and encased with a thermal backfill of weak mix concrete. Existing soil will be used as backfill, if suitable. Excess soil will be removed from the site. A backhoe will be required to excavate the trench. Trenching will require portable trench walls and trench shoring to prevent collapse of the trench. Soils sidecast during trenching will be used as backfill.

Because the cable has a limited pulling length, a precast concrete manhole will be required on the east side of the river, located approximately 300 feet from the east bank

1.1.4.8.2 Underwater Crossing

For the crossing of the South Branch Grasse River a horizontal directional drill (HDD) is proposed to minimize excavation and environmental impact. The horizontal bore as shown on Figure 1.1-14 will require a bore pit and a receiving pit. Depending on the length of the bore and site conditions, the dimensions of the bore and receiving pits will vary. A bore pit is normally a trench that is 5-10 feet wide and 10-20 feet long. The receiving pit is generally one-half the size of the bore pit. A receiving pit is required at one end to initiate the casing installation. A small trailer mobile drilling machine and support truck with water and slurry pumps to provide the lubricating drilling muds will need to be brought on site.

During directional boring, a surface operated drilling device is angled into the ground from the entry pit located at the ground surface and directed to its destination using a radio controlled mole that is fitted with a cutter head. Personnel directing the mole on the ground surface control the depth and direction of excavation beneath the waterway. The cutter head exits on the opposite side of the river at the exit pit. The cutter head is directed through the area several times to create a hole that is sufficient in size to accommodate the 24-inch PVC conduit. On the final pass through the area, the conduit is attached to the head at the exit pit and pulled back through the pilot hole. The 46 kV dielectric cables are then pulled through the conduit.



0 100 200 400 Feet
Approximate Scale

N

Legend

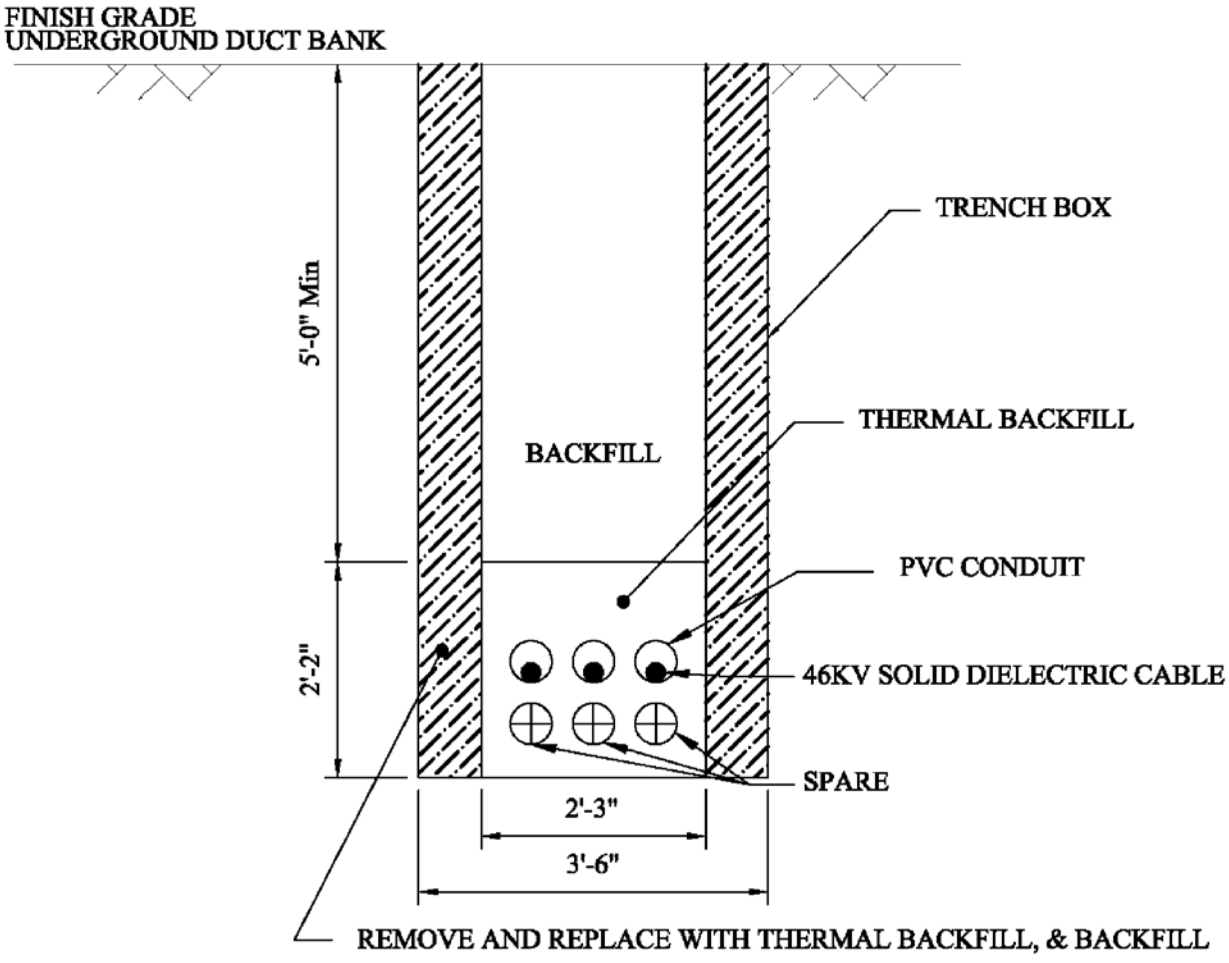
- Field Delineated Wetlands
- APA Overlay Wetlands

Tri-Lakes Reliability Project

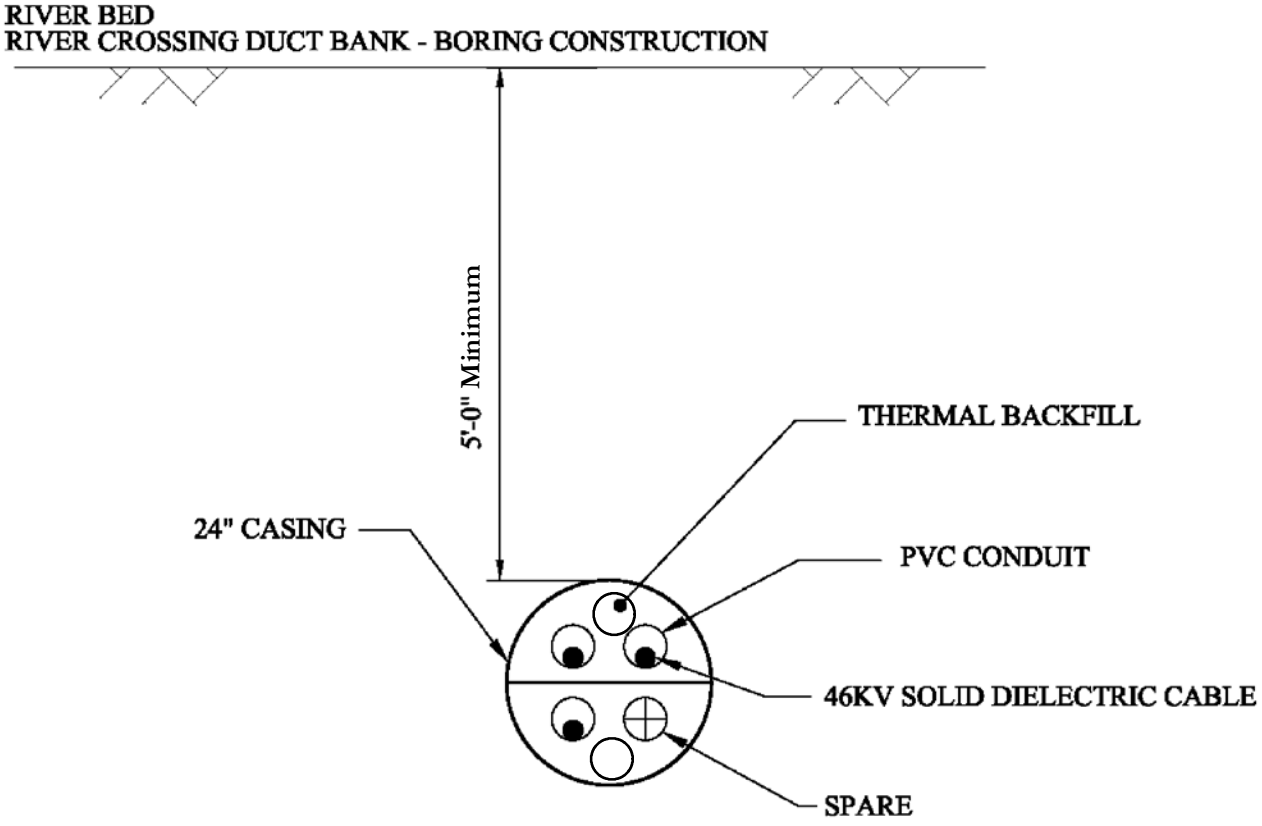
Conceptual Plan
Underground / Underwater
Crossing of South Branch Grasse River

New York Power Authority

Figure 1.1-12



Tri-Lakes Reliability Project	
Underground Duct Bank	
New York Power Authority	**Figure 1.1-13**



Tri-Lakes Reliability Project	
River Crossing Duct Bank Boring Construction	
New York Power Authority	**Figure 1.1-14**

During boring operations, fluid is introduced into the borehole as a lubricant for the cutter head. Bentonite clay slurry, which is an inert non-hazardous material, is used to lubricate the cutter head. The bore entrance and exit locations require the excavation of a small area to contain the bore fluid during drilling procedures. The shallow excavated areas will be surrounded by silt fence. The fluid is either returned to a recycling chamber and used at other bore locations, or placed in a lined container and disposed of at an approved landfill. The shallow areas are backfilled and restored to preconstruction grades upon completion of boring operations.

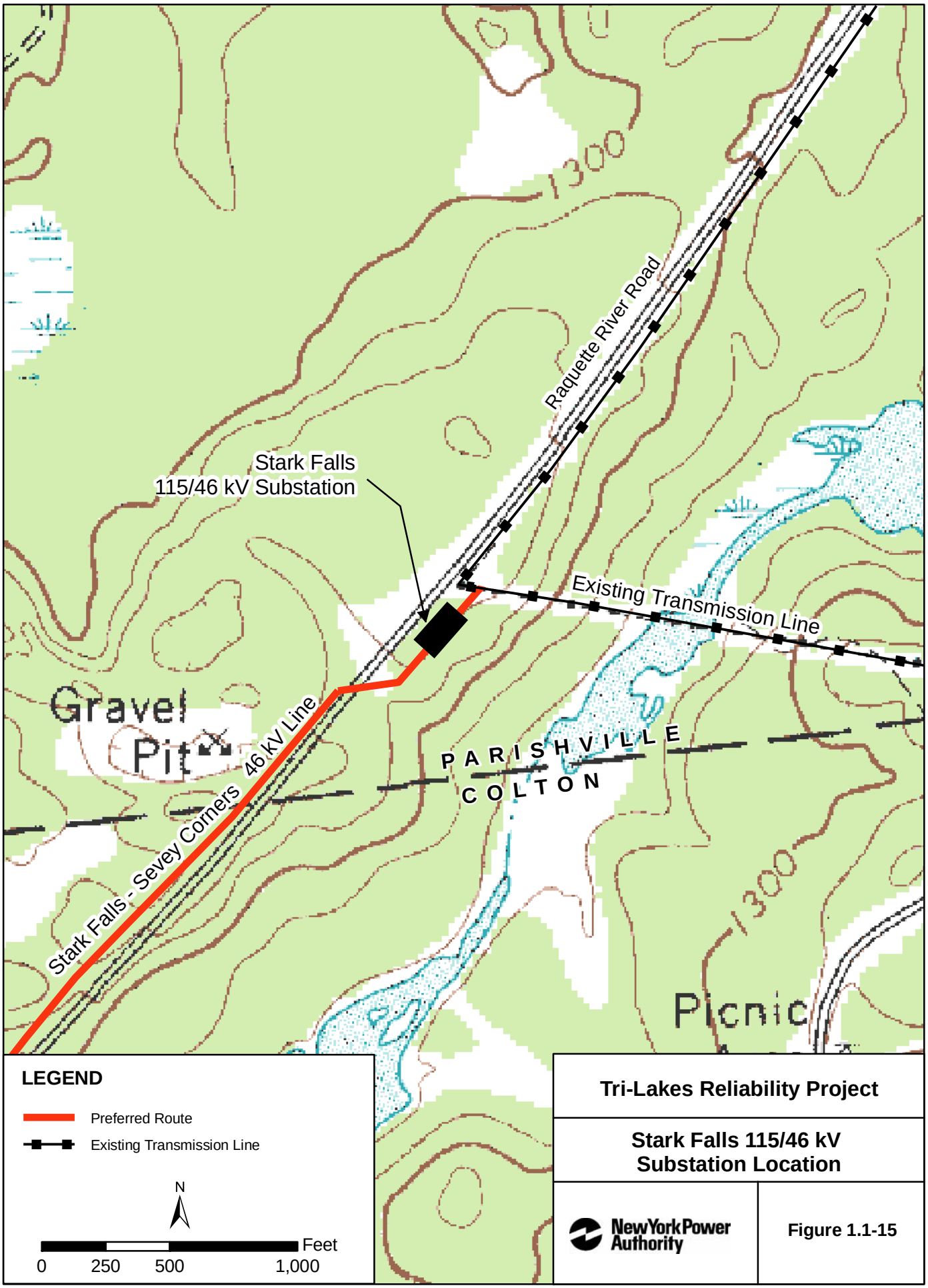
1.1.4.9 Stark Falls Substation

The proposed tap and substation site for interconnecting the 46 kV line on the Preferred Route into the existing 115 kV system is located in Parishville, NY, on the east side of Raquette River Road, approximately 3,000 feet north of the intersection with Joe Indian Road (Figure 1.1-15). Two wood pole H-Frame structures will be required to cross under the existing 115 kV line and support a line into the proposed substation. A 46 kV wood pole structure located on the south side of the substation will be required to exit the Stark Falls Substation. The substation will be approximately 180 feet by 110 feet in size and will include:

- Foundations: spread footing with vertical piers for the transformer and reinforced concrete for the other equipment.
- Equipment: one 115/46 kV transformer, air circuit breakers, switches and associated lightning arresters, potential transformers, and current transformers.
- Structures: two termination structures, one for the 115 kV line, approximately 45 feet high, and one for the 46 kV line, approximately 35 feet high, and associated bus work.
- Fencing: a 7-foot security fence around the perimeter of the substation, enclosing a yard that is covered with stones.
- Grounding: the entire yard and all equipment will be grounded.
- Landscaping: the site will be landscaped by preserving existing vegetation or augmenting with additional vegetation if needed for screening purposes.
- Oil containment: an oil containment system will be installed around the transformer.
- Access: a permanent access road from Raquette River Road to the substation.

Figure 1.1-16 presents a layout for the proposed 115/46 kV substation.

The proposed 115/46 kV substation is located on a wooded site on land sloping from west to east. To the north of the site is an existing 115 kV transmission line and ROW, to the east and south are woodlands, and to the west is Raquette River Road. No wetlands or other sensitive natural resources were identified within the proposed site. Also as a result of a field inspection, it was determined that there are no apparent cultural resources on site. Closest residences are located about one-half mile south of the site. Views of the proposed facilities will be screened to a large extent by maintaining an existing 30-foot wide vegetative buffer between the substation and Raquette River Road.

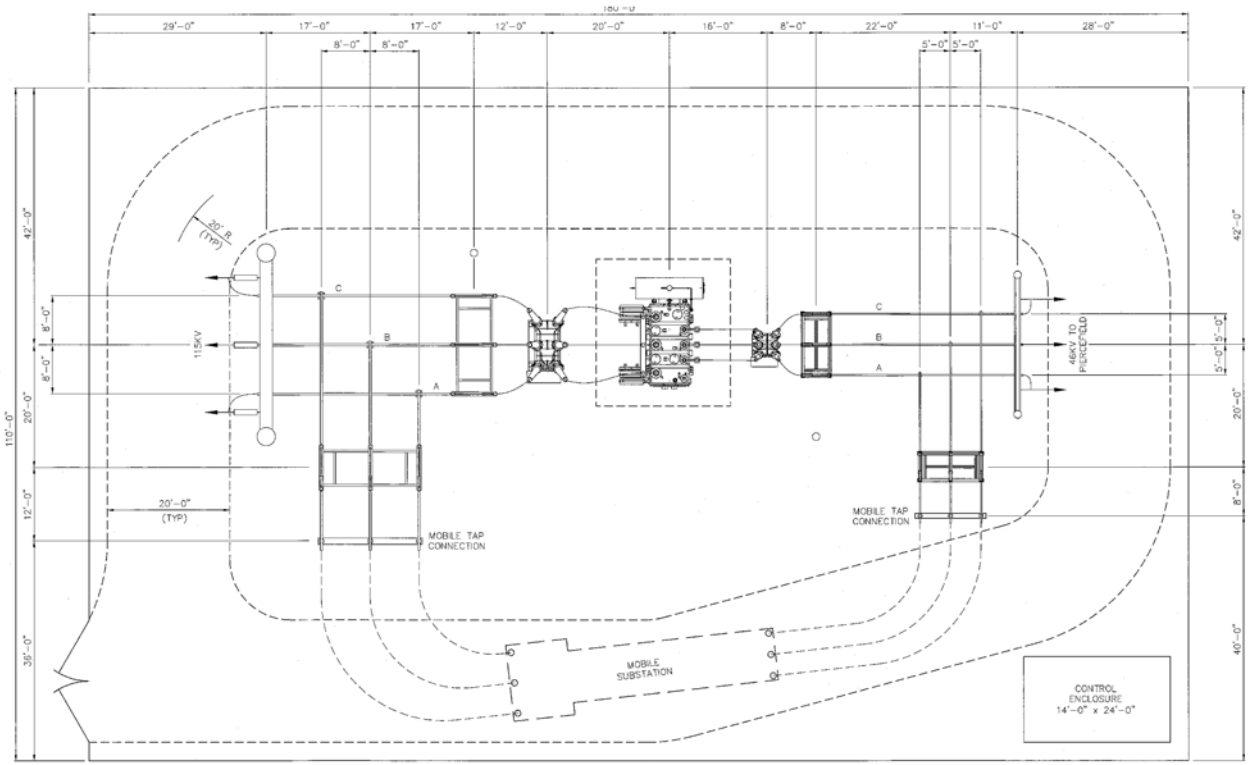


Tri-Lakes Reliability Project

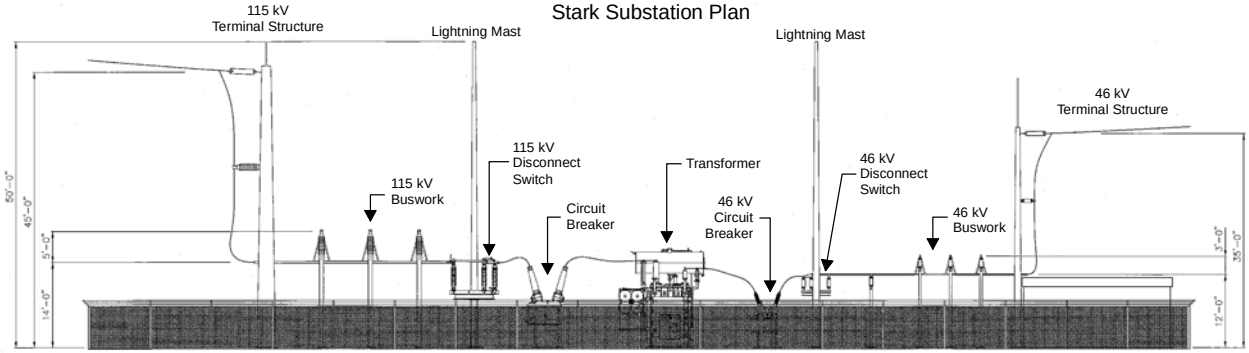
Stark Falls 115/46 kV Substation Location

New York Power Authority

Figure 1.1-15



Stark Substation Plan



Substation Elevation
Looking From Road

Notes:

1. The Homeland Security Act states a 30-foot clearance area must be maintained outside the perimeter of substation/regulator fences

2. A vegetative buffer of existing natural vegetation approximately 20-feet in width will be preserved between Raquette River Road and the Substation

Tri-Lakes Reliability Project	
Stark Falls 115/46 kV Substation Layout Plan and Profile	
New York Power Authority	**Figure 1.1-16**

1.1.4.10 Piercefield Regulator Station

In Piercefield, a new 46 kV regulator station will be constructed approximately 500 feet west of the existing Piercefield Substation (Figure 1.1-17). The new facility will be approximately 144 feet by 90 feet in size as shown on Figure 1.1-18, and would include:

- Equipment: voltage regulator, air circuit breakers, switches and associated lightning arrestors, potential transformers and current transformers.
- Structures: two termination structures, approximately 40 feet high, for entering and exiting the regulator station, and support structures for the associated bus work.
- Foundations: reinforced concrete for the voltage regulator and other equipment.
- Fencing: a 7-foot security fence place around the perimeter of the substation site, enclosing a yard that is covered with stone.
- Grounding: the entire yard and all equipment will be grounded.
- Access: existing access to the existing Piercefield Substation and the Brascan Hydro Station will be used to maximum extent possible.

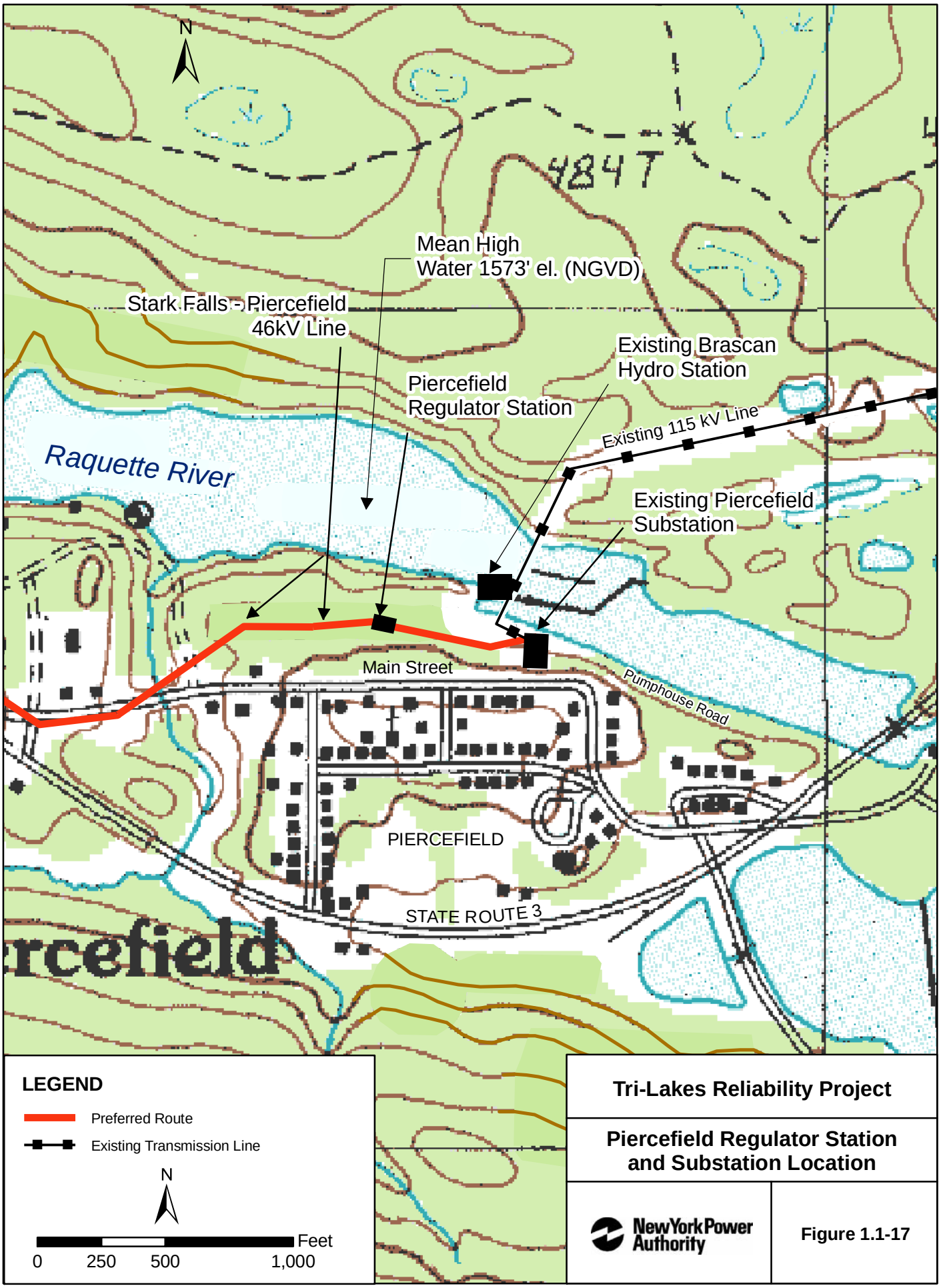
The proposed regulator station is located between Main Street (160 feet to the south) and the Raquette River (about 240 feet to the north). To the east are the Brascan Hydro Station and the Niagara Mohawk Piercefield Substation. The proposed site slopes up from the river to Main Street. The access road to the hydro station can be used for the construction, operation and maintenance of the regulator station. Existing woodlands abut the regulator station site on the north, south, and west and will be used as a natural buffer to screen views from residences located over 200 feet to the south along Main Street. The actual width of the vegetative buffers will be determined during final layout of the regulator station. No wetlands or other sensitive natural resources were identified on site. A potential cultural site has been identified along Main Street south of the site. The closest noise receptors are homes on Main Street more than 200 feet from the site.

1.1.4.11 Newton Falls Alternate Substation

The Newton Falls 115/46 kV Substation (Alternate) to interconnect the proposed 46 kV line into the existing 115 kV system is located on the north side of and adjacent to Oswegatchie-Newton Falls Road (Figure 1.1-19). The community of Newton Falls is located about 0.8 miles to the east of the site. The western portion of the site is wooded and the eastern portion falls within the existing 115 kV ROW. To the north about 200 feet is the Oswegatchie River. The substation will be approximately 165 feet by 105 feet in size and will include:

- Foundations: spread footing with vertical piers for the transformer and reinforced concrete for the other equipment.
- Equipment: one 115/46 kV transformer, air circuit breakers, switches and associated lightning arresters, potential transformers, and current transformers.
- Structures: two termination structures, one for the 115 kV line, approximately 45 feet high, and one for the 46 kV line, approximately 35 feet high, and associated bus work.
- Fencing: a 7-foot security fence around the perimeter of the substation, enclosing a yard that is covered with stones.
- Grounding: the entire yard and all equipment will be grounded.
- Landscaping: the site will be landscaped as appropriate.
- Oil containment: an oil containment system will be installed around the transformer.
- Access: a permanent access road from Raquette River Road to the substation.

Figure 1.1-20 presents a layout for the proposed 115/46 kV substation.

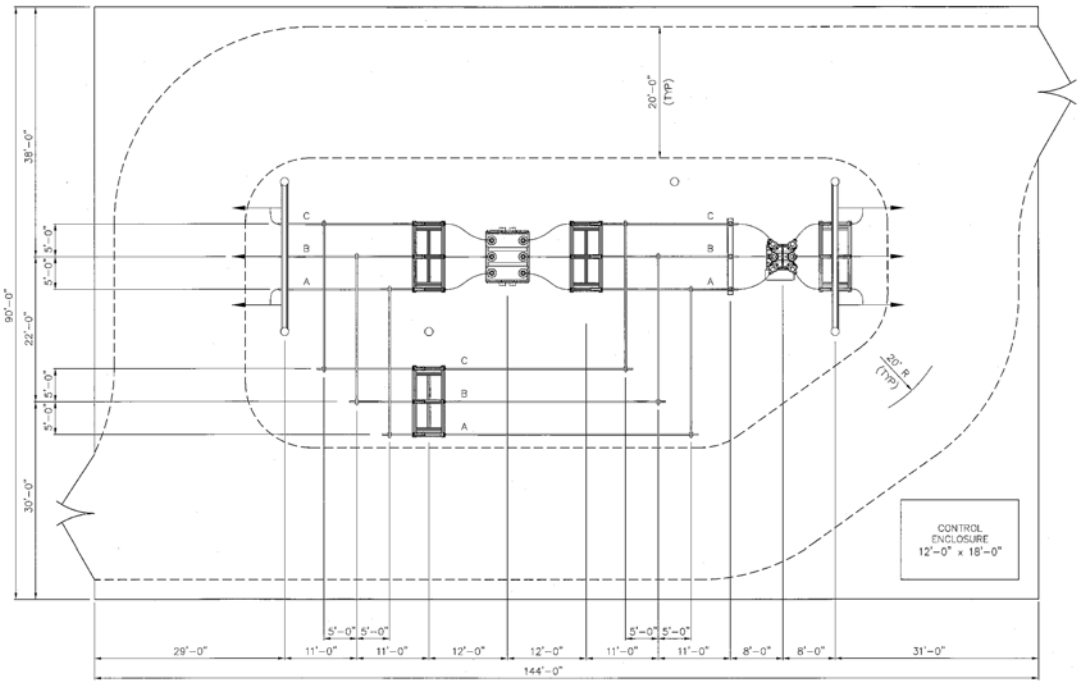


Tri-Lakes Reliability Project

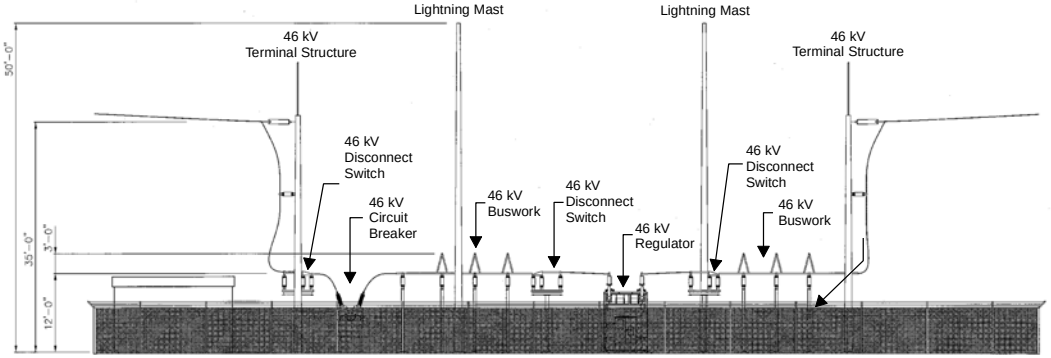
Piercefield Regulator Station and Substation Location

New York Power Authority

Figure 1.1-17



Regulator Station Plan



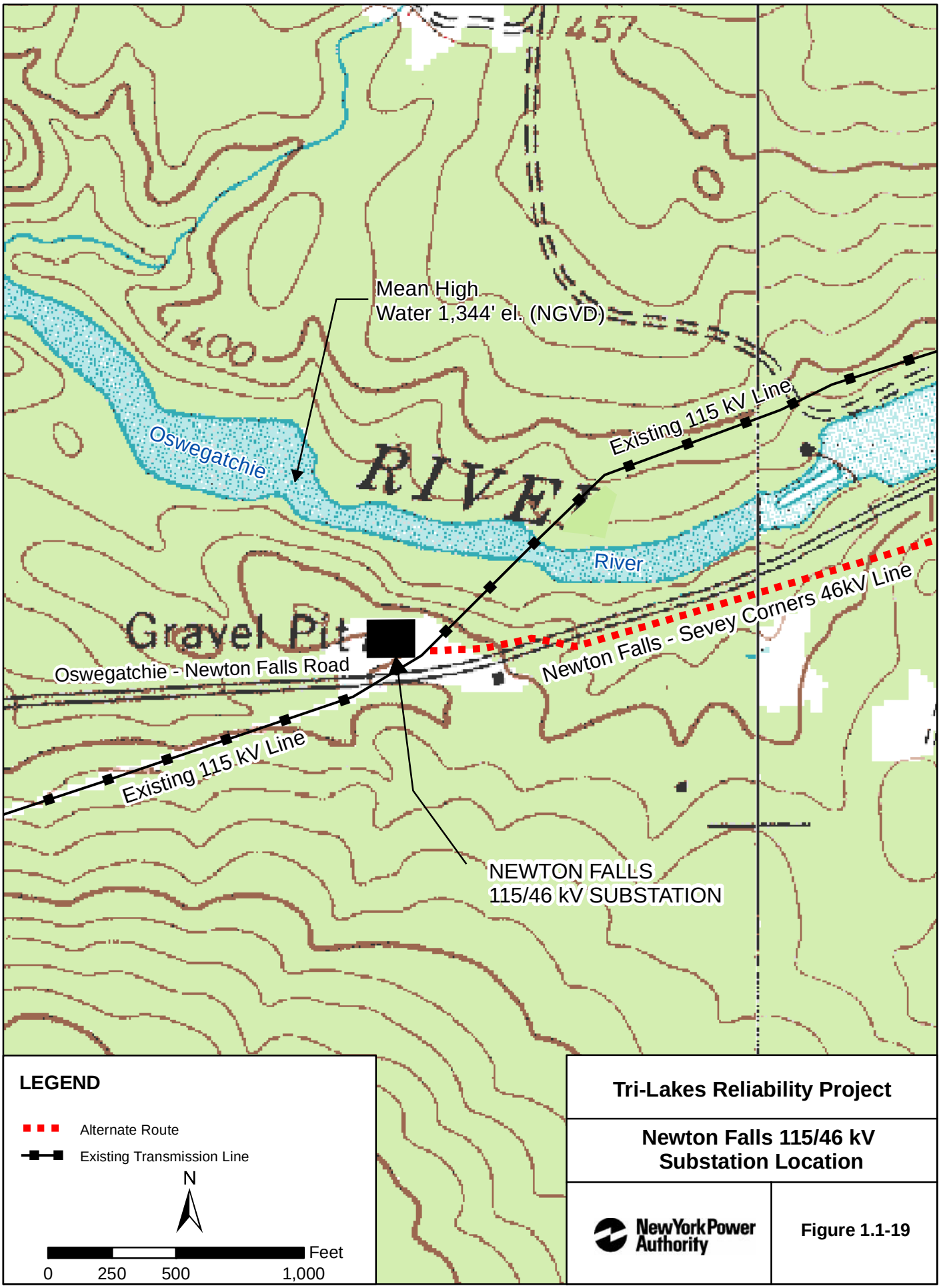
Substation Elevation
Looking From Road

Notes:

1. The Homeland Security Act states a 10-foot clearance area must be maintained outside the perimeter of substation/regulator fences

2. A vegetative buffer of existing natural vegetation approximately 200 feet in width will be preserved between Main Street and the regulator station

Tri-Lakes Reliability Project	
Piercefield Regulator Station, Layout Plan and Profile	
New York Power Authority	**Figure 1.1-18**

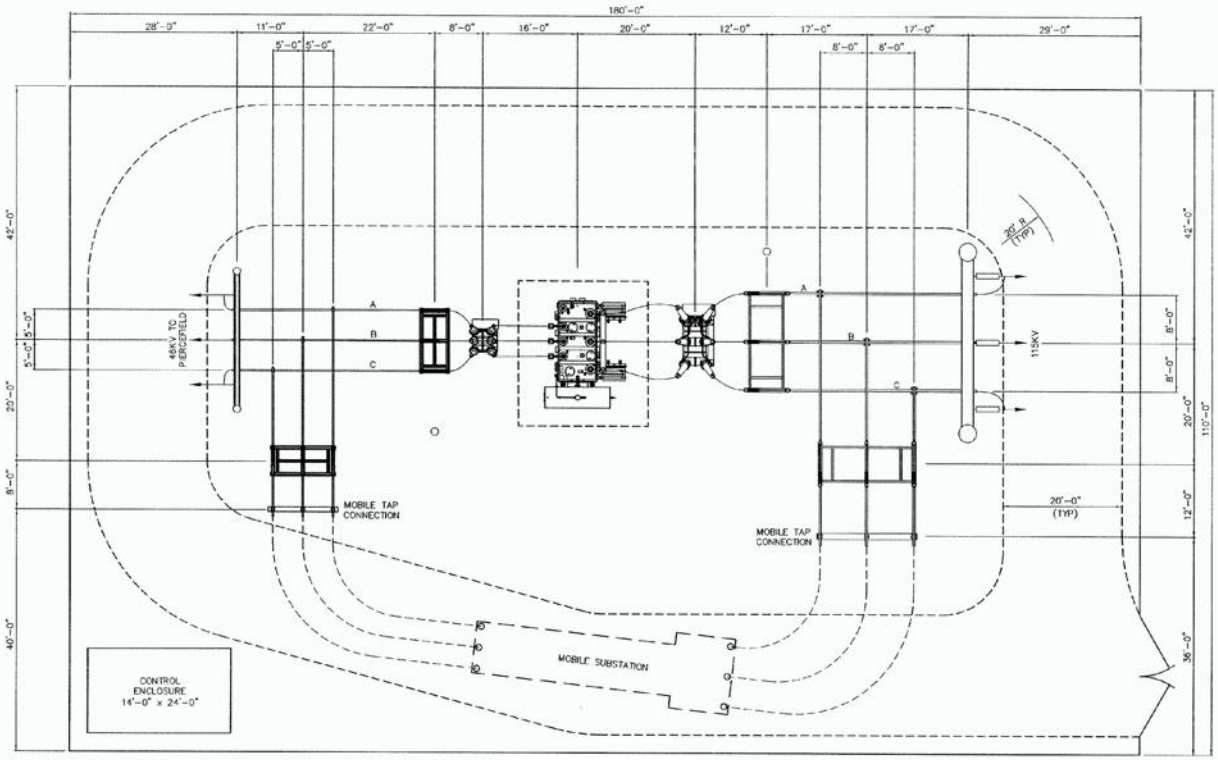


Tri-Lakes Reliability Project

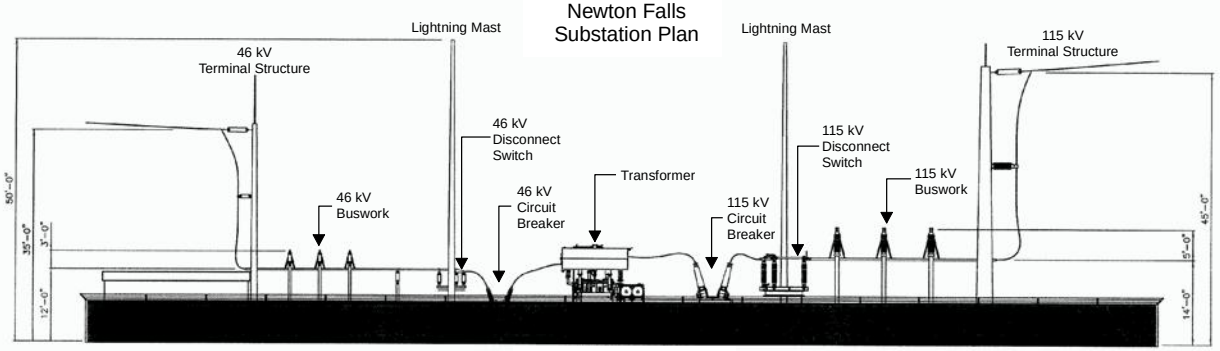
Newton Falls 115/46 kV Substation Location

New York Power Authority

Figure 1.1-19



Newton Falls
Substation Plan



Substation Elevation
Looking From Road

Notes:

1. The Homeland Security Act states a 10-foot clearance area must be maintained outside the perimeter of substation/regulator fences

2. A 25-foot planted buffer comprised of native shrub and other low growing vegetation will be used as a visual buffer between River Road and the substation

Tri-Lakes Reliability Project	
Newton Falls 115/46 kV Substation Layout Plan and Profile	
New York Power Authority	**Figure 1.1-20**

There is a non-regulated isolated wetland 0.04 acres in size located in the northwest corner of the site. Also as a result of a field inspection, it was determined that there are no apparent cultural resources on site. The closest residence is on the south side of Oswegatchie-Newton Falls Road about 200 feet from the site. Although visible from Oswegatchie-Newton Falls Road, the new 115/46 kV substation would be viewed in context with the existing 115 kV transmission line. A 25-foot planted buffer comprised of native shrubs and other low-growing vegetation will be used as a buffer between River Road and the substation.

1.1.5 Existing Transmission System

The Tri-Lakes Region (outside of the distribution systems in the Villages of Tupper Lake and Lake Placid) is served by transmission facilities owned by Niagara Mohawk. New York State Electric and Gas (NYSEG) and NYPA own transmission facilities in adjacent areas. The municipal electric systems of the Villages of Lake Placid and Tupper Lake purchase their full requirements for electric service from NYPA. Electricity is delivered by Niagara Mohawk (pursuant to tariff of the New York Independent Systems Operator (NYISO) Open Access Transmission Tariff (OATT)). All customers in the Village of Saranac Lake and most customers in the areas surrounding the Villages of Lake Placid and Tupper Lake are retail customers of Niagara Mohawk under its retail tariff for electric service and delivery.

1.2 Project Ownership and Organization

1.2.1 Ownership

Based on the Agreement among NYPA, Niagara Mohawk and the Villages of Lake Placid and Tupper Lake, the Tri-Lakes Reliability Project is being developed as a cooperative effort between NYPA and Niagara Mohawk. NYPA is the applicant for all permits and approvals required for siting and construction of the new 46 kV line. Niagara Mohawk is responsible for design, engineering, procurement, construction, installation, testing, and overall project management. Niagara Mohawk will construct the new line and operate and maintain the line after it is energized. NYPA will be owner of the line until 2012 at which time the line will be sold to Niagara Mohawk.

1.2.2 Project Management

As noted in Section 1.2.1, Niagara Mohawk will be responsible for the Project Management, subject to oversight by NYPA, of all design, engineering, procurement, construction, installation, testing and operation of the new 46 kV line. Niagara Mohawk will assume all Project Management duties after all required licenses and permits for the line are obtained by NYPA.

As part of the duties as Project Manager (PM), Niagara Mohawk will coordinate all design, engineering, procurement, construction, and installation of the new 46 kV line, 115/46 kV substation and 46 kV regulator station. As PM, Niagara Mohawk will be responsible for seeing that design and construction activities meet the requirements established by the permitting/licensing agencies, and are completed within the budgeted cost and schedule established by the project team. After completion of the Project, Niagara Mohawk's role will change from PM to that of equipment/line operator and service/maintenance provider. This role will continue for the life of the facilities. In 2012, Niagara Mohawk will assume ownership of the line from NYPA.

1.2.3 Support and Design Firms

The routing, permitting and preliminary design of the proposed 46 kV line is being done under NYPA's direction by Tetra Tech EC, Inc., The LA Group, and R.G. Vanderweil Engineers.

Tetra Tech EC, Inc. (Tetra Tech) is the lead environmental consulting firm supporting the siting and permitting of the Tri-Lakes Reliability Project. Its staff of scientists, planners and engineers form the nucleus of the routing, environmental and permitting team and bring many years of relevant experience on projects in New York and around the country to this Project. In addition to overall management of the environmental studies required for this Project, Tetra Tech is responsible for the preparation of this DEIS.

The LA Group, Landscape Architecture and Engineering, P.C. (The LA Group), is an environmental consulting firm that has performed environmental studies and obtained permits for projects in the Adirondack Park and is familiar with the Adirondack Park Act and its associated regulations. In addition to assisting with various environmental surveys, The LA Group is responsible for preparation of the Section 814 application to the APA, for development of an Environmental Work Plan (EWP) and for the visual analysis of the Project.

R.G. Vanderweil Engineers, Inc. (Vanderweil) provides design and engineering expertise for the proposed 46 kV line facilities. Vanderweil has completed many projects in New York State and has developed design standards for Niagara Mohawk in many parts of the northeast.

1.3 Development Schedule and Activities

Project construction will include a number of components phased over a period of approximately 2 years. Assuming that all approvals are received for this Project early in 2006, construction of the first segment of the line will begin in late 2006 or early 2007 with final work being completed in August 2008. It is anticipated that the new line will be operational in September 2008.

1.3.1 Construction Phase Activities

Construction will include a number of coordinated activities occurring in a staged manner throughout the construction period for various Project components. Detailed descriptions of construction practices to be used for construction of the proposed line are included in the Environmental Work Plan (EWP) for this Project, which is included as Appendix E to this DEIS. Construction components include:

Clearing and Grading – The ROW will be cleared so that it is free from trees and brush and is reasonably accessible for line construction activities. Niagara Mohawk will employ a selective clearing and slash disposal practice for clearing the new ROW. For the majority of the corridor, in upland areas, slash will be chipped and left in place. In some specific areas where pole for pole replacement occurs in land where the APA has designated as Moderate Intensity Use, the clearing contractor will chip and blow slash into trucks and transport to an appropriate landfill outside the Park. In wetland areas, slash will be physically removed to upland areas where it will be chipped or removed from the site as described above. There will be no chipping in wetlands. Desirable low-growing tree and shrub species that do not have the potential of reaching the wire security zone will be retained except at structure sites and along work trails. The wire security zone is defined as the air space around the conductor where an electrical short may occur and which must be free of all plant growth to promote reliable service. All tall growing woody growth will be cut as close to the ground as practicable, but not to exceed 6 inches above ground surface in areas where woody plants would hinder access and construction. Slash will be disposed of to minimize visual and environmental impact.

Footings and Foundations – Wood pole structures are directly embedded into the soil and generally do not require a footing or foundation. An earth auger or backhoe will be used to drill a hole that is slightly larger than the base of the pole to the proper depth. After the pole is installed, crushed stone may be used as the backfill. Excess soil will be removed from the site, or spread evenly around the base of the pole.

In rocky soil containing large boulders, a backhoe may be used to dig the holes for wood pole structures. When rock is encountered, either an earth anchor, or a rock auger will be used, depending on the hardness of the rock. In some cases, the poles may be directly anchored to the rock using a rock anchor foundation. Blasting is not anticipated for the installation of the 46 kV line.

In substations, reinforced concrete foundations, which include both drilled piers, and spread footings will be used to support equipment and steel support structures.

Structure Construction – Structure Construction consists of pole framing (framing) and pole installation, (erection). Framing, attaching the insulators and hardware to the pole, will be completed on the ground prior to erection, or in the air, following installation of the pole. For typical structures, a small crane will be required to lift the pole off the ground while the hole is being drilled. Larger structures may require larger lifting equipment.

Erection consists of lifting and installing the framed pole into the excavated pole hole, and supporting the pole while the stone backfill is placed around the pole to complete the direct embedment foundation.

Substation equipment and support structures will be erected and installed in place using larger cranes, appropriately sized to accommodate the height and weight of the equipment being installed.

Temporary Access Roads – Wherever possible, existing roads and trails will be utilized for access to portions of the ROW that are located off of major roads. In cases where an existing work trail needs to be improved to allow for heavy equipment, gravel fill or crushed stone may be used to fill depressions and washed out areas. Existing gravel roads will be restored or maintained at their pre-construction width and elevation with clean gravel or crushed stone. Erosion and sedimentation control measures will be implemented along the ROW to protect water resources.

Numerous small watercourses are found along the ROW. To prevent damage to these resources and provide long-term access along the ROW, where required, culverts or stone fords will be constructed in the watercourse beds.

Marshalling Yards – During construction, wood poles, conductors, insulators, hardware, and other materials will be transported by truck to one or more marshalling yards. Typically these marshalling yards are 2-3 acres in size, relatively flat and free of vegetation, avoid regulated wetlands, waterbodies, and other sensitive resource areas are avoided. The yards will be located near municipal roads, the 46 kV corridor and have year-round access.

Currently three sites are under consideration which are close to the proposed 46 kV line and accessible to State Routes 3 or 56 as follows:

- Town of Tupper Lake (formerly known as Town of Altamont) – This site is located on the north side of State Route 3 about 0.4 miles east of Gale. The existing sand and gravel operation occupies more than five acres and is adjacent to the Preferred Route. The site is approximately 0.4 miles from the closest residences. Existing roadside vegetation will screen the property from State Route 3.
- Kayem Partners – This site is located on the east side of State Route 56 about 4.5 miles north of Sevey Corners. This existing sand and gravel operation occupies about six acres and is adjacent to the Preferred Route on the east side of State Route 56. This site is screened from Route 56. There are no homes in close proximity to the site.
- Newstech N.Y., Inc. – This site is located on River Road approximately 2.5 miles east of Newton Falls, northeast of Crane Pond. The site occupies about four acres approximately 1,500 feet southeast of the Alternate Route. There are no camps or residences in proximity to the site and it is screened from River Road.

An office trailer may be set up at each yard. Construction debris, such as packing materials, will be held at the yard for periodic removal to approved locations or picked up by a solid waste disposal company. Equipment coming to the project site will be delivered to the yards for final inspection and storage prior to deployment in the field. Inspection of equipment is necessary to prevent the spread of nuisance invasive species and to prevent petroleum spillage due to leaks in the hydraulic systems (NYSDOT Environmental Procedural Manual, June 2005). The staging yard will also be the location for refueling some of the trucks that are used to construct the 46 kV line.

Marshalling yards will include perimeter erosion and siltation controls to protect adjacent areas from stormwater runoff. Portions of the marshalling yards will be fenced for security. Once construction is completed, these areas will be returned to their pre-construction use.

Construction Material Deliveries and Storage – Construction materials will be stored off-site in an area(s) normally identified by the contractor, just prior to the start of construction. From the contractor's storage site, flat bed trucks, and all terrain vehicles will be used to haul the material to the site.

Construction Workers' Access and Parking – Construction workers' parking will be located at the contractor's storage site, including the line trucks used to transport the workers to and from the work site.

Solid Waste Generation and Disposal – Work crews will be required to promptly clean up debris and trash that is created from clearing, construction, and restoration activities as crews move from one work location to the next. All debris will be properly disposed of at an approved site. It is anticipated that solid waste will be disposed of at a St. Lawrence County Solid Waste facility. Discussions with Karl Bender, Director of the St. Lawrence County solid waste disposal facility at Star Lake, indicated that with advance notice, the Star Lake facility hours could be modified to handle the waste from the Project. Existing transmission poles cannot be accommodated by the county because the chemical treatment is unknown and will be disposed of outside the Adirondack Park Boundary at landfills permitted to accept these materials.

Sediment and Erosion Control – Sediment and erosion control devices will be installed in construction areas in accordance with permit conditions and regulatory approvals. All such devices will be inspected regularly to ensure that they are functioning as desired. Following construction, sediment traps, turbidity curtains or silt fences will be removed as part of the site clean up activities. Appendix E of this DEIS is the EWP which includes a Sediment and Erosion Control Plan developed for this Project. The Project is in compliance with NYSDEC State Pollution Discharge Elimination System (SPDES) Phase II stormwater regulations and includes the New York State Standards and Specifications for Erosion and Sediment Control (2005) and New York State Design Guidelines (August, 2003)

1.3.2 Operational Phase Activities

A detailed discussion of operation activities is presented in the EWP (Appendix E).

ROW Access and Work Trails – Throughout the life of this Project, Niagara Mohawk will need to maintain access to the line for maintenance and repair when the utility poles are not readily accessible from the municipal road system. The work trails will not be continuous, but will rely upon municipal roads, driveways or access roads running into the backlands to gain access to the various segments of the Project.

Access roads and work trails must be capable of accommodating the equipment to be used for operation and maintenance of the proposed 46 kV line and local distribution lines. Work trails in the ROW will be 12-14 feet wide and will be constructed of native subsoil materials. To have a stable work trail, the topsoil layers will be removed, since the topsoil will tend to hold moisture and becomes unstable in wet conditions. A select borrow gravel material will be imported to further stabilize the trail as required for year-round access.

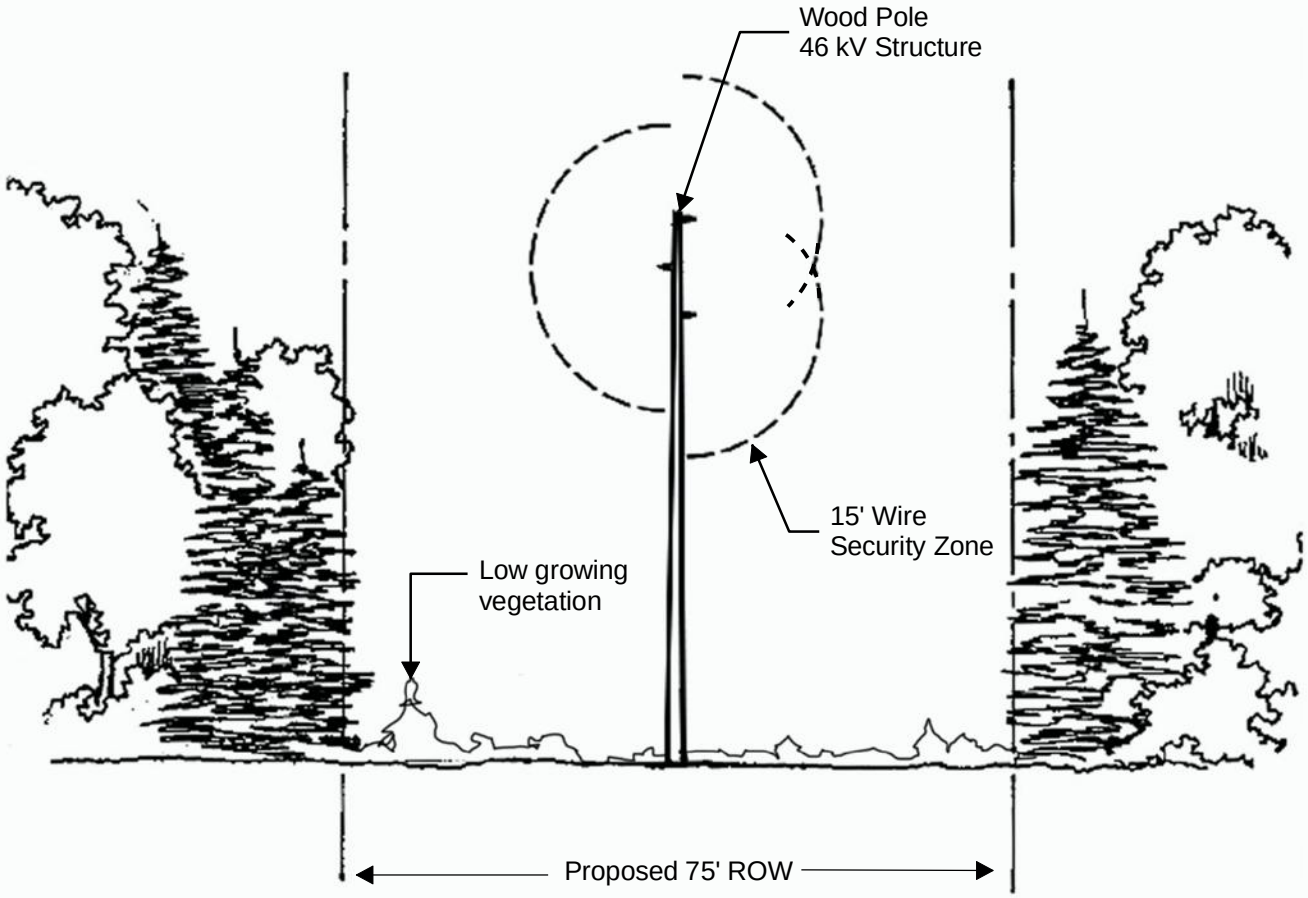
Erosion Control and Stormwater Management – Following construction, disturbed areas will be reseeded with an approved conservation seed mix (see Appendix E) or planted with appropriate native low-growth vegetation that will stabilize the ROW and minimize the potential for erosion. Water bars, diversion structures and limited settling basins near the water resources will be utilized to manage the small increase of runoff.

Vegetation Management Program – Niagara Mohawk has specific requirements for ROW management and maintenance to ensure accessibility and prevent undue damage from falling trees and from undergrowth. The company's vegetation management program is on file with the New York State Public Service Commission (NYSPSC), pursuant to Part 84 of its Rules and Regulations (see Appendix G for the Niagara Mohawk NYSPSC program and NYSPSC Case 04-E-0822, June 20, 2005). The ROW will be maintained with low growing vegetation that does not interfere with the conductor and limits the risk of trees or other large objects that could fall and compromise the line. Clearance requirements vary by voltage, increasing as voltage increases. For the proposed line, a 15-foot wide wire security zone will be maintained along with an additional buffer zone that is required to prevent damage to the line from falling trees or branches (see Figure 1.1-21). The NYSPSC issued an order to New York State utilities (NYSPSC Case 04-E-0822, June 20, 2005) to increase the level of vegetation management of tall growing or undesirable species in utility ROW. This order applies to danger trees, wire security zones, and an undefined priority zone around or near the conductors. The substance of the order is to increase the frequency of maintenance clearing, emphasize the importance of danger tree management, clarify the need for vegetation management for the entire width of the ROW, and the need for qualified personnel to provide consistent oversight on ROW vegetation management. The long-term effect of the order will be that the overall height of vegetation in the ROW will be lower than has been previously tolerated. The NYSPSC's objective, as a result of this case and conditions placed on the transmission operating utility, is to eliminate outages as a result of vegetation contacting the conductors (NYSPSC Case 04-E-0822, Page 16). For the Project the combined total width of the ROW will be 75 feet, centered on the proposed 46 kV line and wood pole structures. Additionally, Niagara Mohawk will obtain "danger tree" rights that extend about 50 feet beyond the 75 foot ROW edge that will permit cutting of trees that, due to their deteriorated condition, may threaten the line operation.

The Niagara Mohawk management program includes:

- Inspection and monitoring of the ROW every five years by a Division Forester for "hazard trees" that could interrupt service.
- Limited use of herbicides under the NYSPSC order to control vegetation in select areas. (Herbicides will not be used within 100 feet of any potable water supply, NYSDEC/APA regulated wetland, or state road corridor unless otherwise allowed by permit, rule or regulation.)
- Selective cutting and trimming of vegetation close to the ground without herbicides in sensitive areas near streams, lawns, parks or other highly sensitive areas[7]. Vegetation in the center of the ROW will have a minimum height of 8 to 13 feet above grade.
- Mowing, using all terrain vehicles (ATVs) with specialized mowing attachments, or a heavy-duty 4X4 tractor with rear mounted brush hog type mower to physically mow the small woody and vegetative species on the ROW in highly sloped areas and sensitive areas near (but not within) streams or other highly sensitive area. A hydro-axe brush mower can also be used for mowing to remove larger vegetation in select areas.

[7] Highly sensitive areas refer to wetlands, NYSDEC regulated streams, and critical environmental areas which are an APA designation along highways (in Rural Use areas the CEA is 150 feet wide and in Resource Management the CEA is 300 feet wide).



Not to scale

Tri-Lakes Reliability Project	
Fifteen Foot Wire Security Zone	
New York Power Authority	**Figure 1.1-21**

SECTION 2
ALTERNATES TO THE PROPOSED ACTION

SECTION 2 ALTERNATES TO THE PROPOSED ACTION

2.1 No Action

Under the no action alternate, the proposed 46 kV line would not be constructed and the reliability that it would provide and the power delivered on it would not be available to the region. A large number of new hotel units and housing units are scheduled to be constructed in Lake Placid that are likely to be constructed regardless of whether or not the new line is built (see Section 3.14.4). Although not as significant in size or quantity, other housing units are also likely to be built in the Village of Tupper Lake over time. Given that the existing electric delivery system is already at its limit for capacity, with new development in the two villages and their accompanying increase in demand for power, it is likely that the frequency and duration of outages would increase and that requests for curtailment of electric use would become a common event during the winter months. The consequences of these outages and curtailments would translate to increased hardship, health and safety concerns for area residents and visitors, frequent interruptions to education through lost days of school, and financial losses to area businesses. Without improvement to the system, it is also possible that frequent outages could influence some non-residents to look elsewhere for recreation opportunities and thus exacerbate the financial losses to the region.

Given the critical nature of the reliability issue in the Tri-Lakes Region and the fact that reasonable short-term solutions to address this issue have been exhausted, the no action alternate is not acceptable.

2.2 Alternative Tap Points

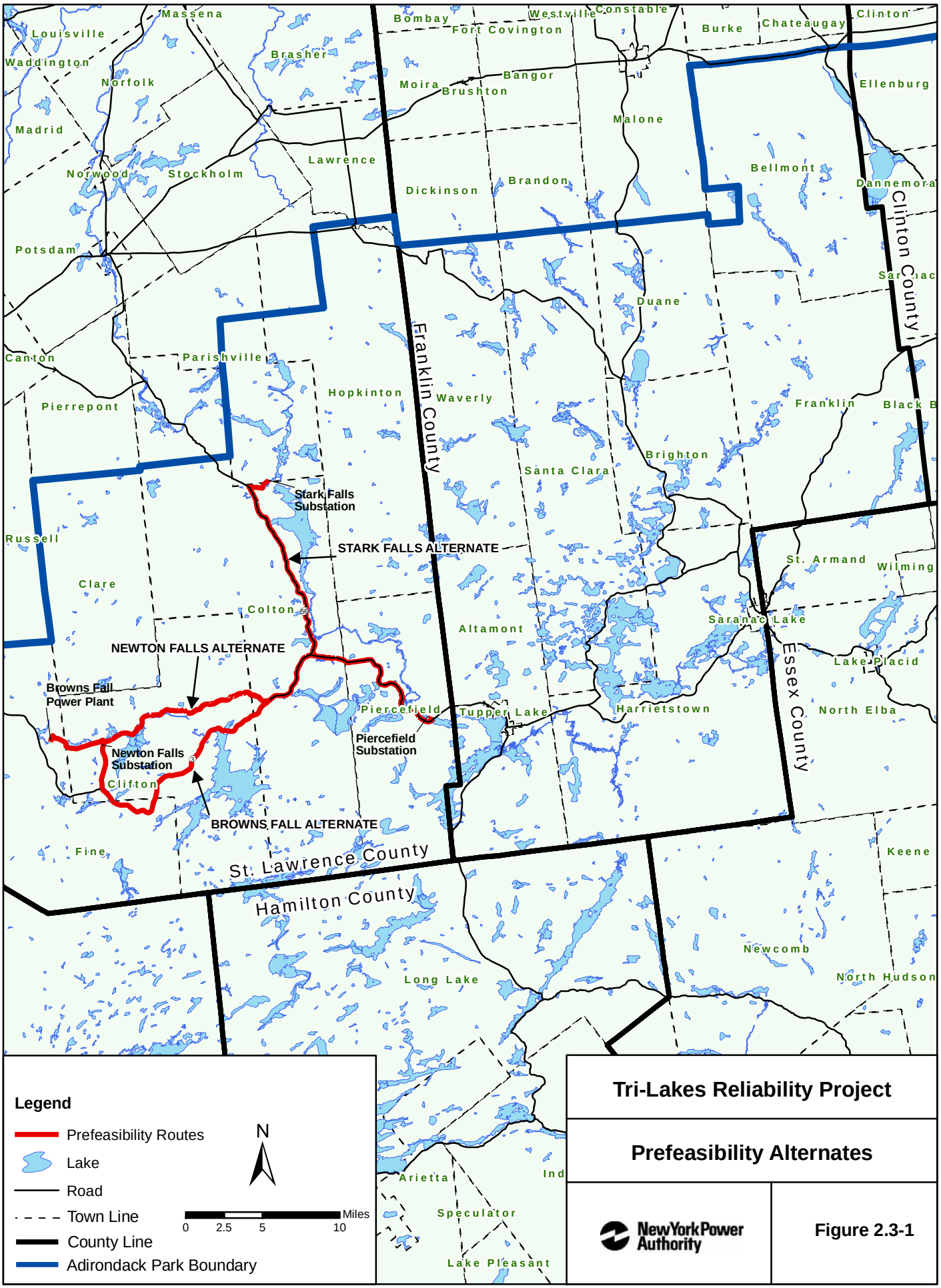
The Tri-Lakes Reliability Project is being built to remediate the primary deficiency in the existing transmission network which is the radial design. What this means is that the Tupper Lake area is supplied by a single 46 kV circuit from the east while the entire Tri-Lakes Region is served from the north via a single 115 kV circuit supplied from the Malone Substation.

The idea of connecting to NYSEGs system further to the east does not remediate the problem for Tupper Lake and the western communities because although it is a different supply than the Malone Substation, the single 46 kV circuit from Lake Colby does not change. This is why it is necessary to develop a transmission system from the north or west of Tupper Lake. A new, second 46 kV supply from the west will remove the radial transmission limitations to Tupper Lake and has the added benefit of being sourced outside of the Malone substation system that already supports the electrical power needs of the Tri-Lakes Region. There are secondary issues with NYSEG's system which make it a sub-optimal solution such as inadequate capacity to service or reinforce the Tri-Lakes Region and significant 46 kV construction (i.e., >40 miles) to eliminate thermal overloads to prevent a system-wide collapse.

2.3 Alternate Routes

An Alternate Route, the Browns Falls Alternate, originating at the Browns Falls Power Plant in the Town of Fine and terminating at the Piercefield Substation (Figure 2.3-1) was initially included as a potential route but was not studied in more detail after completion of the pre-feasibility route evaluation. Initial findings found that much of the State Route 3 corridor that the Browns Falls alternate followed does not currently have roadside utilities. The introduction of the proposed 46 kV line within this portion of the State Route 3 corridor had the potential of introducing unacceptable visual impacts along this highway corridor by markedly changing the visual character of the roadside landscape. The Browns Falls route would also pass over approximately 1.5 miles of State Forest Preserve and pass immediately adjacent to approximately 3 additional miles of State Forest Preserve. No reasonable alternate routes were identified that would avoid the 1.5 mile portion of the State Forest Preserve. Overall length of this route is approximately 10 miles longer than the Newton Falls Alternate and approximately 12 miles longer than the Stark Falls Alternate.

nypa/maps/pre-feasibility_alternatives.mxd



Tri-Lakes Reliability Project

Prefeasibility Alternates

New York Power Authority

Figure 2.3-1

After the initial investigation of the three pre-feasibility routes (Browns Falls, Stark and Newton Falls alternates), no further consideration was given to the Browns Falls alternate. In comparison to the other two alternates, it offered no advantages. It is 10 miles longer than the Newton Falls alternate, traverses similar terrain and ecologically sensitive areas, and would bear a commensurate increase in environmental impacts. In addition, no viable routing alternates could be identified for the Browns Falls route around the State Forest Preserve.

2.3.1 Sub-Alternate Route Identification and Analysis

To avoid sensitive areas or engineering constraints, a series of sub-alternate routes was identified for the Preferred and Alternate Routes. Table 2.3-1 (Sub-Alternate Route Analysis) provides a comparison of sub-alternate routes discussed in detail below and in the Alternate Routing Study Report in Appendix A. These locations were studied in detail to determine which of several sub-alternate routes were more acceptable based on an analysis of several factors including length, engineering design, wetlands and cultural resources, visual resources, vegetation and public comment. The following options were considered but eliminated due to a variety of concerns.

2.3.1.1 Oswegatchie Sub-Alternate Routes

The Oswegatchie Sub-Alternate Route (Figure 2.3-2, Maps 6 and 7 of 11) along the Newton Falls Alternate Route was identified to address a preference for a cross-country alignment that would pass to the north of River Road to minimize potential visibility from River Road and the Oswegatchie River. A Northern Study Alternate (NF-1) and a Southern Study Alternate (NF-2) were also studied generally between reference marker N3 and the east side of Tooley Pond Outlet.

Although the northern study alternate (NF-1) meets the objective of eliminating views from River Road and the Oswegatchie River, it results in clearing more undisturbed forest and would traverse 3,886 feet of wetland areas. The southern study alternate (NF-2) traverses a significant amount of previously disturbed upland forest, however, this alignment was considered too close to the river to avoid potential visual impacts. Additionally, the crossing of the river is considerably wider than on the other two sub-alternates. The middle sub-alternate route was selected over NF-1 and NF-2 because it met the objective of minimizing views from River Road and the Oswegatchie River and was located primarily in previously disturbed upland forest.

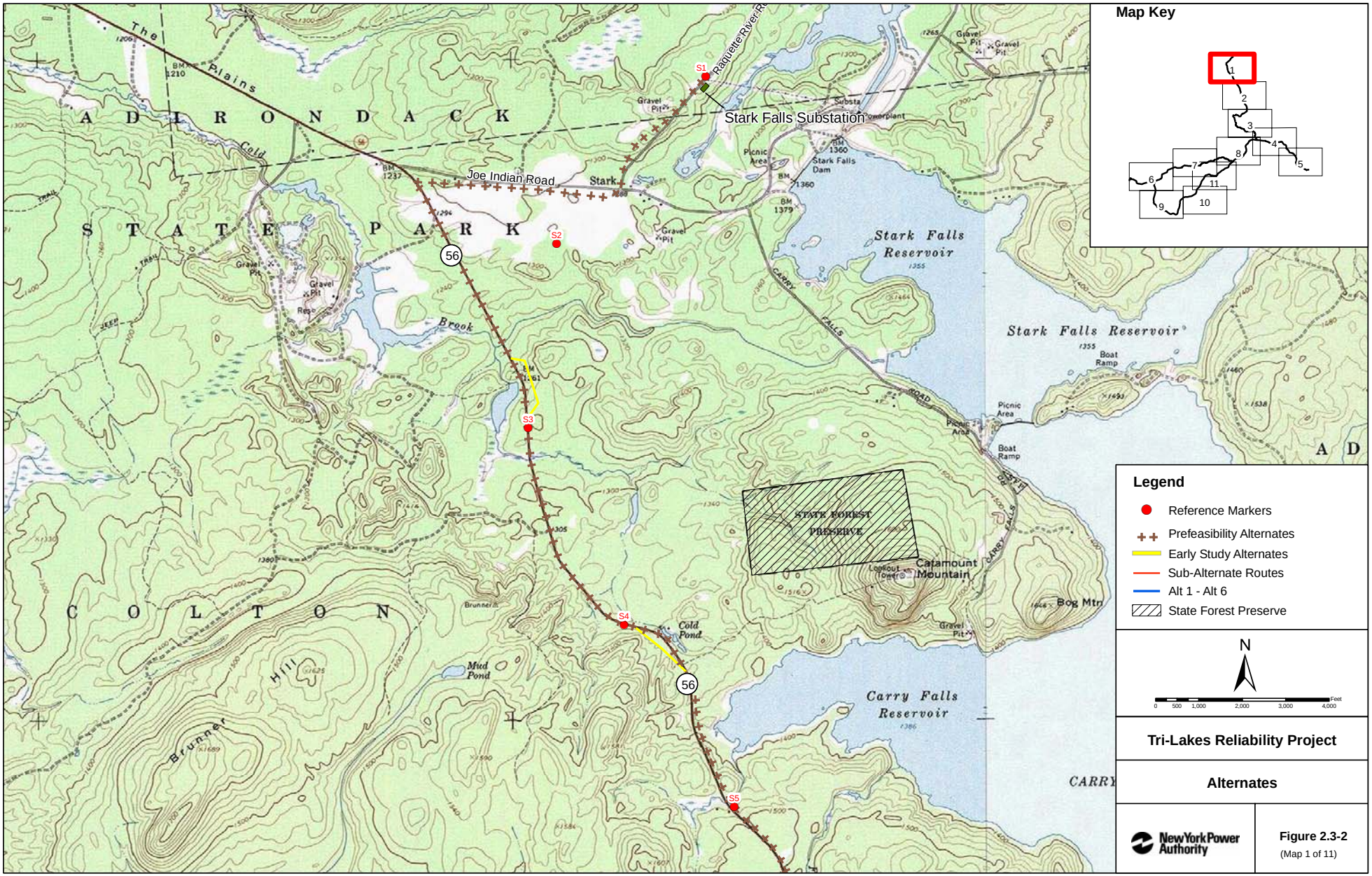
2.3.1.2 Cook Corners and Sevey Bog Sub-Alternate Routes

Cook Corners and Sevey Bog are two other sub-alternates that are not common to both routes. The Cook Corners sub-alternates (Figure 2.3-2, Map 7 of 11) are on the Newton Falls Alternate Route. Three options for routing through Cook Corners were studied resulting in the selection of the Northern Sub-Alternate Route. The north sub-alternate was selected primarily because it minimizes visual impacts to camp properties and residential properties along Tooley Pond Road and is the shortest in length.

The Sevey Bog Sub-Alternate Routes are located on the Stark Falls Alternate Route (Figure 2.3-2, Map 3 of 11). The Bog Road By-Pass was considered a means of increasing the distance between the proposed alignment and Sevey Bog. This sub-alternate was not selected because it would require development of additional access into the area beyond that provided by the existing logging road, and it would result in more wetlands traversed and cleared. It was agreed, in consultation with the APA, that the route should remain adjacent to the existing logging road (Bog Road Sub-Alternate) to avoid introducing new access into the area and to maintain the current distance from the boundary of the Raquette Boreal State Forest Preserve.

Table 2.3-1: Sub-Alternate Route Analysis									
	Total Length lf	**Overbuild lf**	**New Overhead lf**	**Wetlands lf**	**Visual**	**Cultural Points**	**Streams Crossings**	**Clearing Acres**	**Public/Agency Comment**
Oswegatchie River									
North	9,734	0	9,734	3,886[b]		0	0	16.8	
Middle	11,437	0	11,437	1,785[a]	preferred	0	3	13.1	
South	11,402	0	11,402	663[b]		0	3	13.1	
Cook Corners									
North	6,371	5,011	1,360	1,543[a]	preferred A	0	4	9.4	
Middle	7,317	4,403	2,914	874[a]	preferred B	0	3	9.3	
South	7,130	0	7,130	811[a]		0	1	12.3	
Bog Road									
By-Pass	3,087	0	3,087	870	NA	0	1	5.3	
Bog Road	3,742	0	3,742	406	NA	0	1	2.2	*Note 1*
Childwold									
Northern Offset	12,364	0	12,364	2,656[b]		0	1	21.3	
State Route 3	11,369	11,369	0	1,061	preferred	0	1	6.5	*Note 2*
Southern Offset	14,727	0	14,727	1,678[a]		0	2	25.4	
Gale									
State Route 3	7,269	7,269	0	322		8	1	4.2	
By-Pass	4,280		4,280	0	preferred	1	0	7.8	*Note 3*
Raquette River									
State Route 3	5,721	5,721	0	100		0	0	3.3	
By-Pass	5,129	0	5,129	33	preferred	0	1	8.8	*Note 4*
Piercefield									
State Route 3	6,869	2,684	4,185	3,335[b]		0	1	8.8	
Main Street	3,959	100	3,859	272[b]		0	1	2.8	
By-Pass	3,796	1,743	2,053	108	preferred	0	1	4.0	

[a] Wetland analysis based on field delineation and APA wetlands database.
[b] Based on APA wetlands database.
Note 1 - The Bog Road option was preferred by the APA because it limited the amount of new access into the area and maintained the greatest distance from the State Forest Preserve boundary.
Note 2 - Preference for the State Route 3 Overbuild option was indicated by four residents of Childwold. One resident of Childwold expressed opposition to the State Route 3 alignment or any overhead facility. One resident pointed out the need to consider the possible widening of State Route 3 in the future but did not express a preference for one route versus another.
Note 3 - Two residents expressed a preference for the Gale By-Pass as a means of mitigating potential visual impacts to Catamount Pond and Massawepie Lake.
Note 4 - The NYSDOT expressed a preference for the Raquette River By-Pass.

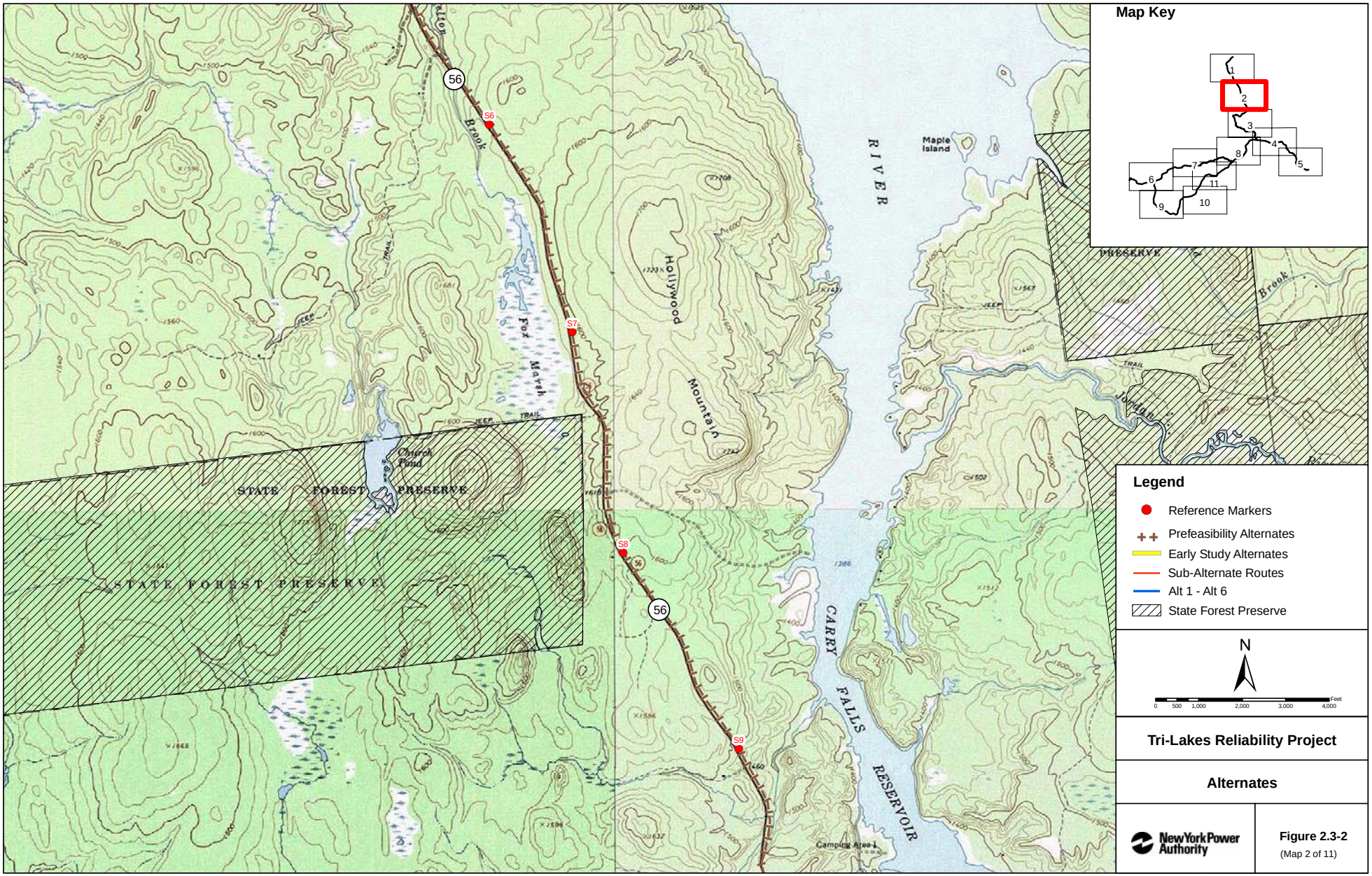


Tri-Lakes Reliability Project

Alternates

New York Power Authority

Figure 2.3-2
(Map 1 of 11)

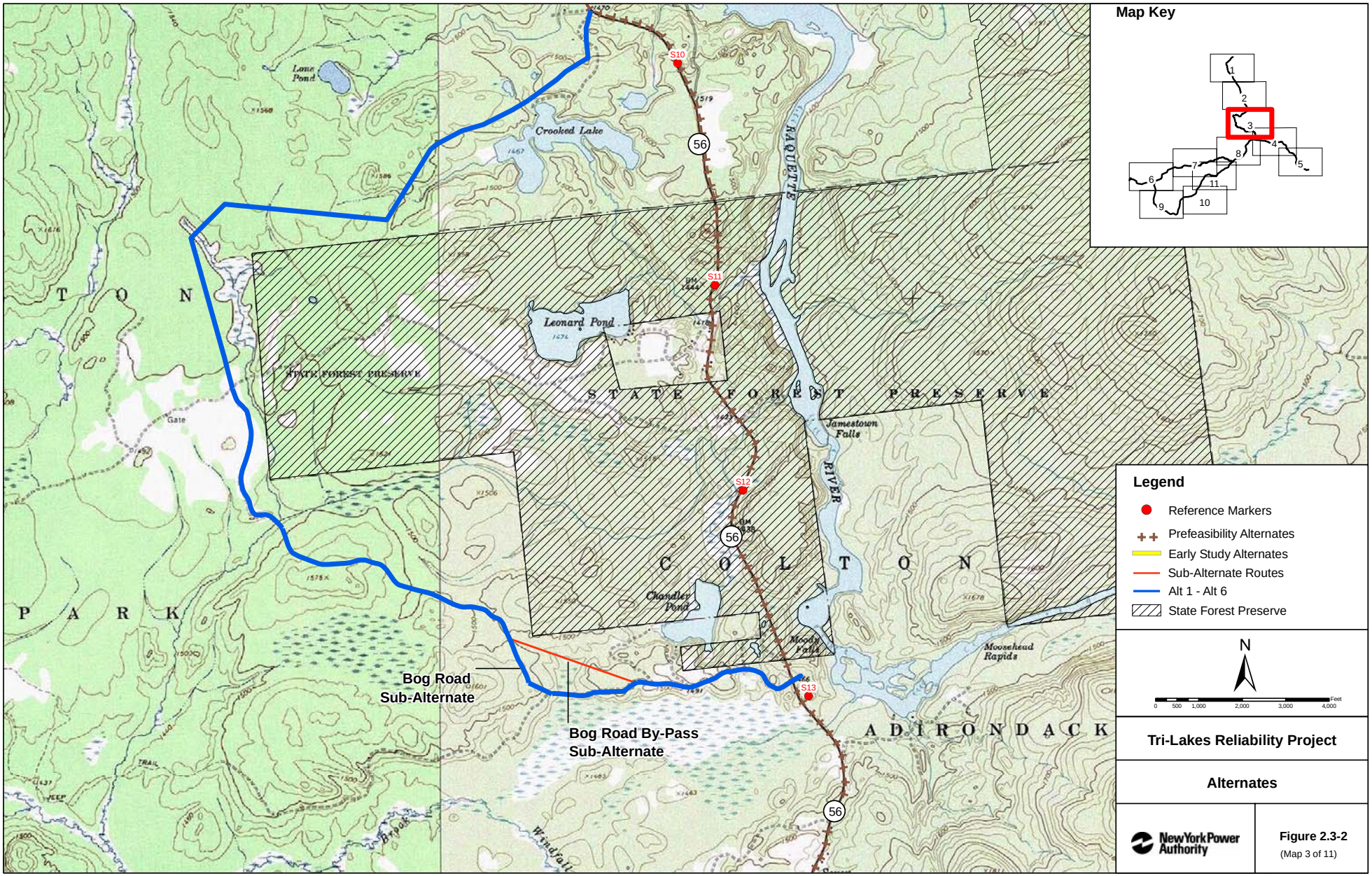


Tri-Lakes Reliability Project

Alternates

New York Power Authority

Figure 2.3-2
(Map 2 of 11)

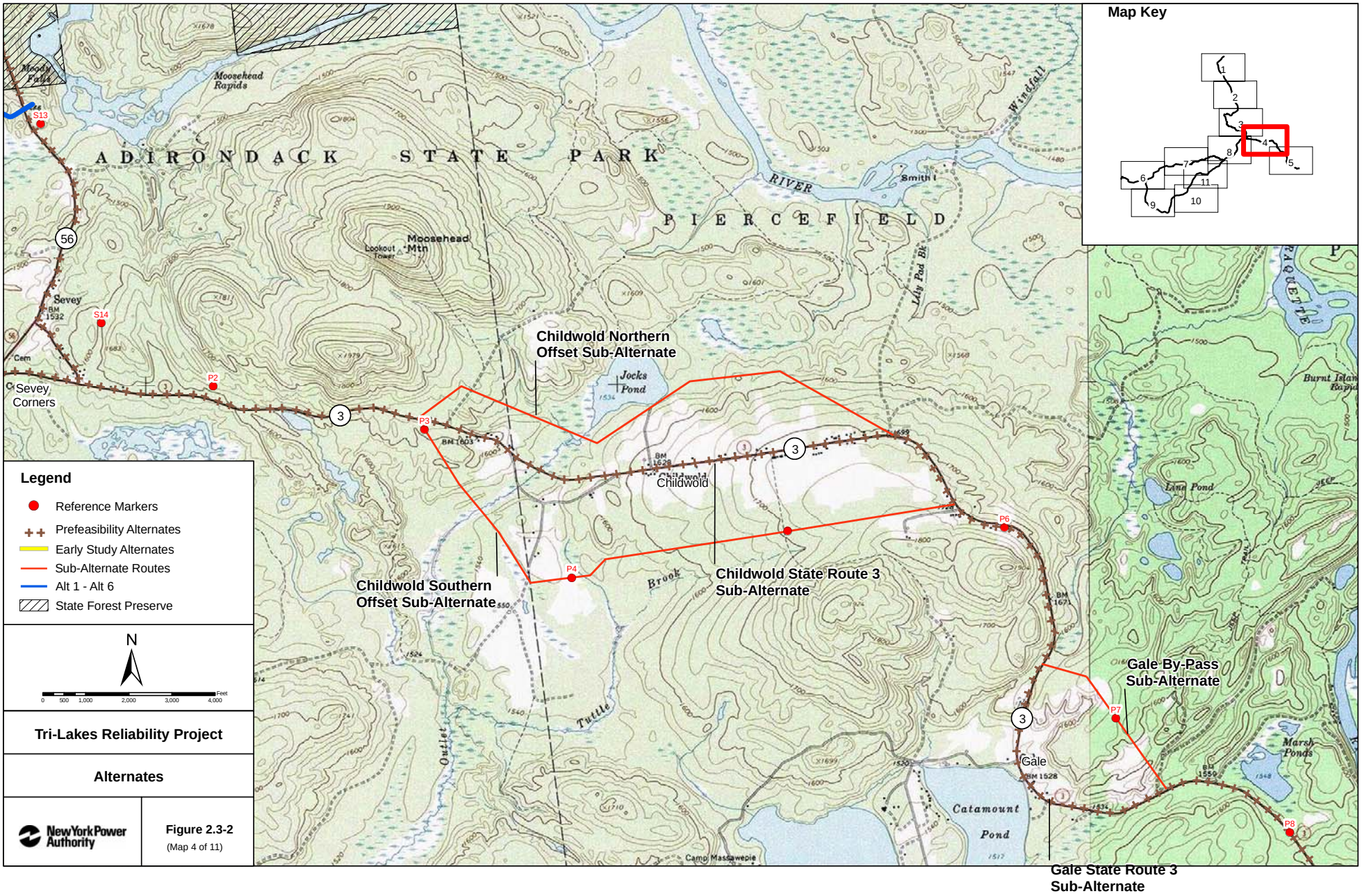


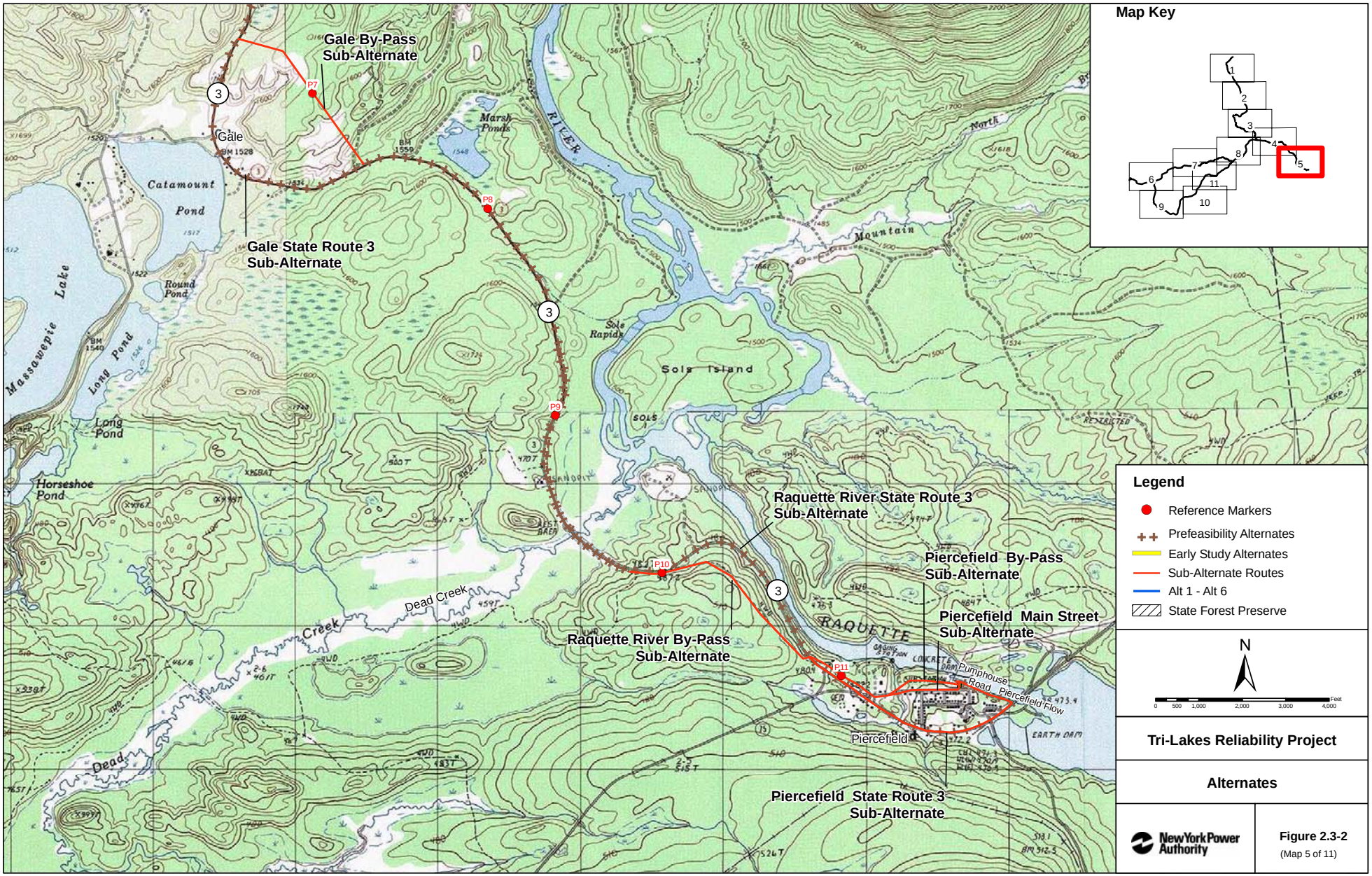
Tri-Lakes Reliability Project

Alternates

New York Power Authority

Figure 2.3-2
(Map 3 of 11)


Map Key
1
2
3
4
5
6
7
8
9
10
11
Moody Falls
Moosehead Rapids
S13
ADIRONDACK STATE PARK
RIVER
Smith I
PIERCEFIELD
Windfall
Moosehead Mtn
Lookout Tower
Lily Pad Bk
56
Sevey
BM 1532
S14
Cem
Sevey Corners
P2
3
P3
BM 1603
Childwold Northern Offset Sub-Alternate
Jocks Pond
BM 1628
Childwold
Childwold
P6
P4
Childwold Southern Offset Sub-Alternate
Brook
Childwold State Route 3 Sub-Alternate
BM 1671
Gale By-Pass Sub-Alternate
P7
Tuttle
Outlet
Gale
BM 1528
Catamount Pond
Camp Massawepie
Marsh Ponds
BM 1550
P8
Gale State Route 3 Sub-Alternate
Legend
Reference Markers
Prefeasibility Alternates
Early Study Alternates
Sub-Alternate Routes
Alt 1 - Alt 6
State Forest Preserve
N
0 500 1,000 2,000 3,000 4,000 Feet
Tri-Lakes Reliability Project
Alternates
New York Power Authority
Figure 2.3-2
(Map 4 of 11)

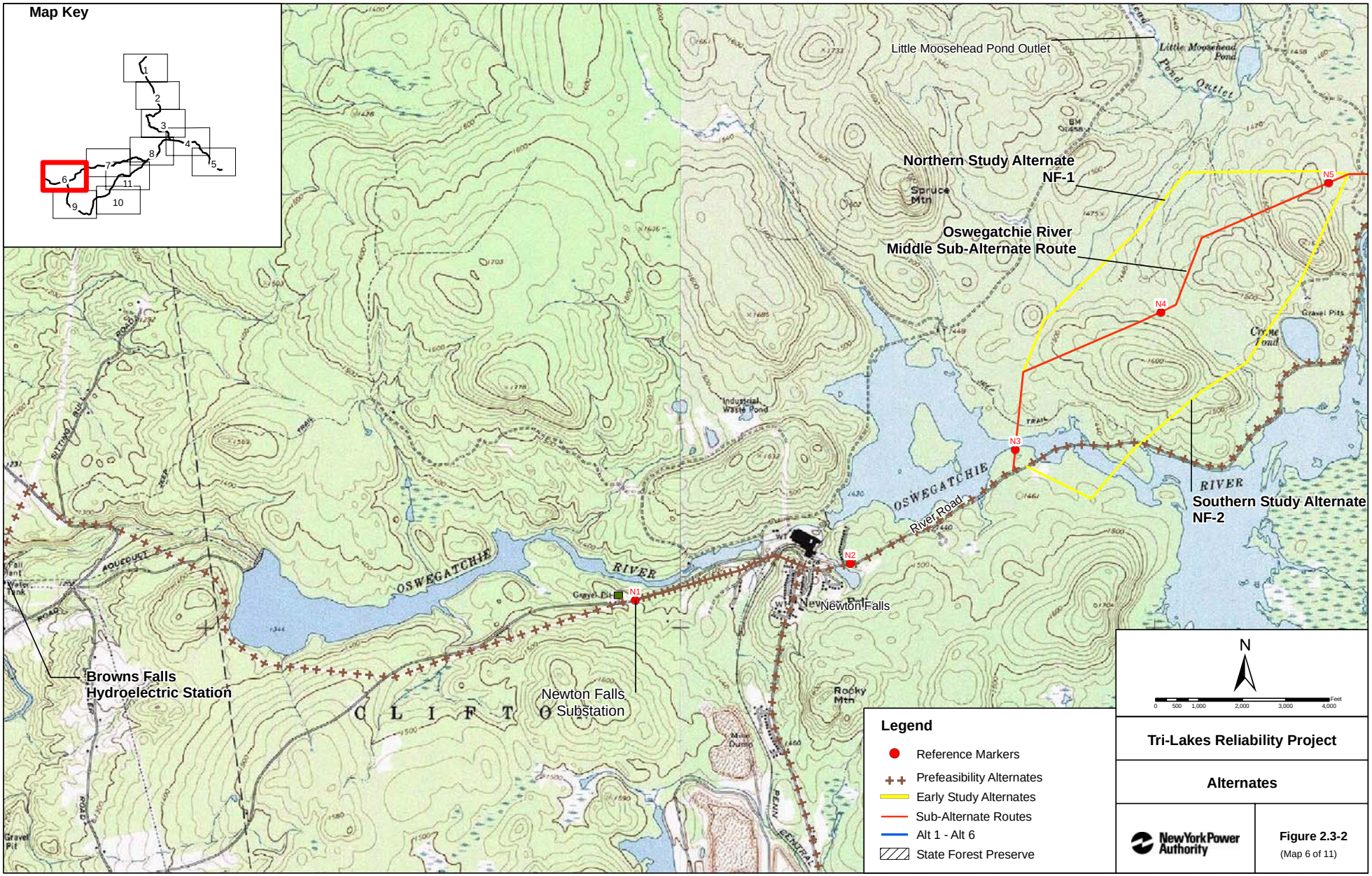


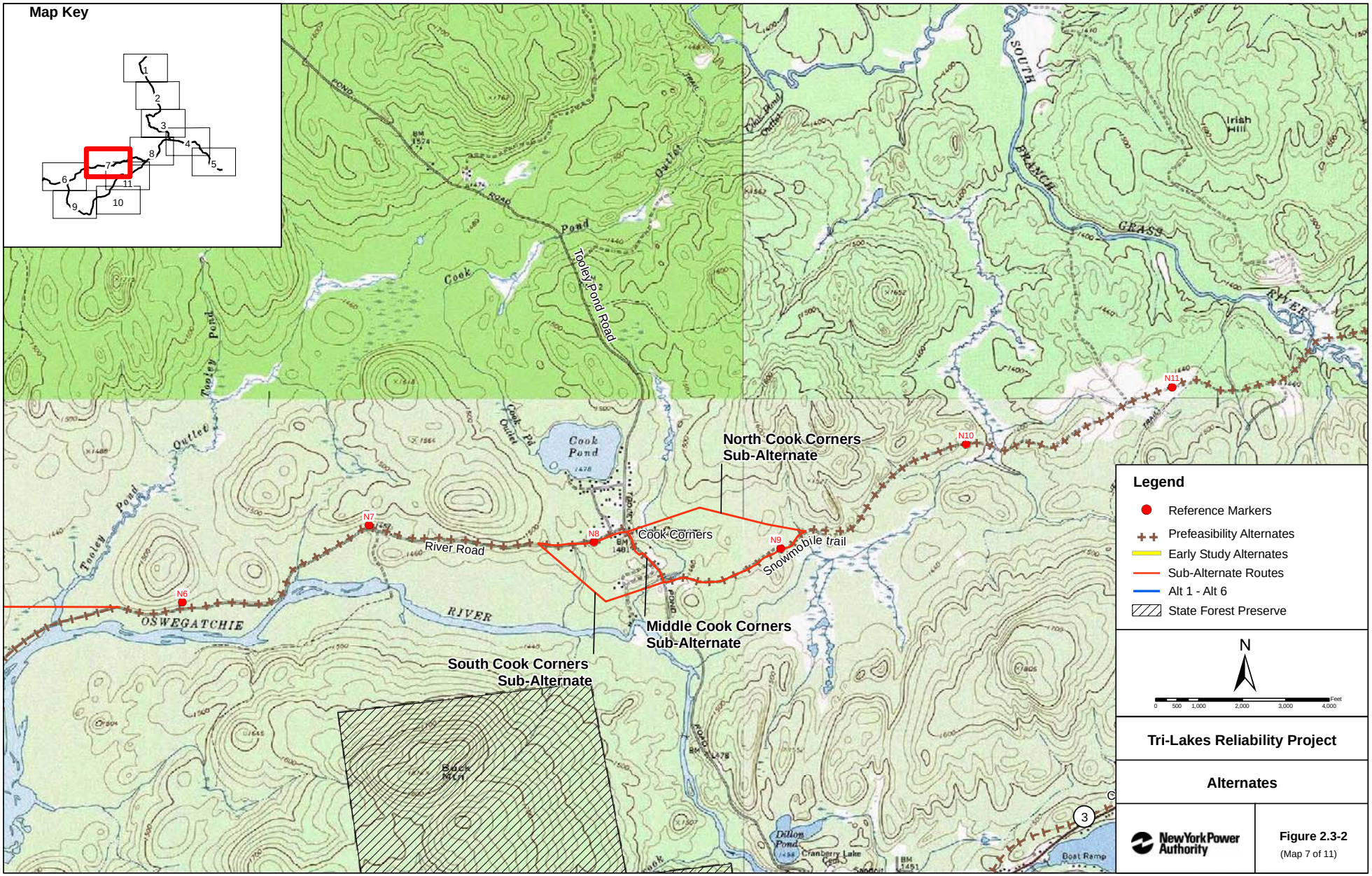
Tri-Lakes Reliability Project

Alternates

New York Power Authority

Figure 2.3-2
(Map 5 of 11)


Map Key
1
2
3
4
5
6
7
8
9
10
11
Little Moosehead Pond Outlet
Northern Study Alternate
NF-1
Oswegatchie River
Middle Sub-Alternate Route
Southern Study Alternate
NF-2
N1
N2
N3
N4
N5
Browns Falls
Hydroelectric Station
Newton Falls
Substation
Newton Falls
OSWEGATCHIE
RIVER
River Road
Spruce Mtn
Rocky Mtn
Industrial Waste Pond
Gravel Pits
Crane Pond
Little Moosehead Pond
Legend
Reference Markers
Prefeasibility Alternates
Early Study Alternates
Sub-Alternate Routes
Alt 1 - Alt 6
State Forest Preserve
N
Feet
0
500
1,000
2,000
3,000
4,000
Tri-Lakes Reliability Project
Alternates
New York Power Authority
Figure 2.3-2
(Map 6 of 11)

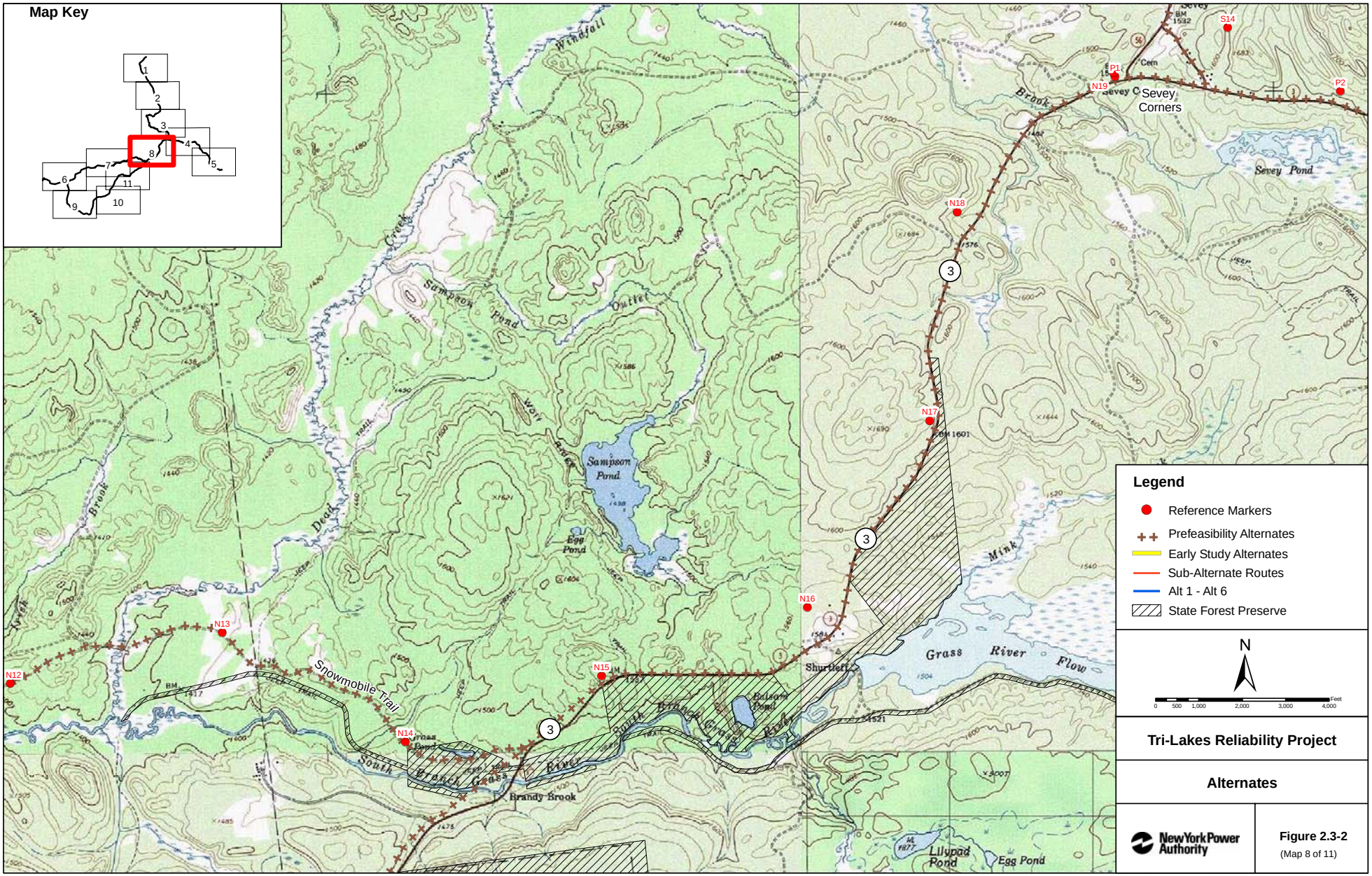


Tri-Lakes Reliability Project

Alternates

New York Power Authority

Figure 2.3-2
(Map 7 of 11)


Map Key
1
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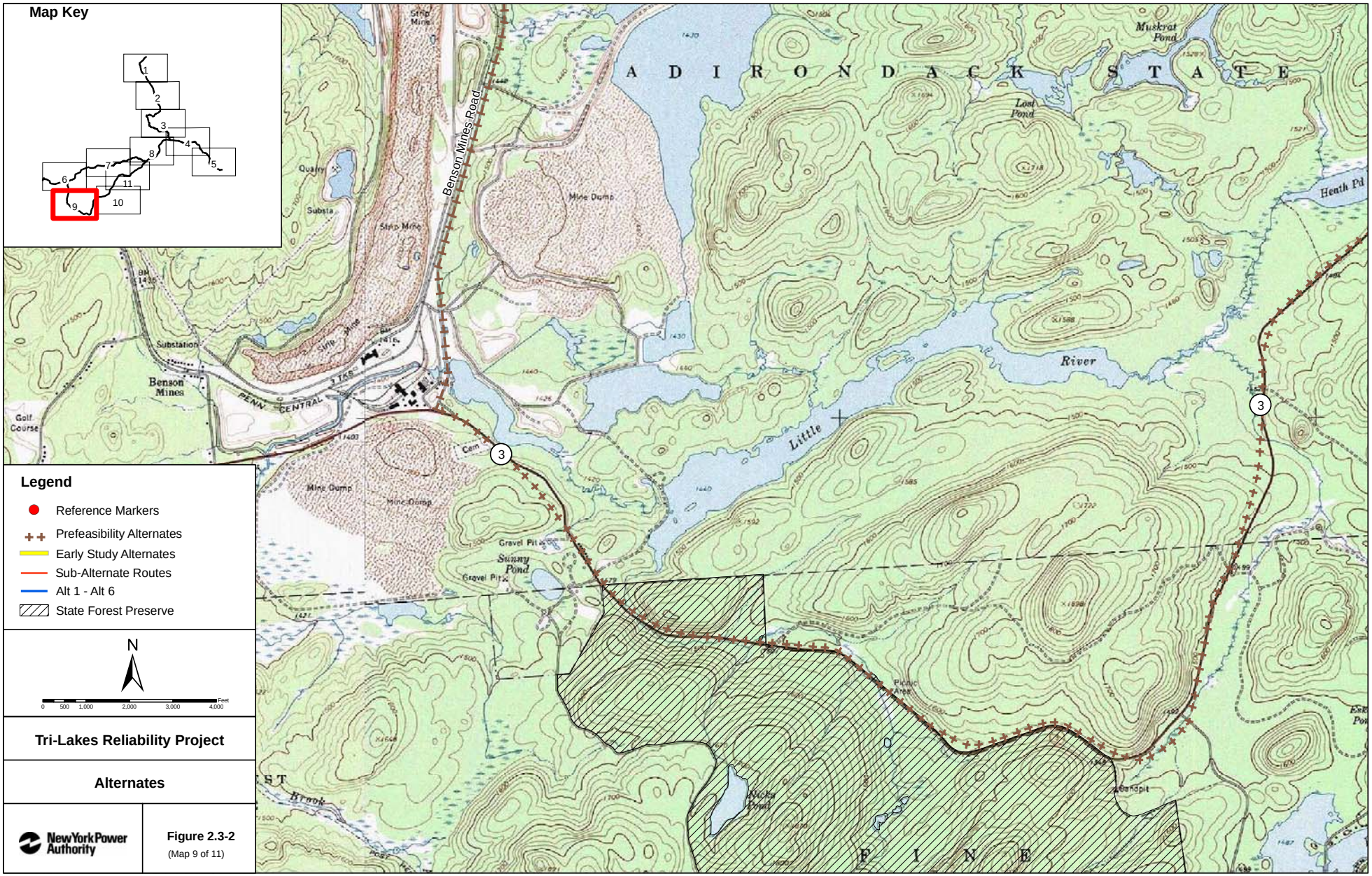
11
Legend
Reference Markers
Prefeasibility Alternates
Early Study Alternates
Sub-Alternate Routes
Alt 1 - Alt 6
State Forest Preserve
N
0 500 1,000 2,000 3,000 4,000 Feet
Tri-Lakes Reliability Project
Alternates
New York Power Authority
Figure 2.3-2
(Map 8 of 11)
Sevey Corners
Sevey Pond
Sampson Pond
Egg Pond
Grass River Flow
Shurtleff
Snowmobile Trail
Brandy Brook
Lilypad Pond
Egg Pond
Mink Brook
Dead Creek
Windfall Brook
Sampson Pond Outlet
West Branch
South Branch Grass River
Balsam Pond
Grass Pond
S14
P1
P2
N12
N13
N14
N15
N16
N17
N18
N19
3

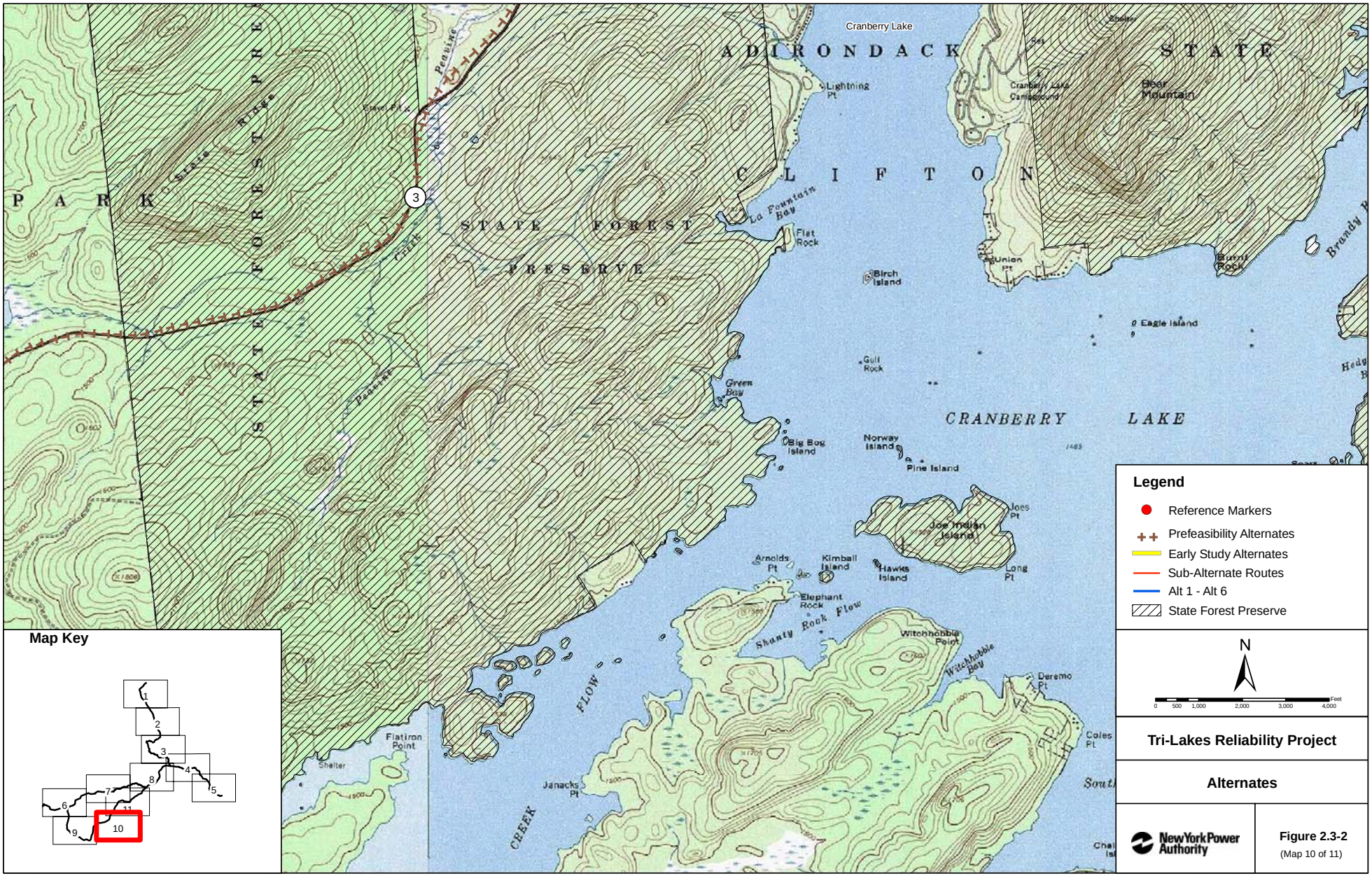


Tri-Lakes Reliability Project

Alternates

New York Power Authority

Figure 2.3-2
(Map 9 of 11)

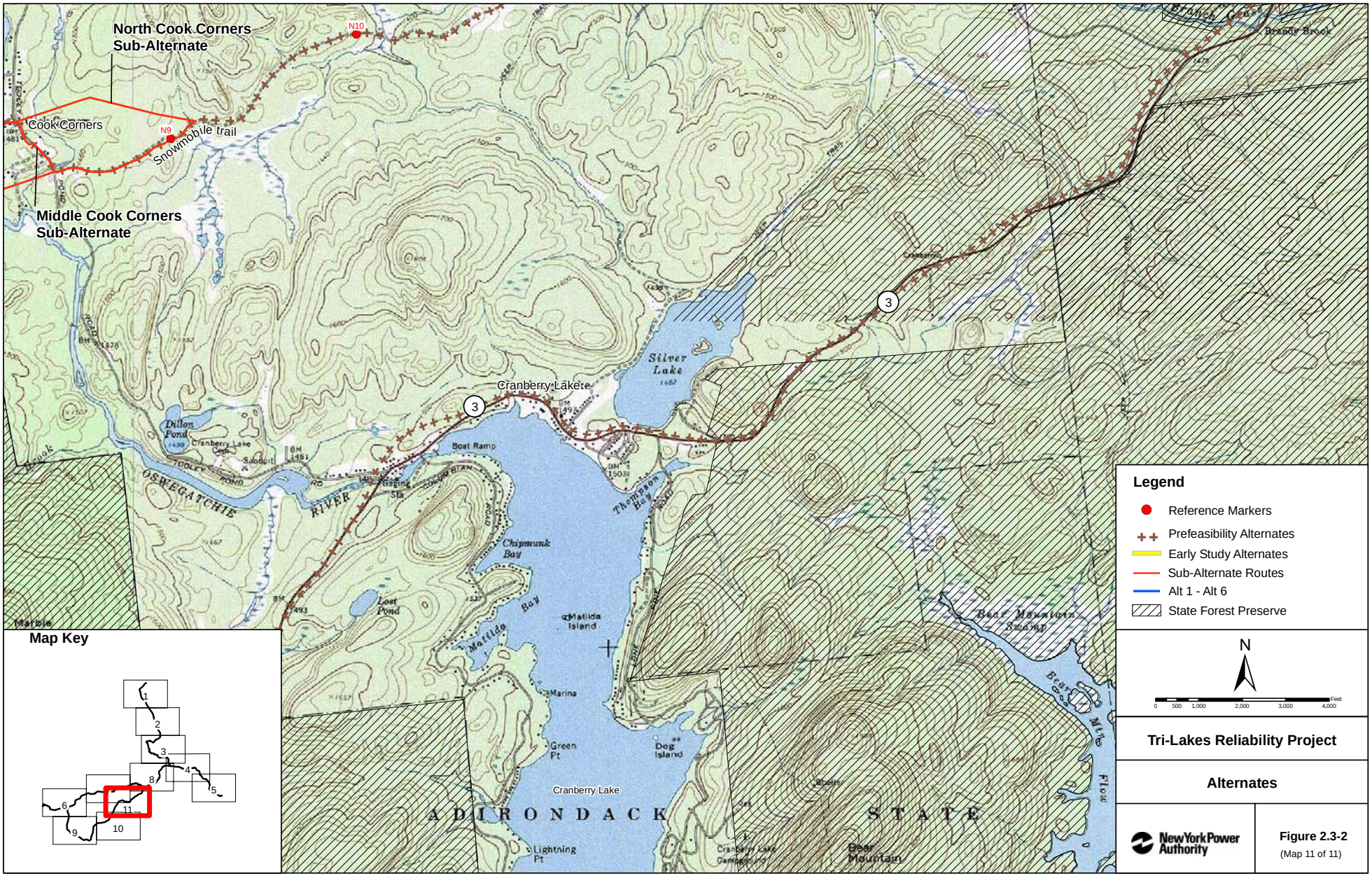


Tri-Lakes Reliability Project

Alternates

New York Power Authority

Figure 2.3-2
(Map 10 of 11)



Tri-Lakes Reliability Project

Alternates

New York Power Authority

Figure 2.3-2
(Map 11 of 11)

2.3.1.3 Childwold Sub-Alternate Routes

Three sub-alternate routes were investigated in the Childwold area including a Northern and Southern offset and State Route 3 (Figure 2.3-2, Map 4 of 11).

As a result of the aerial reconnaissance conducted on April 4, 2005, it was determined that a significant constraint to routing along the Northern Offset existed in wetland resources associated with Jocks Pond. There were no reasonable routing alternatives to avoid this resource area other than to rejoin State Route 3 prior to reaching the Jock's Pond wetlands. The Northern Offset Sub-Alternate required more than three times the amount of clearing than did the State Route 3 sub-alternate (approximately 21 acres of clearing versus 6 acres). If the Northern Offset Sub-Alternate were to rejoin State Route 3 east of the Jock's Pond wetlands, there would still be significantly greater clearing required than along the State Route 3 Sub-Alternate. The Southern Offset would require more than four times the number of acres of clearing (approximately 25 acres vs. 6 acres) than would the State Route 3 Sub-Alternate.

Both the Northern Offset and Southern Offset Sub-Alternates would not be visible from State Route 3, but would introduce new visual elements into areas where there are currently no previously existing utilities, thus creating new utility corridors that would leave residential properties in essentially an island between utilities along State Route 3 and a new utility ROW along either the Northern or Southern Offset Sub-Alternate. Furthermore, public comment received at the June 10 Public Open House (Appendix I) indicated a preference for remaining with the State Route 3 corridor in Childwold. The Northern and Southern Offset Sub-Alternates was eliminated from further consideration and the analysis focused on the State Route 3 Sub-Alternate.

Public comment introduced into the record offered considerable support for the State Route 3 alignment (Appendix I). In terms of visual resources, the overbuild construction along State Route 3 represents an incremental change in visibility from the distribution facilities that currently exist. Additionally, following State Route 3 uses the corridor concept by consolidating existing distribution facilities along the roadway on the same structure with the proposed 46 kV line facilities, resulting in significantly less clearing and wetlands traversed. The State Route 3 Sub-Alternate remained as part of the Sevey Corners to Piercefield segment.

2.3.1.4 Gale Sub-Alternate Routes

Concerns were raised over potential visual impacts to Catamount Pond and Massawepie Lake on a section of the State Route 3 overbuild alignment on the ROW between Sevey Corners and Piercefield. The Gale By-Pass Sub-Alternate Route (Figure 2.3-2, Map 5 of 11) was identified as a means to mitigate potential visual impacts to Catamount Pond and Massawepie Lake. It diverges from the existing distribution ROW that passes immediately adjacent to Catamount Pond and continues cross-country approximately 2,500 feet northeast of Gale. Although the Gale By-Pass is all new ROW and will require additional clearing, it is approximately 3,000 feet shorter than the State Route 3 alignment, avoids wetlands and reduces potential visual impact to Catamount Pond and Massawepie Lake. There was also considerable public comment in support of the By-Pass alignment. Based on this analysis, the State Route 3 overbuild alignment was dropped from further consideration in this area and the Gale By-Pass was adopted as part of the Sevey Corners to Piercefield segment.

2.3.1.5 Raquette River Sub-Alternate Route

A sub-alternate route alignment was investigated between reference markers P10 and P11 to determine if there was opportunity to mitigate the potential impacts resulting from an overbuild option along State Route 3 (Figure 2.3-2, Map 5 of 11). The northern edge of State Route 3 in this area is immediately adjacent to approximately 3,400 feet of an area pending APA primitive land use classification. It is also a particularly severe slope condition with evidence that the paved surface of State Route 3 is being

compromised. As part of a field survey conducted on May 10, 2005, the NYSDOT identified this area as being of particular concern and the Project was encouraged to investigate an alternate that did not require placement of overbuild structures along Route 3. The NYSDOT also noted that this portion of State Route 3 would be part of a reconstruction project slated to begin in 2010-2012. The Raquette River By-Pass was identified as a sub-alternate that would follow an existing jeep trail and take the proposed facilities upslope and approximately 200-1,000 feet west of the existing distribution alignment. Due to concerns expressed over locating the 46 kV line on this section of State Route 3, the section was dropped in favor of the Raquette River By-Pass Sub-Alternate Route.

2.3.1.6 Piercefield Sub-Alternate Routes

Three sub-alternate routes were studied in the vicinity of the Piercefield Substation (Figure 2.3-2, Map 5 of 11). The State Route 3 alignment followed the existing distribution lines along State Route 3 almost to the crossing of the Raquette River. At this point the route turned into Pumphouse Road and accessed the existing Piercefield Substation from the east. A second alignment, the Main Street Sub-Alternate Route, was identified as a means to significantly shorten the route and still take full advantage of an overbuild option. A third alignment was identified during the course of the aerial reconnaissance on April 4, 2005. This Sub-Alternate Route took partial advantage of the overbuild option along Main Street, but then followed new overhead ROW north of and downslope of Main Street such that most of the residential and all the recreation land use along Main Street would be avoided. The Piercefield By-Pass was selected and made part of the Sevey Corners to Piercefield segment for several reasons: it minimizes potential incremental visual impacts to the residents of Piercefield; it traverses previously disturbed lands for much of its length, including a town materials marshalling yard and refuse disposal area, and has engineering advantages in terms of entering the existing Piercefield Substation from the west. Entering the substation from the west eliminates the need for a double 46 kV circuit leaving the substation.

2.4 Alternative Support Structures

Steel pole structures with concrete caisson foundations were considered, but were eliminated from further consideration, because of cost, complexity of construction, access requirements, and the lack of need for this type of structure.

2.5 Underground/Underwater Options

Consideration was given to an underground alternate from Stark Falls to Piercefield and from Newton Falls to Piercefield. Placing the proposed 46 kV facility underground would result in considerably greater ground disturbance resulting from trenching excavations (including rock excavation) and would have the potential to increase impacts to wetlands primarily because spanning would no longer be an option in terms of avoiding resource areas. Increased potential impacts related to erosion and sedimentation due to the increased amount of ground disturbance could also result. Although ROW width would be reduced and could result in less vegetation cleared, for those portions of the ROW that are cross-country or offset from existing roads, access would still need to be permanently maintained. Additionally, several rivers and streams along both Alternate Routes would require either boring under the watercourse or trenching. Although there would be significant environmental impacts associated with underground and required underwater crossing, it is likely that many of those impacts could be managed and mitigated such that acceptable levels of impact are achieved.

Reliability of underground systems is influenced by the ability to restore the line. If a cable “faults,” an explosion occurs underground that results in a separation of the cable creating an “open” in the line. When this occurs, locating this situation can take a long time impacting the restoration of the system. Additionally, crews have to travel long distances in order to determine where the fault has occurred and can take days to correct the fault.

Underground installation was also considered as a means of passing over the State Forest Preserve along that portion of the Preferred Route which follows State Route 56 between Stark Falls and Sevey Corners. As discussed in Section 2.4 of Appendix A, this alternate was considered as a means of minimizing impacts to wetlands and areas of unstable slope conditions, minimizing vegetation clearing and minimizing visual impacts along State Route 56 within the boundary of the State Forest Preserve. This underground alternate was not pursued further due to cost considerations and the potential for prolonged project delays based on the uncertainty of a NYS constitutional amendment requirement to place this facility over the State Forest Preserve.

The major factor that influenced the decision not to propose an underground alternate is cost. Either alignment would have associated costs in the order of ten times the estimated proposed overhead facilities costs. An underground Stark Falls to Piercefield Alternate costs are estimated at just over $100 million versus $8.9 million for the overhead proposal. The underground Newton Falls to Piercefield Alternate cost is approximately $115 million versus $11.5 million. Based on the overriding cost differences between overhead and underground/underwater options, a totally underground/underwater alternate was dropped from further consideration.

2.6 Generation Alternatives

In addition to reviewing options for delivering electricity to the area, several alternatives that would add generation in the Tupper Lake area were studied by Niagara Mohawk, including a wood-burning generator, peak shaving diesel generation, fuel cell technology and the addition of multiple 120 kW generators. A new oil or gas generating facility was discarded as an option early in the planning process since getting an adequate fuel supply to the Project Area would be problematic. There are no gas pipelines in the region, and oil would have to be trucked to the site (approximately 1 truck every 12 hours) and stored in on-site facilities. Fuel cell technology was considered impractical due to cost considerations (estimated installed cost of $6M/MW), and the 120 kW generators would require multiple (17) sites to meet the needs of the area, which raised control and interconnection issues. A wood-burning generator would also be costly (estimated installed cost of $20-25M) and would require changes to existing power purchase agreements. Peak shaving diesel generation would require bulk fuel storage and would have to be remotely started by Tupper Lake personnel upon dispatch by NYPA based on real time reading of Tupper Lakes' peak demand. Overall the review of generation alternatives concluded that the addition of new generation in the Tupper Lake area would be too costly and/or too difficult to site and permit.

SECTION 3
EXISTING ENVIRONMENTAL SETTING

SECTION 3 EXISTING ENVIRONMENTAL SETTING

3.1 Geology and Soils

3.1.1 Geology

The geological setting, mineral resources, and potential geologic hazards of the Project Area for the Tri-lakes Reliability Project are discussed in this section.

3.1.1.1 Physiography

The proposed Project runs through the Adirondack Physiographic Province of New York State. Geologically, the area is a southern extension of the Canadian Shield. The mountains consist primarily of metamorphic rocks, mainly gneiss, surrounding a central core of intrusive igneous rocks, most notably anorthosite, in the high peaks region. These crystalline rocks are a lobe of the Precambrian Grenville Basement rock complex and represent the southernmost extent of the Canadian Shield, a cratonic expression of igneous and metamorphic rock 880 to 1,000 million years in age, which covers most of eastern and northern Canada and all of Greenland. Although the rocks are ancient, the uplift which formed the Adirondack dome has occurred within the last 5 million years - relatively recent geologic time - and is ongoing. The dome itself is roughly circular, approximately 160 miles (257 km) in diameter and about one mile (1.6 km) high. The uplift is almost completely surrounded by Paleozoic strata which lap up on the sides of the underlying basement rocks.

The mountains form the drainage divide between the Hudson watershed and the St. Lawrence River/Great Lakes watershed. On the south and southwest, the waters flow either directly into the Hudson River, which rises in the center of the group, or else reach it through the Mohawk River. On the north and east the waters reach the St. Lawrence by way of Lakes George and Champlain, and on the west they flow directly into St. Lawrence River or reach it through Lake Ontario. The Hudson, Black, Oswegatchie, Grasse, Raquette, Saranac and Au Sable are the most important rivers in the area.

With the exception of the higher summits, the region was once covered by the Laurentian glacier, whose erosion produced lakes and ponds, among the larger of which are the Upper and Lower Saranac, Big and Little Tupper, Schroon, Placid, Long, Raquette and Blue Mountain lakes. The region known as the Adirondack Wilderness, or the Great North Woods, embraces between 5,000 and 6,000 square miles of mountain, lake, plateau and forest.

Locally, bedrock in the vicinity of the Preferred and Alternate Routes is composed of:

- Amphibolite, pyroxenic amphibolite
- Interlayered amphibolite and granitic, charnockitic, syenitic gneiss
- Quartz-feldspar paragneiss with variable amounts of garnet and sillimanite
- Biotite and or hornblende granite gneiss
- Leucogranitic gneiss
- Undivided metasedimentary rock and related migmatite
- Charnockite, granitic and quartz syenite gneiss
- Pyroxene-(hornblende) syenite gneiss

3.1.1.2 Mineral Resources

Mining was once a significant industry in the Adirondacks. The region is rich in magnetic iron ores, which were mined for many years. Other mineral products include graphite, garnet (used as an abrasive), pyrite and zinc ore. There is also a great quantity of Titanium, which was mined extensively.

Table 3.1-1 lists mining pits and quarries, and the type of commodity mined within .25 miles of the Preferred Route. The identified mining locations consist of two active and three reclaimed sand and gravel mines. The primary exploitable mineral resources for the mines are sand and gravel.

Table 3.1-1: Mineral Resource Operations Crossed or Within .25 Miles of the Proposed Project

Mine ID	Company Name	Status	Mine Name	Commodity	Town
60937	Ferry, Hamilton	Active	Ferry-Palmer Mine	Sand and Gravel	Colton
60554	Gallo Brothers Construction Inc.	Reclaimed		Sand and Gravel	Colton
60555	Gallo Brothers Construction Inc.	Reclaimed		Sand and Gravel	Colton
60387	Town of Tupper Lake (formerly known as Town of Altamont)	Reclaimed		Sand and Gravel	Piercefield
60540	Kayem Partners	Active	Amell Bank	Sand and Gravel	Colton

Information used to locate and identify mines include data from the Division of Mineral Resources, Mined Lands permit files. The database contains most mines permitted since 1983 but only a limited number of mines from before 1983.

A review of the most current United States Geological Survey (USGS) topographic maps indicates that no additional mines, quarries, prospects, or sand and gravel operations are located within 0.25 miles (approximately 1,300 linear feet) of the Preferred or Alternate Routes. According to the Empire State Oil and Gas Information System, there are no oil and gas mines within 15 miles of the Preferred or Alternate Routes.

3.1.1.3 Geologic Hazards

Potential geologic hazards that could impact the proposed facilities include seismicity, landslides, and karst terrain.

3.1.1.3.1 Seismicity

The potential for geologic hazards associated with seismicity, including earthquakes, seismic risk and faulting in the vicinity of the proposed facilities is relatively low.

Earthquakes

The distribution of earthquake epicenters in New England shows little relationship to major faults (Krinitzsky, *et al.*, 1993). In New York State, the largest reported earthquakes occurred in August of 1929 in Attica, and September of 1944 in Massena, with estimated Modified Mercalli Intensities (MMI) of VIII at each. Although earthquakes have been reported in the general vicinity of the proposed Project, the intensities of the more local quakes have been on a much lower scale. The strongest occurred in 1928 in Saranac Lake, registering 6 on the MMI scale or a magnitude of 4.1 on the Richter scale.

The MMI, which refers to the intensity of ground shaking at the epicenter of an earthquake, is assigned to a specific site after an earthquake. The lower numbers of the intensity scale generally reflect the manner in which an earthquake is felt by people. The higher numbers of the scale are based on observed structural damage. Abbreviated descriptions of effects associated with the twelve (12) levels of the MMI are as shown on Table 3.1-2.

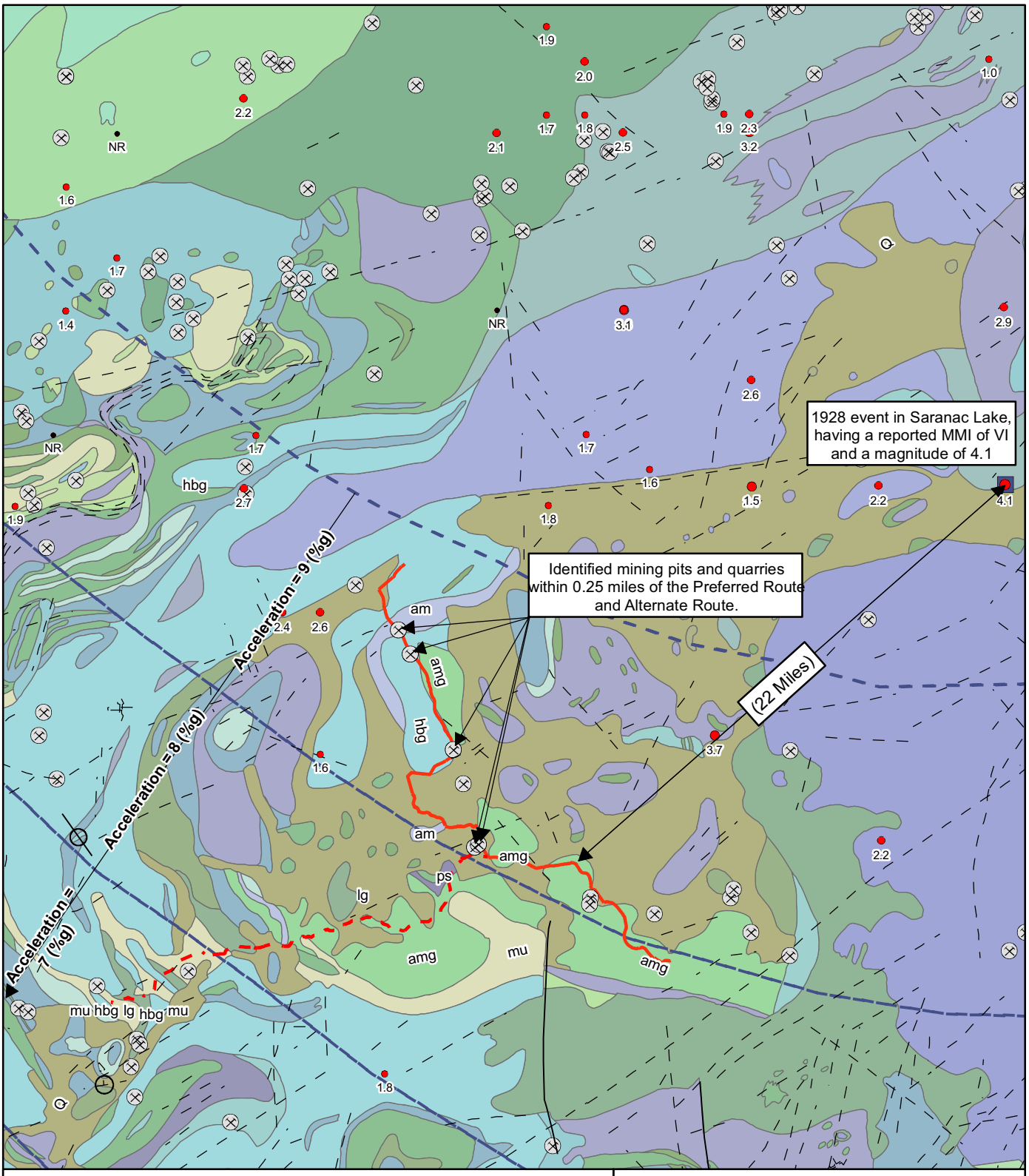
Table 3.1-2: Modified Mercalli Intensity ("MMI")	
Value	**Abbreviated Description**
I	Not felt except by a very few under especially favorable conditions.
II	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, & walls. Heavy furniture overturned.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Some well-built structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Information and historical accounts of earthquakes in New England are available for dates as far back as the 1600s. The earthquake history of New York State is provided in the Weston Observatory catalog of earthquakes for New England and adjacent regions. According to the U.S. Geological Survey, significant earthquakes have been recorded within 20 miles of the Preferred and Alternate Routes. Figure 3.1-1 shows the reported epicenters of earthquakes experienced in New York according to the Weston Observatory's earthquake database.

Seismic Risk

With the exception of 16 reported events, all reported earthquakes in New York State generally fall into the categories of V (MMI) or less. With the exception of the 1928 event in Saranac Lake, earthquakes that have occurred in the immediate vicinity of the Project have been of low intensity.

To quantify seismic hazard in areas that have not had significant historic seismicity, background source maps have been developed. Each map shows the severity of expected earthquake hazard for a particular level of probability.



Legend

- Preferred Route
- Alternate Route
- Inferred Faults or Evidence of Faulting
- Identified Faults

Earthquakes 1568-1990

Magnitude

- 0-1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- 6-7
- 7-8
- NR
- Significant US Earttquakes 1568-2004

Bedrock

- Q
- am
- amg
- hbg
- lg
- mu
- ps
- Mines and Quarries
- Seismic Hazard

N

0 1 2 4 6 8 Miles

Tri-Lakes Reliability Project

Geologic Environment

New York Power Authority

Figure 3.1-1

According to a Seismic Hazard Map for the United States obtained from the USGS National Seismic Hazard Mapping Project, which displays seismic hazard levels for the conterminous United States, there is a 90 percent probability that horizontal acceleration from 7-9 percent g, where g is acceleration due to gravity, or 9.8 meters/second^2 would not be exceeded in 50 years. This data set shows peak horizontal ground acceleration (the fastest measured change in speed, for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. (Rukstales, 2002).

Faults

No active recent (Holocene) surface faults have been documented across any section of the Preferred or Alternate Routes (GIS dataset - New York State Museum, August 2005). However, indirect evidence, such as linear topographic features, has been identified on both the Preferred and Alternate Routes.

3.1.1.3.2 Landslides

Landslide hazards are not widespread in the Project Area. Deep-seated landslides or rock avalanche hazards would be unlikely in the Project Area. Both the Preferred and Alternate Routes are considered to have a low susceptibility for landslides (Godt, 1997).

3.1.1.3.3 Karst

Karst terrain develops in regions that are underlain by carbonate rocks and evaporites. Weathering and erosion produce a high degree of rock solubility in karst topography. The resulting landforms include sinkholes, caves, and irregular topography. As described in Section 3.1.1, the local bedrock for the Preferred and Alternate Routes is primarily composed of metamorphic rocks and is void of evaporates and carbonate rocks. Resultantly, Karstic topography and ground subsidence is not anticipated to exist in the Project Area.

No karstic topography or underground mining activities exist in the Project Area according to Davies, *et al.*, 1976.

3.1.1.4 Paleontological Resources

Although many geologic formations have the potential to contain fossils, no identified sensitive paleontological resources are located on either the Preferred or Alternate Routes for the Project facilities.

3.1.2 Soils

A variety of soils, including spodosols, entisols, inceptisols, and histisols are found in the Project Area or along the Preferred and Alternate Routes. Identified in the Natural Resources Conservation Service's (NRCS) St. Lawrence Soil Survey, these soils have formed from parent materials such as glacial till, glacial outwash and fluvial deposits, so textural families are coarse (coarse loamy, sandy skeletal, sandy, etc.). Soil series associated with uplands and found higher up on the landscape are Adams, Naumburg, Colton, Berkshire, Potsdam, Becket, Crary, Tunbridge, Lyman, Lyme and Skerry, while the Dawson, Loxley, Adirondack, Pillsbury, and Fluvaquents series are associated with wetter areas and are typically found in the lower landscape positions such as drainage ways and floodplains. The variation of slope between all of the soils is from 0 percent to 75 percent.

Soil erosion is a function of soil texture, vegetative cover and slope. Finer textured soils tend to be more erodible than more coarse textured soils. Soils that occur only on nearly level slope may have soil textures that are highly erodible, but because the soils are nearly level the erosion hazard is very low while the erodibility may be relatively high.

Soils series along the Preferred and Alternate Routes are described below and shown in Figure 3.1-2.

Most of the mapping units shown on the NRCS Soil Survey Map and the EWP Plans are represented as complexes or groupings of multiple soil series. These complexes have characteristics similar to the soil series named in the complex. Shown on Figure 3.1-2, Maps 1 through 8, are all of the individual soil series found in the complexes mapped within the Project Area.

Dawson Soil Series (Sandy or sandy-skeletal, mixed, dysic, frigid Terric Haplosaprists): The Dawson Series consists of very deep, very poorly drained soils formed in herbaceous organic material 16 to 51 inches thick over sandy deposits in depressions on outwash plains, lake plains or flood plains. Permeability is moderately slow to moderately rapid in the organic layers and rapid in the sandy material. Slopes range from 0 to 2 percent and the depth to bedrock is >60 inches. Dawson is listed as a hydric soil on the national NRCS hydric soil list. Dawson soils unless drained for agricultural production have only the slightest erosion hazard.

Loxley Soil Series (Dysic, frigid Typic Haplosaprists): The Loxley Series consists of very deep, very poorly drained soils formed in herbaceous organic material >51 inches thick over sandy deposits in depressions on outwash plains, lake plains or flood plains. Permeability is moderately slow to moderately rapid in the organic layers and rapid in the sandy material. Slopes range from 0 to 2 percent and the depth to bedrock is >60 inches. Loxley is listed as a hydric soil on the national NRCS hydric soil list. Loxley soils unless drained for agricultural production have only the slightest erosion hazard.

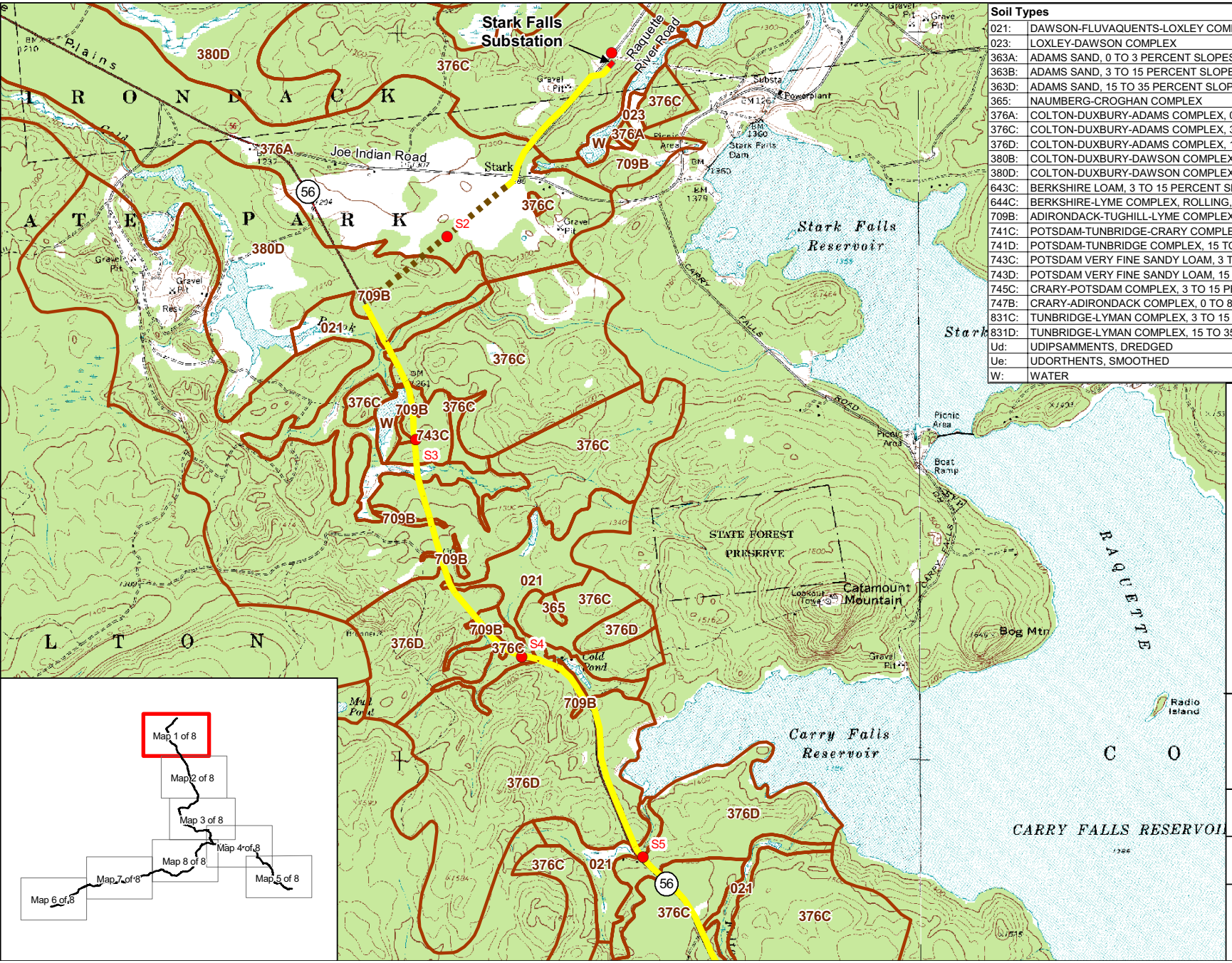
Adirondack Soil Series (Coarse-loamy, mixed, frigid Typic Epiaquods): The Adirondack series consists of very deep somewhat poorly drained soils formed in compacted glacial till. They are on glaciated lowlands in depressions and on toe slopes. Typically, areas of Adirondack soils have very stony or bouldery surface layers. Permeability is slow. Slopes range from 0 to 15 percent. The depth to bedrock is >72 inches. Adirondack soils have only a slight erosion hazard.

Adams Soil Series (Sandy, isotic, frigid Typic Haplorthods): The Adams series consists of very deep, somewhat excessively drained soils formed in glacio-fluvial or glacio-lacustrine sand. They are on glacial outwash plains, terraces and eskers. Permeability is rapid or very rapid. Slopes range from 0 to 70 percent. The depth to bedrock is >72 inches. Adams soils are only slightly erodible on slopes less than 15 percent and moderately erodible on slopes steeper than 15 percent.

Naumburg Soil Series (Sandy, isotic, frigid Typic Endoaquods): The Naumburg series consists of very deep, poorly and somewhat poorly drained soils formed in sandy deltaic or glacial fluvial deposits. These soils are on low sand plains and terraces. Permeability is rapid. Slopes range from 0 to 8 percent. The depth to bedrock is >80 inches. Naumburg is listed as a hydric soil on the national NRCS hydric soil list. Naumburg soils have only a slight hazard for soil erosion.

Colton Soil Series (Sandy-skeletal, isotic, frigid Typic Haplorthods): The Colton series consists of very deep, excessively drained soils formed in glacio-fluvial deposits. They occur on glacial outwash plains, terraces and eskers. Permeability is rapid or very rapid. Slopes range from 3 to 70 percent. The depth to bedrock is >72 inches. Colton soils are only slightly erodible on slopes less than 15 percent and moderately erodible on slopes steeper than 15 percent.

Berkshire Soil Series (Coarse-loamy, isotic, frigid Typic Haplorthods): The Berkshire series consists of very deep, well-drained soils formed in glacial till. They are on glaciated uplands. Permeability is moderate to moderately rapid. Slopes range from 0 to 70 percent. The depth to bedrock is >60 inches. Berkshire soils have only a slight erosion hazard on slopes less than 15 percent and are moderately erodible on slopes steeper than 15 percent.



Soil Types	
021:	DAWSON-FLUVAQUENTS-LOXLEY COMPLEX, FREQUENTLY FLOODED
023:	LOXLEY-DAWSON COMPLEX
363A:	ADAMS SAND, 0 TO 3 PERCENT SLOPES
363B:	ADAMS SAND, 3 TO 15 PERCENT SLOPES
363D:	ADAMS SAND, 15 TO 35 PERCENT SLOPES
365:	NAUMBERG-CROGHAN COMPLEX
376A:	COLTON-DUXBURY-ADAMS COMPLEX, 0 TO 3 PERCENT SLOPES
376C:	COLTON-DUXBURY-ADAMS COMPLEX, 3 TO 15 PERCENT SLOPES
376D:	COLTON-DUXBURY-ADAMS COMPLEX, 15 TO 35 PERCENT SLOPES
380B:	COLTON-DUXBURY-DAWSON COMPLEX, 0 TO 15 PERCENT SLOPES
380D:	COLTON-DUXBURY-DAWSON COMPLEX, 15 TO 35 PERCENT SLOPES
643C:	BERKSHIRE LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
644C:	BERKSHIRE-LYME COMPLEX, ROLLING, VERY BOULDERY
709B:	ADIRONDACK-TUGHILL-LYME COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
741C:	POTSDAM-TUNBRIDGE-CRARY COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
741D:	POTSDAM-TUNBRIDGE COMPLEX, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
743C:	POTSDAM VERY FINE SANDY LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
743D:	POTSDAM VERY FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
745C:	CRARY-POTSDAM COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
747B:	CRARY-ADIRONDACK COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
831C:	TUNBRIDGE-LYMAN COMPLEX, 3 TO 15 PERCENT SLOPES, VERY ROCKY
831D:	TUNBRIDGE-LYMAN COMPLEX, 15 TO 35 PERCENT SLOPES, VERY ROCKY
Ud:	UDIPSAMMENTS, DREDGED
Ue:	UDORTHENTS, SMOOTHED
W:	WATER

Legend

- Reference Marker
- Soil Types

Proposed Transmission Line

Type

- Cross Country
- New Overhead Offset
- New Overhead
- New Underground
- Overbuild
- Span

1:24 000
1" = 2000'

N

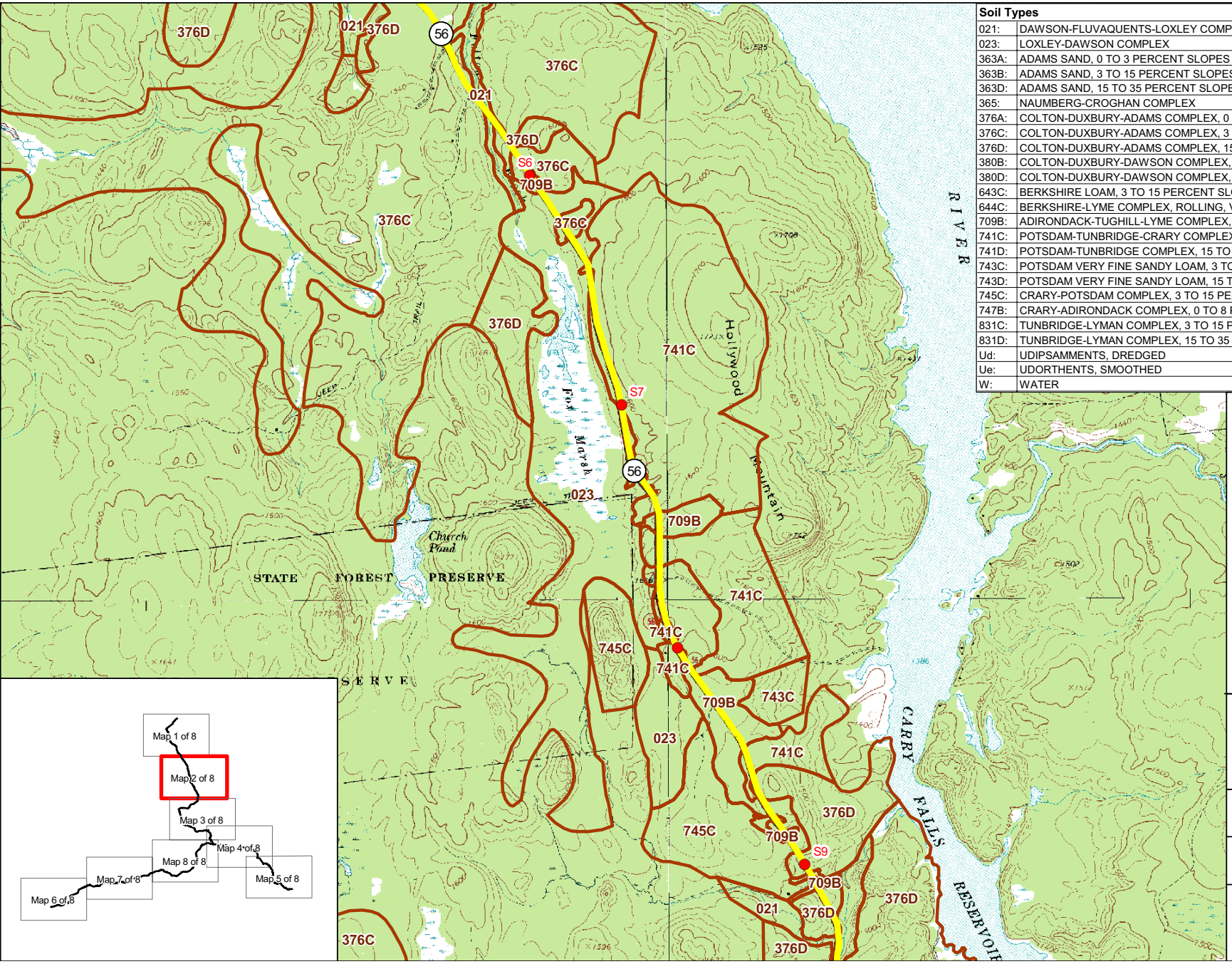
0 500 1,000 2,000 3,000 4,000 Feet

Tri-Lakes Reliability Project

Soils

NewYorkPower Authority

Figure 3.1-2
(Map 1 of 8)



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Ue:	UDORTHENTS, SMOOTHED
W:	WATER

Legend

- Reference Marker
- Soil Types

Proposed Transmission Line

Type

- Cross Country
- New Overhead Offset
- New Overhead
- New Underground
- Overbuild
- Span

1:24 000
1" = 2000'

N

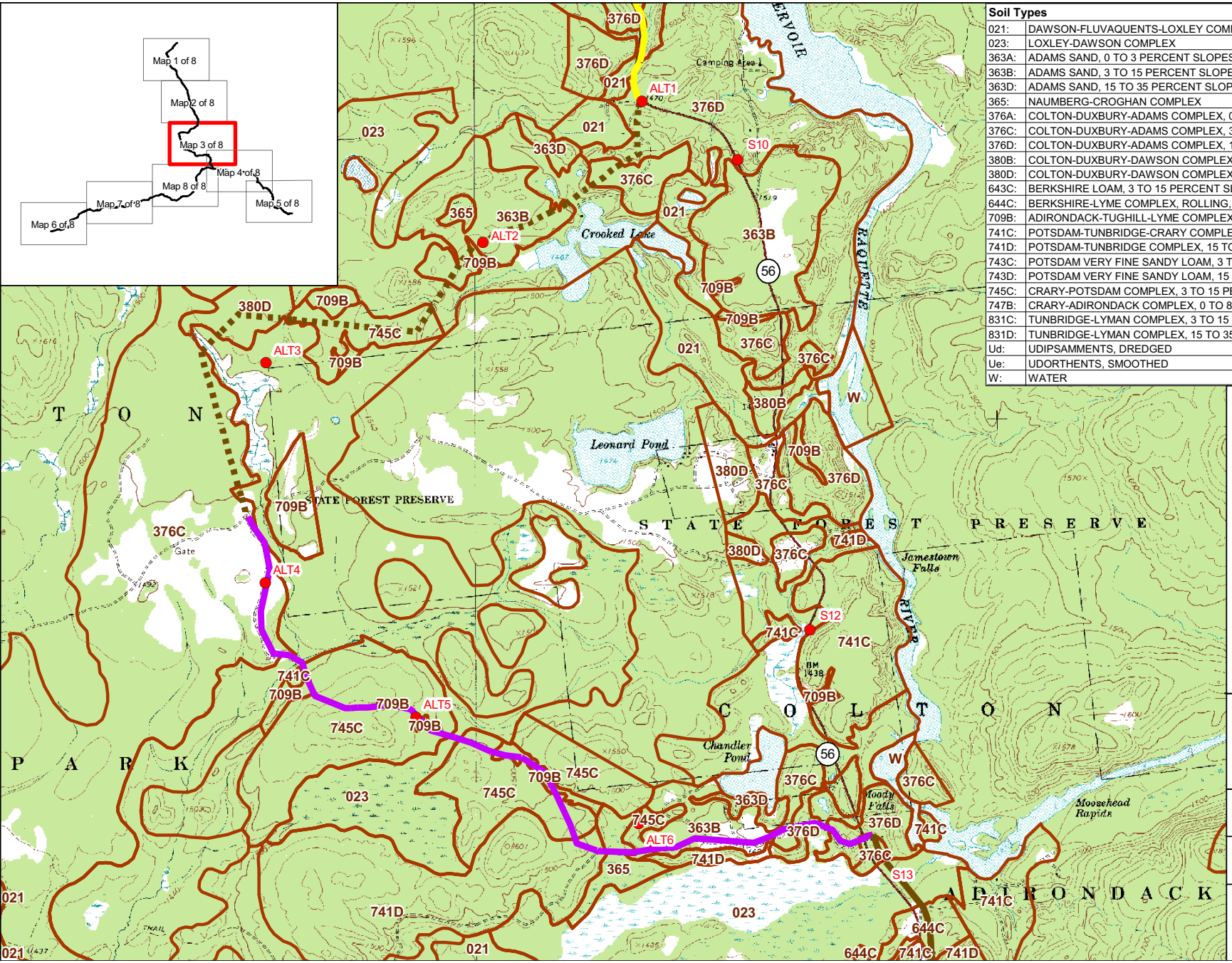
0 500 1,000 2,000 3,000 4,000 Feet

Tri-Lakes Reliability Project

Soils

NewYorkPower Authority

Figure 3.1-2
(Map 2 of 8)



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Legend

- Reference Marker
- Soil Types

Proposed Transmission Line

Type

- Cross Country
- New Overhead Offset
- New Overhead
- New Underground
- Overbuild
- Span

1:24 000
1" = 2000'

N

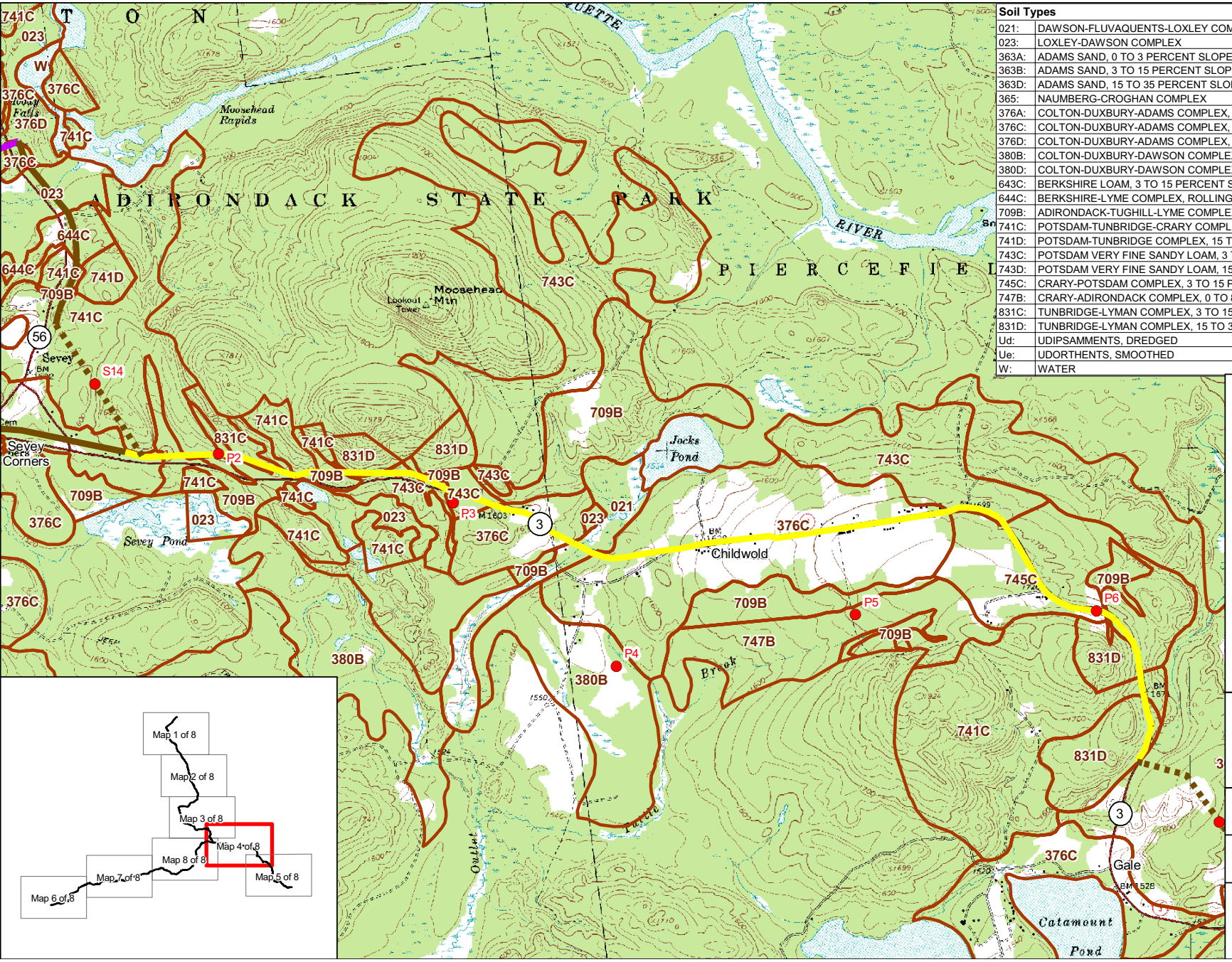
0 550 1,100 2,200 3,300 4,400 Feet

Tri-Lakes Reliability Project

Soils

NewYorkPower Authority

Figure 3.1-2
(Map 3 of 8)



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Legend

- Reference Marker
- Soil Types

Proposed Transmission Line

Type

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- New Overhead
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- Overbuild
- Span

1:24 000
1" = 2000'

N

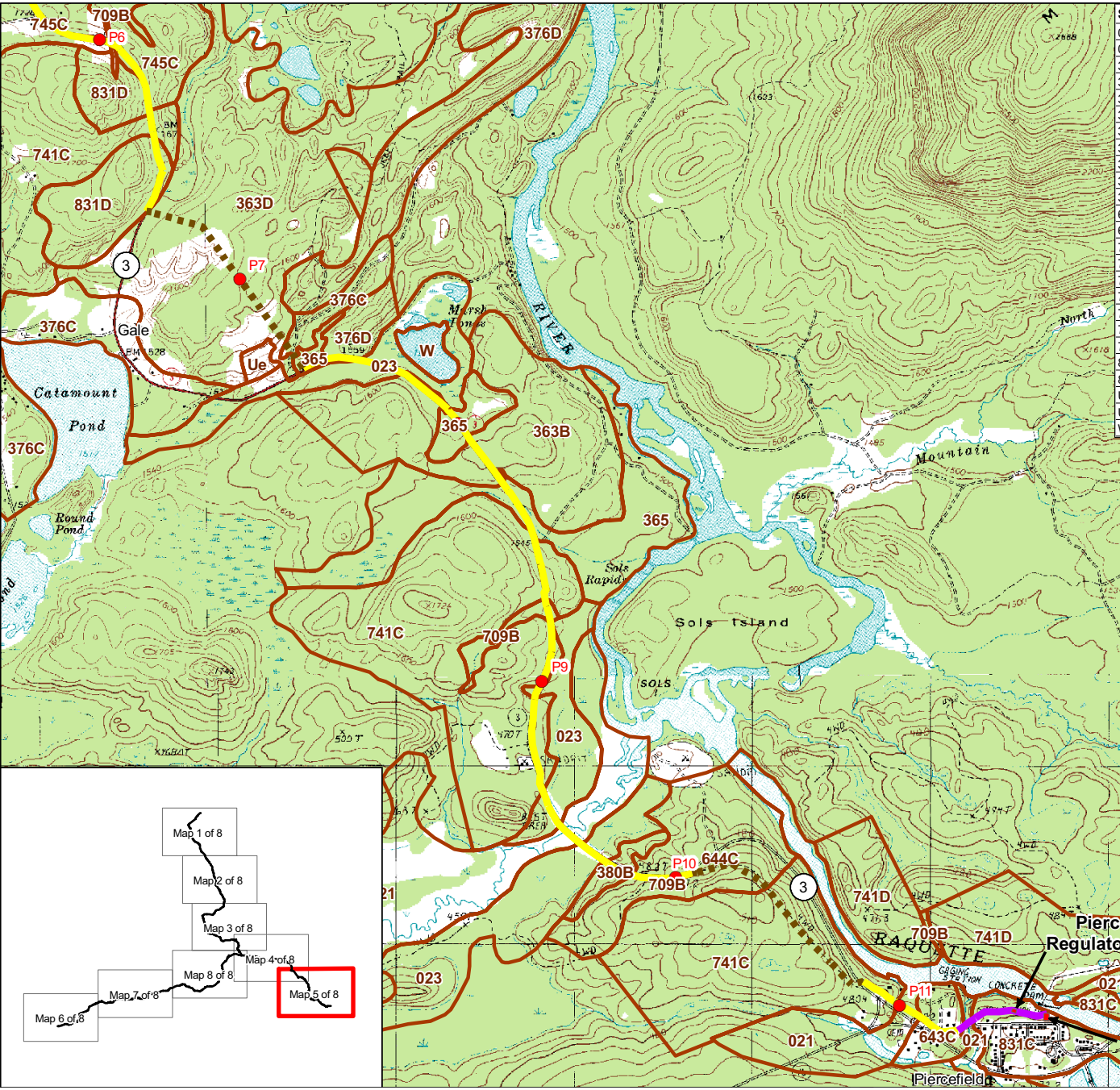
0 500 1,000 2,000 3,000 4,000 Feet

Tri-Lakes Reliability Project

Soils

NewYorkPower Authority

Figure 3.1-2
(Map 4 of 8)



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Legend

- Reference Marker
- Soil Types

Proposed Transmission Line

Type

- Cross Country
- New Overhead Offset
- New Overhead
- New Underground
- Overbuild
- Span

1:24 000
1" = 2000'

N

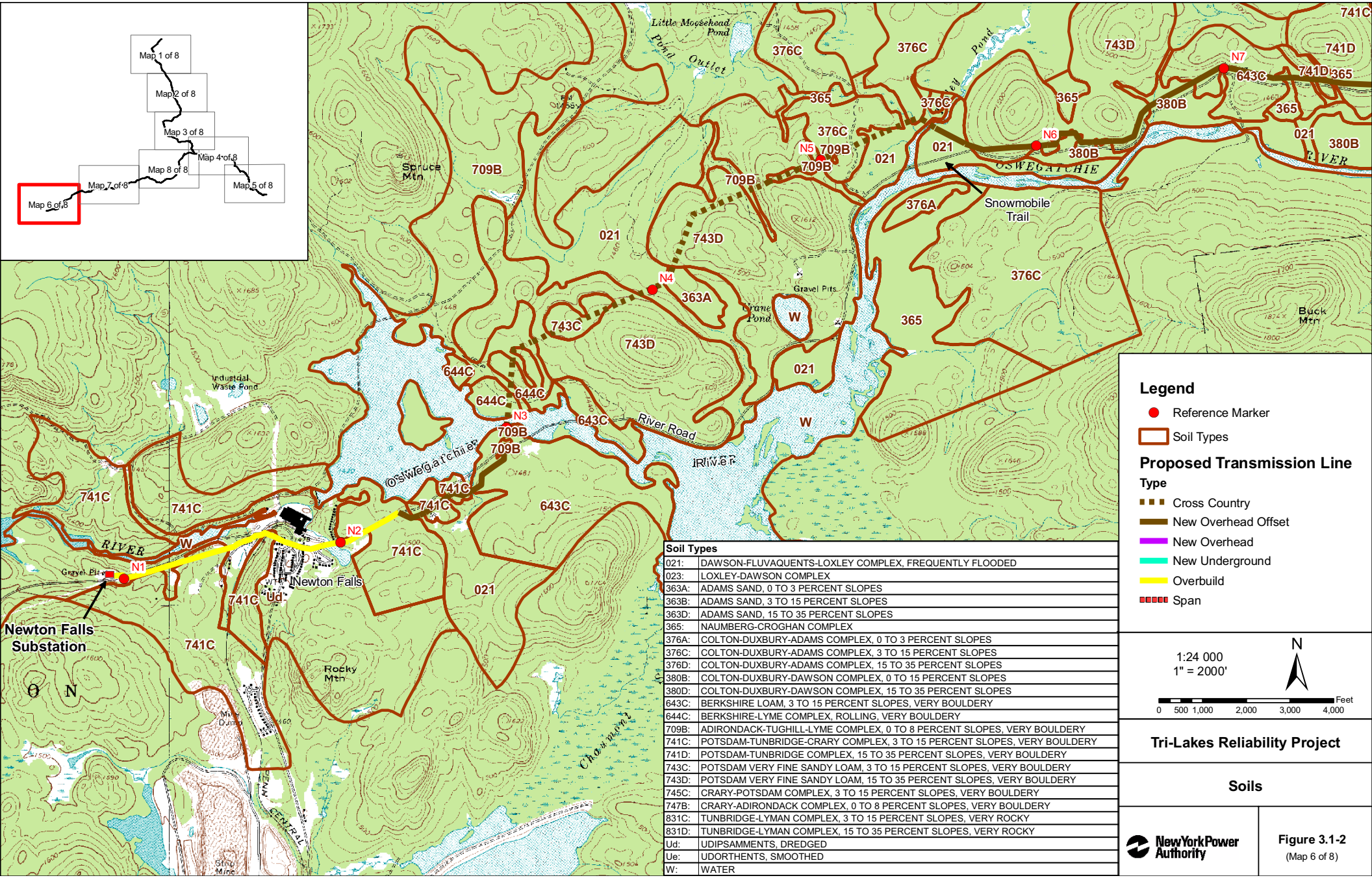
0 500 1,000 2,000 3,000 4,000 Feet

Tri-Lakes Reliability Project

Soils

NewYorkPower Authority

Figure 3.1-2
(Map 5 of 8)



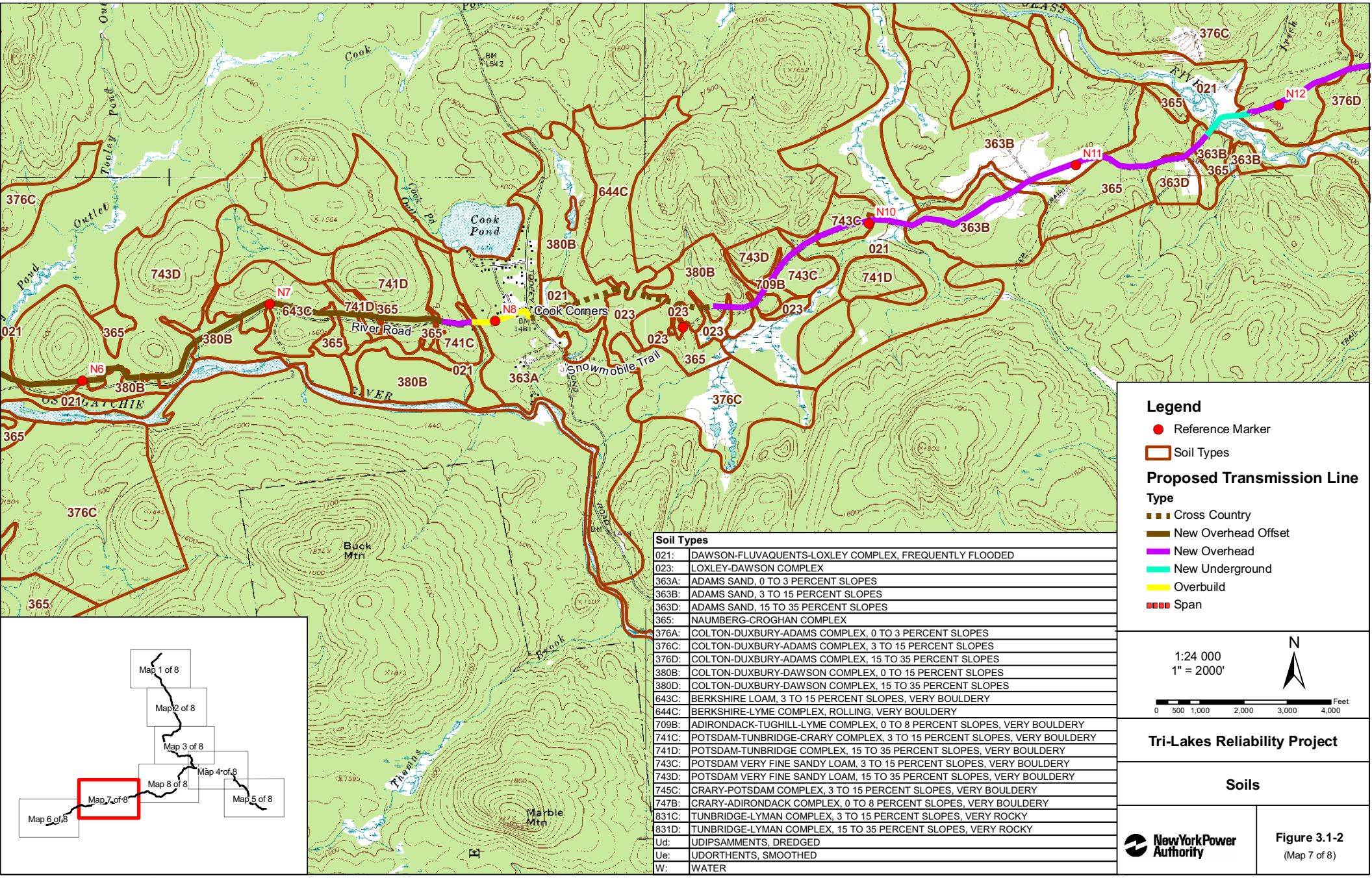
Soil Types	
021:	DAWSON-FLUVAQUENTS-LOXLEY COMPLEX, FREQUENTLY FLOODED
023:	LOXLEY-DAWSON COMPLEX
363A:	ADAMS SAND, 0 TO 3 PERCENT SLOPES
363B:	ADAMS SAND, 3 TO 15 PERCENT SLOPES
363D:	ADAMS SAND, 15 TO 35 PERCENT SLOPES
365:	NAUMBERG-CROGHAN COMPLEX
376A:	COLTON-DUXBURY-ADAMS COMPLEX, 0 TO 3 PERCENT SLOPES
376C:	COLTON-DUXBURY-ADAMS COMPLEX, 3 TO 15 PERCENT SLOPES
376D:	COLTON-DUXBURY-ADAMS COMPLEX, 15 TO 35 PERCENT SLOPES
380B:	COLTON-DUXBURY-DAWSON COMPLEX, 0 TO 15 PERCENT SLOPES
380D:	COLTON-DUXBURY-DAWSON COMPLEX, 15 TO 35 PERCENT SLOPES
643C:	BERKSHIRE LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
644C:	BERKSHIRE-LYME COMPLEX, ROLLING, VERY BOULDERY
709B:	ADIRONDACK-TUGHILL-LYME COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
741C:	POTSDAM-TUNBRIDGE-CRARY COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
741D:	POTSDAM-TUNBRIDGE COMPLEX, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
743C:	POTSDAM VERY FINE SANDY LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
743D:	POTSDAM VERY FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
745C:	CRARY-POTSDAM COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
747B:	CRARY-ADIRONDACK COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
831C:	TUNBRIDGE-LYMAN COMPLEX, 3 TO 15 PERCENT SLOPES, VERY ROCKY
831D:	TUNBRIDGE-LYMAN COMPLEX, 15 TO 35 PERCENT SLOPES, VERY ROCKY
Ud:	UDIPSAMMENTS, DREDGED
Ue:	UDORTHENTS, SMOOTHED
W:	WATER

Tri-Lakes Reliability Project

Soils

New York Power Authority

Figure 3.1-2
(Map 6 of 8)



Soil Types	
021:	DAWSON-FLUVAQUENTS-LOXLEY COMPLEX, FREQUENTLY FLOODED
023:	LOXLEY-DAWSON COMPLEX
363A:	ADAMS SAND, 0 TO 3 PERCENT SLOPES
363B:	ADAMS SAND, 3 TO 15 PERCENT SLOPES
363D:	ADAMS SAND, 15 TO 35 PERCENT SLOPES
365:	NAUMBERG-CROGHAN COMPLEX
376A:	COLTON-DUXBURY-ADAMS COMPLEX, 0 TO 3 PERCENT SLOPES
376C:	COLTON-DUXBURY-ADAMS COMPLEX, 3 TO 15 PERCENT SLOPES
376D:	COLTON-DUXBURY-ADAMS COMPLEX, 15 TO 35 PERCENT SLOPES
380B:	COLTON-DUXBURY-DAWSON COMPLEX, 0 TO 15 PERCENT SLOPES
380D:	COLTON-DUXBURY-DAWSON COMPLEX, 15 TO 35 PERCENT SLOPES
643C:	BERKSHIRE LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
644C:	BERKSHIRE-LYME COMPLEX, ROLLING, VERY BOULDERY
709B:	ADIRONDACK-TUGHILL-LYME COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
741C:	POTSDAM-TUNBRIDGE-CRARY COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
741D:	POTSDAM-TUNBRIDGE COMPLEX, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
743C:	POTSDAM VERY FINE SANDY LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
743D:	POTSDAM VERY FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
745C:	CRARY-POTSDAM COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
747B:	CRARY-ADIRONDACK COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
831C:	TUNBRIDGE-LYMAN COMPLEX, 3 TO 15 PERCENT SLOPES, VERY ROCKY
831D:	TUNBRIDGE-LYMAN COMPLEX, 15 TO 35 PERCENT SLOPES, VERY ROCKY
Ud:	UDIPSAMMENTS, DREDGED
Ue:	UDORTHENTS, SMOOTHED
W:	WATER

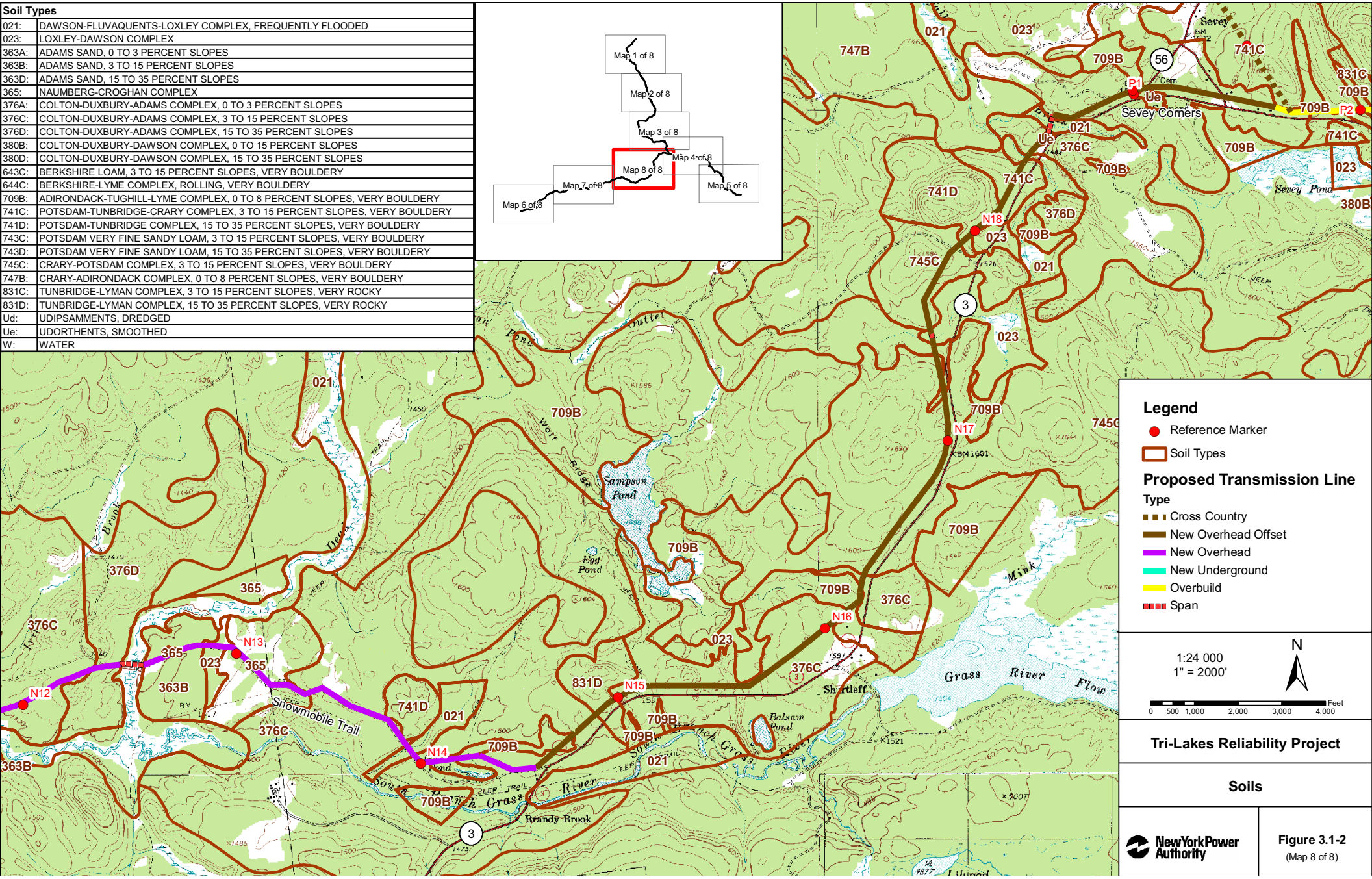
Tri-Lakes Reliability Project

Soils

NewYorkPower Authority

Figure 3.1-2
(Map 7 of 8)

Soil Types	
021:	DAWSON-FLUVAQUENTS-LOXLEY COMPLEX, FREQUENTLY FLOODED
023:	LOXLEY-DAWSON COMPLEX
363A:	ADAMS SAND, 0 TO 3 PERCENT SLOPES
363B:	ADAMS SAND, 3 TO 15 PERCENT SLOPES
363D:	ADAMS SAND, 15 TO 35 PERCENT SLOPES
365:	NAUMBERG-CROGHAN COMPLEX
376A:	COLTON-DUXBURY-ADAMS COMPLEX, 0 TO 3 PERCENT SLOPES
376C:	COLTON-DUXBURY-ADAMS COMPLEX, 3 TO 15 PERCENT SLOPES
376D:	COLTON-DUXBURY-ADAMS COMPLEX, 15 TO 35 PERCENT SLOPES
380B:	COLTON-DUXBURY-DAWSON COMPLEX, 0 TO 15 PERCENT SLOPES
380D:	COLTON-DUXBURY-DAWSON COMPLEX, 15 TO 35 PERCENT SLOPES
643C:	BERKSHIRE LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
644C:	BERKSHIRE-LYME COMPLEX, ROLLING, VERY BOULDERY
709B:	ADIRONDACK-TUGHILL-LYME COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
741C:	POTSDAM-TUNBRIDGE-CRARY COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
741D:	POTSDAM-TUNBRIDGE COMPLEX, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
743C:	POTSDAM VERY FINE SANDY LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
743D:	POTSDAM VERY FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
745C:	CRARY-POTSDAM COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
747B:	CRARY-ADIRONDACK COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
831C:	TUNBRIDGE-LYMAN COMPLEX, 3 TO 15 PERCENT SLOPES, VERY ROCKY
831D:	TUNBRIDGE-LYMAN COMPLEX, 15 TO 35 PERCENT SLOPES, VERY ROCKY
Ud:	UDIPSAMMENTS, DREDGED
Ue:	UDORTHENTS, SMOOTHED
W:	WATER



Tri-Lakes Reliability Project

Soils

New York Power Authority

Figure 3.1-2
(Map 8 of 8)

Potsdam Soil Series (Coarse-loamy, isotic, frigid Typic Haplorthods): The Potsdam series consists of very deep, well drained soils formed in aoelian deposits over dense glacial till, with a very firm fragipan at 24 to 35 inches below the surface. They are on glaciated uplands. Permeability is moderate above the fragipan and very slow in the underlying fragipan. Slopes range from 0 to 70 percent. The depth to bedrock is > 72 inches. Potsdam soils are only slightly erodible on slopes less than 15 percent and moderately erodible on slopes steeper than 15 percent.

Becket Soil Series (Coarse-loamy, isotic, frigid Oxyaquic Haplorthods): The Becket series consists of very deep, well drained soils with a very firm fragipan at 24 to 35 inches below the surface, formed in coarse textured glacial till. They are on glaciated uplands. Permeability is moderate above the fragipan and very slow in the under lying fragipan. Slopes range from 0 to 70 percent. The depth to bedrock is > 72 inches. Becket soils are only slightly erodible on slopes less than 15 percent and moderately erodible on slopes steeper than 15 percent.

Crary Soil Series (Coarse-loamy, isotic, frigid Aquic Haplorthods): The Crary series consists of very deep, moderately well drained soils formed in aoelian deposits over dense glacial till, with a very firm fragipan at 18 to 24 inches below the surface. They are on glaciated uplands. Permeability is moderate above the fragipan and very slow in the under lying fragipan. Slopes range from 0 to 15 percent. The depth to bedrock is > 72 inches. Crary soils are only slightly erodible.

Tunbridge Soil Series (Coarse-loamy, isotic, frigid Typic Haplorthods): The Tunbridge series consists of moderately deep, well-drained soils formed in glacial till. They are on glaciated uplands. Permeability is moderate to moderately rapid. Slopes range from 0 to 70 percent. The depth to bedrock is 20 to 40 inches. Tunbridge soils have only a slight erosion potential on slopes less than 15 percent and are moderately to severely erodible on slopes steeper than 15 percent.

Lyman Soil Series (Loamy, isotic, frigid Lithic Haplorthods): The Lyman series consists of shallow, well-drained soils on bedrock controlled glacial till uplands. They are nearly level to extremely steep slopes and moderately permeable above the hard bedrock substratum. Slopes range from 0 to 75 percent. Bedrock is at less than 20 inches. Lyman soils are only slightly erodible on slopes less than 15 percent and are moderately to severely erodible on slopes steeper than 15 percent.

Pillsbury Soil Series (Coarse-loamy, mixed, active, acid, frigid Aeric Epiaquepts): The Pillsbury series consists of very deep, somewhat poorly drained soils on glacial till uplands and in transition to wetlands. They are nearly level to moderately steep slopes and moderately permeable in the surface layers and slow or very slow in the very firm substratum. Slopes range from 0 to 15 percent. Pillsbury is listed as a hydric soil on the national NRCS hydric soil list. Pillsbury soils are generally on slopes less than 15 percent and have only a slight hazard of erosion.

Fluvaquents Frequently Flooded: Fluvaquents frequently flooded consists of areas of soil on flood plains that range from deep mucky sediments to sandy depositional areas along streams and drainageways. Fluvaquents, frequently flooded are typically poorly or very poorly drained and have a broad range of texture and permeability. Fluvaquents frequently flooded soils are on nearly level slopes and have only a slight hazard of erosion.

Lyme Soil Series (Coarse-loamy, mixed, active, acid, frigid Aeric Endoaquepts): The Lyme series consists of very deep, poorly or very poorly drained soils formed in glacial till in slightly concave areas and shallow drainageways on glaciated uplands. This series is typically very stony or bouldery. The permeability in the surface layers is moderate and slow or very slow in the very firm substratum. Slopes range from 0 to 5 percent. Lyme is listed as a hydric soil on the national NRCS hydric soil list. Lyme soils are on nearly level slopes and only a slight hazard of erosion.

Skerry Soil Series (Coarse-loamy, isotic, frigid Aquic Haplorthods): The Skerry series consists of very deep, moderately well drained soils on glacial till plains. They are nearly level to moderately steep,

moderately permeable in the surface layer and slowly permeable in the substratum. Slopes range from 0 to 15 percent. Bedrock is deeper than 80 inches. Skerry soils are generally on slopes less than 15 percent and have only a slight hazard of erosion.

Duxbury Soil Series (Sandy, isotic, frigid Typic Haplorthods): The Duxbury series consists of very deep, well drained soils on valley trains, outwash plains, eskers, kames, and terraces. They formed in sandy glaciofluvial deposits with a mantle of loamy glaciofluvial deposits. Permeability is moderately rapid in the solum and rapid or very rapid in the substratum. Slope ranges from 0 to 70 percent. The depth to bedrock is > 60 inches. Duxbury soils are slightly erodible on slopes less than 15 percent and moderately erodible on slopes greater than 15 percent.

Croghan Soil Series (Sandy, isotic, frigid Aquic Haplorthods): The Croghan series consists of very deep, moderately well drained soils formed in deltaic or glacio-fluvial deposits. They are on terraces and sand plains. Permeability is moderately rapid or rapid in the surface and subsurface horizons and rapid or very rapid below. Slope ranges from 0 to 15 percent. The depth to bedrock is > 60 inches. Croghan soils are only slightly erodible.

Tughill Soil Series (Loamy-skeletal, mixed, active, nonacid, frigid Typic Endoaquepts): The Tughill series consists of very deep, very poorly drained soils formed in till derived from acid siliceous rocks. They are in depressional areas on till plains. Slope ranges from 0 to 5 percent. The depth to bedrock is >60 inches. Tughill soils are listed as a hydric soil on the national NRCS hydric soil list. Tughill soils have only a slight hazard for soil erosion.

Table 3.1-3 indicates the soil complex identification numbers and their corresponding soil complex names. The number indicates the soil complex type while the letter corresponds to the slope range of the complex. These soils are illustrated in Figure 3.1-2, Maps 1 through 8.

There will be areas of the Preferred and Alternate Routes which go through soils that are moderately to highly erodible. For example, the Tunbridge and Lyman soil series have only a slight erosion hazard on slopes less than 15 percent; however, between reference markers P2 and P3 where slopes are greater than 15 percent, they are moderately to severely erodible. Other soil series, in areas with slopes of greater than 15 percent, may be moderately erodible. Soil mitigation measures will be employed as appropriate and specified by Section 4.1.2 of this DEIS and the EWP, Section 4.1.2.

Table 3.1-3: Identification of Soil Complexes

Soil Complex ID	Soil Complex Name
380D	COLTON-DUXBURY-DAWSON COMPLEX, 15 TO 35 PERCENT SLOPES
376A	COLTON-DUXBURY-ADAMS COMPLEX, 0 TO 3 PERCENT SLOPES
376C	COLTON-DUXBURY-ADAMS COMPLEX, 3 TO 15 PERCENT SLOPES
376D	COLTON-DUXBURY-ADAMS COMPLEX, 15 TO 35 PERCENT SLOPES
743C	POTSDAM VERY FINE SANDY LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
365	NAUMBERG-CROGHAN COMPLEX
741C	POTSDAM-TUNBRIDGE-CRARY COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
023	LOXLEY-DAWSON COMPLEX
709B	ADIRONDACK-TUGHILL-LYME COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
745C	CRARY-POTSDAM COMPLEX, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
363D	ADAMS SAND, 15 TO 35 PERCENT SLOPES
363B	ADAMS SAND, 3 TO 15 PERCENT SLOPES

Table 3.1-3: Identification of Soil Complexes	
Soil Complex ID	**Soil Complex Name**
363A	ADAMS SAND, 0 TO 3 PERCENT SLOPES
021	DAWSON-FLUVAQUENTS-LOXLEY COMPLEX, FREQUENTLY FLOODED
644C	BERKSHIRE-LYME COMPLEX, ROLLING, VERY BOULDERY
747B	CRARY-ADIRONDACK COMPLEX, 0 TO 8 PERCENT SLOPES, VERY BOULDERY
380B	COLTON-DUXBURY-DAWSON COMPLEX, 0 TO 15 PERCENT SLOPES
741D	POTSDAM-TUNBRIDGE COMPLEX, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
831D	TUNBRIDGE-LYMAN COMPLEX, 15 TO 35 PERCENT SLOPES, VERY ROCKY
643C	BERKSHIRE LOAM, 3 TO 15 PERCENT SLOPES, VERY BOULDERY
743D	POTSDAM VERY FINE SANDY LOAM, 15 TO 35 PERCENT SLOPES, VERY BOULDERY
W	WATER
831C	TUNBRIDGE-LYMAN COMPLEX, 3 TO 15 PERCENT SLOPES, VERY ROCKY

3.2 Topography and Slope

Topography of the Preferred Route from Stark to Sevey Corners varies from a high elevation of approximately 1,820 feet above sea level to less than 1,300 feet above sea level. Slopes generally range from five to 20 percent, however the majority of slopes are within the lower range. The Preferred Route runs parallel to the Raquette River, Stark Falls, and the Carry Falls Reservoir where the topography is partially dominated by the flatter lacustrine plain surrounding these features. Mountains located near this portion of the Preferred Route include: Brunner Hill (1,825 feet above sea level) located approximately 7,000 feet west of reference marker S4; Catamount Mountain (1,820 feet above sea level) located approximately 6,500 feet east of reference marker S4; and Hollywood Mountain (1,723 feet above sea level) located approximately 2,500 feet east of reference marker S7.

The Preferred Route between Sevey Corners and Piercefield has much greater variations in elevation than the Stark to Sevey Corners section, ranging from approximately 2,700 feet above sea level to less than 920 feet above sea level. The steepest elevations occur between reference markers P5 and P7, and quickly drop to the lower elevations of the Raquette River floodplain between reference markers P9 and P11, where the line runs parallel to the river. Slopes in this section range from five to 35 percent. Mountains near the route include: Moosehead Mountain (2,200 feet above sea level) located approximately 4,000 feet north of reference marker P3; Matumbla Mountain (2,688 feet above sea level) located approximately 12,000 feet northeast of reference marker P8; and Arab Mountain (2,326 feet above sea level) located approximately two and a half miles south of reference marker P11.

The Alternate Route from Newton Falls to Sevey Corners also contains the erratic topography that is typical of the Adirondack Park, and varies from elevations of approximately 2,000 feet above sea level to less than 1,400 feet above sea level. The steepest elevations occur between reference markers N15 and N18. Slopes generally range from five to 25 percent. Nearby mountains include: Rocky Mountain (1,660 feet above sea level) located approximately 3,000 feet south of reference marker N2; Spruce Mountain (1,740 feet above sea level) located approximately 5,000 feet northwest of a point between reference markers N3 and N4; Buck Mountain (1,874 feet above sea level) located approximately 6,000 feet south of reference marker N7; and Bear Mountain (2,000 feet above sea level) located approximately four and a half miles south of reference marker N12.

3.3 Baseline Ambient Air Quality, Meteorology and Climatology

The potential effect of the Project on air quality is partially dependent on the existing characteristics of air resources. These include existing meteorology, climatology and ambient pollutant background concentrations. This section provides a description of the existing air quality characteristics for the Project Area.

3.3.1 Climatology and Meteorology

The climate in the Project Area is broadly representative of the humid continental type, which prevails in the northeastern United States. Masses of cold, dry air frequently arrive from the northern interior of the continent. Prevailing winds from the south and southwest transport warm, humid air, which has been conditioned in the Gulf of Mexico and adjacent subtropical waters. These two air masses provide the dominant continental characteristics of the climate. The third air mass which can influence the region flows inland from the North Atlantic Ocean and produces cool cloudy and damp weather conditions. However, this maritime influence is more important in the southeast portion of the state.

The regional climate is described below based on meteorological data collected at Tupper Lake, NY, which is located in the Adirondack Park approximately 5 miles east of Piercefield.

3.3.1.1 Precipitation

Average annual precipitation at Tupper Lake is approximately 42.9 inches. Monthly precipitation is distributed relatively evenly through the year, ranging from 2.6 inches in February to 4.5 inches in July.

3.3.1.2 Temperature

The average annual temperature at Tupper Lake is 40.4ºF. The coldest months are December, January and February, with average temperatures of approximately 20.0ºF, 13.4ºF, and 15.4ºF, respectively. June, July and August are the warmest months, with average temperatures of approximately 60.2ºF, 64.9ºF, and 63.0ºF, respectively.

3.3.1.3 Wind Speed

The average annual wind speed at Tupper Lake is 9.0 mph. The windiest period is generally the winter months, while the summer months are generally the calmest.

3.3.2 Ambient Air Quality

The NYSDEC Bureau of Air Quality Surveillance collects air quality data (ambient pollutant concentrations) at monitoring stations throughout the State. Data from this ambient air-monitoring network is used to verify compliance with National Ambient Air Quality Standards (NAAQS). The NYSDEC summarizes data from the monitors in annual air quality reports.

NYSDEC monitoring stations closest to the Project Area provide representative ambient air quality data. Table 3.3-1 summarizes data from these monitors, located at Whiteface Mountain, Potsdam, Schenectady, Wallkill, and Amherst, a suburb of Buffalo. NYSDEC only maintains a limited number of monitoring sites for CO, Pb, and NO_2, the closest of which are over 100 miles from the Project Area.

Table 3.3-1: Regional New York State Air Quality Monitoring Stations		
Monitoring Station	**Pollutant**	**Approximate Distance and Direction from Project**
Whiteface Mountain (1567-04)	SO_2, $PM_{10,}$ Ozone	40 miles to East
Potsdam (4477-01)	$PM_{2.5}$	28 miles to North Northwest
Schenectady (4601-05)	CO	110 miles to Southeast
Walkill (3566-09)	Pb	220 miles to South Southeast
Amherst (1451-03)	NO_2	250 miles to West Southwest

Table 3.3-2 summarizes the data selected from the monitoring network to represent existing ambient air quality. The following sections discuss background air quality for each pollutant. The ambient air quality within the Project Area meets the NAAQS.

Table 3.3-2: Summary of New York State Regional Air Quality Monitoring

Pollutant	Averaging Period	2001 (ppm) [1]	2002 (ppm)	2003 (ppm)	2004 (ppm)	Ambient Air Quality ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Ozone (ppm)	1-Hour	0.112	0.102	0.106	0.080	207.8	235
SO_2 (ppm)	3-Hour	0.013	0.011	0.012	0.011	34	1,300
	24-Hour	0.006	0.007	0.007	0.007	18	365
	Annual	0.001	0.001	0.001	0.0008	3	80
NO_2 (ppm)	Annual	0.015	0.013	0.013	0.005	24	100
CO (ppm)	1-Hour	3.6	4.3	3.6	2.9	4,924	40,000
	8-Hour	2.4	3.4	2.6	2.1	3,893	10,000
PM_{10} ($\mu g/m^3$)	24-Hour	35	18	26	41	41	150
	Annual	8	8	10	10	10	50
$PM_{2.5}$ ($\mu g/m^3$)	24-hour (98th %)	No data	42.4	20.0	20.8	28	65
	Annual	No data	7.2	7.7	9.4	8.1	15
Pb ($\mu g/m^3$)	Quarterly	0.15	0.12	0.24	0.24	0.24	1.5

[1] parts per million

Note: Short term concentration based on "highest of the second highest" measured concentrations which is consistent with the "not to be exceeded more than once per year" short-term standards.

Ambient air quality data for $PM_{2.5}$ based 3-year average of 98th percentile for 24-hour averaging period and 3-year average for annual averaging period.

3.3.2.1 Sulfur Dioxide (SO_2)

For SO_2, the closest representative NYSDEC monitoring station is located at Whiteface Mountain in the Adirondack Park. From 2001 through 2003, the highest annual concentration was 3 $\mu g/m^3$, which is 4 percent of the 80 $\mu g/m^3$ NAAQS. The "highest of the second-highest" 24-hour and 3-hour average SO_2 concentrations measured over the same 3-year period were 18 $\mu g/m^3$ and 34 $\mu g/m^3$, respectively. The 24-hour concentration is approximately 5 percent of the 365 $\mu g/m^3$ standard, while the 3-hour concentration is about 3 percent of the 1,300 $\mu g/m^3$ standard.

3.3.2.2 Nitrogen Dioxide (NO_2)

The highest annual average NO_2 concentration measured at this monitoring station from 2001 through 2003 was 28 $\mu g/m^3$. The closest NO_2 monitor is located approximately 250 miles to the west/southwest in Amherst (a suburb of Buffalo). This concentration is 28 percent of the 100 $\mu g/m^3$ NAAQS. Note that NO_2 concentrations in the Project Area are expected to be much lower than those measured in Amherst.

3.3.2.3 Particulate Matter (PM_{10})

The closest PM_{10} monitor to the Project Area is located at Whiteface Mountain. The highest annual and highest second-highest 24-hour concentrations from 2001 through 2003 were 10 μg/m^3 and 35 μg/m^3, respectively. The annual concentration is 20 percent of the 50 μg/m^3 NAAQS, while the 24-hour concentration is about 23 percent of the 150 μg/m^3 NAAQS.

3.3.2.4 Fine Particulate Matter ($PM_{2.5}$)

The closest $PM_{2.5}$ monitor to the Project Area is located in Potsdam. The NAAQS for $PM_{2.5}$ is based on the average of the highest 3-year annual average not to exceed 15 μg/m^3. The 3-year annual average value is 8.1 μg/m^3 which is 54 percent of the 15 μg/m^3 standard. The short-term NAAQS for $PM_{2.5}$ is based on the 3-year average of the 98th percentile of 24-hour concentrations. The 3-year average of the 98th percentile of 24-hour measurements is 20.8 μg/m^3, which is 32 percent of the 65 μg/m^3 standard.

3.3.2.5 Carbon Monoxide (CO)

The closest CO monitor to the Project Area is located in Schenectady. The "highest of the second-highest" 8-hour and 1-hour average CO concentrations measured at these two stations from 2001 through 2003 were 3.4 ppm (3,893 μg/m^3) and 4.3 ppm (4,924 μg/m^3), respectively. The 8-hour concentration is 39 percent of the 10,000 μg/m^3 NAAQS and MAAQS, while the 1-hour concentration is 12 percent of the 40,000 μg/m^3 standard.

3.3.2.6 Ozone (O_3)

The closest O_3 monitor to the Project Area is located at Whiteface Mountain. The maximum 1-hour ozone concentration (0.112 μg/m^3) is less than the 1-hour standard of 0.12 μg/m^3. Note that ozone is more of an extended regional problem since it may be transported over great distances, and high concentrations can be a result of transport patterns subject to prevailing meteorology. This is the case for the Adirondack Park region, where it is understood that high ozone concentrations are the result of emissions from sources located in the midwest.

3.3.2.7 Lead (Pb)

The closest Pb monitors to the Project Area is located in Walkill. Quarterly average Pb concentrations measured at this monitoring station were well below the 1.5 μg/m^3 quarterly NAAQS. The highest quarterly average concentration was 0.24 μg/m^3.

3.4 Noise

Environmental sound levels are quantified by a variety of parameters and metrics. In an effort to aid the reader, this section introduces general concepts and terminology related to acoustics and environmental noise.

Sound energy is physically characterized by amplitude and frequency. Sound amplitude is measured in decibels (dB) as the logarithmic ratio of a sound pressure to a reference sound pressure (20 microPa). The reference sound pressure corresponds to the typical threshold of human hearing. Generally, the average listener considers a 1 dB change imperceptible and a 3 dB change just barely perceptible. Similarly, a 5 dB change is generally considered clearly noticeable and a 10 dB change is generally considered a doubling (or halving) of the apparent loudness.

Frequency is measured in hertz (Hz), which is the number of cycles per second. The typical human ear can hear frequencies ranging from approximately 20 Hz to 20,000 Hz. Typically, the human ear is most sensitive to sounds in the middle frequencies (1,000 to 8,000 Hz) and is less sensitive to sounds in the low and high frequencies. As such, the A-weighting scale was developed to simulate the frequency response

of the human ear to sounds at typical environmental levels. The A-weighting scale emphasizes sounds in the middle frequencies and de-emphasizes sounds in the low and high frequencies. Any sound level to which the A-weighting scale has been applied is expressed in A-weighted decibels, dBA. For reference, the A-weighted sound pressure levels associated with some common noise sources are shown in Table 3.4-1.

Table 3.4-1: Typical Sound Pressure Levels Associated with Common Noise Sources

Sound Pressure Level (dBA)	Subjective Evaluation	Common Noise Source and/or Environment	
		Outdoor	Indoor
140	Deafening	Jet aircraft at 75 ft	
130	Threshold of pain	Jet aircraft during takeoff at a distance of 300 ft	
120	Threshold of feeling	Elevated Train	Hard rock band
110	Extremely Loud	Jet flyover at 1,000 ft	Inside propeller plane
100	Very Loud	Power mower, motorcycle at 25 ft, auto horn at 10 ft	
90	Very Loud	Propeller plane flyover at 1,000 ft, noisy urban street	Full symphony or band, food blender, noisy factory
80	Moderately Loud	Diesel truck (40 mph) at 50 ft	Inside auto at high speed, garbage disposal, dishwasher
70	Loud	B-757 cabin during flight	Close conversation, vacuum cleaner, electric typewriter
60	Moderate	Air-conditioner condenser at 15 ft, near highway traffic	General office
50	Quiet		Private office
40	Quiet	Farm field with light breeze, birdcalls	Soft stereo music in residence
30	Very quiet	Quiet residential neighborhood	Bedroom, average residence (without t.v. and stereo)
20	Very quiet	Rustling leaves	Quiet theater, whisper
10	Just audible		Human breathing
0	Threshold of hearing		

Source: Adapted from Architectural Acoustics, M. David Egan, 1988 and Architectural Graphic Standards, Ramsey and Sleeper, 1994.

3.4.1 Environmental Noise Metrics

Noise in the environment is constantly fluctuating, such as when a car drives by, a dog barks, or a plane passes overhead. Several noise metrics have been developed to quantify fluctuating noise levels. These metrics include the equivalent-continuous sound level and the exceedance sound levels.

The equivalent-continuous sound level, L_{eq}, is the level of a hypothetical steady sound that has the equivalent sound energy as the actual fluctuating sound over a given time duration. For example, $L_{eq(1h)}$ is the equivalent-continuous sound level measured over a one-hour period and provides an indication of the average (mean) sound energy over the one-hour period.

The exceedance sound level, L_x, is the sound level exceeded "x" percent of the sampling period and is referred to as a statistical sound level. The most common L_x values are L_{90}, L_{50}, and L_{10}. L_{90} is the sound level exceeded 90 percent of the sampling period. L_{90} is referred to as the residual sound level because it measures the background sound level without the influence of loud, transient noise sources [ANSI S12.9]. L_{50} is the sound level exceeded 50 percent of the sampling period or the median sound level. L_{10} is the sound level exceeded 10 percent of the sampling period. L_{10} is often referred to as the intrusive sound level because it measures the occasional louder noises. Typical background (residual) sound levels in various types of communities are outlined in Table 3.4-2.

The variation between the L_{90}, L_{50}, and L_{10} sound levels can provide an indication of the variability and distribution of the noise environment. If the noise environment were perfectly steady, all values would be identical. A large variation between the values would indicate a large range of sound levels within the environment. For instance, measurements near a roadway with frequent passing vehicles would cause a large variation in the statistical sound levels.

Table 3.4-2: Typical Daytime Residual (Background) Sound Levels in Various Types of Communities

Type of Community	Typical Daytime Residual (Background) Sound Pressure Level
Very Quiet Rural Areas	31 to 35 dBA
Quiet Suburban Residential	36 to 40 dBA
Normal Suburban Residential	41 to 45 dBA
Urban Residential	46 to 50 dBA
Noisy Urban Residential	51 to 55 dBA
Very Noisy Urban Residential	56 to 60 dBA
Adjacent Freeway or Major Airport	>> 60 dBA

Source: Adapted from U.S. Environmental Protection Agency, Community Noise, December 1971.

3.4.2 Existing Acoustical Environment

In order to characterize the existing acoustical environment surrounding the project site, an ambient sound level survey was conducted in the vicinity of the proposed Stark Falls Substation. The existing acoustical environment within the area surrounding the site is typical of rural areas. The primary sources of noise include natural sounds such as insects, birds, and wind effects. Occasionally, noise from traffic and aircraft flyovers was also observed during the survey. The ambient sound level survey was conducted to characterize the existing acoustical environment within the area surrounding the project. The survey occurred September 14th through 15th, 2005. All sound level measurements were conducted using a Type 2 sound level meter that met the requirements of ANSI S1.4. Sound level measurements were conducted at various times during the day at the proposed project location. No sensitive receptor locations (e.g., residences) were discovered during the noise survey and corresponding reconnaissance survey of the area. The measurement periods were approximately 15 minutes in order to capture sound levels representative of each location during different time periods of the day.

The sound level survey included measurements near the proposed project site during daytime and nighttime hours. As previously mentioned, there were no sensitive receptors identified during the ambient sound level survey. As such, the survey results presented herein characterize the existing acoustical environment near the proposed project site. The acoustical environment was predominantly influenced by natural sounds and occasional, light traffic. The measurement results of the daytime and nighttime background sound levels are shown in Table 3.4-3. As shown, the measurement results for all parameters are relatively consistent for both daytime and nighttime periods. Based on these results, the

existing acoustic environment experiences relatively steady sound levels which would be expected of rural areas with minimal traffic influences.

Table 3.4-3: Ambient Survey Results Summary at Proposed Stark Falls Substation

Parameter	Measured Daytime Sound Level	Measured Nighttime Sound Level
L_{10}	44 dBA	42 dBA
L_{50}	40 dBA	38 dBA
L_{90}	38 dBA	36 dBA
L_{eq}	41 dBA	40 dBA

3.5 Water Resources

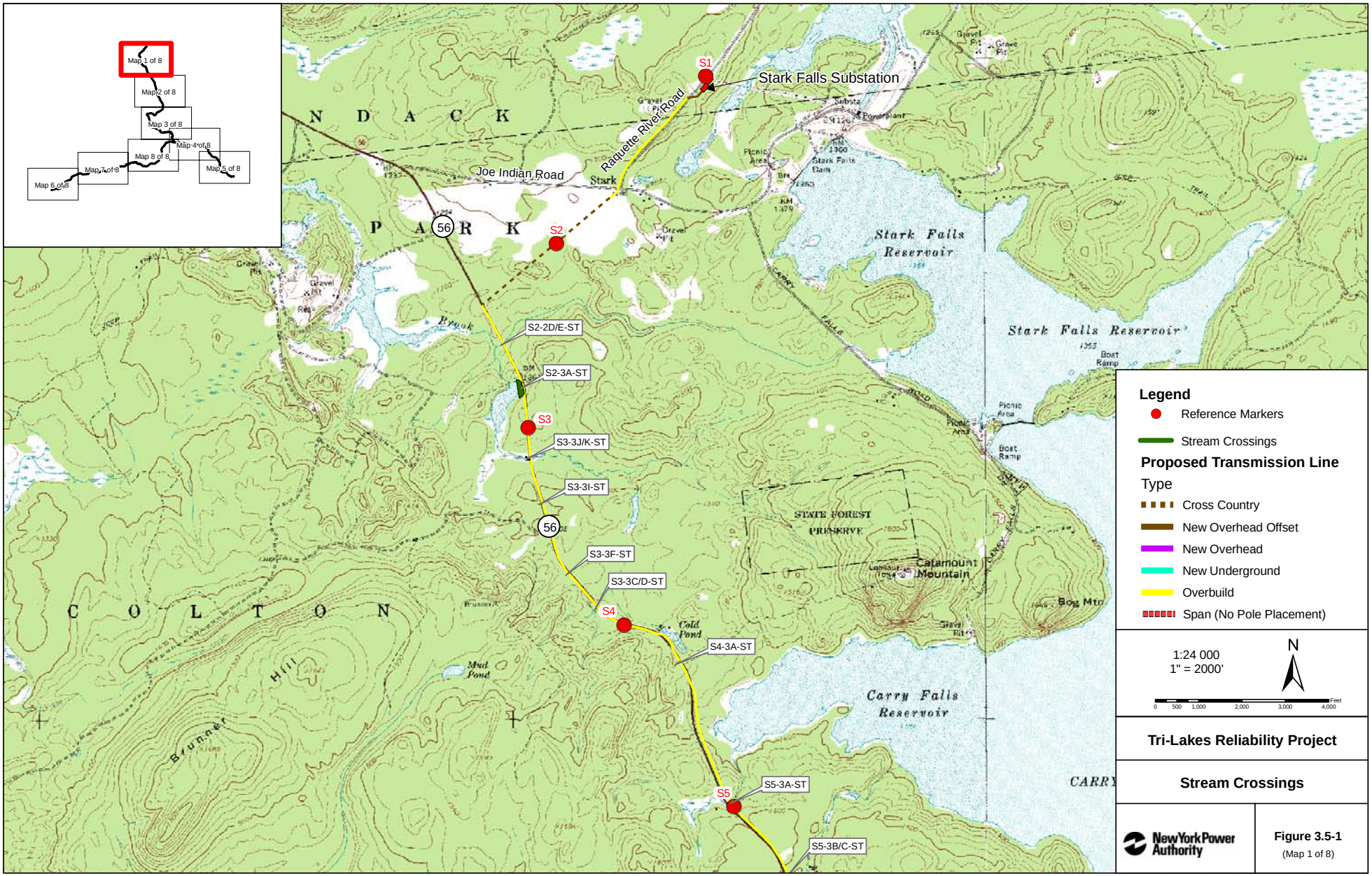
This section discusses water resources within the Project Area including surface water, groundwater, and water quality. Wetlands are discussed in Section 3.11.

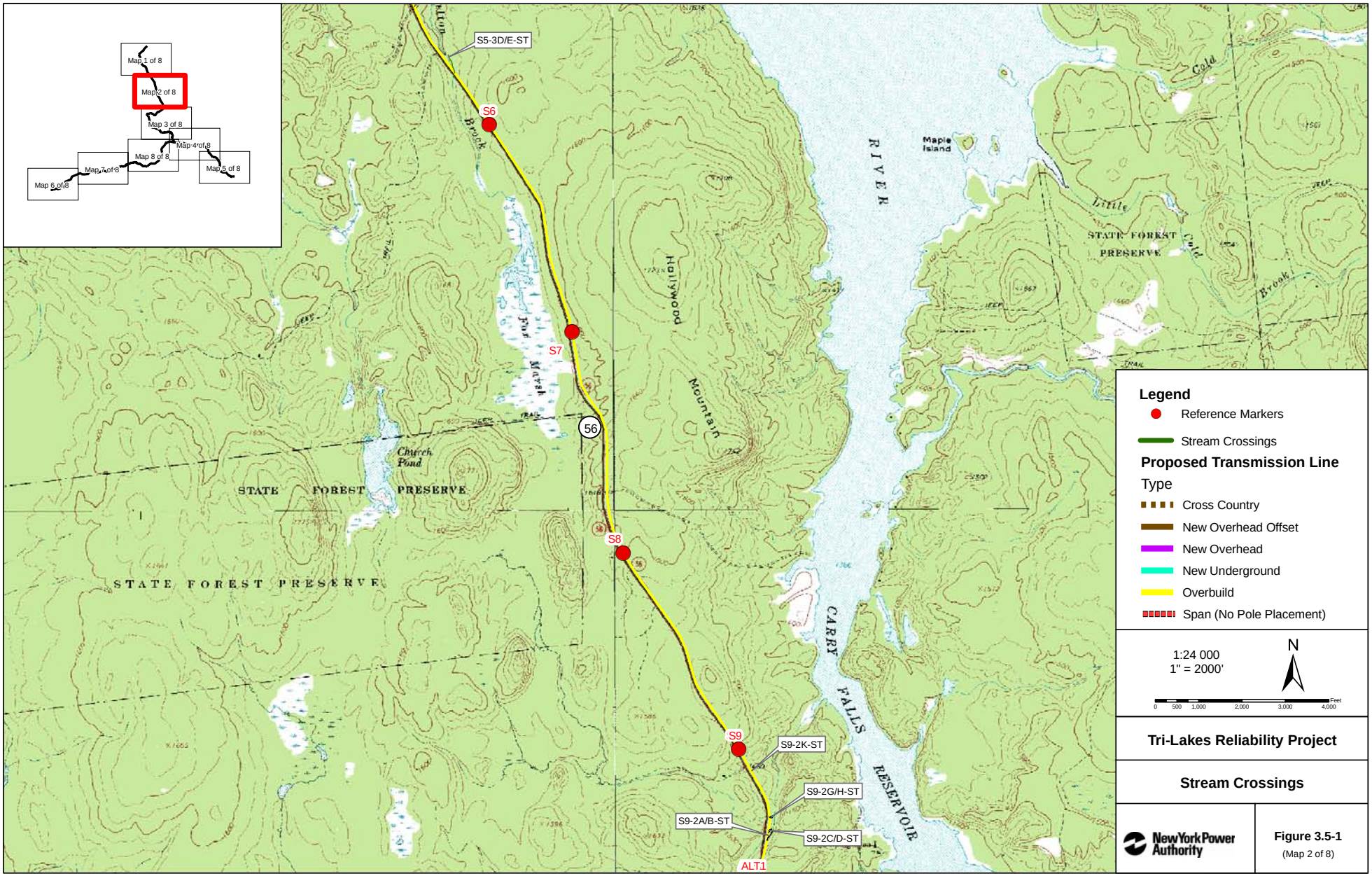
3.5.1 Surface Water

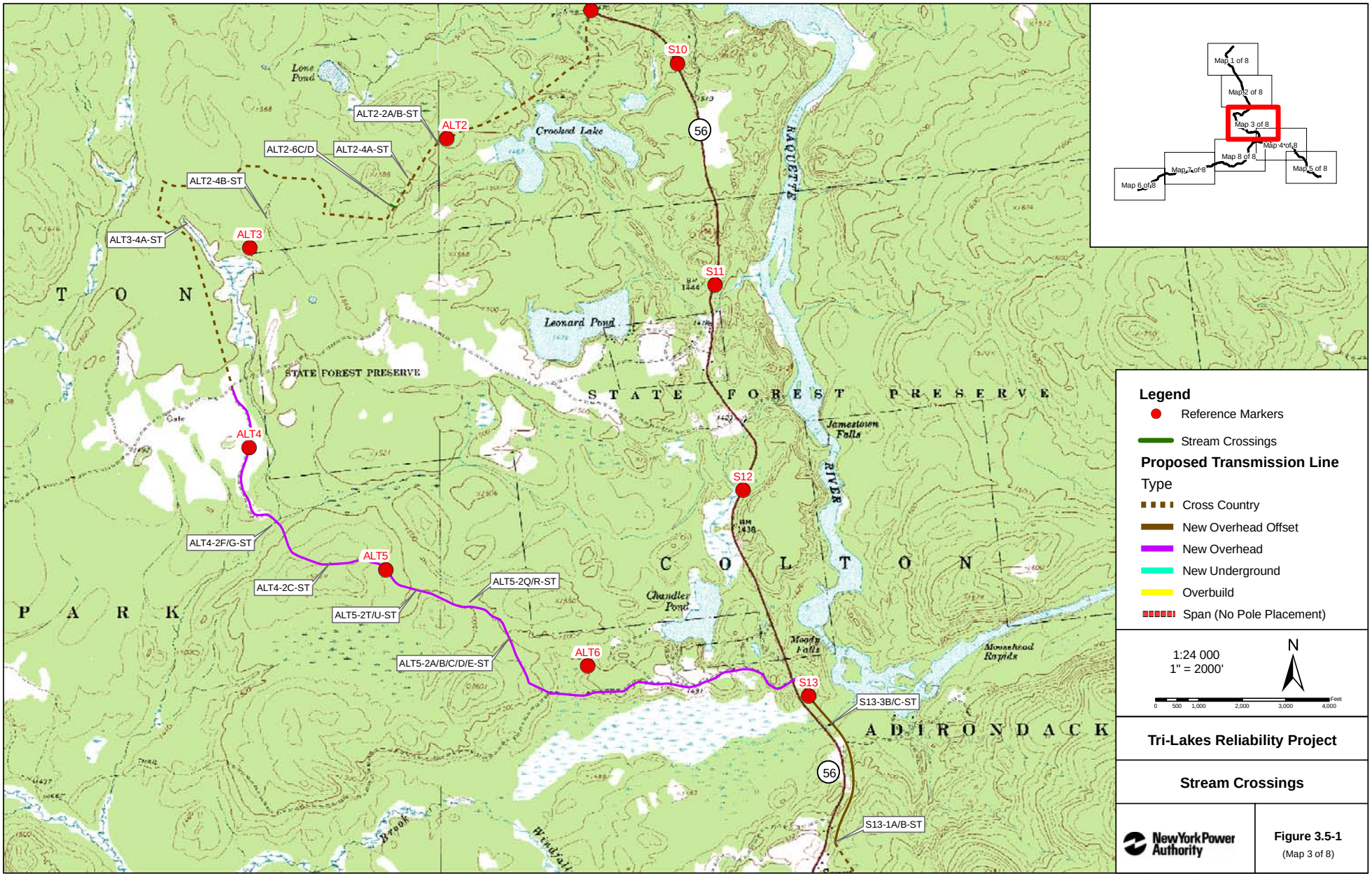
Surface waters crossed by the Project occur within three major watersheds, including the Oswegatchie, Grasse, and Raquette rivers; these watersheds ultimately drain to the northeast in the Upper St. Lawrence River watershed. Under the Environmental Conservation Law (Article 15), New York regulates surface freshwater resources within the Project Area as best usage classifications (6 NYCRR Part 701). The ACOE also regulates construction, excavation, or deposition of materials in, over, or under navigable waters of the United States pursuant to Section 10 (33 USC 403). Surface water crossings are shown on Figure 3.5-1, Maps 1 through 8. Table 3.5-1 lists each watercourse crossed by the Project and the legal status of each waterbody.

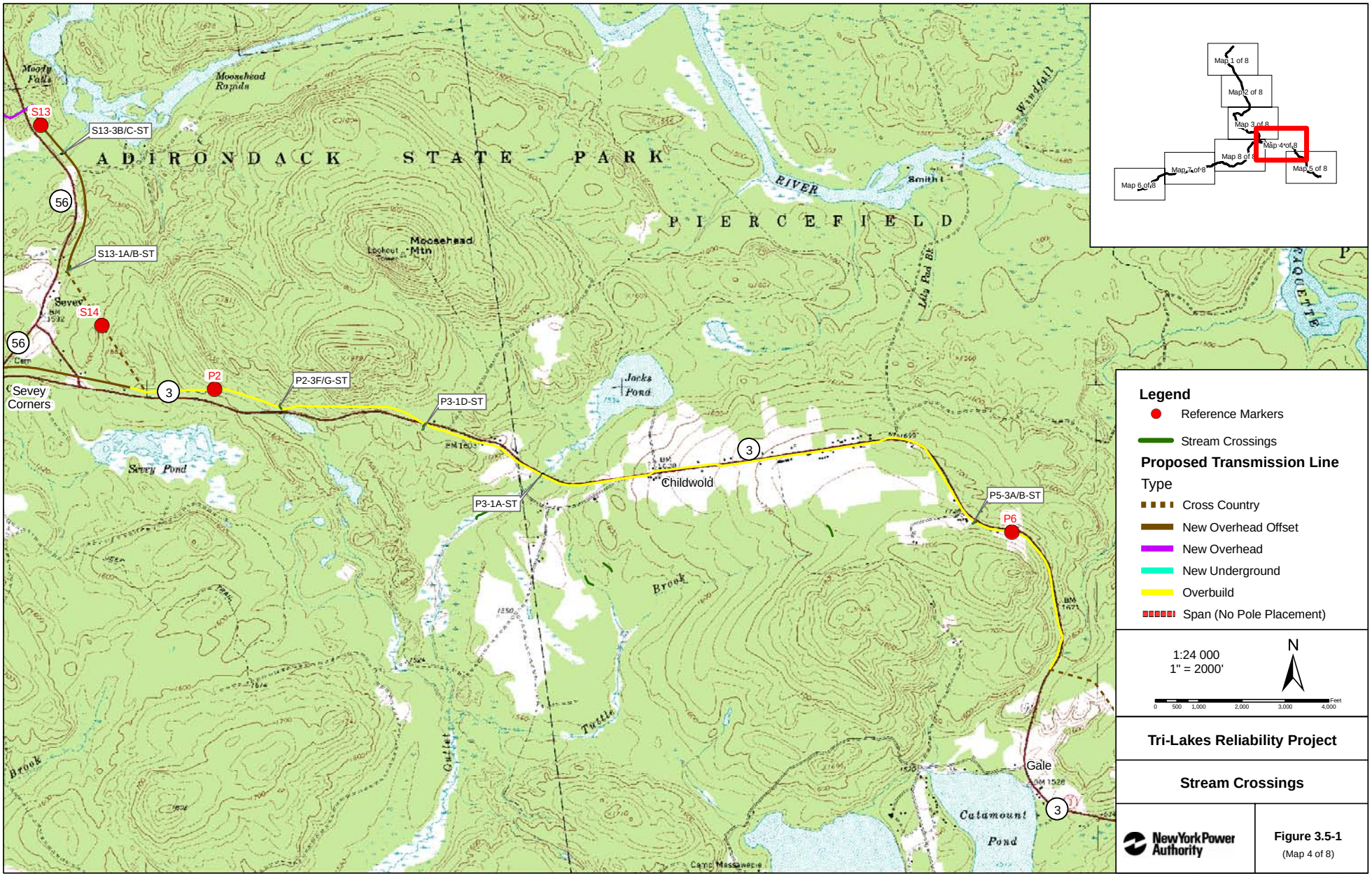
Most streams in the Project Area have substrates composed of a cobble-gravel material (Reschke, 1990). Portions of the Preferred Route are located near Carry Falls Reservoir and Stark Falls Reservoir, which are lacustrine communities produced by impoundments on the Raquette River. The Alternate Route crosses tributaries of the Oswegatchie, Raquette and South Branch Grasse Rivers as well as the main branch of the Oswegatchie approximately 1.0 mile northeast of the town of Newton Falls. At this crossing the main branch of the Oswegatchie is approximately 300 feet wide and representative of a midreach stream with a medium flow rate and alternating pools and riffles. Small headwater streams comprise the largest amount of riverine aquatic habitat traversed by this route, including rocky headwater streams, marsh headwater streams, and intermittent streams. These impoundments are not crossed by the Project. Riverine wetlands are discussed in Section 3.11.2.2.

State water quality classifications of watercourses crossed by the Preferred and Alternate Routes fall into four categories, including Classes A, B, C, and D streams. Classification A is assigned to waters used as a source for drinking water. Classification B indicates best usage for swimming and other contact recreation, but not for drinking. Classification C is for waters supporting fisheries and suitable for non-contact activities. All other watercourses are designated as D. Waters with classifications A, B, and C may also have a standard of (T), indicating that it may support a trout population, or (TS), indicating that it may support trout spawning. Additionally, small lakes and ponds with a surface area of 10 acres or less, located within the course of a stream, are considered to be part of a stream and are subject to regulation under the stream protection category of Protection of Waters.


Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
S1
Stark Falls Substation
Raquette River Road
Joe Indian Road
S2
S2-2D/E-ST
S2-3A-ST
S3
S3-3J/K-ST
S3-3I-ST
S3-3F-ST
S3-3C/D-ST
S4
S4-3A-ST
S5
S5-3A-ST
S5-3B/C-ST
Stark Falls Reservoir
Carry Falls Reservoir
STATE FOREST PRESERVE
Catamount Mountain
Bog Mtn
Legend
Reference Markers
Stream Crossings
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
Tri-Lakes Reliability Project
Stream Crossings
New York Power Authority
Figure 3.5-1
(Map 1 of 8)


Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
S5-3D/E-ST
S6
S7
S8
S9
S9-2K-ST
S9-2G/H-ST
S9-2A/B-ST
S9-2C/D-ST
ALT1
56
Maple Island
RIVER
Doewilah Mountain
Church Pond
STATE FOREST PRESERVE
STATE FOREST PRESERVE
CARRY FALLS RESERVOIR
Legend
Reference Markers
Stream Crossings
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
Feet
0 500 1,000 2,000 3,000 4,000
Tri-Lakes Reliability Project
Stream Crossings
New York Power Authority
Figure 3.5-1
(Map 2 of 8)


S10
S11
S12
S13
ALT2
ALT3
ALT4
ALT5
ALT6
ALT2-2A/B-ST
ALT2-6C/D
ALT2-4A-ST
ALT2-4B-ST
ALT3-4A-ST
ALT4-2F/G-ST
ALT4-2C-ST
ALT5-2T/U-ST
ALT5-2Q/R-ST
ALT5-2A/B/C/D/E-ST
S13-3B/C-ST
S13-1A/B-ST
Lone Pond
Crooked Lake
Leonard Pond
Chandler Pond
Jamestown Falls
Moody Falls
Moosehead Rapids
RAQUETTE
RIVER
STATE FOREST PRESERVE
STATE FOREST PRESERVE
T O N
P A R K
C O L T O N
A D I R O N D A C K
56
56
Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
Legend
Reference Markers
Stream Crossings
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
0 500 1,000 2,000 3,000 4,000 Feet
Tri-Lakes Reliability Project
Stream Crossings
NewYorkPower Authority
Figure 3.5-1
(Map 3 of 8)

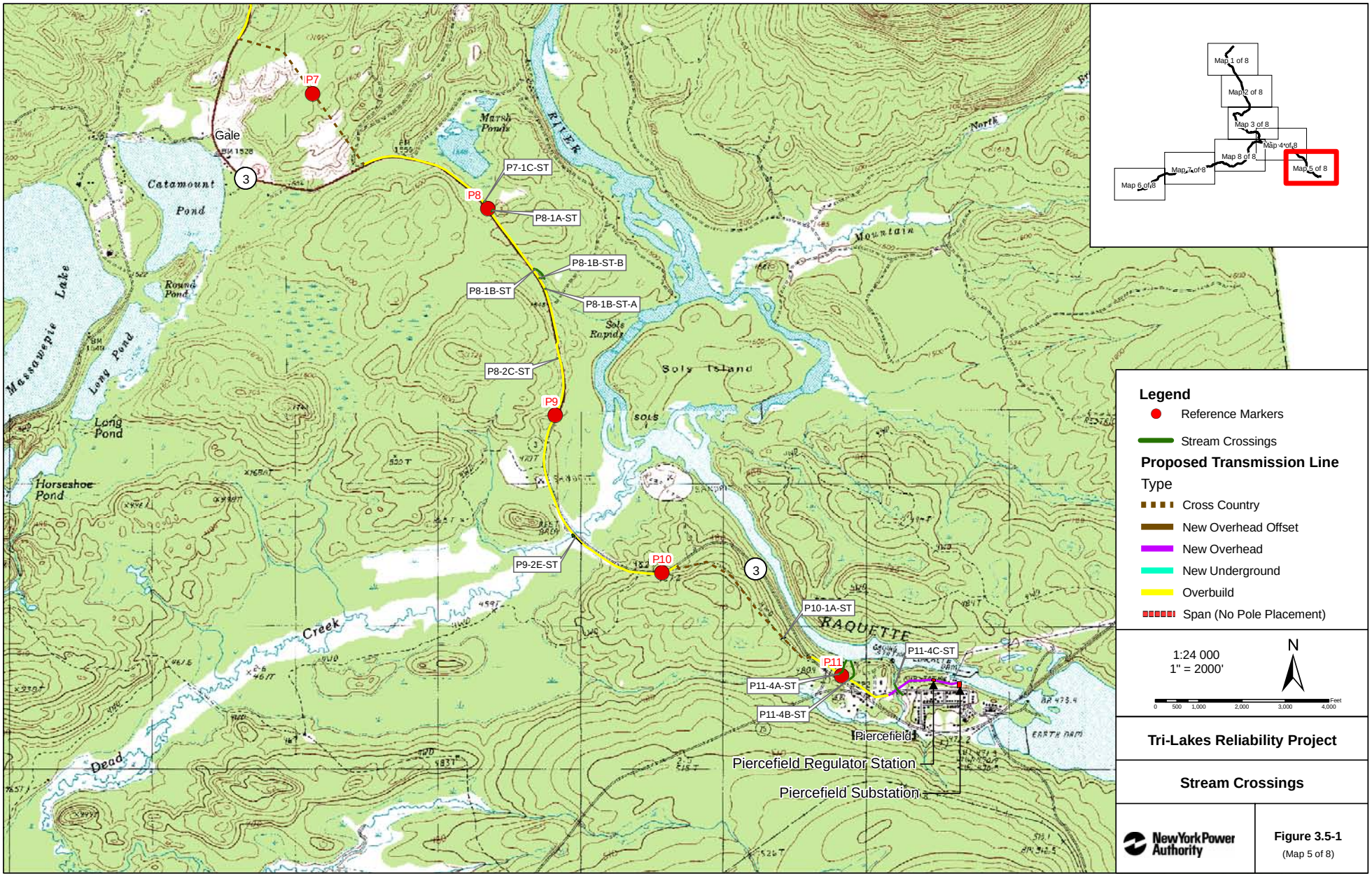


Tri-Lakes Reliability Project

Stream Crossings

New York Power Authority

Figure 3.5-1
(Map 4 of 8)

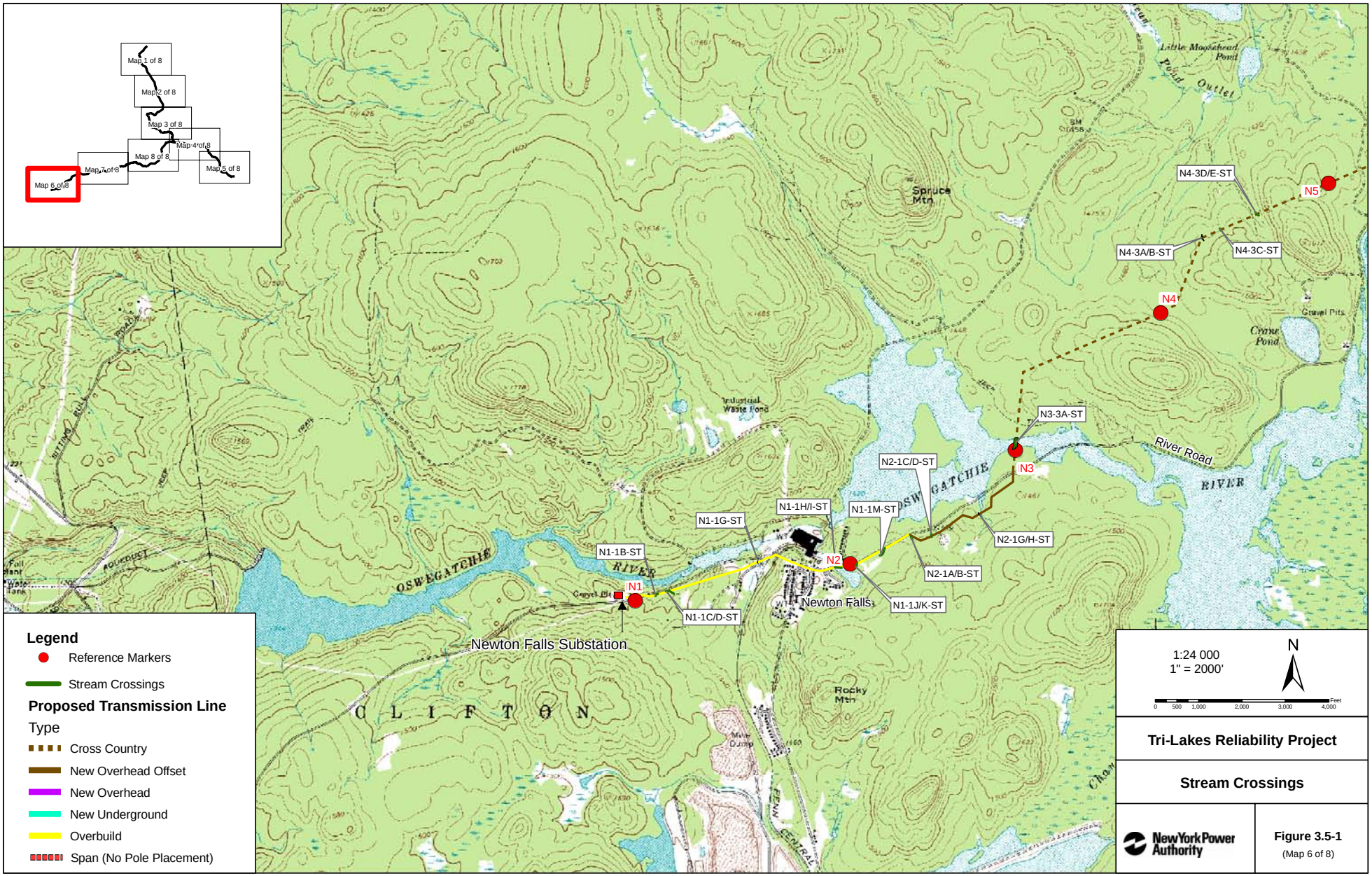


Tri-Lakes Reliability Project

Stream Crossings

New York Power Authority

Figure 3.5-1
(Map 5 of 8)

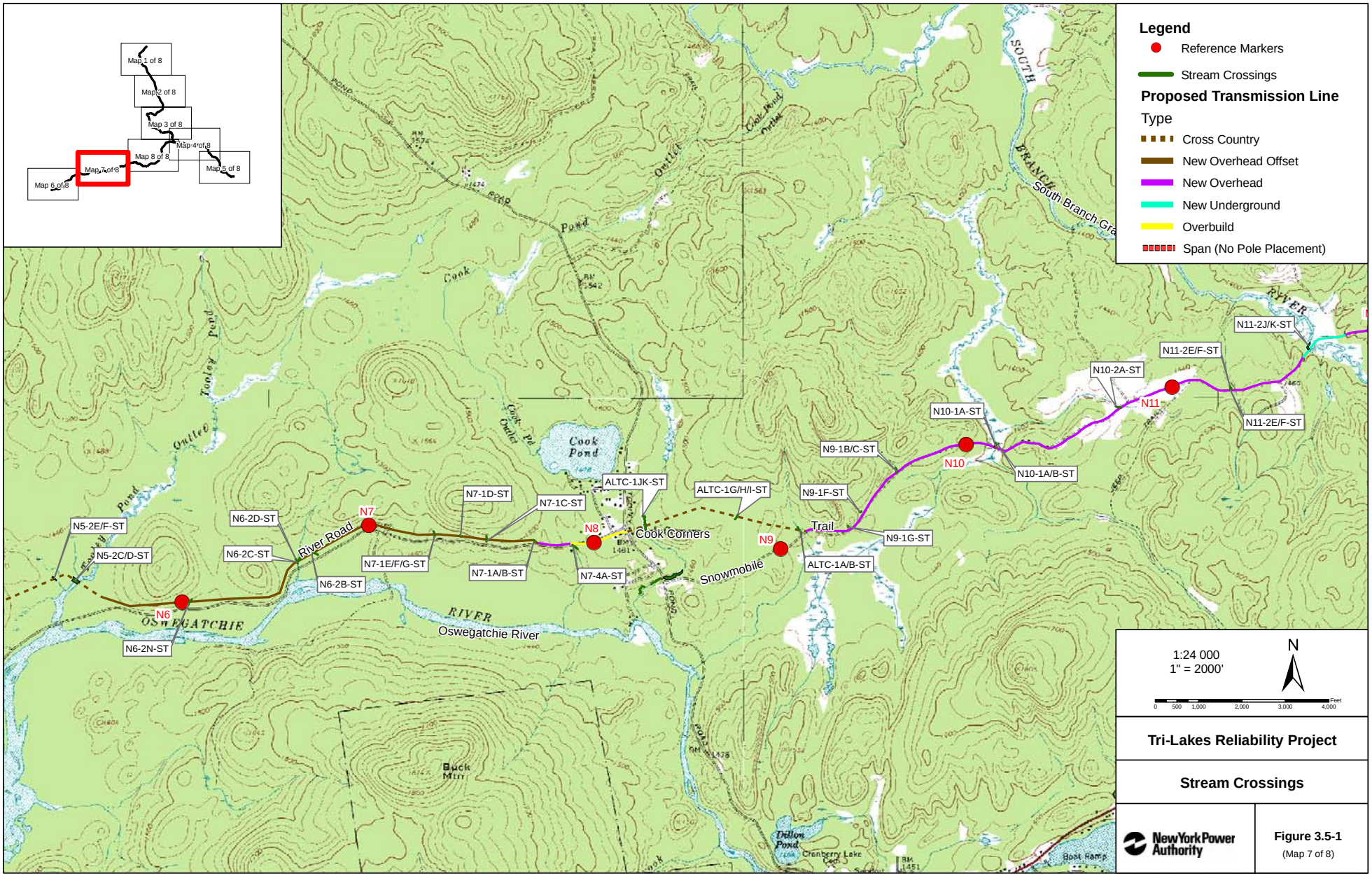


Tri-Lakes Reliability Project

Stream Crossings

New York Power Authority

Figure 3.5-1
(Map 6 of 8)



Tri-Lakes Reliability Project

Stream Crossings

New York Power Authority

Figure 3.5-1
(Map 7 of 8)

Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
S14
P1
P2
N19
N18-4C-ST
N18-4B-ST
N18
N17-4B-ST
N17
N16
N15
N14
N14-3A-ST
N13
N13-3A/B-ST
N12-3A/B-ST
N12
56
3
Sevey Corners
Sevey Pond
Windfall
Sampson Pond
Outlet
Wolf Ridge
Egg Pond
Dead
Brook
Mink
Shurtleff
Balsam Pond
Grass River Flow
South Branch Grass River
Brandy Brook
Lilypad Pond
Legend
Reference Markers
Stream Crossings
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
Feet
0 500 1,000 2,000 3,000 4,000
Tri-Lakes Reliability Project
Stream Crossings
New York Power Authority
Figure 3.5-1
(Map 8 of 8)

Table 3.5-1 lists watercourses crossed by the Preferred and Alternate Routes. Eighteen streams and/or their tributaries traverse the Preferred or Alternate routes at 74 locations. Of these, a total of 31 intermittent and 43 perennial stream crossings were identified during field studies. Because some landowners denied permission to access their properties, approximately 8 miles of the Preferred and Alternate Routes were not evaluated in the field. For these areas, interpretation of high resolution aerial photographs and evaluation of USGS 7.5-minute quadrangle maps revealed four perennial and three intermittent streams traverse the Preferred and Alternate Routes. For all stream crossings, one stream segment and associated tributaries are classified as A(T); 12 stream segments and associated tributaries are classified as C(T) streams; two streams and associated tributaries are classified as C streams; and three stream segments and associated tributaries are classified as D streams. Only streams classified as C or greater are regulated by the State. Two streams are designated as Scenic Rivers under the Wild, Scenic and Recreational River Systems Act (Article 15 Title 27 of the Environmental Conservation Law), including the South Branch Grasse and Raquette rivers (Table 3.5-1). The Raquette River is also designated as a Recreational River. The Oswegatchie River is currently listed as a study river to be added to the list of Wild, Scenic and Recreational rivers. These rivers are given special protection under the provisions of this Act.

Table 3.5-1: Waterbodies Crossed by the Tri-Lakes Reliability Project

Stream [1] Identification Number	Channel Identifier [2]	Waterbody Name	Flow Regime	Legal Status [3]	Route [4]
Delineated During Field Efforts Newton Falls – Sevey Corners Segment					
N/A	N1-1B-ST	Trib. Oswegatchie River	Perennial	N/A	A
N/A	N1-1C/D-ST	Trib. Oswegatchie River	Perennial	N/A	A
A15P910-1090	N1-1G-ST	Trib. Oswegatchie River	Perennial	C	A
A15P910-1090	N1-1H/I-ST	Trib. Oswegatchie River	Perennial	C	A
N/A	N1-1J/K-ST	Trib. Oswegatchie River	Perennial	N/A	A
N/A	N1-1M-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N2-1A/B-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N2-1C/D-ST	Trib. Oswegatchie River	Intermittent	N/A	A
A15P910-1091	N2-1G/H-ST *	Trib. Oswegatchie River	Perennial	A(T); Study River	A
A15P910-1091	N3-3A-ST *	Oswegatchie River	Perennial	A(T); Study River	A
N/A	N4-3A/B-ST	Trib. Moosehead Pond Outlet	Intermittent	N/A	A
N/A	N4-3C-ST	Trib. Moosehead Pond Outlet	Intermittent	N/A	A
N/A	N4-3D/E-ST	Trib. Moosehead Pond Outlet	Perennial	N/A	A
A15P910-1582	N5-2C/D-ST	Tooley Pond Outlet	Perennial	D	A
A15P910-1582	N5-2E/F-ST *	Trib. Tooley Pond Outlet	Perennial	D	A
N/A	N6-2B-ST	Trib. Oswegatchie River	Intermittent	N/A	A
A15P910-1091	N6-2C-ST	Trib. Oswegatchie River	Perennial	A(T)	A
A15P910-1091	N6-2D-ST	Trib. Oswegatchie River	Intermittent	A(T)	A
N/A	N6-2N-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N7-1A/B-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N7-1C-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N7-1D-ST	Trib. Oswegatchie River	Intermittent	N/A	A
N/A	N7-1E/F/G-ST	Trib. Oswegatchie River	Intermittent	N/A	A
A15P910-1049	ALT C-1A/B-ST	Dead Creek	Intermittent	C(T)	A
N/A	ALT C-1G-ST	Trib. Dead Creek	Perennial	N/A	A
A15P910-1585	ALT C-1J/K	Trib. Tooley Pond Outlet	Perennial	C(T)	A
A15P910-1049	N9-1B/C/D-ST	Trib. Dead Creek	Perennial	C(T)	A
N/A	N9-1F-ST	Trib. Dead Creek	Intermittent	N/A	A
N/A	N9-1G-ST	Trib. Dead Creek	Intermittent	N/A	A

Table 3.5-1: Waterbodies Crossed by the Tri-Lakes Reliability Project					
Stream Identification Number [1]	**Channel Identifier [2]**	**Waterbody Name**	**Flow Regime**	**Legal Status [3]**	**Route [4]**
A15P910-1049	N10-1A-ST	Trib. Dead Creek	Perennial	C(T)	A
A15P910-1049	N10-1A/B-ST	Trib. Dead Creek	Intermittent	C(T)	A
A15P910-1049	N10-2A-ST	Trib. Dead Creek	Perennial	C(T)	A
A15P910-1034	N11-2E/F-ST *	South Branch Grasse River	Perennial	C(T); Scenic	A
N/A	N11-2E/F-ST	South Branch Grasse River	Intermittent	N/A	A
A15P910-1034	N11-2J/K-ST	South Branch Grasse River	Perennial	C(T); Scenic	A
A15P910-1049	N12-3A/B-ST *	Dead Creek	Perennial	C(T)	A
A15P910-1034	N13-3A/B-ST	Trib. South Branch Grasse River	Perennial	C(T)	A
N/A	N14-3A-ST	Trib. South Branch Grasse River	Intermittent	N/A	A
Sevey Corners – Piercefield Segment					
A15P910-1061	P2-3F/G-ST	Trib. Jocks Pond Outlet	Perennial	C(T)	P/A
A15P910-1061	P3-1A-ST	Jocks Pond Outlet	Perennial	C(T)	P/A
N/A	P3-1D-ST	Jocks Pond Outlet	Intermittent	N/A	P/A
N/A	P5-3A/B-ST	Unnamed	Perennial	N/A	P/A
N/A	P7-1C-ST	Unnamed	Perennial	N/A	P/A
N/A	P8-1A-ST	Unnamed	Perennial	N/A	P/A
A15P910-608	P8-1B-ST	Unnamed	Perennial	D	P/A
N/A	P8-1B-ST-A	Unnamed	Intermittent	N/A	P/A
N/A	P8-1B-ST-B	Unnamed	Intermittent	N/A	P/A
N/A	P8-2C-ST	Unnamed	Perennial	N/A	P/A
N/A	P9-2B/C/D-ST	Trib to Dead Creek	Intermittent	N/A	P/A
A15P910-610	P9-2E-ST *	Dead Creek	Perennial	C	P/A
A15P910-608	P10-1A-ST	Trib. to Raquette River	Intermittent	D	P/A
Stark Falls – Sevey Corners Segment					
A15P910-488	S2-2D/E-ST	Cold Brook	Perennial	C(T)	P
A15P910-488	S2-3A-ST	Cold Brook	Perennial	C(T)	P
N/A	S3-3C/D-ST	Trib. Cold Brook	Perennial	N/A	P
N/A	S3-3F-ST	Trib. Cold Brook	Intermittent	N/A	P
N/A	S3-3I-ST	Trib. Cold Brook	Intermittent	N/A	P
A15P910-488	S3-3J/K-ST *	Trib. Cold Brook	Perennial	C(T)	P
N/A	S4-3A-ST	Trib. Cold Brook	Intermittent	N/A	P
A15P910-517	S5-3A-ST	Trib. Felton Brook	Perennial	C(T)	P
N/A	S5-3B/C-ST	Trib. Felton Brook	Perennial	N/A	P
A15P910-517	S5-3D/E-ST	Felton Brook	Perennial	C(T)	P
N/A	ALT2-2A/B-ST	Trib. Crooked Lake	Perennial	N/A	P
N/A	ALT2-6C/D-ST	Trib. Crooked Lake	Perennial	N/A	P
N/A	ALT4-2C-ST	Unnamed	Intermittent	N/A	P
A15P910-1053	ALT4-2F/G-ST	Trib. Dead Creek	Intermittent	C(T)	P
A15P910-1051	ALT5-2A-ST	Trib. Windfall Brook	Perennial	C(T)	P
N/A	ALT5-2Q/R-ST	Trib. Windfall Brook	Perennial	N/A	P
N/A	ALT5-2T/U-ST	Trib. Windfall Brook	Perennial	N/A	P
A15P910-572	S9-2A/B-ST	Trib. Carry Falls Reservoir	Perennial	C(T)	P
A15P910-572	S9-2C/D-ST	Trib. Carry Falls Reservoir	Perennial	C(T)	P
A15P910-572	S9-2G/H-ST *	Trib. Carry Falls Reservoir	Perennial	C(T)	P
N/A	S9-2K-ST	Trib. Carry Falls Reservoir	Intermittent	N/A	P
N/A	S13-1A/B-ST	Unnamed	Intermittent	N/A	P
A15P910-587	S13-3B/C-ST	Trib. Raquette River	Perennial	C(T)	P
Delineated from Aerial Photograph Interpretation					
A15P910-1582	N7-4A-ST	Trib. Tooley Pond Outlet	Perennial	D	A
A15P910-1051	N17-4B-ST	Windfall Brook	Perennial	C(T)	A
A15P910-1051	N18-4B-ST	Windfall Brook	Perennial	C(T)	A
A15P910-1051	N18-4C-ST	Windfall Brook	Perennial	C(T)	A

Table 3.5-1: Waterbodies Crossed by the Tri-Lakes Reliability Project					
Stream [1] Identification Number	Channel Identifier [2]	Waterbody Name	Flow Regime	Legal Status [3]	Route [4]
N/A	P11-4A-ST	Trib. Raquette River	Intermittent	N/A	P/A
N/A	P11-4B-ST	Trib. Raquette River	Intermittent	N/A	P/A
A15P910-624	P11-4C-ST	Trib. Raquette River	Intermittent	D	P/A

[1] Stream identification numbers identify those streams that are classified NYSDEC streams.

[2] Channel IDs are names arbitrarily assigned to streams that cross the proposed project and indicate approximate locations along the transmission route.

* Indicates streams that are 5 feet or greater in width and, therefore, are APA Navigable Waterways subject to APA Shoreline Restrictions.

[3] Streams are classified according to best usage under 6 NYCRR Part 701 as follows:

Class A: waters are suitable for drinking, primary and secondary contact recreation and fishing, and for the survival and propagation of fish;

Class B: waters are suitable for primary and secondary contact recreation and fishing, and for the survival and propagation of fish;

Class C: waters are suitable for fishing, and for the survival and propagation of fish; and

Class D: waters are suitable for fishing.

Stream classifications modified by the standard (T), as in C(T), indicate that it may support a trout population.

[4] A = Alternate Route, P = Preferred Route, P/A = common to both Preferred and Alternate Routes

3.5.2 Groundwater

As listed in Olcott (1995), the bedrock surface that occurs in St. Lawrence County consists of crystalline rock of igneous or metamorphic origin. Glacial deposits form surficial aquifers; however, in uplands the bedrock becomes the major source of water. While porosity and intergranular spaces are generally small in this type of rock, fractures are quite common. Thus, water traverses through fissures, allowing many wells to yield a few gallons per minute (some may yield as many as 100 to 500 gallons per minute) (Olcott, 1995). Precipitation is important for groundwater recharge in crystalline rock formations (Olcott, 1995). In Tupper Lake, New York, average annual precipitation totals 42.94 inches, with peak rainfall occurring in July (TWC, 2005).

No known sole-source aquifers occur within the Project Area or its vicinity (Olcott, 1995). Groundwater aquifers located within the Project Area are not protected by NYSDEC. According to USGS data on water usage in the year 2000 for St. Lawrence County, New York, public water supply from surface water was 3.4 times that of groundwater supply (2004). However, domestic users acquired 100 percent of their water supply from groundwater sources (USGS, 2004). Table 3.5-2 lists an excerpt from the USGS report. EPA indicates that most drinking water is obtained from groundwater resources rather than from surface waters within the Project Area (EPA, 2005).

Table 3.5-2: Year 2000 Water Usage Statistics in St. Lawrence County [1]			
Type of Usages	Water Withdrawals		
	Groundwater	Surface	Unit
Public supply	1.85	6.25	Mgal/d
Domestic, self-supplied withdrawals	3.66	0.00	Mgal/d

[1] Population in St. Lawrence County is 48,730.
Source: http://water.usgs.gov/watuse/data/2000/index.html

3.5.3 Water Quality

According to Olcott (1995), groundwater quality is not significantly influenced by crystalline bedrock common to portions of the Project Area because the bedrock is generally composed of virtually insoluble minerals, water is in contact with a relatively small surface area in the joints and fractures, and water movement through the joints and fractures generally is rapid and along short flow paths. However, wells in these areas are subject to the water chemistry of surficial waters, which percolate down to the crystalline aquifers. In these aquifers, water typically contains excessive concentrations of iron, manganese, sulfate, or radon (Olcott, 1995).

The Federal Clean Water Act requires states to assess and report on the quality of waters in their state, and to identify impaired waters. Surface waters crossed by the Preferred and Alternate Routes are not listed in the Final New York State 2004 Section 303(d) List of Impaired Waters Requiring a Total Maximum Daily Load (NYSDECb)

3.6 Fish and Wildlife

3.6.1 Fish

The Tri-Lakes Reliability Project is located within the watersheds of the Oswegatchie, Raquette, and Grasse Rivers. The topography is steep to moderately sloped and riverine waters are fairly swift moving. The rivers, streams, and reservoirs of the area are primarily cool and warmwater systems and provide habitat for many game and non-game species of fish. Several aquatic communities occur in the vicinity of the Project. Community classifications are based on field observations and descriptions provided in *Ecological Communities of New York State* (Edinger *et al*., 2002).

The Preferred and Alternate Routes cross tributaries of the Oswegatchie, Raquette and Grasse Rivers as well as the main branch of the Oswegatchie. The crossing of the main branch of the Oswegatchie is approximately 300 feet wide and representative of a mid-reach stream with a medium flow rate and alternating pools and riffles. Characteristic fishes include creek chub (*Semotilus atromaculatus*), pumpkinseed (*Lepomis gibbosus*), common shiner (*Notropis comutus*), and troutperch (*Percopsis omiscomaycus*) in pools; rosyface shiner (*Notropis rubellus*) at the head of pools; and tasselated darter (*Etheostoma olmstedi*), greenside darter (*E. blennioides*), longnose dace (*Rhinichthys cataractae*), slimy sculpin (*Cottus cognatus*) and stonecat (*Notorus flavus*) in riffles.

The smaller headwater streams comprise the largest amount of riverine aquatic habitat traversed by the Preferred and Alternate Routes. Fish species of these waters vary according to gradient, as this affects flow rate, water temperature, and substrate composition. Most streams in the Project Area have substrates composed of a cobble-gravel material and provide potential spawning habitat for several fishes. Characteristic species of streams with moderate to steep gradients include eastern blacknose dace (*Rhinichthys atratulus*), creek chub (*Semotilus atromaculatus*), slimy sculpin (*Cottus cognatus*), and brook trout (*Salvelinus fontinalis*). Common introductions are rainbow trout (*Salmo gairdneri*) and brown trout (*S. trutta*). Streams with a lower gradient, often flowing through forested wetlands, maintain a slightly higher temperature and may contain species including fathead minnow (*Pimephales promelas*), golden shiner (*Notemigonus crysoleucas*), and central mudminnow (*Umbra limi*).

Portions of the Preferred Route are located adjacent to Carry Falls Reservoir and Stark Falls Reservoir, which are lacustrine communities produced by impoundments in the Raquette River. These habitats are classified as highly oligotrophic and have maximum depths of less than 18 feet (Rudstam *et al*., 1996). Oligotrophic communities may have either cold-water or warm-water fishes, depending upon summer temperatures.

In an effort to enhance recreational fishing and to restore native species, NYSDEC stocks several of the main waterbodies in the Project Area. Both natural and stocked populations of rainbow trout, brown trout, and brook trout are common, as well as walleye (*Stizostedion vitreum*), northern pike (*Esox lucius*), and smallmouth bass (*Micropterus dolomieu*). Waters stocked on a regular basis include the Oswegatchie, Grasse, and Raquette Rivers, and these species may be located in the associated tributaries.

Twenty-four species of fish are listed as threatened or endangered by the State of New York. Four have the potential to occur within the Project Area. Threatened and endangered species are discussed at length in Section 3.7.

3.6.2 Wildlife

Wildlife species occurring within the Adirondacks region and associated with the Tri-Lakes Reliability Project Area are characteristic of northern hardwood forest habitat, which primarily consists of hardwood communities interspersed with boreal softwood stands. These two diverse forest communities contain a mixture of mountain ranges, rivers, lakes, and wetlands that provide habitat for many wildlife species. This section addresses wildlife species common to the area. Species observed during field survey efforts are reported in Table 3.6-1. Threatened and endangered species are discussed in Section 3.7.

Table 3.6-1: Wildlife Species Observed During Field Survey

Species	Scientific Name	Preferred Route	Alternate Route
Amphibians			
Eastern Newt	*Notophthalmus viridescens*		X
Spring Peepers	*Pseudacris crucifer*		X
Gray Treefrog	Hyla versicolor		X
American Bullfrog	*Rana catesbeiana*		X
Green Frog	*Rana clamitans*		X
Northern Leopard Frog	*Rana pipiens pipiens*	X	
Reptiles			
Garter Snake	*Thamnophis sirtalis*	X	X
Birds			
Mallard	*Anas platyrhynchos*		X
Great Blue Heron	*Ardea herodias*	X	
Common Snipe	*Gallinago gallinago*	X	X
American Woodcock	*Scolopax minor*	X	
Ruffed Grouse	*Bonasa umbellus*	X	X
Wild Turkey	*Meleagris gallopavo*		X
Cooper's Hawk	*Accipiter cooperii*	X	
Red-tailed Hawk	*Buteo jamaicensis*		X
Belted Kingfisher	*Ceryle alcyon*		X
Eastern Kingbird	*Tyrannus tyrannus*		X
Gray Jay	*Perisoreus canadensis*	X	
Common Raven	*Corvus corax*		X
American Crow	*Corvus brachyrhynchos*		X
Fish Crow	*Corvus ossifragus*		X
Northern Flicker	*Colaptes auratus*		X
Hairy Woodpecker	*Picoides villosus*	X	X

Table 3.6-1: Wildlife Species Observed During Field Survey			
Species	**Scientific Name**	**Preferred Route**	**Alternate Route**
Red-bellied Woodpecker	*Melanerpes carolinus*	X	X
Black-capped Chickadee	*Poecile atricapilla*	X	X
White-breasted Nuthatch	*Sitta carolinensis*	X	X
American Robin	*Turdus migratorius*	X	X
Wood Thrush	*Hylocichla mustelina*	X	X
Red-eyed Vireo	*Vireo olivaceus*		X
Solitary Vireo	*Vireo solitarius*		X
Yellow Warbler	*Dendroica petechia*		X
Black-throated Blue Warbler	*Dendroica caerulescens*	X	X
Cerulean Warbler	*Dendroica cerulea*		X
Ovenbird	*Seiurus aurocapillus*		X
Common Yellowthroat	*Geothlypis trichas*		X
House/Purple Finch	*Carpodacus* spp.		X
White-throated Sparrow	*Zonotrichia albicollis*	X	X
Mammals			
Eastern Cottontail	*Sylvilagus floridanus*	X	X
Eastern Chipmunk	*Tamias striatus*	X	X
White-footed Mouse	*Peromyscus leucopus*	X	
Beaver	*Castor canadensis*	X	X
Raccoon	*Procyon lotor*	X	
American Black Bear	*Ursus americanus*	X	
White-tailed Deer	*Odocoileus virginianus*	X	X

A variety of migratory songbirds typical of mixed-wood forests may be present in the proposed Project Area, including various warbler, vireo, woodpecker, and thrush species. In addition, the denser regions of spruce forest in the Adirondacks provide suitable nesting habitat for species with a tendency to higher elevations, like a variety of flycatchers, kinglets, and common raven (*Corvus corax*). Common forest raptors including the broad-winged hawk (*Buteo platypterus*), sharp-shinned hawk (*Accipiter striatus*), and Cooper's hawk (*Accipiter cooperii*), as well as several owl species, and osprey (*Pandion haliaetus*) and bald eagle (*Haliaeetus leucocephalus*), may be found near larger waterways in the vicinity of the Project Area. Forest mammals typically present in the Project Area include red (*Tamiasciurus hudsonicus*) and gray squirrels (*Sciurus pennsylvanicus*), eastern chipmunk (*Tamius striatus*), fisher (*Martes pennanti*), marten (*M. americana*), black bear (*Ursus americanus*), and white-tailed dear (*Odocoileus virginianus*). While not common, moose (*Alces alces*) may occasionally wander into the northern parts of the Project Area from Canada. A wide variety of snakes, turtles, small mammals, and amphibians also occur in the northeastern mixed forest habitat within the Project Area.

The Preferred and Alternate Routes cross several residential areas. These provide both open and edge habitat for avian species such as the European starling (*Sturnus vulgaris*), American robin (*Turdus migratorius*), eastern kingbird (*Tyrannus tyrannus*), and indigo bunting (*Passerina cyanea*) and a variety of small mammals frequently associated with human impacted environments like raccoon (*Procyon lotor*), skunk (*Mephitis mephitis nigra*), and opossum (*Didelphus virginiana*). In addition, recent logging activities have created several patches of pioneer and early successional stage forest tracts providing a variety of ecotones and the subsequent species that utilize these areas.

Forested, scrub-shrub, and emergent freshwater wetlands with associated open water habitats exist within the Project Area. These highly productive environments provide preferred habitat to numerous species. Beaver (*Castor canadensis*) activity is evident along many of the ponds and small streams within the Project Area. Also muskrat (*Ondatra zibethicus*), river otter (*Lutra canadensis*), and several members of the weasel family rely heavily on wetlands for denning, feeding, and breeding. Various amphibian species also use these areas for reproduction. A diversity of waterfowl species may be found in association with the wetland and open water habitats in the Project Area. Canada goose (*Branta canadensis*), American black duck (*Anas rubripes*), mallard (*A. platyrhynchos*), and wood ducks (*Aix sponsa*) are common breeders and several transients such as teal, gadwall (*Anas strepera*), and widgeon (*A. americana*) use the area ponds and lakes during migration. The common loon (*Gavia immer*) also breeds in the Project Area.

Portions of the Project Area are also used for hunting. Common game species in the area are wild turkey (*Meleagris gallopavo*), ruffed grouse (*Bonasa umbellus*), snowshoe hare (*Lepus americanus*), white-tailed deer, and black bear. In addition, the area attracts many people that enjoy the recreational aspect of non-game species like the many neotropical migratory songbirds, waterfowl, raptors, and large mammals.

3.7 Threatened and Endangered Species

The New York Natural Heritage Program (NYNHP) and the United States Fish and Wildlife Service (USFWS) were consulted to determine documented occurrences of state and federally-listed threatened and endangered species in the vicinity of the Tri-Lakes Reliability Project. Appendix F includes copies of agency consultation letters. The response from the USFWS, dated May 27, 2005, indicated that no federally-listed or proposed endangered or threatened species under federal jurisdiction are known to exist within the Project Area and that no habitat is designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act. The June 13, 2005 response from the New York Natural Heritage Program indicated that four state-listed or special concern wildlife species and one state-listed plant species have been previously documented at 11 locations in the vicinity of Preferred and Alternate Routes.

Consultations with New York Natural Heritage Program did not indicate the presence of threatened or endangered fishes within the Project Area, however a follow-up conversation with NYNHP indicated that the fish species database is not yet complete. New York lists 24 species of fish as threatened, endangered, or special concern under 6 NYCRR Part 182. Based on range and habitat preferences summarized in Table 3.7-1, only four species have the potential to occur within the Project Area.

In addition, field surveys for wetland delineation and vegetation communities mapping were conducted in May 2005. During this effort 12 protected plant species and two state-listed wildlife species not documented in the June 13, 2005 letter from the NYNHP were observed within the Project Area. The list of species that potentially occur within the Project Area is presented in Table 3.7-2. A brief natural history, including habitat requirements, for each rare or listed species identified during agency consultation, habitat evaluation or field observation is provided in the following sections. Life histories for fish are derived from species information provided by the NYSDEC Endangered Species Program 2003.

3.7.1 Plants

Legal Status of Protected Plants in New York State

Under New York State Law (6 NYCRR part 193.3), there are four categories of protected plants: endangered species, threatened species, rare species, and exploitably vulnerable. The first three of these categories are used for species that have small numbers of individuals or occupy limited areas within the

state. Plants listed as "exploitably vulnerable" are not necessarily rare or uncommon, but may be desirable for commercial uses such as in floral decorations, herbal preparations, or pharmaceuticals, and could become rate, threatened, or endangered if subjected to unchecked commercial exploitation. The list of protected plants is periodically reviewed and revised by the NYSDEC and adopted into the regulations.

Table 3.7-1: New York Threatened and Endangered Fishes [1]

Common Name	Scientific Name	Status[2]	Range (specific to New York)	Habitat
Lake Sturgeon	*Acipenser fulvescens*	ST	Collected in the St. Lawrence River, Lake Ontario, Lake Erie, the Niagara River, Lake Champlain, Cayuga Lake, the Seneca and Cayuga canals, and in the Grasse, Oswego, and Oswegatchie rivers.	Deep mid-river areas and pools having clean sand, gravel, or rock bottoms where food is abundant; and water depths vary between four and nine meters.
Eastern Sand Darter	*Ammocrypta pellucida*	ST	Found in Lake Erie, the Metawee and Poultney Rivers near Lake Champlain, the St. Regis River and Salmon Rivers near Quebec and the Grasse River.	Prefers small creeks to large rivers and lake shores, with slow to medium current, and lakes and lake-like expansions of rivers with fine sandy substrate (0.1-1.0 mm) (NatureServe Explorer June 2005).
Mooneye	*Hiodon tergisus*	ST	Range is south-central Canada (Hudson Bay Basin) south though the Great Lakes Basin (except Lake Superior), the St. Lawrence River, and the Lake Champlain drainage basin. Known populations occur in Lake Champlain, Black Lake, the Oswegatchie River, Lake Erie, the mouth of Cattaraugus Creek and the St. Lawrence River.	Deep pools and backwaters of medium to large rivers and interconnecting lakes and reservoirs with clear water; often found in nonflowing waters but feeds mostly in swift water. Often migrates up large clear streams to spawn. (Source: NatureServe Explorer June, 2005)
Round Whitefish	*Prosopium cylindraceum*	SE	Only six Adirondack Lakes and Lake Ontario	Rivers or streams, rarely in brackish water. Usually at depths of less than 50 m in Great Lakes. Spawns in gravelly shallows of lakes, at river mouths, and occasionally in rivers.

[1] Source: except where noted, species information was obtained from NYSDEC 2003 Endangered Species Program. Internet address: http://www.dec.state.ny.us/website/dfwmr/wildlife/endspec/ last updated October 2003; accessed July 15, 2005.

[2] FE - Federally Endangered, SE - State Endangered, ST - State Threatened, Ex - Extirpated, sc - State Species of Special Concern

According to regulations (6 NYCRR 193.3(f)), "It is a violation for any person, anywhere in the state to pick, pluck, sever, remove, damage by the application of herbicides or defoliants, or carry away, without the consent of the owner, of any protected plant. Each protected plant so picked, plucked, severed, removed, damaged, or taken away shall constitute a separate violation." Violators of the regulation are subject to fines of $25 per plant illegally taken. Due to the fact that plants growing on a piece of land are

considered the property of the landowner, it is possible for the landowner to pick, cut, damage, or otherwise destroy any plant growing on his or her own property, even a plant on the protected plant list.

Fir Clubmoss (*Huperzia selago*) – State Endangered

A specimen of fir clubmoss was collected from an exposed hillside in the town of Colton north of the Project Area. Fir clubmoss is a small, clump forming, evergreen that prefers cool, damp, shaded hillsides and is rarely found in wooded areas or swamps; however, regional differences in fir clubmoss habitat do exist. According to the NYSDEC Natural Heritage Program, preferred habitat consists mainly of open pastures and abandoned grazing lands (Young, 2005). This species does not generally occur in forested areas with closed canopy, which constitutes the highest percentage of upland and wetland vegetative covertypes within the Project Area. Areas of the ROW with a low percent cover of canopy trees, aside from mowed roadsides, are primarily areas disturbed by recent logging activities.

Subarctic Lady Fern (*Athyrium filix-femina*) – State Exploitably Vulnerable[1]

Subarctic lady fern inhabits moist woods, meadows, and stream banks. It is a cosmopolitan species occurring in both hemispheres from boreal regions to the tropics and is divisible into a number of geographic races (Gleason, 1952).

Subarctic lady fern is uncommon along the proposed ROW where it was observed at two locations during field delineation (Table 3.7-2). One location was unique to the Preferred Route and one location was common to both the Preferred and Alternate Routes. Both locations are classified as palustrine forested wetlands with a vegetation community characteristic of a red maple hardwood swamp.

Table 3.7-2: Protected Species Known to Occur in the Vicinity of the Tri-Lakes Reliability Project

Species	Common Name	NY Legal Status	Location (Route)	Occurring on ROW (Distance from ROW)
Documented in Natural Heritage Program Database				
Plants				
Huperzia selago	Fir Clubmoss	Endangered	Town of Colton	No
Wildlife				
Ophiogomphus anomalus	Extra-striped Snaketail	Unlisted, Special Concern	Raquette River at Moody Falls	No (0.11 miles)
Falcipennis canadensis	Spruce Grouse	Endangered	Sevey Bog (Preferred)	Yes
Falcipennis canadensis	Spruce Grouse	Endangered	E of Cook Corners (Alternate)	Yes
Falcipennis canadensis	Spruce Grouse	Endangered	NW of Piercefield (Preferred)	Yes
Gavia immer	Common Loon	Protected, Special Concern	Cook Pond	No (0.28 miles)
Gavia immer	Common Loon	Protected, Special Concern	Oswegatchie River Reservoir (Alternate)	Yes
Gavia immer	Common Loon	Protected, Special Concern	Piercefield Flow	No (0.28 miles)
Gavia immer	Common Loon	Protected, Special Concern	Jocks Pond	No (0.28 Miles)

Table 3.7-2: Protected Species Known to Occur in the Vicinity of the Tri-Lakes Reliability Project				
Species	**Common Name**	**NY Legal Status**	**Location (Route)**	**Occurring on ROW (Distance from ROW)**
Gavia immer	Common Loon	Protected, Special Concern	Stark Falls Reservoir	No (0.57 miles)
Haliaeetus leucocephalus	Bald Eagle	Threatened	Sols Island	No (0.38 miles)
Observed During Field Survey				
Plants				
Athyrium filix-femina	Subarctic Lady Fern	Exploitably Vulnerable[1]	(Preferred)	Yes
Chelone glabra	White Turtlehead	Exploitably Vulnerable[1]	(Preferred, Alternate)	Yes
Gentiana linearis	Narrow-Leaf Gentian	Exploitably Vulnerable[1]	(Preferred, Alternate)	Yes
Dryopteris intermedia	Evergreen Woodfern	Exploitably Vulnerable[1]	(Preferred, Alternate)	Yes
Ilex verticillata	Common Winterberry	Exploitably Vulnerable[1]	(Preferred)	Yes
Kalmia angustifolia	Sheep Laurel	Exploitably Vulnerable[1]	(Preferred, Alternate)	Yes
Lycopodium annotinum	Stiff Clubmoss	Exploitably Vulnerable[1]	(Preferred)	Yes
Lycopodium clavatum	Running Pine	Exploitably Vulnerable[1]	(Preferred)	Yes
Lycopodium obscurum	Tree Clubmoss	Exploitably Vulnerable[1]	(Preferred)	Yes
Osmunda cinnamomea	Cinnamon Fern	Exploitably Vulnerable[1]	(Preferred, Alternate)	Yes
Osmunda claytoniana	Interrupted Fern	Exploitably Vulnerable[1]	(Preferred, Alternate)	Yes
Osmunda regalis	Royal Fern	Exploitably Vulnerable[1]	(Preferred)	Yes
Thelypteris noveboracensis	New York Fern	Exploitably Vulnerable[1]	(Preferred)	Yes
Thelypteris simulata	Massachusetts Fern	Exploitably Vulnerable[1]	(Preferred)	Yes
Wildlife				
Accipiter cooperii	Cooper's Hawk	Special Concern	(Preferred)	Yes
Dendroica cerulea	Cerulean Warbler	Special Concern	(Alternate)	Yes

[1] Exploitably vulnerable listed species are native plants that are not necessarily rare or uncommon, but may be desirable for commercial use and could become rare, threatened, or endangered if subjected to unchecked commercial exploitation.

Evergreen Woodfern (*Dryopyteris intermedia)* – State Exploitably Vulnerable[1]

Evergreen woodfern is a characteristic dominant ground layer species of beech-maple mesic forests and hemlock-northern hardwood forests in New York State, where it prefers moist, shady woodlands (NYNHP, 2002). These covertypes contribute significantly to the vegetation community of the Project Area. Evergreen woodfern was encountered frequently during field delineation along both routes.

Common Winterberry (*Ilex verticillata*) – State Exploitably Vulnerable[1]

In the Adirondack region, common winterberry is an infrequently occurring shrub species found in swamps and wet hardwood forests (NYNHP, 2002). It prefers moist, organic soils with low canopy cover or light shade and is often associated with floodplain forest wetland communities. Common winterberry is an uncommon species in the Project Area and was only documented in two locations along the Preferred Route.

Sheep Laurel (*Kalmia angustifolia)* - State Exploitably Vulnerable[1]

Sheep laurel is a shrub species that occurs in a wide variety of habitats, but prefers acidic soils (Gleason, 1952). Its distribution includes New England and Great Lakes states south to Virginia as well as southeastern Canada. Sheep laurel was observed at six locations along both the Preferred and Alternate Routes during field delineation, and was often associated with areas containing low canopy cover and a groundlayer dominated by *Sphagnum* mosses.

White Turtlehead (*Chelone glabra*) – State Exploitably Vulnerable[1]

White turtlehead is widely distributed throughout the eastern United States and occurs in most of the counties of New York (New York Flora Association 2005). The species prefers wet wooded areas and swampy edges and was encountered adjacent to roadsides in scrub/shrub and emergent wetlands during field delineation efforts. White turtlehead is a strong growing plant that does well in high light and medium light conditions (National Park Service, 2004). These species were observed in wetlands along the Preferred and Alternate Routes.

Narrow-Leaf Gentian (*Gentiana linearis*) - State Exploitably Vulnerable[1]

Narrow-leaf gentian is distributed across most of the New England region of the United States, and in New York the species is found primarily within the Adirondacks with only occasional occurrences in other areas of the State (New York Flora Association 2005). It is a wetland obligate species that prefers wet woods and meadows (Gleason 1952) and has a tendency towards more open canopy boggy areas. A typical habitat of narrow-leaf gentian is an opening within a spruce-fir wetland, usually at higher elevations (The University of North Carolina, 2004). These species were observed in wetlands along the Preferred and Alternate Routes.

Stiff Clubmoss (*Lycopodium annotinum*) – State Exploitably Vulnerable[1]

The habitat of stiff clubmoss consists of cool, moist woods and bog margins in poorly drained, acidic soils. It is generally found in shaded sites but may establish in dry, exposed, rocky areas (Gleason, 1952). Stiff clubmoss is distributed throughout most of Canada and northeastern U.S. It was an uncommon species in the Project Area, where it was documented at one location along the Preferred Route.

Running Pine (*Lycopodium clavatum*) - State Exploitably Vulnerable[1]

Running pine has a circumpolar distribution and prefers open dry woods and rocky places in acidic soils and will establish in forest clearings (Gleason, 1952; Douglas *et al*. 1991). It is uncommon in the Project Area and only encountered on the Preferred Route.

Tree Clubmoss (*Lycopodium obscurum)* – State Exploitably Vulnerable[1]

Tree clubmoss has similar habitat requirements to stiff clubmoss, preferring moist wooded areas, thickets, and clearings with acidic soils (Borealforest.org, no date; Gleason, 1952). This species was also uncommon in the Project Area and only encountered at one location on the Preferred Route.

Cinnamon Fern (*Osmunda cinnamomea*) – State Exploitably Vulnerable[1]

Cinnamon fern occurs in North America from Newfoundland to western Ontario and south to the Gulf States and New Mexico. It is usually associated with *Sphagnum* moss in wet acid soils with high organic content, but is tolerant to open habitat. Cinnamon fern was more common on the low-disturbance site but survived on other sites (USDA, no date). Cinnamon fern is a common dominant species in wetland habitats in the Project Area. It was encountered exclusively in wetland sites along both the Preferred and Alternate Routes during field efforts.

Interrupted Fern (*Osmunda claytoniana*) – State Exploitably Vulnerable[1]

Interrupted fern occurs in moist, open canopy woods and along stream banks (Gleason, 1952) and also occurs along shaded roadsides (Connecticut Botanical Society, 2004). It is an uncommon species in the Project Area, where it was encountered on both the Preferred and Alternate Routes.

Royal Fern (*Osmunda regalis*) – State Exploitably Vulnerable[1]

Royal fern prefers swamps, bogs and moist woods with acidic soils (Gleason, 1952). It will tolerate full sun if the soil is moist (National Park Service, 2004). Royal fern was encountered in one location along the Preferred Route during field delineation efforts.

New York Fern (*Thelypteris noveboracensis*) – State Exploitably Vulnerable[1]

New York fern habitat consists of mixed woods with filtered light and swamp edges. It is shade tolerant, but will grow in canopy openings in hardwood forests. In the Adirondack region it grows on well drained to imperfectly-drained sites from 100 feet (30 meters) in elevation near Lake Champlain to 2,300 feet (701 meters) in the MacIntyre Range (USDA, no date). It is an uncommon species within the Project Area. During field delineation efforts, New York fern was observed in upland areas along the Preferred Route.

Massachusetts Fern (*Thelypteris simulata*) – State Exploitably Vulnerable[1]

Massachusetts fern prefers shady swamps and moist woods with acidic soils (Gleason 1952). There was one occurrence of Massachusetts fern located on the Preferred Route in a spruce-fir wetland.

3.7.2 Animals

3.7.2.1 Invertebrates

Extra-striped Snaketail (*Ophiogomphus anomalus*) – State Unlisted, Special Concern

The extra-striped snaketail is a dragonfly found mainly near fast-flowing, medium-sized, warm water streams (100 to 800 feet wide) with abundant gravel and excellent water quality in heavily forested watersheds. This species' distribution is dictated by the substrate requirements of the larval stage, as they need clean gravel of a certain size in well-aerated warm water streams. They are not found in streams with sediment-clogged gravel, reduced current, or in streams where the watershed is less than one-half to two-thirds forested. The extra-striped snaketail is considered globally rare and little is known of the adult life stage of the species (Steffens, 2001).

The Preferred Route is located approximately 0.11 miles from the Raquette River near Moody Falls. Preferred breeding habitat for this species contains clean gravel of a certain size in well-aerated warm water streams. They are not found in streams with sediment-clogged gravel or reduced current. Since a sufficient buffer exists between the Raquette River and the studied ROW at this location, increased sedimentation and alterations to existing flow rates would not be a factor.

3.7.2.2 Fish

Round Whitefish (*Prosopium cylindraceum*) – State Threatened

The round whitefish is a medium-sized fish, averaging 8-12 inches in length and occasionally reaching 22 inches. Its body shape is long and tubular with a nearly round midsection (hence its name). Its head is short and its mouth is small and inferior (snout extends beyond lower jaw). A single flap exists between the nostrils, distinguishing it from other whitefishes and ciscoes. The round whitefish is olive-brown on top shading to silver below. Young round whitefish have rows of black spots (called parr marks) similar to those of young trout and salmon.

Round whitefish spawn in the fall (November-December) over gravel shoals of lakes or at river mouths. The males arrive on the spawning grounds first. Eggs are broadcast over the shoals and the young hatch approximately 140 days later. The young reach 3-4.5 inches by the end of the first year of life. Both sexes become mature when they reach about 12 inches in length at age 3-4. Adult round whitefish rarely live longer than 13 years. Round whitefish are bottom feeders and consume a variety of invertebrates including mayfly larvae, chironomid larvae, small mollusks, crustaceans, fish, and fish eggs.

In North America, the round whitefish is found from Alaska in the northwest to Labrador and New England in the east. With the exception of Lake Erie, the round whitefish's distribution includes the Great Lakes. Many lakes in the Adirondacks historically contained this species; however, only seven New York State waters contain round whitefish populations today. Lake Ontario's population provides a limited commercial fishery in Ontario even today, but the last catch in New York State was 1942.

Once fairly common throughout the Adirondacks, the round whitefish could be found in about 60 different lakes including Big Tupper, Piseco, Big Wolf, Raquette, Blue Mountain, Meacham, and the Fulton Chain. Many lakes were stocked with hatchery-reared fry between 1886 and about 1904, but the consequences were uncertain. However, surveys conducted from 1985-1987 by New York State's Division of Fish and Wildlife could only find round whitefish populations in six Adirondack water bodies. Surveys conducted before 1979 found them in only 14 waters and surveys between 1979 and 1997 found them in only nine.

Possible reasons for the decline in round whitefish populations include: predation by invading yellow perch on whitefish eggs and fry; predation by smallmouth bass; competition with lake whitefish; overfishing; loss of spawning sites; siltation; and lake acidification. Some of these factors continue to pose a threat to remaining populations. Round whitefish are now protected from harvest or possession by the Endangered Species Law.

Lake Sturgeon (*Acipenser fulvescens*) – State Threatened

The lake sturgeon is one of New York's largest freshwater fish. Mature adults average between 3-5 feet in length and 10-80 pounds in weight, but can occasionally grow as large as 7+ feet and 300+ pounds. Primitive in appearance, the lake sturgeon has a torpedo-shaped body that is covered with five rows of bony plates: one on top and two rows along each side. The lake sturgeon has a sharp, cone-shaped snout with four smooth barbels on its underside; the anal (bottom rear) fin is not opposite the dorsal (back) fin, but rather it is closer to the caudal (tail) fin. The peduncle (part of the body between dorsal and caudal fins) is short. The top and side bony plates (called scutes) are the same color as the dull grey body and the peritoneum (body cavity lining) is black.

Lake sturgeon spawn in the spring from May-June. Prior to spawning, adult sturgeon form groups in deep holes near the spawning site. At this time, the sturgeon may perform "staging" displays that include rolling near the bottom then leaping out of the water to fall with a loud splash. Actual spawning takes place in areas of clean, large rubble such as along windswept rocky shores of islands and in rapids in streams. The eggs are scattered by currents and stick to rocks and logs. Young hatch out in 5-8 days and

grow rapidly, reaching 7.5 inches by the end of the first growing season. A mature female lake sturgeon may lay from 100,000-800,000 eggs during a single spawning season.

The lake sturgeon is one of the longest-lived and slowest to mature freshwater fish species. Female lake sturgeon do not reach sexual maturity until 14-23 years old and may live up to 80 years. Male lake sturgeon reach sexual maturity at 8-19 years old and can live to 55 years of age. In 1953, a 154-year old lake sturgeon was caught in Lake of the Woods, Canada, and weighted 208.5 pounds.

Lake sturgeon are bottom feeders. They use their barbels to locate food, then suck it into their mouths. They eat leeches, snails, clams, other invertebrates, small fish, and algae. Lake sturgeon primarily are found in freshwater lakes and large rivers in northeastern North America, but also occur in the brackish waters of Hudson Bay and the St. Lawrence River. In the United States, Alabama, Arkansas, Georgia, Iowa, Illinois, Indiana, Kansas, Kentucky, Louisiana, Missouri, Minnesota, Mississippi, Nebraska, New York, Ohio, Pennsylvania, South Dakota, Tennessee, Vermont, Wisconsin and West Virginia all have lake sturgeon populations. In New York, lake sturgeon have been collected in St. Lawrence River, Niagara River, Oswegatchie River, Grasse River, Lake Ontario, Lake Erie, Lake Champlain, Cayuga Lake, and in the Seneca and Cayuga canals.

The American Fisheries Society has listed the lake sturgeon as threatened in all the states where it occurs. Although it is difficult to determine the specific causes of lake sturgeon population declines, several contributing factors are over exploitation of stocks due to high demand for their eggs (caviar) and smoked flesh; construction of dams that cut off spawning and nursery areas; and possibly byproducts of urban and rural development such as pollution and channelization that caused degradation of habitat.

The NYSDEC is collecting biotic and abiotic data on lake sturgeon populations. NYSDEC has been using artificial propagation of this species to reestablish populations in selected tributaries of Lake Ontario and the St. Lawrence River, including the Oswegatchie River, Black Lake, the St. Regis River, Oneida Lake and Cayuga Lake. In 2004, 2,200 Lake sturgeon, measuring between 0.5 inches to 8 inches in total length, were released into the Raquette, St. Lawrence, and St. Regis rivers.

Eastern Sand Darter (*Ammocrypta pellucida*) – State Threatened

The eastern sand darter is a small fish, averaging 2.5 inches in length. It has a long, slender body that lacks scales on the belly. Its flesh is transparent and the upper portion of the body is fluorescent violet in color. A row of 10-17 dark spots is found along both sides of the fish, as well as along the top.

Little information is available on the biology of the eastern sand darter. This fish is thought to spawn beginning in May and possibly continuing into the fall. Tubercles (small bumps on fins that indicate spawning activity) have been observed on males in August. The eastern sand darter will frequently bury itself in the sandy bottom, leaving only its eyes exposed. This behavior helps the fish to hide from predators, to maintain its position in a fast-flowing stream section, and to ambush prey. Aquatic insects make up the bulk of the eastern sand darter's diet.

The eastern sand darter is found east of the Mississippi River in the states of Illinois, Kentucky, Indiana, Michigan, Ohio, West Virginia, Pennsylvania, and New York. In New York State, it occurs in six locations: the Metawee and Poultney Rivers near Lake Champlain, the St. Regis River and Salmon Rivers near Quebec and the Grasse River. The eastern sand darter occurs in streams that have a sand bottom, and are often found in habitats used by lake sturgeon.

The American Fisheries Society has listed the eastern sand darter as threatened in all the states where it occurs. The major cause of declines in eastern sand darter populations is loss of clean sandy substrate due to siltation. On some streams, the construction of dams led to fragmentation of sand darter populations. In addition, the impoundments created with the construction of these dams also act as settling basins that

aggravate siltation problems. Stream pollution and stream channelization have also caused loss of eastern sand darter habitat.

Mooneye (*Hiodon tergisus)* – State Threatened

The mooneye is a medium-sized fish, usually reaching 11-15 inches in length and one to two pounds in weight. It has a flattened slab-sided body that is silvery in color with several distinguishing characteristics including: large, prominent eyes; a short snout; smooth, rather than saw-edged, scales on the belly; and a small flap (called a pelvic axillary process) located just above the pelvic fin. In addition, the mooneye has teeth on the tongue and on the middle of the roof of the mouth.

The mooneye spawns in spring, migrating into medium to large-sized rivers from March through May to deposit its eggs. Females deposit approximately 10,000-20,000 gelatinous eggs over rocks in swift water areas. By the end of the first year, a mooneye grows to be four inches in length. In Lake Champlain, the mooneye reaches 12 inches in length by age eight. Preferred prey is composed of wide variety of organisms including insects, crustaceans, small fish, and mollusks.

The mooneye is found in waters from south-central Canada (Hudson Bay Basin) south through the Great Lakes Basin (except Lake Superior), the St. Lawrence River, and the Lake Champlain drainage basin. While the mooneye is thought to be extirpated from New York portions of Lake Ontario, there remains a modest population of this fish in Lake Champlain. There are also remnant populations in Black Lake, the Oswegatchie River, Lake Erie, the mouth of Cattaraugus Creek and the St. Lawrence River. The Allegheny River contained this fish before 1900. The mooneye prefers clear water habitat of large streams, rivers, and lakes.

Mooneye populations are decreasing both in numbers and in locations where they are found. While the exact causes of population declines are not known, it is due in part to increased siltation occurring in clear water areas where mooneye normally occur. NYSDEC will continue to protect the mooneye from harvest. In addition, NYSDEC will protect critical mooneye habitat as it becomes identified.

3.7.2.3 Birds

Spruce Grouse (*Falcipennis canadensis*) – State Endangered

Spruce grouse are distributed across northern North America primarily within coniferous boreal forests, with a preference for acid bogs dominated by an early to mid-stage spruce-fir community and an understory of young conifers, bog rosemary, blueberry, Labrador tea, leatherleaf, speckled alder, and sheep laurel. Males may be found seasonally in more mature forest stands with an open understory where they perform courtship displays. The population of spruce grouse within the Adirondack region began to decrease with the settlement of the area, with early declines being attributed chiefly to hunting and historical logging practices. Researchers at the State University of New York - College of Environmental Science and Forestry at Syracuse, who have been monitoring spruce grouse populations since the mid 1970s, estimate the state breeding population at 175-315 individuals (Andrle, R. and Carroll, J. 1988).

Spruce grouse prefer early to mid-successional stage coniferous forests of primarily spruce and fir, especially with an understory of blueberries and other ericaceous plants, with scattered openings of a few hundred square feet. Low, wetland areas are preferred as well. Their diet consists mostly of the needles and buds of spruce, fir, and pine. During summer months spruce grouse diet may also include berries, seeds, fruit, and insects. Egg laying begins in May and commences through early June with an incubation period of 17-24 days. The precocial young fledge rapidly and usually leave the nest by late July (NYSDEC, 2003).

The presence of spruce grouse was identified at three locations in the vicinity of the Project Area. Detailed habitat characterizations for each these locations are discussed below.

Sevey Bog – This area is located northwest of the community of Sevey Corners and is adjacent to the Preferred Route. Sevey Bog was designated a vital area by the Adirondack Council due to the rare mix of vegetation and the presence of unusual wildlife. Sevey Bog contains one of the highest spruce grouse populations in the State (The Adirondack Council, 2004). It can best be described as a fen and covers approximately 200 acres. The extensive bog mat is dominated by heath shrubs and sphagnum mosses, with no open pools of water. On-site delineation of wetlands within the ROW along the northern edge of Sevey Bog revealed that the ROW crosses a black spruce/tamarack wetland and transitional areas which is preferred spruce grouse breeding habitat. This has been monitored several times since 2000 and no spruce grouse or their sign have been observed (Johnson, 2005). It is currently considered unoccupied.

Dead Creek (west of Brandy Brook) – The Alternate Route intersects Dead Creek east of the town of Cook Corners. The habitat at this crossing consists of a shrub swamp associated with Dead Creek and an upland area classified as a Balsam Flat. Speckled alder, meadowsweet, and wild raisin dominate the shrub layer of the wetland, with uptight sedge dominant as groundcover. In the upland, the canopy contains balsam fir, white pine, and black cherry, with an understory of red maple saplings and wild raisin. This section of the studied ROW traverses potential spruce grouse breeding habitat. Spruce grouse were found at this location during surveys conducted in the late 1970s and 1985-1987. This site is continuous with a known site on Windfall Brook Site where spruce grouse were documented as recently as 2004 (Johnson, 2005).

Dead Creek (northwest of Piercefield) – Both the Preferred and Alternate Routes intersect Dead Creek northwest of the town of Piercefield. The wetland plant community covertype at this location is characterized as a combination alder thicket and tamarack swamp, with a 30 to 50-foot canopy consisting primarily of tamarack. Canopy coverage is approximately 50 to 60 percent, allowing for a somewhat dense shrub community (coverage: 50 percent, height 15 feet) dominated by speckled alder and an herbaceous layer of meadowsweet and goldenrod. The upland plant community within the studied ROW consists of a maintained roadside and an adjacent beech-maple forest with hobblebush and *Rubus spp.* as dominants in the shrub layer. At this location the studied ROW crosses a transitional zone between maintained roadside lawn and a wetland area that could potentially serve as spruce grouse breeding habitat. This site has been surveyed for spruce grouse in 2000, 2001, 2004, and 2005 (Johnson, 2005). Scant evidence was found only during one year and it is likely that this is a transient site that is not continuously occupied but receives some immigration from a known downstream site (Johnson, 2005).

Hollywood Club (west of the State Forest Preserve) – There are records of spruce grouse, not reported in the NHP database, in wetlands located between reference markers Alt3 and Alt4 on the Preferred Route west of the State Forest Preserve, however, the ROW will avoid this wetland and associated spruce grouse habitat (Johnson, 2005).

<u>Common Loon</u> (*Gavia immer*) – State Protected, Special Concern

The common loon's breeding distribution includes most of Northern North America where they nest on bodies of water large enough for displays, feeding, and nesting. Nest sites are often selected on islands or banks of lakes and ponds immediately adjacent to the water. Although somewhat infrequent in other areas of the state, the common loon is common in the Adirondack region during summer months. In 1984 and 1985, the NYSDEC conducted a field survey of 557 lakes, ponds, and reservoirs in the Adirondack region and counted 157 breeding pairs and 247 non-breeding adults (Trivelpiece *et al*. 1979). Despite the main factors that have contributed to historic common loon population decreases, such as boat activity and lake acidification, common loon populations in New York seem to be stable or increasing (NYSDEC, 2005).

Loon breeding habitat consists of large northern waterbodies (usually greater than 25 acres) of variable depth. They breed on islands or secluded shores, laying eggs between mid-May and June and fledging young by mid to late August. Due to morphological adaptations to an aquatic lifestyle common loons are

not able to walk on land or take off from land, therefore nests must be within a few feet of water deep enough for diving.

According to the Natural Heritage Program, a total of five common loons were identified as occurring in the vicinity of the Project Area. Four of these occurrences are 0.28 to 0.57 miles off the ROW. The common loon is also known to occur on the Oswegatchie Reservoir in proximity to the ROW. The reservoir consists of two large impoundments connected by a central creek approximately 200 feet (0.04 miles) wide and 4,000 feet (0.75 miles) long. The Alternate Route crosses the reservoir at the central creek. The habitat in the area of this crossing is not representative of preferred Loon nesting habitat due to the absence of large deep open water but the area may be used for foraging, nurseries and shelter after the young leave the nest.

Bald Eagle (*Haliaeetus leucocephalus*) – Federal and State Threatened

Inland breeding bald eagles prefer rivers and large lakes adjacent to open areas for nesting. While it is historically considered a rare breeder in the State of New York, the number of bald eagle nests observed has been showing an increasing annual trend, especially after the 1972 ban on the use of DDT. Bald eagles are monogamous breeders that will return to the same nesting territory each year. Nest site selection is strongly influenced by the height of the nest tree and the proximity of the nest to adequate foraging areas; therefore, nests are usually located immediately adjacent to water. A clutch of one to three eggs (usually two) is laid sometime between late winter and early spring, and incubation lasts 34 to 36 days. In New York, the young fledge by mid to late summer at about 12 weeks of age and are largely independent by 20 weeks (New York State Department of Environmental Conservation, 2003). The diet of adult bald eagles consists mainly of fish and other live prey including mammals and birds, however they will supplement their diet by scavenging carrion. Younger birds tend to rely more on scavenging.

The breeding distribution of bald eagles in New York consists mainly of concentrations along the Delaware and Hudson Rivers in the southeastern area of the state and scattered nesting in the Adirondacks and Finger Lakes regions. A total of 84 nesting pairs have been documented throughout the state (NYSDEC, 2004). During winter months, Bald eagles congregate at night roosts and feeding areas and will remain in an area as long as it maintains an adequate amount of open, ice-free water. One breeding pair of bald eagles has been observed in the vicinity of the ROW common to both the Preferred and Alternate Routes.

The bald eagle that occurs in the vicinity of the Project Area has established a nest on the southwest side of Sols Island, which is located approximately 2000 feet (0.38 miles), from State Route 3 just north of Piercefield. According to the USFWS, bald eagles require a protective zone of 1,500 feet from active nests to prevent construction activities from causing disturbance to nesting eagles or nest abandonment and all projects greater than 1500 feet from a bald eagle nest tree do not need Service review (USFWS, 2004). For this section, the Preferred and Alternate Routes is located on the western side of State Route 3 (opposite the road from the nest) and traverses largely deciduous and mixed upland forest. Also, there are forest and scrub/shrub wetland areas associated with Dead Creek which are crossed by the studied ROW. At this location there is a direct line of sight to the bald eagle nest, but it is located over 1,500 feet from the nest.

Cooper's Hawk (*Accipiter cooperii*) – State Special Concern

The Cooper's hawk has been documented across most of New York State, excluding Long Island. The breeding population is slowly increasing after reaching drastically reduced numbers in the early 1960s as a result of pesticide effects and persecution. The Cooper's hawk is best represented on the Appalachian Plateau, particularly in the Finger Lakes Highlands and along the great river valleys such as the Allegheny, Genesee, Chemung, and the east branch of the Susquehanna. It exists in lower numbers in the area of the 46 kV line, where nests are generally located in spruce-fir northern hardwood forests.

The breeding season of Cooper's hawks begins in late April with the incubation of four or five eggs. The young hatch after approximately three to four weeks and leave the nest about 30 days later. Adults usually build a new nest annually but may repair an old one or build on an old squirrel or crow nest. Cooper's hawks have a variable diet of poultry, songbirds, small mammals, and occasionally fish.

A Cooper's hawk was observed at one location on the Preferred Route during field survey efforts. The habitat in this area consists of a canopy with dominant red spruce, balsam fir, hemlock, sugar maple, and yellow birch. The understory contains hobblebush shrubs and beech saplings with an herbaceous layer of partridgeberry and evergreen woodfern. No nest was observed, however this area may provide potential Cooper's hawk breeding habitat.

Cerulean Warbler (*Dendroica cerulea*) – State Special Concern

The cerulean warbler is considered a habitat specialist, most often found near forested wetland areas or along lake and river shores with numerous tall trees. These strict habitat requirements contribute to a patchy distribution consisting of locally high populations in certain counties, but statewide the cerulean warbler is considered rare. The most significant breeding populations are located in NYSDEC Regions 3 and 8, with scattered nesting in other parts of the state, usually in areas associated with rivers and lakes. The diet of cerulean warblers consists mainly of insects and spiders.

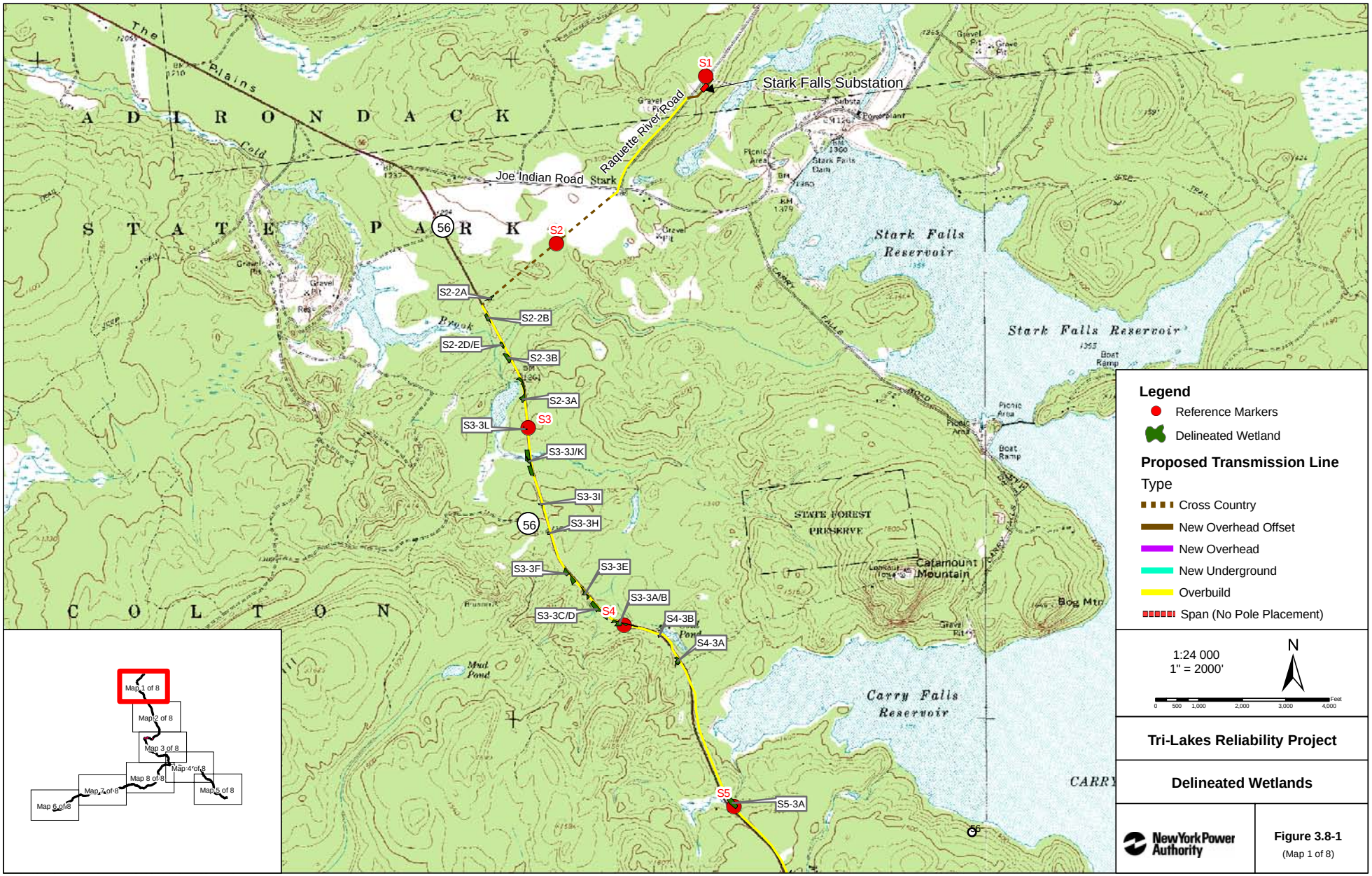
Most often observed in the canopy of tall deciduous trees, cerulean warblers build nests 30 to 60 feet above the ground. Nests of four eggs are incubated for 12 to 13 days in late May and June and the young leave the nest approximately 10 days after hatch. There was one observation of a cerulean warbler during field efforts on the Alternate Route.

3.8 Wetlands

The Tri-Lakes Reliability Project largely falls within the St. Lawrence River watershed, but portions also occur in the Oswegatchie and Black River watersheds. On a watershed basis wetlands cover 12.8 percent of the St. Lawrence watershed (Karasin *et al*., 2002), 15.2 percent of the area in the Oswegatchie and Black River watersheds (Roy *et al*., 1996). Wetlands within the St. Lawrence River watershed are ecologically unusual because of the concentration of large peatland complexes. This watershed contains nearly all the low elevation boreal habitat found in the Adirondack Park. Three quarters of the land in this watershed basin is wilderness, wild forest or resource management, resulting in large contiguous forest areas.

Wetlands within the Project Area were determined by either field delineation or aerial photo interpretation and are shown on Figure 3.8-1, Maps 1 through 8. The protocol for field delineation (see Appendix B) included methods described in the 1987 Corps of Engineers Wetlands Delineation Manual and the 1985 New York State Freshwater Wetlands Delineation Manual. Approximately 47 miles of the Preferred and Alternate Routes was field delineated. The remaining 8 miles represents inaccessible properties at the time of the field surveys. These areas were photo interpreted. Photo interpretation was accomplished using 1:200 scale color infra red aerial photography flown in 2003. Cover class for wetlands were based on the National Wetland Inventory classification hierarchy (Cowardin *et al*., 1979). Regardless of whether a wetland was field delineated or photo interpreted, cover classes were assigned by determining the most abundant cover class in the wetland. A wetland was assigned multiple cover classes if more than one class comprised at least 30 percent area coverage.

Cover classes for wetlands were based on the National Wetland Inventory classification hierarchy (Cowardin *et al*., 1979). According to Cowardin *et al*., the wetlands within the Project Area are part of the Palustrine system which includes wetlands dominated by trees, shrubs, persistent emergents, and emergent mosses or lichens which occur in nontidal or brackish water conditions. Within the Palustrine system there were four major classes. The classes are described in Cowardin *et al.* as follows:

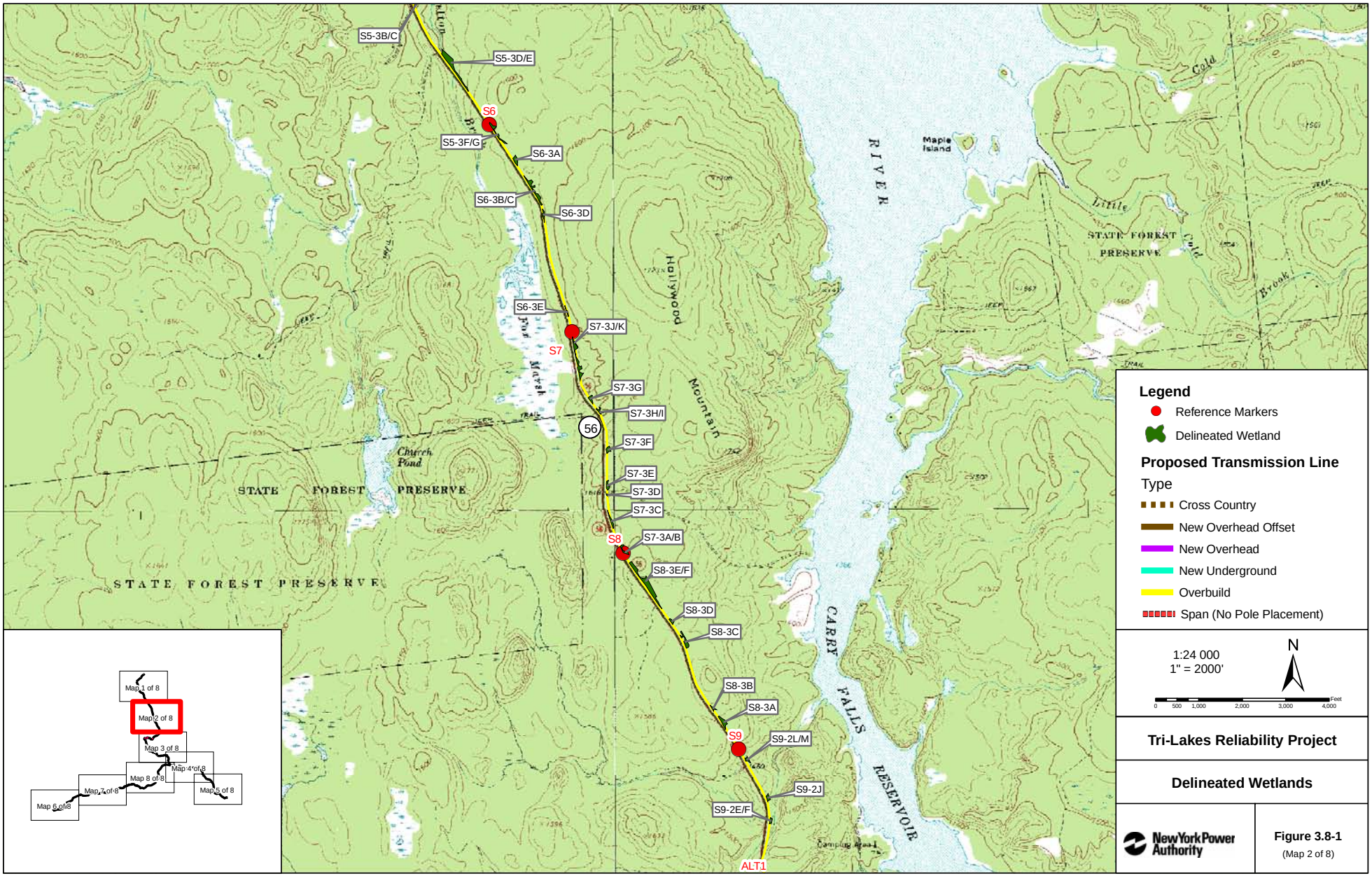


Tri-Lakes Reliability Project

Delineated Wetlands

New York Power Authority

Figure 3.8-1
(Map 1 of 8)

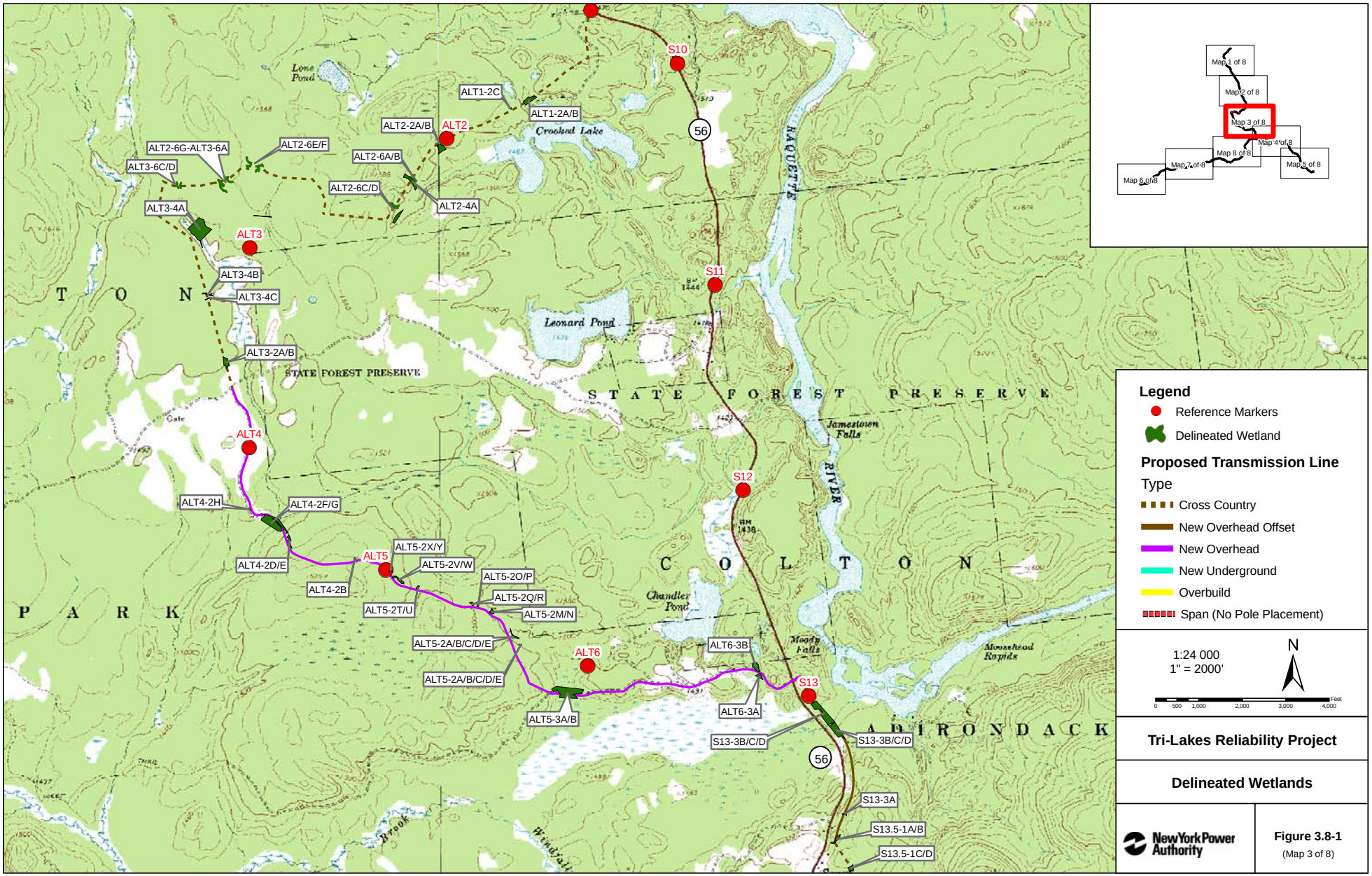


Tri-Lakes Reliability Project

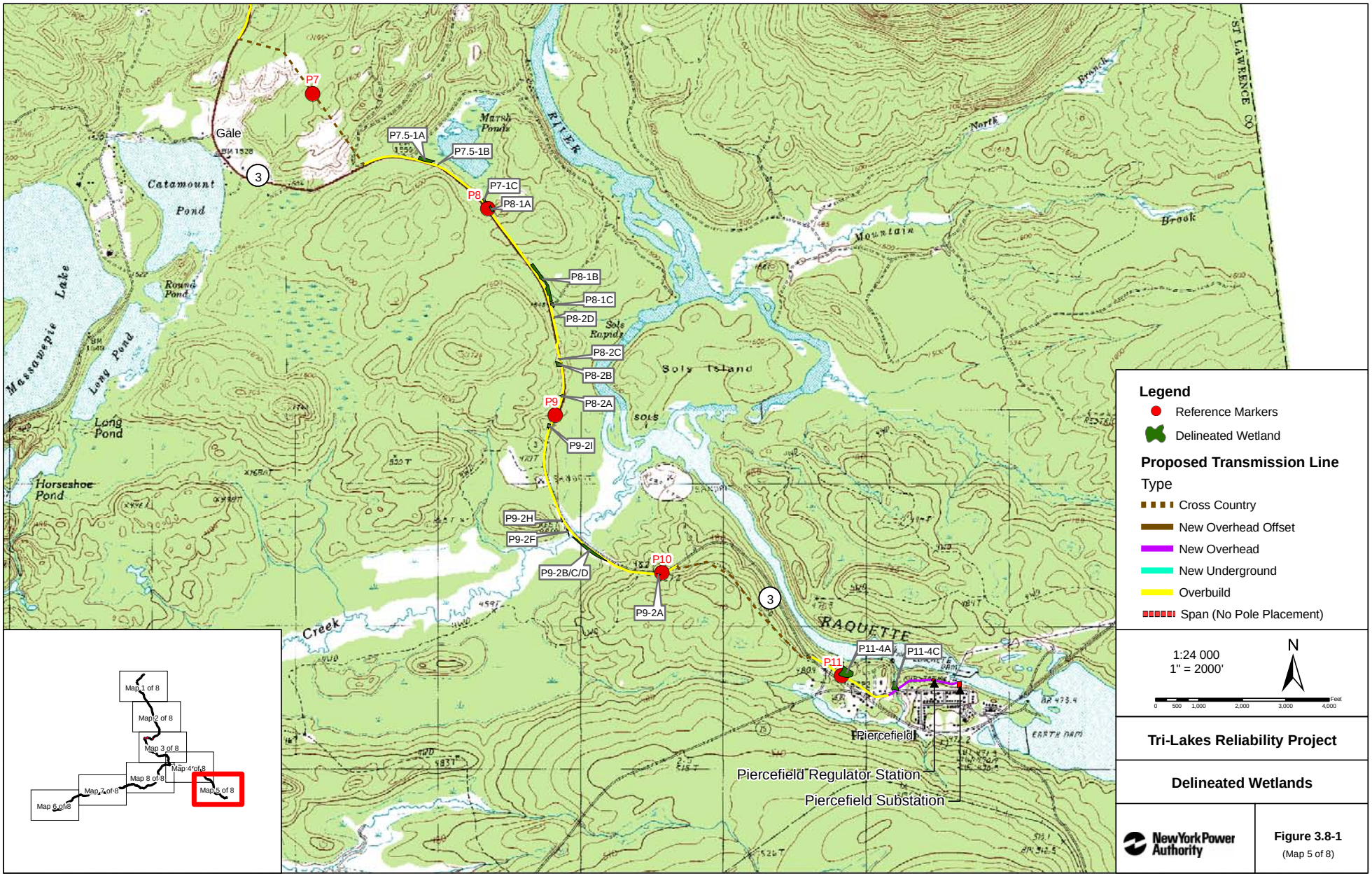
Delineated Wetlands

New York Power Authority

Figure 3.8-1
(Map 2 of 8)


Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
S10
S11
S12
S13
ALT1-2C
ALT1-2A/B
ALT2-2A/B
ALT2
ALT2-6G-ALT3-6A
ALT2-6E/F
ALT3-6C/D
ALT2-6A/B
ALT2-6C/D
ALT2-4A
ALT3-4A
ALT3
ALT3-4B
ALT3-4C
ALT3-2A/B
ALT4
ALT4-2H
ALT4-2F/G
ALT4-2D/E
ALT4-2B
ALT5
ALT5-2X/Y
ALT5-2V/W
ALT5-2O/P
ALT5-2Q/R
ALT5-2T/U
ALT5-2M/N
ALT5-2A/B/C/D/E
ALT5-2A/B/C/D/E
ALT5-3A/B
ALT6
ALT6-3B
ALT6-3A
S13-3B/C/D
S13-3B/C/D
S13-3A
S13.5-1A/B
S13.5-1C/D
Lone Pond
Crooked Lake
Leonard Pond
Chandler Pond
Jamestown Falls
Moody Falls
Moosehead Rapids
RAQUETTE
RIVER
STATE FOREST PRESERVE
STATE FOREST PRESERVE
T O N
C O L T O N
P A R K
A D I R O N D A C K
56
56
Legend
Reference Markers
Delineated Wetland
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
0 500 1,000 2,000 3,000 4,000 Feet
Tri-Lakes Reliability Project
Delineated Wetlands
New York Power Authority
Figure 3.8-1
(Map 3 of 8)

S13
S13-3B/C/D
56
S13-3A
S13.5-1A/B
S13.5-1C/D
S14
S13.5-1E/F
56
Sevey Corners
3
P1-3E
P2
P1-3A/B
P1-3C/D
P2-3A/B/C
P2-3F/G
P2-3H/I/J
P2-3E
P2-3K
P3-1A/B/C
3
Childwood
P6
P6-3A
P5-3A/B
P6-3B/C
3
Gale
Catamount Pond
ADIRONDACK STATE PARK
PIERCEFIELD
Moosehead Rapids
Moosehead Mtn
Lookout Tower
Sevey Pond
Jocks Pond
Hedgehog Hill
Windfall
Smith
Lily Pad Bk
Turtle Brook
Outlet
Camp Massawepie
Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
Legend
Reference Markers
Delineated Wetland
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
Feet
0 500 1,000 2,000 3,000 4,000
Tri-Lakes Reliability Project
Delineated Wetlands
New York Power Authority
Figure 3.8-1
(Map 4 of 8)

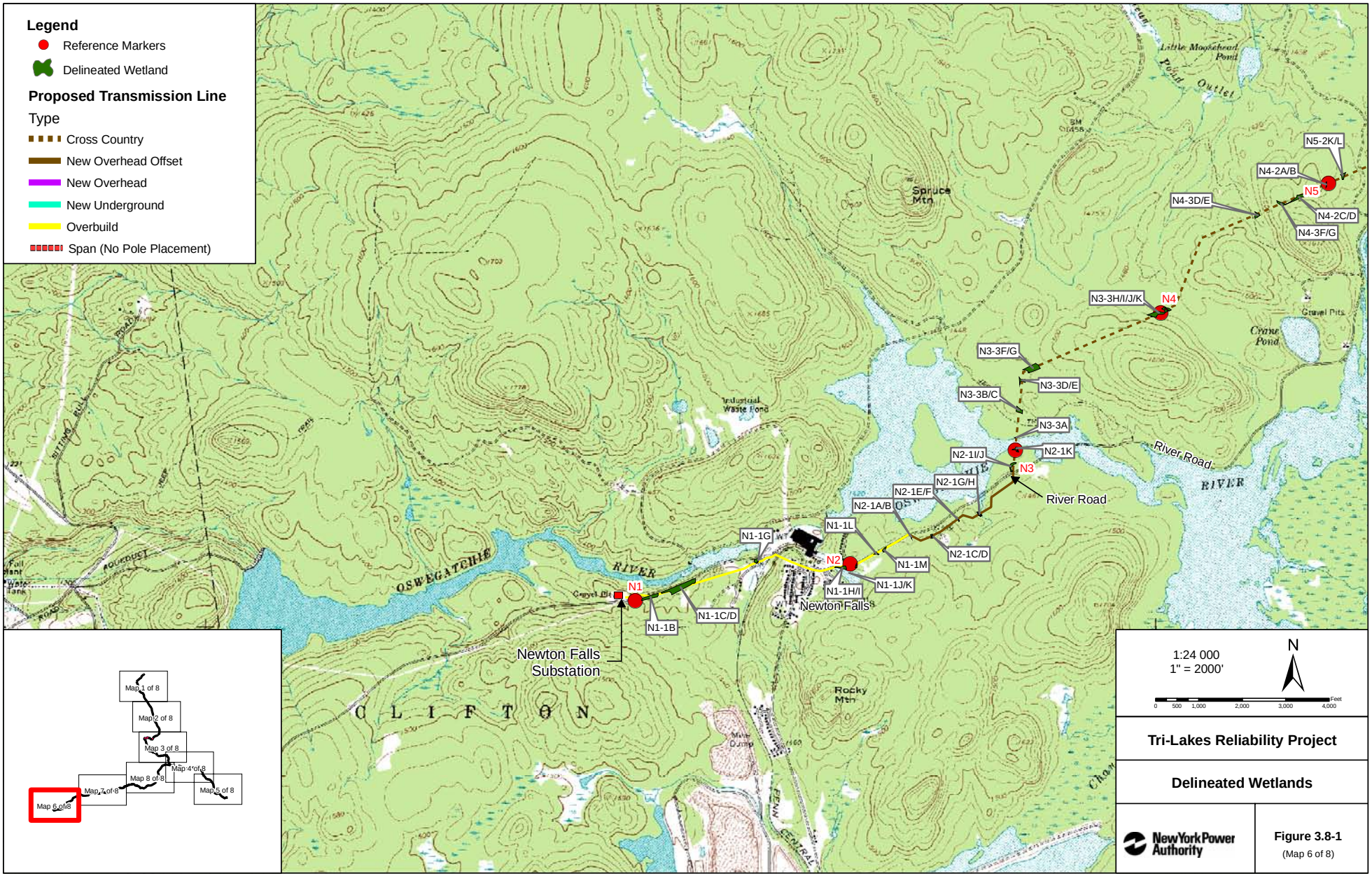


Tri-Lakes Reliability Project

Delineated Wetlands

New York Power Authority

Figure 3.8-1
(Map 5 of 8)

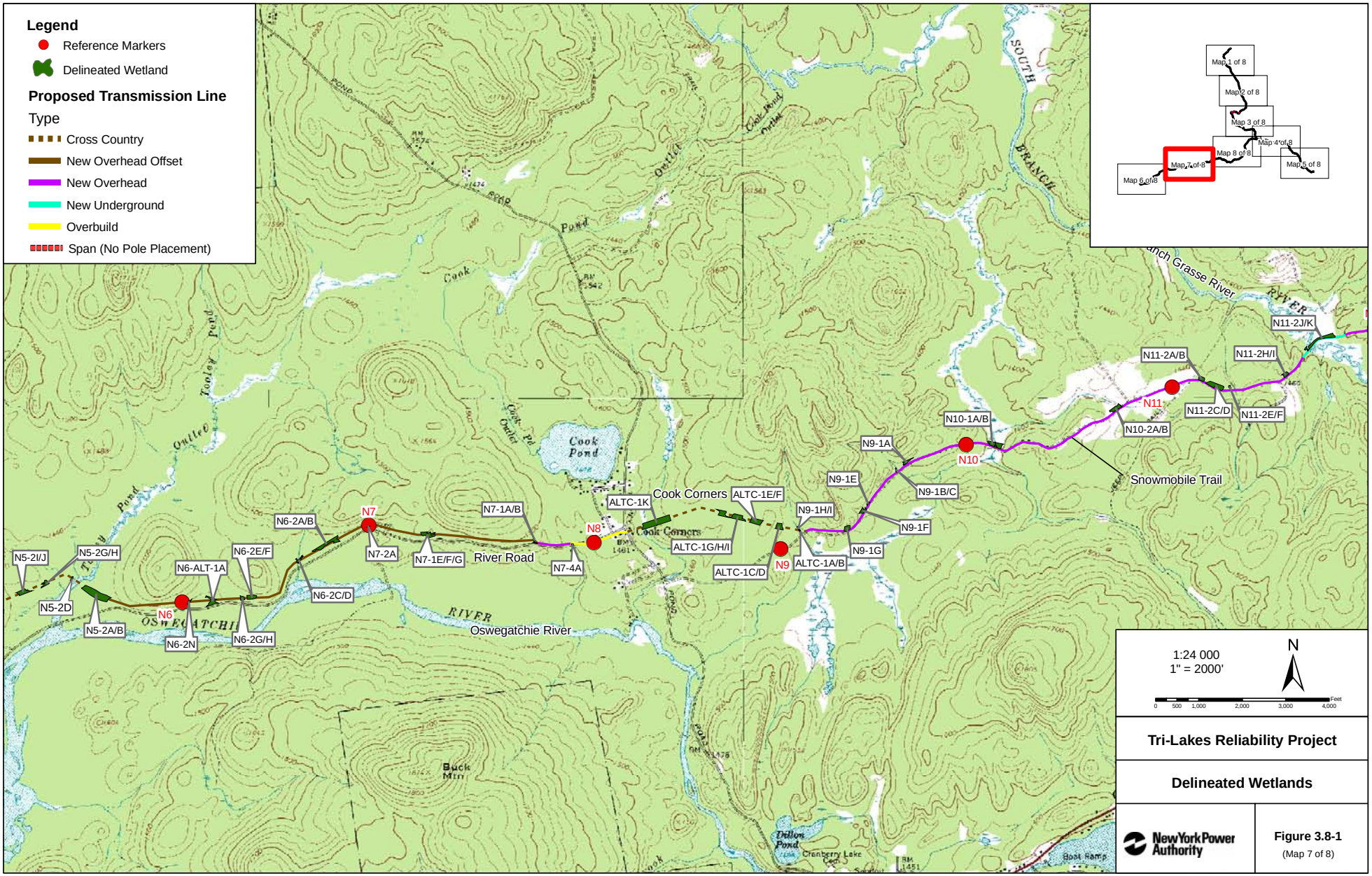


Tri-Lakes Reliability Project

Delineated Wetlands

New York Power Authority

Figure 3.8-1
(Map 6 of 8)

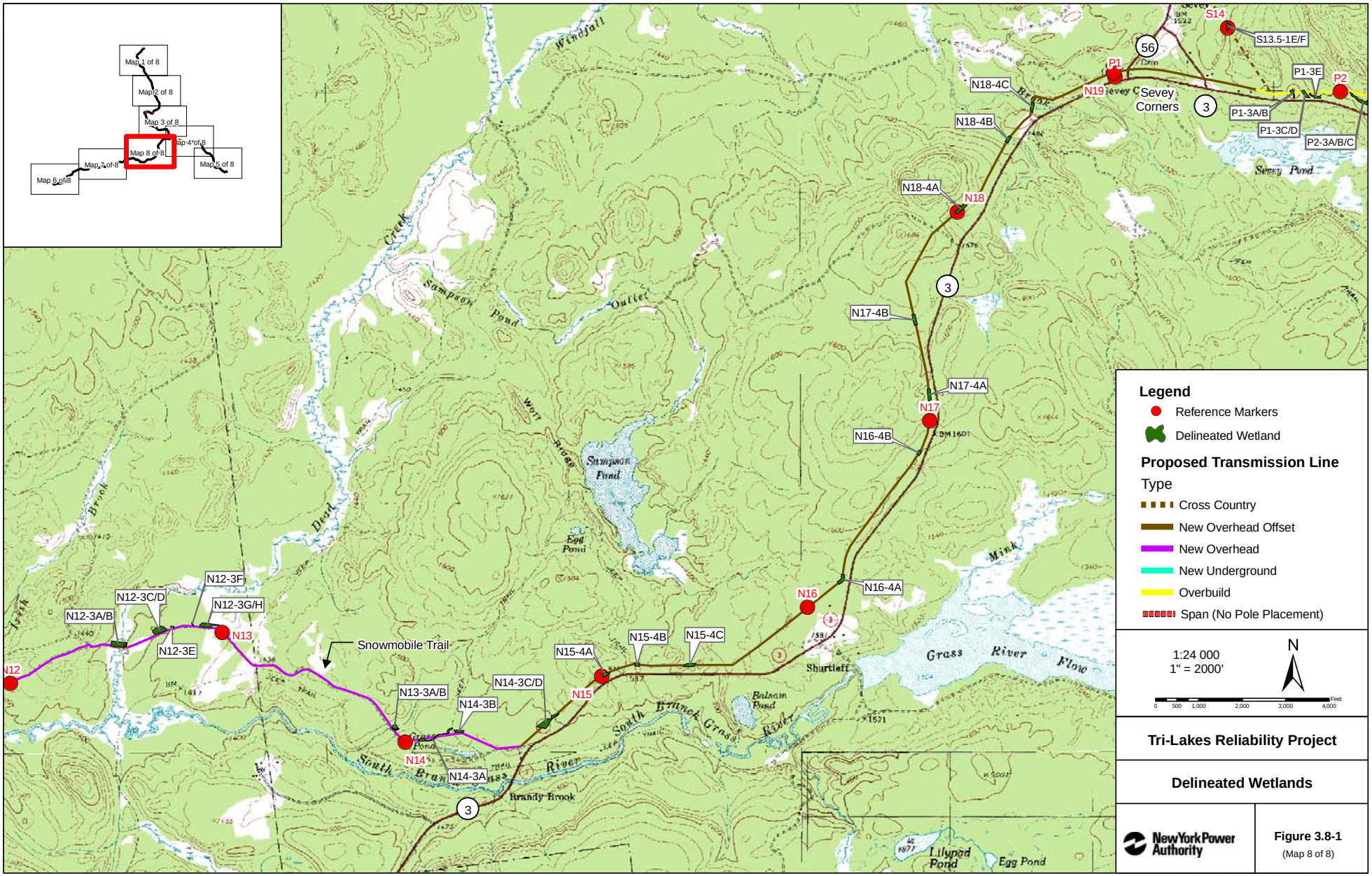


Tri-Lakes Reliability Project

Delineated Wetlands

New York Power Authority

Figure 3.8-1
(Map 7 of 8)


Map 1 of 8
Map 2 of 8
Map 3 of 8
Map 4 of 8
Map 5 of 8
Map 6 of 8
Map 7 of 8
Map 8 of 8
S14
S13.5-1E/F
56
P1
N19
Sevey Corners
3
P1-3E
P2
P1-3A/B
P1-3C/D
P2-3A/B/C
N18-4C
N18-4B
N18-4A
N18
N17-4B
N17-4A
N17
N16-4B
N16-4A
N16
N15-4B
N15-4C
N15-4A
N15
N14-3C/D
N14-3B
N14-3A
N14
N13-3A/B
N13
N12-3F
N12-3C/D
N12-3G/H
N12-3A/B
N12-3E
N12
Snowmobile Trail
Windfall
Sampson Pond
Outlet
Wolf Ridge
Egg Pond
Dead
Brook
Trout
Mink
Shurtleff
Balsam Pond
Grass River Flow
South Branch Grass River
Brandy Brook
Lilypad Pond
Egg Pond
Sevey Pond
Legend
Reference Markers
Delineated Wetland
Proposed Transmission Line
Type
Cross Country
New Overhead Offset
New Overhead
New Underground
Overbuild
Span (No Pole Placement)
1:24 000
1" = 2000'
N
0 500 1,000 2,000 3,000 4,000 Feet
Tri-Lakes Reliability Project
Delineated Wetlands
NewYorkPower Authority
Figure 3.8-1
(Map 8 of 8)

Forested Wetland (PFO) – Forested Wetland is characterized by woody vegetation that is 18 feet or taller. They normally possess an overstory of trees, an understory of young trees or shrubs, and a herbaceous layer.

Scrub-Shrub Wetland (PSS) – The Scrub-Shrub Wetland includes areas dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees or shrubs that are small or stunted because of environmental conditions and a herbaceous layer. They may represent a successional stage leading to Forested Wetland, or they may be relatively stable communities.

Emergent Wetland (PEM) – The Emergent Wetland class is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. The vegetation is present most of the growing season in most years. These wetlands are usually dominated by perennial plants. Emergent wetlands maintain the same appearance year after year.

Open Water (POW) – Although not described in Cowadin *et al.*, as a separate class, this designation is used in characterizing wetland areas. Open Water refers to land below the mean high water associated with ponds and rivers within the Project Area. The nearshore areas oftentimes include shrubs and emergent vegetation. In deeper water, the vegetation may include floating and submerged vegetation such as duckweed and pondlillies. In some locations there is no visible vegetation present.

Regardless of whether a wetland was field delineated or photo interpreted, cover classes were assigned by determining the most abundant cover class in the wetland. A wetland was assigned multiple cover classes if more than one class comprised at least 30 percent areal coverage. A summary of wetlands crossings by cover class for both the Preferred and Alternate Routes is displayed in Table 3.8-1.

Table 3.8-1: Summary Wetlands Crossings by Cover Class

Cover Class	Preferred Route		Alternate Route	
	Linear Feet	Acres	Linear Feet	Acres
PFO	6,498	6.6	5,028	6.1
PSS	1,600	1.4	3,341	3.7
PEM	2,510	1.3	1,548	1.8
POW	43	0.03	0	0
PFO/PSS	856	0.7	1,924	2.6
PFO/PEM	3,543	3.3	1,267	2.0
PSS/PEM	506	0.20	2,055	1.9
PFO/PSS/PEM	127	0.20	1,443	2.0
POW/PEM	0	0	0	0
Total	683	13.7	16,605	20.2

Wetlands comprise approximately 11 percent of the proposed Project Area. Individual wetlands within the Project Area range in size from small isolated pockets to large complexes of bog, shrub swamp, forested swamp, and emergent marshes. Palustrine wetlands most typically consisted of red maple hardwood swamp, alder-dogwood shrub swamp, and shallow emergent marsh cover types or communities.

The delineation and assessment of impacts to wetlands were divided into three segments: Stark Falls to Sevey Corners (Preferred Route), Newton Falls to Sevey Corners (Alternate Route), and Sevey Corners to Piercefield (common to both routes). Wetland crossings were expressed in acres of new ROW or linear feet (Table 3.8-2). Acreage of wetland refers to the amount of wetland impacted by either the Preferred Route or Alternate Route or both routes and was determined by directly measuring the area of the wetlands within the proposed ROW. Those impacts are primarily associated with vegetation clearing necessary to construct the facility and to maintain a ROW that allows work crews to repair structures and provide regular service maintenance. In these instances, clearing is removing tree canopy and some of the

shrub layer but typically leaving the lower growing forbs and herbaceous plants. In locations where the proposed 46 kV does not follow an existing distribution line, a new 75-foot ROW will be cleared. Therefore, in those instances, the entire 75-foot width was considered affected (crossing) and the length of the crossing was multiplied by the width to determine aerial extent expressed in acreage. It was assumed that along existing distribution lines ROW is already cleared and maintained on a regular basis by Niagara Mohawk, typically 12.5 feet on either side of the centerline of the existing ROW. The addition of the 46 kV line (overbuild) would require an additional 25 feet of clearing beyond the 12.5 feet on either side to maintain a 75-foot ROW. In these situations only the new clearing (beyond the 12.5 feet on either side of the centerline) was considered a new impact to wetlands and is presented in Table 3.8-2. Linear feet in Table 3.8-2 represents the length of the new 46 kV line crossing within each wetland area and is used only as a descriptor and not representative of actual wetland impacts.

The Preferred Route crosses 97 wetlands totaling 15,683 linear feet and occupying a total of 13.7 acres of the ROW (Tables 3.8-1 and 3.8-2). Approximately 48 percent (6.6 acres) of wetlands crossed by the ROW is classified as forested (PFO) (Table 3.8-1); although additional wetlands contained forested components in combination with scrub shrub and/or emergent cover classes as discussed below and are not included in this number. The forested wetland class occupies the greatest percentage of wetland cover along the Preferred Route and includes balsam fir-tamarack (21 percent or 3.4 acres), spruce fir swamp (8 percent or 1.1 acres) red maple hardwood swamp (7 percent or 1.0 acres), and black spruce-tamarack bog (5 percent or 0.6 acres).

Emergent wetlands constitute approximately 9 percent of the total wetland cover of the Preferred Route, and occupy a total area of 1.3 acres of the ROW. These wetlands are dominated by persistent and non-persistent grasses, rushes, sedges, and forbs. Shallow emergent marsh and wet meadow are the most abundant cover types of emergent marsh along the Preferred Route; however, this may under-represent the actual amount of emergent wetlands, as emergent wetlands are commonly found in combination with forested wetland areas. As a result, there is a relatively high percentage of wetlands along this route that are classified as forested/emergent (24 percent or 3.3 acres). Forested/emergent wetlands are typical of areas with breaks in canopy coverage as a result of beaver activity, downed trees associated with shallow root systems, and forest edge related to streams or human disturbance, where there is sufficient light to support emergent vegetation.

Scrub-shrub wetlands occurring within the ROW along the Preferred Route are also frequently found in association with forested wetland cover types such as tamarack swamps and spruce-fir swamps. Less than 1 percent of the scrub-shrub wetlands along this route are found in combination with emergent communities. A total of 1,600 linear feet of wetlands, comprising 1.43 acres, are classified as scrub-shrub with no forest community. These areas are characteristic of shrub swamp/alder thicket communities that contain shrubs and sapling-age tree species that do not exceed 20-feet in height.

The ROW following the Alternate Route crosses more wetland complexes (103) than the Preferred Route and results in a greater linear crossing distance of 16,605 feet and occupies an area of 20.2 acres in new ROW. Total forested wetland crossings along this route is less compared to the Preferred Route (5,028 linear feet or 6.1 acres) while forested/scrub-shrub and forested/scrub-shrub emergent complexes are higher (1,924 linear feet or 2.6 acres) and (1,443 linear feet or 2.0 acres), respectively. Common forested wetland cover types along the Alternate Route are spruce-fir swamp and red maple hardwood swamp. Shrub swamp/alder thicket wetlands are the most commonly crossed community within the scrub-shrub cover class along the Alternate Route.

Table 3.8-2: Wetlands Crossings						
ID	**Route[1]**	**Class**	**Covertype[2]**	**Overall Functions/ Values Score[3]**	**Average Crossing Length (Feet)**	**Acres of New ROW**
Stark Falls Segment						
S2-2A	P	PFO/PEM	spruce-fir swamp	2	103	0.08
S2-2B	P	PFO/PSS	balsam fir bog	2	171	0.11
S2-2D/E	P	PSS	alder thicket	3	124	0.08
S2-3A	P	PFO/PEM	spruce-fir swamp/shallow emergent marsh	2	293	0.20
S2-3B	P	PFO	spruce-fir swamp	4	161	0.10
S3-3A/B	P	PFO	red maple hardwood swamp	2	228	0.20
S3-3C/D	P	PFO	red maple hardwood swamp	2	427	0.26
S3-3E	P	PFO	red maple hardwood swamp	2	164	0.09
S3-3F	P	PFO	emergent meadow/mixed forest	3	273	0.19
S3-3H	P	PFO/PEM	red maple hardwood swamp/shallow emergent marsh	1	36	0.02
S3-3I	P	PEM	shallow emergent marsh	2	11	0.01
S3-3J/K	P	PFO/PSS	spruce-fir swamp	2	307	0.30
S3-3L	P	PEM	shallow emergent marsh	2	10	0.00
S4-3A	P	PFO	red maple hardwood swamp	2	160	0.09
S4-3B	P	PFO	red maple hardwood swamp	2	60	0.01
S5-3A	P	PSS	dead snags	2	241	0.19
S5-3B/C	P	PEM	floodplain forest	2	20	0.01
S5-3D/E	P	PFO	floodplain forest	2	717	0.49
S5-3F/G	P	PFO/PEM	emergent meadow/mixed forest	1	357	0.17
S6-3A	P	PFO/PEM	emergent meadow/coniferous forest	2	162	0.11
S6-3B/C	P	PFO/PEM	emergent meadow/coniferous forest	2	353	0.27
S6-3D	P	PEM	wet meadow	2	138	0.07
S6-3E	P	PEM	wet meadow	2	37	0.00
S7-3A/B	P	PEM	wet meadow	2	666	0.35
S7-3C	P	PEM	wet meadow	2	202	0.11
S7-3D	P	PEM	disturbed field/graded wetland	2	31	0.02
S7-3E	P	PEM	wet meadow	2	117	0.09
S7-3F	P	PSS	graded roadside ditch	3	105	0.08
S7-3G	P	PEM	graded roadside ditch	2	92	0.08

Table 3.8-2: Wetlands Crossings						
ID	Route[1]	Class	Covertype[2]	Overall Functions/ Values Score[3]	Average Crossing Length (Feet)	Acres of New ROW
S7-3H/I	P	PFO	maple-aspen-hemlock	2	87	0.05
S7-3J/K	P	PEM	wet meadow	2	571	0.07
S8-3A	P	PEM	wet meadow	2	202	0.16
S8-3B	P	PEM	wet meadow	2	46	0.04
S8-3C	P	PFO/PEM	wet meadow/coniferous forest	2	125	0.08
S8-3D	P	PFO/PEM	wet meadow/coniferous forest	2	126	0.08
S8-3E/F	P	PFO/PEM	wet meadow/coniferous forest	2	816	0.60
S9-2E/F	P	PFO	spruce-fir swamp	3	122	0.08
S9-2J	P	PFO/PEM	maple-fir-black spruce	1	84	0.06
S9-2L/M	P	PFO	mixed conifers	4	66	0.04
ALT1-2A/B	P	PFO/PEM	spruce-fir swamp	2	253	0.44
ALT1-2C	P	PEM	red maple hardwood swamp	2	11	0.00
ALT2-2A/B	P	PEM	shallow emergent marsh	2	40	0.06
ALT2-6A/B	P	PFO/PEM	shallow emergent marsh	2	58	0.10
ALT2-6C/D	P	PFO/PEM	spruce-fir swamp	2	32	0.05
ALT2-6E/F	P	PFO/PEM	spruce-fir swamp	2	195	0.34
ALT2-6G/ALT3-6A	P	PFO/PEM	spruce-fir swamp	2	168	0.29
ALT3-6C/D	P	PEM	shallow emergent marsh	2	63	0.11
ALT3-4B	P	PFO/PSS	black-spruce-tamarack bog	1	23	0.04
ALT3-4C	P	PFO/PSS	black-spruce-tamarack bog	1	16	0.03
ALT3-2A/B	P	PFO/PEM	black-spruce-tamarack bog	1	195	0.06
ALT4-2B	P	PEM	successional red maple hardwood swamp	2	16	0.00
ALT4-2D/E	P	PFO/PEM	spruce-fir swamp	2	89	0.01
ALT4-2F/G	P	PFO	spruce-fir swamp	2	394	0.63
ALT4-2H	P	PFO	black spruce-tamarack bog	2	53	0.03
ALT5-2A through K	P	PFO/PSS/PEM	northern white cedar swamp/shrub swamp	1	18	0.01
ALT5-2M/N	P	PSS/PEM	yellow birch-sphagnum bog peatland	1	71	0.01
ALT5-2O/P	P	PFO/PEM	yellow birch-sphagnum bog peatland	1	32	0.01
ALT5-2Q/R	P	PFO/PEM	hemlock-hardwood swamp	1	22	0.00
ALT5-2T/U	P	POW	spruce-fir swamp	2	43	0.03

Table 3.8-2: Wetlands Crossings						
ID	Route[1]	Class	Covertype[2]	Overall Functions/ Values Score[3]	Average Crossing Length (Feet)	Acres of New ROW
ALT5-2V/W	P	PFO/PEM	successional red maple hardwood swamp	1	35	0.02
ALT5-2X/Y	P	PFO	red maple hardwood swamp	2	32	0.00
ALT5-3A/B	P	PFO	black spruce-tamarack bog	1	388	0.61
ALT6-3A	P	PFO/PSS	tamarack swamp	2	68	0.02
ALT6-3B	P	PSS	shrub swamp	2	70	0.06
S13-1A/B	P	PFO	hemlock-hardwood swamp	3	84	0.14
S13-1C/D	P	PFO/PEM	hemlock-hardwood swamp/emergent marsh	2	88	0.15
S13-1E/F	P	PFO/PEM	hemlock-hardwood swamp/emergent marsh	2	88	0.15
S13-3A	P	PFO	shrub swamp	4	33	0.06
S13-3B/C/D	P	PFO	balsam fir-tamarack swamp	2	929	1.61
Piercefield Segment						
P1-3A/B	P/A	PFO/PSS	balsam fir-tamarack swamp	2	65	0.08
P1-3C/D	P/A	PSS	shrub swamp	3	80	0.09
P1-3E	P/A	PFO/PSS	red maple hardwood swamp	2	32	0.01
P2-3A/B/C	P/A	PFO/PSS	red maple hardwood swamp	2	30	0.01
P2-3F/G	P/A	PFO/PSS	red maple hardwood swamp	2	40	0.04
P2-3H/I/J	P/A	PSS	disturbed/brushy cleared land	3	181	0.22
P2-3K	P/A	PSS	forest edge/mowed right-of-way	3	192	0.24
P3-1A/B/C	P/A	PFO	balsam fir-tamarack swamp	2	1061	1.19
P5-3A/B	P/A	PSS/PEM	shrub swamp	2	11	0.01
P6-3A	P/A	PFO	brushy cleared land	4	77	0.06
P6-3B/C	P/A	PFO	red maple hardwood swamp	2	448	0.30
P7-1A	P/A	PSS/PEM	shrub swamp	2	319	0.13
P7-1B	P/A	PSS/PEM	shrub swamp	2	2	0.00
P7-1C	P/A	PSS/PEM	shrub swamp	2	85	0.03
P8-1A	P/A	PEM	emergent marsh	2	141	0.04
P8-1B	P/A	PFO	spruce-fir swamp	3	451	0.30
P8-1C	P/A	PFO	spruce-fir swamp	4	57	0.02
P8-2A	P/A	PFO/PEM	shallow emergent marsh	2	29	0.01
P8-2B	P/A	PEM	shallow emergent marsh	2	62	0.05

Table 3.8-2: Wetlands Crossings						
ID	Route[1]	Class	Covertype[2]	Overall Functions/ Values Score[3]	Average Crossing Length (Feet)	Acres of New ROW
P8-2C	P/A	PFO	not recorded	3	26	0.00
P8-2D	P/A	PSS/PEM	shrub swamp	2	19	0.01
P9-2A	P/A	PEM	shallow emergent marsh	2	33	0.02
P9-2B/C/D	P/A	PSS	alder thicket/tamarack swamp	3	514	0.45
P9-2F	P/A	PSS	alder thicket	3	7	0.00
P9-2H	P/A	PSS	alder thicket/willow	3	84	0.03
P9-2I	P/A	PFO/PSS	spruce-fir swamp	2	104	0.06
P11-4A	P/A	PFO/PSS	red maple hardwood swamp	3	171	0.15
P11-4C	P/A	PFO/PSS/PEM	red maple hardwood swamp/emergent marsh	3	57	0.09
Newton Falls Segment						
N1-1A	A	PSS	shrub swamp	2	35	0.04
N1-1B	A	PSS/PEM	shrub swamp	2	353	0.28
N1-1C/D	A	PSS/PEM	shrub swamp	2	568	0.66
N1-1G	A	PSS	shrub swamp	3	60	0.05
N1-1H/I	A	PEM	emergent marsh	2	127	0.09
N1-1J/K	A	PEM	emergent marsh	2	11	0.01
N1-1L	A	PFO/PEM	red maple hardwood swamp/emergent marsh	1	39	0.02
N1-1M	A	PEM	emergent marsh	2	53	0.04
N2-1A/B	A	PFO	beech-maple	2	9	0.01
N2-1C/D	A	PFO	red maple hardwood swamp	2	41	0.07
N2-1E/F	A	PFO	red maple hardwood swamp	2	21	0.03
N2-1G/H	A	PSS	shrub swamp	3	28	0.05
N2-1I/J	A	PFO	red maple hardwood swamp	2	61	0.09
N2-1K	A	PSS	red maple hardwood swamp	2	43	0.07
N3-3A	A	PFO	beech-maple	2	10	0.02
N3-3B/C	A	PFO	spruce-fir swamp	4	90	0.15
N3-3D/E	A	PFO	red maple hardwood swamp	2	45	0.07
N3-3F/G	A	PFO	spruce-fir swamp	4	301	0.51
N3-3H/I/J/K	A	PFO/PEM	red maple hardwood swamp/shallow emergent marsh	1	297	0.53
N4-2A/B	A	PFO	red maple hardwood swamp	2	12	0.02

Table 3.8-2: Wetlands Crossings						
ID	Route[1]	Class	Covertype[2]	Overall Functions/ Values Score[3]	Average Crossing Length (Feet)	Acres of New ROW
N4-2C/D	A	PFO/PEM	maple-birch-hemlock	1	198	0.24
N4-3D/E	A	PFO	red maple hardwood swamp	2	67	0.11
N4-3F/G	A	PFO	red maple hardwood swamp	2	78	0.13
N5-2A/B	A	PFO/PEM	spruce-fir swamp	2	640	1.10
N5-2D	A	PFO/PSS/PEM	spruce-fir swamp	2	32	0.06
N5-2G/H	A	PFO/PSS	hemlock-hardwood swamp	2	88	0.16
N5-2I/J	A	PFO	spruce-fir swamp	4	223	0.38
N5-2K/L	A	PFO/PEM	red maple hardwood swamp	1	63	0.11
N6-2A/B	A	PFO	spruce-fir swamp	3	347	0.57
N6-2C/D	A	PSS/PEM	beech-maple	1	65	0.12
N6-2E/F	A	PSS/PEM	shrub swamp	2	208	0.30
N6-2G/H	A	PFO	successional beech-maple	2	83	0.15
N6-ALT-1A	A	PEM	shallow emergent marsh	2	128	0.20
N6-2N	A	PFO/PSS	not recorded	2	29	0.06
N7-1A/B	A	PFO	red maple hardwood swamp	2	47	0.08
N7-1E/F/G	A	PFO/PSS/PEM	red maple hardwood swamp	1	223	0.41
N7-2A	A	PFO	successional beech-maple	2	8	0.00
N7-4A	A	PSS/PEM	not determined	2	45	0.02
ALTC-1A/B	A	PFO	red maple hardwood swamp	2	16	0.02
ALTC-1C/D	A	PFO	red maple-tamarack peat swamp	2	141	0.24
ALTC-1E/F	A	PSS	spruce-fir swamp	3	257	0.44
ALTC-1G/H/I	A	PFO	red maple hardwood swamp	2	427	0.70
ALTC-1J/K	A	PFO/PSS/PEM	spruce-fir swamp/fen	2	657	1.13
N9-1A	A	PSS	tamarack-fir swamp	3	125	0.04
N9-1B/C	A	PFO	beech-maple	2	26	0.02
N9-1E	A	PSS/PEM	shrub swamp	2	58	0.05
N9-1F	A	PSS	alder thicket	3	123	0.11
N9-1G	A	PSS	alder thicket	3	145	0.14
N9-1H/I	A	PFO	red maple hardwood swamp	2	18	0.03
N10-1A/B	A	PFO/PSS/PEM	tamarack swamp	2	270	0.19

Table 3.8-2: Wetlands Crossings						
ID	Route[1]	Class	Covertype[2]	Overall Functions/ Values Score[3]	Average Crossing Length (Feet)	Acres of New ROW
N10-2A/B	A	PFO/PSS/PEM	tamarack-shrub swamp	2	205	0.17
N11-2A/B	A	PFO/PSS	tamarack swamp	2	129	0.11
N11-2C/D	A	PFO/PSS	tamarack swamp	2	324	0.27
N11-2E/F	A	PSS	alder thicket	3	19	0.01
N11-2H/I	A	PSS	red maple-tamarack peat swamp	2	131	0.09
N11-2J/K	A	PSS	tamarack swamp	3	705	0.60
N12-3A/B	A	PSS/PEM	shrub swamp	2	325	0.30
N12-3C/D	A	PFO	spruce-fir swamp	4	227	0.18
N12-3E	A	PFO	spruce-fir swamp	4	49	0.01
N12-3F	A	PFO	spruce-fir swamp	4	34	0.01
N12-3G/H	A	PFO	spruce-fir swamp	4	269	0.20
N13-3A/B	A	PEM	spruce-fir swamp	2	102	0.09
N14-3A	A	PEM	shallow emergent marsh	2	181	0.25
N14-3B	A	PEM	shallow emergent marsh	2	110	0.07
N14-3C/D	A	PFO/PSS	not recorded	2	355	0.69
N15-4A	A	PEM	not determined	2	158	0.24
N15-4B	A	PSS	not determined	3	106	0.18
N15-4C	A	PSS	not determined	3	236	0.40
N16-4A	A	PFO/PSS	not determined	2	243	0.42
N16-4B	A	PSS	not determined	3	109	0.18
N17-4A	A	PFO	not determined	4	256	0.44
N17-4B	A	PEM	not determined	2	246	0.42
N18-4A	A	PFO/PSS	not determined	2	312	0.54
N18-4B	A	PSS	not determined	3	162	0.28
N18-4C	A	PEM	not determined	2	195	0.34

[1] P=Preferred, A=Alternate, P/A=common to both Preferred and Alternate
[2] Communities were not determined for wetlands delineated by aerial photo interpretation.
[3] The wetland value ratings were determined from guidance provided in the Adirondack Park Agency Rules and Regulations, Part 578. This rating system assigns a value of one to four with one being the highest. The value ratings indicate the overall worth of a given wetland based on wetland cover type, and specific intrinsic and extrinsic wetland characteristics as defined in Parts 578.5 and 578.6.

3.8.1 Communities Characteristics

The following are cover type or community descriptions of wetlands encountered in the Project Area during field survey efforts. Community designations follow Edinger *et al.*, 2002 and distinguish communities based on composition of organisms and ecological processes. Descriptions, including dominant, codominant, and characteristic plant species, for wetlands communities encountered during field efforts are provided in the following. Descriptions include dominant, codominant, and characteristic plant species for each community encountered. A complete list of plants species found in wetlands during the field effort is provided in Table 3.8-3.

3.8.1.1 Palustrine Systems

Red Maple Hardwood Swamp

The Red Maple Hardwood Swamp is the most common wetland cover type occurring in the area of the proposed ROW. These areas may consist of a monoculture canopy of red maple or a codominance of red maple and yellow birch, with red spruce occasionally occurring at the periphery or on hummocks within the wetlands. These swamps often have gaps in the canopy allowing for a dense understory with many saplings and a thick shrub layer containing species such as winterberry (*Ilex verticillata*), spicebush (*Lindera benzoin*), alders (*Alnus* spp.), and viburnums. The herbaceous layer may be quite diverse with ferns like sensitive fern (*Onoclea sensibilis*) and cinnamon fern (*Osmunda cinnamomea*) having a high percent cover. Characteristic herbs include troutlily (*Erythronium americanum*) and Canada mayflower (*Maianthemum canadense*) and may include other herbaceous vegetation, such as marsh marigold (*Caltha palustris*) and various sedges, in open areas under gaps in the canopy.

Table 3.8-3: Plant Species Encountered in Wetlands

Scientific name	Common name	Wetland Indicator Status	Preferred Route	Alternate Route
Trees				
Abies balsamea	Fir, Balsam	FAC	X	X
Abies fraseri	Fir, Fraser's	FACU	X	
Acer pensylvanicum	Maple, Striped	FACU	X	X
Acer rubrum	Maple, Red	FAC	X	X
Acer saccharum	Maple, Sugar	FACU-		X
Betula alba	Birch, White	FAC+	X	X
Betula alleghaniensis	Birch, Yellow	FAC	X	X
Betula populifolia	Birch, Gray	FAC	X	X
Fagus grandifolia	Beech, American	FACU		X
Juniperus virginiana	Cedar, Eastern Red	FACU		X
Larix laricina	Larch, American (Tamarack)	FACW	X	X
Picea rubens	Spruce, Red	FACU	X	X
Pinus strobus	Pine, Eastern White	FACU	X	X
Populus grandidentata	Aspen, Big-Tooth	FACU-	X	X
Populus tremuloides	Aspen, Quaking	FACU	X	X
Prunus pensylvanica	Cherry, Fire	FACU-		X
Prunus serotina	Cherry, Black	FACU		X
Salix discolor	Willow, Pussy	FACW	X	X
Tsuga canadensis	Hemlock, Eastern	FACU	X	X

Table 3.8-3: Plant Species Encountered in Wetlands				
Scientific name	**Common name**	**Wetland Indicator Status**	**Preferred Route**	**Alternate Route**
Shrubs				
Acer spicatum	Maple, Mountain	FACU-		X
Alnus incana spp. *rugosa*	Alder, Speckled	FACW+	X	X
Amelanchier canadensis	Service-Berry, Oblong-Leaf	FAC	X	X
Amelanchier x intermedia	Shadbush, Swamp	FACW		X
Cornus amomum	Dogwood, Silky	FACW		X
Cornus racemosa	Dogwood, Gray	NI	X	X
Cornus stolonifera	Dogwood, Red-Osier	FACW+	X	X
Ilex verticillata[1]	Winterberry, Common	FACW+	X	
Kalmia angustifolia[1]	Sheep-Laurel	FAC	X	X
Prunus pennsylvanica	Cherry, Fire	FACU-		X
Rhododendron spp.	Rhododendron	-		X
Salix nigra	Willow, Black	FACW+		X
Salix spp.	Willow	-	X	X
Spiraea alba	Meadow-Sweet, Narrow-Leaf	FACW+	X	X
Spiraea latifolia	Meadow-Sweet, Broad-Leaf	FAC+	X	X
Spiraea tomentosa	Steeple-Bush	FACW		X
Vaccinium simulatum	Blueberry, Highbush	FACU	X	
Viburnum lantanoides	Hobblebush	NI	X	X
Viburnum cassinoides	Wild Raisin	FACW	X	X
Herbs				
Aster novi-bergii	Aster, New York	FACW+	X	X
Aster umbellatus	Aster, Flat-top	FACW	X	X
Athyrium filix-femina[1]	Fern, Subarctic Lady	FAC	X	
Calamagrostis canadensis	Reedgrass, Blue-Joint	FACW+	X	X
Caltha palustris	Marsh-Marigold, Common	OBL	X	X
Cardamine diphylla	Toothwort, Two-Leaf	FACU*	X	
Carex crinita	Sedge, Fringed	OBL	X	X
Carex intumescens	Sedge, Bladder	FACW+	X	
Carex lurida	Sedge, Lurid	NI	X	
Carex spp.	Sedge	-	X	X
Carex stricta	Sedge, Uptight	OBL	X	X
Carex vulpinoidea	Sedge, Fox	OBL	X	X
Chamaedaphne calyculata	Leatherleaf	OBL	X	X
Chelone glabra[1]	Turtlehead, White	OBL	X	X
Clintonia borealis	Beadlily, Blue	FAC	X	X
Coptis trifolia	Goldthread, Alaska	FACW	X	X
Cornus canadensis	Bunchberry, Canada	FAC-		X
Dalibarda repens	Robin-Run-Away	FAC	X	X
Dryopteris intermedia[1]	Woodfern, Evergreen	FACU	X	X
Dryopteris sp.	Woodfern	-		X
Equisetum spp.	Horsetail	-		X
Erythronium americanum	Trout Lily, Yellow	NI	X	X
Eupatoriadelphus fistulosus	Joe-Pye-weed, Hollow	FACW	X	X
Fragaria virginiana	Strawberry, Virginia	FACU	X	X
Galium palustre	Bedstraw, Marsh	OBL		X

Table 3.8-3: Plant Species Encountered in Wetlands				
Scientific name	**Common name**	**Wetland Indicator Status**	**Preferred Route**	**Alternate Route**
Gaultheria hispidula	Snowberry, Creeping	FACW		X
Gentiana linearis[1]	Gentian, Narrow-leaf	OBL		X
Geum laciniatum	Avens, Rough	FAC+	X	X
Glyceria melicaria	Grass, Melic Manna	OBL	X	
Impatiens capensis	Touch-me-not, Spotted	FACW	X	X
Impatiens sp.	Touch-me-not	FACW	X	X
Iris versicolor	Blueflag	OBL	X	X
Juncus effusus	Rush, Soft	FACW+	X	X
Ledum groenlandicum[1]	Labrador-Tea, Greenland	OBL		X
Lycopodium lucidulum[1]	Clubmoss, Shining	FACW-		X
Lycopodium obscurum[1]	Clubmoss, Tree	FACU		X
Lycopus americanus	Horehound, Water	OBL	X	X
Maianthemum canadense	Canada Mayflower	FAC-	X	X
Onoclea sensibilis	Fern, Sensitive	FACW	X	X
Osmunda cinnamomea[1]	Fern, Cinnamon	FACW	X	X
Osmunda claytoniana[1]	Fern, Interrupted	FAC	X	X
Osmunda regalis[1]	Fern, Royal	OBL	X	X
Panax trifolius	Ginseng, Dwarf	NI	X	X
Panicum dichotomiflorum	Grass, Fall Panic	FACW-	X	X
Panicum spp.	Grass, Panic	-		X
Phalaris arundinacea	Grass, Reed Canary	FACW+	X	X
Phragmites australis	Reed, Common	FACW	X	X
Pleurozium schreberi	Stem Moss, Big Red	NI		X
Ribes glandulosum	Currant, Skunk	FACW	X	X
Rubus allegheniensis	Blackberry, Allegheny	FACU-	X	X
Rubus hispidus	Blackberry, Bristly	FACW	X	X
Rubus idaeus	Raspberry, Common Red	FAC-	X	X
Rubus pubescens	Blackberry, Dwarf	FACW	X	
Rubus wheeleri	Dewberry	FACW	X	X
Scirpus cyperinus	Wool-Grass	FACW+	X	X
Scirpus spp.	Bulrush	-	X	X
Solidago patula	Golden-rod, Rough Leaf	OBL		X
Solidago rugusa	Goldenrod, Wrinkled	FAC		X
Solidago spp.	Goldenrod	-	X	X
Sphagnum spp.	Sphagnum	-	X	X
Thalictrum dioicum	Meadow-Rue, Early	FAC	X	X
Thalictrum pubescens	Meadow-Rue, Tall	FACW+	X	X
Thelypteris thelypteroides	Fern, Marsh	FACW+	X	X
Thuidium spp.	Moss, Feather	-	X	
Tiarella cordifolia	Foamflower, Heart-Leaf	FAC-		X
Trientalis borealis	Starflower, American	FAC	X	
Typha latifolia	Cattail, Broad-Leaf	OBL	X	X
Uvularia sessilifolia	Bellwort, Sessile-Leaf	FACU-		X
Veratrum viride	False-Hellebore, American	FACW+	X	

[1] Exploitably vulnerable listed species are native plants that are not necessarily rare or uncommon, but may be desirable for commercial use and could become rare, threatened, or endangered if subjected to unchecked commercial exploitation.

Shrub Swamp

Shrub Swamps are dominated by tall shrubs that occur along the shore of lakes or rivers, in a wet depression not associated with lakes, or in a transitional zone between a marsh, swamp, or bog and an upland community. This is a broadly defined, highly variable cover type that includes several distinct communities and many intermediates. Shrub Swamps may have a single dominant shrub species or be codominated by a mixture of species. Speckled alder (*Alnus incana* sp. *rugosa*) is the most frequently dominating shrub of this community within the Project Area and these areas are often characterized as an alder thicket. Red osier dogwood (*Cornus stolonifera*), silky dogwood (*Cornus amomum*), and meadowsweet (*Spirea* spp.) also occur either as a dominant species or codominant with speckled alder. Various other shrub species with occasional occurrence include highbush blueberry (*Vaccinium corymbosum*), smooth alder (*Alnus serrulata*), willows (*Salix* spp.), and viburnums. These wetland communities are frequently associated with stream complexes and may contain portions of emergent wetland sedges and grasses.

Shallow Emergent Marsh

Shallow emergent marshes are permanently saturated and seasonally flooded wetlands that can be dominated by a variety of herbaceous vegetation. Common dominant herbaceous plants within the Project Area are woolgrass (*Juncus effusus)*, cattails (*Typha latifolia)*, reedgrass (*Calamagrostis canadensis)*, reed canary grass (*Phalaris arundinacea)*, sedges (*Carex* spp.), and meadow-rues (*Thalictrum* spp.). Marshes must have less than 50 percent cover of peat and tussock-forming sedges such as tussock sedge (*Carex stricta*); otherwise it may be classified as a sedge meadow. Other plants characteristic of shallow emergent marshes include, blue flag iris *(Iris versicolor)*, sensitive fern, cinnamon fern, and rushes (*Juncus* spp.). Shallow emergent marshes commonly have scattered shrub species including speckled alder, dogwoods (*Cornus* spp.), willows (*Salix* spp.), and meadow sweet (*Spiraea alba*).

Floodplain Forest

Floodplain forest typically occurs on mineral soils of river floodplains and river deltas. These communities are characterized by their flood regime with low-lying areas typically flooding annually in spring and higher areas flooding irregularly. Most are dry by summer's end; however, some of these communities may be flooded again in late summer or early autumn by heavy precipitation associated with tropical storms.

Species compositions within floodplain forest communities are quite variable, primarily due to seed dispersal along associated waterways; therefore dominant species often vary locally. Dominant tree species in floodplain forest communities in the Project Area include red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), and yellow birch (*Betula lutea*). Characteristic shrub species include oblong-leaf serviceberry (*Amelanchier canadensis*), wild raisin (*Viburnum cassinoides*), and hobblebush (*Viburnum lantanoides*). Common herbaceous species include troutlily, ferns (*Onoclea sensibilis* and *Osmunda* spp.), sedges, and grasses.

Spruce-Fir Swamp

Spruce-fir swamps are often found in drainage basins occasionally flooded by beaver (*Castor canadensis*). These swamps are fairly dense with a canopy cover of 80 to 90 percent, usually dominated by red spruce (*Picea rubens*). Codominant trees include balsam fir (*Abies balsamea*), red maple, and tamarack (*Larix laricina*). Other less frequently occurring trees include yellow birch, white pine (*Pinus strobus*), and hemlock (*Tsuga canadensis*). The shrub layer usually comprises less than 20 percent cover and contains dominant species such as alders, wild raisin, winterberry (*Ilex verticillata*), and sapling canopy species. Characteristic herbs include cinnamon fern, Canada mayflower, goldthread (*Coptis*

trifolia), Canada bunchberry (*Cornus canadensis*), and robin-run-away (*Dalibarda repens*). In addition, *Sphagnum* mosses often dominate the groundlayer.

Spruce-fir swamps occur in lowlands where they may grade into upland areas such as spruce flats or balsam flats. These communities are distinguishable by lower elevations, wetland soils, the presence of *Sphagnum* mosses, and the absence of black cherry (*Prunus serotina*), a characteristic species of spruce flats and balsam flats.

Balsam Fir-Tamarack Swamp

The balsam fir-tamarack swamp is a variation of the spruce-fir swamp. This cover type is not described by Edinger *et al*. (2002) but was encountered frequently during field delineation. The canopy is usually less dense than the spruce-fir swamp and codominated by balsam fir (*Abies balsamea*) and tamarack, although in some instances tamarack exists as a monoculture, in which case the cover type is labeled as a tamarack swamp. Occasional hardwood species such as yellow birch or red maple may also contribute to the canopy composition.

The understory is variable and may contain a significant shrub layer composed of wild raisin, meadowsweet (*Spirea sp.*), alders, and sapling stage canopy species. Characteristic understory species include Canada mayflower, Labrador tea (*Ledum groenlandica*), and various fern species.

Black Spruce-Tamarack Bog

Black-spruce-tamarack bogs occur on acidic peatlands in cool, poorly drained depressions. The characteristic canopy trees are black spruce (*Picea mariana*) and tamarack; where in any given stand either tree may be dominant or codominant. Canopy cover is variable, ranging from open canopy woodlands with as little as 20 percent cover of evenly spaced canopy trees to closed canopy forests with 80 to 90 percent cover.

In more open canopy stands there is usually a well-developed shrub layer characterized by leatherleaf (*Chamadaephne calyculata*), speckled alder, wild raisin, and raspberry (*Rubus* spp) In closed canopy stands the shrub layer is usually sparse; however, the species composition is similar. Characteristic herbs include reed canary grass, blue flag iris, sedges, and grasses. *Sphagnum* mosses are also common and may be very abundant in black spruce-tamarack bogs.

Northern White Cedar Swamp

This community was encountered at one location on the Preferred Route. It is located adjacent to Sevey bog and is fed by a small perennial stream approximately 3 feet wide. Northern white cedar (*Thuja occidentalis*) is codominant in the canopy with balsam fir, red spruce, and hemlock. The shrub layer consists of saplings of canopy species along with honeysuckle (*Lonicera* spp.) and raspberry (*Rubus* spp.). Cinnamon fern and *Sphagnum* mosses make up the herbaceous layer.

3.8.1.2 Riverine Systems

Rocky Headwater Streams

Rocky headwater streams are small to moderate sized perennial rocky streams typically with a moderate to steep gradient. Cold water flows over eroded bedrock, boulders, or cobbles in the area where the stream originates. These streams are typically shallow, narrow, and have a relatively small low flow discharge with minimal deposition. Wetland vegetation may not be present as these systems are sometimes situated in confined valleys with upland forests occurring immediately adjacent to the stream banks. These streams have high water clarity and are well oxygenated.

Marsh Headwater Stream

This system consists of small, perennial brooks with a very low gradient, slow flow rate, and cool to warm water with clearly distinguished meanders. The depth, width and flow rate may vary seasonally based on rainfall and snowmelt, however these streams are typically shallow and narrow. Marsh headwater streams often provide hydrology to forested wetlands and may contain emergent vegetation including sedges and rushes.

Backwater Slough

Backwater sloughs consist of very slow moving to stagnant water and form in old meanders that are cut off at the upstream end from an unconfined river. This community is represented at two locations; along the Alternate Route at the Tooley Pond Outlet and at Dead Creek on both the Preferred and Alternate Routes. These sloughs are less than 20 feet in width and have a mucky substrate. Bank vegetation at the Tooley Pond Outlet crossing was mainly an alder thicket, while the bank at the Dead Creek crossing consisted of species characteristic of a spruce-fir swamp. No aquatic vegetation was observed at either location.

Intermittent Stream

Intermittent streams are small, sinuous systems often lacking distinct channels. These streams may only be present during spring floods or after heavy rain. Intermittent streams frequently support forested wetlands and may contain emergent rushes, sedges, and grasses. These streams are rarely wider then 5 feet and often only several inches deep. The streambed can range from muck to cobble/gravel, depending on gradient.

3.8.2 Wetland Functions and Values

Wetlands within the Project Area provide a number of important functions and values. Primary among these are flood damage and stormwater control, wildlife habitat, protection of water resources and valuable watershed through pollution treatment or sediment control, and recreation. Other values that wetlands provide include opportunities for scientific research, visual variety and open space, and educational benefits.

Wetlands were assigned a value of one to four, with one being the highest, according the APA's Rules and Regulations Part 578.5. Based on this valuation method, 12 out of the 97 wetlands complexes crossed by the Preferred Route were assigned a value of one (Tables 3.8-1 and 3.8-4). Most of these wetlands occur between reference markers Alt 2 and Alt 5. These wetlands contain high cover type heterogeneity with variable combinations of forested, scrub-shrub, and emergent vegetation classes occurring within a single wetland complex. A total of 66 wetlands along the Preferred Route were assigned a two rating, largely due to the presence of both emergent marsh and deciduous swamp cover types. The APA ranks emergent marshes the most valuable individual cover type because it provides nesting habitat, food, and cover for waterfowl and other wildlife species, as well as providing large annual increases in biomass, and cycling large quantities of nutrients in the food chain. Deciduous swamps offer similar habitat and additionally provide shade trees to help stabilize wetland climate. Fourteen wetlands scored a three rating, primarily due to the presence of a shrub swamp community, which may provide nesting habitat, temporary water storage, and erosion control. The remaining five wetlands along the Preferred Route scored a four rating because they are isolated coniferous swamp complexes that may provide an aesthetic value to the area, but are less valuable.

Table 3.8-4: Summary of Values of Wetland Crossings		
Value	**Preferred Route**	**Alternate Route**
1	12	5
2	66	65
3	14	23
4	5	10
Total	97	103

Five wetlands along the Alternate Route were assigned a value rating of one. These wetlands possess similar characteristics to the one-rated wetlands observed on the Preferred Route that is heterogeneous cover types. The lower number of one-rated wetlands crossed on the Alternate Route is likely related to the greater number of wetlands with a scrub-shrub component (65) in comparison to the Preferred Route. Based on the APAs valuation method, scrub-shrub communities are assigned a lower than emergent marsh and deciduous swamp cover types. Sixty-five of the 103 wetlands along the Alternate Route received a value rating of two. Twenty-three wetlands were assigned a value rating of three and these consist primarily of homogeneous scrub-shrub vegetation communities. Wetlands scoring a value rating of four along the Alternate Route (10) mainly contain a coniferous swamp cover type and lack heterogeneity, unique species diversity, and cultural or geological significance.

3.8.3 Large Wetland Complexes

The New York State Department of Environmental Conservation and the Adirondack Park Agency have classified 15 areas to be crossed by the proposed ROW as being potentially environmentally sensitive areas. A list of these crossings, including brief details of sensitive characteristics is presented in Table 3.8-5.

Table 3.8-5: Potentially Environmentally Sensitive Wetland Crossings

Location	I.D.	Crossing (L.F.)	Wild/ Scenic	Site Characteristics
Stark Falls – Sevey Corners Segment				
Pond west side of State Route 56	S2-3A-ST	325	N	• Large PFO/PEM wetland (440 linear feet) associated with stream • Cover type: spruce-fir swamp/shallow emergent marsh
Cold Pond east side of State Route 56	S4-3C, S4-3D	275	N	• PFO/PEM wetland associated with Cold Brook. • Minimal impacts expected because most of ROW is located on opposite side of SR 56.
Stream/wetland north of Crooked Lake	Alt1-2A/B	280	N	• PFO/PEM wetland • Cover type: spruce-fir swamp
Stream/wetland	Alt3-2F/G	385	N	• PFO/PSS wetland • Cover type: spruce-fir swamp with an alder thicket component
Wetland associated with Sevey Bog	Alt5-3A/B	355	N	• PFO wetland • Cover type: black-spruce tamarack bog

Table 3.8-5: Potentially Environmentally Sensitive Wetland Crossings				
Location	**I.D.**	**Crossing (L.F.)**	**Wild/ Scenic**	**Site Characteristics**
Sevey Corners – Piercefield Segment				
Jocks Pond Outlet	P3-N4B-2	65	N	• PSS wetland • Cover type could not be determined due to restricted access
Dead Creek	P9-2B/D/E-ST	59	N	• Large PSS wetland (835 linear feet) associated with Dead Creek • Cover type: alder thicket/tamarack swamp
Newton Falls – Sevey Corners Segment				
Oswegatchie River	N3-3A-ST	230	Y	• Wild and Scenic River • PSS wetland on south bank; PFO wetland on north bank • Surrounding cover type: beach maple mesic forest and red maple hardwood swamp
Tooley Pond Outlet	N5-2C/D-ST	155	N	• PFO/PSS/PEM wetland on northwest bank of stream. • Surrounding cover type: spruce-fir swamp
Stream/wetland	N9-1B/C	35	N	• Stream width less than 5 feet • Surrounding PFO wetland and beech-maple mesic forest
Wetland	N10-1A/B	300	N	• Sinuous stream with several branches within wetland; total stream width: 45 feet • PFO/PSS/PEM wetland with tamarack swamp cover type
Wetland/upland mix	N10-2A/B	<5	N	• Small stream in wetland (< 5 feet) • PFO/PSS/PEM wetland with tamarack-shrub swamp cover type • Upland cover type: spruce flat
South Branch Grasse River/wetland	N11-2J/K N11-2J/K-ST	812	Y	• Scenic River; stream width is 45 feet • Large PSS wetland associated with stream • Surrounding cover type: tamarack swamp
Stream/wetland	N12-3A/B N12-3A/B-ST	140	N	• Stream width: 35 feet • Associated PSS/PEM wetland with shrub swamp covertype
Windfall Brook/wetland	N18-4C	195	N	• PEM wetland • Cover type could not be determined due to restricted access

3.9 Vegetation

Vegetative communities associated with the ROW for the Tri-Lakes Reliability Project were classified according to the *Ecological Communities of New York State* (Edinger, 2002). The landscape associated with the Project consists of both naturally occurring communities and communities created and maintained by human activity. Forested land and wetlands account for most of plant communities in the vicinity of the Project but various aged spruce/fir and pine plantations, maintained roadside, and successional cleared land are also commonly found throughout the Project Area. Detailed descriptions of these communities are provided below.

3.9.1 Terrestrial Communities

Terrestrial communities consist of broadly defined upland habitats open lands, barrens and woodlands, forested uplands, and human influenced landscapes. A list of upland plant species encountered in upland communities during field surveys is presented in Table 3.9-1.

Table 3.9-1: Plant Species Encountered in Uplands

Scientific name	Common Name	Wetland Indicator Status	Preferred Route	Alternate Route
Trees				
Abies balsamea	Fir, Balsam	FAC	X	X
Abies fraseri	Fir, Fraser's	FACU		X
Acer rubrum	Maple, Red	FAC	X	X
Acer saccharum	Maple, Sugar	FACU-	X	X
Betula alleghaniensis	Birch, Yellow	FAC	X	X
Betula papyrifera	Birch, Paper	FAC+	X	X
Betula populifolia	Birch, Gray	FAC		X
Fagus grandifolia	Beech, American	FACU	X	X
Larix laricina	Larch, American	FACW	X	X
Ostrya virginiana	Hop-Hornbeam, Eastern	FACU-		X
Picea abies	Spruce, Norway	UPL	X	
Picea rubens	Spruce, Red	FACU	X	X
Pinus strobus	Pine, Eastern White	FACU	X	X
Pinus sylvestris	Pine, Scotch	NI	X	
Populus grandidentata	Aspen, Big-Tooth	FACU-	X	
Populus tremuloides	Aspen, Quaking	FACU	X	X
Prunus pennsylvanica	Cherry, Fire	FACU-	X	X
Prunus serotina	Cherry, Black	FACU	X	X
Tsuga canadensis	Hemlock, Eastern	FACU	X	X
Shrubs				
Acer pensylvanicum	Maple, Striped	FACU	X	X
Acer spicatum	Maple, Mountain	FACU-		X
Alnus incana spp. *rugosa*	Alder, Speckled	FACW+	X	X
Amelanchier canadensis	Service-Berry, Oblong-Leaf	FAC	X	X
Amelanchier x intermedia	Shadbush, Swamp	FACW		X
Celtis occidentalis	Hackberry, Common	FACU		X
Vaccinium angustifolium	Blueberry, Lowbush	FACU-	X	X
Vaccinium myrtilloides	Blueberry, Velvet-Leaf	FAC	X	X
Viburnum acerifolium	Viburnum, Maple-Leaf	UPL*	X	X
Viburnum cassinoides	Wild Raisin	FACW	X	X
Viburnum lantanoides	Hobble-Bush	FAC	X	X
Herbs				
Achillea millefolium	Yarrow, Common	FACU	X	
Aralia nudicaulis	Sarsaparilla, Wild	FACU	X	
Asarum shuttleworthii	Wildginger	NI	X	X
Asclepias syriaca	Milkweed, Common	NI		X

Table 3.9-1: Plant Species Encountered in Uplands				
Scientific name	**Common Name**	**Wetland Indicator Status**	**Preferred Route**	**Alternate Route**
Aster umbellatus	Aster, Flat-top	FACW		X
Brachyelytrum erectum	Shorthusk Bearded	NI	X	X
Clematis virginiana	Bowers, Virgin's	FAC		X
Clintonia borealis	Beadlily, Blue	FAC	X	X
Coptis trifolia	Goldthread, Alaska	FACW	X	X
Cornus canadensis	Bunchberry, Canada	FAC-	X	
Dactylis glomerata	Grass, Orchard	FACU		X
Dalibarda repens	Robin-Run-Away	FAC		X
Daucus carota	Queen Anne's Lace	NI	X	
Dryopteris intermedia[1]	Woodfern, Evergreen	FACU	X	X
Erythronium americanum	Trout Lily, Yellow	NI	X	X
Festuca rubra	Fescue, Red	FACU	X	
Fragaria vesca	Strawberry, Woodland	NI	X	X
Galium sp.	Bedstraw	-	X	
Hypericum spp.	St. John's-Wart	-		X
Lolium perenne	Ryegrass, Perennial	FACU-	X	
Lonicera spp.	Honeysuckle	-	X	
Lycopodium annotinum[1]	Clubmoss, Stiff	FAC	X	
Lycopodium clavatum[1]	Pine, Running	FAC	X	
Lycopodium lucidulum	Clubmoss, Shining	FACW-		X
Lycopodium obscurum[1]	Clubmoss, Tree	FACU	X	
Maianthemum canadense	Wild-Lily-of-the-Valley	FAC-	X	X
Mitchella repens	Partridge-Berry	FACU	X	
Oxalis europaea	Woodsorrel, Upright Yellow	UPL		X
Plantago major	Plantain, Common	FACU	X	
Poa pratensis	Bluegrass, Kentucky	FACU	X	
Podophyllum peltatum	May-Apple	FACU		X
Potentilla spp.	Cinquefoil	-	X	X
Pteridium aquilinum	Fern, Bracken	FACU	X	X
Rosa multiflora	Rose, Multiflora	FACU		X
Rubus allegheniensis	Blackberry, Allegheny	FACU-		X
Rubus hispidus	Blackberry, Bristly	FACW	X	X
Solidago spp.	Goldenrod	-		X
Taraxacum officinale	Dandelion, Common	FACU-	X	X
Thelypteris noveboracensis[1]	Fern, New York	FAC	X	X
Thelypteris thelypteroides	Fern, Marsh	FACW+	X	
Trientalis borealis	Starflower, American	FAC	X	X
Trillium spp.[1]	Trillium	-	X	
Uvalaria sp.	Bellwort	-	X	
Vicia sp.	Vetch	-	X	

[1] Exploitably vulnerable listed species are native plants that are not necessarily rare or uncommon, but may be desirable for commercial use and could become rare, threatened, or endangered if subjected to unchecked commercial exploitation.

3.9.1.1 Beech-maple

Most of the forested uplands within the Project Area consists of beech-maple dominated communities. These areas are hardwood forests where sugar maple and American beech (*Fagus grandifolia*) codominate. Also present in the canopy are yellow birch and red maple. In the proposed Project Area, black cherry was found to contribute significantly to the composition of the beech-maple community, often being a dominant or codominant of the canopy. Common understory trees and tall shrubs are hobblebush (*Viburnum lantanoides*), striped maple (*Acer saccharinum*), and witch hazel (*Hamamelis virginiana*). Dominant ground layer species are star flower (*Trientalis borealis*), Canada mayflower, shining clubmoss (*Lycopodium lucidulum*), painted trillium (*Trillium undulatum*), purple trillium (*Trillium erectum*), and intermediate wood fern (*Dryopteris intermedia*).

3.9.1.2 Mixed Forest

Due to local variations in soil conditions and topography, mixed forest stands are frequently observed, with conifer species being codominant with hardwoods. On moist sites, red spruce thrives alongside hemlock, red maple, black cherry, and yellow birch. Water percolates quickly through outwash, causing upper soil layers, where tree roots are found, to lose moisture easily. White pine and Scotch pine (*Pinus sylvestris*), species that tolerate drought conditions, are commonly associated with drier glacial outwash sites. Where a high water table keeps moisture near the surface, red spruce and balsam fir dominate. A carpet of greenery composed of ferns, mosses, wood sorrel (*Oxalis montana*), and Canada mayflower is common beneath the trees, contrasting with the bed of leaves that covers the hardwood forest floor.

3.9.1.3 Balsam Flat

In addition to Beech-maple communities, Balsam Flats are common within the landscape of the Project Area. These upland forest areas exhibit moist, well-drained soils and are usually located in low areas adjacent to swamps or on ridges and knolls within swamps. The dominant tree is balsam fir, which occurs either in pure stands or in mixed stands with red spruce, yellow birch, red maple, and black cherry. The shrub layer frequently includes hobblebush and wild raisin, with wood sorrel, bunchberry (*Cornus canadensis*), and troutlily common as herbaceous groundcover. Often acting as a transitional stage between upland areas and wetlands, balsam flats can be distinguished from wetlands by the presence of black cherry and occasional American beech and the absence of sphagnum mosses.

3.9.1.4 Successional Northern Hardwood

The Preferred and Alternate Routes cross several locations exhibiting evidence of recent or historic logging. Subsequently, successional hardwood forests have developed and contribute significantly to the landscape of the Project Area. Characteristic trees and shrubs include quaking aspen (*Populus tremuloides*), bigtooth aspen (*Populus grandidentata*), paper birch (*Betula papyrifera*), gray birch (*Betula populifolia*), black cherry, red maple, white pine, and fire cherry (*Prunus pennsylvanica*). This is a broadly defined community with much variation.

3.9.1.5 Mowed Roadside

Mowed Roadsides occur primarily in the proposed overbuild areas of the Preferred and Alternate Routes. This covertype is found adjacent to forest and wetland edges and generally exhibits low species diversity with a dominance of grasses, sedges, and rushes. Common species include red fescue (*Festuca rubra*), Kentucky bluegrass (*Poa pratensis*), and various common weeds like Queen Anne's lace (*Daucus carota*) and common dandelion (*Taraxacum officinale*), which are often found in plant mixes used for roadside stabilization.

3.9.1.6 Brushy Cleared Land

Brushy Cleared Land has been clear-cut or cleared by brush-hog. These areas contain high amounts of woody debris such as branches and slash from trees that were logged. Vegetation is patchy with scattered herbs, shrubs, and tree saplings. Topographical alterations resulting from heavy logging machinery often change surface flow patterns in these areas.

3.9.2 Wetland Communities

Wetland communities comprise approximately one quarter of the Project Area. They include palustrine and riverine systems most typically red maple hardwood swamp, shrub swamp, shallow emergent marsh, floodplain forest, spruce-fir swamp, and marsh headwater and intermittent streams. These communities are discussed in depth in Section 3.8.

3.10 Cultural Resources

On August 22, 2005, NYPA met with the New York State Office of Parks, Recreation, and Historic Preservation, which functions as the SHPO, to discuss the 46 kV Project. NYPA and SHPO also discussed the types of cultural resources studies that would be performed as part of the permitting effort for the proposed Project. Studies would focus on two cultural resources areas: archeological and architectural. Potential impacts will be assessed and determinations made regarding project design modifications and appropriate mitigation measures to avoid effects to historic properties. NYPA is currently anticipating receipt of signed notes of conference confirming consultations with SHPO, to date. These notes discuss the overall study approach agreed to by NYPA and SHPO.

3.10.1 Archeological Resources

Prior to the meeting with the SHPO, a Phase 1A background review was performed for the Project Area and a report provided for review. Documentary research performed at SHPO's office, identified no archeological surveys or previously recorded archeological sites along the immediate Area of Potential Effects (APE) (i.e., the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if historic properties are extant within those areas.) Historic maps identified possible historical archeological sites and/or architectural resources along the APE. Regional archeological studies suggest that prehistoric Native Americans occupied the region, although no prehistoric sites are known at present within the APE.

As part of the Phase 1A study, a pedestrian survey was conducted for the accessible portions of the Project Area to identify aboveground evidence of archeological sites, areas that could be characterized as having the potential to contain intact archeological resources, and areas recommended for no additional testing due to identified wetlands, extreme slopes and/or ground disturbances. The pedestrian survey was conducted on approximately 21.7 miles of the Preferred Route. Approximately 4.2 miles were not surveyed. As a result of the survey, approximately 16.5 miles of the Preferred Route were not recommended for further archeological investigation while approximately 5.2 miles were noted as having the potential to contain undisturbed archeological resources. Along the Alternate Route, approximately 19.7 miles were surveyed while approximately 8.5 miles were not walked. Of the portions of the Alternate Route observed, approximately 6.7 miles were recommended as having the potential to contain intact archeological resources and 12.9 miles were not recommended for further survey. A Phase 1A cultural resources report has been provided to the SHPO and the APA for their review and comment.

The pedestrian survey resulted in observations of 21 surface historic period archeological sites along the Preferred Route and 26 surface historic period archeological sites along the Alternate Route. These sites include foundations from historic structures, historic roads, railroad grades, maple sugar camps, artifact

middens and other types of historic sites. No prehistoric archeological sites were observed during the pedestrian survey. NYPA and the SHPO agreed that Phase 1B subsurface identification survey would be performed in the future. The survey would focus on identified project pole locations, access roads, marshalling yards, and other areas that may withstand subsurface disturbance including areas where the line will be placed underground such as the Grasse River crossing. Results of Phase 1B survey would be included within a report that would be provided to SHPO and APA for review and comment. If additional Phase II and Phase III investigations are required, NYPA assured SHPO that these would be completed prior to construction of the Project.

3.10.2 Architectural Resources

A review of National Register of Historic Places file indicates that the Adirondack Forest Preserve (located within Clinton, Essex, Franklin, Fulton, Hamilton, Herkimer, Warren and St. Lawrence Counties) is listed as a National Historic Landmark (NHL). This property was designated as a NHL in 1966. New York State established the Adirondack Forest Preserve as a wilderness area in 1885, the first state forest preserve in the nation. The subsequent NHL designation is considered significant in the area of conservation. An assessment of potential project viewshed impacts to the NHL will be performed. Architectural inventory files maintained by the SHPO currently indicate that in the Town of Colton, one historic district, one ROW, and 97 buildings/structures have been inventoried. Of the inventoried buildings/structures, two are listed in the National Register of Historic Places (NRHP), 27 have been determined not eligible for listing in the NRHP, three have been determined to be eligible for listing in the NRHP, and 65 have not been evaluated for the NRHP.

In the Town of Clifton, one building complex and 85 buildings/structures have been inventoried. Of these, one has been determined eligible for listing in the NRHP and 49 have been determined not eligible for listing in the NRHP. The remaining 35 buildings/structures have not been evaluated for the NRHP. SHPO files contain records for 83 buildings/structures in the Town of Fine. Of these, two are listed in the NRHP, one has been determined eligible for listing in the NRHP, one is of undetermined eligibility, and seven have been determined not eligible for listing in the NRHP. The remaining 72 buildings/structures have not been evaluated for the NRHP.

Sixty-three buildings/structures are recorded in the SHPO's inventory files for the Town of Piercefield. Of these, four are determined eligible for listing in the NRHP, five are listed in the NRHP, one is of undetermined eligibility and 53 have been determined not eligible for listing in the NRHP.

NYPA and SHPO agreed that an architectural historical study for the project would involve performing an in-field inventory of structures within the APE. The APE for architecture is coincident with the definition of the Project viewshed (see Section 3.12). The APE is limited due to the nature and extent of the local topography and forest vegetation. NYPA performed an architectural survey of the APE for architecture. Structures not previously inventoried that could be style-dated greater than 50 years old within the APE were recorded. A total of 154 resources were style-dated as 50 years old or older. Applying the NRHP criteria for evaluation (36 CFR 60.4), recommendations were made for the potential of inventoried structures within the APE to be eligible for listing in the NRHP. Following completion of field observations, four properties were tentatively considered potentially eligible to the NRHP. Based on completion of additional research, three of these properties, the Sevey Schoolhouse, the Child House, and the Massawepie Scout Camp were recommended as ineligible to the NRHP. Only one inventoried property, an iron pony Pratt truss bridge that crosses the Grasse River within Clifton along Windfall Road was recommended as potentially eligible to the NRHP. A report of the architectural survey and its findings has been prepared for review by the SHPO and the APA. This report is currently in Draft form and is being reviewed by NYPA. Once finalized, this report will be made part of this filing as an Appendix to the DEIS.

3.11 Land Use

3.11.1 Existing Land Uses

The proposed Tri-Lakes Reliability Project is located within the Adirondack Park in St. Lawrence County, NY. The Adirondack Park is a mix of public and private lands that occupies approximately 6,000,000 acres in northern New York State. The public lands are managed in accordance with the Adirondack Park State Land Master Plan. The study area along both State Route 56 and State Route 3 consists primarily of rural, forested, sparsely populated residential areas, with sporadic businesses. Three small settlement areas, Childwold and Sevey Corners are located along State Route 3. Cook Corners is located at River Road and Tooley Pond Road north of State Route 3. The Alternate Route, which starts in the APA designated Hamlet of Newton Falls, and ends in the Hamlet of Piercefield, is comprised primarily of resource management lands. Newton Falls is a densely populated village with a mix of residential and commercial uses. Piercefield, somewhat smaller than Newton Falls is comprised of a similar uses.

Along State Route 56, the proposed line will begin at Stark, in the Town of Parishville. The majority of land use along State Route 56 is APA designated resource management and forest preserve land.

Table 3.11-1 displays the number and type of parcels by Town in the Project Area, as listed by property class code.

Table 3.11-1: Parcel Use According to Real Property Code

	Resi-dential	Commer-cial	Wild, Forest, Conservation Lands		Industrial	Vacant	Recreation	Public Service
			Privately Owned *	NY State Owned				
Piercefield	59	4	23	1	2	24	2	2
Clifton	39	1	18	1	1	9	0	4
Colton	17	0	34	1	0	7	0	0
Parishville	0	0	1	0	0	1	0	0

Source: St. Lawrence County Real Property Data, 2003
* Includes Private Wild and Forestlands and Private Hunting and Fishing Clubs.

Residential use is the most common developed land use in the Project Area, as shown in the above table. The residential category features all properties used for human habitation including those properties used on a seasonable basis. Within the Project Area, Piercefield has the largest number of residential parcels, a majority of which are single-family dwellings. The Town of Clifton contains the most seasonal residences, with 21 of its 39 residential properties used for seasonal occupancy along the proposed corridor.

Wild, Forested, Conservation Lands and Public Park properties comprise the largest amount of area and the second most common land use in the Project Area. This land use category includes land that is privately owned for the purpose of timber harvesting, and private hunting and fishing clubs. State owned Wild Forest lands are classified as a separate category and include three parcels within the Towns of Piercefield, Clifton and Colton.

Land classified as Vacant is not in use, is in temporary use, or lacks permanent improvement. The majority of vacant land within the Project Area is vacant residential land in rural areas. The Town of Piercefield features the highest amount of vacant land within the Project Area. Commercial uses are distributed by type of goods and services that are offered on the property. Due to the rural nature of the Project Area, only five total parcels are commercial, two of which are restaurants, two retail based, and

one a motel. Industrial uses are also few within the Project Area, and those that exist are sand and gravel extraction uses. Recreation lands are lands intended for recreational use, and Public Service properties are used to provide services to the general public.

3.11.2 Applicable Zoning Regulations

Of the four communities within the Project Area, Clifton, Colton, Parishville and Piercefield, Colton and Parishville are the only communities with adopted zoning codes. The Town of Colton administers a local land use program that has been approved by the Adirondack Park Agency whereby the town instead of the Agency, reviews and makes determinations on Class B Regional Projects and administers the shoreline restrictions. The Town does not regulate the placement of utility poles but does regulate utility substations and service facilities. The construction of a major public utility, such as this project, is a Class 'A' Regional Project, subject to the jurisdiction of the APA. Although local municipal review does not apply to actions undertaken by a state agency, the APA will require that the more restrictive local conditions (if any exist) be followed for the project. Therefore, if a local regulation requires a 100-foot setback, and the APA requires a 50-foot setback, the APA will enforce the local, 100 foot requirement.

The Tri-Lakes Reliability Project falls within the following zones in the Town of Colton:

RU-1	Rural Industrial
OCP	Open Country Side Park
FM	Forest Management Park
R-RuP	Residential Rural Park
LP	Land Preservation Overlay

The Project is located within the following zones in the Town of Parishville:

AP-RM	APA Resource Management Zone
AP-RU	APA Rural Use Zone

In both the AP-RM and AP-RU zones, all projects are to be referred to the APA for determining compliance with the Adirondack Park Land Use and Development Plan.

In the Towns of Clifton, Parishville and Piercefield the APA Land Use and Development Plan controls the overall density of development and types of land uses that are allowed. The Towns of Colton and Piercefield have site plan review laws, however neither law regulates the placement of utility poles. The Town of Piercefield site plan review law requires that all new land use activities undergo site plan review; however, this local rule will not apply to this Project because it is done by a state agency.

3.11.3 Shoreline Restrictions

The Tri-Lakes Reliability Project is classified as a major public utility use by the APA Act in terms of land use, however, in Agency regulations implementing the Rivers Act at 9 NYCRR 577.2(p) the transmission line constitutes a "River area utility use" and rivers project pursuant to sections 577.5(b)(1)(ix) and 577.5(c)(1) as to that portion of the line within the privately-owned river area."

Part 575 of the Adirondack Park Agency Rules and Regulations Act regulates land use and development of all shorelines in the Adirondack Park. The proposed ROW crosses or is adjacent to numerous streams, ponds and water bodies as shown on Figure 3.5-1, Maps 1 through 8:

Raquette River*	South Branch Grasse River*
Dead Creek Flow	Oswegatchie River*
Jocks Pond Outlet	Cold Brook
Crooked Lake	Felton Brook
Fox Marsh	Tooley Pond Outlet
Carry Falls Reservoir	Windfall Brook

*Protected under the Wild, Scenic and Recreational Rivers System Act

Any body of water in the Adirondack Park that is navigable by boat or canoe is subject to shoreline restrictions (Section 806 of the Adirondack Park Agency Act). Permits may be required for the placement of structures, lot widths, and septic system setbacks, and must adhere to specific cutting restrictions. According to Part 576 of the Adirondack Park Agency Rules and Regulations Standards for Review of Variance (SRV), the shoreline restriction may be modified if the request is the minimum relief necessary, and depending on whether the variance request will adversely affect the natural and scenic resources of the shoreline. Additionally, a variance is required in Wild, Scenic, and Recreational River Areas for projects according to 577.10 of Agency Rules and Regulations to remove vegetation within the minimum setback areas. The stream crossings are necessary to avoid a lengthy utility corridor, and are the most feasible route to use to avoid wasteful clearing patterns.

Any structure exceeding 100 square feet in size must comply with the following setbacks:

Hamlet	50 Feet	Rural Use	75 Feet
Moderate Intensity Use	50 Feet	Resource Management	100 Feet
Low Intensity Use	75 Feet		

Section 814 of the APA Act covers the permitting process for state agency projects. This section and the implementing regulations at 9 NYCRR Part 579 require that state agency projects give due regard to shoreline restrictions.

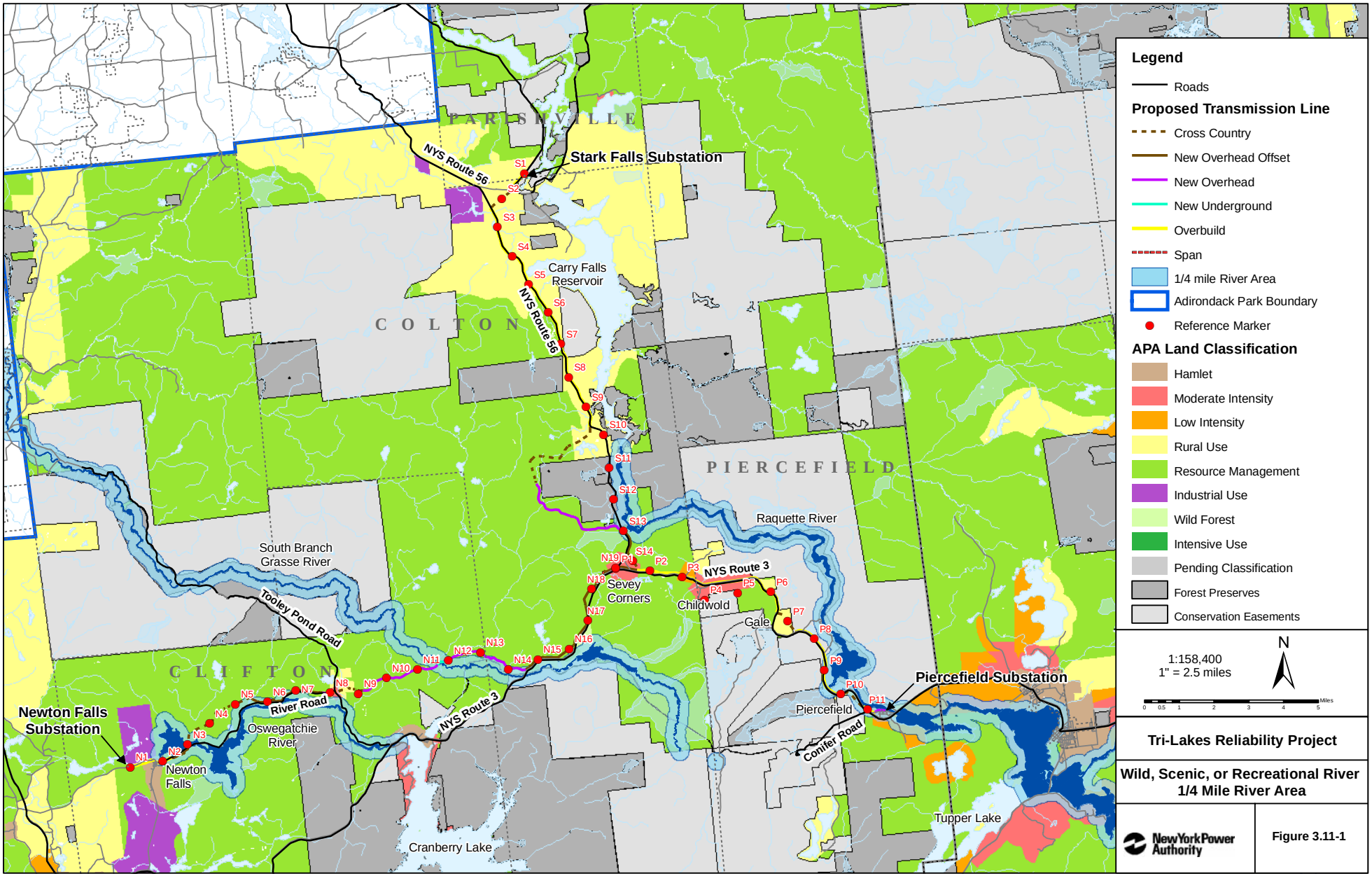
The shoreline rules have the following requirements:

- No cutting of vegetation within 6 feet of mean high water, except that up to 30 percent of the shore front may be cleared of vegetation on any individual lot.
- Not more than 30 percent of the trees 6 inches or more in diameter at breast height within 35 feet of the mean high water mark may be cut over any 10-year period.

3.11.3.1 Wild, Scenic and Recreational Rivers System Act

Rivers designated as Scenic and Recreational are administered by the APA, Part 577. The South Branch Grasse River is listed as a Scenic River, the Raquette River is a Scenic and Recreational River in the project area, and the Oswegatchie River is listed as a Study River. In scenic and recreational river areas, river area utility uses "subject to review by article seven or eight of the Public Service Law will be limited to support structures, lines, cables, pipes, and other associated equipment. Utility uses and accessories will be substantially invisible from the river, not within the mean high water mark, and crossings, if any, not be more frequent than once every two miles."

The Newton Falls – Sevey Corners segment of the Alternate Route crosses both the South Branch Grasse River and the Oswegatchie River, which is listed as a Study River and classified as Resource Management by the APA. According to Section 810, e. (1) (a), of the APA Act, all projects within one-quarter mile of rivers navigable by boat designated to be studied as a wild, scenic, or recreational in accordance with the Environmental Conservation Law during the period of such designation, are reviewed as a Class 'A' Regional Project. Additionally, Study Rivers are subject to the APA Shoreline Restrictions. See Figure 3.11-1 Wild, Scenic, or Recreational River One-Quarter-Mile River Area.



Tri-Lakes Reliability Project

Wild, Scenic, or Recreational River
1/4 Mile River Area

NewYorkPower Authority

Figure 3.11-1

Additional cutting restrictions apply to the shoreline of rivers designated Wild, Scenic and Recreational. The South Branch Grasse, and Raquette Rivers within the study area are designated Scenic and Recreational respectively under the New York State Wild, Scenic and Recreational Rivers Systems Act. A scenic river is a river, or section of river, that is free from diversions or impoundments, has limited road access, and is largely undeveloped. As such, an APA permit is needed for most new uses and structures in the river area, which can be considered the entire area within one-quarter mile of the bank of the rivers within the study areas.

In Part 577, Special Provision Relating to Wild, Scenic, and Recreational Rivers, the construction of a 46 kV line qualifies as a river area utility project. As a river area utility project, crossing of Scenic and Recreational Rivers are permissible under the specific conditions.

In Scenic and Recreational Rivers, the crossing of the river by the conductor can be built provided that visibility of the conductor is minimized (577.6(f)) and that the support structures are substantially invisible. A substantially invisible structure is not readily apparent as to its color, texture, size, or form. To minimize the visibility of the conductor, non-specular wire will be used, the crossing will be as short as possible, and the crossing will be perpendicular to the riverflow.

In the past, scenic river crossings have been built underground to eliminate visibility of the conductor even though the regulation provides for overhead construction.

3.11.4 Forest Preserve Regulations

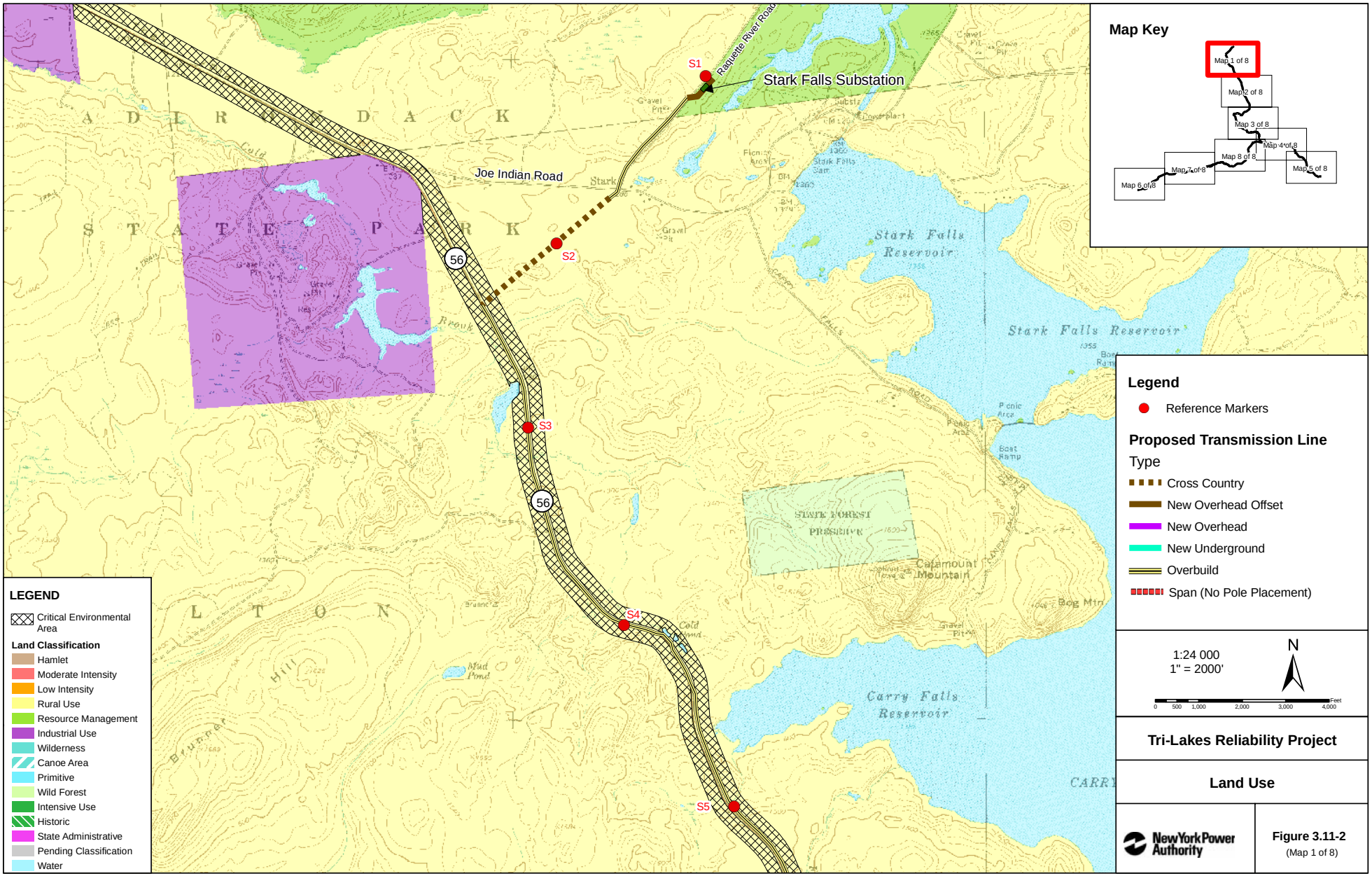
Two New York State designated Wild Forest areas exist within the Project Area, the Raquette Boreal Wild Forest Area, and the Cranberry Lake Wild Forest Area. These lands are designated as Wild Forest, pursuant to the Adirondack Park State Land Master Plan. Wild Forest lands are intended to protect the natural wild forest setting and to provide outdoor recreation activities that allow for public enjoyment without impairing the wild forest environment. Although a somewhat higher degree of human use is permitted in Wild Forest Areas than is allowed in Wilderness, Primitive or Canoe areas, the New York State Constitution (Part XIV, Section 1) mandates that these lands must remain wild and cannot be developed. No new structures are allowed in a wild forest area except in conformity with an adopted unit management plan and related primarily to the recreational use of the land.

3.11.5 Adirondack Park Land Use and Development Plan

Under Section 809 of the Adirondack Park Land Use and Development Plan, the APA has the jurisdiction to review all Class A and B Regional Projects within the Adirondack Park. Pursuant to Section 802 (33) of the APA Act, the APA has jurisdiction to review the Tri-Lakes Reliability Project, defined by the APA as a 'Major Public Utility.' The Major Public Utility designation includes any electric power transmission or distribution line and associated equipment with a rating of more than 15 kilovolts that is one mile or more in length. However, because this 46 kV line project is being undertaken by a state agency, Agency review over it is pursuant to section 814 of the APA Act.

Under Section 805, the APA classifies all private lands within the Adirondack Park into Hamlet, Moderate Intensity, Low Intensity, Rural Use, Resource Management, and Industrial Use. Figure 3.11-2, Maps 1 through 8, show APA Land Use Classifications relative to the Project. APA categories of public and private land within the Project Area include:

- Hamlet
- Moderate Intensity
- Low Intensity
- Rural Use
- Resource Management
- Industrial Use

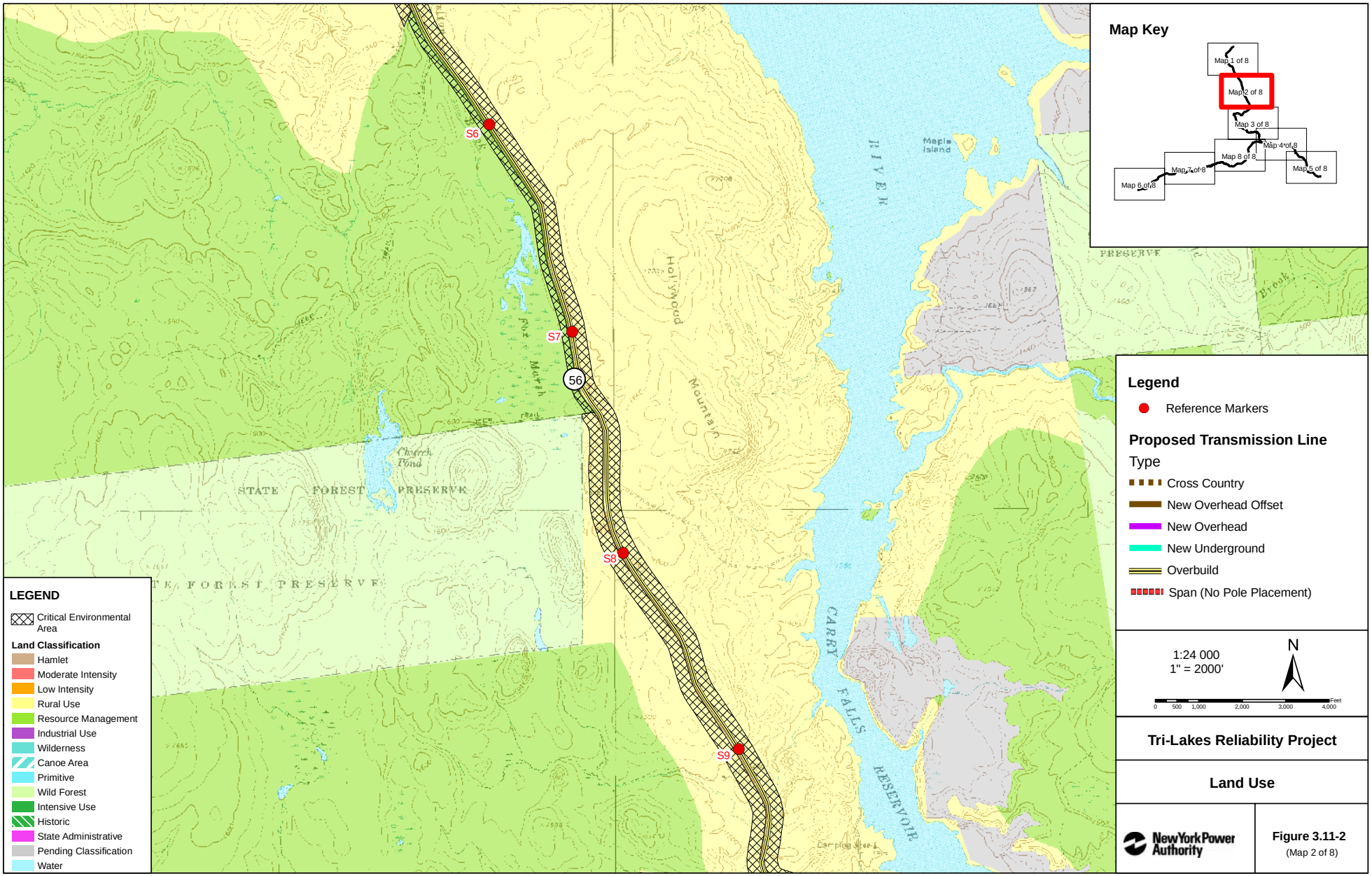


Tri-Lakes Reliability Project

Land Use

New York Power Authority

Figure 3.11-2
(Map 1 of 8)

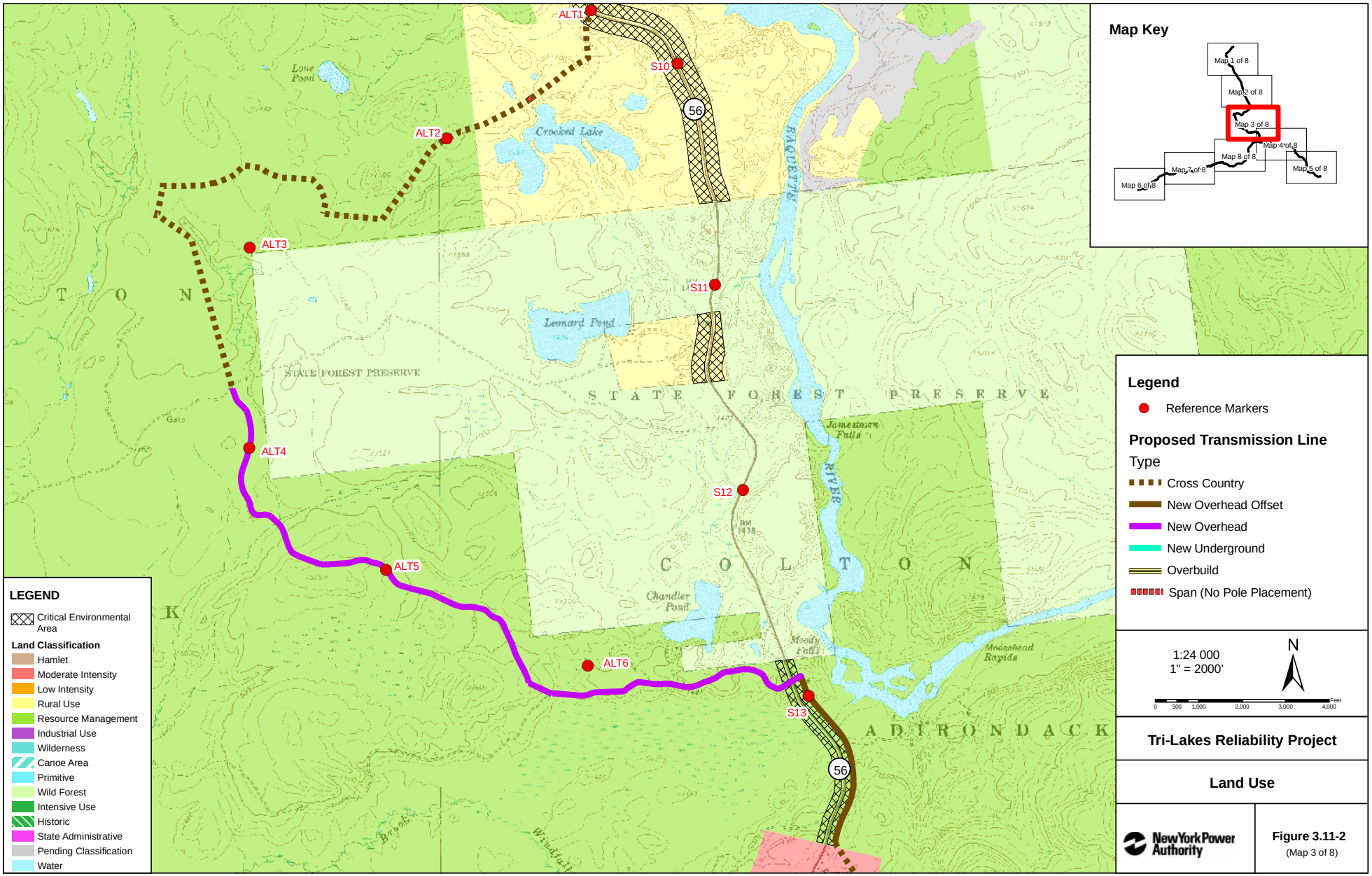


Tri-Lakes Reliability Project

Land Use

New York Power Authority

Figure 3.11-2
(Map 2 of 8)

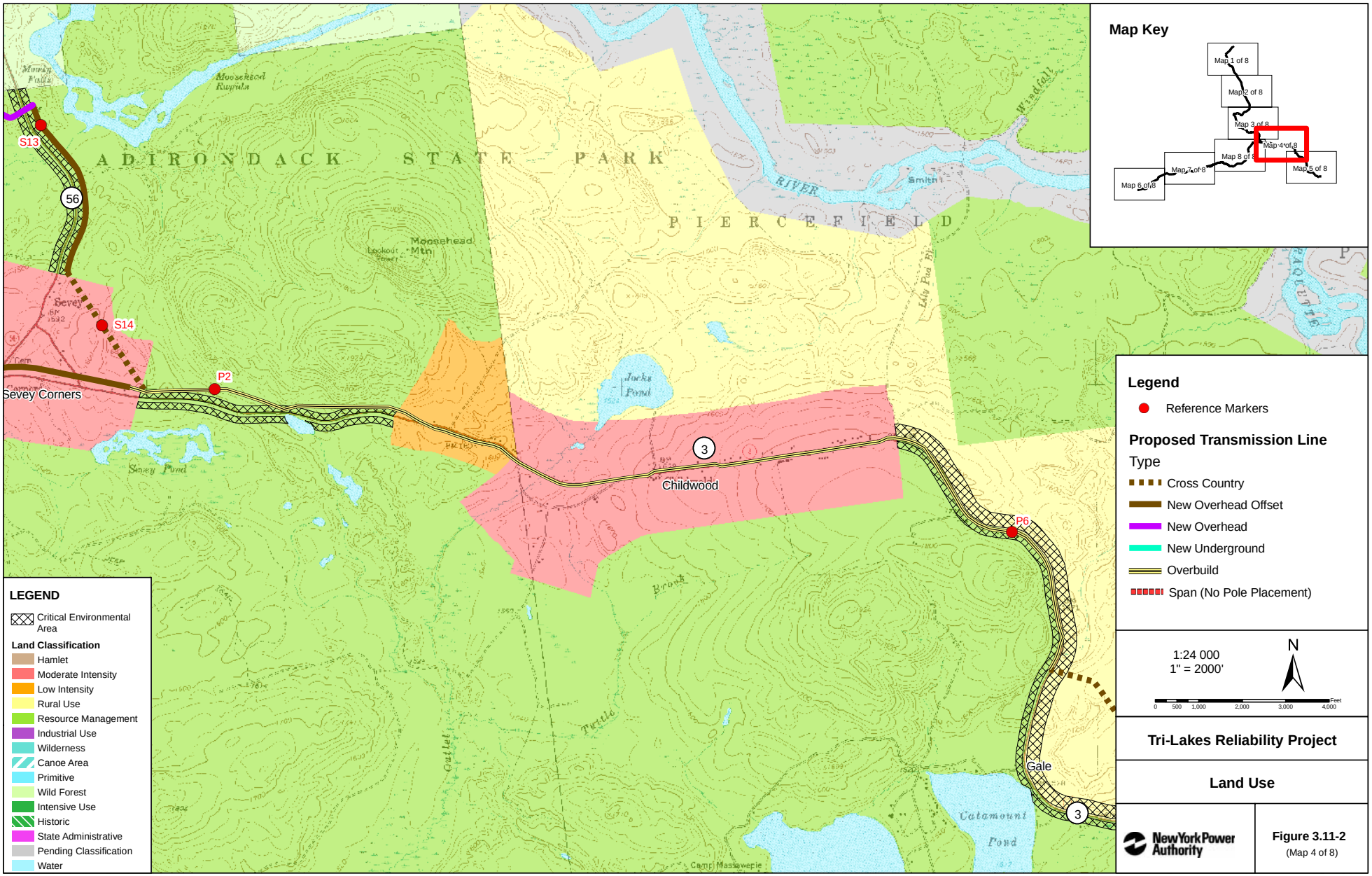


Tri-Lakes Reliability Project

Land Use

New York Power Authority

Figure 3.11-2
(Map 3 of 8)

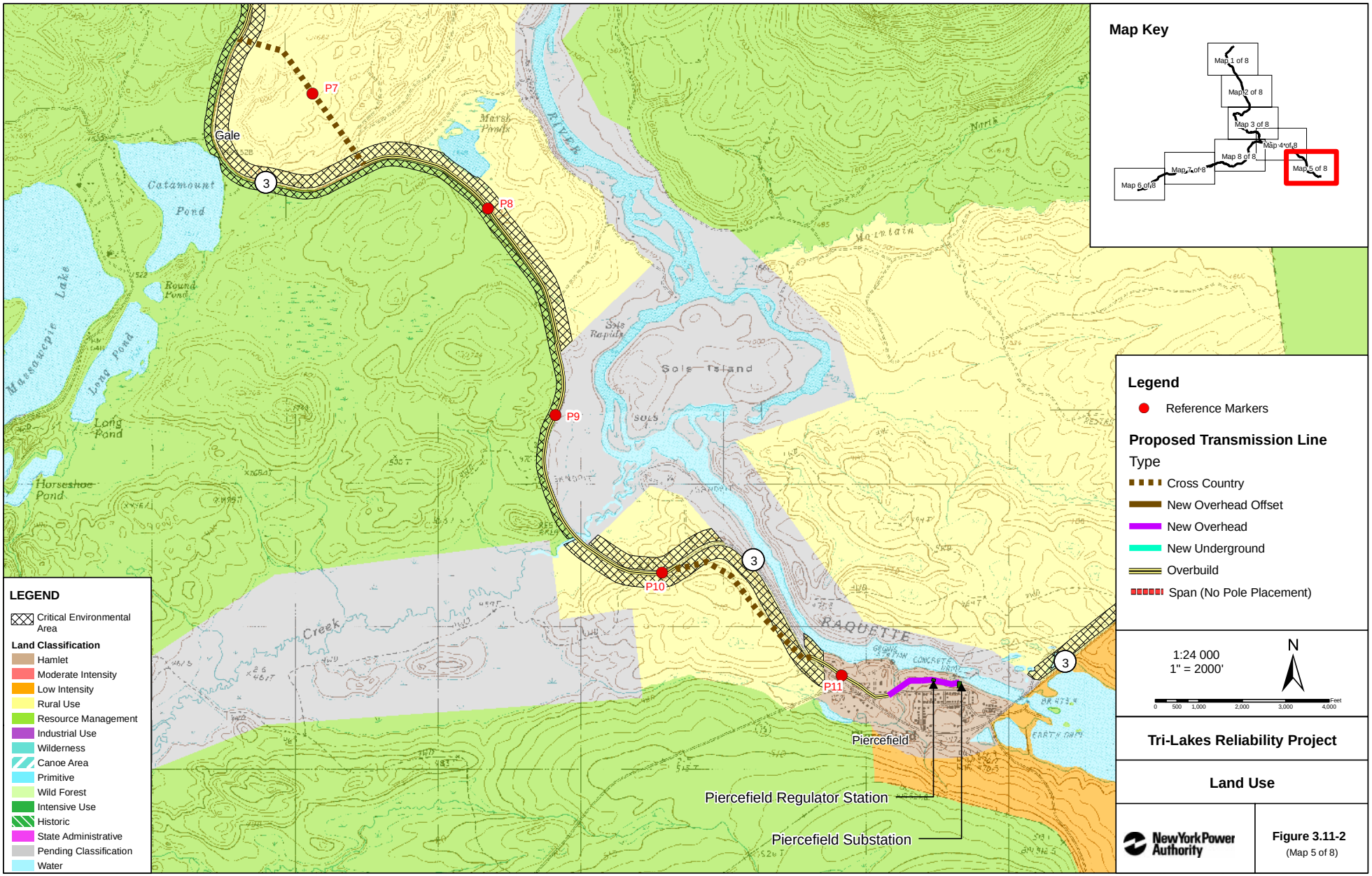


Tri-Lakes Reliability Project

Land Use

New York Power Authority

Figure 3.11-2
(Map 4 of 8)

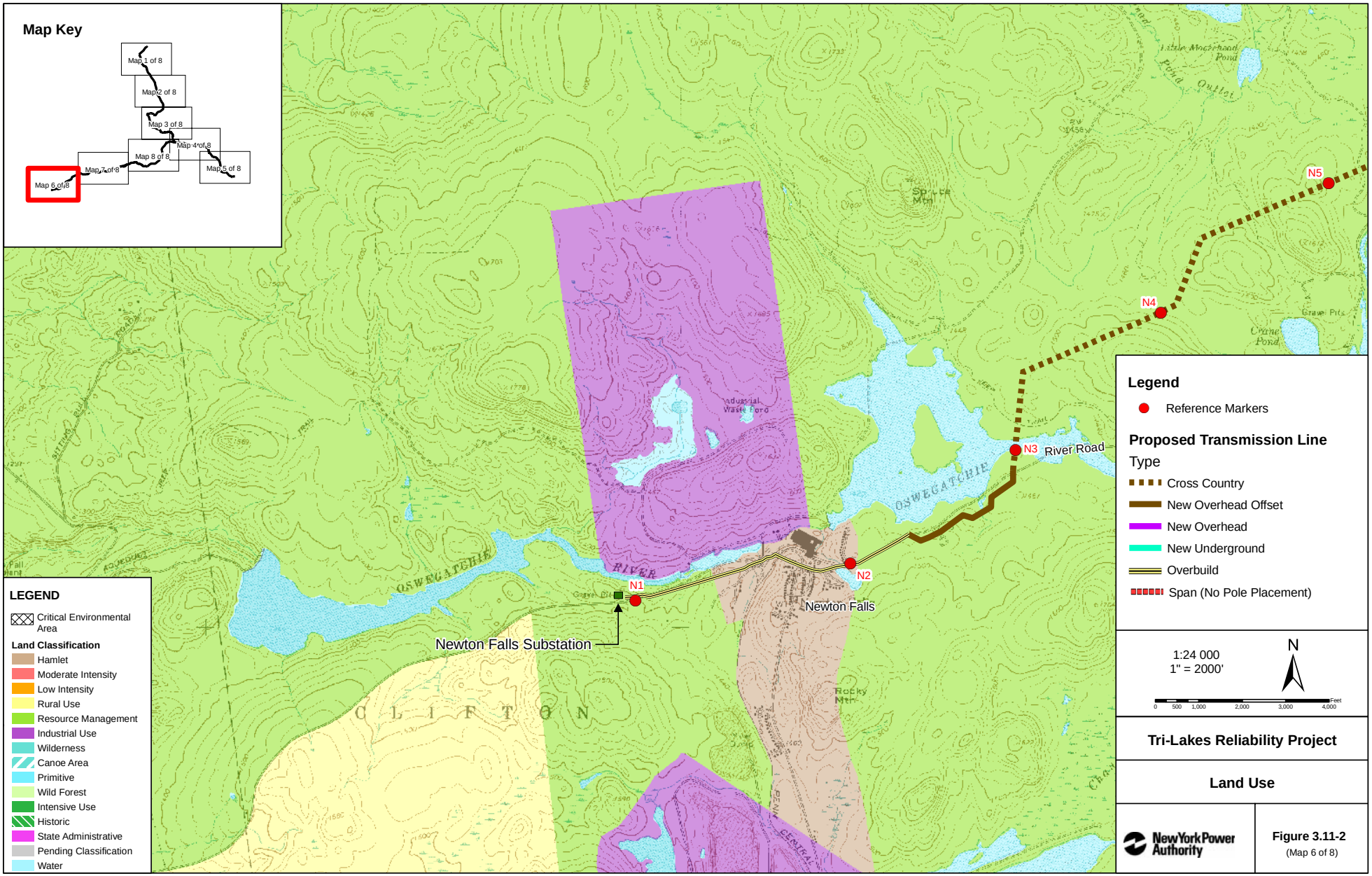


Tri-Lakes Reliability Project

Land Use

New York Power Authority

Figure 3.11-2
(Map 5 of 8)

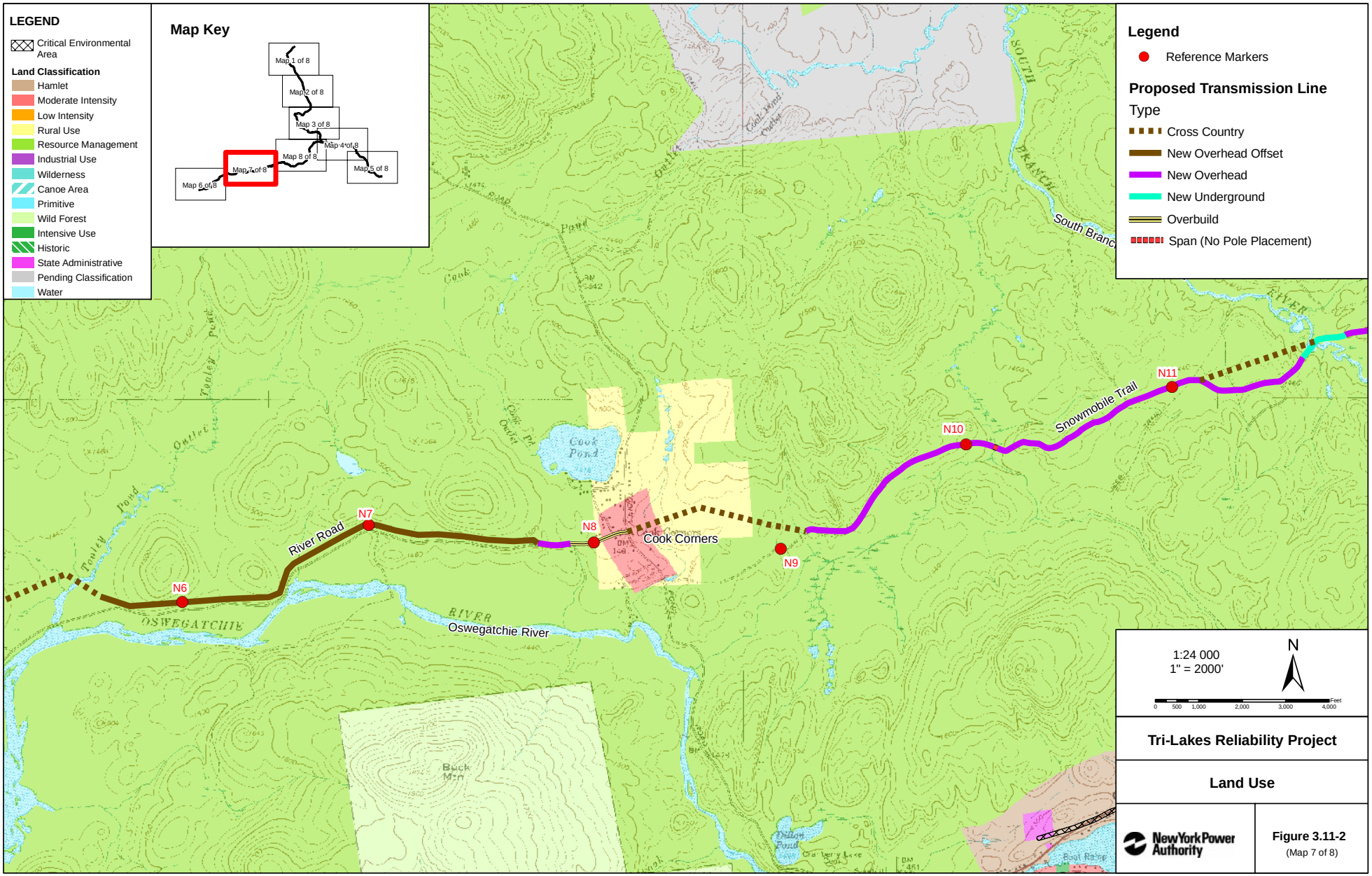


Tri-Lakes Reliability Project

Land Use

New York Power Authority

Figure 3.11-2
(Map 6 of 8)

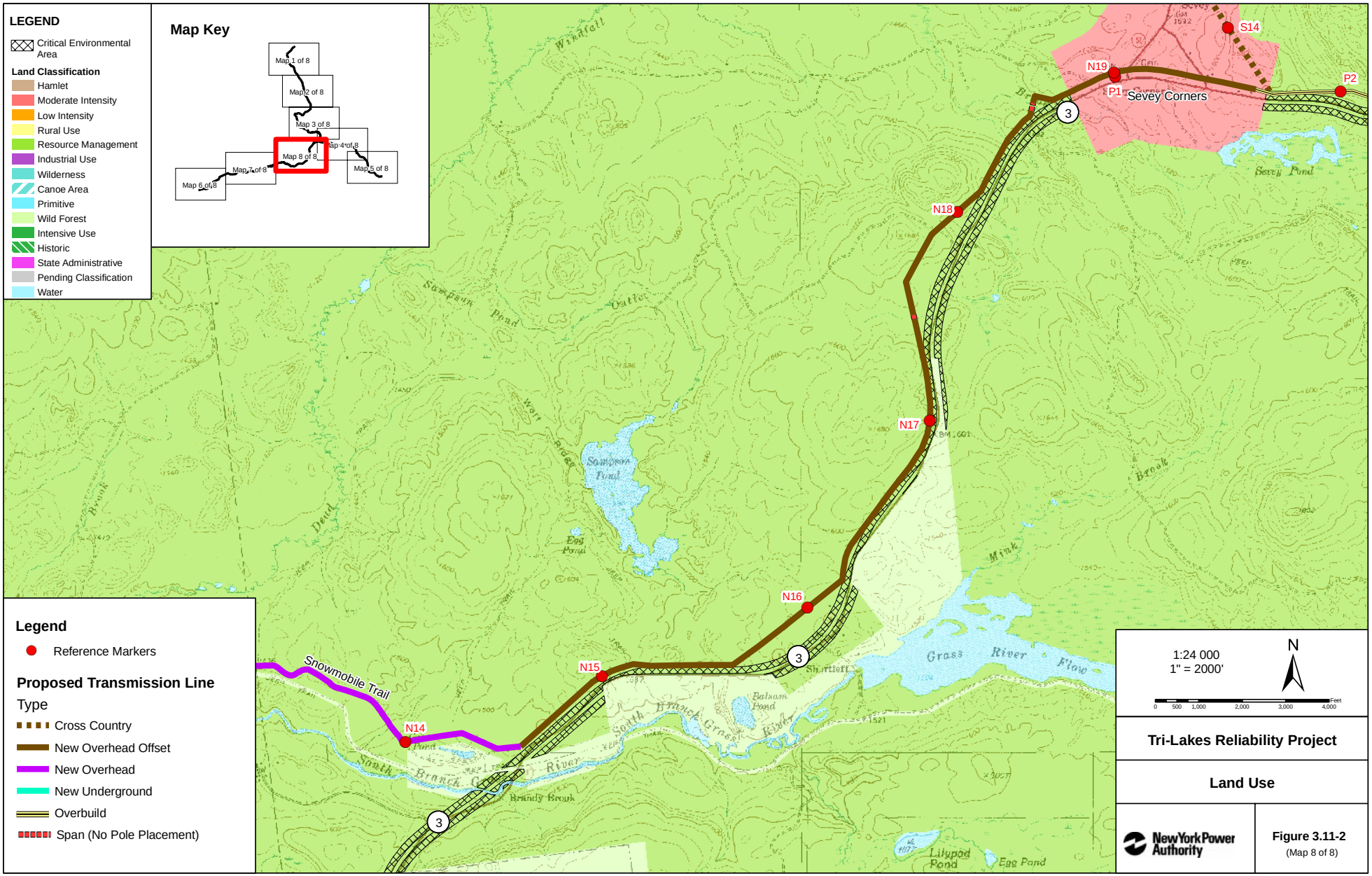


Tri-Lakes Reliability Project

Land Use

New York Power Authority

Figure 3.11-2
(Map 7 of 8)



Tri-Lakes Reliability Project

Land Use

New York Power Authority

Figure 3.11-2
(Map 8 of 8)

Hamlet Areas - Hamlet areas serve as the service and growth centers of the Adirondack Park. Hamlets contain housing, population centers, commercial and industrial uses of the Adirondack Park, and are intended to accommodate year round and seasonal uses. All land uses and development are considered compatible with the character and objectives of the hamlet areas. Major public utilities are considered a compatible use in the Hamlet areas. Newton Falls and Piercefield are the only segments of the Project Area designated as an APSLMP Hamlet on the Adirondack Park Land Use and Development Plan Map (APLUDPM).

Moderate Intensity - Moderate Intensity use areas are typically located adjacent to Hamlets and serve as potential expansion areas for future residential growth, and do not feature physical and biological constraints that would prevent new growth. Cook Corners, Sevey Corners, and Childwold are classified as Moderate Intensity use areas. Within Moderate Intensity areas, the APA Act describes major public utilities as a secondary use.

Low Intensity - In areas designated Low Intensity use, most uses are permitted including residential development at a lower intensity than Hamlet or Moderate Intensity is appropriate. One area of Low Intensity use occurs along the Sevey Corners - Piercefield segment around reference marker P3 west of Childwold.

Rural Use - A major portion of the land along State Route 56, from Stark Falls to the Raquette Boreal State Forest Preserve, as well as the area surrounding Cook Corners is classified as Rural Use within APLUDPM. The purpose of Rural Use areas is to allow for and encourage rural uses that will have relatively low impact on the natural resources of the land and continue to preserve open space areas. Rural Use land features several environmental constraints such as shallow soils, severe slopes, critical wildlife habitat, proximity to scenic vistas, and remote locations. The APA Act describes major public utilities as a secondary compatible use within Rural Use areas.

Resource Management - Land designated as Resource Management is highly prevalent within the study area. The Resource Management designation is intended to protect delicate physical and biological resources, and agricultural and forest resources within the Adirondack Park. The APA Act describes major public utilities a secondary compatible use in Resource Management areas.

Industrial Use - Industrial Use areas are intended to encourage the continued operation of major industrial and mineral extraction uses, and provide for new or expanded industrial uses. The site of the former Newton Falls Paper Company is designated as Industrial Use. Major public utilities are considered a compatible use in Industrial areas.

Wild Forest - About 1.3 million acres of the New York State Forest Preserve land are classified as wild forest in the State Land Master Plan. These lands are also recognized by the APLUDPM. These diverse lands offer a wide range of recreational opportunities. Limited access by motor vehicle is permitted on designated roads, and most trails are open to mountain bicycles. A segment of Wild Forest land is on State Route 56 in the Town of Colton (Raquette Boreal Forest) as described on the State Land Map.

Along state highways, the APA has established critical environmental areas (CEAs) in Rural and Resource Management Areas. In Rural Use areas, the CEA is 150 feet wide and in Resource Management Areas, the CEA is 300 feet wide. Land use and development activities in the CEA is regulated by the APA. The proposed offset of 200 feet from pavement edge is fully within the areas regulated by the APA.

3.11.6 Recreational Resources

The Tri-Lakes Reliability Project is within the portion of St. Lawrence County known for its vast tracts of wild terrain and remote wilderness. As such, many recreational opportunities exist in the region. Hiking,

fishing, canoeing, hunting, snowmobiling and various other recreational activities are common within the Project Area.

NYSDEC Hiking Trails - The NYSDEC maintains trail registers at Bear Mountain, Cat Mountain and Mt. Arab, which are located approximately 10, 15, and 5 miles respectively from the project. The registers are only moderately accurate because visitors are not required to sign in, however, they provide useful information about the average numbers of visitors per year and when the trails have the most use. Trails see the most activity during the summer months, primarily beginning in May through early September. To assess the frequency of trail visits, registries from 1999-2004 were tabulated.

Located off of State Route 3 in the Town of Piercefield, Mt. Arab is the most frequented trail in the area, with 2,000 to 3,000 visitors per year from 1999-2004 (Lake Placid, 2001). The number of visitors can be attributed to the restoration efforts underway to save the fire tower at the summit of the mountain (www.tupperlake.net). The Mt. Arab fire tower is the last of seven towers in St. Lawrence County and has become a popular destination for hikers.

Approximately 3,000-5,000 people visited Bear Mountain, adjacent to Cranberry Lake yearly from 1999-2004 (NYSDEC Trail Registers). Cat Mountain, the other mountain within the Project region, has two trailheads, one at Dead Creek Flow in the Town of Clifton and the other at Janacks Landing. According to the trail registers, between 700-1000 people frequented the Dead Creek Flow trail, and between 200-650 people utilized the Janacks Landing trail.

Brascan Power Corporation - Brascan Power Corporation owns and operates the hydroelectric dams along the Raquette River (formerly owned by Orion Power Corporation). Several public access points are provided along the River, two of which are located directly off State Route 56. The Blake Falls Reservoir contains 58 public access sites and permits boating, fishing and picnicking. Sixteen public access sites are available at the Carry Falls Reservoir where boating, fishing and camping are allowed. Access is permitted from May through September.

Cranberry Lake State Campground & Wild Forest - The NYSDEC maintains 179 camping sites at Cranberry Lake, and 39 sites at the Cranberry Lake Wild Forest. Fishing, hiking, boating, picnicking and organized recreational activities are offered from May through October. Cross county trails are maintained during the winter at both the campground and the wild forest.

Fishing - Many fishing opportunities exist in St. Lawrence County. The NYSDEC does not maintain any public fishing rights, however, access can be gained through links with state and public lands throughout the region. The St. Lawrence County Tourism Guide lists the following water bodies for strong fishing populations and good access:

- Oswegatchie River
- Grasse River
- Raquette River
- Cranberry Lake
- Star Lake

Hunting - Several private hunting lands are located in St. Lawrence County through sports clubs and game preserve. Hunters often track local populations of deer, turkey, partridges, and other small game animals. Hunting opportunities are also permitted on public lands where marked.

Snowmobiling - Snowmobiling is very active in St. Lawrence County, with the heart of the County trail system situated between South Colton and Cranberry Lake, and crossed by many secondary trails. Parking, gas, food, and lodging is available at many of the small hamlets along the trail system. Many of the trails are within easements with private landowners and are maintained through member dues. Many of the main trails run through the wooded areas off of State Route 3 and State Route 56.

3.12 Visual Resources

The Project Area is located within the Adirondack lowlands, with the St. Lawrence River Valley to the north and northwest and the Adirondack highlands to the east. Moderate to heavy forest cover with rolling, variable topography characterize the area and limit long vista opportunities.

As discussed in the *Land Use* (Section 3.11), the Adirondack Park is a mix of public and private lands that occupies approximately 6,500,000 acres in northern New York State. The public lands are managed in accordance with the Adirondack State Park Master Plan. The Project Area is primarily rural and sparsely populated. Residential homes and sporadic businesses are located along both State Route 56, the Stark Falls Preferred Route, and State Route 3, the Newton Falls Alternate Route. The Stark Falls Preferred Route extends from Stark Falls to Sevey Corners mainly along State Route 56 through primarily resource management and forest preserve lands.

The Newton Falls Alternate Route begins in the hamlet of Newton Falls, a densely populated village with a mix of residential and commercial uses. This route continues east mostly along local roads, snowmobile trails and State Route 3 through forest, undeveloped resource management lands. Only one small settlement, Cook Corners, occurs between Newton Falls and Sevey Corners.

From Sevey Corners to Piercefield, the route would be mostly overbuilt with existing utilities. In this segment, the route (Preferred and Alternate) passes through Childwold and terminates at Piercefield with much of the land forested and designated resource management with some moderate intensity land use.

In line with APA guidance existing utility lines offer potential routing opportunities for the Preferred Route and to a lesser extent, the Alternate Route. Existing distribution lines and poles are either adjacent to or offset from local roads, and are back-dropped or sky-lighted (see structures in Section 4.11.5). Where poles are offset or back-dropped, surrounding vegetation is well developed and filled in, providing effective screening for the wood poles and conductors. Poles and lines are substantially invisible at a distance of 3 miles, which is used as the far view distance in the Visual Impact Assessment. At this distance, the forest texture is characterized by the masses of trees in stands of uniform cover.

Although view avenues exist at cleared road crossings, on waterways, or from mountain top lookouts, opportunities for long vistas are commonly restricted by topography and forest vegetation. In general, viewers must be adjacent to or in close proximity to the line to be afforded views.

Examples of the visual character of the Project region and existing conditions are shown in photographs, below. To identify photo locations, please refer to the Photo Location Map in Appendix D. More details and additional photos are also available in the Visual Impact Assessment, Appendix D of this DEIS.

Photo R1, below, depicts the rolling foothills and topography that is characteristic of the region. It was taken from the Wanakena Ranger School fire tower, looking northward. The photo does not depict a view of a proposed Project location, rather, it is provided as an example of the general character of the lands in which the Project will be located.

Photo RI

Photo *S5AN*, below, depicts the character of State Route 56, looking north, along the Stark Falls Preferred Route. It also depicts the existing local distribution line. The topography is typical of the Adirondack lowlands. Vegetation is dominated by deciduous forest.

Photo S5AN

Photo N1BE, below, depicts the character of NYS Route 3, along the Newton Falls Alternate Route. As in *Photo S5AN*, the topography depicted here is typical of the Adirondack lowlands. Vegetation is dominated by deciduous forest.

Photo N1BE

Photo N2AW shows existing distribution lines and utility poles in the Hamlet of Newton Falls. Vegetation consists of grasses, shrubs, and both deciduous and evergreen trees.

Photo N2AW

Photo P11DE, below, was taken along State Route 3, looking east, in the Hamlet of Piercefield. The photo shows existing distribution lines and utility poles. Vegetation consists of grasses, shrubs, and both deciduous and evergreen trees.

Photo P11DE

Photo N13CW depicts the proposed location of the road crossing over a Grasse River tributary, along the Newton Falls Alternate Route. Topography along the river is generally flat. Vegetation consists of grasses, shrubs and wetland plants. Trees in this area are mainly evergreens.

Photo N13CW

Photo N3EW depicts the proposed location of the Oswegatchie River crossing along the Newton Falls Alternate Route. Topography along the river is generally flat. Deciduous trees dominate the landscape- in this photo the trees are in leaf-off condition.

Photo N3EW

Photos *A5AN* and *A5CW* are examples of woods roads along the Stark Falls Preferred Route. This area is typical of Adirondack lowland topography. The area is dominated by gentle, rolling hills. Vegetation is a mix of grasses, woody shrubs, deciduous trees and evergreens.

Photo A5AN

Photo A5CW

3.13 Public Health & Safety

3.13.1 Public Health

The Tri-Lakes Region contains a number of medical facilities that serve the resident and visitor populations of the area. The Clifton-Fine Hospital, in Star Lake, located southwest of Newton Falls, is the only major medical facility within St. Lawrence County in towns in which the proposed 46 kV line is to be located. The Clinton-Fine Hospital provides ambulance transport and 24-hour emergency services, and contains 20 acute care beds (St. Lawrence County Industrial Development Agency). The region is also served by the Adirondack Medical Center, which is comprised of a full service medical center with a 97-bed acute care general hospital in Saranac Lake, a major facility in Lake Placid with a 24-hour emergency department, and several Community Health Centers, one of which is located in the Village of Tupper Lake. The facilities are available to residents and visitors to the area.

All fire departments within St. Lawrence County also contain State-certified rescue squads, which are staffed by Emergency Medical Technicians and have Advance Life Support capability. Emergency helicopter evacuation is available from Saranac Lake. (St. Lawrence County Industrial Development Agency). Within Lake Placid, emergency medical assistance is provided by the Lake Placid Volunteer Ambulance Service, which provides advanced EMT and critical care.

3.13.2 Public Safety

Police and law enforcement in the four towns of St. Lawrence County that comprise the Project Area for the 46 kV line is provided by the state police and sheriff. The New York State police in St. Lawrence County operate out of five substations, one of which is located in Star Lake. Essex and Franklin Counties, in which Lake Placid and Tupper Lake are located, also contain both police and sheriff departments.

Fire protection in St. Lawrence County is provided by 43 separate fire departments, all but one of which, Ogdensburg, are volunteer units. The County operates a mutual aid plan that allows any fire department to obtain the assistance of additional fire fighters and rescue units during an emergency situation.

The Tupper Lake Volunteer Fire Department protects people living in an area of about 50 square miles. It operates out of 2 stations with a combination of paid personnel and volunteers. Lake Placid operates a volunteer fire department that provides firefighting services to the Village of Lake Placid.

3.14 Socioeconomics

This section of this DEIS provides information about the county and towns in which the proposed line will be located, as well as the villages of Lake Placid, Saranac Lake and Tupper Lake that will receive electricity from the new line.

3.14.1 Population

Corridors considered for siting the 46 kV line are located in the towns of Clifton, Colton, Parishville and Piercefield in St. Lawrence County and within the Adirondack Park. Overall, the area can be characterized as rural with minimal development or industry. Population within the area is generally located within small villages and hamlets.

The new 46 kV line will deliver electricity and improve the reliability of the electrical delivery system in the Tri-Lakes Region, including the villages of Tupper Lake and Saranac Lake in Franklin County and the village of Lake Placid in Essex County. Of the towns and villages directly affected by the Project, Lake Placid and Saranac Lake are the most developed with numerous facilities to support tourist activities. Table 3.14-1 lists population of counties, towns and villages in the Project Area. Figure 1.1-1 shows the political boundaries of incorporated towns and villages in the Project Area.

Table 3.14-1: Population Statistics for the Project Region

Village/Town	2004 Estimated Population	2000 Population	1990 Population	1980 Population	1960 Population
St. Lawrence County	111,306	111,931	111,974	114,254	111,239
Town of Clifton	783	791	1,274	1,005	1,306
Town of Colton	1,481	1,453	1,274	1,292	1,195
Town of Parishville	2,058	2,049	1,901	1,951	1,473
Town of Piercefield	296	305	285	365	420
Franklin County	51,009	51,134	46,540	44,929	44,742
Saranac Lake village	4,950	5,075	5,377	2,713	1,780
Harrietstown	5,563	5,575	5,621	5,604	
Tupper Lake village	3,870	3,935	4,087	4,478	5,200
Altamont	6,054	6,137	6,199	6,318	
Essex County	38,901	38,851	37,152	36,176	35,300
Lake Placid village	2,711	2,638	2,485	2,490	2,998
North Elba	8,998	8,661	7,870	6,597	

NA – not available

Sources: U.S. Census Bureau, 2005a. U. S. Census Bureau 2005b, Census Bureau 2005 c.
U.S. Census, Regional Population Data Center, SUNY, Plattsburgh, NY

Although the region has seen an expansion in second homes and cottages, the year-round population has changed little in the last 44 years. Between 1960 and 2004, the resident population of St. Lawrence County changed by only 0.06 percent and has, in fact, seen a slow but steady decline in population since 1970 (St. Lawrence Co. Industrial Development Agency, undated). Compared to all 61 counties in New

York State, Essex, Franklin, and St. Lawrence Counties ranked 36 (0.4 percent), 45 (-0.2 percent), and 47 (-0.2 percent) in population change between 2000 and 2003.

Of the four towns in which the proposed ROW is located, Parishville is the most developed and Piercefield is the least, with population densities of 20.9 and 2.9 people per square mile, respectively in 2000. Population densities in the towns of Clifton and Colton were 5.8 and 6.0 people per square mile, respectively (St. Lawrence County Industrial Development Agency, undated).

Electricity from the proposed line will increase the reliability of electricity in the villages of Tupper Lake, Saranac Lake and Lake Placid. The 2000 Census counted 3,935, 5,075 and 2,638 residents in Tupper Lake, Saranac Lake and Lake Placid, respectively. As noted in Table 3.14-1, the populations of both Tupper Lake and Saranac Lake decreased approximately four and seven percent, respectively, between 1990 and 2000, and estimates for 2004 indicate that that trend is continuing. Lake Placid's population increased by about 10 percent and is projected to continue to grow.

The New York Statistical Information System at Cornell University has developed population projections for counties within New York State. Table 3.14-2 lists population projections through 2015 for the three counties in the study area. As noted in the table, only modest growth is projected in the counties potentially affected by the proposed Project.

Table 3.14-2: Population Projections by County

	Essex County	Franklin County	St. Lawrence County
2005 Projected Population	39,545	53,410	113,143
% increase 2000 to 2005	1.8%	4.5%	1.1%
2010 Projected Population	40,142	55,723	114,167
% increase 2005 to 2010	4.1%	4.3%	0.9%
2015 Projected Population	40,629	58,004	115,090
% increase 2010 to 2015	1.2%	4.1%	0.8%
Total increase 2000 to 2015	**4.6%**	**13.4%**	**2.8%**

Source: Cornell University, 11/19/02.

The census counts represent only a fraction of the population in the region at any point in time. Tourism and recreation play a major role in the economy and add substantially to the total number of individuals in the region. The APA's 2003 Annual Report noted that about 12 million people visit the park annually (APA, 2004). Although outside of the project area, the Adirondack Park campground at Cranberry Lake, near the western end of the project Alternate Route, annually received in excess of 30,000 visitors (Nelson A. Rockefeller Institute of Government, 2004). Of the communities potentially affected by the Project, the Village of Lake Placid currently receives the most tourism, with over 1.8 million visitors annually (www.Lake-placid.ny.us/). Section 3.14.6 provides information on recreational resources in the Project Area.

Several projects are currently proposed or under construction that could increase tourism in Tupper Lake.

- The Natural History Museum, scheduled to open in the summer of 2006, predicts that it could attract 100,000 visitors a year, with an estimated 1/3 of the visitors to the Museum staying one additional night in the Adirondacks. (Memo from John Kopp, Executive Director, Tupper Lake Chamber of Commerce to Sandy Strader, Mayor of Tupper Lake, 11/25/03).

- The Adirondack Club and Resort, currently under review by the APA, is proposed to include 699 residential units (detached and attached units) which could be used for either primary residence, 2nd home, or short-term visits. It is estimated that approximately 234 people in the residential

units will use the units as their primary residence. In its fourth year of operation the Club and Resort is anticipated to attract over 500,000 visitors.

- In June 2005, the Tupper Lake Town Board passed a resolution to allow the Adirondack Public Observatory Inc. to purchase land at the intersection of North Little Wolf and Big Wolf roads for the purpose of building the Adirondack Park Observatory. Among other things, the organizations mission includes providing "families, civic and community groups the opportunity to view the night sky" and to "encourage and support amateur astronomers of all generations"…it is unclear how many individuals will visit the Observatory from outside the region. Fundraising activities are underway for construction of the facility and an opening date has not yet been identified.

3.14.2 Housing

Housing stock in the Project Area reflects the general population dynamics of the region and consists of both year-round and seasonal residences. Of the 49,721 housing units counted in St. Lawrence County in the 2000 decennial census, approximately twelve percent were identified as seasonal use dwellings. Within the four towns in which the Preferred and Alternate Route ROW are located, seasonal housing represents a far larger percent of the total housing stock. As shown in Table 3.14-3, the Town of Piercefield contains the highest percentage of seasonal housing stock with 64 percent of all housing units designated for seasonal, recreational or occasional use.

Table 3.14-3: Housing in the Project Region - 2000

Village/Town	Total Housing Units	For Seasonal, Recreational or Occasional Use	
		Number of Units	Percent of Total Housing
Franklin County	49,721	6,106	12.3
Town of Clifton	775	390	50.3
Town of Colton	1,163	478	41.1
Town of Parishville	1,204	322	26.7
Town of Piercefield	417	267	64.0
Franklin County	23,936	4,302	18.0
Saranac Lake village	2,854	80	2.8
Harrietstown	3,417	543	15.9
Tupper Lake village	1,839	29	1.6
Altamont*	3,118	513	16.5
Essex County	23,115	6,118	26.5
Lake Placid village	1,765	221	12.5
North Elba	3,991	571	14.3

* Tupper Lake Town – referred to as Altamont by the US Census.
Source: US Census Bureau, Census 2000.

With the exception of the village of Lake Placid, which issued a large number of building permits in 2001 and 2002, new construction of housing has remained relatively stagnant in the Project Area. Table 3.14-4 lists the number of building permits issued for single family new house construction by year since 1996.

Table 3.14-4: Single-family New House Construction Building Permits							
Year	**Tupper Lake**	**Lake Placid**	**Saranac Lake**	**Clifton Town**	**Colton Town**	**Parishville Town**	**Piercefield Town**
2004	7	2	4				
2003	3	7	8	7	13	11	0
2002	2	59	2	2	12	10	0
2001	4	55	3	0	11	7	0
2000	4	4	2	3	16	8	0
1999	6	4	2	3	15	11	0
1998	2	4	2	4	15	3	0
1997	5	1	4	2	13	4	0
1996	NA	3	1	1	14	16	1

NA – Not available
Source: Peter Edwards, Tupper Lake Building Code Officer; Jim Morgansen, Lake Placid Zoning/Code Officer; and Ed Randig, Saronac Lake Zoning Code Officer; personal communication with Meredithe Smith, The LA Group, 10/27/05.

In addition to housing, the towns and villages in the study region contain hotels, motels, inns and cottages that provide accommodations to visitors. St. Lawrence County estimates that about 90 separate such establishments are located in the county with a total of 1,229 rooms and a combined capacity for 4,205 people (St. Lawrence Industrial Development Agency).

In contrast to St. Lawrence County and the four towns along the Preferred and Alternate Routes, seasonal housing units represent a much smaller portion of total housing in the villages of Tupper Lake, Saranac Lake, and Lake Placid. Tourist accommodations are plentiful, however, in Lake Placid and Saranac Lake where 26 different establishments providing travel accommodations were counted in the 2002 Economic Census, 23 of which were identified as hotels. According to the Village's Building Inspector, plans are on the books for a new 96-unit hotel, existing hotel expansion of 40 units, 137 new house lots, 84 condominium units, and 26 duplexes in Lake Placid.

Conversations with the director of the Lake Placid Chamber of Commerce, James McKenna, indicate that Lake Placid has seen an increase of roughly 210 hotel rooms in the past five years, which includes the completion of the Whiteface Lodge. In addition, the Marriott Courtyard will provide 90-95 rooms when it opens in 2006 and the Holiday Inn/Crown Plaza is in the planning phase for 40 additional rooms. Many smaller motels and motor lodges have been transformed and upgraded, but overall the growth in the area has been in the form of second homes and condominiums, which the Chamber does not track. While Mr. McKenna does not forsee any major new chain hotels or resorts moving into the area in the near future, the potential remodeling of the Lake Placid Conference Center, called for by the Governor, and the conversion of the Plattsburg Airport from a commuter airport into an International airport, could further increase tourist visitation to the area and demand for hotel space.

While smaller in size than Lake Placid, Saranac Lake and Tupper Lake also provide facilities that cater to tourists. According to the Saranac Lake Area Chamber of Commerce, eight hotels and motels are located in Saranac Lake, along with numerous camps, bed and breakfast inns and cabins. Tupper Lake contains three establishments catering to tourists, one of which is an RV park and camp (U.S. Census Bureau, 2005c). According to the Building Inspectors of Saranac Lake and Tupper Lake villages, there has been no new hotel or motel construction in either community in the past five years (M. Smith telephone notes, 10/27/05). The Adirondack Club and Resort, if permitted would add 699 time share units (attached and detached) to Tupper Lake.

Although a number of major and minor subdivisions have been permitted since 2001 in Tupper Lake (23 lots), Harrietstown (36 lots), and North Elba (43 lots), they have primarily been subdivided on speculation with minimal home construction occurring. As noted in Table 3.14-4, with the exception of Lake Placid permits in 2001 and 2002, the towns and villages in the Project Area have shown little demand for new home construction.

According to Steve Ehrman of the APA, there has been a shift in second home purchase in recent years. Previously second home buyers focused on properties on lakes in the region. More recently, homes within the villages have been purchased for second home use, thereby raising housing values and displacing year-round residents. As a result, discussions are being held concerning the need to construct new housing for the area workers that have been displaced.

3.14.3 Employment

Following World War II, as mines and mills in the area closed and the nature of tourism changed, many hamlet areas in the Park experienced a period of decline and population loss. In the mid-1980s and early 1990's, two reports were published by the APA that addressed overall hamlet growth and redevelopment strategies and discussed population growth in the Adirondack Park. In 1985 the APA published *Hamlets in the Adirondacks, a Manual of Development Strategies* as guidance on growth and redevelopment in the Park. In 1990, the APA published an additional report, *The Adirondack Park in the Twenty-First Century* which outlined issues faced by hamlets and identified measures to better address those issues. In particular, the reports recognize the economic issues facing hamlets and residents in the Park and the need for greater economic development opportunities. The 1985 report recognizes the need to attract industry-resource based, non-recreational manufacturing jobs at locations with adequate public infrastructure and highway access. A chapter entitled *Economic Development in the Adirondack Region Towards the Twenty-First Century* in the 1990 report, specifically stresses the need to build the physical and other infrastructure needed to sustain future economic growth, although it does caution that the manner, timing, and location of infrastructure development can have a strong impact on development patterns.

Today, residents of the Tri-Lakes Region are primarily employed in non-manufacturing industries, with government, service industry, and retail trade comprising a majority of area employment. Within the region, the government is a major employer, with over one quarter of all employed persons in each of the three Project Area counties working in a state or local government job. Within Essex and St. Lawrence Counties the percentage of government jobs relative to total non-farm employment in each county remained constant over the past 14 years, at 28 percent and 29 percent, respectively. Within Franklin County, however, the relative number of government jobs decreased by 6 percent, from 38 percent of all non-farm employment in 1990, to 32 percent in 2004.

According to the US Census Bureau, there has been a slight shift in the focus of non-government employment in the area. The 1990 decennial census identified retail trade as the primary employment sector in the villages of Lake Placid and Tupper Lake. The manufacturing sector was the leading non-government employer in 1990 in the town of Clifton, education services employed the largest percentage of non-government workers in the towns of Colton and Parishville, and health services lead non-government employment in Piercefield. In 2000, the census identified education, health and social services as the leading industry sector for non-government employment in all of the communities except Lake Placid, which had almost 32 percent of its work force employed in the arts, entertainment, recreation, accommodation and food services sector.

In keeping with the shift in employment focus noted by the 2000 census, within the seven New York counties that comprise the region referred to as the "North Country" (including Essex, Franklin and St. Lawrence Counties), the New York Department of Labor noted that the largest gains in employment in 2004 were registered in retail trade, educational and health services, leisure and hospitality, and professional and business services. The only private sector industry to experience appreciable job loss in the region was manufacturing (New York State Department of Labor 2005). In the previous year, employment gains in the North Country were led by leisure and hospitality and retail trade (New York State Department of Labor, 2004). It is believed that the leisure and hospitality industry suffered in 2004 from a wet, rainy summer season. Predictions are that the region will get a boost in 2005 from the opening of the Whiteface Lodge, a resort hotel, in Lake Placid (New York State Department of Labor, 2005). Table 3.14-5 lists employment by industry in the counties in the Project Area.

Table 3.14-5: Non-Agricultural Employment by Industry - 2000

Industry Sector	Number of Employees							Percent of Total Employed						
	Lake Placid Village	Tupper Lake Village	Clifton Town	Colton Town	Parishville Town	Piercefield Town	Saranac Lake	Lake Placid Village	Tupper Lake Village	Clifton Town	Colton Town	Parishville Town	Piercefield Town	Saranac Lake
Agriculture, forestry, fishing & hunting	1	29	3	20	46	5	9	0.1	1.6	1.2	3.3	5.0	3.2	0.3
Construction	101	121	24	56	77	9	56	7.0	6.5	9.3	9.3	8.4	5.7	6.0
Manufacturing	32	141	45	54	59	25	95	2.2	7.5	17.5	9.0	6.4	15.9	3.6
Wholesale trade	31	0	2	6	14	0	21	2.2	0.0	0.8	1.0	1.5	0.0	0.8
Retail trade	149	157	13	76	121	23	303	10.4	8.4	5.1	12.6	13.2	14.6	11.6
Transportation, warehousing & utilities	36	70	29	29	42	3	81	2.5	3.7	11.3	4.8	4.6	1.9	3.2
Information	33	18	0	9	25	9	42	2.3	1.0	0.0	1.5	2.7	5.7	1.6
Finance, insurance, & real estate	50	51	0	20	14	4	99	3.5	2.7	0.0	3.0	1.5	2.5	3.8
Professional services	77	39	0	37	40	4	161	5.4	2.1	0.0	6.2	4.4	2.5	6.2
Educational, health social services	318	792	98	206	312	40	778	22.2	42.4	38.1	34.3	34.0	25.5	30.0
Arts, entertainment, recreation, food & accommodations	457	120	22	35	69	12	397	31.9	6.4	8.6	5.8	7.5	7.6	15.3
Other services (except public administration)	71	92	11	19	47	0	223	5.0	4.9	4.3	3.2	5.1	0.0	8.6
Public administration	77	240	10	34	49	23	238	5.4	12.8	3.9	5.7	5.4	14.6	9.0

Table 3.14-6 lists annual average unemployment rates for the state and counties since 1990. In general, St. Lawrence County consistently has had the highest unemployment rate of the three counties of interest. Within the towns in the study area, Lake Placid, at 2.0 percent had the lowest unemployment rate in 2000 and Clifton, at 6.1 was the highest.

Table 3-14-6: Unemployment Rates (Civilian Labor Force)

	2004	2000	1990
Essex Co.	6.5%	3.9%	8.0%
Lake Placid		2.0%	
Franklin Co	7.4%	5.8%	8.6%
Saranac Lake		3.7%	
Tupper Lake		4.4%	
St. Lawrence Co.	8.2%	7.8%	7.9%
Clifton		6.1%	
Colton		3.7%	
Parishville		4.9%	
Piercefield		5.9%	
New York State	5.2%	5.2%	5.3%

Source: US Census Bureau, Census 2000. NY State Dept of Labor, Div. of Research and Statistics. U.S. Dept. of Labor.

The village of Lake Placid contains the largest employers within the Project Area. In a listing of the top 20 employers in Essex County, five of the employers are located in Lake Placid. These organizations are listed in Table 3.14-7. Within Tupper Lake, major employers include the International Paper Company and the Adirondack Medical Center.

Several large projects are proposed or under construction in Tupper Lake that could be beneficial to the local economy and provide employment opportunities to residents. The Natural History Museum, projected to open in the Summer of 2006, is anticipated to attract around 100,000 visitors per year. In addition to the Museum, the facilities will include a café and a retail store.

The Adirondack Park and Resort, currently proposed and under review by the APA, will include 699 residential units, a clubhouse, snack bar, library, bar and restaurant, a 60-room inn, health club, fly fishing and hunting instructional center, skiing, a recreation center, spa and 60-slip marina. A memo to the Mayor of Tupper Lake from the Tupper Lake Chamber of Commerce (10/23/05) indicated that the Museum would create 22 new direct jobs and about 75 indirect jobs worth about $2 million in salaries per year.

Other proposed or potential projects include the Adirondack Observatory, currently fundraising for facility construction, and the possible extension of the Scenic Railway into Tupper Lake. A number of large retailers have also expressed interest in Saranac Lake, and there is speculation that one or more may be bringing a store into the area in the not too distant future. At this time, however, there is no specific proposal for such a facility.

Table 3.14-7: Largest Employers in Lake Placid Village

Crown Plaza Lake Placid Resort
Lake Placid Central School
New York State Olympic Regional Development Authority
The Mirror Lake Inn
The Uihlein Mercy Center

3.15 Transportation

3.15.1 Regional Road Network

Travel via automobile is the dominant form of transportation in the Adirondack Park. The Tri-Lakes Reliability Project primarily follows State Route 3 and State Route 56. State Route 3 is an east-west travel corridor from Watertown to Plattsburgh. State Route 56 runs north-south from Sevey Corner to Potsdam and Massena. Both roads are two-lane, rural roads, with wide shoulders and several segments with passing lanes. Several smaller county and local roads intersect both routes. Table 3.15-1 displays Annual Average Daily Traffic (AADT) for Routes 3 and 56 segments in each community.

Table 3.15-1: Annual Daily Traffic for Routes 3 and 56

NYS Route	Between		Year	AADT
3	CR 60	Tooley Road	2002	1282
3	Tooley Road	Rt. 56 Sevey	1999	1675
3	Rt. 56 Sevey	Franklin Co. Line	2001	1931
56	Rt. 3	Stark	2002	905

The AADT numbers are relatively low and automobile congestion is not a regional concern. Based on the "Adirondack Park in the Twenty-First Century, Technical Reports," the Adirondack region could sustain 100 percent growth and the existing road capacity would not be hindered (State of New York, 1990).

New York State and the Federal Highway Administration have designated specific roads in the state for their regional scenic, recreational, cultural, historic and archeological significance. State Route 3 is a designated Scenic Byway known as the Olympic Byway. The 170-mile byway connects Sackets Harbor to Keeseville, traveling through Watertown, Natural Bridge, Harrisville, Star Lake, Cranberry Lake, Tupper Lake, Saranac Lake, Lake Placid, Wilmington and Jay.

3.15.2 Rail Service

There are currently no active rail lines in the immediate study area. The Adirondack High Peaks Wilderness Train operates as a scenic train from Saranac Lake to Lake Placid. Current plans call for linking the train to the Thendara Station line, which would travel through Tupper Lake. Also, inactive rail lines run from Watertown to Newton Falls, and are known as the Mohawk, Adirondack, and Northern Railroad, owned by Genesee Valley Transportation. The lines were used to transport paper and paper pulp products from the Newton Falls Paper Company, to other plants for distribution.

3.15.3 Air Service

Regional air service is provided out of the Adirondack Regional Airport in Saranac Lake. Commercial and private flights can be accommodated 365 days a year. The airport features two rental car companies and offers daily commuter service to Plattsburgh and Boston. The airport opened in 1949 and has been operated by the Town of Harrietstown since 1965. The airport is located approximately 30 miles from Piercefield. There is also a landing strip located about 3 miles north and east of the proposed Stark Falls Substation.

SECTION 4
ENVIRONMENTAL IMPACTS OF CONSTRUCTION AND MITIGATION MEASURES

SECTION 4 ENVIRONMENTAL IMPACTS OF CONSTRUCTION AND MITIGATION MEASURES

4.1 Geology and Soils

4.1.1 Geology

As noted in Section 3.1.1, the Project Area does not contain geologic hazards that would affect project construction activities. As a result, construction of the 46 kV line and substations is not anticipated to affect or be affected by area geology.

4.1.2 Soils

Soil disturbance will be kept to a minimum during project construction. Construction, including clearing and grading, is proposed for winter months between November and March; pole placing and wire stringing are proposed to occur during drier summer months; and watercourses, including streams and wetlands, will be avoided to the greatest extent possible. Unless carefully managed, however, soil erosion is possible during construction activities. To minimize the potential for soil erosion, NYPA proposed the mitigation techniques as described in Appendix E.

Clearing will occur within the 75-foot ROW. Grading may occur within the 75-foot ROW in areas where work trails will be required. Work trails will be limited to 12 to 14 feet in width. Temporary and permanent erosion control measures, as specified in the EWP, will be implemented as appropriate, for grading and construction activities. Erosion and sediment control devices that will be implemented include stabilized construction entrances, use of geotextiles, log culverts, French drains, silt fences, mulch, seeding, rolled erosion control products, turbidity curtains, check dams, sediment basins and dewatering devices. The application of these devices is described in detail in the EWP for this Project (Appendix E). Additionally, by conducting clearing and grading activities during the winter months, the potential for erosion will be significantly reduced, as there will generally be frozen ground conditions.

To manage potential impacts on soils from construction activities, erosion control practices will be implemented that are tailored to the specific conditions of each area of concern. Resources and measures that will be used, as appropriate to site-specific conditions, to minimize impacts resulting from construction include the following:

- Stabilized construction entrances will be installed at the entrance/exit of a construction site in order to reduce tracking dirt and debris onto public roadways. Construction entrances are a temporary measure and will be removed when construction is complete.
- Geotextile (erosion control fabrics) may be used for temporary stabilization on disturbed slopes where temporary seeding does not provide sufficient stabilization. These fabrics may also be used in the construction of work trails and temporary access points.
- Corduroy log and brush roads may be used as ditch diversions across a work trail when higher or continuous water flows may be expected.
- Corrugated metal or plastic culverts constructed as part of the Project will be permanent structures that will route runoff into natural channels, thus avoiding areas under construction.
- French drains may be used as water equalization devices for standing water or spring seepage. This would also be a permanent structure that would remain in the work trail after construction.

- Silt fencing will be used as a temporary sediment control measure during grading and construction of the 46 kV line ROW. It will be installed along the contour of the land downstream and adjacent to unstabilized soils, to prevent sediment laden runoff from entering downslope areas, streams and wetlands.
- Mulch will be used as temporary stabilization in conjunction with seeding, or used as temporary stabilization of disturbed slopes. Straw mulch will not be used unless absolutely necessary. In accordance with APA regulations, hay will not be used in any Project Areas.
- Seeding will be used as a temporary and a permanent method to stabilize disturbed areas and return them to a native cover. Conservation seed mixes approved by the St. Lawrence County NRCS will be used. As preferred by APA, the grass varieties selected for use will not be invasive. The preferred seed mix, which conforms to the "Development in the Adirondack Park" guidelines, for application during this project is the Adirondack mix, a combination of 43.6 percent boreal creeping red fescue, 34.3 percent perennial rye grass, and 17 percent Canadian bluegrass.
- Rolled erosion control products made from biodegradable materials, may be installed as temporary or permanent stabilization to cover bare and newly planted soil on slopes of over 30 percent as well as open areas, or drainage swales.
- Turbidity curtains will be used as a temporary control measure when work is required in or near a water body or in stream channels when directional drilling is used. Its purpose is to catch ancillary siltation that may enter a water body from the work area.
- Rock check dams may be used as temporary or permanent control devices to slow stormwater runoff in a ditch line. Sand/gravel bags may be used to create a check dam in a ditch line or to construct a temporary sediment basin.
- Sediment basins will be used to protect surface water from runoff produced during grading or construction activities. They will be temporary in nature; however, some may be left as permanent treatment devices as determined in the field during construction activities. Locations of temporary sediment basins will be determined prior to construction and will be spaced according to calculations based on soil type and slope.
- Silt bag dewatering devices may be used at bore sites, bore pits and receiving pits. These are temporary devices used during boring. Sediments collected during dewatering may be removed from the bags and reused on site for grading or fill.
- Waterbars may be used as a permanent erosion control measure to gradually turn water out of an up-gradient ditch and across a road. Waterbars are usually placed on a diagonal across a work tail, with use and placement based on the height of surrounding embankments, natural topography, the presence of desirable vegetation, road surface material and its tendency to erode, and other man-made features such as pole locations.

To ensure the long-term stability of the ROW and adjacent properties, following construction, disturbed areas will be restored to as natural a state as practicable using conservation seed mixes comprised of native species and low growing native plants. In accordance with APA regulations, haybales will not be used in order to avoid the introduction of invasive species. Straw may be used to a limited extent.

4.2 Air Quality

A short-term degradation of local air quality may occur during project construction. Construction activities will primarily consist of grading, earth moving, vehicle movement along unpaved roads, hole digging, and tree and brush removal. The only burning that may occur would be incidental burning of

slash piles, which would create a small amount of smoke. These activities may temporarily increase fugitive emissions. Best Management Practices (BMPs), including watering roads, will be used during construction to control fugitive/dust emissions.

Heavy equipment and vehicles used during construction and maintenance activities will also emit criteria pollutants including carbon monoxide, nitrogen oxides, sulfur oxides, particulates, and volatile organic hydrocarbons. Impacts associated with vehicle emissions during construction of the transmission lines are expected to be short term, thus resulting in low impact on long-term air quality and visibility. Vehicle emissions associated with maintenance activities would be negligible.

All construction activities will be conducted in accordance with state and local requirements.

Operation and maintenance of the 46 kV line will not result in any measurable release of air quality emissions.

4.3 Noise

Noise associated with Project construction will occur primarily during preparation of the ROW, along sections of the project that are off-set from existing corridors. Construction activities will be restricted to weekdays, between the hours of 6:00 AM and 8:00 PM. No Sunday construction is anticipated to occur and construction on Saturdays is not anticipated unless an emergency situation exists.

Preparation of the ROW will require the use of heavy equipment including tree harvesting equipment that is commonly used in the region for logging. As a result, sound from the land clearing activities for ROW preparation will not be an unusual noise. The clearing process will progress in a logical fashion and at a steady pace that will minimize disturbance in any given area. Additionally, clearing operations will primarily occur in cross-country and offset locations at considerable distance from residences.

All construction equipment will be equipped with properly operating noise muffling devices and operated in accordance with equipment manufacturers' instructions. Noise impacts will also be minimized by limiting the hours of construction to daylight hours and avoiding, to the extent possible, construction on weekends and holidays. The estimated sound levels produced by the land clearing equipment anticipated to be used on the Project are listed below.

Equipment Type	Noise Level (dB)	Distance from Noise Source
Chain Saw	75-81	50 feet
Backhoe	86	50 feet
Bulldozer	80	50 feet
Track	91	50 feet
Woodchipper	89	50 feet

Source: NYSDEC Noise Assessment

Currently, ambient sound levels in the general Project Area are roughly 36 to 44 dBA. Overall, the loudest anticipated combined land clearing sound levels during construction will be approximately 95 dB on the ROW. Vegetation and soft ground cover between the ROW and roads and residences will provide some reduction in the levels of noise produced by construction activities. As a result, the anticipated sound levels at roadways will be about 85 dB, or similar to the sounds emitted by large diesel trucks traveling the local highway roadways.

Given the pace of the clearing operation, construction noise will present a short-term nuisance, at most, to the limited number of residences located near the forested segments of the ROW. Along the majority of the ROW work will entail land clearing operations followed by pole installation and stringing the line.

One to two work crews are expected to finish this work within a two to three days. Other operations such as the horizontal directional drilling of the South Branch Grasse River and construction of the regulator and substations will require much longer to complete. However, work will occur only during daytime hours and closest residences are located over one mile away. Construction of the substation and regulator stations will require approximately six months to complete. The site preparation and grading will occur during the first phase of the construction and will result in the most noise disruption. This work will take approximately one to two months and will only be done during daytime hours.

Extensive rock excavation is not anticipated to be required for this project.

4.4 Water Quality

The Tri-Lakes Reliability Project is located within the St. Lawrence River watershed. Most of the surface waters in this region of the State are associated with rivers, streams and ponds that support important recreational fisheries and contact recreation. The major stream or river crossings include the Oswegatchie River, South Branch Grasse River, Tooley Pond Outlet, and Dead Creek on the Alternate Route and several smaller streams tributary to the Raquette River on the Preferred Route. The routes traverse 77 waterbody crossings within the Project Area. The majority of these crossings occur on streams that are either intermittent or are less than 5 feet wide.

Potential impacts to surface waters are likely to be minimal and occur during the construction of the Project. Construction methods that could cause impacts include clearing and grading of stream banks. However, construction work will be scheduled during the winter months when the ground is partially or totally frozen. This condition will minimize erosion and sedimentation in all of the surface water crossings. Additionally, this will occur during the time of year when water levels are low and when breeding habitats are not used by wildlife. Construction methods employed to minimize impacts to surface waters include silt fencing, dewatering structures, silt bags, and mats according to permit specifications and the plan drawings as described in Appendix E, EWP.

In some crossings, it may be necessary to cut or remove vegetation. Many streams crossed by the Project Area are shaded and less than 10 feet wide. In these areas, impacts of sun exposure to in-stream temperature will be minimal because these areas will be allowed to revegetate with herbaceous and low growing shrubby vegetation. Also, low-growing vegetation and ground cover immediately adjacent to stream banks will be preserved. In addition, reseeding will occur within 14 days of the crossing. Native plantings may be used to help stabilize banks and to reduce degradation in environmentally sensitive areas.

Use of equipment for clearing and grading of banks, and land construction for ROW access could cause compaction of soil, resulting in increased surface runoff of water into streams and other surface waterbodies. This increased runoff could cause erosion of streambanks and an increase in turbidity and sedimentation in waterbodies. Because the length of streambank segment that would be cleared would be relatively narrow (75 feet for new overhead and 25 feet of overbuild with existing distribution) and would be revegetated, there would not be significant impacts from runoff. Water quality and quantity calculations were not required for this project because there are no new impervious surfaces.

In addition, there will be unavoidable clearing impacts to riparian vegetation. Minimum wire clearance will occur at stream crossings since pole placements are engineered to avoid placement in stream banks as often as possible. Safe, reliable electrical transmission requires a vegetation free wire security zone. Consequently, streamside buffers may be cleared of more than 30 percent of all trees over 3 inches in diameter. To compensate, a complex of sun tolerant low growing grasses, forbs and shrubs will be encouraged through implementation of the Niagara Mohawk long-term vegetation management plan which replaces trees with shrubs.

Access through streams will be limited to tracked equipment and in accordance with permit specifications and dates. Where water levels are high, but temporary, as a result of a recent rain event, the crossing device will be installed after water levels drop to normal. During installation, care will be taken to avoid damaging bank vegetation that does not require removal or modification. Vehicular traffic through all streams will be kept to a minimum and limited to designated crossings.

Refueling vehicles and storage of fuel, oil, or other fluids near surface waters could create a potential for contamination if a spill were to occur. This hazard would be eliminated by restricting the refueling of construction vehicles and the storage of hazardous materials to areas further than 100 feet from all surface waters.

The restoration of stream banks disturbed during construction will be done, to the greatest extent practicable, to their original contour and adequately stabilized. Procedures used to ensure stabilization will include segregation of excavated soils and restoration to original horizons, revegetation with conservation grasses and clover, installation of erosion control blankets on all exposed surfaces following final grading, use of transplanted wild plantings to provide additional bank stabilization, and use of rip-rap to stabilize stream banks that exhibit chronic erosion problems.

Although activities associated with the 46 kV line construction could affect groundwater resources, most potential impacts would be avoided or minimized by use of standard construction methods.

4.5 Fish and Wildlife

4.5.1 Fisheries

Fisheries in the Project Area include warmwater fisheries and trout streams. These streams are important as recreational fishing resources.

Alterations of upland or wetland habitats adjacent to surface water bodies during construction of the Tri-Lakes Reliability Project could potentially impact fisheries resources. Potential habitat and water quality impacts include temporary increases in sedimentation and turbidity as well as loss of stream cover from construction activities related to ROW clearing.

Most of construction is scheduled for winter months when ground will be frozen thereby minimizing sedimentation and turbidity. In addition, limiting construction to this period would reduce impacts on salmonid spawning areas that may be at or downstream of the proposed crossings. Larger water bodies will be circumvented using existing roadways to avoid disturbance of bed and banks thereby reducing sedimentation and turbidity effects. Where it is not feasible for construction equipment to circumvent smaller streams (less than 10 feet wide) due to the absence of existing roads, crossing techniques as detailed in the EWP (Appendix E) will be implemented to minimize sedimentation as a result of stream disturbance by construction equipment. Examples of these techniques include commercially available or improvised matting materials, temporary bridging by crane pads, and corrugated steel culverts. Most large river crossings will be traversed by the proposed ROW by spanning the transmission line from one bank to the other. However, at the South Branch Grasse River location an underground horizontal directional drilling technique would be used. This technique is used as a method to avoid direct impact to fisheries and water resources by constructing and placing all structures beneath the bottom of the river.

Vegetation on forested stream banks along the ROW may be cut or removed during construction, potentially altering the adjacent stream habitat. However, this activity will be limited to the period between construction and reestablishment of herbaceous vegetation and low growing shrubs. The conversion from tree dominated to grass-forbs-shrub dominated covertypes, may have the added benefit of enhancing insect populations providing an increased food source for fish and birds using these segments of the ROW. In addition, selective cutting would be implemented in sensitive areas to reduce

the amount of clearing and facilitate a more rapid reestablishment of an adequate cover of desirable species. Regardless of the type of clearing, all banks will be restored to their original grade and revegetated with conservation grasses and legumes, preventing long-term bank erosion and sedimentation.

Implementation of appropriate construction techniques as detailed in the EWP for individual stream crossings based on stream characteristics at the crossing would minimize impacts to fish habitat and water quality.

4.5.2 Wildlife

Impacts to wildlife associated with construction of the proposed Tri-Lakes Reliability Project will be primarily limited to the 75-foot ROW for new overhead and 25 feet of clearing for overbuild. Vegetation within the ROW will be cleared during construction. The removal and alteration of existing vegetation within the proposed ROW presents the greatest potential for impacts to local wildlife. Forestland is the most abundant land use cover type along the proposed ROW and clearing these areas during construction will temporarily impact wildlife. Most wildlife will actively avoid the immediate construction area because of the noise and other construction activities. Displaced individuals will most likely move to adjacent undisturbed forested areas. However, less mobile species such as small mammals, reptiles, and amphibians that lack the mobility needed to avoid construction equipment will be more directly impacted during construction and a few individuals could possibly be lost.

Forest interior species requiring large unaltered tracts of continuous forest habitat may potentially be adversely affected due to fragmentation of forest areas, primarily along proposed off-road portions of ROW. However, very few large undisturbed tracts exist along the Preferred or Alternate Routes. Only one track of undisturbed forest occurs along an approximately 2.5 mile length of the Alternate Route. While large portions of the land adjacent to the proposed ROW are forested, nearly 90 percent of forested land along the Preferred Route and 80 percent of forested land along the Alternate Route is routinely harvested for paper and timber. In addition, 60 percent of the Preferred Route and 34 percent of the Alternate Route is adjacent to existing roadways and most of this distance consists of overbuild onto existing transmission line infrastructure. Much of the impact associated with construction activities will be minimal in areas adjacent to existing roadways. In these areas, there will be little or no long-term changes in the composition of edge and forest interior species. Immediate impacts including displacement, disturbance, or mortality may result from the effects of roadside forest clearing as mentioned above.

Numerous species have been shown to benefit from the increase in edge habitat associated with the clearing of ROW. For, example, early successional growth provides habitat for many bird species, including some Neotropical migrants that are declining. Also density and diversity of both small mammal and bird species often increase after the initial clearing of forest tracts (Monthey and Soutiere, 1985; Anderson et al., 1977) and remain high for about three years. Avian predators like the red-tailed hawk and Cooper's hawk may use the cleared ROW as hunting grounds to benefit from the increase in visibility and available prey species. In addition, the loss of canopy cover associated with clearing the ROW will bring about an increase in herbaceous and shrub level vegetation and provide plentiful forage for white-tailed deer, wild turkey, ruffed grouse, and black bear.

Non-forested habitats along the proposed ROW consist of emergent and scrub-shrub wetlands, existing transmission line ROW, residential maintained lawns, and recently logged forestlands. Impacts in these areas are expected to be minor and short term. Construction techniques to be used within non-forested wetlands, as detailed in the EWP, would allow for the recovery of emergent vegetation within one to two growing seasons. Residential wildlife and those species using existing rights-of-way and logged areas

could potentially be displaced during construction, although they would most likely return to these areas soon after completion of construction activities.

4.6 Wetlands

4.6.1 Nature, Extent, and Duration of Project Impacts

The project impacts will include permanent, new road fills on the Preferred Route, and rehabilitation of existing woodland trails, as well as new permanent fills on the Alternate Route.

Cumulative impacts in wetlands is a major concern for this Project. Wetland impacts have been avoided and minimized to the greatest extent practicable through careful line and work trail routing. The APA Section 578.3(p) does not regulate clearing of wetlands under three acres. Using the calculated wetland clearing impacts and the EWP mapping, it was determined that there are no impacts to any one wetland that is equal to or greater than 3 acres. In fact, the largest total clearing impact to any one wetland is 1.3 acres along the Newton Falls Route and 1.22 acres along the Stark Route.

4.6.2 Avoidance Measures

The selected routes have made extensive use of existing public road networks to limit the wetland impacts and reduce clearing impacts. This roadway will carry one-way traffic.

Both the Preferred and Alternate Routes utilize the existing networks of private woods roads to access the ROW cross-country segments. The Preferred Route will require approximately 1,308 feet of new work trail and will utilize 19,963 feet of existing woods roads. The Alternate Route will require 10,511 feet of new work trail and will use 60,332 feet of existing woods roads used for access.

In order to gain access to all pole sites and allow nearly complete linear access, the Preferred Route will require 7,930 square feet of wetland fills. These fills will either be corduroy with geo-fabric and gravel tops, or TerraCell with gravel fill. The TerraCell materials come in eight-foot wide panels, resulting in a 16-foot wide road base. Use of corduroy or geogrids will also be limited to 16-foot wide road base.

The Alternate Route will require 860 linear feet of fill to stabilize the existing network of woods roads to access the work trails, predominantly in the area between Reference Markers N3 and N9. To be conservative, a 16-foot wide fill base will be utilized. The total area for wetland fill for access to the Alternate Route is 13,995 square feet.

Use of the existing woods roads avoids new impacts by predominately combining disturbances into areas that have already been modified by past woods road impacts. This avoids new impacts to wetlands.

4.6.3 Minimization Efforts

The work trails are designed for one-way traffic, which reduces the overall fill width. To confine fills, geofabric, geogrids and confinement cells (TerraCells) will be utilized. Given the techniques required for the materials listed above, it will be feasible to minimize the base of fills to 16 feet or less in width and build a work trail that is accessible in all seasons. In an area of weak soils the geogrid and confinement cells can be used to create a fill lift that is 0.5-0.75 feet without requiring a tapered slope. If the above materials were not utilized, base fill width would have to be greater to accommodate the slope taper.

In crossing areas where surface water exists, small drainage culverts will be placed to pass water across the fill to minimize hydrology impacts. The fills supported by geogrids will pass water in a diffused manner that will aid in the preservation of wetland hydrology.

4.6.4 Proposed Mitigation

As indicated in the Adirondack Park Agency Wetland Mitigation Guidelines, the first choice for wetland impact mitigation is in-kind, on-site replacement to achieve a no net loss of wetland acreage and functions. The nature of this Project is similar to NYS DOT projects, where the land occupation is linear and offers little or no opportunity for on-site mitigation. In addition, and in contrast to NYS DOT projects, the proposed Project ROW is not owned by either Niagara Mohawk or the New York Power Authority but will be taken as an easement. No other lands are owned by either Niagara Mohawk or NYPA in the project area. The only lands that could have accommodated the mitigation of wetlands are the properties formerly held by the Paul Smiths Electric Company, and granted to New York State by Niagara Mohawk.

Absent the availability of on-site replacement opportunities, off-site options must be explored. As Niagara Mohawk/NYPA owns no lands within the study area, lands would have to be purchased, ideally within the same watershed as the impacted wetlands, or alternate mitigation methods proposed. Wetland mitigation options include:

- Off-site replacement or reclamation. Three reclamation or wetland improvement projects are being considered. A single project will be selected upon negotiation with the agencies. Potential projects are the Tupper Lake substation, the Raquette River, and Sevey Bog.
- An environmental benefit project of invasive species control, for Japanese Knotweed and Common Reed Grass, will be completed in the project area.

4.6.4.1 Wetland Mitigation Approaches

It is estimated that the amount of permanent fill to be placed for the construction of access trails and construction pads associated with the Preferred Route of the 46 kV transmission line for the Preferred Route are approximately 8,000 square feet.

Three mitigation plans are under preliminary consideration in order to meet the requirements of the agencies and address avoidance, minimization, and mitigation standards. It is expected that one mitigation plan will be selected for full consideration. A focus on the sequence of wetland protection is included in the review. NYPA, in conjunction with state and federal regulatory agencies, will also focus on determining appropriate levels of avoidance and minimization in advance of settling on the level or amount of mitigation. The construction schedule allows for mitigation construction in advance of the wetland impacts.

4.6.4.1.1 Mitigation Approach A- Tupper Lake Substation

The Tupper Lake substation, which is part of the National Grid SVC project, requires filling of wetlands. A mitigation proposal for those unavoidable impacts put forth by National Grid included the removal of historic fill associated with a rail bed crossing of the wetlands adjacent to the substation. The existing fill material is currently being utilized as part of the trail system within the Village of Tupper Lake. These trail connections are important to the community and need to be maintained.

A nearby stream channel associated with the wetland complex has been straightened and modified in the past and would benefit from restoration to a more natural, meandering stream course. This stream is currently classified as a trout stream.

Restoring the stream channel associated with the wetland complex will require cooperation of the underlying property owners and property adjoiners with National Grid and the local municipalities. A permit from the APA and NYSDEC will be required.

The mitigation approach will involve the removal of portions of the historic railroad bed fills, while maintaining trail connections (possibly through use of a boardwalk) and stream relocation to include meanders and other natural features. The restored riparian stream corridor would be re-planted with compatible native species.

Due to the stream gradient, this portion of the channel will be maintained as a pool segment.

4.6.4.1.2 Mitigation Approach B- Raquette River

The Natural History Museum of the Adirondacks has proposed wetland and stream bank restoration along the Raquette River at the museum site. The wetland mitigation will improve and stabilize the Raquette River riparian zone by restoring or enhancing approximately 400 feet of river frontage in between the two proposed observation decks.

4.6.4.1.3 Mitigation Approach C- Sevey Bog Road Reclamation

In the vicinity of Sevey Bog, along an existing logging road off of Route 56, there is an existing wetland crossing (north side of the bog) that is approximately 250 feet in length. This road is currently utilized by a lumber company and leasees for access to their property and is planned to be utilized by the project for access and construction. The mitigation proposal is to remove the existing fills (approximately 4,000 SF) and restore the area to reconnect the black spruce conifer wetland that was isolated by the construction of the wetland crossing. Once stone fill is removed, a combination of topsoil and organic materials will be used to backfill the area. This action will restore hydrology. Transplants of native wetland species will be used to improve the rate of recovery of the restored wetland area. The construction access trail and logging road will be relocated north to an upland area, which will require land purchase or an easement from two property owners. This project has significant benefits by improving the hydrology of the wetland that is currently filled.

4.7 Threatened and Endangered Species

Response from the New York Natural Heritage Program (NYNHP) regarding occurrence of documented species indicated that four state-listed or special concern wildlife species and one state-listed plant species have been previously documented at 11 locations in the vicinity of the Project (Appendix F). In addition, 14 protected plant species and two state-listed wildlife species not documented in response from the NYNHP were observed during field characterization and wetland delineation efforts. Of these 21 species, 2 potentially occur and 16 were documented at locations along the Preferred or Alternate Routes, documented records of the remaining two species were located at distances ranging from approximately a tenth of a mile to over a half mile from the ROW and would not be affected by the Project. Construction of the Project may affect 5 of the 18 rare, threatened or endangered species that have been documented or that may occur within the ROW of the Preferred and Alternate Routes. Impacts would largely result from clearing of the ROW. At locations where construction of the ROW would result in unavoidable impacts to listed species, steps to mitigate impacts are discussed.

4.7.1 Plants

Fir Clubmoss (*Huperzia selago*) – State Endangered

Fir clubmoss was not observed in plant communities during field characterization and wetland delineation efforts. As this species does not generally occur in forested areas with closed canopy, the most common vegetative cover type within the Project Area, no construction impacts are anticipated and no mitigation is planned for this species. Clearing of the ROW during construction may potentially result in habitat more suitable for this species.

Subarctic Lady Fern (*Athyrium filix-femina*) – State Exploitably Vulnerable[8]

Subarctic lady fern inhabits moist woods, meadows, and stream banks. Subarctic lady fern is uncommon along the proposed ROW where it was observed at two locations on the Preferred Route. Both locations are classified as palustrine forested wetlands with a vegetation community characteristic of a red maple hardwood swamp. Clearing of the ROW during construction would result in a combination of open and shrubby habitats which may be less favorable for subarctic lady fern.

Evergreen Woodfern (*Dryopyteris intermedia*) – State Exploitably Vulnerable

Evergreen woodfern is a characteristic dominate ground layer species of beech-maple mesic forests and hemlock-northern hardwood forests in New York State, where it prefers moist, shady woodlands (NYNHP, 2002). Evergreen woodfern was observed frequently along the Preferred and Alternate Routes. Clearing of the ROW during construction would result in a more open habitat and less suitable habitat for evergreen woodfern.

Common Winterberry (*Ilex verticillata*) – State Exploitably Vulnerable

In the Adirondack region, common winterberry is an infrequently occurring shrub species found in swamps and wet hardwood forests (NYNHP 2002). It prefers moist, organic soils with low canopy cover or light shade and is often associated with floodplain forest wetland communities. Common winterberry was documented in two locations along the Preferred Route. ROW clearing during construction would result in habitat suitable to sustain common winterberry.

Sheep Laurel (*Kalmia angustifolia*) – State Exploitably Vulnerable

Sheep laurel is a shrub species that occurs in a wide variety of habitats, but prefers acidic soils (Gleason, 1952). Its distribution includes New England and Great Lakes states south to Virginia as well as southeastern Canada. Sheep laurel was observed at five locations along the proposed ROW during field delineation, and was often associated with areas containing low canopy cover and a ground layer dominated by *Sphagnum* mosses. ROW clearing during construction would result in habitat suitable to sustain sheep laurel.

Stiff Clubmoss (*Lycopodium annotinum*) – State Exploitably Vulnerable

The habitat of stiff clubmoss consists of cool, moist woods and bog margins in poorly drained, acidic soils. It is generally found in shaded sites but may establish in dry, exposed, rocky areas (Gleason, 1952). Stiff clubmoss is distributed throughout most of Canada and northeastern U.S. It was documented at one location along the Preferred Route. ROW clearing during construction would result in habitat suitable to sustain stiff clubmoss.

Running Pine (*Lycopodium clavatum*) – State Exploitably Vulnerable

Running pine has a circumpolar distribution and prefers open dry woods and rocky places in acidic soils and will establish in forest clearings (Gleason, 1952; Douglas *et al*. 1991). It was encountered on the Preferred Route. ROW clearing during construction would result in habitat suitable to sustain running pine.

Tree Clubmoss (*Lycopodium obscurum*) – State Exploitably Vulnerable

Tree clubmoss has similar habitat requirements to stiff clubmoss, preferring moist wooded areas, thickets, and clearings with acidic soils (Borealforest.org, no date; Gleason, 1952). This species was only

[8] Exploitably vulnerable listed species are native plants that are not necessarily rare or uncommon, but may be desirable for commercial use nad could become rare, threatened, or endangered if subjected to unchecked commercial exploitation.

encountered at one location on the Preferred Route. ROW clearing during construction would result in habitat suitable to sustain tree clubmoss.

Cinnamon Fern (*Osmunda cinnamomea*) – State Exploitably Vulnerable

Cinnamon fern is usually associated with *Sphagnum* moss in wet acid soils with high organic content, but is tolerant to open habitat. Cinnamon fern in eastern Quebec was present in a northern hardwood site that was clear-cut. Cinnamon fern is a common dominant species in wetland habitats along the proposed ROW. It was encountered in wetland sites along all the Preferred and Alternate Routes. ROW clearing during construction would result in habitat suitable to sustain cinnamon fern.

Interrupted Fern (*Osmunda claytoniana*) – State Exploitably Vulnerable

Interrupted fern occurs in moist, open canopy woods and along stream banks (Gleason, 1952) and also occurs along shaded roadsides (Connecticut Botanical Society, 2004). It was encountered on the Preferred and Alternate Routes. ROW clearing during construction would result in habitat suitable to sustain interrupted fern.

Royal Fern (*Osmunda regalis*) – State Exploitably Vulnerable

Royal fern prefers swamps, bogs and moist woods with acidic soils (Gleason, 1952). It will tolerate full sun if the soil is moist (National Park Service, 2004). Royal fern was encountered on the Preferred Route. ROW clearing during construction would result in habitat suitable to sustain royal fern.

New York Fern (*Thelypteris noveboracensis*) – State Exploitably Vulnerable

New York fern habitat consists of mixed woods with filtered light and swamp edges. It is shade tolerant, but will grow in canopy openings in hardwood forests. In the Adirondack region it grows on well drained to "imperfectly-drained" sites from 100 feet (30 m) in elevation near Lake Champlain to 2,300 feet (701 m) in the MacIntyre Range (USDA, no date). New York fern was observed in upland areas along the Preferred Route. ROW clearing during construction would result in habitat suitable to sustain New York fern.

Massachusetts Fern (*Thelypteris simulata*) – State Exploitably Vulnerable

Massachusetts fern prefers shady swamps and moist woods with acidic soils (Gleason 1952). It was observed at on the Preferred Route in spruce-fir wetlands. Clearing of the ROW during construction would result in habitat not suitable to sustain Massachusetts fern.

White Turtlehead (*Chelone glabra*) – State Exploitably Vulnerable

White turtlehead prefers wet wooded areas and swampy edges and was encountered adjacent to roadsides in scrub/shrub and emergent wetlands during field delineation efforts. As white turtlehead is a strong growing plant that does well in high light and medium light conditions ROW clearing during construction would result in habitat suitable to sustain this plant.

Narrow-Leaf Gentian (*Gentiana linearis*) – State Exploitably Vulnerable

Narrow-leaf gentian is a wetland obligate species that prefers wet woods and meadows and has a tendency towards more open canopy boggy areas. A typical habitat of narrow-leaf gentian is an opening within a spruce-fir wetland, ROW clearing during construction would result in habitat suitable to sustain narrow-leaf gentian.

While conversion of the forested communities to plant communities dominated by herbaceous vegetation and low growing shrubs may potentially result in habitat conditions less favorable for subarctic lady fern, evergreen woodfern, and Massachusetts fern, forested land is the most abundant covertype in the Project

Area and construction of the Project would have minimal adverse affects on populations of these three species. The scrub-shrub habitat created by clearing for the Project would result in habitat suitable for the remaining 11 exploitably vulnerable species. Conversely, the ROW clearing would result in habitat suitable for the other 11 state exploitably vulnerable species.

4.7.2 Animals

4.7.2.1 Invertebrates

Extra-striped snaketail (*Ophiogomphus anomalus*) – State Unlisted, Special Concern

Raquette River at Moody Falls – The extra-striped snaketail had been documented on the Raquette River approximately 0.11 miles west of the Preferred Route. Preferred breeding habitat for this species contains clean gravel of a certain size in well-aerated warm water streams. They are not found in streams with sediment-clogged gravel or reduced current. Since a sufficient buffer exists between the Raquette River and the ROW at this location, increased sedimentation and alterations to existing flow rates would not be a factor. Therefore, construction activities at this location would not impact the extra-striped snaketail or its habitat.

4.7.2.2 Fish

Round Whitefish (*Prosopium cylindraceum)* – State Endangered

Surveys conducted in 1997 have found round whitefish in only nine Adirondack water bodies. The Preferred and Alternate Routes would not affect habitat for the round whitefish. Construction of the ROW will not result in any adverse impacts to round whitefish as no structures will be placed in surface waterbodies and soil erosion and control procedures will be implemented to prevent siltation.

Lake Sturgeon (*Acipenser fulvescens)* – State Threatened

Within the Project Area, lake sturgeon has been collected in Oswegatchie River, and South Branch Grasse River. NYSDEC has been using artificial propagation of this species to reestablish populations in selected tributaries of the Oswegatchie River. Construction of the ROW will not result in any adverse impacts to lake sturgeon as no structures will be placed in surface waterbodies and soil erosion and control procedures will be implemented to prevent siltation.

Eastern Sand Darter (*Ammocrypta pellucida)* – State Threatened

In New York State, it occurs in the South Branch Grasse River. The eastern sand darter occurs in streams that have a sand bottom, and are often are found in habitats used by lake sturgeon. Construction of the ROW will not result in any adverse impacts to eastern sand darter as no structures will be placed in surface waterbodies and soil erosion and control procedures will be implemented to prevent siltation.

Mooneye (*Hiodon tergisus*) – State Threatened

There are also remnant populations in the Oswegatchie River and Lake Erie. The mooneye prefers clear water habitat of large streams, rivers, and lakes. Population decline is due in part to increased siltation occurring in clear water areas where mooneye normally occur. Construction of the ROW will not result in any adverse impacts to mooneye as no structures will be placed in surface waterbodies and soil erosion and control procedures will be implemented to prevent siltation.

4.7.2.3 Birds

Spruce Grouse (*Falcipennis canadensis*) – State Endangered

Sevey Bog. The Preferred Route would cross a black spruce/tamarack wetland and transitional area located along the northern edge of Sevey Bog. This crossing is approximately 400 linear feet. The wetland and ROW at this located are adjacent to an existing logging road and a portion of the proposed ROW will fall within the roadway. This site has been monitored several times since 2000 and no spruce grouse or sign has been observed (Johnson, 2005). It is currently considered unoccupied. However, since the wetland and transition areas provide potential spruce grouse breeding and foraging habitat, a construction moratorium will be in place for this area from May 1 to July 31. This period represents the highest vulnerability to breeding adults and young spruce grouse. No clearing of vegetation, grading or work trail construction or placement of footings or foundations, or pole framing or installation or stringing of electrical wires will be allowed at these locations for the same period.

Dead Creek (west of Brandy Brook). The Alternate Route would cross this location (500 liner feet). Spruce grouse were found at this location during surveys conducted in the late 1970s and 1985-1987. This site is continuous with a known site on Windfall Brook Site where spruce grouse were documented as recently as 2004 (Johnson, 2005). A construction moratorium will be in place this area from May 1 to July 31, as this period represents the highest vulnerability to breeding adults and young spruce grouse.

Dead Creek (northwest of Piercefield). The Preferred Route and Alternate Route would cross this location (700 linear feet). This site has been visited in 2000, 2001, 2004, and 2005. Little evidence was found during one year and it is likely that this is a transient site that is not continuously occupied but receives some immigration from a known down stream site (Johnson, 2005). The plant community in this area represents the edge of potential spruce grouse breeding habitat and provides only marginal habitat at the crossing location because of the presence of a very dense growth of alder; however, a construction moratorium will be in place for this area from May 1 to July 31.

Hollywood Club (west of State Forest Preserve) – Wetlands located between reference markers Alt 3 and Alt 4 on the Preferred Route west of the State Forest Preserve; however, the ROW will avoid this wetland and associated spruce grouse habitat (Johnson, 2005).

While no spruce grouse were observed during the field effort, examination of vegetation cover types at these three locations indicates the presence of potential habitat (cool, moist spruce-fir forests adjacent to open peat mat wetlands such as bogs and fens). These areas should naturally revegetate and continue to provide spruce grouse habitat once construction of the project is completed. However, selective clearing activities should minimize the removal of low growing shrub vegetation and focus on removal of tall growing trees only in these areas. Small patch cuts that create interspersion of mature, dense, and open habitats while encouraging tamarack regeneration and ericaceous shrub growth may improve spruce grouse habitat suitability within large, monotypic coniferous patches of uniform age (Bouta, 1991). To accelerate the recovery of these areas following construction of the project and further minimizing impacts to spruce grouse habitat, exposed areas will be reseeded with appropriate conservation seed mixes based on site-specific conditions. This seed mix will attract insects providing a protein rich food source for young and adults during the early summer months.

Common Loon (*Gavia immer*) – State Special Concern

Four of the documented occurrences of common loon will not be impacted by the construction of the Preferred and Alternate Routes, because no habitat is adjacent to or intersected by the ROW. The documented occurrence on the Oswegatchie Reservoir is in proximity to the Preferred Route. The plant community and open water in the area of this crossing is not representative of preferred Loon nesting habitat due to the absence of large areas of deep open water, but the area may be used for foraging, nurseries and shelter after the young leave the nest. Noise and activities association with construction

would serve as a deterrent to common loon use of this area. This displacement would be temporary and would likely occur outside of the breeding season. Due to the temporary nature of this displacement and since abundant preferred habitat is associated with the reservoir, impacts to the common loon would be negligible, if any, and, therefore, no mitigation is recommended.

Bald Eagle (*Haliaeetus leucocephalus*) – Federal and State Threatened

A documented nest on the southwest side of Sols Island is located approximately 2000 feet (0.38 miles) from this segment common to the Preferred and Alternate Routes. According to the USFWS, Bald Eagles require a protective zone of 1,500 feet from active nests to prevent construction activities from causing disturbance to nesting eagles or nest abandonment and all projects greater than 1500 feet from a bald eagle nest tree do not need Service review (USFWS, 2004). There is a direct line of sight to the bald eagle nest, however the ROW at this location is approximately 2,800 feet (> 0.50 miles) from the nest and will not cause a disturbance to nesting eagles. In addition, construction at this location would not impact foraging habitat associated with the nest.

Cooper's Hawk (*Accipiter cooperii*) – State Special Concern

A cooper's hawk was observed in the air at one location on the Preferred Route during field survey efforts. The plant community in this area consists of a mixed canopy of red spruce, balsam fir, hemlock, sugar maple, and yellow birch. The understory contains hobblebush shrubs and beech saplings with an herbaceous layer of partridgeberry and evergreen woodfern. No nest was observed, however this area may provide potential Cooper's hawk breeding habitat. Clearing of the ROW during construction may result in the removal of trees suitable for Cooper's hawk nesting habitat. However, the resulting open vegetation communities would provide foraging habitat for the Cooper's hawk.

Cerulean Warbler (*Dendroica cerulean*) – State Special Concern

A single cerulean warbler was observed during wetlands efforts on the Alternate Route. No nest was observed, however this area may provide potential cerulean warbler breeding habitat. Clearing of the ROW during construction may result in the removal of trees suitable for cerulean warbler nesting habitat.

4.8 Vegetation

Alteration of vegetation cover types within the proposed 75-foot ROW will be the primary impact to existing vegetation associated with Project construction. The Preferred Route proposes a ROW 26.3 miles in length including approximately 119.4 acres of forested land (including wetlands), while the primary Alternate Route is 28.2 miles in length with 173.5 acres miles of forested land (including wetlands). The potential impacts of ROW clearing are dependent upon existing land use and covertype characteristics.

Forested uplands account for the greatest amount of land area to be impacted by construction activities. The existing vegetation within these areas is primarily made up of second or third generation deciduous, coniferous, and mixed forest communities. The direct impact to these areas as a result of ROW clearing will be the conversion of successional forest to herbaceous and open shrub cover, although approximately 30 percent of these forested communities have been recently logged and have already been open to partial conversion. In addition, the removal of existing canopy species will increase moisture loss and surface temperature within the ROW. These impacts will be greatest in off-road, new construction areas where the landscape is unbroken forest and there is no existing ROW. Following construction activities it is expected that natural regeneration of vegetative species will occur; therefore the resulting plant community is expected to comprise local early successional low shrubs and young trees that may be selectively managed every five years. Native vegetation is not expected to be planted within any portion of the 46 kV line ROW. However, selective removal of woody vegetation will promote the regeneration

of the low growing vegetation which is expected to create a natural visual buffer in those areas that may be visible at road and river crossings.

Existing roads and unimproved trails will be used to gain access to the ROW in all areas where it is practicable. Where access to the ROW cannot be achieved via existing roads, a 12-20 foot wide work trail will be constructed of native subsoil materials. Work trails will also be constructed inside the ROW and serve as an access route between transmission line structures and used during construction and maintenance activities.

In addition to direct impacts from vegetation clearing, there could be secondary effects on vegetation that was not cleared during construction. Construction of the ROW through forested areas would create vegetation edges were none previously existed. This may expose the species remaining on the edge of the 75-foot ROW to increased levels of sunlight and wind, which could increase moisture evaporation and wind throws. This could result in a change in species composition adjacent to the ROW, were species adapted for open, dry habitat with direct sunlight may begin to establish.

Within the Project Area, only two invasive species, common reed (*Phragmites australis*) and Japanese knotweed (*Arundinacea japonica*), were documented along the proposed ROW during wetland field efforts. Common reed was observed in one location along the Alternate Route (wetland ID: P6-3E) within the Route 3 ROW. Japanese knotweed was observed within the Route 56 ROW near the Kayem sand and gravel pit. The APA has reported an additional locations of Japanese knotweed within the cleared ROW along Route 56. The threat of dispersal and introduction of invasive plant species like common reed, purple loosestrife (*Lythrum salicaria*), and Japanese knotweed during construction activities will be prevented by adhering to the construction techniques detailed in Section 4.2.1 of the EWP.

Potential impacts to forested wetlands are similar to forested upland areas and are mainly associated with the change from forest vegetation to that of scrub-shrub and emergent vegetation. Since the composition of wetland vegetation is heavily dependent upon hydrology, it is important to avoid rutting of wetland soils by construction equipment. Responsible construction techniques such as exploiting existing road for access to wetland sites and the use of matting, as detailed in Section 4.4.2 of the EWP, will aid to minimize rutting. Woody wetland vegetation that must be cleared during construction will generally be left were it falls, unless it is feasible to remove it by use of a winch line without causing damage to the wetland. For complete details of the potential impacts to forested wetlands refer to Section 5.8.

Non-forested areas within the proposed ROW consist of emergent and scrub-shrub wetlands, residential areas, recently logged lands, and existing maintained ROW. Impacts to non-forested wetlands and areas already disturbed by logging are expected to be short term and the vegetation should return to pre-construction conditions in one to two growing seasons. The impacts to maintained ROW will vary depending on the width and the type of vegetation adjacent to the existing ROW. In many of these areas the vegetation consists primarily of various grasses and weeds commonly used for roadside stabilization. Effects on vegetation in residential areas should be short term, except in those instances where trees would be cleared during construction.

According to the NYSPSC Case 27605 Ordering Clause 1.e. “Herbicides shall not be used within a minimum horizontal distance of 100 feet of a potable water supply or regulated wetland [NYS DEC wetland] or protected waters. Buffer zones shall be maintained around other wetlands [APA and ACOE wetlands], perennial and intermittent streams, and waterbodies as follows:”

Herbicide Application Technique	Minimum Approach Distance
Stem Foliar[1]	50 feet
Basal[2]	30 feet
Cut and Stump[3]	30 feet

[1] Spray leaves of plant until wet and dripping.
[2] Spray application applied to the lower portion of the individual standing woody stems. Requires a thorough wetting of the lower 12-15 inches of the stem down to the ground including the root collar zone.
[3] Herbicide applied to cut stump until the area within one inch of the edge is wet but not runny.

The APA has no jurisdictional buffers, therefore, the NYSPCS Case 27605 minimum approach distances can be used for herbicide applications. During the construction phase of the project cut and stump practices will be used as the primary method of herbicide application. During the first and second years following construction, stem foliar and basal treatments are anticipated as the primary methods of herbicide application in accordance with the guidelines listed above.

The APA regulations require a permit if herbicides are applied within a wetland or if used adjacent to a wetland which herbicide residue might drain or otherwise be carried into the wetland. The NYSPSC Order minimum buffer widths are based on findings from the Empire State Electric Energy Research Corporation's "Determination of the Effectiveness of Herbicide Buffer Zones in Protecting Water Quality on New York State Powerline Rights-of-Way". Therefore, by using these buffers the Applicant will be in compliance with the APA regulations as the prescribed buffers prevent application within wetlands and application where herbicide residue might drain into a wetland. APA jurisdiction would include wetlands which are one acre in size or larger or wetlands (with no size limitation) adjacent to a body of water within which there is a free interchange of water.

Once the 46 kV line construction is in service, Niagara Mohawk will assume responsibility for the vegetation management of the ROW in accordance with their PSC approved ROW Management Plan and any required wetland permits relating to such ROW management will be obtained at the appropriate time from the appropriate authorities.

Discussions have occurred in which revisions to the above NYSPSC Order buffer widths may be warranted. These are as follows:

Herbicide Application Technique	Minimum Approach Distance
High Volume Stem Foliar[1]	50 feet
Low Volume Stem Foliar[2]	25 feet
Low Volume Backpack[3]	15 feet
Cut and Stump	5 feet

[1] Full coverage of the target plant's leaves, branches and stem to point of runoff.
[2] Coverage to lightly wet the leaves, all growing tip areas, and the entire terminal end of the target plant.
[3] Very light wetting of the leaves, especially in the growing tip and terminal leader areas of the target plant.

At this time, the Applicant intends to use the materials and applications in accordance with the NYSPSC Order, and the label specifications. If the NYSPSC Order were changed, then Niagara Mohawk would be authorized to use these minimum approach distances for herbicide applications.

4.9 Cultural Resources

4.9.1 Archeological Resources

The Project has the potential to affect both prehistoric and historic period archeological resources. Construction techniques that may be implemented for the Project may involve ground disturbing activities that have the potential to impact undisturbed archeological resources. Some of these resources may meet the eligibility criteria for the State Register of Historic Places (SRHP) and/or the NRHP. Cross-country, new overhead, and new overhead offset construction may affect archeological resources as a result of vegetation clearance, vehicle access, and large machinery run on non-paved surfaces both in temporary and permanent access areas and within the project ROW.

NYPA will address these potential impacts by performing cultural resources surveys of the proposed Project. Background literature review conducted for the Project suggested areas within the Project study area that had the potential to contain previously recorded archeological resources or that, based on historic cartographic sources, suggested the potential presence of archeological resources. A walkover survey was performed on a number of study segments that were considered as potential routes for the Project. Observations were made both of surface indications of potential cultural resources and areas of obvious disturbance that suggested a low potential for containing intact archeological resources. Recommendations were made for additional systematic subsurface investigation (Appendix C).

The background research and walkover survey of the proposed Preferred Route resulted in the identification of 21 archeological surface sites; the recommendation for additional Phase 1B testing along 5.2 miles (if those areas cannot be avoided by the Project), and the recommendation for no further survey of 16.0 miles due to observed disturbances, wet conditions, limited soil development, and/or no proposed Project impact as a result of the construction techniques proposed. Approximately 0.6 miles of the Preferred Route were not observed.

The background research and walkover survey of the proposed Alternate Route resulted in the identification of 26 surface archeological sites; the recommendation that 6.7 miles have the potential to contain archeological resources and should either be avoided or undergo Phase 1B testing; and the recommendation that 13.2 miles do not warrant further investigation due to observed disturbances, wet conditions, limited soil development, and/or no proposed Project impact as a result of the construction techniques proposed. Approximately 1.0 mile was not observed.

NYPA met with the SHPO and will follow up with systematic shovel testing along the undisturbed portions of the Preferred Route. If Phase 1B investigation reveals the presence of potentially SRHP- or NRHP-eligible properties that cannot be avoided by the Project, then NYPA will test these properties to determine if they meet the SRHP and NRHP eligibility criteria. If it is found that there are historic properties that will be affected by the Project, then NYPA will develop, in consultation with SHPO, APA, and the NYSDEC, an appropriate mitigation. NYPA will implement the mitigation prior to construction of the Project.

4.9.2 Architectural Resources

The proposed Project has the potential to affect architectural resources that may be eligible for, nominated to, or listed in the SRHP and/or the NRHP, including one NHL, the Adirondack Forest Preserve. Effects to architectural resources and the NHL may take the form of viewshed impacts. There will be no direct physical impacts to the NHL given that the Project is not proposed within its boundaries. NYPA consulted with SHPO and defined the APE for architecture. An architectural historical survey was performed within the Project's APE for architecture to inventory structures that may be style-dated as 50 years old or older. A report documenting the results of this survey is currently under review and will

be provided at a later date. Viewshed impacts were assessed for inventoried structures that are recommended as potentially eligible for listing in the SRHP and the NRHP. Given the rural character of the Project Area and the generally forested environment of much of the Project Area, it was anticipated that viewshed impacts to potentially SRHP and NRHP-eligible structures and the NHL would be limited. In areas of existing development, electric utilities are already present. Construction of the 46 kV line does not represent a new visual intrusion since the line and existing distribution will be combined onto a single pole.

Two NRHP-listed properties, the Childwold Memorial Presbyterian Church and the Arab Mountain Fire Observation Station, are located within the Project's APE. The Project in the vicinity of the Childwold Memorial Presbyterian Church will consist of overbuild and will not result in viewshed impacts to the historic property. Views from the Arab Mountain Fire Observation Station will be barely discernable and are not considered to be potentially adverse.

The Project will circumvent the Adirondack Forest Preserve, a NHL-listed property. The intervening vegetation between the Project and the NHL will provide a substantial visual screen that will result in no effect.

In the vicinity of the Pratt Truss Bridge, a potentially NRHP-eligible bridge crossing the Grasse River, the Project will be buried so as to avoid impacts to a designated natural scenic area. Placement of the Project underground in this area will also serve to avoid visual impacts to the bridge.

4.10 Land Use

4.10.1 Land Use and Zoning

Construction of the proposed Project will not significantly impact the land use of the Project Area (see Section 3.11 for a discussion of existing land use). Construction will not encourage a shift in existing land uses nor encourage new land uses in the Project Area. The only changes in land use will occur in locations where the new 46 kV line is constructed and no electric lines currently exist. In these situations, land will be cleared for the ROW and maintained as a dedicated utility corridor. Wherever possible, to reduce overall clearing and land use impacts, the ROW follows existing distribution corridors. In addition, to further limit potential impacts, temporary staging areas will be placed along the ROW on properties that have been previously disturbed by industrial activities.

No zoning changes or variances are required for project construction. The Project is in compliance with local ordinances. The Towns of Clifton, Fine, and Piercefield do not have local zoning, and the proposed project will not alter the zoning or require a variance in the Towns of Colton and Parishville which do. State sponsored public utility projects are not required to comply with local regulations, therefore the placement of new substations will not be required to undergo Site Plan Review, however, the proposed layout and design of the substation will conform to local zoning setback requirements in the Town of Piercefield.

No significant impacts on land use or zoning are anticipated during project construction; therefore no mitigation measures are proposed.

4.10.2 Forest Preserve

The proposed Tri-Lakes Reliability Project will not pass through a NY State Forest Preserve.

To avoid State Forest Preserve lands, an Alternate Route was identified that traverses approximately six miles around the Forest Preserve. Avoiding physical intrusion in the Raquette Boreal Forest by routing around it does create a man-made element in the immediate vicinity of the Wild Forest. Although it will

not adversely affect existing Wild Forest conditions, locating the line immediately to the west of the forest will create an inconsistency in the area that would reduce the wilderness character of any future western expansion of the Raquette Boreal Forest.

4.10.3 Adirondack Park Lands

The entirety of the preferred and alternate line ROW is located within the Adirondack Park. Table 4.10-1 lists APA Act classifications of land crossed by the preferred and alternate ROW, and linear feet of the ROW in each classification. Section 3.11.5 provides descriptions of each classification.

Table 4.10-1: Linear Feet of 46 kV Line per APA Classifications

	Hamlet	Moderate Intensity	Low Intensity	Rural Use	Resource Management	Industrial	Wild Forest
Preferred Route	0.7	2.3	0.5	12.7	10.0	0	0
Alternate Route	1.3	2.9	0.5	3.9	19.5	0	0

Public utilities are considered a primary use in Hamlet and Industrial areas and are considered compatible with the character of those classifications. As a secondary compatible use identified in the APA Act, the proposed Tri-Lakes Reliability Project is an allowed use in areas classified as Moderate Intensity, Low Intensity, Rural Use, and Resource Management. A secondary compatible use must be evaluated according to the overall intensity of use to determine whether the land development activity will have an impact on the overall character of the area.

The Preferred Route is more compatible with land uses in the Adirondack Park than the Alternate Route due to the greater use of an existing utility corridor along State Routes 56 and 3. Approximately 60 percent of this route is sited in locations where existing utility lines currently exist. Utilizing this existing corridor for 15.6 miles reduces clearing required for the Preferred Route and minimizes introduction of a new utility corridor into non-utility areas. Also, using the existing corridor reduces the impact to adjoining land uses and consolidates development into a currently developed corridor.

The Alternate Route is located adjacent to roadways for about 9.5 miles, approximately 34 percent of which currently contains electric distribution lines. The Alternate Route will require approximately 54.1 more acres of clearing than the Preferred Route for new offset construction.

To minimize impacts in the Adirondack Park, the new lines will be strung on wood poles, which are highly compatible with the visual setting within the Park that is dominated by forest. The height of the wood poles will be 55-60 feet above natural grade and will be similar to the height of existing trees in the adjacent forest. (Section 4.11 discusses the visual impacts of the Project.)

The consolidation of the proposed 46 kV line and existing utilities on wood pole structures will minimize impacts in the park and makes the Stark to Piercefield Route the Preferred Route from an APA land use perspective, although the Alternate Route still meets the compatibility requirements due to use of wood pole construction, minimal clearing, and overall low height structure in relationship to the adjacent forest.

Lands along state highways adjacent to Rural Use and Resource Management areas are regulated by the APA as critical environmental areas (CEAs). In these areas, the 46 kV line has been offset to reduce or eliminate visibility of the utility lines in those areas where utility lines do not currently exist. In locations in the travel corridor's CEAs where poles and local distribution lines already exist, the incremental change to the heights of the poles and the width of the ROW will not significantly alter the character of the ROW as described in the Section 4.12.4. Therefore the road ROW edge will further back from the road, but this change does not alter the change from developed to undeveloped lands.

4.10.4 Recreation Resources

Construction of the Tri-Lakes Reliability Project will not impact any of the recreational resources identified in Section 3.11.6, with the exception of the regional snowmobile system. A portion of the Alternate Route between reference markers N9 and N14, will be built adjacent to an existing snowmobile trail. The proposed ROW will be buffered from the existing trail and no property rights that are currently granted to St. Lawrence County will be lost.

The proposed line segment from Sevey Corners to Piercefield will be visible from the Mt. Arab Fire Tower, a local recreational destination. The existing utility line that is proposed as overbuild along this segment is also currently visible. Additionally the Preferred Route will be visible from the Raquette River, and the Alternate Route will be visible from the Oswegatchie and South Branch Grasse River. Visual impacts of project construction are discussed in Section 4.12 and Appendix D of this DEIS. Even though facilities will be somewhat visible, they are not anticipated to adversely affect recreational activities or the overall recreational experience of visitors to the Park and they are not anticipated to have any adverse effect on recreation resources in the region.

No mitigation measures are proposed since no significant adverse impacts have been identified on the recreational resources of the area.

4.11 Shoreline and Designated Rivers

The Preferred and Alternate Routes have been sited to minimize the number of water crossings and the proximity of the line to sensitive water bodies. Even so, construction of the proposed Project will require construction in shoreline areas along or in the vicinity of: the South Branch Grasse River, designated as a Scenic River under the State's Wild, Scenic and Recreational Rivers System Act the Raquette River designated as a recreational river near Piercefield and a scenic River in the remainder of the project area; the Oswegatchie River, listed as a study river for possible inclusion under the Act; and a number of other non-designated water bodies.

Wherever the line is in close proximity to a water body or where crossings are required, the proposed ROW is routed to avoid placement of poles linearly along the banks of any stream or river corridor, and crossings are at the narrowest feasible part of the water body.

The proposed line will be constructed across water bodies and along shorelines as shown in Table 3.5-1 and Tables 2-1 and 2-2 in Appendix E (EWP).

Construction methods will be used that leave compatible shrubs, and trees that are six inches or smaller in diameter, intact. This Project must meet the reliability objectives and conform to the June 2005 NYSPSC Case 04-E-0822 which requires more frequent cutting of vegetation and elimination of outages caused by falling vegetation in the ROW as well as 9 NYCRR Part 577 (New York State Wild, Scenic, and Recreational Rivers System)`. The plans prepared for this Project indicate a Clearing Method (see CM-III in Appendix E) that allows for the selected cutting of the vegetation to preserve the low growing vegetation in the streambank areas. State agencies are only required to give due consideration to the APA shoreline clearing restrictions. Using a selective clearing method gives due consideration to these shoreline rules. The properties that are being crossed by the ROW are sufficiently large enough to accommodate the above clearing restriction. The clearing of the 75-foot corridor will not exceed the 30 percent clearing restriction of either of the 6-foot or 35-foot zones. The removal of large trees along the shoreline will be limited, due to the characteristics of the forest, and because many of the state navigable waters are within wetlands which limits the size of vegetation. Based on the stream length and amount of clearing, the Project will meet the clearing requirements.

Erosion control methods will be implemented to stabilize soils and ensure that there are no adverse impacts from stormwater runoff. Construction methods for shoreline cutting, clearing and grading of the ROW are discussed in Section 1.3.1 and the EWP, Appendix E. Potential impacts to wetlands and waterbodies resulting from construction activities are discussed in Sections 4.6.

As noted in Section 3.11.3, any body of water in the Adirondack Park that is navigable by boat or canoe is subject to certain shoreline restrictions. Overhead water crossings will leave enough vegetation on embankments and near the shoreline to minimize visibility from the water body (visual impacts associated with construction across or in the vicinity of water bodies are discussed in Section 4.11).

From a shoreline and designated rivers perspective the Preferred Route has substantial benefits over the Alternate Route. The Alternate Route crosses the South Branch Grasse River, a designated Scenic River. The Preferred Route does not cross any Scenic or Recreational Rivers. The crossing of the Grasse River may be completed in accordance with the conditions or requirements of 577, Scenic and Recreational River Act. The 46 kV line is a river area utility. River area utility may include river crossings provided that the crossings occur not more than once every two miles and visibility of the crossing is minimized. To minimize visibility, it is necessary to select a narrow crossing location and make it perpendicular to the river. Structures in the river buffer zone must be substantially invisible. The poles will be screened by the forest cover. Overall, to further insure that the visual impact is minimized at the Grasse River, an underground crossing of the river is being proposed through horizontal directional drilling.

4.12 Visual Resources

Visual Impact is assessed in terms of the anticipated change in visual resources, including whether there will be a change to the visual character or quality of significant scenic and aesthetic resources. The full Visual Impact Assessment for the Tri-Lakes 46 kV Reliability Project is attached as Appendix D. This section summarizes the findings of that report relative to construction impacts. Features of the line that may result in visual impact during construction include right-of-way clearing, construction of access roads and maintenance trails, and structure types. These potential impacts are discussed below.

In general, project construction will be visually similar to local logging operations and routine maintenance and right-of-way clearing of existing lines. Equipment, especially during right-of-way clearing, will include chainsaws, brush-hogs, backhoes, bulldozers, skidders, dump trucks, and wood chippers. Flagman and other construction personnel will visible. Construction staging areas will also be set up and will include equipment and vehicle parking areas, materials storage areas, portable sanitary facilities, and possibly project office trailers. See the EWP (Appendix E) for construction details. For additional information and detail on visual impact, please refer to the Visual Impact Assessment, (Appendix D).

4.12.1 Right-of-Way (ROW) Clearing

A 75-foot wide, cleared ROW is the utility standard necessary to ensure safe and reliable operation of the proposed 46 kV line. ROW clearing will be visually similar to clearing operations and activities that commonly occur in lumber company owned lands in the Project Area. For instance, all vegetation within a ROW that may impact reliability will be removed from the ROW. Trees alongside the ROW that could fall onto and damage the line will also be removed.

The proposed structures and cleared ROW may be visible from waterways and roadways where these resources are crossed. ROW clearing at road and river crossings and potential views of the cleared ROW at these crossings will be minimized by maintaining low growing vegetation at the crossing and by crossing these resources at an angle perpendicular to travel. Navigable rivers are considered by the state to be travel corridors, and, as such, are a valuable visual resource. Along the Newton Falls Alternate

Route, ROW clearing will be necessary at the overhead crossings of the Oswegatchie River, Tooley Pond Outlet and other stream crossings. Along the Piercefield segment, there is a crossing of Dead Creek. Under no circumstances is the proposed ROW clearing allowed to run parallel with a river resource without a substantial buffer of existing vegetation to remain. Also, alternate routes were selected to obtain the screening benefits of existing topography.

ROW clearing may open view corridors where views did not previously exist. However, because of the wooded nature of the area and the rolling topography, these views will be similar in width to typical roadway clearings, and limited in depth. The ROW siting and routing locations were selected and refined to minimize the potential creation of long view corridors, and the current configuration of the project will not create long, uninterrupted views. Where the proposed power line is located along an existing roadway, the additional clearing width may be visually striking. However, as the under story vegetation becomes reestablished, the visual character of the road and expanded ROW clearing shall be reestablished, resulting in a minor long term visual effect.

4.12.2 Access Roads and Trails

Access roads and maintenance trails will be needed to allow vehicle access to structure locations and other points along the ROW. Existing roads and trails will be used wherever possible. New work trails will be designed to avoid severe slope conditions and to minimize stream and wetland crossings. Access trails will be constructed in the same manner as ROWs, described above. New access roads and disturbed roadside areas will be planted with approved conservation seed mixes after construction to improve visual character.

Like ROW clearings, access roads and maintenance trails may create views into the line corridor, where views did not previously exist. However, because of the wooded nature of the area and the rolling topography, views will be limited and no long vistas will be created.

4.12.3 Structures

4.12.3.1 Structure Type

The proposed line will use wood pole structures to carry the 46 kV line and, in overbuild cases, to carry the existing utilities as well. Pole height will average between 55 to 70 feet above final grade. Poles will generally be placed 300-400 feet apart depending on terrain and on whether local distribution will be attached to the pole. Poles that will support long spans, such as at river crossings, may be taller than typical structures to maintain required clearances. Photo simulations were prepared to compare the visibility of each structure type under each of two conditions: back-dropped by trees and sky-lighted (see Section 4.12.3.3).

Pole type 1, the preferred structure, is a vertical arrangement of three insulators and three conductors. The insulators will begin one foot below the top of the pole and will be spaced down the pole by five feet. In overbuild locations, a candlestick insulator on either side of the pole will carry the local distribution lines. Local distribution will be attached at a height of 21-25 feet. *Photo 53DT* depicts the preferred structure vertical arrangement.

Photo 53DT

The Project area can easily accommodate the taller vertical structure configuration due to the height and extent of the adjacent forests. The vertical insulator arrangement is narrower in profile and preferred over the crossarms structure. The dominant visual characteristic in a forest is the vertical structure of the trees. New structures that share a dominant vertical element will be more compatible with the existing environmental setting. The photo simulations in Appendix D, the Visual Impact Assessment Report, include examples of poles with vertical arrangements, as well as poles with crossarms.

4.12.3.2 Conductors

In a vertical array, the three insulators to which the conductors are attached are set on alternate sides of the pole, spaced five feet apart. Conductors will be non-specular to minimize sunlight reflection. In a horizontal configuration, conductors will be attached to insulators on the crossarm, will all be at the same elevation and will be set a minimum of 4.5 feet from each other on the crossarm.

4.12.3.3 Back-dropped and Sky-lighted Profiles

The visual impact of the proposed sub transmission lines is affected by the placement of both poles and conductors. Sky-lighting is the effect of structures and conductor viewed against the sky from roads or other viewpoints. When structures exceed the height of the background vegetation, that vegetation is no longer able to backdrop the poles and conductors. *Photo S3AS* depicts the visibility of utility poles that are sky-lighted.

Photo S3AS

Back-dropping occurs when poles and transmission lines do not exceed the height of vegetation behind them, and are visually absorbed by the landscape. *Photo S3DS* is an example of poles and lines that are back-dropped against existing vegetation.

Photo S3DS

Whether back-dropped by trees or sky-lighted, the preferred structure presents less visibility than the two alternate structures bearing crossarms. The preferred structure, as a simple vertical element, tends to fade to the background. Adding crossarms only increases the line, mass, and texture of the structure and thus, its ability to be perceived.

4.12.3.4 Offsetting

Using vegetation to screen or buffer power lines is a useful method of mitigating the visual impact of power lines. In "offsetting," a tree line and/or other vegetation is maintained between a roadway or other viewing point to soften or de-emphasize the visibility of a utility corridor. *Photo P3AW* depicts an existing offset along NYS Route 3.

Photo P3AW

Photo P2BN shows the view into an offset utility corridor from NYS Route 3. The transmission line is well camouflaged.

Photo P2BN

4.12.4 Visual Impact and Mitigation

Mitigation of potential visual impacts during construction includes consolidating the 46 kV line and the local distribution line by overbuilding, and offsetting the line 200 feet from roadways. The poles proposed for the project are wood and are approximately the same height as the surrounding forest, so they will blend in with the landscape. Due to the variety of wood used for poles and the variety of pole classes, color variation is inherent. However, poles will become weathered by time and natural elements, helping them to blend in with the surrounding landscape. The preferred pole structure is a vertical arrangement of insulators and conductors. This structure will create less of a visual impact than poles with crossarms. The photo simulations included in Appendix A, the Visual Impact Assessment Report, include examples of the preferred pole structure, as well as those with crossarms.

4.13 Public Health & Safety

Project construction should have no significant effect on public health and safety. Construction activities are anticipated to occur only in designated ROW areas, however, some sections adjacent to public roads may require some temporary lane closings to enable work to be completed. As noted in Section 3.13.2, the law enforcement is provided by the state police in the four towns in which the preferred and alternate ROWs are located. The police will be notified of the construction schedule and Niagara Mohawk will work with public safety authorities to ensure that access is maintained at all times for emergency vehicles (ambulance, fire engines and police cars).

Construction activities, particularly ROW preparation, may have limited adverse effects on air quality in the form of increased dust and emissions from construction equipment. These impacts are anticipated to be of short duration and very localized to the specific section under construction. Methods that will be used to control dust from construction activities are discussed in the EWP (Appendix E). Impacts to air quality from project construction are discussed in Section 4.2 of this DEIS.

In the unlikely event of an accident to one of the construction crew while working on the Project, area hospitals and health care facilities are sufficiently sized (see Section 3.13) to respond to an emergency while still maintaining their ability to respond to other emergencies not associated with the Project.

4.14 Socioeconomics

Construction activities associated with the Project are anticipated to have minimal socioeconomic impact on adjacent properties or the region. The Project will employ workers on up to 13 separate crews for construction, with local workers given priority for hiring, to the extent practicable. Workers will be assigned to crews as follows:

- Two clearing crews: up to 24 workers
- One road construction crew: 8 to 9 workers
- Two crews pole hole excavation: 8 workers
- Four Pole setting crews: up to 48 workers
- Two line stringing crews: 16 workers
- Two substation construction crews: up to 45 workers

Different construction activities will occur at different times of the year. This staggering of activities will limit the total number of workers employed on the Project at any one point in time. Given the short-term duration of construction, less than 2 years for all construction to be completed, workers hired from outside of the region are not anticipated to permanently relocate into the area. Experience indicates that construction workers facing long commutes are likely to rent a room or an RV campsite on a weekly or monthly basis at one of the many area facilities that cater to visitors and to return to their permanent residences on weekends. As discussed in Section 3.14.2, the Project Area contains a large number of facilities that cater to non-residents. These facilities should be easily able to accommodate any workers that choose to take up temporary residence in the area. As a result, Project construction should have no noticeable affect on permanent resident or transient housing in the area.

Area businesses may realize some financial benefits as the result of construction worker spending in the vicinity of the project. As noted above, some workers are likely to rent rooms or campsites in area establishments. Variety stores, restaurants and bars in the immediate vicinity of construction activities may also gain financially from workers' purchases. This spending will be of short-term duration, however, lasting only for the duration of construction of the Project, and not of sufficient value to require expansion of the staff or size of existing establishments.

4.15 Traffic and Transportation

Construction of the Tri-Lakes Reliability Project will cause long-term lane closures along the proposed routes. The Project will utilize up to 13 separate crews to perform different construction tasks. While the tasks will be somewhat staggered, construction vehicle traffic and delivery traffic will increase along the proposed routes and in the local communities. The following list describes the approximate number and type of construction vehicles that will be on or adjacent to existing roadways during Project construction:

- Clearing (two crews)
  - 3-4 Log Trucks
  - 2 Skidders
  - 1 Shear
  - 1 Chipper
- Road construction (one crew)
  - 3 Dump Trucks
  - 1 Bull Dozer
  - 2 Track Hoe
- Pole hole excavation (two crews)
  - 1 Auger Truck
  - 1 Bedrock Drill Truck
- Pole setting (4 crews)
  - 4 Bucket Trucks
  - 4 Pickup Trucks
- Line stringing (2 crews)
  - 2 Bucket Trucks
  - 2 Pickup Trucks
  - 2 Pullers
- Substation Construction
  - 2 Bucket Trucks
  - 1 Crane
  - 1 Equipment Truck
  - 1 Flat Bed
  - 2 Pickup Trucks

Although some construction activities will be occurring during the summer months, most of the large scale land clearing and pole setting activities will occur between November and April. This schedule will limit the impact on traffic during the summer months when seasonal visitation is highest. In addition, to minimize the potential effect of the project on area roadways, construction workers will be required to park in one of the staging areas identified for the project and will be transported to the construction sites as a group.

Due to the existing low levels of traffic on area roadways, impacts will be of short-term duration and insignificant. Although some slow downs in traffic are inevitable, construction will move rapidly so that no one location will be affected for more than a few days at a time. Notification of any anticipated lane closures will be posted and provided to local media outlets for distribution prior to construction of that section of ROW. Detour routing of traffic will not be necessary because the work along roadways is not anticipated to require closure the entire roadway and lane closures are not anticipated to cause extensive delays for motorists. Lane closures will be short, and normal traffic controls seen at construction projects such as flag personnel to direct and control traffic, will be present. Additionally, much of the construction work will be removed from the roadway ROW or be on the outside edge of the road shoulder, thus minimizing interruptions. Also, much of the work will be completed during the winter months.

SECTION 5
ENVIRONMENTAL IMPACTS OF OPERATION AND MITIGATION MEASURES

SECTION 5 ENVIRONMENTAL IMPACTS OF OPERATION AND MAINTENANCE

5.1 Geology and Soils

5.1.1 Geology

As noted in Section 3.1.1, neither the preferred nor alternate ROW contain geologic features that would adversely affect Project operation or reliability. Although earthquakes have occurred in the Project Area, they have not been and are not predicted to be of an intensity that would affect Project facilities.

5.1.2 Soils

Operation of the Tri-Lakes Reliability Project is anticipated to have no effect on soils within the ROW or on adjacent properties. Once operational, the only activity that will occur on the ROW and work trails will be emergency repairs to the 46 kV line and regular vegetation maintenance (mowing, brush cutting, etc.), neither of which are soil disturbing activities.

5.2 Air Quality

During operation, transmission lines emit very small amounts of ozone and nitrogen oxides. However, the amount emitted by 46 kV lines would be too small to measure, and would have no adverse effect on human health or the environment.

The Project will increase the reliability of the electric system in the region through improvements to capacity and delivery of electricity. These system improvements will likely result in air quality improvements as well, since it will offset the need to boost power levels by operation of small local power generation sources. These small power sources primarily consist of diesel generators and are relatively high pollutant emission sources. The Project will likely result in reduced operation of these units and thereby benefit air quality in the region.

5.3 Noise

During operation of the 46 kV line, it is anticipated that minimal noise will be generated by the lines.

Audible noise levels from transmission lines also vary based on the voltage of the line. The low level voltage of the 46 kV line is not likely to result in any audible noise impacts.

The Preferred Route requires a new substation at Stark Falls and a regulator station at Piercefield. The Alternate Route requires a new substation at Newton Falls and a regulator station at Piercefield.

5.3.1 Equipment Noise Sources

The proposed Stark Falls Substation will include the installation of one 50/40/30 MVA, 115/46 kV transformer. Equipment sound levels for the proposed transformer were based on data provided by Niagara Mohawk. The expected sound levels for the proposed transformer are provided in Table 5.3-1. Additional information was obtained from available in-house data and data provided by the Edison Electric Institute in the Electric Power Plant Environmental Noise Guide (1984). The modeled sound levels were based on 50-MVA operation (i.e., maximum potential noise emissions).

Table 5.3-1: Expected Transformer Sound Levels		
Operating Load	**Cooling Mode**	**Sound Level [1]**
30 MVA	ON/AM	70 dBA
40 MVA	ON/AF	72 dBA
50 MVA	ON/AF	73 dBA

Note:
[1] Sound levels are assumed to be indicative of IEEE C57.12.90 standards for measurement of noise related to transformers.

The noise emissions were modeled based on full load operation of the proposed transformer. As such, noise associated with transformer cooling fan operation was included in the noise modeling analysis.

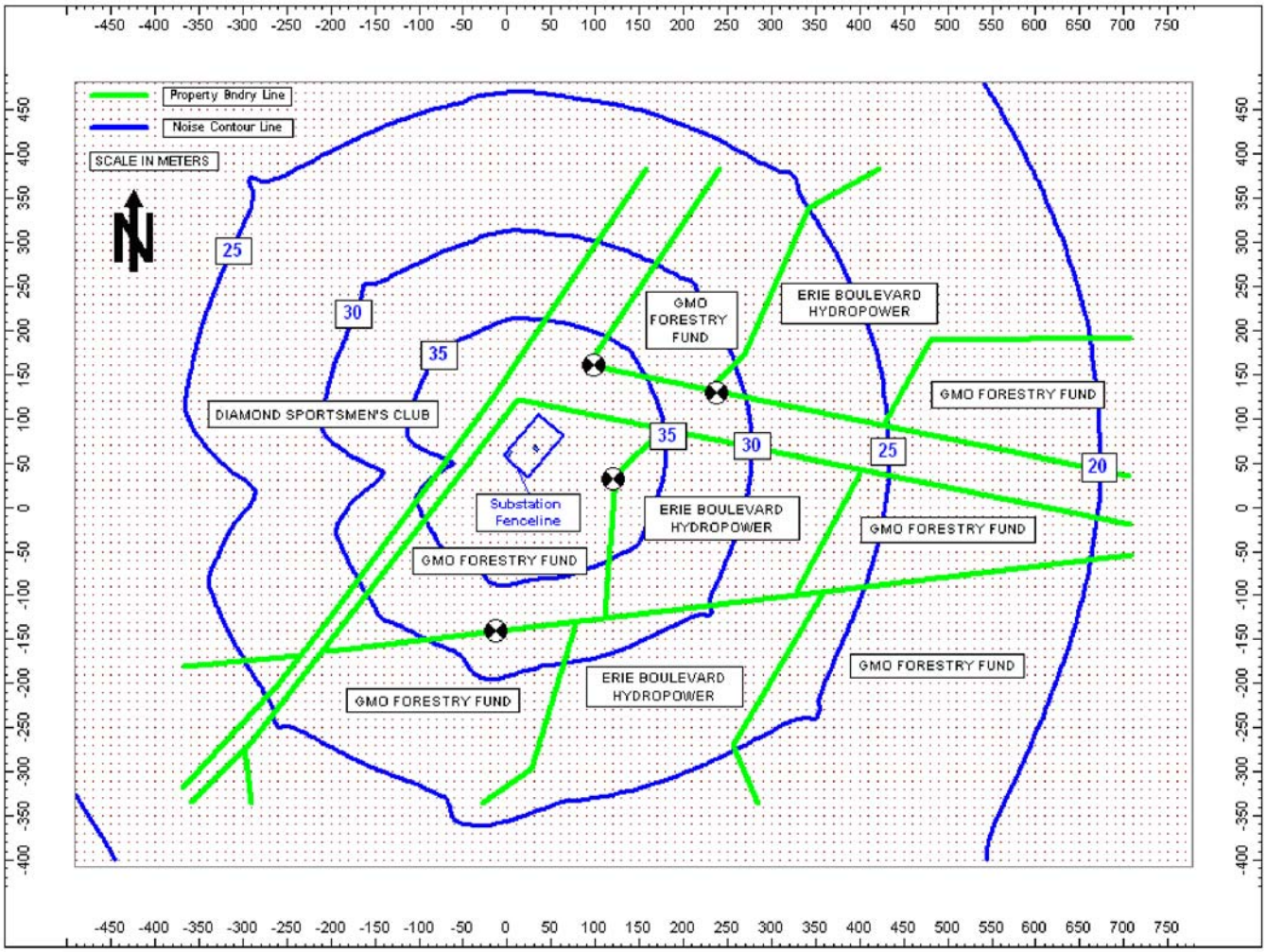
The modeled noise generated by the transformers at the Stark Falls Substation are presented as A-weighted sound pressure levels and shown as noise contours on Figure 5.3-1. As demonstrated by this analysis, noise will approximate or be lower than background levels at 35 dBA less than 300 feet from the substation. Although the noise levels are low, there are oftentimes prominent discrete tones that create a prominent "hum" attributed to operation of transformers depending on electrical load and atmospheric conditions. In the case of the Stark Falls Substation, there are no adjacent sensitive receptors. In the case of the Piercefield Regulator Station and the Newton Falls Substations, specific analyses of the equipment will be conducted and sound absorption mitigation measures will be assessed, as appropriate.

5.4 Water Quality

Impacts to water quality as a result of the operation of the Project could potentially result from the vegetation maintenance activities proposed by Niagara Mohawk in the Vegetation Management Program (Appendix J). These impacts include the potential increase in water temperatures, turbidity, and related adverse effects to local fisheries adjacent to the stream crossings. However, these impacts are expected to be short-term and minimal.

The loss of vegetation that serves to shade surface waterbodies can lead to an increase in water temperatures and related adverse effects to local fisheries. Water temperature is closely related to the amount of available dissolved oxygen, a common limiting factor to many fish. For this Project, an inspection and monitoring program is proposed on a 5-year schedule to locate vegetation growth and the presence of "hazard trees" that have the potential to interfere with transmission line operation. Vegetation determined to be a threat will be removed. Stream warming is not expected to be an issue during this phase of the Project, primarily because the amount of vegetation being removed will not cause great changes in the amount of light penetrating to the ground. The relatively narrow ROW width proposed (75 feet) and maintenance of a scrub-shrub or herbaceous cover adjacent to streams and wetlands will provide adequate amounts of shade species to help sustain existing water temperatures.

The use of herbicides will be restricted to upland applications to woody vegetation detailed in the EWP and within designated buffer zones as described in Section 4.8. Herbicides will not be applied in any manner within potable water supplies or wetlands. In addition, herbicides should not be applied during winds greater than 10 miles per hour. Use of these techniques will ensure that the introduction of herbicides into non-target areas is avoided or minimized.



Tri-Lakes Reliability Project

Stark Falls Substation Noise - A - Weighted Sound Pressure Levels (dBA)

New York Power Authority

Figure 5.3-1

5.5 Fish and Wildlife

5.5.1 Fish

Maintenance equipment will only cross streams at approved locations. Also, herbicides will not be used within wetlands and other waterbodies and buffer zones as described in Section 4.8. Operation and maintenance activities are not expected to impact fish species in the vicinity of the Project Area.

5.5.2 Wildlife

Impacts to wildlife resulting from the maintenance of the ROW would be similar but less extensive than those associated with ROW construction. The most significant impact to wildlife species would be alterations to habitat resulting from clearing tall-growing vegetation that has grown too close to transmission lines. In addition, maintenance activities could potentially cause the periodic disturbance, displacement, or loss of a small number of animals inhabiting the ROW. The animals most likely to be impacted are the less mobile species that are unable to avoid maintenance equipment. This includes small mammals, reptiles, and amphibians. More mobile and larger species will be temporarily displaced and return soon after maintenance activities have ended.

One concern regarding wildlife species is the disturbance of breeding individuals resulting from vegetation maintenance activities. Branches within the ROW or protruding from the edge of the ROW may be used as nest sites during the breeding season, and their removal could potentially cause failure of active nests. This would primarily impact edge species that may inhabit the post-construction open shrub vegetation within the ROW.

The selection of proper herbicide for use during vegetation maintenance will take into account the toxicity level to wildlife as some herbicides are intolerable to certain bird species. There are also potential indirect effects resulting from the use of herbicides, the most common being alterations to existing habitat. The loss of foliage can result in short-term decreases of habitat value due to the lack of available cover. These impacts would be temporary, lasting for the period the adjacent vegetation takes to fill in the gaps caused by removal of targeted individual plants.

5.6 Wetlands

The post-construction species composition within wetlands crossed by the ROW is expected to be characteristic of local scrub-shrub and emergent non-forested cover types. Impacts to these areas resulting from the 5-Year Vegetation Management Program will be limited to the effects of maintaining low-growing vegetation within wetlands in the ROW. Inspection and monitoring will be conducted along the ROW to determine if vegetation has reached heights considered to pose a threat to the normal operation of the transmission line. Woody vegetation, in or out of wetlands, that has grown to a height that could potentially compromise the transmission line will be removed or trimmed. However, selective clearing is unlikely to affect the wetlands composition within the ROW.

Selective herbicide use will be implemented in accordance with permit conditions and will be restricted by the use of buffer zones around wetlands and waterbodies as described in Section 4.8. These buffer zones will minimize the effects of herbicides on the plant and animal communities in wetlands as well as reduce the possibility of introducing herbicides into wetland systems. The EWP (Appendix E) summarizes several techniques for the application of herbicides, depending on vegetation height and density as well as wind speed. Several application techniques call for the use of all-terrain vehicles to distribute the product along the ROW. Steps will be taken to ensure that all-terrain vehicles use existing

roads and constructed work trails. No access for all-terrain vehicles will be allowed within wetland boundaries.

The APA, NYSDOT, NYSDEC, and the Adirondack Nature Conservancy have worked together to inventory and control invasive vegetative species in the Park by developing management plans specific to certain locations. To date the work has focused primarily on purple loosestrife. Other terrestrial plant species that are found in the Park and are considered invasive include garlic mustard, common reed grass and Japanese knotweed. Environmental construction methods used to prevent the introduction or spread of invasive plant species in the Park are based on procedures found in the NYSDOT Environmental Procedures Manual, Section 4.8.4 (June 22, 2005).

Prior to the start of construction, detailed field topographic survey and woodland assessments will be completed. A detailed survey for invasive species will be conducted at this time to assure that a comprehensive assessment is completed prior to finalizing construction drawings. Based on the data determined in the field assessment, a remedial program for control of invasives will be prepared.

The following measures will be completed to prevent the spread of invasive species during construction:

- Each area found to contain invasive species will be quarantined by an enclosure to prevent the spread of plants during construction. Appropriate signage will be developed to warn of the invasive species.
- A management plan will be prepared for each species and area.
- The encounter will be reported and a copy of the management plan sent to the Nature Conservancy and the APA for approval.
- The use of straw for mulch will be limited (no hay will be used as per APA requirements).
- As described in Section 3.1.3 of the EWP, prior to deployment of equipment to the Park, all undercarriage and tracks will be cleaned and free of soil.
- As part of daily and weekly safety and procedure reminders, workers will be informed about the importance of preventing the spread of invasive species.
- The Environmental Inspector will make daily inspections of the enclosures to ensure that the area has not been accidentally entered. Equipment that has entered the area will be removed and taken to the marshalling yard for cleaning. All mud and debris from the cleaning will be disposed of as a solid waste at an approved landfill outside of the Park.
- Native seed mixes will be applied to exposed soils upon completion of construction.

As discussed in Section 4.6, work trails used for construction of the ROW will be maintained to allow for reliable permanent access to the transmission line. Therefore, a total of 7,930 square feet of wetlands within the ROW will be permanently filled to construct the work trail which will allow for operation and maintenance of the ROW.

5.7 Threatened and Endangered Species

Operation of the Tri-Lakes Reliability Project will require that vegetation within the ROW be maintained as herbaceous or scrub/shrub growth, to ensure accessibility to the transmission line to sustain the wire security zone, and to prevent outages resulting from falling trees. The total width of the maintained ROW will be 75 feet. Impacts to rare, threatened or endangered species resulting from the 5-Year Vegetation Management Program will be limited to the effects of maintaining low-growing vegetation within the maintained ROW.

Operation of the Project may potentially affect five of the 18 rare, threatened or endangered species that have been documented or that may occur within the ROW of the Preferred and Alternate Routes. Impacts would largely result from removal of vegetation likely to pose a threat to the normal operation of the transmission line within the ROW.

5.7.1 Plants

Fir Clubmoss (*Huperzia selago*) – State Endangered

Maintenance of the ROW during may potentially result in habitat more suitable for this species.

Subarctic Lady Fern (*Athyrium filix-femina*) – State Exploitably Vulnerable

Maintenance of the ROW would result in a combination of open and shrubby habitats which may be less favorable for subarctic lady fern.

Evergreen Woodfern (*Dryopyteris intermedia*) – State Exploitably Vulnerable

Maintenance of the ROW would result in a more open habitat and less suitable habitat for evergreen woodfern.

Common Winterberry (*Ilex verticillata*) – State Exploitably Vulnerable

Maintenance of the ROW at the two locations containing common winterberry would result in habitat suitable to sustain this species.

Sheep Laurel (*Kalmia angustifolia*) – State Exploitably Vulnerable

Maintenance of the ROW would result in habitat suitable to sustain sheep laurel.

Stiff Clubmoss (*Lycopodium annotinum*) – State Exploitably Vulnerable

Maintenance of the ROW at the one location on the Preferred Route containing stiff clubmoss would result in habitat suitable to sustain species.

Running Pine (*Lycopodium clavatum*) – State Exploitably Vulnerable

Maintenance of the ROW at the one location on the Preferred Route containing running pine would result in habitat suitable to sustain species.

Tree Clubmoss (*Lycopodium obscurum*) – State Exploitably Vulnerable

Maintenance of the ROW at the one location on the Preferred Route containing tree clubmoss would result in habitat suitable to sustain species.

Cinnamon Fern (*Osmunda cinnamomea*) – State Exploitably Vulnerable

Maintenance of the ROW during operation of the project would result in habitat suitable to sustain cinnamon fern.

Interrupted Fern (*Osmunda claytoniana*) – State Exploitably Vulnerable

Maintenance of the ROW would result in habitat suitable to sustain interrupted fern.

Royal Fern (*Osmunda regalis*) – State Exploitably Vulnerable

Maintenance of the ROW would result in habitat suitable to sustain royal fern.

New York Fern (*Thelypteris noveboracensis*) – State Exploitably Vulnerable

Maintenance of the ROW would result in habitat suitable to sustain New York fern.

Massachusetts Fern (*Thelypteris simulata*) – State Exploitably Vulnerable

Maintenance of the ROW would result in habitat not suitable to sustain Massachusetts fern.

White Turtlehead (*Chelone glabra*) – State Exploitably Vulnerable

Maintenance of the ROW would result in habitat suitable to sustain this plant.

Narrow-Leaf Gentian (*Gentiana linearis*) – State Exploitably Vulnerable

Maintenance of the ROW would result in habitat suitable to sustain narrow-leaf gentian.

While conversion of the forested communities to plant communities dominated by herbaceous vegetation and low growing shrubs may potentially result in habitat conditions less favorable for subartic lady fern, evergreen woodfern, and Massachusetts fern, forested land is the most abundant covertype in the Project Area and operation of the Project would have minimal adverse effects on populations of these three species. The maintenance of the ROW would result in habitat suitable to sustain the other 11 species.

5.7.2 Animals

5.7.2.1 Invertebrates

Maintenance of the ROW during operation Project would have no adverse effects on the extra-striped snaketail.

5.7.2.2 Fish

Maintenance of the ROW during operation of the Tri-lakes Reliability Project would have no adverse effects on round whitefish, lake sturgeon, eastern sand darter, or mooneye.

5.7.2.3 Birds

Spruce Grouse (*Falcipennis canadensis*) – State Endangered

The three locations of documented habitat for the spruce grouse along the Preferred and Alternate Routes will be allowed to naturally revegetate and continue to provide spruce grouse habitat. However, selective removal of trees likely to pose a threat to the normal operation of the transmission line within the ROW will be required. Maintenance will not occur in these areas between May 1 to July 31 to minimize adverse impacts to breeding adults and young spruce grouse.

Common Loon (*Gavia immer*) – State Special Concern

Maintenance of the ROW during operation of the Tri-lakes Reliability Project would have no adverse effects on the common loon.

Bald Eagle (*Haliaeetus leucocephalus*) – Federal and State Threatened

Maintenance of the ROW during operation of the Tri-lakes Reliability Project would have no adverse effects on the bald eagle.

Cooper's Hawk (*Accipiter cooperii*) – State Special Concern

Maintenance of the ROW would result in open vegetation communities that would provide suitable foraging habitat for the Cooper's hawk.

Cerulean Warbler (*Dendroica cerulean*) – State Special Concern

Maintenance of the ROW during operation of the Tri-lakes Reliability Project would have no adverse effects on the cerulean warbler.

5.8 Vegetation

Impacts to vegetation within the ROW during the operation and maintenance phase of the Tri-Lakes Reliability Project could potentially occur. Vegetation within the ROW will be maintained as herbaceous or scrub/shrub growth. In order to ensure access to the transmission line and prevent undue damage from falling trees, Niagara Mohawk will conduct inspection and monitoring of the ROW every five years. Vegetation that could potentially cause damage to, or interfere with normal operation of, the transmission line will be removed. The maintained area will ensure a 15-foot wide wire security zone of low growing vegetation with an additional buffer zone that is required to prevent damage to the transmission line from tall growing vegetation, falling trees and branches. The total width of the ROW will be 75 feet. Niagara Mohawk's Vegetation Management Program is on file with the New York Public Service Commission, pursuant to Part 84 of its Rules and Regulations and has been submitted to the APA in support of the permit application for this Project (see Appendix J).

Permitting from the APA for the use of herbicides is being pursued as a method of vegetation control within the ROW. Under the proposed EWP, and acting in compliance with NYSDEC and APA requirements and restrictions, the selection and application of herbicides within the ROW will cause minimal impacts to non-target areas. Herbicides will not be used within wetlands and will only be applied outside of buffer areas as specified in Section 4.8. Niagara Mohawk will also selectively target its applications of herbicides to only the intended plant species as indicated on the herbicide label.

The application of herbicides will be accomplished under the supervision of a certified commercial pesticide applicator pursuant to NYSDEC requirements. Full certification is not required for technicians and apprentices who meet the requirements set forth in 6NYCRR, part 325 and are under the supervision of a certified commercial pesticide applicator.

In existing forested areas, it is anticipated that the post-construction plant community within the ROW will be actively managed to maintain an open shrub habitat with an herbaceous ground layer. Niagara Mohawk is proposing the use of herbicides and cutting or brush mowing to maintain vegetation within the ROW. The selection and application of all pesticides are to be in accordance NYSDEC and APA restrictions and requirements. Overall, effects to vegetation resulting from the proposed 5-year ROW maintenance will result in removal of tall growing vegetation and maintenance of herbaceous and shrubby vegetation.

5.9 Cultural Resources

Operation and maintenance of the proposed Project will have no effect on archeological resources since no additional ground disturbing activities are anticipated to occur for operation or maintenance of the Project facilities. As noted in Section 4.9.2, Project operation has the potential to affect the viewsheds of architectural resources that are eligible for, nominated to, or listed in the SRHP and/or the NRHP. Section 4.9 describes the measures to identify historic properties in the APE and the steps that will be taken to evaluate and mitigate potential impacts.

5.9.1 Archeological Resources

It is anticipated that operation impacts to archeological cultural resources may be minimal. No new ground disturbance is expected to occur as a result of the operation of the proposed project. However, if new ground disturbance becomes necessary as a result of project operation, and if this is projected to take place in an area of the project not previously surveyed, then it may be necessary for NYPA to consult

with the SHPO and APA about the potential of the area to contain intact archeological resources that have the potential to meet the criteria for nomination to the SRHP and/or the NRHP. If ground disturbing activity takes place that results in the exposure of unanticipated human remains or potentially significant archeological resources, work will temporarily stop in the immediate vicinity of the discovery. NYPA will consult with SHPO, NYSDEC and the APA to determine the appropriate steps to take to evaluate the discovery and to develop an appropriate mitigation. Once the mitigation (which may involve professional archeological data recovery or another alternative mitigation) has been implemented, the project operation activities may resume following written confirmation from the SHPO, NYSDEC, and the APA that the mitigation measures were satisfactorily implemented.

5.9.2 Architectural Resources

Operation impacts on architectural resources are anticipated to be minimal. It is highly unlikely that there may be additional viewshed impacts as a result of project operation. There are also no direct impacts to SRHP- and NRHP-eligible or listed standing structures or to the NHL expected due to project operation.

5.10 Land Use

5.10.1 Land Uses and Zoning

Operation of the proposed Project will not significantly impact land use in the area. Approximately 11.2 miles of new ROW will be acquired for the Preferred Route. Of its total length, 15.6 miles of the Preferred Route will be on an existing utility/highway corridor where existing utilities and the proposed 46 kV line will be carried on one set of structures. Following this corridor essentially maintains the current use and minimizes the introduction of utilities among non-utility land uses.

The Alternate Route would require approximately 18.8 miles of new ROW. About 9.3 miles of the Alternate Route would be on an existing utility/highway corridor where existing utilities and the new 46 kV line would be carried on one set of structures.

Approximately 2.4 miles of property adjacent to the Preferred Route is not currently served by local distribution. While the new 46 kV line will make it possible for property owners in that area to gain electrical service, they will not be able to connect directly to the 46 kV line, as it is not Niagara Mohawk's standard distribution voltage. Distribution voltages for residential services are supplied from <15 kV lines. Although the new poles will make it easier to accommodate the extension of the <15 kV lines in some areas, any property owners that currently don't have electrical service and wish to tap into the system would still be required to pay for the extension of the existing <15 kV system to their location. A majority of the 2.4-mile segment without electric service is Wild Forest land where there is not sufficient demand to warrant extension of the distribution system. In addition, given the area and restrictions on development in the Forest or Adirondack Park, it is unlikely that the new line on the Preferred Route would be likely to facilitate or lead to new development in this area.

Approximately 17 miles of land adjacent to the Alternate Route is not currently served by local distribution. Almost all of the area along the Alternate ROW that is not currently served distribution lines is land classified by the APA as Resource Management and primarily utilized for timber production. As noted above, property owners wishing to gain electrical service in this area would be required to pay for the extension of the distribution lines.

The location of the areas that do not currently have electric service next to Forest Land on the Preferred Route and APA Resource Management land on the Alternate Route, will limit the potential for growth due to line construction. Development is not allowed on Wild Forest land and Resource Management lands permit only very low-density development, or one unit per 42.5 acres. Additionally, land use

restrictions along other sections of the Preferred and Alternate ROW limit options for future growth and development.

The operation of the Tri-Lakes Reliability Project will not have an impact on the existing zoning. As noted in Section 4.9, the Project is in compliance with area zoning and no variances or changes to zoning bylaws are required.

5.10.2 State Forest Preserve

Operation of the Tri-Lakes Reliability Project on either the Preferred or Alternate Route will not have a direct impact on the New York State Forest Preserve. However, it will form a man-made feature to the north, west and south of the Raquette Boreal State Forest Preserve that could affect future expansion of that resource in the future.

5.10.3 Adirondack Park Agency Act

As noted in Section 4.9.3, based on the APA Act, the proposed line is a secondary compatible use in the land use categories traversed by the Preferred and Alternate Routes. Overall the Preferred Route is a compatible use where it is located in the Adirondack Park, particularly the 15.6 miles of overbuild that follows the agencies guidance regarding the consolidation of utilities.

5.10.4 Recreation Resources

As described in Section 3.14, the Alternate Route ROW is located adjacent to a snowmobile trail that is part of the St. Lawrence County Snowmobile Trail system. The Project will not remove any existing easements that have been negotiated with landowners for the trail, and adequate separation will be obtained and maintained between the line and the snowmobile trail to avoid placement of utility structures too near the trail. In some locations poles may require guys, and the anchor points will need to be placed 20-75 feet from the snowmobile trail. When possible, a tree buffer will be maintained between the trail and Project ROW. No snowmobiling or ATV use will be allowed within the line ROW.

The new line will be visible from some recreation areas; however, the change is not anticipated to affect the overall recreational experience. Visual impacts from project operation are summarized in Section 5.11 and discussed in detail in Appendix D.

5.11 Shoreline and Designated Rivers

The Preferred Route for Tri-Lakes Transmission Line does not cross any waterbodies that are under the jurisdiction of the New York Wild, Scenic, and Recreational Rivers Systems Act. The Alternate Route would require crossings of the Grasse River, a designated Scenic River, and the Oswegatchie River, which is listed as a “study river” for possible protection under the Act (see Section 3.11.3 for a description of shoreline restrictions associated with the Wild, Scenic and Recreational Rivers Systems Act). Overall, the Preferred Route has sixteen (16) fewer water crossings than the Alternate Route.

At stream and river crossings, small trees and shrubs will be maintained to the extent possible during operation and maintenance of the proposed facilities to mitigate potential visual impact. Following construction, desirable plants will be allowed to grow and buffer views of the ROW and structure. Specific consideration will be given to limiting the visibility of the line and poles within the corridors of the Oswegatchie, South Branch Grasse and Raquette Rivers. As appropriate, the ROW will be maintained to reduce visibility of the proposed transmission facilities. Visual effects of Project operation are discussed in Section 5.11.

To minimize potential impacts, the ROW for the Preferred and Alternate Routes has been moved to the west to increase the distance between the riverbank and line at the Raquette River, in the area pending State Land classification. In this segment of ROW the river is designated as Recreational and the line has been routed so that it will not be visible from the river. There will be a single crossing of the Dead Creek at or near the distribution utility line crossing on State Route 3. The Dead Creek is not a designated river and by consolidating these crossings in this area, the Project will not significantly change the visibility of the utilities.

The Alternate Route would require a crossing of the South Branch Grasse River. The crossing would be completed in accordance with the standards of Part 577.6(f)(2) of the Wild Scenic and Recreational Rivers System Act, which requires that "river area utilities" be constructed to minimize visibility from the river of the support structure, line, cables, pipes, and other equipment." To minimize visibility at the crossing, a directional drill bore under the river is proposed with underground segments approaching from the east and west. Overhead support structures would be set back from the river to minimize the visibility of these facilities to transition to the underground/underwater crossing. The crossing of the South Branch Grasse River is perpendicular to the river and leaves the river corridor buffer area of a quarter mile as soon as practicable.

Also on the alternate ROW, the Oswegatchie River outside of Newton Falls is pending classification for inclusion into the New York State Wild, Scenic and Recreational Rivers System. The proposed crossing would be built perpendicular to the river and clearing would be minimized in the area adjacent to the river.

5.12 Visual Resources

The general character of the Project Area, with gently rolling hills and medium to dense forest cover, prevents the opportunity for long, open vistas. As a result, routine operation and maintenance of the project will result in little visual impact. However, there will be certain activities that may result in localized visual impacts. These activities include: inspection, maintenance and repair, and vegetation management. Also, the structures and conductors will be viewed for the operational life of the project.

5.12.1 Inspection

Transmission lines and support structures are inspected by aerial and ground surveillance on at least an annual basis. The inspections will be conducted to locate damaged lines, structures, and conductors, and to report any conditions that may adversely affect transmission operations or the surrounding area. During inspections, the condition of vegetation in the ROWs and access roads will also be noted. Inspection observations will be used to plan routine maintenance and vegetation management.

5.12.2 Maintenance and Repair

Maintenance and repair to poles and the line will occur as needed. Maintenance and repair work will be visually the same as routine maintenance and repair work on existing lines.

5.12.3 Vegetation Management

Vegetation will be periodically cleared to maintain adequate clearance from conductors and poles. Vegetation management will include controlling vegetation within the ROWs and access roads, and removing trees adjacent to the ROWs that could fall onto the conductors and/or poles.

Vegetation control will mainly be achieved by mowing with tractor-mounted brush mowers, and by herbicide and growth regulator application. Herbicides and growth regulators will be selectively applied

from the ground with backpack sprayers or vehicle-mounted sprayers. Any herbicides applied will be in accordance with applicable state and federal statutes and regulations. Only herbicides registered with the USEPA will be used. Herbicides will not be used within wetlands and will only be applied outside of buffer areas as described in Section 4.8.

Vegetation management will also consist of selective planting to encourage low-growing plant species and discourage tall-growing plant species. Vegetation at ROW edges will be tapered to soften the visual impact of the line corridors. Additionally, in areas of potential high environmental or visual sensitivity, such as streams, high use road crossings, scenic areas, and viewpoints, selective clearing techniques will be used to maintain an effective buffer zone or screen.

5.12.4 Visual Impact During Operations

The Preferred Route begins at the Stark Falls Substation. The substation will be partially screened by maintaining an approximate 30-foot wide swath of natural vegetation between the substation and Raquette River Road. The Preferred Route will be visible as an overbuild configuration along Raquette River Road, transitioning into a cross-country segment at Joe Indian Road and then rejoining State Route 56 as an overbuild. There is limited visibility from Fox Marsh and no visibility from Carey Reservoir or the Raquette River. That portion of the Stark Falls Route that passes to the west of the Raquette Boreal Forest will be on new ROW but will have limited visibility due to remote location. The off-set portion as the Preferred Route crosses State Route 56 south of the Forest Preserve has minimal visual effect because of the vegetation screening. Between Stark Falls and Sevey Corners, there is a total of 9 miles with little to no visual impact. The approximate 7 miles of overbuild in this segment have incremental visual impact and the remaining offset segment is also minimal visual effect. Five road crossings locations will create views of the ROW; however, these can be mitigated by maintaining existing vegetation and/or proposed screen plantings. Overall visual effect during operation of the Preferred Route from Stark Falls to Sevey Corners is moderate.

The route between Sevey Corners and Piercefield, common to both the Preferred and Alternate Routes, has over seven miles of overbuild and approximately two miles of either cross-country or new overhead. The overbuild sections will have incremental visual impacts. That portion of overbuild that will be offset on existing ROW will be barely visible, even during leaf off conditions. Other overbuild sections will have higher visibility in areas where there is generally open landscape such as in the Childwold area. Here some structures will be seen in silhouette. Other locations where there is potential for greater visual impact, such as in the Catamount Pond and Raquette River areas, the route is located cross-country to minimize potential visibility from these resources. As the route enters Piercefield, incremental visual impact of the overbuild configuration is further reduced by taking a new overhead alignment which minimized visibility to residents of Main Street. The Piercefield regulator station will be screened by an approximate 200-foot wide swath of natural vegetation between the station and residences along Main Street.

The Newton Falls substation will be visible from the west. A 25-foot planted buffer comprised of native shrubs and low growing vegetation will be used as a buffer between River Road and the substation. Approximately 16.2 mile of the 17.7-mile portion of the Newton Falls Alternate Route will not be visible to the general public. The overbuild segments in the communities of Newton Falls and Cook Corners would have moderate, incremental visual impact. The three river crossings along this Alternate include the Oswegatchie River, Tooley Pond Outlet and the South Branch Grasse River. The Oswegatchie crossing visual impact will be minimized such that there would only be visibility of the conductors at the river crossing. Similarly, visual impact of the Tooley Pond Outlet crossing will be minimized by selecting structure locations that take optimum advantage of topography and existing vegetation. The South Branch Grasse River will have minimal to no visibility by utilizing an underwater crossing of the river and underground approaches from the east and west.

5.13 Public Health & Safety

Operation of the new 46 kV line on either the Preferred or Alternate ROW will provide significant public health and safety benefits to the area. As noted in Section 1.1.2, the region has been experiencing frequent outages and energy reductions during peak demand periods, which occur during the winter. This is particularly the case in the Village of Tupper Lake, where the vast majority of outages occur during the winter months when severely cold temperatures can cause dangerous conditions to residents that may have to go without electricity for heat, light and water for hours or days at a time. Electrical outages can also affect some telephones, preventing calls for emergency services and assistance if needed.

The proposed 46 kV line will help to reduce the public health and safety concerns that are associated with outages by providing more reliable electricity in two ways. First, it is designed specifically to provide the capacity needed to meet the existing peak load demands and upgrade the system to enhance the overall regional system reliability, thus reducing down time from system failures resulting from excess load. Second, although it cannot prevent outages due to storm events that may cause damage to the line from falling trees and branches, by bringing the power from a new direction, it should reduce the number of outages from these events and speed the rate at which power is restored to these areas when it is down.

Operation of the proposed 46 kV line should also favorably affect air quality in the area. During outages and periods when reductions in use have been requested, some area businesses and public facilities in the area use diesel generators as back-up power. Every outage that is eliminated due to the new line will also eliminate the need for these sources of back up power and the air emissions that accompany them. Changes to air quality from operation of the proposed 46 kV line are discussed in Section 5.2.

5.14 Socioeconomics

5.14.1 Population and Housing

It is highly unlikely that the operation and maintenance of the proposed Project will have any noticeable effect on population growth in St. Lawrence County. No new jobs will be created in the area for operation of the new 46 kV line. Consequently, we anticipate no population growth in the area as a result of direct project employment.

The 46 kV line is designed to respond to electric reliability in the Tri-Lakes Region and to accommodate some planned growth, however, it is unlikely that the new 46 kV line will serve as an inducement for new housing in the four towns in which the line is located. With the exception of areas where underbuilt distribution is currently available, the new 46 kV line on the Preferred Route will not provide opportunities for local distribution since it is not Niagara Mohawk's standard distribution voltage. Distribution voltages for residential services are supplied from <15 kV lines. While the Alternate Route includes a very limited section that could be designed to accommodate local distribution, any property owners that currently do not have electrical service and wanted to tap into the system would still be required to pay the costs for the extension. Under Niagara Mohawk's Tariff, the first 500 feet of single phase line and 300 feet of three phase line extension is at no cost to the consumer, however, for any extension beyond that distance the consumer would pay the per foot cost of extending the line (about $10 per foot for overhead lines attached to the new 46 kV line) plus the cost of any additional poles and anchors that are needed to bring the electric service to their premise (about $14 per foot for newly constructed overhead lines and $20 to $25 per foot under ideal soil conditions for underground lines). Additionally, the consumer would be required to obtain any additional permits for all new ROW required for the line extension.

In general, land use controls in the Adirondack Park and in area towns carefully manage growth and development, limiting options for new structures and housing expansion. (Section 3.11 describes existing

land use and land use regulations in the Project Area. Section 5.9 describes impacts of Project operation on area land use.) The low number of requests for building permits for new home construction (see Table 3.14-4) is indicative of the lack of pressure for residential growth in the area. As noted in Table 3.14-4, Piercefield issued no building permits for single-family home construction from 1997 through 2003, and only one permit was issued in 1996. Although Clifton, Colton and Parishville issued a higher number of building permits for new home construction than Piercefield, the number of permits in each town is very low relative to the size of the town. As an example, the 13 building permits issued in the town of Colton in 2003, the highest number of building permits of the four towns through which the Preferred and Alternate ROW are routed is equivalent to only about 0.05 houses per square mile. With a smaller land area, Parishville's 11 building permits were equivalent to about 0.11 houses per square mile of the town. Population projections for St. Lawrence County (see Table 3.14-2) anticipate only about a 2.8 percent increase in the county's population between 2000 and 2015. Nothing in the statistical or anecdotal evidence reviewed for this Project indicates that growth is likely to change as the result of project operation and maintenance.

In contrast to St. Lawrence County, Franklin and Essex Counties, in which Tupper Lake, Saranac Lake and Lake Placid Villages are located, respectively, have seen more substantial increases in permanent residents. As noted in Table 3.14-1, between 1970 and 2004 the population of Franklin County grew almost 14 percent, from 44,742 to just over 51,000, and the population of Essex County increased 10 percent, from 35,300 to 38,901. This trend is anticipated to continue with the year round resident population of Essex and Franklin Counties projected to grow 4.6 and 13.4 percent, respectively, between 2000 and 2015 (see Table 3.14-2). With the closure of the Upstate Biotechnology Center in Lake Placid, discussions are occurring with regard to the possible reuse of the building and the 34-acre property (Erman, 2005). Although in very preliminary stages, the building could be reused for another commercial/industrial operation or adapted for housing. There is also some consideration of developing housing on the periphery of the property. As noted in Section 3.14, the conversion of year-round residences in the villages to second homes has caused property values to rise, which has resulted in the displacement of some residents. According to Steve Erman, Specialist, Economic Affairs of the APA, discussions are under way to investigate the need for new housing, particularly for displaced workers in the Tri-Lakes Region.

The primary pressure for growth in the villages of Lake Placid, Saranac Lake, and Tupper Lake is associated with the tourism industry. The new 46 kV line is sized to accommodate the current population with some potential for future regulated growth.

Based on discussions with representatives of local area Chambers of Commerce, future growth in the area is anticipated to focus primarily on expanding opportunities for tourism. As experienced in the region in the past, a majority of growth in the next 5 to 10 years is expected to occur in Lake Placid, where growth in second homes and time share condominiums is anticipated to be the primary housing focus (James McKenna, Director of Lake Placid Chamber of Commerce, telephone notes, 10/05). If the Lake Placid Conference Center is remodeled as proposed by the Governor, it could become a draw for professional meetings and attract new visitors to the area. This is supported by the facilities that are currently being constructed and/or expanded in Lake Placid as discussed in Section 3.14.1, including Whiteface Lodge, the Marriott Courtyard and the Holiday Inn. The Adirondack Club and Resort proposed for Tupper Lake, would add 699 timeshare and seasonal residences and approximately 60 new hotel rooms to that community if constructed.

If the Lake Placid Conference Center is remodeled as proposed by the Governor, it could become a draw for professional meetings and attract new visitors to the area. Visitors to the Conference Center would stay in local hotels, eat in area restaurants and purchase merchandise from area merchants; all contributing to growth of the regional economy. If visitors have an enjoyable visit, they are also likely to

return. Additionally, conversion of the Plattsburgh Airport from a commuter airport to an international airport will facilitate travel to the region, and potentially contribute to growth in the Tri-Lakes Region.

Regardless of whether the 46 kV line is constructed, a large number of the proposed facilities will be constructed and opened. Without the electricity provided by the new 46 kV line, however, the new facilities in the Tri-Lakes Region, if constructed, will create additional demand for electricity, which will further burden the already over-stressed system. The result of the additional demand is likely to be increases in the number and duration of outages during peak use periods.

5.14.2 Area Business and Employment

The Tri-Lakes Reliability Project will not require any permanent personnel in the area for operation or maintenance of the new 46 kV line. The 46 kV line will be managed through Niagara Mohawk's regional system and all operation and maintenance activities will be accommodated through Niagara Mohawk's existing workforce.

Although it is difficult to predict whether or not employment in the region will expand as a secondary impact of the proposed project, some area businesses and their employees will directly benefit from project operation. As noted in Section 1.1.2, outages can directly affect the productivity and profitability of local companies as well as the earnings of their employees. Altrista/Unimerk, a plastic extrusion facility located in Tupper Lake, estimates that outages cost the company about $1500 per hour in lost sales and about $250/hour in lost wages (the company employs an average of about 100 people in a three-shift/day operation). After about three hours of outage, employees are sent home without pay. After a one-hour outage it takes the company three hours to restart production. Thus, the loss for a one-hour outage is roughly equivalent to about four hours of lost production. Similarly, Tupper Lake Hardwood, a sawmill also located in Tupper Lake, estimates losses of sales and wages in the order of $850 per hour for each loss, with an additional one hour loss of production due to restart time requirements (Bouck, 2005).

The Village of Tupper Lake has been the locus of the most significant power losses in the past 15 years. Although no specific data exist that supports or refutes the theory that commercial growth in Tupper Lake has been hampered by the unreliability of the existing system, it is clear that existing commercial establishments in the area have been dealing with less than favorable conditions that have caused financial losses not normally anticipated in company budgets. The proposed line will provide stability to the system that should reduce the number of future power interruptions, thereby providing benefits to area business owners and employees.

As noted in Section 3.14.3, the region has seen a loss of manufacturing jobs over the past several decades and most residents of the area are employed in non-manufacturing industries. In the villages of Saranac Lake and Lake Placid, the business sector comprising arts, entertainment, recreation, food, and accommodations, all aspects of a tourism-based economy employs the largest percentage of each village's workforce. As discussed in Section 3.14, the proposed 46 kV line is sized to accommodate proposed new tourist facilities in Tupper Lake including the Natural History Museum, the Adirondack Club and Resort, the Wood Product Industrial Park, and the Adirondack Public Observatory, as well as a rebuilt Convention Center in Lake Placid. These facilities, when completed, will provide an economic boost to the Tupper Lake economy that will likely have beneficial trickle down effects to area restaurants and businesses. Each of these facilities, when operational, however, will place additional demand on the current electrical system, which will result in increases in the frequency and length of outages during peak usage periods if the proposed 46 kV line is not operational. More frequent outages would not only be inconvenient, but could also create undesirable conditions for visitors that could cause tourists to look elsewhere for vacation opportunities. This, in turn could then create financial losses to new and old commercial facilities, which could potentially lead to the failure of some of the enterprises in the region and a subsequent loss in jobs.

Overall, the new 46 kV line should benefit area businesses by significantly reducing the frequency and duration of outages in the area due to lack of system capacity. While outages resulting from storms may still occur, the number and duration of outages per year should be significantly reduced as a result of Project operation. By providing a more reliable power delivery system, NYPA and Niagara Mohawk will minimize disruptions associated with power outages to area companies and facilities.

In order to successfully grow the tourist business in the region, visitors must be provided with a positive experience. Uninterrupted power to hotels and other tourist establishments in the area will provide visitors with a more positive experience than would occur in situations where power is lost, i.e., facilities will be open when scheduled to be open, and tourists will not have vacation plans interrupted due to unexpected closures associated with power outages. Visitors that have a positive experience are more likely to return to the area and to recommend it to others as a vacation destination. In addition, improved reliability will also decrease the need for the host establishment (hotel, motel, guesthouse, etc.) to provide reduced fees or rebates to patrons due to the lack of amenities when the power is out.

In conclusion the existing and proposed facilities that will be accommodated by the increased reliability provided by the 46 kV line are essential to the well being of the economy of the region. In particular the new line should benefit the tourist industry that comprises much of the existing economic base in the Tri-Lakes Region and is the focus for future economic development. Many of the proposed facilities mentioned in this section will be developed regardless of the construction of the 46 kV line. Without the proposed 46 kV line, outages resulting from insufficient capacity of the existing electric system would likely become more frequent as new facilities are connected to local distribution lines. As a result, the 46 kV line will be an essential element in supporting planned growth and desired regional economic expansion and will help to ensure the success of regional economic development efforts and move both the local and regional economy forward.

5.15 Traffic and Transportation

Operation and maintenance of the Tri-Lakes Reliability Project will have little effect on area transportation systems. It will generate minimal traffic, introducing new vehicles in the area during routine maintenance activities as workers use the local road network to access the ROW. In the event of emergency maintenance activities such as might occur during an outage event, additional repair and maintenance vehicles would be using the local road network. This would occur infrequently and have little effect on the local traffic.

SECTION 6
UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

SECTION 6 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

In both construction and operation of the proposed 46 kV line, adverse impacts are unavoidable. During construction of the proposed facility, impacts such as construction noise, air emissions, traffic delays on roadways adjacent to construction, displacement of animals and birds, and erosion and sedimentation are unavoidable and adverse, but of short duration and/or can be mitigated. In the long-term, operation of the proposed line will result in impacts such as changes in land use for newly acquired ROWs, loss of forest habitat, loss of wooded wetlands, and changes in visual quality will last for the life of the Project.

The following table identifies unavoidable adverse impacts that would occur as the result of construction and operation of the Project along the Preferred or Alternate Route.

Table 6.1-1: Unavoidable Adverse Environmental Impacts

Impact	Long or Short-Term	Mitigation	Section in DEIS
Erosion and Sedimentation	Short-term for duration of construction	Detailed plans have been developed to minimize erosion and sedimentation.	4.1 Appendix E
Air Quality	Short-term for duration of construction	Emissions from construction vehicles, and equipment will be minimized through use of proper emissions controls and maintenance. Dust from construction will also be short-term and controlled by appropriate means.	4.2 Appendix E
Construction Noise	Short-term for duration of construction	Work will occur on weekdays during daylight hours and is generally limited to 2 to 3 days in a location.	4.3
Displacement of species in edge habitat	Short-term for duration of construction	Displaced individuals will most likely move to adjacent undisturbed areas during construction.	4.5
Operation Noise	Long-term	Locate away from receptors. Maintain vegetative buffers.	5.3
Periodic disturbance, displacement, and destruction of wildlife from ROW maintenance	Intermittent long-term	Limit maintenance activities during breeding and nesting seasons. Limited use of herbicides in ROW.	5.5
Alteration or loss of wetlands	Long-term	Minimize location of trails or structures in wetlands. Minimize clearing in wetlands. Protect areas around wetlands. No herbicide applications in wetlands	5.5 Appendix E
Clearing or alteration of habitat in ROW	Long-term	Maximize use of previously disturbed road or utility corridors.	5.5
Loss of canopy tree species in forested wetlands/creation of scrub shrub wetlands	Long-term	Selective clearing and selective retention of compatible low-growing species will be used in wetland areas.	5.6 Appendix E

Table 6.1-1: Unavoidable Adverse Environmental Impacts			
Impact	**Long or Short-Term**	**Mitigation**	**Section in DEIS**
Permanent Fill in Wetlands	Long-term	Avoid placement of poles in wetlands. Minimize location of trails in wetlands. Unavoidable fill of 7,930 square feet of wetlands for permanent reliable access will be mitigated.	5.6
Change in Land Use for Acquired ROW	Long-term	Maximize use of existing utility and roadway corridors/ROW.	5.10
Addition of new visual elements in the Adirondack Park	Long-term	Consolidation of proposed 46 kV line with existing utilities. Use of wood poles. Routing along existing road or utility corridors wherever possible. Minimize clearing on embankments and near shorelines. Use of selective clearing and plantings. Placement of the new line (Alternate Route) underground at the South Branch Grasse River crossing.	5.12 Appendix D

SECTION 7
RELATIONSHIP BETWEEN THE LOCAL SHORT-TERM USE OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

SECTION 7 RELATIONSHIP BETWEEN THE LOCAL SHORT-TERM USE OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

With any development project, there are tradeoffs between impacts on the natural and man-made environments and the resulting project-related benefits. The Preferred and Alternate Routes considered in this DEIS have similar impacts, including ROW acquisition, increased traffic, increased noise, changes in the visual environment, and the loss of natural areas such as wetlands and wildlife habitat. These impacts, however, do not outweigh the long-term benefits of the Tri-Lakes Reliability Project and, in general, can be mitigated. The proposed 46 kV line is designed to improve reliability in the Tri-Lakes Region and benefit the local citizens and businesses. Reducing the number and duration of potential outages in the Tri-Lakes Region will reduce shutdowns and unproductive time. Also, reducing outages will result in health and safety benefits. Therefore, although there will be impacts to man's environment, clearly the Tri-Lakes Reliability Project will enhance the long-term productivity of the region.

SECTION 8
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

SECTION 8 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Construction of the proposed 46 kV line will involve a commitment of a range of natural, physical, human, and fiscal resources. ROW acquired for the construction and subsequent operation of the proposed 46 kV line would constitute a semi-permanent commitment for the life of the Project. However, when the Project is no longer needed, the land could be converted to another use.

Construction and operation of the proposed Project would also require consumption of fossil fuels, labor, and construction materials. Additionally, the proposed 46 kV line would require expenditure of labor, and natural resources would be used in the fabrication and preparation of necessary construction materials. These expenditures would be, for the most part, irretrievable. However, they are not in short supply, and their use would not have an adverse effect upon continued availability of these resources.

If desired in the future, project facilities can be removed and cleared project ROW can be allowed to revert to pre-construction conditions. Materials used in the facilities (i.e., poles, wires, etc.) can be recycled.

SECTION 9
CUMULATIVE IMPACTS, GROWTH INDUCING EFFECTS AND SECONDARY IMPACTS

SECTION 9 CUMULATIVE IMPACTS, GROWTH INDUCING EFFECTS AND SECONDARY IMPACTS

9.1 General

Construction and operation of the 46 kV line is not anticipated to have significant cumulative, growth inducing or secondary impacts in the Project Area. Cumulative impacts result from "……other simultaneous or subsequent actions which are included in any long-range plan of which the action under consideration is a part; likely to be undertaken as a result thereof; or dependent thereon (SEQR Regulations Part 617.7 (c) (2)). Secondary effects, where appropriate, are discussed in terms of effects caused by the construction of the proposed facilities that occur later in time or further removed from the Project, but are still reasonably foreseeable. Because this is a reliability project, construction and operation of the proposed 46 kV line is not expected to induce growth in the area.

The assessment of cumulative impacts is presented in terms of the region including Clifton, Colton, Parishville, Piercefield, Tupper Lake, Saranac Lake and Lake Placid, which is considered the area of impact for the Tri-Lakes Reliability Project. It has been assumed that activities such as logging, seasonal residential development, sand and gravel operations, and other activity in the area will continue over the life of the Project. Also it has been assumed that existing guidelines and regulations will continue to control development to minimize impact and maintain the rural character of the region. Finally, it has been assumed that maximizing the use of existing transportation and utility corridors and employing mitigation techniques presented in Section 4 and 5 and the EWP (Appendix E) will minimize construction and operation impacts.

Past actions, including development of State Routes 3 and 56 and existing adjacent utilities, were considered in this analysis. Potential future improvements to these highways, residential development, and logging activities are included in consideration of potential future cumulative impacts.

9.2 Air Quality

Construction and operation of the proposed 46 kV line will have a negligible increase in air quality impacts with no significant cumulative impact. However, a secondary effect of constructing and operating the proposed 46 kV line is reducing the need for back-up generation primarily of diesel generators. These generators result in relatively high pollutant emissions during outages in Tupper Lake and the region. Operation of the Project should have the secondary effect of reducing emissions and thereby benefit the air quality in the region.

9.3 Noise

The Preferred or Alternate Routes for the Tri-Lakes Project will not contribute significant cumulative impact or secondary effects related to noise in the area. Noise impacts related to construction will be short-term and not unlike those impacts generated by logging activities in the area. A difference may be in the location of some construction activity in closer proximity to sensitive receptors along State Route 3. Here the proposed line is primarily overbuild and will require less clearing of vegetation. Any noise associated with clearing in these locations can be anticipated to be of short duration. There will also be minimal long-term noise impacts related to the proposed substation and regulator stations. These impacts are considered minor and do not significantly contribute to any cumulative or secondary impacts in the area.

9.4 Water Quality

The Project's contribution to cumulative impacts on water resources is expected to be minimal with the implementation of mitigation procedures described in Appendix E. Operation and maintenance of the proposed 46 kV facilities would not result in discharges to surface waters. No secondary impacts are anticipated.

9.5 Fish and Wildlife

The Tri-Lakes Reliability Project will have negligible cumulative and secondary effects on fish as the result of Project construction and operation. Stream and river crossings will be constructed and maintained in accordance with procedures described in Appendix E such that there will be negligible secondary impacts to fish populations.

Construction and operation of the proposed 46 kV line will be conducted in accordance with procedures as described in Appendix E. Approximately 119 acres of forestland will be cleared and maintained as grasses and low growing shrubs for the life of the Project. As a result, wildlife found along the proposed ROW having the greatest mobility to move to other locations without having any significant impact on resident populations. Other less mobile species may be impacted as a result of construction but without having any significant effect on total populations.

9.6 Wetlands

Construction and operation of the Project along either the Preferred or Alternate Route will have cumulative and secondary effects on wetland resources. The Tri-Lakes Reliability Project along the Preferred Route will result in the modification of 13.5 acres of wetland from wooded to scrub/shrub wetlands. It is anticipated that there will be minimal placement of fill in wetlands. Numerous measures will be employed to protect these wetlands during construction and operation. These impacts will be similar to those anticipated in areas that are currently being logged or that will be logged in the future. Assuming that approved plans are in place for addressing potential impacts to wetlands, the contribution of this Project to cumulative impact on wetlands should be small.

9.7 Vegetation

Those portions of the Preferred Route utilizing highway/utility corridors (60 percent of its length), will only require 25 additional feet of clearing. For the remaining 40 percent of the route, 75 feet will be cleared for a total of 119 acres of forest clearing. In context with the large forest resources in these four communities and the logging that is expected to continue, this Project's contribution to cumulative impact on vegetation clearing will be relatively small. Because more clearing is required along the Alternate Route (approximately 174 acres vs. 119 acres), more potential cumulative and secondary impact to vegetation and wildlife habitat, respectively, would result.

9.8 Cultural Resources

No cumulative, growth inducing or secondary effects on cultural resources are anticipated from construction or operation of the Project.

9.8.1 Archeological Resources

The proposed Project either located along the Preferred or Alternate Route is not expected to result in significant cumulative impacts, growth inducing effects or secondary impacts to archeological resources.

The Project will be located within some previously developed areas that are currently accessible by the public. Those areas that involve creating new ROW are not likely to attract new visitors to the area nor are they likely to attract curiosity seekers along the new ROWs. Thus, there will not likely be increased vulnerability of potentially significant archeological resources to secondary impacts such as increased erosion or vandalism.

9.8.2 Architectural Resources

The proposed Project is not expected to result in significant cumulative impacts, effects, or secondary impacts to SRHP- or NRHP-eligible or listed properties or to the nearby NHL.

9.9 Land Use

Cumulative impacts on land use may result from the increase in reliable electric power in the Tri-Lakes Region. As discussed in Section 1.1.2, "Project Need," the existing electric transmission lines and associated facilities have reached their limit in terms of the ability to reliably serve the load in the region, and fails to meet the expanded demands in Tupper Lake and Lake Placid. Growth inducing aspects describe the potential for the proposed Project to stimulate new residential, commercial or industrial activity that would not occur if the Project were not built. Deployment of the Project may increase the development potential at the existing hamlet areas. Improvement of the existing electrical infrastructure could alleviate a significant impediment to industry, commerce and residential development in the region. While possible, such growth is likely to occur incrementally. Other factors exist which affect growth in the region, such as remoteness and rural quality, will continue to affect potential growth. The introduction of more reliable energy will assist existing homes and businesses, but is not expected to be a stimulus for new growth.

9.10 Shoreline and Designated Rivers

The Tri-Lakes Reliability Project will not have any cumulative impacts on shoreline and designated rivers. Crossings will be in accordance with guidelines set forth in Appendix E. The line will not create any additional impacts apart from the visual impacts discussed in Section 9.10.

The Project will have a positive secondary impact on the shoreline and on visual resources of the Raquette River. The construction of the Project will be located further away from the river and from that portion of the Raquette pending Primitive designation, thus diminishing potential visibility. Also, locating the line out of the existing NYSDOT road ROW will limit the potential conflict with potential future reconstruction of this portion of roadway.

9.11 Visual Resources

Where the 46 kV line makes use of existing highway utility corridors, there will be cumulative visual impacts. The existing distribution lines represent a visual element that contrasts with surrounding landscape elements. The proposed overbuild structures in these locations will add to that contrast, but would be in keeping with the concept of consolidating visual intrusions within corridors within the Park. Much of the Stark Falls Preferred Route follows an existing distribution line corridor in an overbuild configuration (15.6 miles out of the total 26.3 miles) which represents an incremental increase to visual impacts that already exist.

Those remaining locations where the proposed line is on new ROW, a new visual element is being introduced where there may be existing logging activities, logging roads and snowmobile trails or where there is no current use other than forestland. These lands have some visual impacts as they relate to

logging, roads and trails and the Project would, when viewed in combination with these other activities, represent a cumulative visual impact.

9.12 Public Health & Safety

The proposed Project is anticipated to have a beneficial long-term secondary effect on public health and safety. Operation of the 46 kV line will decrease the number and general duration of outages in the area. This reduction of outages during severe winter conditions will reduce the probable need for emergency services that could result from loss of heat and would result in an overall secondary benefit to residents in the region.

9.13 Socioeconomics

From a cumulative perspective, it is unlikely that the Project will have any cumulative effect on the demand for new year-round housing in the vicinity of the ROW.

The Project is anticipated to provide indirect cumulative benefits to regional businesses and the tourist industry. Within the Villages of Tupper Lake and Lake Placid, the Project is expected to benefit area businesses by reducing the number and duration of outages, thereby reducing potential losses associated with the work shut-downs and unproductive time that outages cost (see Sections 1.1.2 and 5.13 for a discussion of the impacts of outages on area businesses and the benefits from Project operation). The savings to businesses that result from the reduction in losses from outages should increase profits and potentially enable expansion, if desired.

The 46 kV line should also benefit the tourist industry that comprises much of the existing economic base in the Tri-Lakes Region and is the focus for future economic development. Many of the facilities proposed for construction in the area (see Section 3.14) will be developed regardless of whether or not the 46 kV line is constructed. Without the Project, however, outages resulting from insufficient capacity of the existing electric system would likely become more frequent as new facilities are connected to local distribution lines. As a result, the proposed 46 kV line will be an essential element in supporting planned growth and desired regional economic expansion and will help to ensure the cumulative success of regional economic development efforts.

9.14 Traffic and Transportation

The NYSDOT has indicated that portions of State Route 3 east of Sevey Corners may be the subject of a road improvement project sometime after 2010. That portion of the Tri-Lakes Project located along State Route 3 east of Sevey Corners may result in secondary impacts to future reconstruction projects. It is reasonable to assume that the location of overbuild structures within or close to existing NYSDOT ROW may affect the design and construction of any future road projects.

Because construction of the proposed line is not expected to be a stimulus to new growth beyond what is normally projected for this area, it is anticipated that only a minimal number of vehicles would be added to the local road network. There are currently relatively low levels of existing traffic on State Route 3 between Tooley Pond Road and the intersection of State Route 56 at Sevey Corners, with 1, 652 Average Annual Daily Traffic (AADT) trips recorded. According to model factors of traffic impact analysis, as established by the Urban Land Institute, the standard for level of service C roads is 5,200 trips per day. Current AADT is well below the standard set for level of service C along State Route 3, the principle east-west road through the area.

SECTION 10
IMPACTS OF THE PROPOSED ACTION ON THE USE AND CONSERVATION OF ENERGY

SECTION 10 IMPACTS OF THE PROPOSED ACTION ON THE USE AND CONSERVATION OF ENERGY

The proposed Project is not anticipated to have any direct effect on the use and conservation of energy in the region. The proposed Project will not consume electricity, but will instead provide the Villages of Lake Placid and Tupper Lake with more reliable power and new power that will enable them to maintain activities with significantly fewer outages than currently exist. Additional capacity will be provided by the new 46 kV line and will be sufficient to carry the forecasted loads for about 25 to 30 years.

Electric conservation improvements that have been made to facilities in Lake Placid and Tupper Lake as part of the demand side management programs implemented by Niagara Mohawk and NYPA will remain intact and will continue to assist in reducing and managing the load. Additionally, NYPA and Niagara Mohawk will continue work with new entities to inform them of conservation programs and assist them in reducing their energy consumption. As a result, with the exception of the anticipated benefit of a more secure delivery system, the proposed Project should have little impact on the use and conservation of energy in the region.

SECTION 11
REFERENCES

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APPENDICES