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Proposed Multi-Use Recreational Trail System

Preface

Like other portions of the Country and the State that contain an abundance of natural landscapes, St. Lawrence County has seen an increase in the need for multi-use recreational trail systems. As such, the St. Lawrence County Legislature has determined that the creation and management of a County wide multi-use recreational trail system would benefit both the people of St. Lawrence County and the environment. By creating a County sponsored trail system, resources are made available to responsibly manage and maintain an existing recreational resource, while providing insight on potential future trail development. This Draft Generic Environmental Impact Statement (DEIS) was prepared, at the request of the County Legislators, as the first step of examining any potential environmental impacts that may arise as part of the proposed County wide multi-use trail system.

Summary

St. Lawrence County is proposing the development of a County-wide system of trails and roads for use by ATV's, hikers, mountain bikers, horseback riders, dog sledding and other outdoor recreational activities. The system will be comprised of off-road trails, as well as County and local roads that have been used by local ATVers and outdoor enthusiasts for numerous years. Portions of the proposed trail system will be comprised of long-standing snowmobile trails in place within St. Lawrence County. A managed County wide, multi-use trail system would create additional tourism revenue for the County. Presently, the County experiences a large volume of tourism from snowmobilers, skiers, and boaters. The possibility of advertising a County endorsed multi-use recreational trail system that is safe, well-managed, and environmentally friendly could provide additional County wide revenue.

In accordance with the requirements of the State Environmental Quality Review Act ("SEQRA"), St. Lawrence County has assumed Lead Agency status for

environmental impact review purposes, and has decided to prepare a Draft Generic Environmental Impact Statement (“DGEIS”) for the project. This DGEIS identifies and evaluates the potentially significant environmental impacts associated with the operation and use of such a network, including potential impacts to air, land and water resources, wetlands, wildlife, historic sites, community character, and community services. Where necessary, impact mitigation methods or actions have been identified and incorporated into the review process. Once this DGEIS is deemed complete and adequate for public review, it will be publicly posted to allow receipt of public and agency comments for Lead Agency response.

Glossary of Terms

Abbreviations and Acronyms:

ATV:	All terrain vehicle
BMP:	Best management practice
CO:	Carbon monoxide
dB:	Decibel, a unit of sound pressure
dB(A):	A-weighted decibel scale; unit used to measure the loudness of sound, weighted towards the sound frequencies to which the human ear is most sensitive (20 Hz – 20,000 Hz)
DGEIS:	Draft Generic Environmental Impact Statement
EPA:	Environmental Protection Agency
Ft:	Feet
HC:	Hydrocarbon
Hrs:	Hours
Hz:	Hertz – number of wave cycles occurring in one second

M:	Meter
NO _x :	Nitrogen oxides
NAAQS:	National Ambient Air Quality Standards
NHP:	Natural Heritage Program
NYSDEC:	New York State Department of Environmental Conservation
NYSOPRHP:	New York State Office of Parks, Recreation, and Historic Preservation
NYSORVA:	New York State Off-Road Vehicle Association
OHV:	Off-highway vehicle
PM:	Particulate matter, PM ₁₀ is the fraction smaller than 10 microns and PM _{2.5} is the fraction smaller than 2.5 microns
SAE:	Society of Automotive Engineers
SEQRA:	State Environmental Quality Review Act
SO ₂ :	Sulfur dioxide
USDA:	United States Department of Agriculture
VOC:	Volatile organic compounds

1.0 General Description of Proposed Action

The proposed St. Lawrence County Multi-Use Recreational Trails System incorporates the use of existing Town and County roadways, as well as both County-owned and private parcels of land, to form a network of trails that cover a large expanse of the County. A map of the proposed multi-use trail corridors can be found in the figures section of this report.

Through use of the Generic Environmental Impact Statement (GEIS) process pursuant to the State Environmental Quality Review Act (SEQRA), the County will evaluate the potential environmental impacts of establishing a network of trails for use by multiple outdoor recreational activities. A base network of trails has been identified and environmental conditions reviewed. This network consists of existing trails that have been used by local outdoor enthusiasts for years. Expansion of the trail system is expected in the future as a result of the County's cooperative efforts in working with local town governments, private landowners, local trail use clubs, the New York State Off-Highway Recreational Vehicle Association (NYSORVA), and other groups or individuals affiliated with the outdoor industry. Future trail segments proposed for inclusion into the County's trail system (whether privately or publicly owned) must undergo site-specific environmental evaluations if considered for addition to the existing trail system. A checklist of these necessary reviews and evaluations are included in Appendix A.

A GEIS is a type of environmental impact analysis that deals in a broad-based or conceptual way with a number of related or similar actions in a single geographic area which may have common impacts or may impact the same set of resources. A GEIS identifies the important elements of the natural resource base, discusses in general terms the constraints and consequences of narrowing future options, and can serve as a base for general projections for future activity or patterns of activities.

The anticipated expansion of the trail system in the future will require County personnel to conduct a series of analyses that are currently unknown, site-specific impacts, which are too speculative to be properly assessed as part of the current proposed network. The County wishes to create a template for future decision making regarding these expansion opportunities, in order to bring consistency and predictability to the trail expansion process. By providing a broad-based analysis of multi-use recreational trail impacts, this GEIS is intended to: organize and economize the County's decision process; establish criteria for simplifying future impact assessment pursuant to SEQRA; enhance sound environmental planning by allowing consideration of mitigation and alternatives at an early juncture when there is greater flexibility; providing early guidance on significance determinations; and providing public disclosure of agency considerations used in environmental decision making.

2.0 Background

St. Lawrence County contains numerous snowmobile trails that link the County with the surrounding region as part of an extensive State wide trail system funded and maintained by local, County, and State governments in partnership with snowmobile clubs and their members. The County has recognized that over the last decade ATV use and non-motorized recreational activities have been on the increase, creating the need for a trail system based on the concepts utilized by the snowmobile community. St. Lawrence County realizes that the opportunity to create a County wide trail system would allow for safe and environmentally friendly use, as well as provide additional economic stimulus for the County. The County believes that each citizen has the right to enjoy the natural resources that St. Lawrence County provides. As a result, the proposed trail system will not only provide excellent riding opportunities for ATV enthusiasts, but will also provide a trail system that is capable of supporting horseback riding, dog sledding, mountain biking, hiking, and other outdoor activities.

It is anticipated that the current proposed base network of multi-use trails within the County will be expanded in the future. This expansion will require the County to conduct a series of analyses of as-yet-unknown, site-specific impacts which are too speculative to be properly assessed as part of the current proposed network. The County wishes to create a template for future decision making regarding these expansion opportunities, in order to bring consistency and predictability to the trail expansion process. By providing a broad-based analysis of multi-use trail impacts, this GEIS is intended to: organize and economize the County's decision process; establish criteria for simplifying future impact assessment pursuant to SEQRA; enhance sound environmental planning by allowing consideration of mitigation and alternatives at an early juncture when there is greater flexibility; providing early guidance on significance determinations; and providing public disclosure of agency considerations used in environmental decision making.

3.0 Public Need and Benefits

The current network of trails within St. Lawrence County are minimally regulated with no environmental or safety controls. The trails consist of illegal or non-approved trails on public lands or on limited access private trails and local roads. The growing public enthusiasm for ATV riding and outdoor recreation in New York State and the Country dictates the need for publicly owned and maintained trails that allow individuals or groups the opportunity to enjoy outdoor recreation in a safe and environmentally friendly manner. As more people participate in a wider range of activities, the demand is increasing for a multi-use recreational trail system (Gartner and Lime, 2000).

This GEIS proposes a trail system that is expected to result in an influx of tourism dollars. Not only will County ATV users and other outdoor enthusiasts have a locally well defined trail at their disposal, but as people from outside of the region learn about the trail system it is anticipated that they will choose to travel to and spend recreational dollars in a region that allows them to enjoy their recreational passions. A study performed by Camoin Associates for the Cooperative Tug Hill Council (Camoin, 2006) estimated that the ATV use at that time was contributing approximately \$35.2 million in direct and indirect revenues to the Tug Hill Region. This study further estimated that revenues would increase approximately \$14.1 million with a 25% increase in ridership. The potential economic incentive of a trail system in the Tug Hill Region is very comparable to what should be expected in St. Lawrence County due to the close proximity of St. Lawrence County to the Tug Hill region. Additional revenue can be expected by this proposed system since it does not cater only to ATV usage, but other outdoor recreational activities as well.

The establishment of a County sponsored trail system will provide a controlled, environmentally sound system that will allow for unbiased use by other outdoor enthusiasts such as mountain bikers, hikers, and horseback riders.

4.0 Project Description

4.1 Purpose

The purpose of this action is to develop an interconnected network of trails that are managed and maintained by the County. This in turn will provide a multi-use recreational trail system comprised of off road and on road segments that are environmentally sound, safe for both users and the public, and increase economic revenue through ecotourism for St. Lawrence County during the summer months.

4.2 Project Features

The trail system has several elements which will function together to support the project purpose. These include the following:

- Creation of a Recreational Trails Advisory Board – The St. Lawrence County Legislator has already established a Recreational Trails Advisory Board comprised of volunteers from various aspects of outdoor recreation. The Trails Advisory Board is responsible for making recommendations to the Legislature concerning the use of public and private lands within St. Lawrence County. The Board's duties include oversight of County operated trails through trail maintenance, care, and signage by establishing contracts with user groups.
- Development of Marked Trails and Trailhead Areas with Specified Signage – Formalization of the trail system in this manner will serve to enhance the trail experience, encourage compliance by the trail

community with the established regulations developed by the Recreational Trails Advisory Board.

- Development of Cooperative Relationships with Towns – In order to ensure adequate support and management of the proposed system, the County will seek to develop cooperative relationships with the host towns to share in the management and maintenance of the system.
- Development of Cooperative Relationships with Local ATV, Hiking, Mountain Biking, and Other Outdoor Recreation Based Clubs – The County will develop and seek relationships with local recreational clubs in a manner that aids in the management of the Trail System. Local users can provide helpful insight into trail conditions and potential problems that may need improvements.

4.3 Permits and Approvals Required

Portions of the proposed multi-use recreational trail system could potentially require permits from various regulatory agencies. Permits from the NYSDEC, USACE, and/or the APA may need to be obtained for maintenance and construction of the trail system in areas where stream crossings occur or where portions of the trail are within the adjacent area of a Mapped NYSDEC Freshwater Wetland. Trails proposed within this document and depicted in the Figures section are pre-existing trails. These pre-existing trails have been inspected for environmentally sensitive issues and specific structure needs have been identified. Possible permits required for the implementation, growth, and maintenance of the trail system include the following:

NYSDEC Permits

Article 15 Stream Disturbance Permits
401 Water Quality Certification
Article 24 Freshwater Wetland Permits (Adjacent Areas only)

USACE Permits

Section 404 Clean Water Act Permits
Section 10 Rivers and Harbors Act of 1889

Future trail segment additions within the Adirondack Park will require notification of the Adirondack Park Agency (APA) and compliance with all applicable APA regulations.

4.4 Future Implementation Steps

It is the County's intent to expand the opportunities available to users of the multi-use trail system over time. This will occur through the addition of privately or non-privately owned trails, as well as other municipal and private roads as they become available. These prospective trail segments have not yet been identified and specific details about these segments are not currently available within this specific GEIS, in particular the information that would be obtained through the necessary environmental review process. Fortunately, the GEIS methodology is designed to accommodate this circumstance by examining generic environmental impacts of the multi-use recreational trail system at present and providing a template for site-specific environmental reviews for future trail additions.

5.0 Environmental Setting, Potentially Significant Adverse Environmental Impacts, and Proposed Mitigation Measures

5.1 Vegetation, Wildlife and Ecologically Sensitive Areas

5.1.1 *Vegetation*

Environmental Setting

Vegetation within St. Lawrence County is quite variable depending on the specific location within the County. There are three main hardiness zones within the County: Zone 4b (Ontario Lake Shore/St. Lawrence River Valley); Zone 4a (Interior portions of the County); and Zone 3b (Adirondacks and other elevated portions of the County). A hardiness zone depicts the annual average minimum temperature over a known span of years. The lowest annual temperature can be a determining factor as to what plants can survive in that geographical area. St. Lawrence County has an average annual minimum temperature between -20 to -35 degrees Fahrenheit. The difference in hardiness can determine the composition of a forest due to species not being able to survive below a certain temperature.

Currently, proposed trail segments are located mostly within the Adirondack Foothills of the County. Portions of the proposed trail system are located within the Adirondack Park Blue Line. Tree species range from hardwoods like sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*), paper birch (*Betula papyrifera*), and American beech (*Fagus grandifolia*) to soft woods like white pine (*Pinus strobes*), as well as red pine (*Pinus resinosa*), scotch pine

(*Pinus sylvestris*), and eastern hemlock (*Tsuga Canadensis*).

Groundcover varies in this region, consisting of saplings of the tree species listed above with inclusions of various grasses and forbs.

Federal threatened and endangered species lists were consulted to determine if any plant species identified by the US Fish & Wildlife Service (USFWS) are reported to exist in St. Lawrence County. There are no federally protected plant species within St. Lawrence County according to the USFWS website. The NYSDEC's Nature Explorer website was searched for the Towns of Pitcairn, Edwards, Russell, Fine, Clifton, Clare, Colton, Hopkinton, and Parishville to determine whether any State listed threatened or endangered plant species were reported near existing trails that will be included in the proposed trail system. Numerous plant species were reported for the search area and can be found in the table below.

List of Threatened and Endangered Plant Species in Towns with Proposed Trail Segments			
Common Name	Latin Name	Threatened and Endangered Status	Township Location
Farewell's Water Milfoil	<i>Myriophyllum farewellii</i>	Threatened	Parishville, Hopkinton
Fernald's Sedge	<i>Carex merritt-fernaldii</i>	Threatened	Parishville
Northeast Northern Redgrass	<i>Calamagrostis stricts</i> <i>app. inexpansa</i>	Threatened	Clifton, Parishville
Northern Bog Aster	<i>Symphotrichum boreale</i>	Threatened	Parishville
Schweinitz's Flatsedge	<i>Cyperus schweinitzii</i>	Rare	Parishville
Swamp Aster	<i>Eurybia radula</i>	Endangered	Clifton, Colton
Drummond's Rock-cress	<i>Boechera stricta</i>	Endangered	Clare
Balsalm Willow	<i>Salix pyrifolia</i>	Threatened	Colton

List of Threatened and Endangered Plant Species in Towns with Proposed Trail Segments			
Common Name	Latin Name	Threatened and Endangered Status	Township Location
Northern Pondweed	<i>Potamogeton alpinus</i>	Threatened	Colton
Pod Grass	<i>Scheuchzeria palustris</i>	Rare	Colton
Fir Clubmoss	<i>Huperzia selago</i>	Endangered	Colton, Fine
Ampulla Dung Moss	<i>Splachnum ampullaceum</i>	-	Hopkinton
Northern Bog Violet	<i>Viola nephrophyllum</i>	Endangered	Fine
Canada Ricegrass	<i>Piptatherum canadense</i>	Endangered	Fine

The County conducted a review of all existing trail corridors that will be included in the trail system. None of the species identified by the NHP were observed within or adjacent to proposed trail corridors. Copies of the Nature Explorer reports are provided in Appendix A.

The County plans to incorporate new trail segments as they become available. Future trail segments will have an environmental review conducted and will include a survey for possible threatened and endangered species listed by the NHP's Nature Explorer for that particular township.

Potential Significant Environmental Impacts

The most common potential impact that may result due to the use of the multi-use trail system is the destruction of vegetation within and immediately adjacent to the trail. Direct contact with vegetation by trail users can result in snapping or breaking of

vegetation, as well as uprooting of existing ground cover. In addition, construction of new trails by mechanical means can result in impacts to vegetation within the trail corridor.

Indirectly, trail traffic can cause compaction of soil in the immediate area, compromising root and pore space in soil that utilized by adjacent vegetation. A secondary result of bare soil due to the destruction of vegetation is the possibility of soil erosion. The severity of erosion is heavily dependent on the slope of each trail. The greater the slope, the faster stormwater will runoff resulting in a greater erosional force.

The potential for the spread of non-native or invasive species also exists within the proposed trail system. Seeds from invasive species are opportunistic and can be transported by trail users from one area of the state to another if proper decontamination techniques are not followed. Invasive species seeds can be in dried mud on ATVs, mountain bikes, footwear, or in the coats of horses and dogs, allowing for the easy dispersal of unwanted or invasive vegetation. Experience with the existing informal trail system has shown that the dispersal of invasive species has not been an issue to date and it is anticipated that with the modest increase of use expected with this action, and increased user education, that this experience will continue. The site inspection performed on the proposed off-road trails did not identify the presence of invasive species.

The proposed multi-use recreational trail system will make use of pre-existing, previously non-regulated corridors. The

corridors are composed of paved local roadways, seasonal roadways, existing logging roads, skidder trails, and currently private trails that will require minimal disturbance of vegetation.

Proposed Mitigation Measures

Potential mitigation measures relative to the disturbance of vegetation are as follows:

- Post trail markers to inform riders of the proper trail location
- Keep trails narrow, reducing the amount of tire tread disturbance.
- Maintain trails for fallen trees, by keeping trail clear; new trails will not be created.
- Use education to discourage off-trail travel and increase awareness of user's potential to spread invasive species. Encourage the use of proper decontamination methods prior to travelling to another trail destination and before leaving it.
- Trails will be periodically inspected by the County to identify and map any new stands of invasive species.
- Aggressive measures will be taken if new colonies of invasive species begin to establish along the trail system. Potential control measures include physical removal, as well as biological and chemical controls.

5.1.2 Wildlife

Environmental Setting

St. Lawrence County's mixed landscape of mature forest, successional forest and fields, agricultural fields, different classes and orders of streams, and various stages and forms of wetland complexes provide adequate habitat for almost every wildlife species that resides in New York. Mammal species large and small, like whitetail deer (*Odocoileus virginianus*) and eastern gray squirrels (*Sciurus carolinensis*), as well as breeding songbirds, make use of the upland habitat provided by the County. The warm and cold water lakes, streams, and wetland complexes provide ample habitat for fish, waterfowl, and amphibian species.

The extensive range of habitat provided in St. Lawrence County results in the potential for threatened and endangered wildlife species to be present within the proposed trail segments. The federal list of threatened and endangered species contained two federally regulated species for St. Lawrence County, the endangered Indiana bat (*Myotis sodalis*) and the de-listed bald eagle (*Haliaeetus leucocephalus*).

An Indiana bat winter hibernaculum is located in the adjacent Jefferson County. When Indiana bats emerge in the spring from their hibernaculum, they disperse across a large area, searching for proper roosting and feeding habitat. During daylight hours the Indiana bat inhabits trees with loose bark, split trunks, or other possible opening like knots and holes that provide roosting habitat. Due to the close proximity of St. Lawrence County to the

hibernaculum in Jefferson County, there is the potential for Indiana bats to be present at elevations below 900-feet in St. Lawrence County during the summer months.

The bald eagle is an American icon that through federal protection has reestablished breeding populations in their historic range. The bald eagle has been de-listed from the Endangered Species Act, but is still warranted protection under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Bald eagles inhabit areas near water, including lakes, rivers, or freshwater wetlands. They make use of trees along these waterways for nesting and perching.

Currently proposed trails will follow corridors that have been in use for numerous years, resulting in no cutting of trees that could potentially act as habitat for Indiana bats or bald eagles. Additionally, the proposed trail corridor is significantly distant from Jefferson County to be outside of the habitat area for the Indian bat. No bald eagles or their nests were observed during the field inspection of the trail system.

The NYSDEC Natural Heritage Programs (NHP) Nature Explorer was searched for State recognized threatened and endangered wildlife species in townships where trail segments are currently proposed. Numerous wildlife species were reported within the project area and are listed in the following table.

List of Threatened and Endangered Plant Species in Towns with Proposed Trail Segments			
Common Name	Latin Name	Threatened and Endangered Status	Township Location
Common Loon	<i>Gavia immer</i>	Special Concern	Colton, Hopkinton, Parishville, Clifton, Fine
Black Tern	<i>Chilidonias niger</i>	Endangered	*
Common Tern	<i>Sterna hirundo</i>	Threatened	*
Golden Eagle	<i>Aquila chrysaetos</i>	Endangered	*
Henslow's Sparrow	<i>Ammodramus henslowii</i>	Threatened	*
Least Bittern	<i>Ixobrychus exilis</i>	Threatened	*
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Endangered	*
Northern Harrier	<i>Circus cyaneus</i>	Threatened	*
Peregrine Falcon	<i>Falco peregrinus</i>	Endangered	*
Pied-billed Grebe	<i>Podilymbus podiceps</i>	Threatened	*
Sedge Wren	<i>Cistothorus platensis</i>	Threatened	*
Short-eared Owl	<i>Asio flammeus</i>	Endangered	*
Spruce Grouse	<i>Falcapennis canadensis</i>	Endangered	*
Upland Sandpiper	<i>Bartramia longicauda</i>	Threatened	*
Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened	*
Eastern small-footed Myotis	<i>Myotis leibii</i>	Special Concern	*
Eastern Sand Darter	<i>Ammocrypta pellucida</i>	Threatened	*
Lake Sturgeon	<i>Acipenser fulvescens</i>	Threatened	*
Mooneye	<i>Higdon tergisus</i>	Threatened	*
Pugnose Shiner	<i>Notropis anogenus</i>	Endangered	*
Round Whitefish	<i>Prosopium cylindraceum</i>	Endangered	*

Note: *Species listed for the entire County, no township given.

None of the species identified by the Nature Explorer were observed in the field during trail inspections. Currently proposed trails are part of a system that has been established for numerous

years and will result in no additional habitat destruction. No potential habitat trees are proposed to be cut and “wet crossings” are not being allowed within the trail system. Impacts to wildlife species by the proposed multi-use trail system is expected to be minimal. All correspondence related to threatened and endangered species is provided in Appendix A.

Potentially Significant Environmental Impacts

The impacts associated with recreational are very difficult to identify and quantify due to the complicated relationships between wildlife, their habitat, and human influences. Kuss (et. al, 1990) and Vaske (et. al., 1995) identified five major issues that make it difficult to assess these impacts:

- Recreational activity generates multiple, interrelated environmental and behavioral responses in wildlife
- Relationships between user density and impact severity are complex and unpredictable
- Wildlife responses to recreational activity varies both among and within species
- Group size, behavior, and equipment type can effect the impacts of a given recreational activity; and
- Impacts of recreational activities can differ with season and location

Trail systems can result in fragmentation of landscapes and create edge habitat, resulting in isolation of habitat and

communities (Malone and Emerick, 2003). Certain wildlife species take advantage of trails, while other species are impacted negatively, often results in an unbalanced ecosystem (Malone and Emerick, 2003).

Disturbances associated with trail use can result in impacts to breeding songbirds. In particular, Knight and Cole (1995) determined that trail use during songbird breeding seasons has the potential to decrease nest success.

It is possible that some direct mortality may occur with respect to smaller animal species (amphibians, reptiles, and small mammals) much the same as that which occurs on the public roadways. It is anticipated that the mortality rates will be less than that experienced on a public road due to the slower speeds, less frequent trips, and better visibility associated with trail users.

Proposed Mitigation Measures

Requiring proper muffling of motors and requiring users to remain on the designated trails at low speeds will properly reduce the potential disruptive impacts (primarily noise) to wildlife resulting from recreational trail use. The proposed trail system is pre-existing and has been used by private landowners, lessees, and the public for numerous years. The creation of a County wide trail system will allow for better management of the trail system. Through proper signage and narrowing of trails, fragmentation of the landscape will be reduced, resulting in less impact on wildlife species in the area.

St. Lawrence County has direct experience with wildlife reactions to manmade trails. Wildlife populations have adapted to the snowmobile system and their associated impacts during the winter months. Adherence to posted speed limits and adaptive modifications to the system in response to observed effects will address potential animal mortality.

5.1.3 Ecologically Sensitive Areas

Environmental Setting

The following natural communities were reported within the proposed trail corridors by the NYSDEC NHP: Beech-maple mesic forest; Boreal heath barrens; Hemlock-northern hardwoods forest; Maple-basswood mesic forest; Pine-northern hardwood forest; Spruce flats; Spruce-northern hardwood forest; Eutrophic dimictic lake; Confined river; Marsh headwater stream; Black spruce – tamarack bog; dwarf shrub bog; Sedge meadow; Shrub swamp; Oligotrophic pond; Inland poor fen; Northern white cedar swamp; Shallow emergent marsh; and Spruce – fir swamp. The established trail system meanders through the upland natural communities listed above, providing the trail user with rare opportunities to view natural resources that are not easily accessible by the public. Numerous wetland complexes are located in areas adjacent to the trail corridors. There will be minimal effect on wetland ecosystems by the proposed trail system due to the ban on wet crossings. If wetlands cannot be spanned by the use of a bridge, the trail is to be routed around that wetland, resulting in no net impact. Stream crossings are completed by

bridges spanning from top of bank to top of bank or by existing culverts.

Potentially Significant Environmental Impacts

The trail segments discussed within this document are comprised of established trails that have been used for numerous years by local outdoor enthusiasts, as well as past and current logging activities. Upland communities will remain intact, with occasional trail maintenance resulting in minimal impacts. The potential exists for currently environmentally sound stream crossing structures to deteriorate and need replacement. If the multi-use trail system was to cross these habitats without the use of bridges or other suitable crossing methods, there would be potentially significant impacts associated with such crossings including reduction in water quality, vegetative impacts, and impairment of flows.

Proposed Mitigation Measures

The proposed trail segments currently contain water crossings that are in good to great shape. Trail screenings will be performed periodically to ensure existing structures remain in place and do not need any repairs. Any crossings that are determined to be dysfunctional will be repaired immediately. The associated trail will be closed until such repairs are complete. If conditions have changed dramatically and the existing water crossing cannot be repaired, the associated trails should be closed permanently and an alternate, non-invasive route developed.

5.2 Historic and Archaeological Resources

Environmental Setting

Like other portions of northern New York State, St. Lawrence County is an area rich in history. Many structures and locations are already identified as national or state historic sites, many more are eligible for such designation, and yet more sites remain as yet undiscovered.

Potentially Significant Environmental Impacts

The development of a multi-use trail system comprised of existing legally opened local roads, trails and private trails has the potential to cause an impact on cultural and historical resources if such use resulted in physical disturbance of the structures or sites. Such disturbance is not anticipated in the course of development and management of the proposed trail system. Should areas require grading to either place a parking area or grade a trail, then the potential exists for the disturbance of historic and archeological resources. Available mapping provided by the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) on their website was reviewed to determine if listed historic sites were present in these off-road trail areas. None of the proposed off-road trail areas were found to either contain listed historic sites or to be in or near areas of archeological sensitivity. On-road segments of the system were not evaluated since the potential for user impacts to such resources on these roads is no different than existing vehicle traffic, and is considered to be minimal.

Proposed Mitigation Measures

In order to avoid impacts to historic and archeological resources, the County will consult with the NYSOPRHP to determine if any proposed disturbance will affect these resources. Should such potential disturbance be identified, the trail will either be moved to a location where such disturbance is not required or such resources are determined by NYSOPRHP to not exist.

5.3 Surface Water Resources

Environmental Setting

St. Lawrence County is located within the St. Lawrence River Drainage Basin and contains thousands of surface water resources ranging from small brooks to large rivers, and from small ponds to lakes. The Saint Lawrence River drains a large portion of the northwestern Adirondacks, as well as the Great Lakes. The water in the St. Lawrence River flows in a northeast direction through Canada, before contributing its contents to the Gulf of St. Lawrence. Major tributaries in the County that contribute to the St. Lawrence River include the Grasse River, the Raquette River, the Oswegatchie River, and the St. Regis River.

Potentially Significant Environmental Impacts

The usage of trails in and around surface water has the potential to cause pollution of these resource areas. Possible pollution factors to take into account include the introduction of soil into a surface water system by way of eroding stream beds and upland areas, the introduction of hydrocarbons into the water body, and introduction of invasive vegetation.

Surface water degradation due to the introduction of sediment in the water column can have a detrimental effect on stream health, ranging from macroinvertebrates to fish. The introduction of hydrocarbons into surface waters not only affects the immediate resource but those downstream. Aquatic wildlife does not fare well when hydrocarbons are introduced to the ecosystem. Large hydrocarbons introduction to surface water can result to the demise of plant, macroinvertebrate, and wildlife. Driving ATV's, mountain bikes, or even walking through surface water may allow for the deposition of non-native species into a water course. The introduction of invasive plant species can significantly alter the biological productivity of stream ecosystems and reduce both plant and animal diversity associated with such areas.

Proposed Mitigation Measures

The county-wide trail system will include no wet crossings. All surface water/wetland crossings will be completed by using bridges which completely span the resource. Where such spans are determined to be too lengthy, the trail will be routed to a location which can be crossed in this way or avoid the resource altogether. The trail crossing approach areas will be developed to preclude avoidance of the bridge structures and the use of these structures will be monitored when the trails are open. Individuals found to be bypassing these structures will be ordered to leave the County system. Best management practices (BMPs) will be employed for the construction of stream crossings whenever physical disruption to the surface water resources occur. These BMPs include, but are not necessarily limited to:

- Check trail system for excessive crossing of streams and other surface waters on a regular basis during the open season.
- Use of silt fences at construction sites where appropriate and as necessary to help protect nearby water resources from siltation during storm events.
- All stream or surface water crossings will be constructed during times of low flow.
- Seeding/planting of construction areas as soon as possible after completion to minimize erosion and stormwater runoff impacts.
- Kiosks will relay the importance of keeping OHVs clean in terms of possible invasive species and remnants of petroleum products.
- Closure of trails until bridges or other pollution controlling structures can be built.
- Closure of the trails during the spring mud season.

All of the trail segments were inspected for non-satisfactory stream crossings. One stream crossing on the Timbervest Trail segment will require the construction of a bridge and one culvert on the Little Blue Road requires maintenance before these trail segments are open to the public.

5.4 Wetlands

Environmental Setting

Wetlands are readily accepted as some of the most productive ecosystems in the world. Not only do wetlands provide habitat for various plant and wildlife species, but they also provide multiple functions associated with water quality. Therefore, the preservation of wetlands is of extreme importance to the County.

All proposed off-road trails on private and non-private property that are to be incorporated into the multi-use recreational trail system were reviewed during the late spring and summer of 2010.

Potentially Significant Environmental Impacts

Trail user traffic has the potential to cause impacts to the soil, water quality, vegetation, and wildlife habitat value within a wetland resource area, thereby affecting the wetland functions and values. Soils can become puddled or be subject to substantial compaction, the water within the wetland can become turbid and sediment laden from the introduction of soil, and petroleum compounds on OHVs and bicycles can be flushed into the water, thereby contaminating it. Vegetation can be permanently removed or altered in its composition by repeated user impacts.

Proposed Mitigation Measures

The proposed trail system will not contain any “wet crossings”. The only way that trail users can cross wetlands without impacting them would be on a bridge over these resources, or circumnavigate the wetland

resource. Since such bridging of wetlands would not be feasible, the only alternative is to avoid the wetland impacts altogether, by re-routing the trail to upland areas. This allows trail users to bypass the wetland, causing no impact to the natural resource. In those areas where a bridge or realignment is not feasible the trail section will be closed.

5.5 Soils

Environmental Setting

St. Lawrence County stretches from the St. Lawrence Lowlands in the north to the Adirondack Mountains in the south, resulting in a large range of soil profiles. Due to the wide-reaching nature of the proposed County trail system, a wide variety of soil types are likely to be found along the proposed trail corridor ranging in texture from silty clays and mucks in the lowlands to loamy sand and exposed bedrock in the Adirondacks and St. Lawrence River Valley. The St. Lawrence County Soil Survey Report (USDA, 2005) provides information on soil management, soil types, and soil mapping.

The development of soil within St. Lawrence County was directly impacted by the Wisconsin Glaciation approximately 110,000 to 10,000 years ago. Glacial till was dropped as the glacier retreated and deltaic sediment settled within inland seas. These deposits became the parent material that would become the soil of today (USDA, 2005). The retreat of the Wisconsin glacier also resulted in exposed bedrock across the St. Lawrence County landscape. Soil depths within the county vary greatly and are dependent on depth to bedrock (USDA, 2005).

Potentially Significant Environmental Impacts

The proposed trail system will be available for various types of recreational activities that have the potential to cause erosion or compaction of the soil within the trail corridors. Other impacts include loss of forest floor litter and the exposure and destruction of plant root networks, (Marion, 1998; Foltz and Meadows, 2007).

Soil compaction is often caused by the downward force of a tire or foot, in turn creating pressure on the underlying ground surface, which reduces the size of the soil pore spaces. Soil compaction can damage adjacent vegetation by decreasing gas exchange in the root systems, decreasing water availability, and potential compression of the root system itself.

The displacement of soil is also a potential impact. This occurs when users drag or slide their feet or tires across the soil resulting in the movement of soil from one area to another. Soil displacement often leads to the exposure and destruction of plant roots and increases soil erosion. The degree to which these impacts are caused depends largely on slope, soil type, frequency and duration of precipitation events, amount of trail usage occurring in a specific area, vegetation type, and elevation (USDA, 2005).

Trail construction and reconstruction activities also have the potential to cause soil erosion if vegetation is removed, soil is displaced, and/or drainage considerations are not properly taken into consideration and planned for accordingly.

In general, soils with a moderate to high moisture content, and a high mineral content of varying particle size, are most prone to compaction, and those that have a narrower range of particle sizes, mostly in the silt and fine sands range, tend to be more likely to erode (Marion, 1998). Erosion has the potential to increase on non-vegetated areas with a slope of three percent or higher (USDA, 2005).

Proposed Mitigation Measures

The County will conduct periodic monitoring of the trail system. Monitoring will assess potential problems associated with soil erosion and displacement. Physical indicators of problematic areas include but are not limited to: elements of over use, undesignated trailheads, rutting, trail blow outs, bank erosion at stream crossings, and trail widening.

The adaptive maintenance approach will be implemented on existing trail corridors, during new trail construction, and/or during trail reconstruction and maintenance. These mitigation measures include: removing vegetation from the smallest practicable area, managing surface water runoff to deflect runoff from areas of exposed soils, and reestablishing vegetation as soon as possible. General maintenance techniques that may be used to reduce soil erosion along active trails include: re-grading the trail or installing ditches to facilitate surface water runoff, installing water bars to direct surface water runoff to a desired location, installing surface-hardening materials (such as gravel), installing bridges, setting reduced speeds, rerouting the trail segment, or closing the trail.

The use of best management practices (BMPs) will also be employed in an effort to stabilize trail corridors. At a minimum, trail

segments will be inspected during trail construction, reconstruction, or during maintenance activities. BMPs include, but are not necessarily limited to:

- Constructing stream crossings during periods of low flow
- Constructing stream crossings at a 90-degree angle to the stream
- Stabilizing stream banks with natural materials such as wood or stone whenever stabilization is needed
- Limiting the amounts of cut and fill whenever practicable on new trail corridors
- Using natural materials whenever feasible to blend human-made structures into the surrounding area
- Limiting the size of parking areas to the minimum size practicable
- Locating parking areas/trailheads where minimal tree cutting and soil cuts and fills are needed
- Locating parking areas/trailheads where they are screened from nearby roadways and residences by wooded buffer areas
- Establishing new trails on existing former roads or skidder trails whenever possible to reduce the amount of vegetation clearing required

5.6 Noise

Environmental Setting

Noise is an audible sound that is considered undesirable or annoying by the person who hears it. Often times noise becomes excessive and interferes with a person's ability to hear (Merriam-Webster, 2007). Besides interfering with human activities, wildlife can also be hampered by excessive noise. In particular, the loudness of a noise can cause the displacement of wildlife species.

Sound is typically measured in units called decibels (dB) and is often synonymous with how loud a sound is perceived by the human ear. The A-weighted dB(A) decibel scale is weighted towards the portion of the sound frequency spectrum (20 Hz to 20,000 Hz) to which the human ear is the most sensitive (NYSDEC, 2001). Noise levels of some common sounds and their effects on humans are presented in Table 1, below.

Table 1 – Common Sound Levels		
Common Sounds	Noise Level (dB)	Effect
Rocket launching pad (no ear protection)	180	Irreversible hearing loss
Carrier deck jet operation Air raid siren	140	Painfully loud
Thunderclap	130	
Jet takeoff (200 ft) Auto horn (3 ft)	120	Maximum vocal effort
Pile driver Rock concert	110	Extremely loud
Garbage truck Firecrackers	100	Very loud
Heavy truck (50 ft) City traffic	90	Very annoying Hearing damage (8 hrs)

Table 1 – Common Sound Levels		
Common Sounds	Noise Level (dB)	Effect
Alarm clock (2 ft) Hair dryer	80	Annoying
Noisy restaurant Freeway traffic Business office	70	Telephone use difficult
Air conditioning unit Conversational speech	60	Intrusive
Light auto traffic (100 ft)	50	Quiet
Living room Bedroom Quiet office	40	
Library	30	Very quiet
Soft whisper (15 ft)		
Broadcasting studio	20	
	10	Just audible
	0	Hearing begins

(Source: Seattle Department of Planning and Development, 2007)

Outdoor noise levels are typically regulated by local municipal noise ordinances. With regard to specific noise regulations for ATV operation, New York State Vehicle and Traffic Law (Article 48-C – Rules for Operation of All Terrain Vehicles) specifies that all ATVs must be equipped with a muffler system that meets federal noise standards set forth in the Code of Federal Regulations. The federal noise emission standard (40CFR205.166) for ATVs is 82 dB(A) at a distance of 15m (49.2 ft.) from the ATV. The procedures for testing sound levels specified in the federal regulations are complex and meticulous making it hard to enforce in the field.

Several states have adopted a more practical sound testing procedure that was released in 1988 and revised in 2008 by the Society of Automotive Engineers (SAE, 2008). Testing procedure SAE J1287 is

easier to apply on ATVs in field. The test is administered on vehicles when they are at a standstill, measuring sound at a distance of 20-inches from the exhaust system opening when the motor is revved to ½ its maximum RPM. Limits within these states range from 94 dB(A) to 99 dB(A), with most states settling on 96 dB(A) as the limit.

The proposed St. Lawrence County Recreational Trails System utilizes local roadways, logging roads, and over roads and trails on privately owned lands. These travel corridors are used for various activities that generate noise in a variety of ways. Sources of noise along and adjacent to the trail corridors include motor vehicles, farming equipment, and logging equipment that are currently operated in these areas.

Potentially Significant Environmental Impacts

When assessing noise impacts, several characteristics of sound must be taken into account, such as sound level reduction over distance and the additive effects of multiple sound sources (NYSDEC, 2001).

As distance increases between the producer of a sound and the receptor, the sound level decreases. In fact, if the receptor is at a distance of greater than 50 feet, the sound level is reduced by 6 dB(A) for every doubling of the distance (NYSDEC, 2001).

Another important factor that must be considered is the additive effects of multiple sounds. If, for example, four ATVs are riding in a group, and each produces a sound level of 85 dB(A), the resulting sound level would not equate to the mathematical addition of the individual sound levels (i.e., $85 \text{ dB(A)} \times 4 = 340 \text{ dB(A)}$). The following table is provided in

the NYSDEC's Program Policy document for Assessing and Mitigating Noise Impacts (2001) to assist in determining the effects of multiple sound sources:

Difference Between Two Sound Levels	Add to the Higher of the Two Sound Levels
1 dB or less	3 dB
2 to 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0 dB

For example, to calculate the total sound level produced by three ATVs operating in a group, an evaluation of the differences between the three sound levels would need to be made. If the sound levels of the three ATVs were 89 dB, 91 dB and 94 dB, the difference between the two lowest sound levels would be determined first ($91 \text{ dB} - 89 \text{ dB} = 2 \text{ dB}$). According to the table above, 2 dB should be added to the higher of the two sound levels ($2 \text{ dB} + 91 \text{ dB} = 93 \text{ dB}$). The next step involves determining the difference between the combined sound level of 93 dB for the first two ATVs, and the sound level of the loudest ATV, at 94 dB ($94 \text{ dB} - 93 \text{ dB} = 1 \text{ dB}$). According to the table above, 3dB should be added to the higher of these two sound levels ($3 \text{ dB} + 94 \text{ dB}$), resulting in a total sound level for all three ATVs operating in a group at 97 dB.

There will be impacts (due to the large difference between ambient noise levels and that of trail users), but the noise impacts will be fleeting in much the same way that automobile noise from moving traffic is fleeting, or that experienced during winter months due to snowmobile traffic.

Two primary areas of concern regarding noise impacts along the proposed trail system are the potential impacts upon humans and potential impacts upon wildlife.

As previously stated in Section 5.5, recreational conflicts are often the result of goal interference. For example, if the goal of a group of birdwatchers is to enjoy the peacefulness and serenity of the forest on a parcel of county reforestation land, and that goal is interrupted by a group of OHVs that pass by on the trail, there is a high likelihood that the group of birdwatchers will feel impacted by the noise generated from OHVs. The degree of impact felt by different members of the group will vary, based on their personal tolerances (FHWA, 1994). It is expected that such receptors may choose to relocate to more suitable locations for their particular activity thereby removing the conflict.

Proposed Mitigation Measures

The proposed multi-use trail system will require that OHVs utilizing the trail corridor be equipped with an appropriate muffler system that reduces noise created by the machine to a maximum reading of 82 dB at a distance of 15 meters as stated in the federal regulations. Mufflers equipped by the factory on OHVs are usually within this parameter. Those OHVs found to be exceeding the established noise level will be required to leave the multi-use trail system until the muffler system is repaired or meets the established criteria above.

5.7 Air

5.7.1 Emissions

Environmental Setting

Under the Clean Air Act, the United States Environmental Protection Agency (EPA) has set air quality standards for airborne pollutants that could potentially cause a negative impact on human health or the natural environment. The EPA has determined that there are six principal pollutants that have the potential to be harmful. These pollutants include: sulfur dioxide, nitrogen oxide, ozone, carbon monoxide, particulate matter (PM), and lead. The National Ambient Air Quality Standards (NAAQS) are monitored by the NYSDEC to determine if they are in compliance with federal regulations. A description of these criteria pollutants, and their health effects, is found below (EPA, 2002^(b), NYSDEC, 2007^(b)):

- Ozone: Ground-level ozone is formed by a complex chemical reaction of Volatile Organic Compounds (VOCs) and nitrogen oxides (NO_x) in the presence of heat and sunlight. VOCs are emitted from a variety of sources, including motor vehicles, factories, chemical plants, refineries, and other industrial sources. Nitrogen oxides are emitted from combustion processes, including motor vehicles and other types of equipment, and power plants. Repeated exposure to concentrations of ozone above National Ambient Air Quality Standards (NAAQS) can cause respiratory problems in humans, foliage damage in crops, trees,

and other plants, and can reduce crop yields and foliage growth rates.

- Carbon Monoxide (CO): CO is an odorless, colorless, non-irritating gas that is produced by the incomplete combustion of fuel. The largest source of CO is motor vehicle emissions. CO interferes with the blood's capacity to carry oxygen. Health effects at high concentrations range from decreased mental functions to death. Persons with heart and respiratory diseases are susceptible to the most severe health risks from CO exposure.
- Particulate Matter (PM): Particulate matter is generated from sources of combustion (including motor vehicle engines, power-generating plants, industrial and manufacturing operations), and fugitive emissions (such as dust from vehicle operation over unpaved roads, and wind erosion of soils from cropland and construction sites). Other natural sources of PM include pollen from plants and smoke from wildfires. PM is typically classified into two different categories, depending on particulate size. PM₁₀ includes PM with particle sizes equal to and less than 10 microns in size. PM_{2.5} includes PM with particles ranging in size from greater than 2.5 microns to less than 10 microns. Inhalation of particulate matter at high doses can aggravate respiratory and cardiovascular diseases. In addition, PM emissions contribute to the impairment of visibility, mostly in

urban areas. The components of particulate matter may also contribute to acid deposition, nitrification of soils, and eutrophication of surface water resources.

- Sulfur dioxide (SO₂): SO₂ is a colorless gas that is highly soluble in water, forming sulfurous acid. The major sources of this pollutant are from the combustion of fossil fuels (coal and oil-fired power plants), ore smelters and oil refineries. Human exposure to sulfur dioxide at concentrations above the NAAQS may result in respiratory problems. Plant exposure to SO₂ may result in foliage damage and growth suppression.
- Nitrogen dioxide (NO₂): Nitrogen dioxide is a highly corrosive gas that is produced from the reaction of atmospheric nitrogen and oxygen during the burning of fuel (coal, oil, gas). Human exposure to NO₂ above the NAAQS may result in respiratory problems. NO₂ contributes to the formation of acid rain, and consequently may affect aquatic organisms, plant growth and nutrient availability in some soils.

The NYSDEC has air quality monitoring stations located throughout the state. Based on the NYSDEC's website, during the 2009 monitoring year two locations in St. Lawrence County monitored for all parameters of the NAAQS. These stations are located in Potsdam and Wanakena. Geographic areas where levels of one or more criteria pollutants are consistently above the NAAQS are called "nonattainment areas." There currently exist nonattainment areas for ozone and particulate matter within New

York State. The closest nonattainment area is Jefferson County for 8-hour ozone. The only nonattainment areas for particulate matter in the state are located in the New York City metropolitan area.

Emissions from off-road recreational vehicles, such as snowmobiles, ATVs, and off-road motorcycles, have been found to contribute to nonattainment of NAAQS for carbon monoxide, particulate matter, and ozone (Federal Register, 2000). As a result of this finding, the U.S. Environmental Protection Agency (EPA) was required, under section 213 (a)(3) of the Clean Air Act, to establish emissions standards for such vehicle types. In November of 2002, the EPA published its final rule on emissions standards for several groups of nonroad engines. (Federal Register, 2002). ATV exhaust emission standards for hydrocarbons (HC), carbon monoxide (CO), and nitrogen oxides (NO_x) were established by this rule. These new emission standards apply to ATV models produced in the year 2006 or later (EPA, 2002). At full implementation (in 2030), EPA expects “a 75-percent reduction on HC emissions, 82-percent reduction in No_x emissions, 61-percent reduction in CO emissions and a 60-percent reduction in direct PM emissions” (Federal Register, 2002) from the off-road vehicles regulated by this law. It is important to note that the emissions from ATVs represent less than 3 percent of total emissions from all mobile sources (EPA, 2002b).

Potentially Significant Environmental Impacts

The proposed trail system will generate vehicle emissions from three different sources: the equipment used to construct trail/trailhead areas (for example, small loaders, dump trucks, powered brush cutters), the vehicles used to transport trail users and their equipment to the trailhead areas, and the motorized vehicles operating on the trails.

Emissions from trail construction equipment are expected to be temporary and minor, due to the limited amount of time during which the trail and related facilities will be under construction or maintenance.

The proposed County-wide trail system is pre-existing and is already used by a variety of local recreationists. The potential for an increase in pollutants emitted by highway vehicles transporting trail users to the trailheads is possible if an influx of non-local users travel to the system. Emissions from these vehicles may have an affect on local vegetation, wildlife, and humans. These affects are not anticipated to be significant, since the size of the trailhead parking areas will be limited to allow for crowd control.

ATVs and other off-highway vehicles generate emissions containing hydrocarbons, carbon monoxide, particulate matter, and nitrogen oxides, as well as other pollutants that contribute to ground-level ozone formation. According to the EPA, 2-stroke ATV engines produce a significantly higher amount of total airborne pollutants and have greater fuel consumption than their 4-stroke counterparts (EPA, 2002 ^(b)). The EPA's adoption of emission

standards for non-road vehicles was done with the intention of moving the ATV industry towards the production of 4- stroke engines, and away from 2-stroke engines to meet the new emission standards (Federal Register, 2002). EPA estimated that in 2002, prior to the adoption of the rule on non-road vehicle emissions, approximately 80% of all ATV's sold in the U.S. were 4-stroke models. This number is expected to grow in response to the increase in emissions standards.

On average, ATVs may only consume 20-30 gallons of fuel annually (Minnesota Department of Natural Resources, 2002) Consequently, the annual emissions contributions from ATVs are significantly less than that of other mobile sources, such as cars and trucks. In 2000, it was estimated that recreational non-road vehicles contributed approximately 2-3 percent to hydrocarbon, nitrogen oxide, and carbon monoxide emissions from all mobile sources (EPA, 2002 ^(b)). The emissions anticipated from ATV use are approximately 10-20% of those emitted by snowmobiles (EPA, 2002a).

Due to the stringent emission standards released by the EPA in 2002, ATV manufacturers will be forced to improve the fuel combustion within ATV engines. Technology will continue to decrease pollutants emitted to the air resulting in cleaner ATVs. As the time elapses, the emissions directly related to trail usage will decrease.

Proposed Mitigation Measures

Since the proposed action involves a pre-existing trail system that is already used by a variety of local and most likely non-local users, pollutant emissions are expected to have negligible impacts to air quality in St. Lawrence County. The potential exists for an increase in ATV usage and vehicle use hours from non-local residents.

Considering current emissions requirements for ATVs and future required compliance targets, as well as more stringent emission standards for overall vehicle emissions, potential air impacts are anticipated to be minor. No mitigation measures beyond the federally required emissions standards for ATV engines are proposed at this time.

Construction equipment, including heavy machinery and trucks, will not be allowed to idle excessively during any trail construction-related activities and will be required to be compliant with federal standards relative to emissions from such equipment.

5.7.2 Dust

Environmental Setting

The County Multi-Use Recreational Trail System will make use of a network of existing private trails, logging roads, skidder trails, and municipal roads. All of these trail segments have the possibility to produce dust during drier times of the year. All of these segments have in the past or are currently used by other

activities. Logging operations and general motor vehicle use on paved and unpaved roadways produce dust during everyday operations.

Potentially Significant Environmental Impacts

The potential exists for the development of dust on some of the trails and roads within the County trail system. This is anticipated to be minimal due to the typical presence (as observed during trail inspections) of overstory vegetation which provides shade and minimizes drying due to sunlight. Trail users may find dust to be a nuisance and may avoid use of these lands for their enjoyment.

Proposed Mitigation Measures

Trail head parking areas are will be constructed in areas with vegetated buffers. Vegetation acts as a natural screening device, helping to keep problematic dust on site. If during periodic trail inspections, dust is observed to be leaving the trail system boundaries and settling on adjacent properties or roadways, the County will make surface improvements to the trail system. Dust generated during any trail/trailhead construction, reconstruction, or maintenance activities will be minimized or eliminated through the use of dust control agents or water.

5.7.3 Odor

Environmental Setting

ATVs and snowmobiles in particular produce a noticeable odor through their engine exhaust during operation. The trail corridors may see increased odor levels when multiple machines are riding together. This odor could potentially irritate other users of the multi-use trail system.

Potentially Significant Environmental Impacts

Significant strides have been made by the ATV and snowmobile industries to manufacture machines that burn petroleum products more efficiently, expelling less pollutants and odor to the air. A large majority of recreational vehicles produced today are powered by 4-stroke engines, rather than the 2-stroke engine of the past. Some ATVs and motorcycle manufacturers have recently made great strides in producing a fuel efficient 2-stroke engine. The potential impact produced by the associated odor is expected to be minimal and will be produced only along the trail corridor. Atmospheric conditions directly affect exhaust odors from engines, most of which dissipate quickly under typical conditions (Minnesota DNR, 2002)

Proposed Mitigation Measures

Many of the potential odors from ATVs can be prevented through diligent maintenance of the motors. The County will provide educational materials at trailheads, on the trail website, and

through clubs regarding the proper maintenance of motors to reduce or eliminate objectionable odors.

5.8 Transportation Facilities and Traffic

Environmental Setting

Transportation facilities within St. Lawrence County are comprised of numerous village, town, county, and state roadways. The maintenance, operation, and safety of the existing road infrastructure in the County is funded by each level of government, beginning with local towns and villages, and progressing to federal funds.

Potentially Significant Environmental Impacts

The proposed trail system could result in increased usage of the current transportation system within St. Lawrence County, resulting in the potential need for increased maintenance of the infrastructure. It is anticipated that the potential increase in traffic caused by the proposed trail system will be minimal, resulting in little to no additional damage to the existing transportation system.

Proposed Mitigation Measure

The County will work with the local highway departments to monitor roadway use and impacts resulting from trail use and identify maintenance and improvements that are needed as they arise. Potential funding needs will be identified and included in the Town and County budgets on a yearly basis.

5.9 Recreational Activities

Environmental Setting

St. Lawrence County Resolution Number 347-2006, also known as the County Land ATV Use Law, was passed on December 4, 2006. This law states that certain public lands are open for ATV usage as restricted and regulated by such law. The County determined within this resolution that ATV traffic within the County had increased and at that point was unregulated. The resolution states that it is in the public's interest that the County takes responsibility to provide a safe and legal multi-use recreational trail system. The trail system would also be open to other public uses such as skiing, hiking, and biking.

Potentially Significant Environmental Impacts

The proposed trail system is design for use by any person who wants to enjoy the outdoor resources provided by St. Lawrence County. This multi-use approach to a trail system could potentially result in indirect and direct conflicts between individual user groups and land owners.

Trail-user conflicts can occur in a variety of ways, including conflicts among different types of recreation groups (for example between hikers and ATV riders), between groups of people participating in the same type of recreational use (for example between different groups of mountain bike riders), between trail-users and trail managers, and with other users of the recreational resource (Watson, 2001). Cordell and Tarrant (2002) found that the rise in recreational user conflicts can be attributed to the increasing demand for most forms of outdoor recreation, and the increase in technology-driven recreational activities, such as ATV riding, mountain

biking, and jet-skiing. One study emphasizes that conflict does not always have negative effects, such as when conflict reveals that something within the existing trail system needs attention, which then forces a management response (Hammitt and Schneider, 2000).

Two different philosophies on the cause of recreation conflicts currently exist. The cognitive approach proposes that conflicts occur as a result of one individual's actions/behaviors interfering with the recreational goals of another individual (Gibbons and Ruddell, 1995). The normative approach proposes that conflicts between recreational users occur as a result of the different social values held by the different user groups, independent of physical presence or actual contact between them (Vaske, et. al., 1995, 2000). Recreational land managers must gain an understanding of the potential underlying causes for recreational conflicts if they are to be proactive in avoiding and managing such conflicts.

Proposed Mitigation Measures

The Federal Highway Administration released a report in 1994 that investigated existing literature on trail user conflicts in an effort to better understand these conflicts and ultimately identify ways to mitigate ongoing problems. FHWA-PD-94-031 (Moore, 1994) identified 12 principles for minimizing conflicts on multiple use trails. The County's approach to promoting cooperation among trail users and minimizing potential conflicts is based on the findings of FHWA-PD-94-031:

1. Recognize Conflict as Goal Interference - Recreational conflict does not stem from differences between trail activities, but rather by individual (or group) behavior that

interferes with another individual's (or group's) recreational goal.

2. Provide Adequate Trail Opportunities – By providing adequate trail opportunities, by trail volume and skill level, users have the opportunity to choose the trail experience they are looking for. A system with a large number of trails will minimize contact between users.
3. Minimize Number of Contacts in Problem Areas – The probability of user conflict increases with every incident of contact between users. Congested areas in particular (i.e trailheads) increase the risk of conflict. Minimizing contact will decrease potential conflict.
4. Involve Users as Early as Possible – By involving users at an early planning stage, potential problem areas can be addressed and mitigated prior to conflicts arising.
5. Understand User Needs – The identification of each user groups desired experiences and needs will allow for the implementation of conflict management prior to it occurring. Trail needs and potential conflict areas can be addressed by keeping open lines of communication between trail managers and trail users.
6. Identify the Actual Sources of Conflict – Only when the real problem is identified can progress be made. Emotions and stereotyping are cover ups and delay reaching a solution.
7. Work With Affected Users – Include all user groups in meetings intended to produce possible conflict solutions.

Groups left out of such meetings are more likely to cause future conflicts.

8. Promote Trail Etiquette - Trail etiquette goes a long way in keeping trail users complacent. Education of proper trail techniques will allow for a knowledgeable user community and decrease potential conflicts.
9. Encourage Positive Interaction Among Different Users - This may be accomplished through the formation of a trail advisory council, or holding trail-building or maintenance projects involving different user groups. Monitor the effectiveness of management decisions and implemented programs on a regular basis to determine if conflicts are being addressed.
10. Favor “Light-Handed Management” – Employ management approaches that leave the environment as natural as possible to enhance high-quality trail experiences. The county’s ATV Trail Plan sets forth trail management objectives that focus on leaving the trails as natural as possible, and limiting signage to the minimum amount necessary so that it does not detract from the trail user experience. Over management of a trail system can result in user disdain and increase potential conflict.
11. Plan and Act Locally – The majority of trail users will be local residents. Local planning and action includes the user groups that could potentially be affected by decisions. Local users are also more likely to implement and police decisions that they helped create.

12. Monitor Progress – It is essential to monitor and evaluate programs that have been implemented in an effort to reduce user conflict. This is the only way to determine if existing programs are reducing conflicts or if new programs need to be implemented.

5.10 Growth and Character of the Community

Environmental Setting

Due to its geographic location, St. Lawrence County is a tourist destination. The County sees an influx of snowmobile riders during the winter months, while boaters, hikers, and camping enthusiasts make use of the County's natural resources during the summer months.

Much of the trail use today will continue under the proposed action and it is anticipated that the community will utilize the same lodging, dining, and other services left idle by the snowmobiling economy in the non-winter months. The proposed action is not expected to create significant numbers of jobs, in the short term, but to potentially turn part-time jobs into full-time, while increasing the value of those existing jobs.

Potentially Significant Environmental Impacts

In reality, the creation of a St. Lawrence County Multi-Use Recreational Trail System is just a formality. The proposed trail system has historically been used by multiple recreational disciplines. A County run trail system will result in better maintenance, safety, and environmental conditions for trail users. This proposal is simply applying structure, rules and environmental improvements on currently used trails

in the County. Although some increase in ridership may result from this action, increased tourism is expected to be incremental and should not result in significant demands for growth in services such as hotels, gasoline retailers, etc.

Proposed Mitigation Measures

There are no significant environmental impacts identified therefore no mitigation is necessary.

5.11 Community Services

Environmental Setting

St. Lawrence County has a well developed system of services and infrastructure which service the current outdoor recreational sports available in the County. The development of additional tourism related to the implementation of the proposed county-wide trail system will require the use of these services.

Potentially Significant Environmental Impacts

The creation of a County sponsored trail system has the potential to increase demand of additional County and local services in order to maintain the trail system at high environmental and safety standards. Services such as emergency response, trail enforcement, and signage may require additional resources, economic funding, and possibly created job positions. Portions of the proposed trail system will be able to use existing resources, such as County and local highway department equipment, snowmobile trail maintenance equipment, and existing law

enforcement and emergency response officials. It is expected that local clubs and other volunteers will provide a large portion of the maintenance and policing force needed to ensure proper use and environmental conditions are upheld.

Proposed Mitigation Measures

The County will monitor the impacts to community services, identify needs and develop solutions to address those needs. Funding will be identified on an annual basis to assist local municipalities and County departments with meeting the needs created by this proposed trail system.

5.12 Visual Resources

Environmental Setting

The proposed trail system will create public access to beautiful areas of the County that would otherwise be hard to access. The geographic location of St. Lawrence County allows for multiple natural resources to be visited during a single trip, from views of the St. Lawrence River Valley to awe inspiring panoramic vistas of the Adirondack Mountains.

Potentially Significant Environmental Impacts

The trail system will incorporate existing trail segments that local outdoor enthusiasts have been using for numerous years. Modifications to the landscape will be minimal on existing trails to slightly intrusive on new trail segments. There is the potential for users of the trail system to view other trail use methods as displeasing and unattractive. Objections

under this concept are expected to be minimal and in any event can be mitigated per the guidelines discussed in Section 5.9.

Proposed Mitigation Measures

During new trail construction and existing trail maintenance, care will be taken to minimize, to an extent possible, all impacts to soil, vegetation, wildlife, etc. Future trail design will be done in a way that is aesthetically pleasing.

6.0 Unavoidable or Inadequately Mitigated Adverse Impacts

The proposed multi-use recreational trail system can potentially contain unavoidable adverse impacts associated with potential users. These impacts include:

- Generation of noise;
- Air emissions;
- Need for additional community resources;
- Potential impacts to land via erosion; and
- Vegetative impacts.

However, in all instances, adequate mitigation has been identified for these impacts within this document.

7.0 St. Lawrence County's Commitment of Resources

The proposed Multi-Use Recreational Trail System will require the use of resources provided by the County. Most notably these resources are funding and materials, maintenance, policing, construction, inspection, and emergency response personnel. Equipment suited for trail maintenance of this kind may also need to be purchased.

Although the trail system will occupy and modify some land resources these commitments are neither irreversible nor irretrievable, as simple discontinuance of trail use will allow these areas to naturally revert.

8.0 Effects on the Use and Conservation of Energy

The proposed trail system could potentially result in an increase in use of energy directly by ATVs on the trail system and indirectly by vehicles owned and operated by all patrons of the trail system. ATVs and personal vehicles consume petroleum based products during operation, as do maintenance vehicles used during trail upkeep activities. The increase in energy demand is expected to be minor and should not result in the need for additional fueling operations or storage since the proposed trails within the system have been in use for years. The amount of energy used could potentially be compared to that used by snowmobile users during the winter months. St. Lawrence County has no problem meeting the energy demands of snowmobiles during the winter, and it is that same petroleum infrastructure that will service users of the proposed Multi-Use Recreational Trail System.

9.0 Alternatives Analysis

9.1 No Action Alternative

The proposed no action alternative would result in continued unmanaged use of existing trails by recreational users. Proposed mitigation measures incorporated within this document would not be implemented and the existing trail system could potentially result in large scale impacts to natural resources. Conflicts between landowners and trail users, as well as conflicts between multi-use trail users themselves, could increase resulting in the potential closure of trail segments. The loss of trails could eventually lead to a decrease in users from other regions, negating the potential economic stimulus the trail system could provide to St. Lawrence County.

9.2 Alternative 2 – Private Development of a Trail System

Throughout St. Lawrence County there are numerous ATV, dogsled, mountain bike, hiking clubs, as well as other outdoor recreation organizations. This alternative would place the responsibility of trail management, development, and fundraising solely on these private/public clubs. This type of system would mimic the current snowmobile system within New York State. This alternative is viable for the snowmobile trail system due to a portion of the mandatory state registration fee being distributed to snowmobile clubs for maintenance and operational costs of the trails. Snowmobile clubs also enact a dues system that provides additional income for trail maintenance and management.

Currently New York State does not distribute money to ATV Clubs that was collected through ATV registration. Other users of the trail system are not required to register their form of recreation with the state. This results in no way of collecting money from other trail user disciplines. The development of a multi-

use recreational trail system should not be funded by only one category of trail user.

Additionally, private clubs would lack standing to designate roadway sections as open for ATV use under the specified section of the NYS Vehicle Traffic Law (VTL) to link sections of the system together.

Under this alternative, the ability to manage environmental impacts would be substantially reduced as there would be few governmental mechanisms for either identifying such impacts or mitigating them. SEQRA would not typically apply to any of these privately developed systems due to the absence of direct municipal involvement and would therefore not provide its usual protection of environmental resources. As a result, this alternative could be expected to cause more environmental damage than the proposed alternative.

10.0 Cumulative Impacts

Continuous and repeated use on recreational trails can lead to long-term impacts of those trails and the immediate area. St. Lawrence County recognizes that the potential for long-term cumulative impacts exists, with effects compounding if left ill maintained. As such, the County recognizes the following maintenance guidelines as potential ways of mitigating any problems that may arise due to use of the County sponsored trails.

- Local user groups are an important resource of the trail system. Volunteer hours for trail maintenance are expected and will aid in cutting trail costs.
- Trails will be monitored periodically to assess trail conditions. A running log of maintenance improvements will be kept. This will allow the County to pinpoint problem areas within the system.
- Identified maintenance needs will be completed in a timely manner
- Trail grading may be needed in areas of extreme degradation. This activity should be completed before users create new trails.
- Natural materials will be used to block users from making new, unauthorized trails.
- Periodically trails will be patrolled for litter. All refuse will be bagged and disposed of correctly.
- Any stolen or vandalized trail signs will be replaced as soon as possible in order to maintain a safe atmosphere.

The implementation of the above maintenance activities, as well as the mitigation measures identified throughout this document, will result in a safe trail system that

should more than adequately handle the anticipated use, without the threat of cumulative impacts to the environment.

11.0 Future Expansion

The intention of this document is not only to provide a comprehensive look at the currently proposed trail segments discussed within this report, but also to provide a template for future environmental review of new trail segments as they are identified by the County. The GEIS format allows for the assessment of new trail segments by providing an efficient and competent review on a trail-specific basis. Future trail reviews will be appended as supplements to this GEIS so as to not only identify possible individual environmental and safety concerns of the new trail, but also assess the collective effects of the future trail segments with those reviewed in this GEIS. A Proposed Trail Segment Environmental Checklist is provided in Appendix A. This form will be used to develop relevant information regarding potential impacts associated with proposed trail segments. The form will provide necessary information for the proper SEQR process to take place.

12.0 Bibliography

Camoin Associates, 2006. Tug Hill Region ATV Economic Impact Study.

Cordell, H.K. and M.A. Tarrant. 2002. *Socio-6: Forest-based outdoor recreation*. Southern Forest Resource Assessment Draft Report. Available online at: < <http://www.srs.fs.usda.gov/sustain/draft/socio6/socio6.htm> >

United States Environmental Protection Agency. 1995. *Compilation of Air Pollutant Emission Factors Volume I: Stationary Point And Area Sources*. Office of Air Quality Planning and Standards, Office of Air and Radiation. Ap-42 Fifth Ed.

(EPA, 2002) Environmental Protection Agency. Regulatory Announcement – Frequently Asked Questions from ATV Riders. Document No. EPA420-F-02-0378.

(EPA, 2002^(b)) Environmental Protection Agency, November 8, 2002. Final Rule for Cleaner Large Industrial Spark-Ignition Engines, Recreational Marine Diesel Engines, and Recreational Vehicles – Final Rulemaking Documents and Fact Sheets < <http://www.epa.gov/otaq/regs/nonroad/2002/cleanrec-final.htm>>

Federal Register, Vol. 65 No. 236, Thursday December 7, 2000, Proposed Rules – Control of Emissions From Nonroad Large Spark Ignition Engines, Recreational Engines, (Marine and Land Based), and Highway Motorcycles.

Federal Register Vol. 67, No. 217, Friday, November 8, 2002. Final Rule - Control of Emissions From Nonroad Large Spark Ignition Engines, Recreational Engines, (Marine and Land Based), and Highway Motorcycles.

Gartner, W.C. and Lime, D.W. 2000. *Trends in Outdoor Recreation, Leisure and Tourism*. New York, NY: CABI Publishing.

Moore, R.L. 1994. *Conflicts on Multiple-Use Trails: Synthesis of the Literature and State of the Practice*. (FHWA-PD-94-031). Washington, D.C. Federal Highway Administration.

Foltz, Randy B. and Dexter L. Meadows, Impacts of ATV Traffic on Undesignated Trails, 2007, < http://www.stream.fs.fed.us/news/streamnt/apr00_2.htm >

Foss, C.R. 2006. A preliminary Investigation of Impacts of AV Activity on Breeding Birds in the Nash Stream Forest, Coos County, New Hampshire.

- Gibbons, S. and E. Ruddell. 1995. The effect of goal orientation and place dependence on select goal interferences among winter backcountry users. *Leisure Sciences* 17, 3: 171-183.
- Hammit, W.E., and I.E. Schneider. 2000. "Recreation Conflict Management". Trends in Outdoor Education, Leisure, and Tourism, edited by W.C. Gartner and W.D. Lime, 347-356. New York: CABI Publishing
- Knight, R.L. and D.N. Cole. 1995. Wildlife and Recreationists, coexistence through management and research, eds., R.L knight and K.J. Gutzweiller. Island Press, Covelo, California.
- Kuss, F.R., A.R. Graefe, and J.J. Vaske. 1990. Visitor Impact Management: A Review of Research. National Parks and Conservation Association, Washington, D.C.
- Malone, D.G, and J.C. Emerick. 2003. Impacts of Trails and Recreationists on Wildlife. Aspen Wilderness Workshop. EPA Project Number: MM988655-01.
- Marion, Jeffrey, Recreation Ecology Research Findings: Implications for Wilderness and Park Managers, 1998, < <http://www.cnr.vt.edu/forestry/cpsu/rececol.html> >
- Merriam-Webster's Online Dictionary, no date provided, "Noise," < <http://www.m-w.com/cgi-bin/dictionary> >
- Minnesota Department of Natural Resources. 2002. White Earth Forest ATV/OHM Trail Project Environmental Assessment Worksheet.
- NYSDEC. 2001. *Assessing and Mitigating Noise Impacts*. Program Policy
- (NYSDEC, 2007) NYSDEC, History of State Forest Program, no date provided, < <http://www.dec.ny.gov/lands/4982.html>>
- NYSDEC, 2007^(b) New York State Department of Environmental Conservation Air Resources, no date provided, < <http://www.dec.ny.gov/dardata/airmon/parametertextpage1.htm> >
- Seattle Department of Planning and Development, DPD's Noise Abatement Program "What is Noise?", May 24, 2005, <http://www.seattle.gov/dpd/Enforcement/Noise_Abatement/What_Is_Noise/default.asp >
- Society of Automotive Engineers. 2008. Measurement of exhaust Sound Pressure Levels of Stationary Motorcycles. Standard J1287.

Watson, A.E. 2001. "Goal interference and social value differences: understanding wilderness conflicts and implications for managing social density." USDA Forest Proceedings RMRS-P 20: 62-67.

United States Department of Agriculture Soil Conservation Service in cooperation with Cornell University Agricultural Experiment Station. 2005. Soil Survey St. Lawrence County New York: U.S. Government Printing Office, Washington, D.C.

Sheridan, Julie M., Assistant Solicitor General. Informal Opinion No. 2002-1.

Appendix A

St. Lawrence County Recreational Trails System Proposed Trail Segment Environmental Checklist

Appendix B
Agency Correspondence

Figures

Proposed Multi-Use Recreational Trail System