Rusagonis-Waasis

Rural Plan Background Report

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Rusagonis - Waasis Planning Area

Background Report

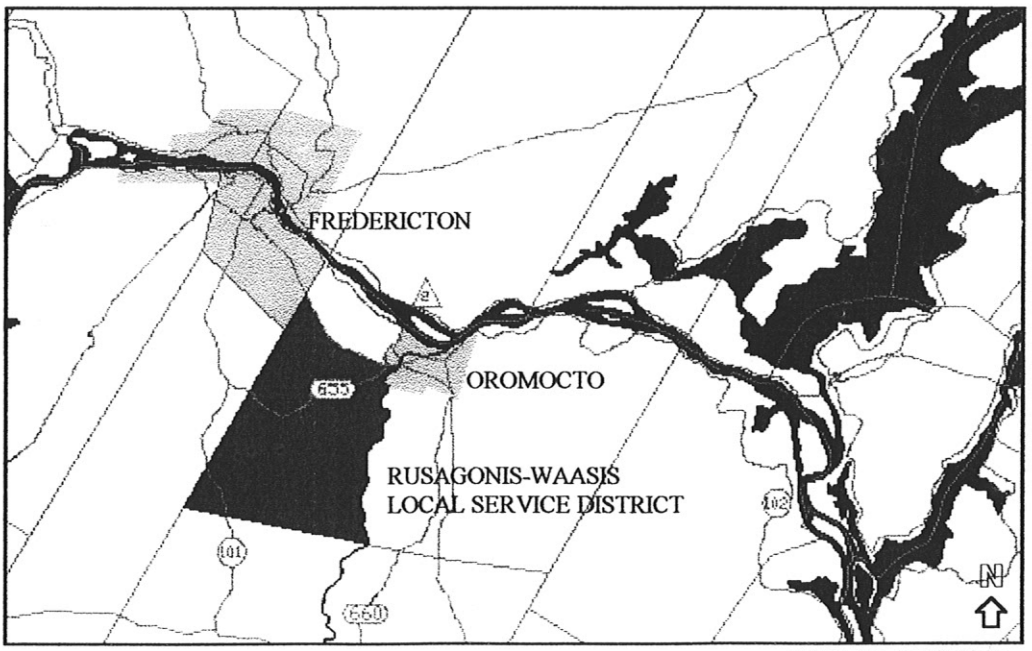
1. Introduction

The purpose of this report is to provide information that will be used in the decision making process when preparing a Rural Plan for the Rusagonis-Waasis Planning Area.

1.1. Location

Rusagonis-Waasis Local Service District is located in the Parish of Lincoln in Sunbury County. The area is approximately 139 square kilometres in size. It is bounded to the north by Route 7, to the west by the City of Fredericton and the Parish of New Maryland, to the south by the Parish of Gladstone, and to the east by the Oromocto River.

MAP 1 - PLANNING AREA LOCATION



SCALE: 1:500,000

2. History

For thousands of years, Aboriginal peoples would have travelled, fished and camped along the Oromocto River and Rusagonis Stream. In more recent history, European traders may have also used the river system as part of a transportation network. However, the first permanent settlement in the Planning Area appears to have occurred with the arrival of the Loyalist in 1783. [1] Land was deeded to the Loyalists in the form of grants which tended to be large tracts of land which extended outward from the river.

With the arrival of the early Loyalists came the shipbuilding industry. An abundance of large pine trees along Rusagonis Stream provided excellent timber for building masts. Rusagonis became a familiar place name due to the size and quality of timber found in the area.

The Parish of Lincoln was established in 1786. The boundaries of the Parish were approximately the same as they are today, although it also included Gladstone Parish until 1834. In the very early days, Lincoln was sometimes referred to as Morrisania and Goldsborough, apparently after Charles Morris Jr. and Arthur Gould who held large grants in the area.

2.1. Defining Heritage

"Heritage resources may be defined as any in situ work or assembly of works of nature or of human endeavour, or both. Heritage resources may include one or more buildings, structures, as well as sites, lands, or areas, with or without their environs. These resources can be considered significant because of archaeological, architectural, cultural, educational, historic, or aesthetic features. Heritage resources are important aspects of personal and community pride. Properly management, heritage resources can act to preserve valued rural image and identity".[2]

2.2. Historic Structures

In assessing the heritage value of a structure, property or other feature typically three criteria are examined. These criteria tend to be objective and are not weighted equally from situation to situation. The first criteria is the age of the structure. The main purpose of assessing age is to have a place to start a comparative analysis. Comparative analysis is used in assessing architectural merit which is the second criteria. It is important to understand that not all old buildings are of historic or architectural importance.

In assessing architectural merit the following things are considered:

- style of structure or era built, number of similarly styled structures remaining,
- does the structure exemplify the style well,
- are original details still present,
- was the building designed or built by a regionally or nationally known figure,
- how many similarly styled structures are still standing in the region,

[1] McGrand, F.A. 1968 Backward Glances at Sunbury and Queens. New Brunswick Historical Society
[2] Correspondence from Bill Hicks, Municipalities, Culture and Housing - Heritage Branch, April 1, 1998.

- is the structure located in a grouping of structures such that the removal of one will detrimentally affect the heritage value of the others, and
- is the structure situated in its original context? In some cases original context can be lost because the structure was moved to its present location. This movement to a different location may in some cases add to the importance of the structure.

The final criteria that may be used for assessment is related to past owners and regional activities. In assessing the importance of people or activities associated with a site the following things may be examined:

- is a past owner regionally, nationally or internationally known, or
- did an event such as a treaty signing or battle occur within the structure or on the property?

These questions can be asked of a structure of any age or architectural style.

The Canadian Inventory of Heritage Buildings (CIHB) database contains a record of structures built prior to 1914. This inventory, which was compiled in 1972 and 1988, shows a total of twelve recordings in the Planning Area. Most of these heritage structures are located in Rusagonis and consist of farm houses with estimated construction dates from early 1800's to early 1900's. Several recordings in the inventory have imprecise locations and some may have disappeared since the recordings were made.[3]

Non-residential heritage structures within the Planning Area include the United Baptist Church, the Orange Lodge Hall, a Western Union Telegraph Co. Office, and the Patrick Owen Covered Bridge which is 236 feet long and was built in 1909.

2.3. Areas of Archaeological Interest

Three archaeological sites are presently recorded within the Planning Area; all three sites are located on the banks of the Oromocto River.

There is also a high probability that archaeological resources (of historic and prehistoric significance) exist along the banks of Rusagonis Stream. While there is a high probability of areas of interest being located along the stream, a complete archaeological survey has not been undertaken.[4]

2.4. Related Legislation

In rural New Brunswick the *Historic Sites Protection Act* may be used for preservation purposes. This Act allows for the permitting, exploration and removal of historic objects.

[3] Correspondence from Richard Phillips, Heritage Branch, Economic Development, Tourism and Culture, June 4, 1999.

[4] Correspondence from Albert Freguson, Archaeological Services Branch, Economic Development, Tourism and Culture, May 27, 1999.

3. Land Use

The predominate land uses in Rusagonis-Waasis Local Service District are rural residential, agricultural and uses associated with woodland.

In the Local Service District there are over 1,200 properties. The assessment branch of Service New Brunswick classifies land into seven broad categories: residential, commercial, industrial, institutional, recreational, farms and woodland. Over 76 percent of land within the Planning Area is assessed as woodland, approximately 12 percent is assessed as farmland, and 10 percent as residential. Properties within the Planning Area assessed as commercial consists of convenience stores and service related businesses. Properties assessed as industrial include a lumber processing facility and several gravel pits. Institutional properties include churches, cemeteries, utilities and landfills. Recreational properties include community halls and ball fields.

Table 1: Property Assessment

Property Use	Number of Properties	Approx. Total Hectares	Percentage of Land
Residential	901	1650	9.9 %
Commercial	6	11	0.1 %
Industrial	10	80	0.5 %
Institutional	22	97	0.6 %
Recreational	8	32	0.2 %
Farm	69	2050	12.2 %
Woodland	219	12800	76.5 %
Total	*1235*	*16720*	*100.0 %*

Source: NBGIC Real Property Data, 1997

There are a total of 69 farm properties in the area, 20 of which are participating in the *Farm Land Identification Program* (FLIP). This program defers the provincial portion of property taxes on eligible farms as long as the property remains agricultural land.

Over 62 percent of the Planning Area is privately owned by individuals and corporations. As shown on the ownership map, many of the larger parcels of land in the southern portion of the planning area are either industrial freehold or Crown Land.

There is approximately 5230 ha of Crown Land within the Planning Area. Current uses on Crown Land include forestry, recreation and uses associated with the Department of Transportation. Land uses on Crown Land, such as forestry and aggregate extraction, are regulated by such legislation as the *Quarryable Substances Act,* and the *Crown Lands Act*.

3.1. Residential

Residential is the primary use for approximately 70 percent of all properties within the Rusagonis-Waasis Local Service District. According to the 1996 Census, there are over 800 residential dwellings within the district.

Table 2: Age of Dwellings

Era of Construction	Number of Dwellings	% of Total Dwellings
Before 1946	45	5.39%
1946-1960	20	2.40%
1961-1970	70	8.38%
1971-1980	235	28.14%
1981-1990	260	31.14%
1991-1996	205	24.55%
Total	835	100.00%

Source: Statistics Canada, 1996.

The majority of houses in the Planning Area were constructed after 1970. The large increase in houses built during the 1970's signifies the beginning of "baby boomers'" housing purchases.

Table 3: Dwelling Type, 1996

Type of Housing	Number of Dwellings	% of Total Dwellings
Single Detached House	605	64.70%
Semi-detached House	0	0.00%
Apartment/Detached Duplex	0	0.00%
Apartment Less than 5 Storeys	0	0.00%
Apartment Greater than 5 Storeys	0	0.00%
Movable dwelling	205	25.30%
Row House	0	0.00%
All Other	0	0.00%
Total	810	100.00%

Source: Statistics Canada, 1996

The type of housing in the Planning Area consist solely of single detached and movable dwellings. Located in the northern portion of the Planning Area is a mobile home park which consists of approximately 50 mobile homes. Located adjacent to this park is a mini home development with approximately 150 mini homes. There are also several smaller mini home developments and single mobile home sites scattered throughout the Planning Area.

Table 4: Tenure, 1996

Tenure	Number of Dwellings	% of Total Dwellings
Owned	780	95.12%
Rented	40	4.88%
Band	0	0.00%
Total	820	100.00%

Source: Statistics Canada,1996.

The majority of homes in the Planning Area are owner occupied. This is also typical of rural areas where there are less multiple unit dwellings.

Table 5: Maintenance, 1996

Condition of Households	Number of Dwellings	%
Regular Maintenance Only	440	53.33%
Minor Repairs	260	31.52%
Major Repairs	125	15.15%
Total	825	100.0%

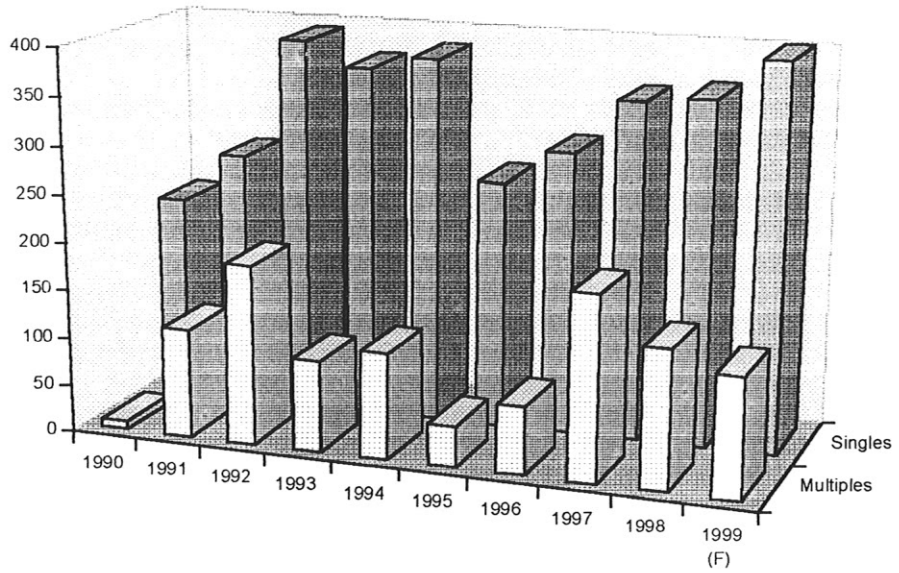
Source: Statistics Canada,1996.

According to the 1996 Census, approximately 53 percent of the dwellings in Rusagonis-Waasis only required regular maintenance, 31 percent required minor repairs, and 15 percent required major repairs. Regular Maintenance refers to activities such as painting and furnace cleaning. Minor repairs refers to replacing missing or loose floor tiles, bricks or shingles, defective steps, railing or siding, etc. Major repairs refers to defective plumbing or electrical wiring, structural repairs to walls, floors, ceiling, etc.

3.1.1. Local Housing Market

The majority of housing starts in Fredericton CA between 1990 and 1998 have been single family homes (Figure 1). In recent years, single family home construction has been moving out of the city. In 1990, 44 percent of single family housing starts in Fredericton CA occurred in the unincorporated areas; where as in 1998, the number of starts in the unincorporated areas increased to 57 percent.

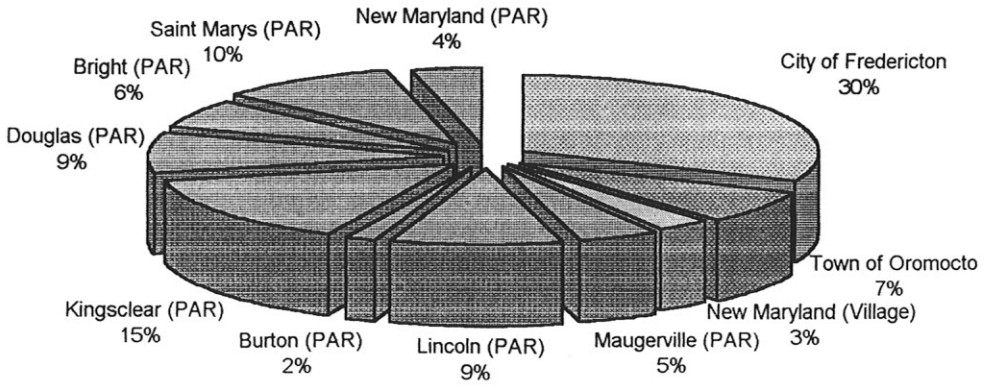
Figure 1 - Housing Starts in Fredericton CA (1990-1999)



Source: Canadian Mortgage and Housing Corporation, 1999

Within the unincorporated areas of Fredericton CA, the majority of last year's building permits were issued in the parishes of Kingsclear, Saint Marys, Lincoln, and Douglas (Figure 2).

Figure 2 - Percentage of Total Housing Starts for Single Detached Dwellings in Fredericton Region by Area, 1998



The growth in the number of households is the single greatest factor influencing growth in the demand for housing. Household projections published in Canadian Markets indicate that the number of households in Fredericton CA will increase by 2,200 between 1999 and 2001, and 3,900 between 2001 and 2004.[5] Based on historical trends in the owner to renter ratio in Fredericton CA, it can be estimated that there will be a demand for approximately 4,500 owner-occupied dwellings and 1,600 rental units over the next five years.

Household formation and housing choice are tied to a variety of socio-economic factors. As people move through the various stages of life, and as their social and economic circumstances change, their living arrangements alter with corresponding changes in their housing preferences. As the population ages, the prime home-buying group will be replaced by a smaller cohort, putting downward pressure on housing starts. However, at the same time there will be a continued trend towards smaller households. Factors such as increasing life spans, increasing divorce rates, and fewer marriages will create a demand for additional housing units.

In 1999, Canadian Mortgage and Housing Corporation (CMHC) predicts 400 new single family housing starts and 125 new multiple unit housing starts in Fredericton CA. CMHC also predicts there will be approximately 1100 Multiple Listing Service (MLS) sales in 1999. The Fredericton Area MLS has currently over 1,400 houses on the market. Within Rusagonis-Waasis there are approximately 50 housing units currently for sale, the majority of which are mobile homes.

Although it is recognised that high income households can afford to pay a higher percentage of their income on shelter or some other commodity without jeopardising their ability to meet their other basic needs, it is generally held that households of low to moderate income, who are required by their living circumstances to pay more than 30% of their income on shelter, are considered to be experiencing shelter affordability problems.

Within the Fredericton CA, approximately 8% of the population are spending 30% or more of their income on shelter costs.[6] Affordability problems are higher among renters than home-owners. The majority of renters experiencing affordability problems are located within the City of Fredericton. Within the Parish of Lincoln, approximately 5% of home-owners spend more than 30% of their income on housing costs. Overall, young homeowners in the Province (those less than 45 years of age) experience more affordability problems then older homeowners.[7]

Table 6 shows housing affordability estimates for several ranges of household incomes. These estimates assume a mortgage interest rate of 10%, average tax and heating costs in Canada, and the mortgage an average Canadian would qualify for based on a 32% debt ratio.

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[5] Financial Post. 1999 FP Markets-Canadian Demographics, 72nd Edition. Toronto, Ontario

[6] Statistics Canada, 1996 Census

[7] New Brunswick Statistics Agency. 1996. New Brunswick at the Dawn of a New Century - A Working Paper on Demographic Issues Affecting New Brunswick, Volume III - Family and Non-Family Households and Their Housing Choises

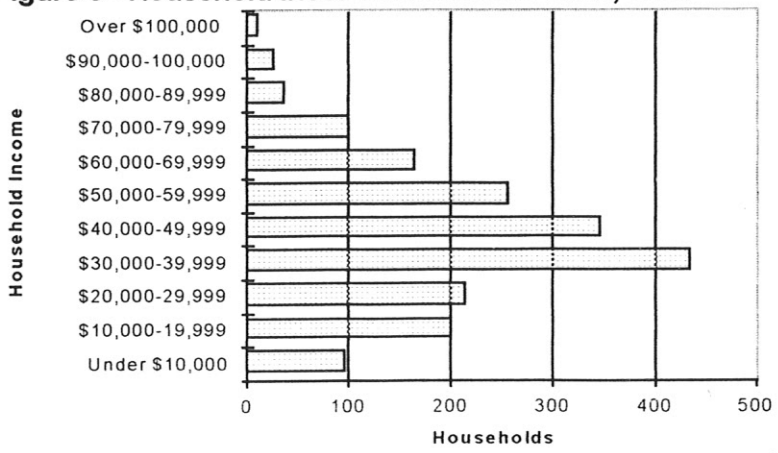
Table 6 - Household Income & Housing Affordability

Household Income	Affordability Estimates, Maximum Home Price (5% down payment)	Affordability Estimates, Maximum Home Price (10% down payment)	Affordability Estimates, Maximum Home Price (25% down payment)
$ 25,000	$ 51,000	$ 53,800	$ 66,200
$ 30,000	$ 66,300	$ 70,000	$ 86,000
$ 35,000	$ 81,600	$ 86,100	$ 105,900
$ 40,000	$ 96,900	$ 102,300	$ 125,800
$ 45,000	$ 112,200	$ 118,400	$ 145,700
$ 50,000	$ 127,500	$ 134,600	$ 165,500
$ 60,000	$ 158,200	$ 166,900	$ 205,300
$ 70,000	$ 188,800	$ 199,200	$ 245,000
$ 80,000	$ 219,400	$ 231,500	$ 284,800
$ 90,000	$ 250,000	$ 263,800	$ 324,500

Source: Canadian Mortgage and Housing Corporation, 1999

In 1998 the average MLS selling price in Fredericton CA was $95,164, and is expected to rise in 1999. The average price for a new single detached home in 1998 was $126,058. According to Statistics Canada, approximately 49 percent of households in Fredericton CA have incomes less than $40,000, which would suggest a large portion of the population would be unable to afford a new single detached home. Household income and income structure within Fredericton CA are not expected to experience any major changes over the next few years. Figure 3 shows household income levels for the Parish of Lincoln. In comparison to Fredericton CA, the Parish has a higher concentration of households with incomes between $30,000 and $60,000. Approximately 27 percent of households have incomes less than $30,000, and 25 percent of households live in movable dwellings. The average assessment in Rusagonis-Waasis is $82,000 for a single detached house, $42,000 for a minihome, and $16,000 for a mobile home.

Figure 3 - Household Income in Lincoln Parish, 1996



Source: Statistics Canada, 1996 Census

3.1.2. Housing Density

Open space and small-scale buildings are two hallmarks of rural character. Some of the components which define the rural character of Rusagonis-Waasis include wooded areas, fields, low density housing, two-lane roads, farms and agricultural land.

Statistics Canada defines "rural" as being an area with a population concentration of less than 1000 persons and a population density of less than 400 persons per square kilometre. All of the population in the non-incorporated areas of the province are included in the rural designation. The population density of Rusagonis-Waasis as a whole is approximately 18 persons per square kilometre. However, the northern portion of the Planning Area is more densely populated than the southern portion.

The objectives for the current *Rusagonis Waasis Local Service District Basic Planning Statement* include: (a) to accomplish an optimum population density, (b) control the type and location of commercial and industrial developments, and (c) maintain the rural character of the area. The majority of the Planning Area is currently zoned "Residential" under the *Rusagonis Waasis Local Service District Zoning Regulation.* This zoning allows for the development of single-family dwellings, two-family dwellings, a mobile home site and several other non-residential uses. The regulation specifies a minimum lot size for single family dwellings of four thousand square metres (one acre) in area and fifty-four metres (one hundred and eighty feet) in road frontage. This building lot size is the minimum lot size required for an on-site sewage disposal system under the *Health Act, New Brunswick Regulation 88-200.* Assuming the occupancy of a single dwelling averages 2.5 persons, 4000 square metre lots could conceivably yield a density of over 600 persons per square kilometre.

Preservation of rural character can be accomplished by concentrating and directing new development to selected areas. However, the current zoning discourages compact forms of residential development and alternative housing options.

3.1.3. New Subdivisions

Two large subdivisions which will accommodate single family dwellings have recently been approved within the Planning Area. Castle Gate Subdivision, located along the Whittaker Road, is comprised of one acre lots. In 1998, a total of nine new lots were approved. Land set aside for future development could accommodate approximately 45 lots.

New Dawn Estates subdivision has recently been created along Route 655. A total of 14 lots, which average 1.3 acres in size, have been approved to date. This subdivision has enough land set aside for future development to accommodate approximately 80 lots.

3.2. Commercial

Commercial enterprises within the Planning Area include two convenience stores and several contractors and service businesses (Table 7). The majority of these businesses are home-based and range from neighbourhood to speciality service providers. In addition, there are several recreational commercial operations such as riding stables and sleigh rides.

Most residents of Rusagonis-Waasis likely do the majority of their shopping in Fredericton. The level of goods and services available in rural communities is, in many

cases, based directly on its population size. Few communities with a population of less than 2,500 have commercial establishments who sell building supplies, machinery, furniture, vehicles, or clothes.[8]

Although the current population of Rusagonis-Waasis may not be able to support certain types of commercial businesses; the demand for commercial services will grow as the population grows. There are also various types of commercial operations which will draw consumers from surrounding areas and are well suited for rural locations. Furthermore, locations adjacent to major traffic routes may be suitable for highway commercial operations.

Table 7 - Examples of Commercial Businesses in Rusagonis-Waasis	
Nevers Road Convenience	convenience store and gas station
Covered Bridge Country Store	convenience store
Ben's Auto Repair	automobile repair shop
Earl Grasse Small Engine Repair	small engine repair and chainsaw dealership
Linda Cogswell Office Services	bookkeeping and financial services
Rusagonis Day-Care	day-care
Sunrise Trophies and Engravings	trophy engraving
G.M. Lyons Electric	electric contractor
Noble Builders & Renovators Ltd	building contractors
Noble Donald & Sons Ltd	general contractors, septic tank installation
Cloverleaf Farms	boarding kennels
Covered Bridge Diving Supplies	sales and service for scuba gear

3.3. Cottage Industry

A higher percentage of home-based businesses are found in rural areas. There are currently over 1400 cottage industry operators in the province. The Department of Agriculture and Rural Development, defines cottage industry as "*producers located in rural areas, with less than $100,000 in yearly sales and employing 3 or fewer people (full time equivalents). The producer may be seasonal or part-time in nature and may only supply a secondary income to the operator.*"

The Department of Agriculture and Rural Development has developed programs to promote cottage industries throughout rural New Brunswick. Producers who would qualify for these programs include artists, artisans, craftspersons, and speciality food and giftware producers who produce products of quality at both the low and high ends of the price spectrum. These producers are generally regarded as micro-entrepreneurs, and produce products that, by their originality, quality and presentation, can easily be distinguished from those of large established manufacturers.

[8] Rural and Small Town Programme. 1998. Living in Atlantic Canada, 1998: Perceptions About Life in Rural and Small Towns

3.4. Industrial

The largest industrial operation within the area is a wood preservation facility operated by Atlantic Pressure Treating Inc. The property is over 24 hectares in size and is located along Route 101 near Tracyville. The company employs approximately 150 people and has been in operation for 25 years.

Wood preservation involves applying pesticides to wood to provide long-term resistance to destructive organisms. Wood is preserved by conditioning to reduce the moisture content and increase permeability, followed by the controlled vacuum, pressure or thermal impregnation of chemicals to a depth that will provide durable resistance to attack by a wide variety of organisms such as fungi, insects and marine borers.

It has been documented that soils surrounding wood preservation facilities can often become contaminated with arsenic (As), copper (Cu) and chromium (Cr) as a result of spills and/or leachate from treated wood.[9] Waterborne materials from such sites may be potential sources of contamination to any neighbouring watercourses and groundwater resources.

In addition to the wood preservation facility, there are several gravel pit operations located along Route 101 which can be classified as extractive industrial. Most of these gravel pits are owned by local contractors and are currently active.

3.5. Agriculture

Agricultural uses within the Planning Area mainly include pasture lands, hay fields, Chrismas tree operations, and small orchards. In comparison to other areas of the province, the majority of farms in Sunbury County are small in size. Approximately 54% of farms are under 130 acres in size.

The recently adopted *Agricultural Land Protection and Development Act (ALPDA)*, allows land owners to register their agricultural land with the Minister of Agriculture and Rural Development. The registration of agricultural land will provide a means for land owners to designate their farm land for protection so that the land may be preserved for agricultural use. The intention of the Act is to encourage planning authorities zone Registered Agricultural Land (RAL) for agricultural use, provide setbacks from these properties and separation distances from livestock facilities. There are currently 43 RAL properties in the Planning Area representing approximately 1241 hectares.

Property owners who have land registered under ALPDA may also apply to have their land and farm outbuildings registered under the Farm Land Identification Program. As previously mentioned there are currently 20 properties which are receiving tax relief via this program.

[9] J.J. Bamwoya, L.A. Rutherford, P.A. Hennigar, W.H. Horne, 1992 Soil and Sediment Contamination at Four Wood Preservation Facilities in New Brunswick and Nova Scotia in 1989. Environment Canada EPS-5-AR-92-4

3.6. Institutional

An institutional use is typically associated with a public building or property that is thought of as public. Hospitals, churches and schools are some examples of institutional uses. Within the Planning Area there are three churches: Rusagonis United Baptist Church, New Life Baptist Church, and Works of Faith Assembly. There are also three cemeteries located within the local service district.

3.7. Recreation

Recreation can typically be divided into two sub categories, passive and active. A passive use typically does not require built infrastructure. Examples of passive recreational uses in the Planning Area include: hunting, fishing, canoeing, cross-country skiing and hiking.

The former rail lands running through the easterly portion of the Planning Area have been acquired by the Department of Natural Resources and Energy with the intention of developing a multi-use recreational trail. Additionally, there are snowmobile trails which run through the Planning Area. This trail system consists of 12 km of groomed secondary trails and 19 km of interprovincial trails.

Active recreation is typically associated with site specific built equipment. Within the Planning Area there is a recreation centre and three ball fields. in the Planning Area there are also several halls that are used for community events.

3.8. Landfills and Dumps

The Fredericton Region Solid Waste Landfill is located on the Wilsey Road on property which straddles the boundary of the City of Fredericton and Lincoln Parish. The landfill, which serves both York and Sunbury Counties, occupies approximately 165 hectares of land. Operated by a regional commission, the landfill handles 57,000 metric tonnes of waste annually and provides a variety of waste management services such as a comprehensive recycling program, scrap metal reclamation, and freon management. The facility is visited by an average of 200 to 225 vehicles per day. Approximately 50-75 of these vehicles are large trucks. The majority of vehicular traffic visiting the landfill enters and exits from Route 7. However, there are vehicles which utilize the southern portion of the Wilsey Road as well. The landfill has capacity to operate for 8-10 additional years and is awaiting approval for a proposed expansion on its existing property. This expansion would extend the life span of the facility to 50-70 years.

There is also a closed dumpsite on Sunpoke Road. This site is located on a 38.3 ha parcel and was closed in January of 1985. The dumpsite was utilized by the Department of Transportation and remains Crown Land.

3.8.1. Regulations Related to Landfills and Development

There are two Regulations that deal with land use on or near operating and abandoned landfills. The *New Brunswick Health Act* prohibits any development on land which has been used for the disposal of waste within a period of twenty-five years after the completion of the site, unless approved by the Minister of Health and Community Services.

The *Clean Water Act* provides for an unspecified setback distance for wells on properties adjacent to landfills, unless approved by the Minister of Environment and the Minister of Health and Community Services.

3.9. Petroleum Storage Facilities

Current legislation requires that all sites that store in excess of 908 litres must be licensed. This requirement is based on the total capable of being stored on site, not the amount being held in each tank.

Within the Planning Area there are seven sites that are registered with the Department of Environment. Three of these sites are associated with industrial uses, one with a service station, one with the Department of Transportation, and two with private owners. Of these seven sites, three are currently in use, three have been removed from the property, and one has been abandoned.

The Department of Environment has no record of Ministerial Orders related to spills or contaminated sites in the Planning Area.

3.10. Transportation

The movement of people and goods relies on a complex system of roads, airports, rail and other modes of transportation. Historically the many rivers in the region were an important method of transportation. Today, the automobile is the primary mode of transportation.

The current system of classifying roads in New Brunswick focuses on describing the connectivity of a road and not its quality or ability to handle traffic. The reason for this is that, in most areas, roads have not been planned, but have evolved through time. The Department of Transportation's classification of roads consists of four levels: arterial, collector, local numbered, and local named roads.

The Department of Transportation describes an **arterial highway** as one that is intended to move a large volume of traffic at a high speed. The main consideration in designating a highway as Arterial is that flow of traffic is more important than access to adjacent properties. Arterial Highways are provincial roads designated by the Department of Transportation and numbered between 1 and 99.

A **collector highway** is described as one that is intended to gather traffic from local streets or roads and link them to arterial highways. A road is designated a collector highway in cases where the flow of traffic and access to adjacent properties are considered to be of equal importance. Collector Highways are provincial roads designated by the Department of Transportation and numbered between 100-199.

The purpose of a **local numbered highway** is to provide access to adjacent properties. Local numbered highways are provincial roads designated by the Department of Transportation and numbered between 200-999. Local numbered highways are further divided into four classes, A through D. These classes describe the maintenance and condition of the road more accurately.

A **local named highway** fulfils a similar role as a local numbered highway. These roads typically have a name that describes the location or communities that the road connects.

All of these classifications are arbitrary and in most cases do not provide information related to usage, road suitability for specific traffic levels or construction standards.

3.11.1. Road Classifications and Standards

It is the policy of the Department of Transportation to examine roads to assess the need to upgrade once the road is shown to be inappropriate for either the amount or type of use. There are currently no numeric guidelines that describe the intended levels of use or construction standards for roads within the hierarchy.

Roads are maintained to the standard of the era when they were originally built. If road construction standards are changed, maintenance remains to the original standard until such a time as the road is reconstructed. In assessing the suitability of a road for upgrading, the Department of Transportation considers the topography of the region, amount and type of use, sight lines, connectivity and economic factors.

3.11.2. Existing Road Network

The road network in Rusagonis-Waasis consists of local Route 655 Highway, a portion of collector Route 101 Highway, and a series of named connecting local roads. There are also several private or not designated roads located throughout the Planning Area.

3.11.3. Weight Restrictions

Weight restrictions are used to limit the type of truck traffic a road may carry. Road restrictions are typically related to construction standards and road conditions. Route 101 has a rating of 62 500 kg with a 90% spring restriction. This rating allows for all types of truck usage. The other local roads in the area are rated at 43 500 kg with an 80% spring restriction. A rating of 43 500 kg encompasses most trucks and trailers with the exception of tandems.

Bridges also have weight restrictions. These ratings typically correspond with the road's rating. The only exception in Rusagonis-Waasis is the Patrick Owen Covered Bridge which has a weight restriction of 10 tons and a height clearance of 3.7 metres.

3.11.4. Road Closures

Some of the gravel roads are closed periodically in the spring due to flooding or unstable roadbeds because of water or ice inundation.

3.11.5. Traffic

The average annual daily traffic count on Route 655 has increased from 1,850 in 1991 to 2,450 in 1997. Traffic counts recorded in recent years for other local roads in the Planning Area range between 300 and 800 vehicles per day.

In 1996, the traffic count for the portion of Route 101 near Tracy was 1,670. The traffic count on the same route between Route 655 and the City of Fredericton was 3,900, and between the Village of New Maryland and the City of Fredericton was 16,330.

3.11.6. Accidents

According to the Department of Transportation, 9 motor vehicle accidents were recorded on Whittaker Road between 1995 and 1998. None of these accidents resulted in injuries. A total of 17 accidents occurred on Route 655, resulting in 8 injuries. On the Rusagonis Road, 9 accidents occurred resulting in 4 injuries. On Route 101 from the Sunbury County line to the Village of Tracy there was 15 accidents resulting in 8 injuries. No accidents within the Planning Area have resulted in fatalities.

3.11.7. Proposed Trans-Canada Highway

A new alignment of the Trans-Canada highway is proposed to be routed through the Planning Area.

The existing Route 7 Highway east of Nevers Road is proposed to be reassigned as a portion of the Trans-Canada Highway. This reassignment is expected to add an additional 2,500 vehicles/day including 700 trucks which will more than double the existing 540 average annual daily truck traffic. This increased traffic may make the adjacent lands incompatible with residential development due to noise considerations.[10]

A large interchange is proposed to be created in the north-western portion of the Planning Area. The interchange will allow traffic to enter and exit Fredericton, or continue on-route. An underpass will be created for Wilsey Road near the Fredericton Regional Landfill.

3.11.8. Airport

The Fredericton Airport is located approximately 1 km north of the Planning Area. The airport is served by two major airlines and two connector services.

The enactment of an Airport Zoning Regulation for the Fredericton Airport under the Aeronautics Act in 1977 has imposed certain restrictions upon land use in the vicinity of the airport. These restrictions comprise obstruction height limitations in the runway approaches and within 4,000 metres of the Airport Reference Point.[11] The height restrictions are shown on the map entitled "Areas Affected by Registered Zoning - Fredericton Airport" in Appendix B. Within the Planning Area, several parcels of land along Nevers Road are currently affected by these restrictions.

Other restrictions applying to the use of airport land may be imposed in respect to:

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[10] Fiander-Good Associates Ltd. 1995 Component Study Report of Noise Considerations - Environmental Impact Assessment Trans-Canada Highway Fredericton To Salisbury

[11] Transport Canada. 1993. Fredericton Airport Land Use Plan and Supporting Narrative (TP 11708)

(a) the generation of electronic interference which affects airport telecommunications and electronic systems,
(b) activities which restrict visibility, and
(c) line of sight requirements of Air Traffic Services

Transport Canada also provides a Noise Exposure Forecast for the lands adjacent to the airports it owns. The forecast provides an assessment of the annoyance resulting from exposure to aircraft noise for the guidance of those responsible for the development of land in the vicinity of airports. The Transport Canada publication, Land Use in Vicinity of Airports, Part IV (TP 1247) contains a description of the generation of Noise Exposure Forecasts and recommended noise control actions. The 1991 noise exposure forecast for Fredericton Airport is shown on a map in Appendix B.

Currently, noise exposure forecast contours that would effect development do not extend into the Planning Area. However, with the proposed privatization of the airport, there is a possibility that runway 09-27 may be expanded. This expansion would extend height restrictions within the Planning Area. Noise exposure contours may also expand or shrink depending on the future configuration of the runway and the types of aircraft that utilise it.

3.12. Utilities

3.12.1. Power Transmission Lines

The Planning Area is crossed by two NB Power corridors, the largest of which contains a 138-kV transmission line. These corridors are on easements, right-of-ways and land owned by the corporation. There is also a substation located in the corridor near Rusagonis.

The construction of permanent structures are not allowed within the power line easements which are typically 100 ft. wide. However, various uses are permitted including roadways, temporary structures, agricultural uses, and tree farms provided they meet clearance requirements.

3.12.2. Fibre Optic Cable

A section of New Brunswick's fibre optic ring is routed through Rusagonis-Waasis near Route 7. This ring provides the backbone for NB Tel's high caliber telecommunications network. The cable is buried along a corridor which NB Tel shares with NB Power. NB Tel owns three parcels of land along this corridor within the Planning Area.

3.12.3. Natural Gas Pipeline

A section of the Maritimes & Northeast Natural Gas Pipeline is proposed to be routed through the Planning Area in a north-south direction.

Along the pipeline right-of-way, landowners will hold easement agreements with the pipeline company which specifies restricted uses on or across the right-of-way, and any types of uses for which the company's permission must be sought. The continuation of past agricultural uses and practices on or across the right-of-way would normally be permitted.

In addition to the specific right-of-way that is acquired under an easement agreement, there is an additional 30 metre controlled area on both sides of the right-of-way. The controlled area is provided for under the *National Energy Board Act* to restrict excavation activities which could pose a threat to safety. Under the Act, permission is required from the pipeline company before any excavation using power equipment or explosives can proceed.

The *Onshore Pipeline Regulations* (OPR) set out minimum requirements for all stages of a pipeline's lifecycle. The Canadian Standard Association's (CSA) pipeline standards provides a technical basis for the OPR by setting out the minimum technical requirements for the design, construction and abandonment of pipelines.

According to CSA pipeline standards (CSA-2662-96) the required thickness of the pipeline should vary depending on its class location designation. Class location designations are determined based on the number of buildings, dwelling units, places of public assembly, and industrial installations contained within 200 metre on both sides of the centreline of any continuous 1.6 km length of pipeline. There are four class location designations:

(a) *Class 1 is an area which contains 10 or fewer dwelling units intended for human occupancy;*

(b) *Class 2 is an area that contains:*

(i) *more than 10 but fewer than 46 dwelling units,*

(ii) *a building that is occupied by 20 or more persons during normal use,*

(iii) *a small, well-defined outside area that is occupied by 20 or more persons during normal use, such as a playground, recreation area, outdoor theatre, or other place of public assembly, or*

(iv) *an industrial installation such as a chemical plant or hazardous substance storage area, where release of products from a pipeline could cause the industrial installation to produce a dangerous or environmentally hazardous condition;*

(c) *Class 3 is an area that contains:*

(i) *46 or more dwelling units*

(ii) *institutions where rapid evacuation may be difficult, such as hospitals or nursing homes;*

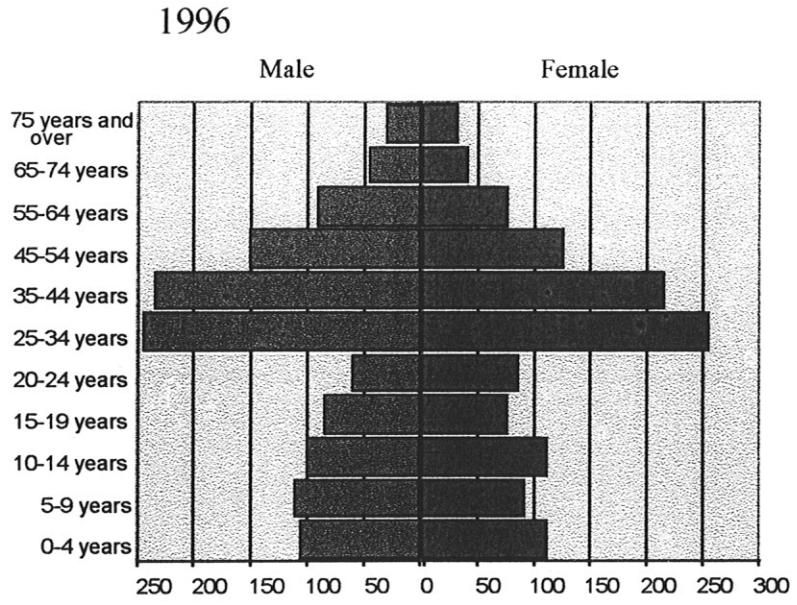
(d) *Class 4 is an area which contains buildings intended for human occupancy with 4 or more storeys above ground.*

4. Demographics

4.1. Population

According to the 1996 Census, the population of the Rusagonis-Waasis Local Service District was 2,460. Figure 1 illustrates the distribution of population by age cohort.

Figure 4 - Population for Rusagonis-Waasis Local Service District



Source: Statistics Canada, 1996 Census

In 1996 there were approximately 820 households within the Local Service District and the greatest portion of the population was concentrated between 25 and 44 years of age.

Rusagonis-Waasis is part of the Fredericton Census Agglomeration (CA). Statistics Canada defines a census agglomeration as a large urban area (known as the urban core) together with adjacent urban and rural areas (known as urban and rural fringes) that have a high degree of social and economic integration with the urban core. In comparison with the total population of Fredericton CA, Rusagonis-Waasis has a higher percentage of people between the ages of 25 to 34.

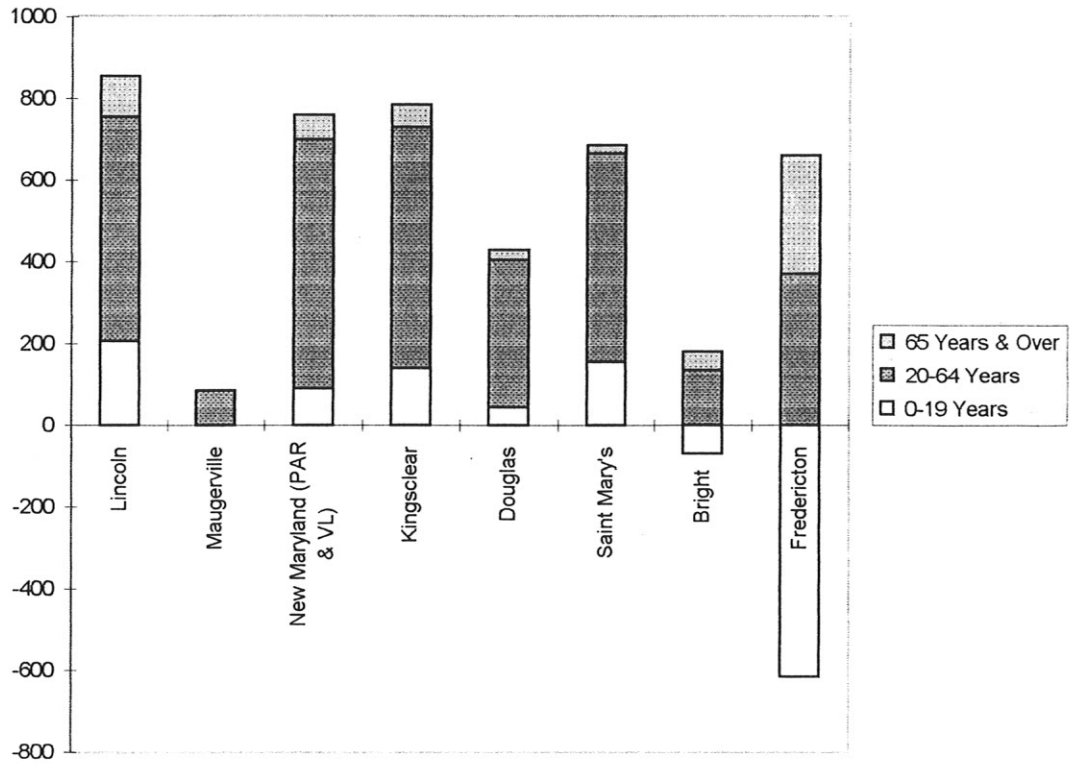
A comparison of the 1986 to 1996 age structures indicate that the population of Fredericton CA is ageing. Figures also indicate that the percentage of the population within the 0-19 and 25-44 age categories is increasing within the unincorporated areas. This trend suggests a migration of younger families from within the City of Fredericton to the outlying areas.

Table 8 shows population growth for various areas within the Fredericton CA between 1981 and 1996. Figure 5 illustrates population growth within the Fredericton CA for several age groups.

Table 8 - Population Growth, Fredericton CA				
	1981	**1986**	**1991**	**1996**
Lincoln (PAR)	2909	3659	4508	5350
Maugerville (PAR)	1229	1354	1467	1550
Kingsclear (PAR)	2872	3848	5055	5845
Bright (PAR)	2497	2625	2850	2965
Douglas (PAR)	4077	4631	5240	5665
Saint Mary's (PAR)	2433	2724	2835	3520
New Maryland (VL & PAR)	4089	4830	5755	6520
Fredericton (C)	43,723	44,352	46,465	46,505
Total	63,829	68,023	74,175	77920

Source: Statistics Canada, Census, various years

Figure 5 - Population Growth by Age Group, Fredericton CA (1991-1996)



Source: Statistics Canada, 1991 & 1996 Census

The portion of the population between the ages of 20 to 24 has been decreasing in the unincorporated areas. Within the City of Fredericton, a stable population of people in this age category is attributable to the presence of the two universities.

Although the Statistics Canada enumeration boundaries for the Rusagonis-Waasis Planning Area have changed slightly between 1991 and 1996, it is estimated that the population has increased by approximately twenty percent during this period. The 1996 Census reported that approximately one third of the residents in Lincoln Parish have moved to the area since 1991. Statistics Canada also reported that over 77 percent of these new residents have moved from within the Fredericton area.

4.2. Population Forecast

Population projections published in Canadian Markets indicate that the population of Fredericton CA will increase by 2,500 people between 1999 and 2001, and 4,200 people between 2001 and 2004. [12]

These projections were calculated using an application of the Cohort-Survival model in Markovian processes. This model used a system of fertility, mortality, and migration rate assumptions developed from long-term demographic data.

Based on the population projections for the Fredericton CA, a forecast for Rusagonis-Waasis can be calculated using a ratio correlation technique. Using this method, it is estimated that population of Rusagonis-Waasis will increase to 2,770 in 2001 and 2,910 in 2004, which would represent an increase of 220 people in the next five years.

The majority of the population growth in Fredericton CA within the last few years has occurred in the unincorporated areas. This trend is based on a number of factors including consumer preferences of housing location, affordability, and the regulatory environment. Continued growth within the unincorporated areas will also be largely dependant on these factors.

[12] Financial Post. 1999 FP Markets-Canadian Demographics, 72nd Edition. Toronto, Ont.

4.3. Employment

The majority of residents of Rusagonis-Waasis work outside the Local Service District. According to the 1996 Census, approximately 85% of residents within Lincoln Parish worked outside the Parish; most people either commute to Fredericton or Oromocto. Major employers within the City of Fredericton include: the Province of New Brunswick, NB Power, Dr. Everett Chalmers Hospital, the Government of Canada, and the University of New Brunswick. The major employer in the Oromocto area is CFB Gagetown. Located adjacent to the Town of Oromocto, the base employs both military and civilian staff. Other large employers in the area include School District #17, Oromocto Public Hospital, Sobeys Distribution Centre, RMS Call Centre and Canex. Table 9 shows where people in Lincoln Parish work. The table does not include people who work at home, and people with no fixed workplace such as travelling salepersons or taxicab drivers.

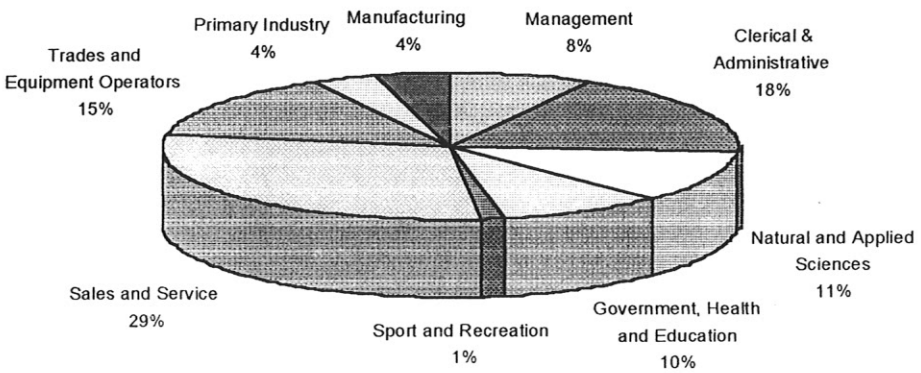
TABLE 9 - USUAL PLACE OF WORK - LINCOLN PARISH

Place of Work	Total	Percentage
Within Lincoln Parish	45	1.97
Fredericton (C)	1650	72.37
Oromocto (T)	410	17.98
Gagetown (PAR)	80	3.51
Gladstone (PAR)	15	0.65
Burton (PAR)	10	0.44
Maugerville (PAR)	10	0.44
New Maryland (PAR)	10	0.44
Kingsclear (PAR)	10	0.44
Fredericton Junction (VL)	10	0.44
Saint John (C)	10	0.44
Other	20	0.88

Source: Statistics Canada, 1996 Census

The average household income in Lincoln Parish in 1996 was $41,569 which was slightly lower than the average for York and Sunbury Counties. The distribution of occupations by sector for Rusagonis-Waasis Local Service District is shown in Figure 6.

Figure 6 - Labour Force by Occupation for Rusagonis Waasis LSD



Source: Statistics Canada, 1996 Census

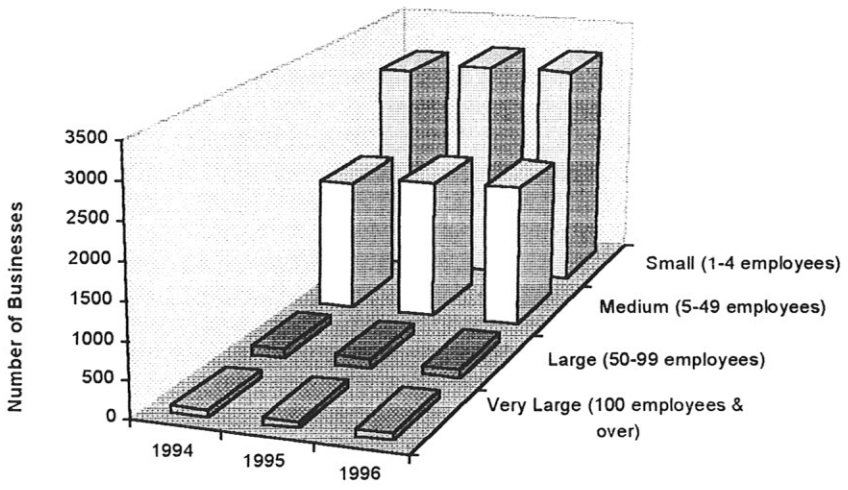
A large percentage of people in the Planning Area are employed in retail and service which is typical of both rural and urban areas throughout the Fredericton Region. However, in comparison to the City of Fredericton, a higher percentage of residents in Rusagonis-Waasis are employed in occupations related to manufacturing, construction, trades, transportation and equipment operation. Approximately 8% of the labour force are employed in occupations related to protective services such as the military. Occupations in government, health, education, and natural and applied sciences also make up a large portion of the labour force which is mirrored throughout the Fredericton Region.

Occupations related to primary industries such as agriculture and forestry account for a greater percentage of the labour force within the Planning Area than within the neighbouring urban areas. However, the percentage of agricultural and forestry workers in the Planning Area's labour force is smaller than in other unincorporated areas of Sunbury and York Counties. Agricultural and forestry occupations account for 4% of the labour force in Rusagonis-Waasis, less than 1% within the City of Fredericton and the Town of Oromocto, and an average greater than 8% within the other unincorporated areas in the region.

According to Statistics Canada, self-employment within the Parish of Lincoln has risen from 4.8 percent in 1991 to 7.1 percent in 1996. This increase in self-employment is typical of the unincorporated areas across the region, whereas in the incorporated areas of York and Sunbury Counties the percentage of people self-employed during that period has remained stable.

Small business is becoming increasingly important in providing employment opportunities in rural New Brunswick. In recent years, businesses with less than five employees have been responsible for the greatest proportion of employment growth in the Province.[13] Approximately 59 percent of all businesses in the Greater Fredericton Region have less than five employees (Figure 7).

Figure 7 - Businesses in Greater Fredericton by Number of Employees



Source: Statistics Canada, 1994-1996 Business Register

[13] Atlantic Canada Opportunities Agency. 1996 The State of Small Business and Entrepreneurship in Atlantic Canada

5. Physical and Environmental Features

The landscape of a region plays an important role in determining how a region develops. Large areas with similar bio-physical characteristics can be classified into **ecoregions**. Some of the features that are considered when developing these classifications include: bedrock geology, rock formations, and climate. These broad features are then examined more closely and used to identify localized features. The Province of New Brunswick is divided into seven ecoregions. The Planning Area is located in the Grand Lake Ecoregion which is characterised by the Saint John River's broad valley. The dominance of Grand Lake and other water features modify the temperature and contribute to some of the warmest weather in the province.

An **ecodistrict** is similar to an ecoregion, only smaller. Ecodistricts are based upon landforms that are judged to be distinct. Criteria used to distinguish these landforms include slope, elevation, and river patterns. The Planning Area composes part of the Oromocto River Ecodistrict. This area supports a mix of vegetation which is unique in the Province. Red maple, sugar maple, ironwood, basswood, and red oak stands are found on better-drained soils at low elevations. White pine dominates on glaciofluvial deposits which are not subject to flooding. The original forest has been strongly altered by agriculture on the Interval soils and by forest harvesting on the valley slopes and on flat, poorly-drained land at the periphery of the district. Stands of red maple, white birch, grey birch, and trembling aspen are common in disturbed areas around settlements. The remaining forest is a combination of red spruce and balsam fir with significant white pine and hemlock. Cedar is prevalent on moist to wet sites, especially seepage slopes underlain by calcareous bedrock.[14]

5.1. Topography

The topography of the Planning Area is gently rolling with a gradual downward slope from west to east. The area has elevations ranging from near sea level at the Oromocto River to approximately 70 m at the York-Sunbury County line.

5.2. Climate

The mean annual temperature for the region is 5°C, with daily mean temperatures ranging from -9.6°C in January to 19.1°C in July. Precipitation averages 1,094 mm annually, with 857 mm of rainfall. Average snow cover reaches a high of 30 cm in February. The average number of annual sunshine hours is 1928.8, which ranges from 96.1 in November to 233.1 in July. Wind direction is predominately north-westerly at an average speed of 12 km per hour.[15]

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[14] New Brunswick Department of Natural Resources and Energy. 1998. An Ecological Land Classification for New Brunswick.

[15] Environment Canada. 1998 Canadian Climate Normals 1961-1990

5.3. Bedrock Geology

The Planning Area is underlain by a complex of Pennsylvanian age sedimentary rocks. This bedrock consists of grey conglomerate, sandstone, siltstone and shale.[16]

5.4. Soils

The type of soil found in an area is a determining factor of the land's suitability for agriculture, forestry, residential and other forms of development.

The most detailed soil mapping available for the Planning Area is the *Soil Survey of the Fredericton-Gagetown Area* which was conducted by P.C. Stobbe in 1940. This survey was conducted using a reconnaissance method where soil samples were taken at various intervals. However, soils vary considerably throughout the Planning Area and the survey does not identify all of the small inclusions of differing soils which glacial history has left on the landscape.

The various soil series identified are listed in Table 10. In general, soils which are considered well-drained occur at Rusagonis, Rusagonis Station, Waasis, along Route 101, and west of the Wilsey Road along Route 655.

Table 10 - Soils of Rusagonis-Waasis

Soil Classification	Drainage	Occurance
Kings Series - Loam, Clay Loam	Poor	30 %
Interval Series - Silty Loam, Silty Clay Loam	Well	25 %
Oromocto Series - Sandy Loam	Imperfect to Poor	9 %
Queens Series - Loam, Sandy Loam	Imperfect to Well	11 %
Riverbank Series - Sandy Loam, Loamy Sand	Well	11 %
Rusagonis Series - Sandy Clay Loam, Clay Loam	Well	7 %
Organic Soils - Peat	Poor	4 %
Gagetown Series - Gravelly Loam	Well	1 %
Cambridge Series - Loam	Poor	2 %

In terms of suitability for agriculture, soils in Rusagonis-Waasis range from Class 3 to 5 according to the Canada Land Inventory.[17] These soils have moderate to very severe limitations that restrict the range of crops or require special conservation practices.

The Forest Soil Map of Southwest New Brunswick identifies five types of forest soil units within the Planning Area.[18] The majority of the Planning Area is comprised of **Stony**

[16] McLeod, M.J., Johnson, S.C. and Ruitenberg, A.A. 1994 Geological map of southwestern New Brunswick Department of Natural Resources and Energy, Map NR-5.

[17] Government of Canada. 1965. The Canada Land Inventory, Soil Capability Classification for Agriculture (Report No. 2). Ottawa

Brook and **Harcourt Forest Soil Units**. These soils consist of compact loams to clay-loams and are typically shallow. Red spruce, balsam fir and hemlock are well suited to areas with these poorly drained soils. Soils of the **Riverbank Unit** which support black spruce and white pine are found along Route 101. Soils of the **Sunbury Unit** are found east of the Wilsey Road. These soils are typically well drained. Soils of the **Interval Unit** are found along the Oromocto River flood plain. Many of these soils support apple and vegetable production, animal agriculture and horticulture. Areas not cleared for agriculture often support tree species with southern affinities such as silver maple.

Erosion of soils can be a concern in terms of potential for sediment transport to streams. Erosion is primarily influenced by four factors: climate, soil type, topography and vegetation. Water Erosion Risk mapping was produced by Agriculture Canada in 1992 using the Universal Soil Loss Equation developed by Wischmeier and Smith (1978). This equation can be written as follows:

$$A = R * K * LS * C * P$$

where:
A = predicted water erosion rate
R = erosivity of rainfall, snowmelt and winter runoff
K = soil erodibility
LS = slope length and steepness factor
C = crop cover and management factor
P = conservation practice factor

According to the mapping which was conducted at a scale of one to one million, the water erosion risks for soils encountered in the Planning Area would range from high to severe when exposed and unprotected. A soil erodibility study was also conducted for the northern portion of the Planning Area as part of the environmental impact assessment prepared for the proposed new routing of the Trans-Canada Highway.[19] The study concluded that soils along the proposed route were highly erodible. However, the natural erosion rate of these soils in the undisturbed areas may be negligible due to the presence of a forest floor duff layer. Within Rusagonis-Waasis the major areas of concern for potential erosion are locations where steep slopes are located near watercourses.

5.5. Hydrology

Groundwater movement in the underlying Pennsylvanian bedrock occurs principally via fractures, joints and bedding contacts. The weathered surface zone of the bedrock is typically more conductive than the underlying bedrock layers. A compilation of available data for all municipal wells developed in the Pennsylvanian bedrock in New Brunswick yields an average hydraulic conductivity value of $4*10^{-3}$ cm/sec.[20] Groundwater recharge would likely occur in the topographically higher locations of the Planning Area, and flow "downhill" toward the Saint John and Oromocto Rivers.

Domestic groundwater supplies throughout the Planning Area are generally developed from fracture systems within the underlying bedrock formations. The New Brunswick Department of the Environment maintains a database of private well logs submitted by

[18] Department of Natural Resources and Energy & Agriculture and Agri-Food Canada. 1995 Forest Soil Map of Southwest New Brunswick

[19] Washburn & Gillis Associates Ltd. 1995. Environmental Impact Assessment, Trans-Canada Highway Fredericton To Salisbury - Component Study Report, Acid-Generating Minerals/Erodible Soils for N.B. Department of Transportation.

[20] Fiander-Good Associates Ltd. 1995. Environmental Impact Assessment, Trans-Canada Highway Fredericton To Salisbury - Component Study Report, Groundwater Considerations for N.B. Department of Transportation.

licensed drillers. Records available for wells located in the northern portion of the Planning Area indicate well depths range from 68 ft to 324 ft and average 200 ft.[21]

A well yield of approximately 2 imperial gallons per minute (lgpm) is usually adequate to serve as a domestic water supply for a normal sized family. Yields for wells reported for the general area are considerably variable. Although average yields in the area range from 3 to 5 lgpm; low yield problems sometimes occur. This would suggest some wells encounter a low permeability fracture or bedrock zone which is unable to sustain high yields. Problems with individual wells in the area are expected to be a function of the relative presence of fracturing intersected in the bedrock as opposed to excessive groundwater withdrawal by users in the vicinity.

Private well owners can commonly expect the occurrence of water quality problems such as elevated hardness, iron and/or manganese, which are easily treated. Within the Planning Area, salt is sometimes encountered at depths greater than 100 ft. Water quality from deep wells (200 ft) in carboniferous rocks, especially in areas with thick overburden, is usually of sodium bicarbonate type, characterized by high sodium and alkalinity, pH above the limit of 8.5, and very low hardness, approaching zero. This water may be aggressive on metal pipes, dissolving copper and lead.

5.6. Surface Water

The Planning Area is bisected by the Rusagonis Stream which drains into the Oromocto River. This stream splits into north and south branches and has many tributaries which spread throughout the district. Other watercourses which drain into the Oromocto River include Waasis Stream, Weeks Creek, and Shaw Creek. A portion of Baker Brook, which runs into the Saint John River, also crosses through the northern portion of the Planning Area.

Activities within and adjacent to streams, rivers and other watercourses are regulated under the *Watercourse Alteration Regulation-Clean Water Act*.

5.7. Flood Plains

A considerable amount of land along the Oromocto River is flooded seasonally. However, there is no official flood-risk mapping for this area. The majority of the flood plain is marshland and is undeveloped.

The construction of buildings or structures and placement or removal of fill within the flood plain can greatly alter the dynamics of a watercourse in a flood event. Insensitive development can remove areas of flood storage, cause damming, and accelerate the speed of flows. These impacts may increase the likelihood of property damage and contribute to erosion. The *Proposed Provincial Policy for Development on Flood Plains* establishes minimum standards in hope of reducing the impact of flooding on property owners and the environment.

[21] Fiander-Good Associates Ltd. 1995. Environmental Impact Assessment, Trans-Canada Highway Fredericton To Salisbury - Component Study Report, Groundwater Considerations for N.B. Department of Transportation.

5.8. Wetlands

Wetlands serve a variety of important ecological and socio-economic functions. Some of these functions include: providing habitat for plants and animals, protecting the water quality of downstream areas by acting as natural filters, reducing flooding and erosion by storing water and stabilizing stream flow, recharging the underground water table, and providing natural fire breaks. Insensitive development within or adjacent to wetlands may compromise ecosystem functions and increase downstream flood risks.

There are over 50 wetlands located within the Rusagonis-Waasis area. Most of these wetlands consist of bogs, shrub swamps, meadow swamps, seasonally flooded flats and freshwater areas of open water 3 to 10 feet deep. **Bogs** refer to wetlands which are characterized by the accumulation of Sphagnum moss as peat. **Shrub swamps** are areas where the vegetation is dominated by shrubs and where the soil surface is seasonally or permanently flooded with as much as 12 inches of water. A **meadow** wetland refers to an area dominated by meadow emergents with up to 6 inches of surface water during the late fall, winter and early spring. A **seasonally flooded flat** is an area which is flooded to a depth of at least 12 inches annually during the fall, winter and spring. During the summer, the soil is saturated with surface water occurring locally.

Classification and evaluation of freshwater wetlands in New Brunswick has been conducted by the Canadian Wildlife Service (CWS) using the Golet Classification System (1973). Under this system, wetlands are divided into classes and subclasses according to the dominant type of vegetation present and the depth and permanence of surface water. Each wetland is also ranked according to its relative value to wildlife and receives a score. These scores range between 36 and 108. Table 11 lists five wetlands in the Planning Area which have a relatively high score.

Table 11 - Significant Wetlands in the Planning Area

Location	Size (ha)	Golet Score	Wetland Habitat Components
Oromocto River Floodplain	5577.3	102.0	Seasonally Flooded Flats, Open Water, Deep and Shallow Marsh, Meadow, Shrub Swamp, Bog
Rusagonis Stream	61.3	74.0	Seasonally Flooded Flats, Open Water, Meadow
South Branch Rusagonis Stream	28.8	72.5	Bog, Open Water, Wood Swamp
Shaw Creek, Dewitt Road	3.6	69.5	Shrub Swamp, Open Water, Meadow
Shaw Creek, Bunkerville Road	20.2	78.5	Shrub Swamp, Open Water, Meadow, Bog

There are presently five Ducks Unlimited sites within the Planning Area. One of the sites is located in Rusagonis Meadow and is 150 acres in size. The other four sites range from 63 to 545 acres in size and are centered around Sunpoke Lake.

5.8.1. Regulations Related to Wetlands

Developments within wetlands in excess of five acres are regulated by the *Environmental Impact Assessment Regulation-Clean Environment Act* and the *Watercourse Alteration Regulation-Clean Water Act.*

5.9. Environmentally Significant Areas

Environmentally significant areas (ESAs) are those areas considered to be ecologically fragile, such that human activity may upset the natural balance or diversity of their ecosystems. These areas tend to provide unique habitat for floral and faunal resources.

Two sites identified in the database of New Brunswick's Environmentally Significant Areas, developed by the Nature Trust of New Brunswick and maintained by the Department of the Environment, are located within the Planning Area. These sites are the Sunpoke Lake Marsh and the Oromocto River Wetland Complex.

The Sunpoke Lake Marsh is an outstanding example of a New Brunswick freshwater marsh ecosystem. The site is located on the floodplain of the Oromocto River and is approximately 913 ha in size. It consist of a swampy margin shallow lake bordered by marsh which is flooded annually. The site provides habitat for rare plants such as Dwarf Birch *Betula pumila*; *Ceratophyllum echinatum* and *Myriophyllum humile*. Sunpoke Lake Marsh is also one of only three areas in the Province where the Rusty Spire Snail *Lyogyrus granum* is found.[22] Red Pine Stands, which are typically found on well-drained soils, are also found in this area.

In addition to Sunpoke Lake Marsh, other areas of the floodplain along the Oromocto River also provide habitat for a diversity of birds and mammals. The entire marsh complex is over 5500 hectares in size and stretches along the Oromocto River for approximately 19 km. Several small streams and mineral islands divide the marsh into a number of small sections. The area along the river is flat, wet, and open with surface vegetation of grasses, *Carex*, and scattered low shrubs. The height, density, and variety of shrubs increases with increasing distance from the water systems, finally dominating the herbaceous plants. The area away from the river is moderately treed with tall (1.5-6 m) tamarack and lesser amounts of maple and birch. The surface vegetation comprises alder, willow, bog birch, rhodora, and *Sphagnum*. Sweet gale, meadow sweet, leather leaf, and *Carex* are present in lesser amounts. This wetland complex is a critical habitat for some species and serves as a linking unit providing a corridor for the movement of wildlife.

The designation of a feature as an ESA is not associated with any legislation or other regulatory programs.

5.10. Wildlife

A large portion of the Planning Area is undeveloped and provides habitat for many species of plants and animals.

The Oromocto River, the North and South Branches of the Rusagonis Stream, and the tributary streams and adjoining lakes and marshes constitute an important waterway.

[22] Dionne L.A., Farmer D.M., & Young C.M. 1988 Critical Natural Areas in New Brunswick. New Horizons Critical Natural Areas Committee

Recreational fish species include brook trout, Atlantic salmon, smallmouth bass and chain pickeral. Commercial species include American eel and gaspereau. Additionally, the waterways support an abundance of non-sport fishes.

A population of Wood Turtles *(Clemmys insculpta)* is reported to inhabit the North Branch of the Rusagonis Stream beginning at Covered Bridge Estates downstream to the confluence of the North and South Branches, then continuing down the Main Branch approximately a kilometer below the covered bridge in Rusagonis. Wood turtles tend to inhabit slow meandering streams with sand and gravel banks for nesting. Although the wood turtle is not officially listed on the endangered or regionally endangered species list, the species is considered vulnerable.

A variety of species of birds can be found within the Planning Area. Osprey nests can be seen along the main power line corridor. Osprey were once protected under the NB Endangered Species Act, however populations in the Province have recently increased and as a result Osprey are no longer listed as an endangered or regionally endangered species.

One of the most restrictive habitat requirement for mammals in New Brunswick is wintering areas for deer and moose. A deer wintering or yarding area is an area where deer gather during the winter and includes adjacent stands that have a potential for providing shelter and food on a long-term basis. Deer wintering areas in New Brunswick tend to consist of spruce and balsam fir stands in riparian zones or south facing, gentle slopes, with at least 70% canopy closure. Harsh winters are the major limiting factor for these mammals. Thus, suitable wintering areas are important to the maintenance of healthy populations. Several wintering areas have been documented within the Planning Area.[23]

5.10.1. Species of Special Status

The *New Brunswick Endangered Species Act* protects species of fauna and flora which are designated as endangered or regionally endangered. The Act protects individual members of a designated species, their nests and their habitat. Species which are currently protected under the Act are listed in Appendix A.

The presence of endangered or regionally endangered species within the Planning Area has not been confirmed. Furthermore, the Planning Area is not known to represent unique or critical habitat for any of these species.

[23] Maritime & Northeast Pipeline. 1998. Environmental Protection Plan - Mainline Mapping

6. Natural Resources

Natural resources are an important part of New Brunswick's economy. Natural resources include aggregates, subsurface minerals, fish and game, forest products and other naturally occurring substances.

6.1. Aggregates

Aggregates refer to sand, gravel and materials extracted from bedrock quarries. Aggregates are used as road construction material and in projects that require stable fill.

Ice-contact aggregates typically consist of moderately washed sand or gravel. The quality and quantity of these deposits tends to be suitable for commercial development. An ice-contact deposit is located along Route 101. The majority of extraction activity within Rusagonis-Waasis has been concentrated in this area. Approximately 15 sites within the vicinity of Route 101 have been identified as operating or abandoned gravel pits. Another small ice-contact deposit is located along the Post Road.

Alluvium deposits consist of well washed sand and gravel. The extraction of alluvium is prohibited on Crown Lands and is regulated by the *Clean Environment Act* on private property. There is limited potential for commercial extraction of these aggregates. The only pit associated with an alluvial deposit in the Planning Area is located along the Rusagonis Road.

Glaciofluvial delta or outwash deposits are similar in composition to alluvium but coarser. These deposits typically appear in the vicinity of alluvium. These deposits usually have the highest potential for commercial aggregate extraction in terms of quantity and quality of deposits. There are three pits associated with a small glaciofluvial deposit located along Whittaker Road.

Marine deposits generally contain well washed sand and gravel. The limited deposit size, typically less than 2 metres in depth, means there is little opportunity for commercial extraction. Approximately a dozen small pits associated with marine deposits are scattered throughout the Planning Area.

Within the last decade provincial aggregate operations yielded between 8 and 14 million tonnes of material annually according to Statistics Canada. Based on this annual demand, New Brunswick's sand and gravel reserves appear adequate for the foreseeable future. Nonetheless, changes in government regulations, environmental restrictions and urban expansion may alter the picture. Large construction projects such as the Maritimes & Northeast Pipeline and the new routing of the Trans-Canada Highway will also place a strain on supply. There are shortages of high-specification material in some areas of high demand. Shortages in such locales will have to be met by transporting aggregate from other areas adding significantly to the cost of delivered material.

6.1.1. Regulations Related to the Extraction of Aggregates

Legislation and government involvement in the extraction of minerals and aggregates vary. There currently are no policies that directly regulate the extraction of aggregate materials on private property. Extraction of topsoil must comply with the *Topsoil Preservation Act,* and the *Clean Water Act*. In some areas pits and quarries may require

a Watercourse Alteration Permit. On Crown Land, pits and quarries are regulated by the *Quarryable Substance Act*.

6.2. Minerals, Mining and Exploration

Surface uses associated with mining activities are typically transportation, employee services, storage, and in some cases, refining or initial processing. Mineral extraction is regulated by both the federal and provincial governments.

Exploration licenses for oil and natural gas have been issued for the majority of Sunbury County. The licenses were granted May 6, 1998 to MariCo Oil and Gas Corp.

There are currently no leases within the Planning Area issued under the *Mining Act, Quarriable Substances Act, Oil and Natural Gas Act*, or the *Bituminous Shale Act*.

6.3. Forestry

The viability of commercial harvesting depends on current wood prices, topography of site, size of tree stand and quality of wood within the stand. Most of the larger scale forestry operations occur on Crown Lands, where harvesting is managed by a system of licences allocated to forestry companies. The licences run for a period of 25 years and every five years the terms and conditions of the licence are reviewed. An important feature of the licensing arrangement is that the company must submit both management and operating plans to the Department of Natural Resources and Energy for approval. Within the Planning Area there are three areas on Crown Land which are presently licensed to be harvested.

There are also many private woodlots within the Planning Area. Private woodlots have been an important feature of the economy of rural areas since the Province was first settled. Many rural New Brunswick residents rely on their woodlots to supplement their income.

The resource land base in New Brunswick totals 7.3 million hectares of which 6.1 million hectares is forest. The productive forest totals 5.9 million hectares of which 48% is owned by the Province (Crown Land), 1% is Federal, 21% is industrial freehold (land owned by companies or individuals who own or operate a wood processing facility), and 30% is owned by the private woodlot owners. There are estimated to be 54,000 private woodlots in New Brunswick owned by 35,000 individuals.[24]

New Brunswick's economy is heavily dependent on the forestry sector and the demand for wood is greater than the supply. Due to a limited resource base, users of spruce, pine and fir can only expand through improved recovery or by further manufacturing their products.

6.4. Peat

Peat is an organic substance developed from the accumulation of plant debris in a wet, poorly aerated environment. Because the complex process of decomposition takes thousands of years, peat is considered a non-renewable resource. Peat is usually

[24] New Brunswick Forest Products Commission. 1998. Directory of New Brunswick Forest Sector Groups

extracted to be used for horticultural material, but can also be manufactured into a variety of products.

A peatland is any bog, fen, swamp or marsh that has a minimum accumulation of 30 cm of peat. A considerable portion of the Planning Area is comprised of peatland, which includes three peat deposits identified in the Provincial peatland inventory maintained by the Department of Natural Resources and Energy.

The largest of these deposits is located along the floodplain of the Oromocto River and covers approximately 5600 ha of land. Within this deposit, sphagnum peat (84%) dominates over sedge peat (16%). The surficial layer consists of poorly humified *Carex-Sphagnum*. In the humified layer, moderately decomposed *Carex-Sphagnum* underlain by a thin (10-50 cm) layer of poorly humified *Sphagnum-Carex* are the dominant peat types. Along the river, the peat layer is mixed with small amounts of sediment. Although this peatland is extensive in size, the thin peat layer makes it unattractive for commercial extraction. It may have some potential for agriculture or afforestation purposes. Some portions of this land have been used for wild rice production.

The other peatlands identified consists of small bogs located along the Post Road. These peatlands are not attractive for exploitation due to factors such as a dense tree cover, small size, or a thin peat layer.

6.5. Fish and Game

New Brunswick has 27 Wildlife Management Zones which have been established by the Department of Natural Resources and Energy for managing wildlife populations across the province. The zones were designed to reflect differences in basic features of the landscape that are relevant to wildlife; primarily climate, topography, geology and soils. Other factors, such as forest composition, land use, harvest pressure and wildlife populations themselves, are more likely to change over time in a given zone. When these factors change, management tactics in each zone can be altered accordingly to provide effective wildlife management.

Rusagonis-Waasis Local Service District falls within Wildlife Management Zone 21. In 1997, over 700 deer were harvested by hunters in this zone. The amount of deer harvested represents 0.28 per square kilometre which is slightly higher than the provincial rate. The zone has among the highest incedences of roadkill among all zones in the province, but is one of the few zones where there are no reports of deer killed by coyotes. Moose populations within the zone have increased in recent years. Moose sightings per hour by hunters has increased from 0.04 in 1990 to 0.07 in 1997. The estimated moose hunting pressure (hours hunted per sq. km.) varies from year to year, but is relatively consistant with the provincial average. In 1997, a total of 100 black bears were harvested by hunters representing approximately 8% of the total provincial harvest. Much of the hunting activity within the zone likely takes place in Petersville Parish.

7. Services

7.1. Emergency Services

The Province of New Brunswick has recently deployed a new 9-1-1 service which provides a common entry point to fire departments, police and RCMP detachments, and ambulance services. The enhanced 9-1-1 system will instantaneously deliver the name, address and telephone number of the caller to a central answering station and then transfer control to the appropriate service.

7.1.1. Fire

The Rusagonis-Waasis Local Service District is serviced by the Oromocto Fire Department which employs 17 fire fighters. Other areas will also provide supplementary or back up services if required.

New Brunswick Department of Natural Resources and Energy operates one fire station within Forest Management Region 4. This station employs 9 front line fire personnel to respond to forest fires.

7.1.2. Police

The Planning Area is policed by an RCMP detachment stationed in Oromocto. This detachment employs approximately 25 RCMP officers to service the rural areas and highways of Policing District 2.

7.1.3. Hospital and Ambulance Services

The Planning Area is served by the Region Three Hospital Corporation. There are 2 hospitals in the Region which provide overnight services: the Dr. Everett Chalmers Hospital (DECH) in Fredericton and the Oromocto Public Hospital. There is also a health services centre in Fredericton Junction. There are several private medical clinics and offices which provide general and specialized medical services for the Region.

Ambulance service would typically be provided from Oromocto, but may be dispatched from either Fredericton or Fredericton Junction depending on the location and nature of the call.

7.2. Schools

Most elementary and secondary students who live in the Rusagonis-Waasis Local Service District attend schools within District 17. Children who live along the Nevers Road would attend Lower Lincoln Elementary School. Other students would attend Gesner Street Elementary School. Both schools offer classes for kindergarten to grade 5. Students in grades 6 to 8 would attend Ridgeview Middle School or Harold Peterson Middle School. High school students would travel to Oromocto High School.

The 1998 enrolment numbers for these schools are listed in Table 12.

Table 12 - Enrolment by School by Grade, September 30, 1998

School	Grades													
	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
Lower Lincoln Elementary School	50	36	38	41	28	45								236
Gensner Street Elementary School	75	66	95	85	70	50								461
Ridgeview Middle School							114	106	131					351
Harold Peterson Middle School							153	161	150					454
Oromocto High School										347	300	290	307	1,263

Source: Department of Education, Research and Planning Branch, 1999

The University of New Brunswick (UNB) and St. Thomas University (STU) are located within the City of Fredericton. Approximately 10,000 full-time and part-time students are currently enrolled at the University of New Brunswick. Enrolment for St. Thomas University is approximately 2,200. Other educational facilities in the Fredericton area include the New Brunswick Community College (NBCC), the New Brunswick College of Craft and Design (NBCCD), the Atlantic Business College (ABC), and the Maritime Forest Ranger School.

According to the 1996 Census, 64 percent of residents of Rusagonis-Waasis between the ages of 15 to 24 attended school full-time.

7.3. Libraries

The Planning Area is served by regional libraries located in Fredericton and Oromocto. These libraries include: the Fredericton Public Library, the Nashwaaksis School-Public Library, Bibliothèque Dr. Marguerite Michaud, the Oromocto Public Library, University of New Brunswick Libraries, and over 50 special interest libraries.

8. Adjacent Jurisdictions

8.1. Tracyville - Three Tree Creek

Rusagonis-Waasis Local Service District is bounded to the south by the Tracyville - Three Tree Creek Planning Area in Gladstone Parish. The predominate land uses in the area are rural residential, agricultural and passive recreation. A considerable portion of this area consists of Crown Lands. The area has a population of approximately 490 and is bounded to the south by the communities of Tracy and Fredericton Junction.

Land use is subject to the *Tracyville - Three Tree Creek Planning Area Basic Planning Statement Adoption Regulation - Community Planning Act* which has the following general objectives: (a) to protect its rural-residential character; (b) to protect rural and agricultural land uses from the pressures of urban encroachment; (c) to minimize conflicts between different types of land use activity; and (d) to protect the community from air, ground, water, noise pollution and other nuisance uses.

8.2. New Maryland

West of Rusagonis-Waasis is the Parish of New Maryland. This area has a growing population of people who commute to the City of Fredericton. The majority of development in the Parish consists of residential subdivisions for single family homes.

Land use in the unincorporated area of New Maryland which abuts the Planning Area's western boundary is currently subject to the *New Maryland Unincorporated Area Plan Adoption Regulation.* This plan outlines policies with respect to Transportation, Community Facilities and Services, Environment and Appearance, Water and Sewage Services, and Land Use. Most of the area is zoned Residential Unserviced which allows for single family dwellings, two family dwellings, religious buildings, certain agricultural uses and a variety of accessory uses provided specific requirements and conditions are meet.

8.3. City of Fredericton

The City of Fredericton abuts a portion of the Planning Area's western boundary. This area of the City is zoned as "Future Development". This zone currently allows agricultural and low-density non agricultural uses such as a single detached dwelling, golf course, religious institution, limited day care centre, and accessory building or structures. The City has no plans to extend servicing out in this area in the immediate future.

8.4. Town of Oromocto and Burton

East of Rusagonis-Waasis is the Parish of Burton and the Town of Oromocto. This area is separated from Rusagonis-Waasis by the Oromocto River. The Town of Oromocto has a population of approximately 9,000 with many residents employed in the military at CFB Gagetown.

8.5. Lincoln

North of Rusagonis-Waasis is the Lincoln Planning Area. This area has a population of approximately 2,800 and consists of Lincoln, Lincoln Park Garden, and Nevers Road

Local Taxing Authorities. The predominate land use in the area is the Fredericton Airport. The area also has a large concentration of mobile homes which are located in several trailer parks. Other uses include single family residential, commercial and institutional. The Route 7 Highway provides a barrier between most land uses in Lincoln and Rusagonis-Waasis.

9. Summary of Development Constraints

A Development Constraint is a natural feature or regularly occurring event that may negatively impact or endanger the use of land by humans. These constraints do not necessarily imply that development is not feasible. However, mitigation is often needed resulting in higher development costs. In some circumstances development should be avoided altogether due to greater risks in terms of safety.

Some areas may be unsuitable for certain land uses due to excessively steep slopes. For instance, the Department of Transportation does not allow roads to be constructed on grades which exceed 8%. Large buildings, such as those intended for commercial or industrial uses, must be constructed on land which is relatively flat.

Poorly drained soils or high water tables may flood basements or damage buildings and other installations. Soils that are too clayey or wet are not suitable for septic tank absorption. Many locations within the Planning Area require modifications to standard on-site disposal systems due to soil conditions and a seasonal groundwater table.

There are safety and financial risks involved when development occurs in flood prone areas. Flooding may cause tremendous structural damage to buildings, bridges, and roadways.

Development on peatland may lead to cracks in building foundations and differential settlement. Furthermore, driveways, sidewalks and patios may settle or sink, and underground services may be affected. Settlement occurs because the peat can not handle the weight of the building or because it has dried out and lost some of its bearing capacity. Furthermore, peat may not be able to handle the liquid wastes from on-site disposal systems.

Development Constraints may also consist of human made hazards such as landfills or dumps. Landfills may pose a risk for groundwater contamination in hydraulically down-gradient areas. The New Brunswick Department of the Environment has siting guidelines for sanitary landfills which stipulate that a landfill may be no closer than 500 metres from a residential dwelling. Other potential sources of groundwater contamination include spills of petroleum and other substances from industrial operations, infiltration of road salt, and septic field malfunctions.

Land uses which generate excessive noise, such as airports, major highways, landfills, and quarries, may also pose a nuisance to nearby residential areas. For instance, aircraft noise can disturb sleep, privacy, rest and communication and in so doing may be considered potentially harmful to human health.

Other human made development constraints in the Planning Area include height restrictions associated with the airport and easements for utilities.

10. SUMMARY OF VALUED LAND COMPONENTS

The Planning Area is comprised of many land components which serve important social, economic and environmental functions.

The map entitled **Recreation, Tourism and History** shows recreational resources and community facilities which are important to the social health of the community. Heritage structures, such as the Patrick Owen Covered Bridge, serve as picturesque monuments which link the community to its past. It is important that cultural heritage resources such as heritage structures and the surrounding rural character of the area are recognized and preserved. The map also outlines areas in which there may be a high potential of archaeological resources.

The map entitled **Economically Valued Land Components** identifies land which is used or has the potential to be used in primary industry production. In terms of forestry, the resource base consisting of industrial freehold and Crown Land is highlighted. In terms of agriculture, the map shows both registered and non-registered agricultural land. The map also identifies an aggregate deposit located along Route 101. All of these primary resources are important to the local and provincial economy.

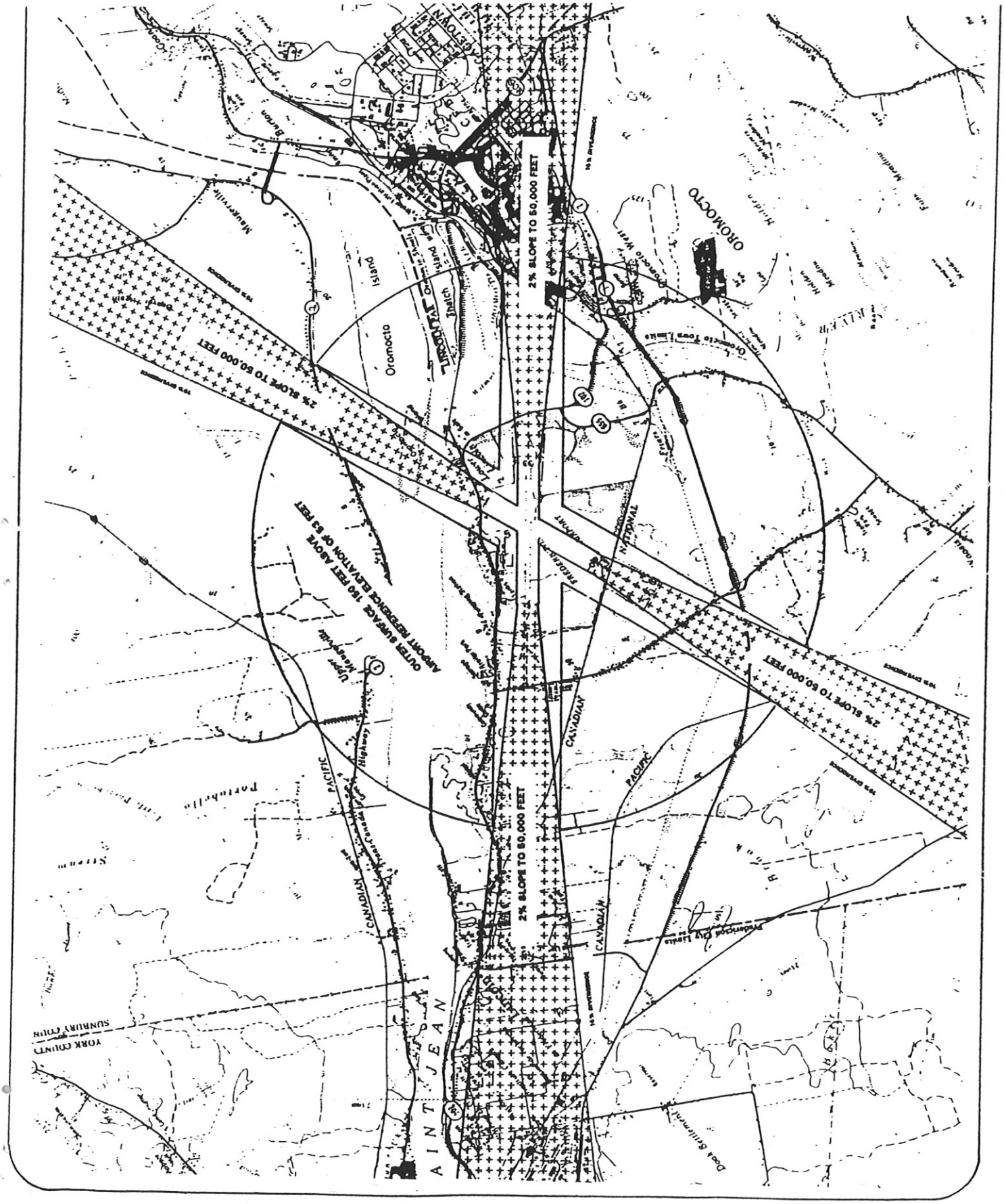
The map entitled **Environmentally Significant Areas** identifies locations which serve important ecological functions. The map highlights regionally significant wetlands including the Sunpoke Marsh Environmentally Significant Area, deer and moose wintering areas, and the riparian zone around the various waterways which spread throughout the Planning Area. These areas are considered ecologically fragile, such that human activity may upset the natural balance or diversity of their ecosystems.

Appendix A

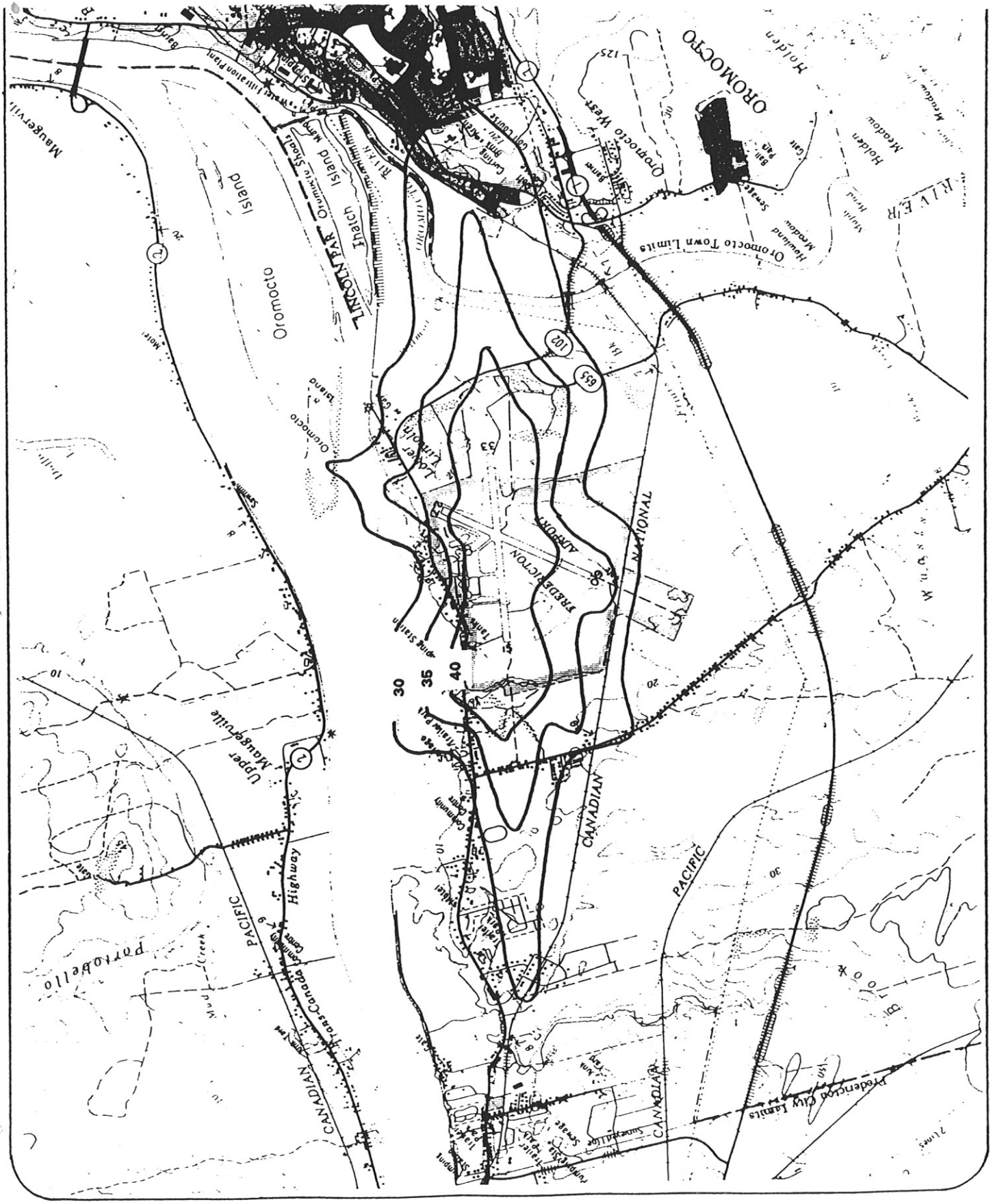
Endangered or Regionally Endangered Species protected under the New Brunswick Endangered Species Act as of June 1999.
Species of Fauna
Eastern Cougar *(Felis concolor cougar)*
Canada Lynx *(Lynx canadensis)*
Bald Eagle *(Haliaeetus leucocephalus)*
Harlequin Duck *(Histrionicus histrionicus)*
Piping Plover *(Charadrius melodus)*
Peregrine Falcon *(Falco peregrinus anatum)*
Maritime Ringlet Butterfly *(Coenonympha inornata)*
Leatherback Turtle *(Dermochelys coriacea)*
Species of Flora
Anticosti Aster *(Aster anticostensis)*
Bathurst Aster *(Aster subulatus var.obtus)*
Furbish's Lousewort *(Pedicularis furbishiae)*
Gulf of St. Lawrence Aster *(Aster laurentianus)*
Parkers' Pipewort *(Eriocaulon parkeri)*
Pine-drops *(Pterospora andromedea)*
Prototype Quillwort *(Isoetes prototypus)*
Southern Twayblade *(Liparis australis)*

Appendix B

Area Affected by Registered Zoning - Fredericton Airport


2% SLOPE TO 50,000 FEET
2% SLOPE TO 50,000 FEET
2% SLOPE TO 50,000 FEET
2% SLOPE TO 50,000 FEET
OUTER SURFACE 150 FEET ABOVE AIRPORT REFERENCE ELEVATION OF 63 FEET
Oromocto
Oromocto
Oromocto

Noise Exposure Forecast - Fredericton Airport



Appendix C

SWOT Analysis
Results from Community Working Group Meeting held November 9, 1999

Strengths

- linear park
- clean water and air
- generally good water quality and quantity
- rural character
- Rusagonis watershed
- close to Fredericton
- agriculture land
- several heritage attractions

Weaknesses

- Lack of access to Fredericton
- roads need upgrading
- roads are used as a short cut for truck traffic

Opportunities

- tourism potential for the Oromocto River, rafting, boat launching facilities
- home occupations
- included as part of the Province's scenic routes
- light industry
- modern service station
- more parkland
- attractions associated with the linear park
- alternative energy

Threats

- unsightly premises may deteriorate the character of the area and jeopardize opportunities.
- effluent dumping into Rusagonis watershed
- runoff from abandoned dumps
- urban encroachment on agriculture land
- industrial traffic
- land use conflict between hunters, ATV's and residents.
- illegal dumping of garbage

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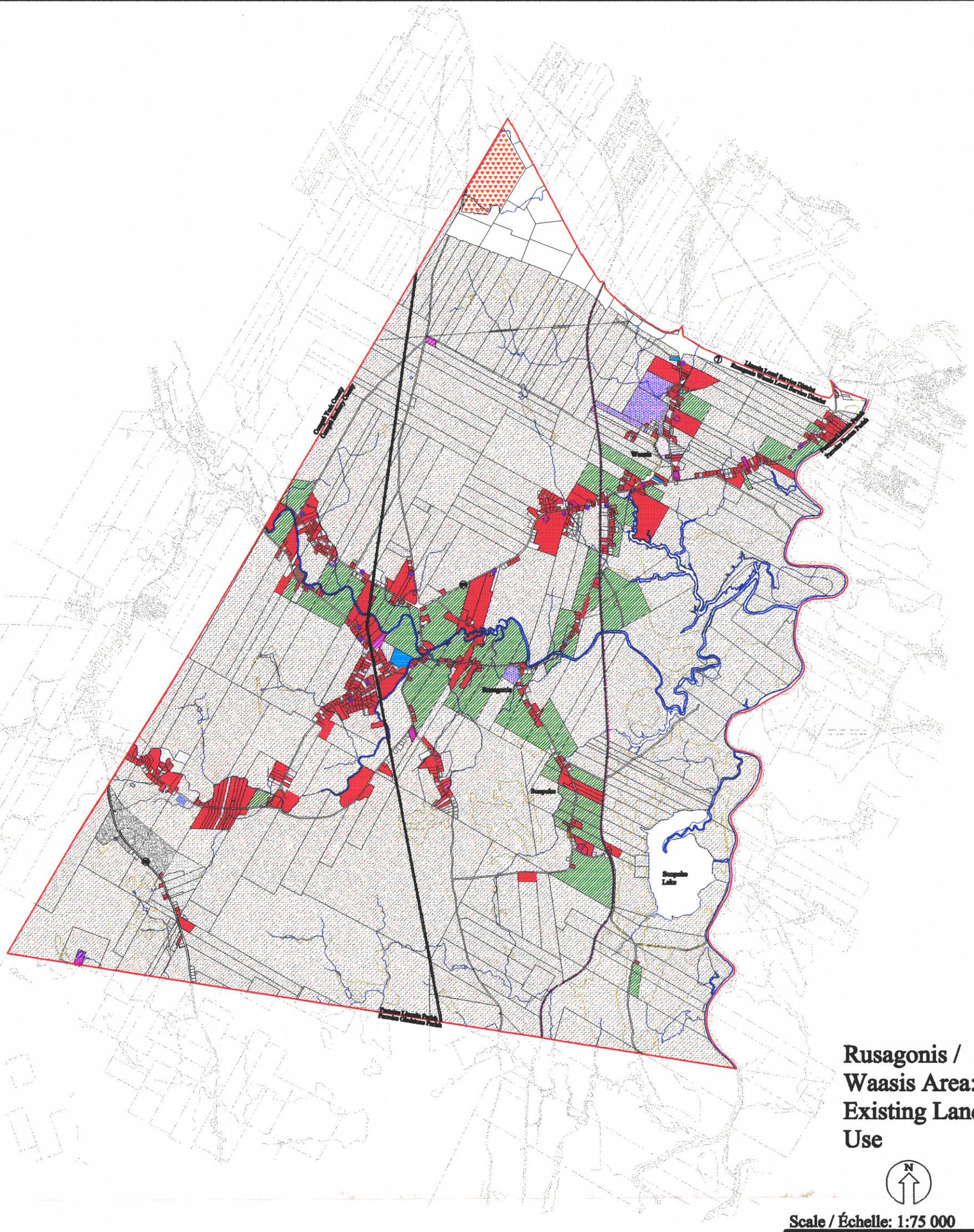


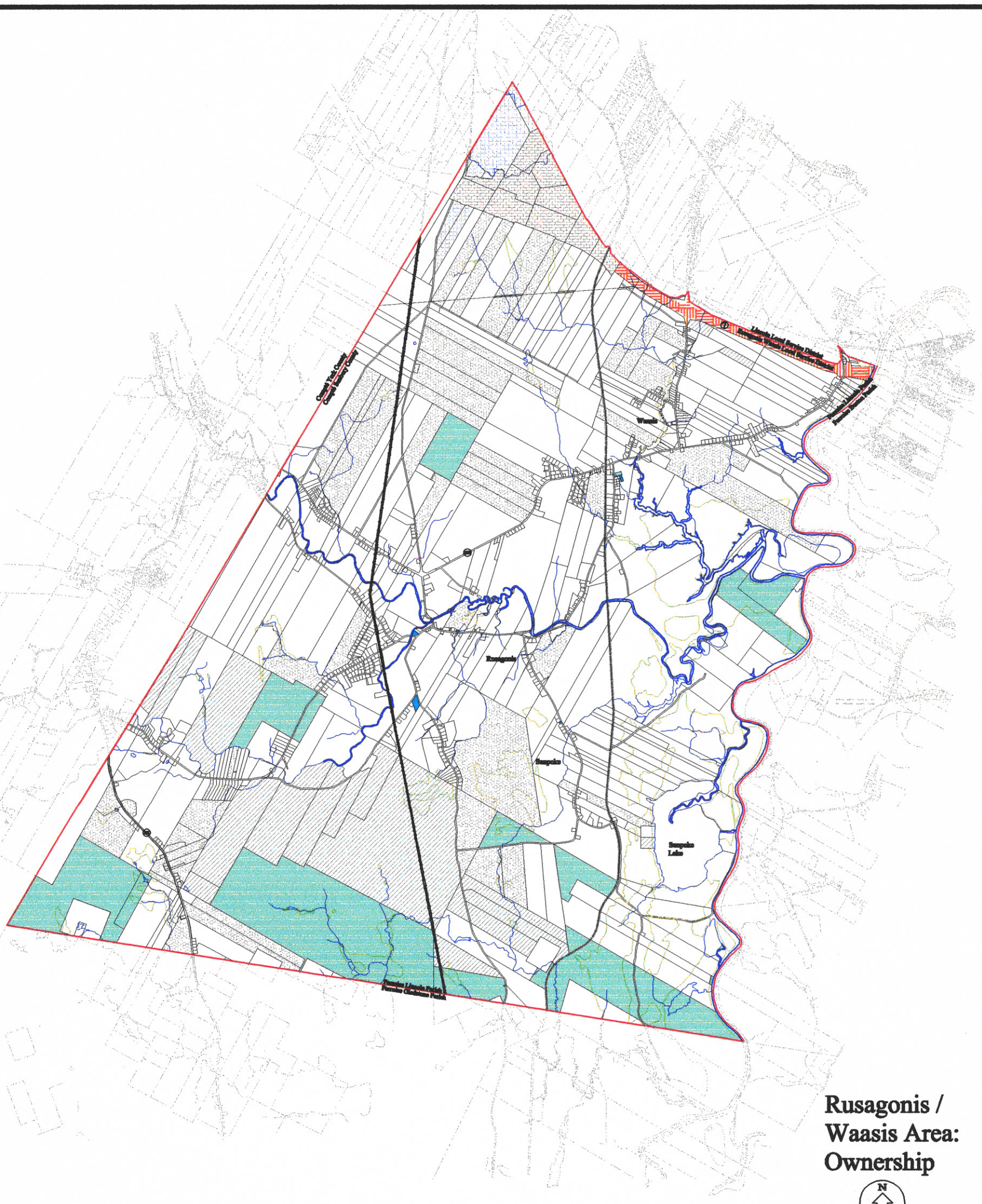
Rusagonis / Waasis Area: Existing Land Use

Scale / Échelle: 1:75 000

1500m 0 3000m

Legend / Légende

- Residential
- Vacant Residential
- Commercial
- Contractor Yard
- Farm
- No Data Available
- Ball Field
- Recreational
- Institutional
- Gravel Pit
- Woodland
- Industrial
- Church
- Cemetery
- Utility
- Landfill
- Mobile Home Site
- Mini Home Development
- Mobile Home Park
- Home Occupation (personnal service, day care, barber shop, equipment rental, contractor)
- Home Occupation (kennel, riding stable, other recreational commercial)



Rusagonis / Waasis Area: Ownership

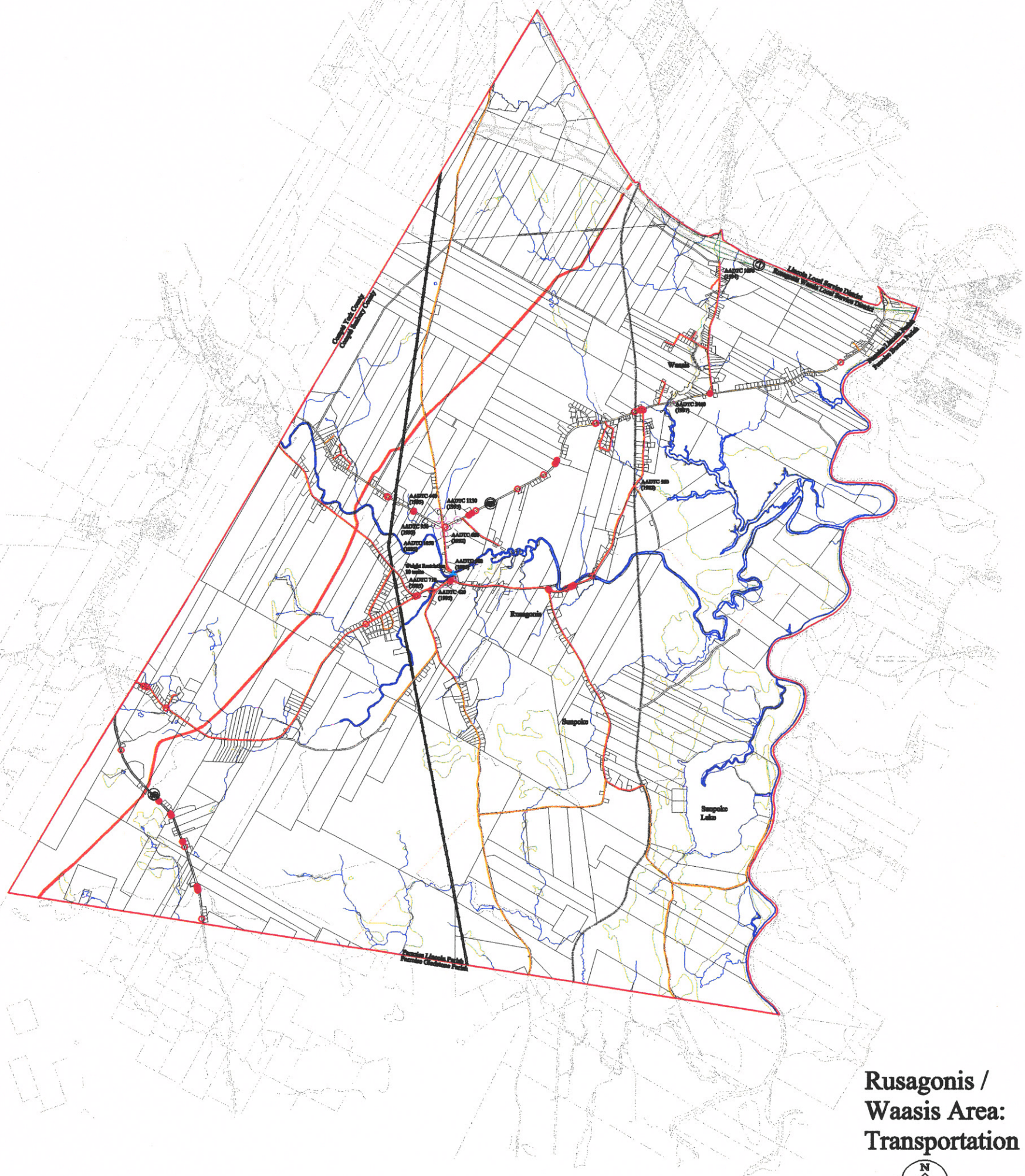
N

Scale / Échelle: 1:75 000

1500m
0
3000m

Legend / Légende

- Private Company
- Private Company - Forestry
- Society or Social Club
- Crown Land
- Fredericton Region Solid Waste Commission
- New Brunswick Highway Corporation
- New Brunswick Department of Transportation
- Private Land Owner


Gatineau Valley Historical Society
Gatineau Valley Historical Society
Gatineau Valley Historical Society



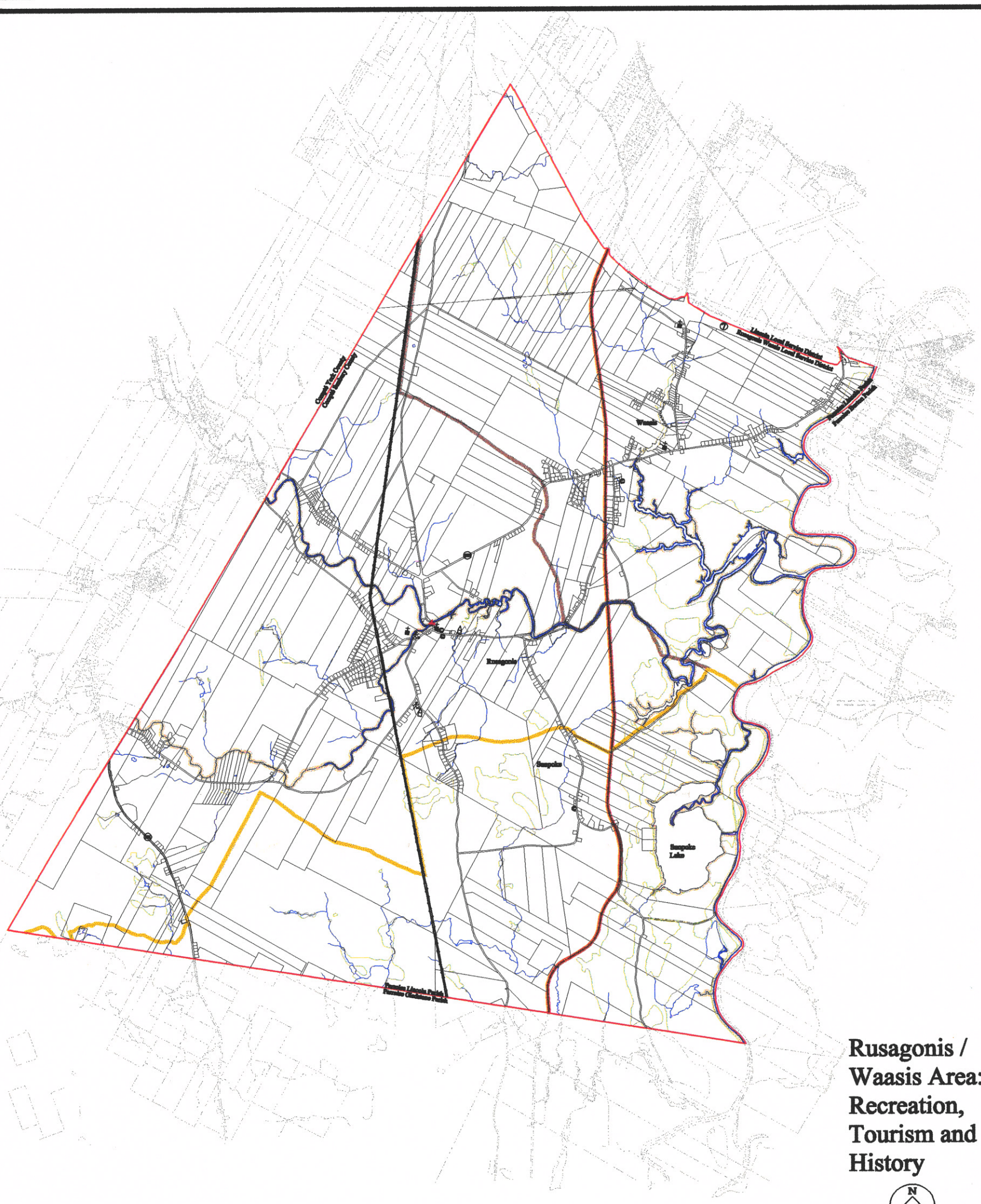
Rusagonis / Waasis Area: Economically Valued Land Components

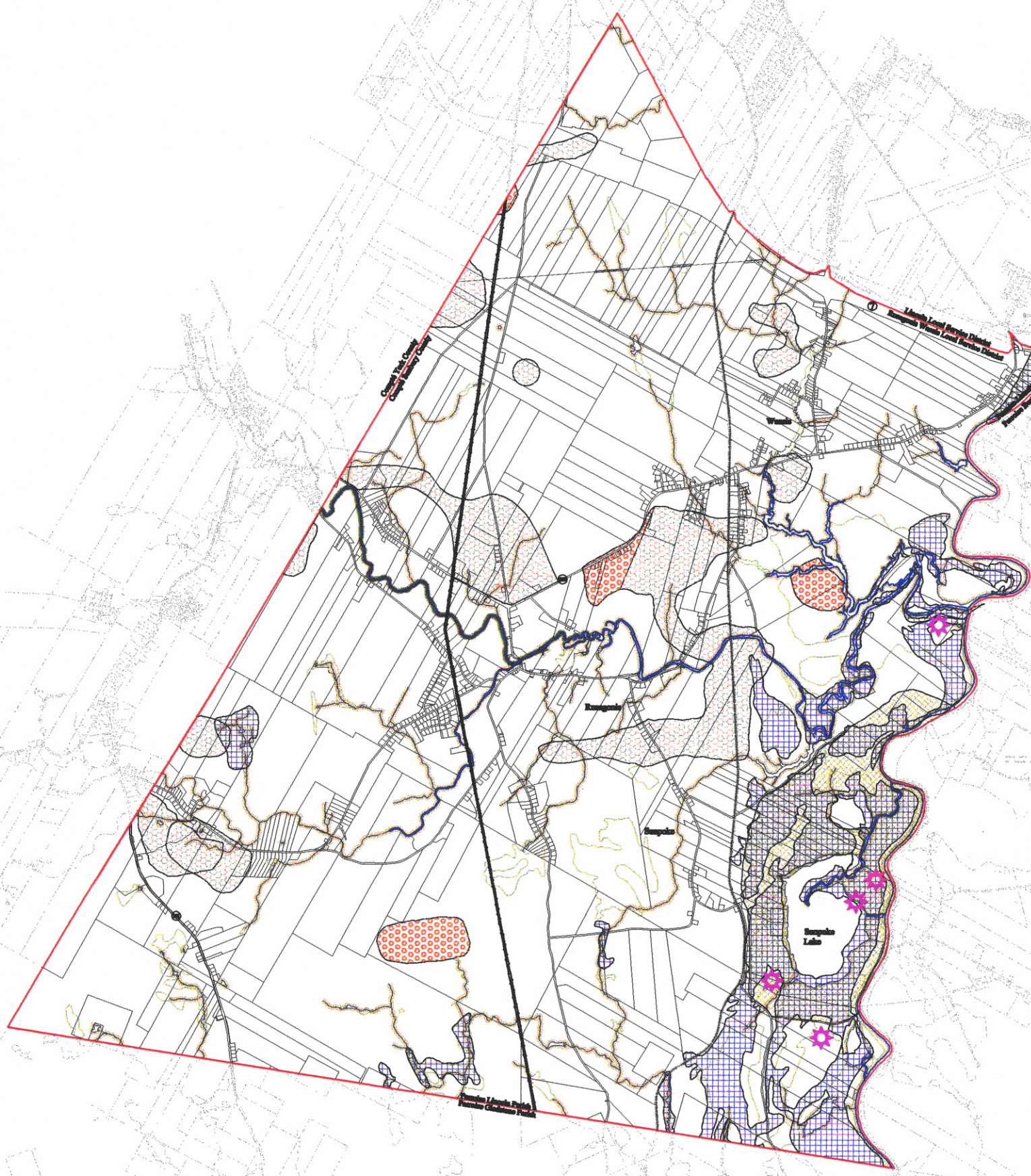
Scale / Échelle: 1:75 000

1500m
0
3000m

Legend / Légende

- Forestry - Crown Land
- Registered Agricultural Land (RAL)
- Farm non-FLIP
- Forestry - Industrial Freehold
- Ice-contact Stratified Dirt Aggregate
- Fluvio-marine Aggregate


Council York County
Conseil Comté de York
Township of Lanark Highlands
Canton de Lanark Highlands
Township of Drummond/North Elmsley
Canton de Drummond/North Elmsley
Township of Tay Valley
Canton de Tay Valley
Township of Montague
Canton de Montague
Township of Rideau Lakes
Canton de Rideau Lakes
Township of Leeds and the Thousand Islands
Canton de Leeds et les Mille Îles
Township of Elizabethtown-Kitley
Canton d'Elizabethtown-Kitley
Township of Front of Yonge
Canton de Front de Yonge
Township of Athens
Canton d'Athens
Township of Augusta
Canton d'Augusta
Township of Edwardsburgh/Cardinal
Canton d'Edwardsburgh/Cardinal
Township of South Dundas
Canton de South Dundas
Township of North Dundas
Canton de North Dundas
Township of South Stormont
Canton de South Stormont
Township of North Stormont
Canton de North Stormont
Township of South Glengarry
Canton de South Glengarry
Township of North Glengarry
Canton de North Glengarry
Township of North Kenyon
Canton de North Kenyon
Township of South Kenyon
Canton de South Kenyon
Township of Alfred and Plantagenet
Canton d'Alfred et Plantagenet
Township of Clarence-Rockland
Canton de Clarence-Rockland
Township of The Nation
Canton de La Nation
Township of Russell
Canton de Russell
Township of Casselman
Canton de Casselman
Township of Rideau Ferry
Canton de Rideau Ferry
Township of Merrickville-Wolford
Canton de Merrickville-Wolford



Rusagonis / Waasis Area: Environmentally Significant Areas

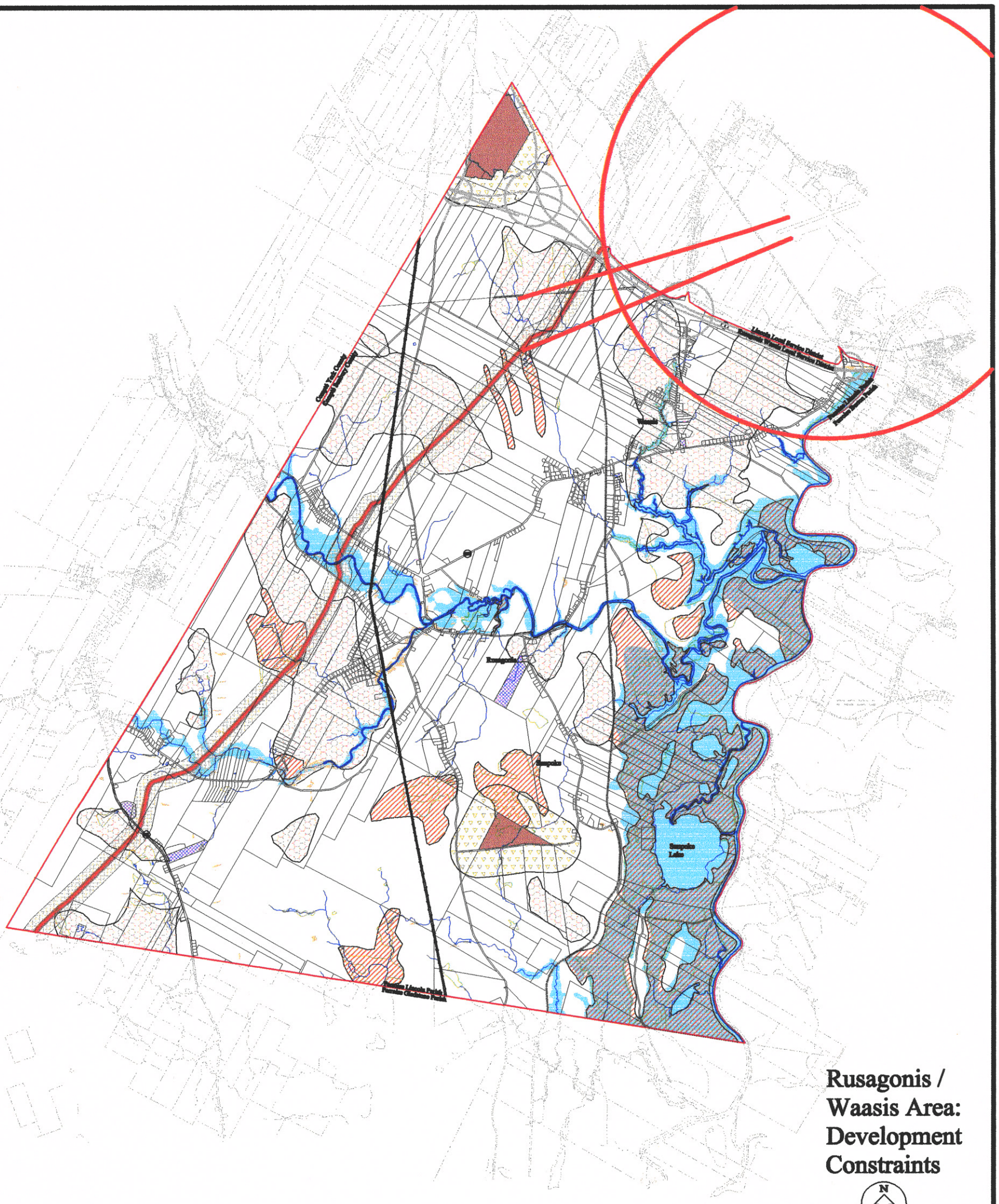
N

Scale / Échelle: 1:75 000

1500m
0
3000m

Legend / Légende

- Regionally Significant Wetland
- Sunpoke Lake Marsh - Environmentally Significant Area
- Deer Wintering Area
- Moose Wintering Area
- Wood Turtle Habitat
- Ducks Unlimited Site
- Riparian Zone
- Wetland



Rusagonis / Waasis Area: Development Constraints

N

Scale / Échelle: 1:75 000

1500m
0
3000m

Legend / Légende

- Areas Susceptible to Flooding
- Poorly Drained Soil
- Peat Land and/or Organic Soil
- > 10% Slope
- Existing or Abandoned Landfill Site
- Wetland
- Airport Height Restriction Area
- Landfill Influence Area
- Petroleum Storage Area
- Proposed Trans Canada Highway
- Maritimes & Northeast Pipeline