

Township of Greater Madawaska Calabogie Secondary Plan

Background Report

RE:PUBLIC



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Executive Summary

The Township of Greater Madawaska retained Re:Public Urbanism, CIMA+, and Matrix Heritage to prepare a Secondary Plan for the Village of Calabogie. This process is supported by a Background Report and subsequent phases of planning.

The Background Report provides an overview of existing conditions in Calabogie, including demographic trends, housing characteristics, mobility, public realm, natural heritage, cultural heritage, and economic context.

The next phases of the Secondary Plan will build on this background analysis to establish a coordinated land use framework, refine growth areas, and develop policies and design direction that support complete, connected, and context-sensitive growth. The Secondary Plan will guide future development while protecting natural and cultural heritage features and reinforcing Calabogie's identity as a vibrant waterfront community.

1.0 Introduction

1.1 Calabogie Village

Calabogie is a waterfront village within the Township of Greater Madawaska, situated along Calabogie Lake and the Madawaska River. The community is closely connected to its natural setting, with forests, shoreline areas, and recreational amenities shaping daily life and local identity. The Village functions as both a permanent residential community and a seasonal destination. Its built form reflects this dual role, with a mix of low-density homes, tourism-related businesses, small-scale commercial uses, community facilities, and environmentally protected lands.

1.2 What is a Secondary Plan?

A Secondary Plan is a planning document that provides more detailed direction for a specific geographic area within a municipality. It builds upon the policies of the Township's Official Plan and establishes a localized vision, land use framework, and implementation strategy tailored to the unique characteristics of the study area.

Secondary Plans typically address land use designations, growth management, infrastructure planning, environmental protection, transportation, public realm improvements, and community development

priorities. Once adopted, a Secondary Plan forms part of the Official Plan and guides future development applications, infrastructure investments, and municipal decision-making within the defined area.

1.3 Why Create a Secondary Plan?

The Village of Calabogie is currently undergoing changes and facing growth pressures driven by tourism, residential development, infrastructure investment, and evolving community needs. As a waterfront community with significant natural and cultural assets, careful planning is required to ensure that growth enhances rather than detracts from the character and environmental integrity of the area.

Creating a Secondary Plan allows the Township to proactively manage growth, clarify development expectations, coordinate infrastructure planning, and protect natural heritage features. It provides a comprehensive framework that balances housing needs, economic opportunity, environmental stewardship, and quality of life. By establishing clear policies and priorities, the Plan reduces uncertainty for residents, landowners, and investors while ensuring development aligns with community values and long-term sustainability goals.



1.4 Purpose of the Background Report

The purpose of this Background Report is to provide the technical and contextual foundation for the Calabogie Secondary Plan. It summarizes existing conditions, identifies opportunities and constraints, and outlines the policy context that will inform the development of the Plan.

The report draws upon demographic analysis, land use review, infrastructure studies, natural and cultural heritage assessments, and community input gathered to date. Its role is to establish a shared understanding of the Village's current conditions and emerging challenges,

ensuring that future policy recommendations are evidence-based, transparent, and responsive to local priorities.

The findings of this Background Report will guide the development of the vision, strategic directions, and detailed policies that form the Secondary Plan.

2.0 Historical Context

The Village of Calabogie and the surrounding Township of Greater Madawaska are situated within the traditional territory of the Algonquin Anishinabe Peoples, who have lived in and travelled through the region for thousands of years. The Madawaska River and surrounding waterways formed an important network for transportation, trade, and cultural practices, and continue to hold cultural and ecological significance today.

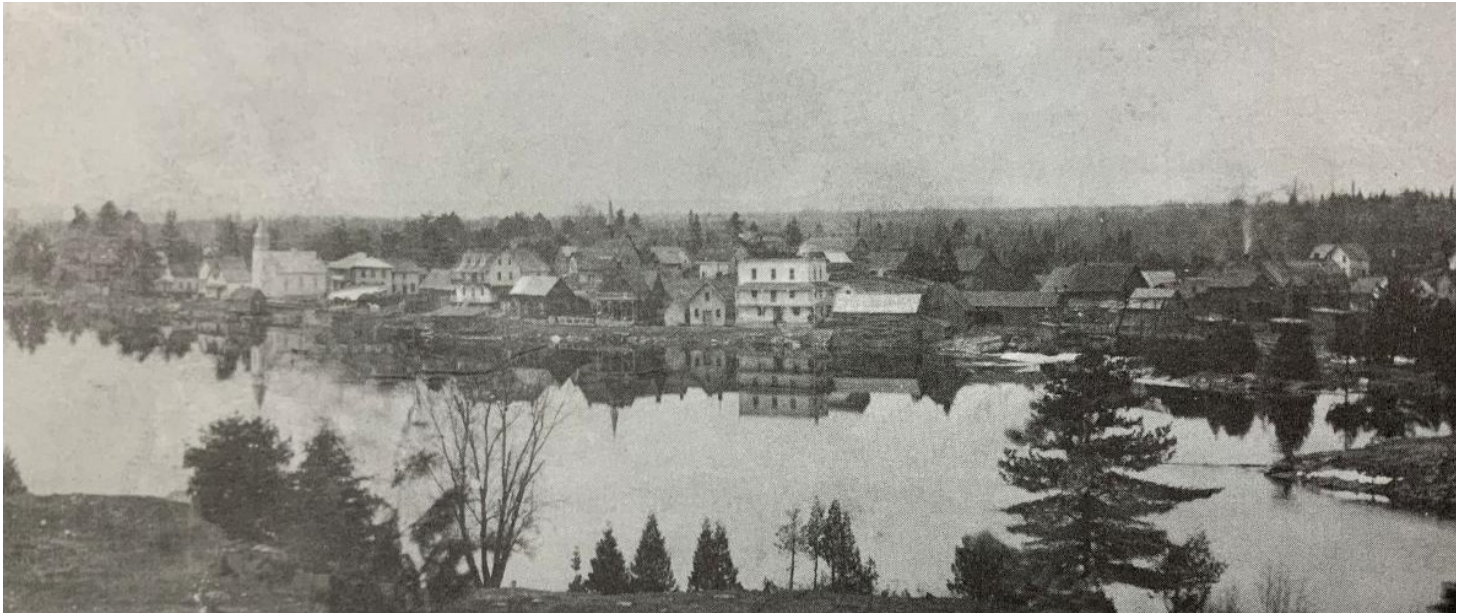
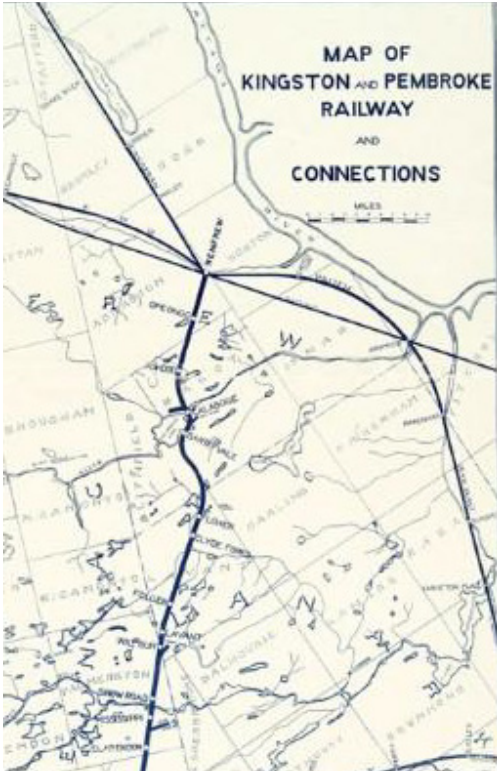
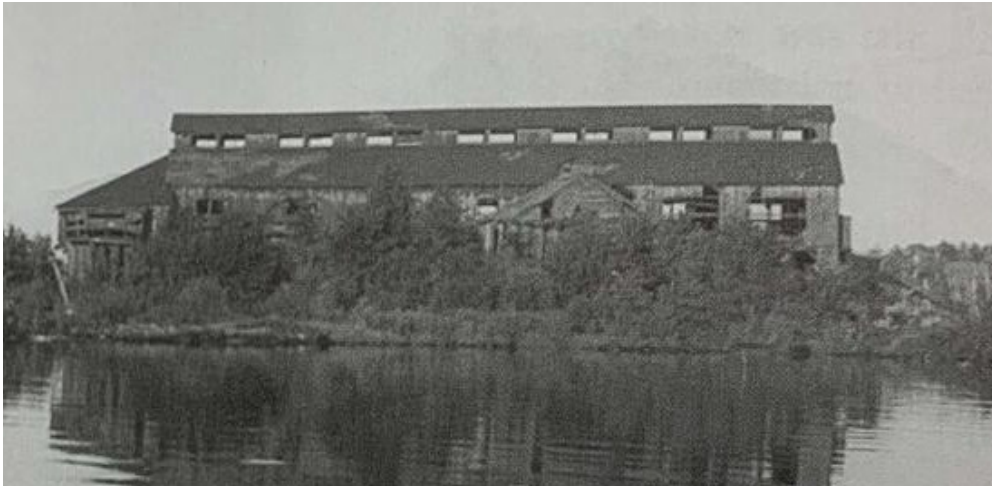
European settlement in the area began in the early to mid-19th century, with development closely tied to the timber industry. Logging activities played a foundational role in shaping the region, with the Madawaska River serving as a key corridor for transporting timber. Early settlement patterns followed these natural systems, with small communities emerging along waterways and transportation routes.

In the late 19th and early 20th centuries, the development of the Kingston and Pembroke Railway further influenced growth in the region by improving access and supporting resource-based industries. Remnants of this infrastructure continue to shape the landscape today, including the conversion of former rail corridors into recreational trails such as the K&P Trail.

The construction of hydroelectric infrastructure along the Madawaska River in the early 20th century significantly altered the landscape, including the creation and regulation of Calabogie Lake. These changes supported energy production and contributed to the evolution of the area from a resource-based economy toward a recreation and tourism destination.

Over time, Calabogie has transitioned into a community characterized by its natural environment, waterfront setting, and recreational amenities. Tourism and seasonal use have become increasingly important, with attractions such as Calabogie Lake, the surrounding trail network, and nearby recreational destinations shaping the local economy and identity.

Today, the historical layers of Indigenous presence, resource-based industry, transportation infrastructure, and recreational development continue to inform the cultural landscape of Calabogie. These influences are reflected in the built form, land use patterns, and strong connection between the community and its natural setting.



3.0 Policy and Regulatory Context

3.1 Provincial Legislation and Policy

Planning Act (R.S.O. 1990, c. P.13, as amended)

The Planning Act establishes the legislative framework for land use planning in Ontario. It sets out the authority of municipalities to prepare Official Plans and Secondary Plans and requires that planning decisions be consistent with provincial policy statements issued under Section 3 of the Act.

Under the Act, municipalities must have regard to matters of provincial interest, including the protection of ecological systems, agricultural resources, cultural heritage and archaeological resources, the orderly development of safe and healthy communities, and the appropriate location of growth and infrastructure. The Act also establishes requirements for public consultation, notice, and engagement in the preparation and adoption of planning documents.

The Calabogie Secondary Plan is being prepared in accordance with the requirements of the Planning Act and will form part of the Township's Official Plan upon adoption.

Provincial Policy Statement, 2024

The current Provincial Planning Statement (PPS) came into effect on October 20, 2024 and provides province-wide policy direction on land use planning matters and must be considered in municipal decision-making. It integrates policies related to growth management, housing supply, infrastructure, climate resilience, environmental protection, agriculture, and cultural heritage.

Key policy themes relevant to the Calabogie Secondary Plan include:

- Supporting a range and mix of housing options and densities
- Coordinating land use and infrastructure planning
- Protecting natural heritage systems and water resources
- Conserving significant cultural heritage and archaeological resources
- Supporting economic development and tourism
- Promoting climate resilience and sustainable development patterns

The Secondary Plan will be developed to ensure consistency with the PPS and alignment with broader provincial objectives for the development of complete, resilient, and sustainable communities.

3.2 County of Renfrew Official Plan

The County of Renfrew Official Plan establishes the upper-tier planning framework for municipalities within the County, including the Township of Greater Madawaska. As Greater Madawaska does not have its own local Official Plan, the County Plan functions as the primary policy document guiding land use, growth management, environmental protection, infrastructure coordination, and cultural heritage conservation within the Township.

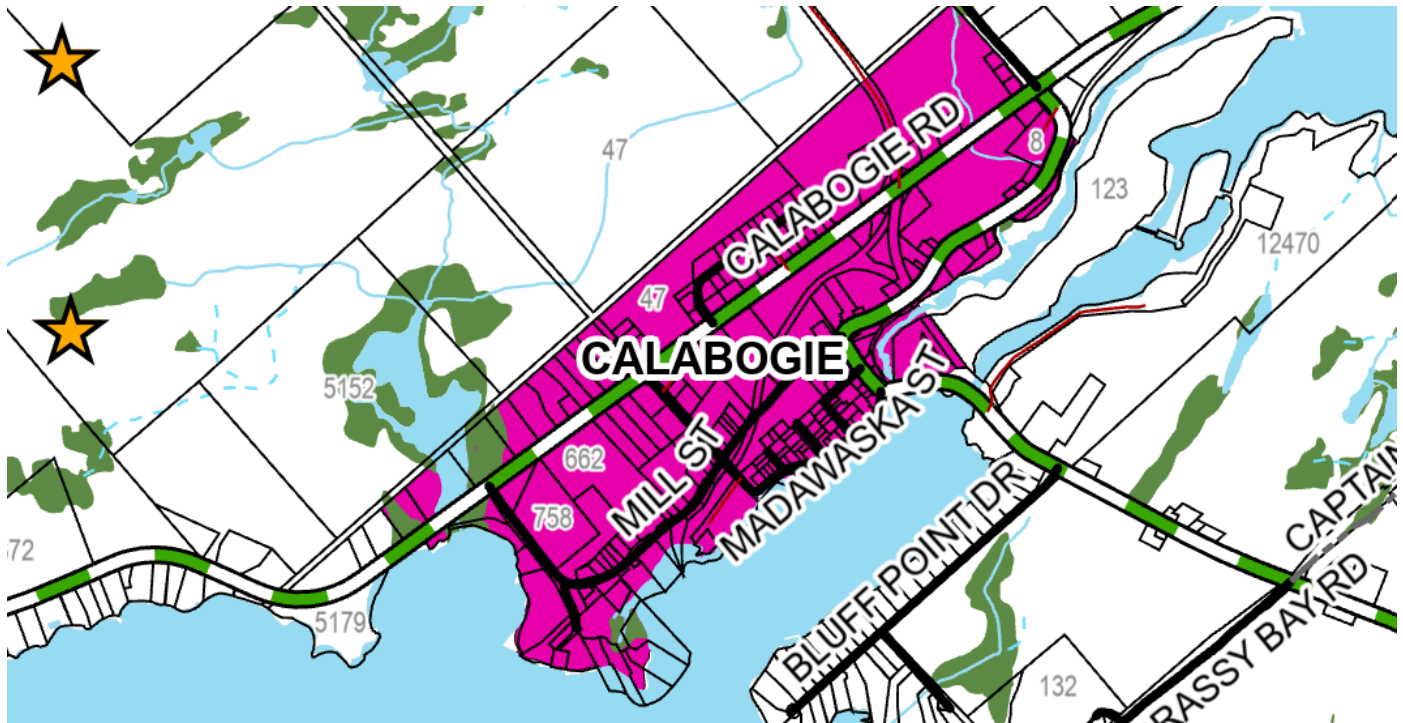


Figure 1 Renfrew Official Plan Schedule A

Village Community Designation

The Village of Calabogie is designated Village Community in Schedule A – Map 1 of the Official Plan (Fig.1). The Village Community designation establishes the policy framework for settlement areas that function as focal points for surrounding rural and agricultural lands. Traditionally, villages within the County have served as local service centres accommodating residential uses alongside small-scale commercial, institutional, and community facilities. The Official Plan affirms the intent of County Council to preserve and strengthen this traditional role.

Village Communities are identified as growth areas within the broader rural context of the County. While Urban Communities accommodate a greater share of population and employment growth, villages are intended to provide an alternative location for residential development and limited commercial, institutional, recreational, and light industrial uses. The designation is therefore structured to support modest, orderly growth while maintaining compatibility with surrounding rural and agricultural areas.

The objectives of the Village Community designation focus on maintaining villages as limited-service settlement areas, reserving lands to support residential and economic activity, and ensuring that development occurs in a manner compatible with servicing capacity and local character. The policies emphasize the provision of a range of housing types and costs, while recognizing the traditional lifestyle and built form of rural communities.

These objectives establish a framework that supports incremental growth and diversification, subject to servicing and compatibility considerations.

Residential Development Framework

The Official Plan establishes a structured approach to residential growth within Village Communities.

Small-scale residential development is permitted through the consent process as infilling or minor rounding out within built-up areas. Infill is narrowly defined, requiring proximity between existing dwellings, which reinforces compact growth and discourages scattered lot creation.

Larger-scale residential development is permitted through the plan of subdivision process, provided that proposals represent logical extensions of the existing built form. Development must demonstrate long-term servicing suitability, whether through municipal, communal, or private systems. The Plan requires that development occur in a compact form and at densities appropriate to the servicing approach proposed.

This framework reinforces contiguous, orderly expansion and limits premature or fragmented settlement growth.

Intensification

The Plan encourages residential intensification and redevelopment within Village Communities, with a target of approximately 10 percent. Intensification includes infill lot creation and the use of secondary dwellings. This direction supports incremental growth within existing settlement boundaries while maintaining compatibility with servicing and built form.

Settlement Area Expansion

With the adoption of the 2024 PPS, provincial direction on settlement boundary expansions were revised to reduce the limiting requirements to support such an expansion. The policies of the Official Plan have yet to be brought into conformity with the new PPS and therefore it should be noted that the following summary reflects the policies of the Plan. However, further discussion with County staff will be undertaken to better understand the timing of any future amendments and implications for the Secondary Plan.

The current policies regarding expansion of Village Community boundaries is permitted only through a comprehensive review consistent with the previous provincial policy direction. Such expansion must demonstrate that sufficient opportunities for growth are not available through intensification or redevelopment within existing boundaries. Other requirements such as infrastructure capacity, agricultural impacts, financial viability, and compliance with Minimum Distance Separation requirements must also be addressed.

Servicing and Infrastructure Considerations

Servicing capacity is a central determinant of development within Village Communities. Where full municipal water and sewer services are not available, proponents must demonstrate the long-term suitability of communal or individual on-site systems. For institutional, commercial, and industrial uses, a servicing options report is required to evaluate feasible servicing methods.

Where private servicing is proposed, only low water-use activities are to be considered. The policies also permit the use of holding provisions where necessary to ensure that infrastructure requirements are addressed prior to development proceeding.

Economic and Non-Residential Uses

The Village Community designation permits a range of non-residential uses, including institutional, commercial, light industrial, and recreational activities. Existing uses may be recognized through the local zoning by-law, while new uses may be permitted subject to local by-law provisions and conformity with general policies of the Plan.

The policies discourage the creation of new intensive livestock operations within Village Communities, while permitting expansion of existing agricultural operations subject to Minimum Distance Separation requirements.

This structure supports limited economic activity within villages while mitigating potential land use conflicts.

Natural Heritage and Hazard Constraints

Development proposals along major river systems, including the Madawaska River, are subject to floodplain policies. Other lands may also be subject to Environmental Protection designation policies where flooding or environmental constraints are present. The Plan requires that natural heritage, natural resource protection, cultural heritage protection, and public health and safety considerations be applied when determining appropriate directions for development or boundary expansion.

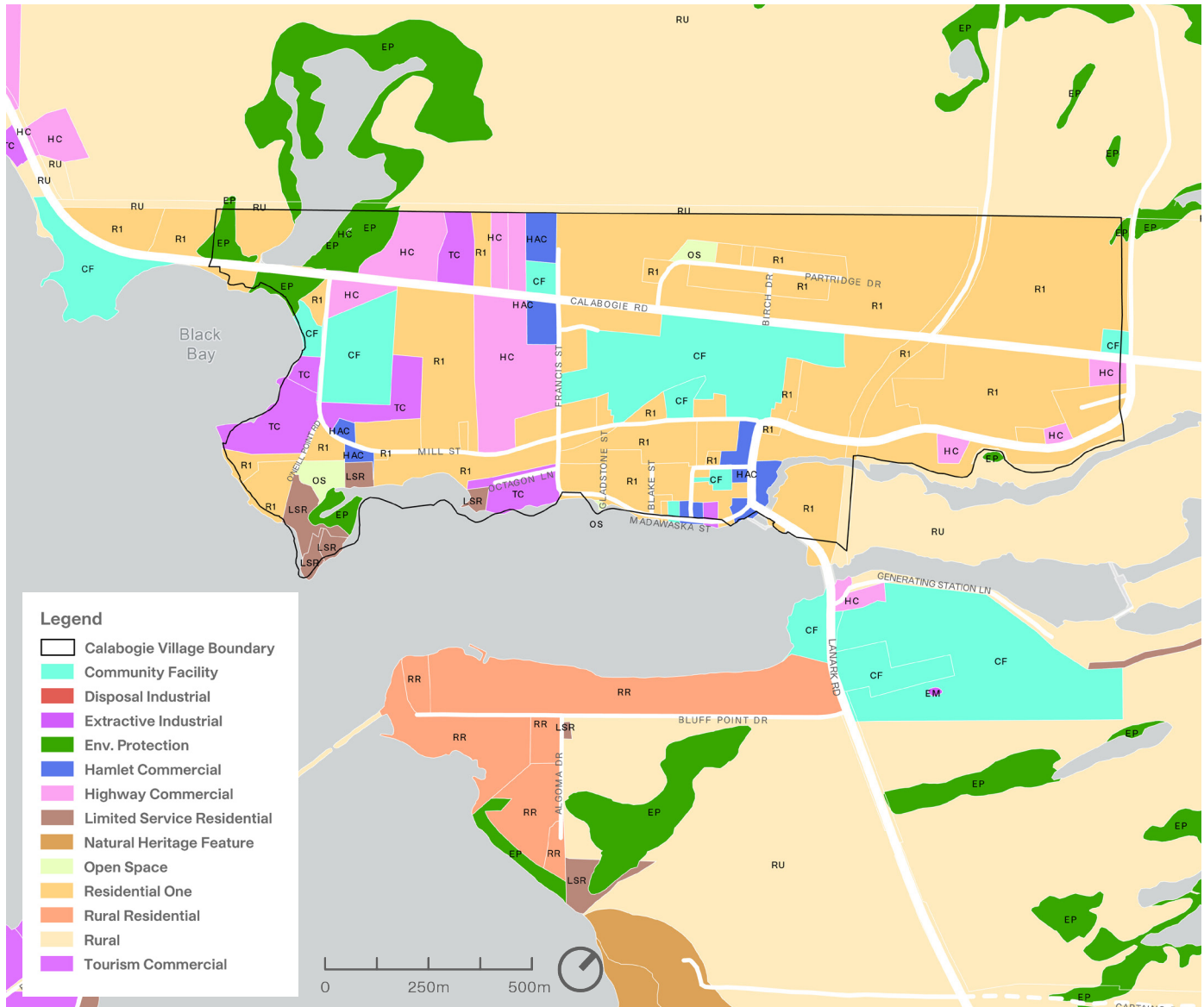


Figure 2 Township of Greater Madawaska Zoning Bylaw

Implications for the Calabogie Secondary Plan

The Village Community policies of the County of Renfrew Official Plan establish Calabogie as a focal point for surrounding rural lands and an appropriate location for residential growth and limited economic activity. The policy framework supports infill, intensification, and logical extensions of the built-up area, subject to servicing capacity, environmental constraints, and compatibility considerations.

The Official Plan includes provisions requiring a comprehensive review to justify settlement

area expansion, referencing Provincial policy direction. However, recent updates to the 2024 Provincial Planning Statement have streamlined settlement boundary expansion criteria. Given this evolving policy context, clarification from the County will be required to confirm how expansion policies are to be interpreted and applied.

The Secondary Plan will prioritize evaluation of growth opportunities within the existing Village boundary, consistent with the broader intent of compact, serviced, and environmentally responsible development.

3.3 Township of Greater Madawaska Zoning By-law

The Township of Greater Madawaska Zoning By-law establishes the regulatory framework that shapes land use and built form within the Village of Calabogie. The zoning pattern reflects the Village's evolution as a low-density waterfront community with a mix of residential neighbourhoods, tourism-related uses, small-scale commercial activity, community facilities, and environmentally sensitive lands.

The existing zoning framework provides clarity regarding permitted uses and development standards, however, it also reflects historic growth assumptions and incremental development patterns. As Calabogie experiences increasing interest in housing, tourism expansion, and infrastructure investment, the Secondary Plan presents an opportunity to evaluate whether the current zoning structure continues to support long-term community objectives.

Residential Areas

The majority of the Village is zoned Residential (primarily R1), reinforcing a predominantly low-density pattern characterized by single detached dwellings. Minimum lot area and frontage requirements, modest height limits, and standard setback provisions support a spacious, low-rise built form that aligns with Calabogie's historic character.

While this framework preserves neighbourhood stability, it also limits opportunities for housing diversification and gentle intensification. Current standards may constrain the introduction of additional residential units, small-scale multi-unit buildings, or compact infill forms that could support attainable housing and year-round population growth.

The Secondary Plan will assess whether adjustments to lot standards, density permissions, and housing typologies are appropriate in select areas to support a broader range of housing options while maintaining village character.

Commercial and Tourism Areas

Highway Commercial (HC) and Tourist Commercial (TC) zones are distributed primarily along key access routes and waterfront areas. These zones support accommodation, hospitality, recreation, and service-oriented uses that are central to Calabogie's tourism-based economy.

The existing zoning supports economic activity, but commercial uses appear somewhat dispersed rather than organized around a clearly defined village core. In addition, highway-oriented standards may prioritize vehicular access and parking over pedestrian-oriented design.

The Secondary Plan may explore opportunities to strengthen a cohesive commercial focus area, encourage mixed-use development in appropriate locations, and refine performance standards to reinforce walkability and a cohesive village-scale identity.

Community Facilities and Open Space

Community Facility (CF) and Open Space (OS) zones are interspersed throughout the settlement, particularly near the waterfront. These lands support civic uses, recreation, and public access. Their proximity to Calabogie Lake and the Madawaska River underscores the importance of protecting public shoreline access and maintaining recreational connectivity.

The Secondary Plan can build upon these assets by strengthening linkages between parks, trails, and waterfront spaces, and by considering how community facilities can support both year-round residents and seasonal visitors.

Environmental Protection and Hazard Lands

Environmental Protection (EP) zones are concentrated along shoreline areas, wetlands, and portions of the Madawaska River corridor. These zones restrict development within environmentally sensitive lands and areas potentially affected by flooding or slope instability.

Environmental constraints are a defining structural feature of the Village. Floodplain limits, shoreline buffers, and natural heritage areas reduce the amount of developable land within and adjacent to the settlement boundary. In some locations, adjacency requirements may further restrict redevelopment potential.

At the same time, these lands form the ecological backbone of Calabogie's identity. The Secondary Plan will consider how to integrate the natural heritage system into the broader village structure, balancing environmental protection with appropriate growth management.

Waterfront Development

Waterfront zoning provisions play a significant role in shaping Calabogie's built form and landscape character. Shoreline setbacks, lot configuration standards, and restrictions on shoreline structures influence development along Calabogie Lake and the Madawaska River.

These regulations help protect water quality and visual character but may also limit flexibility for redevelopment or intensification of underutilized waterfront parcels. As tourism activity and seasonal demand increase, the Secondary Plan will need to consider how waterfront policies can maintain environmental integrity while supporting long-term community vitality.

- Supporting housing diversification in appropriate locations;
- Strengthening integration between natural heritage systems and community design;
- Enhancing public waterfront access and trail connectivity; and
- Aligning zoning standards with infrastructure capacity and long-term growth objectives.

Through the Calabogie Secondary Plan process, the Township has an opportunity to refine land use direction and establish a coordinated policy framework that guides future zoning updates. This will ensure that development standards support a complete, resilient, and environmentally responsible waterfront community.

3.4 Key Findings and Recommendations

The current zoning framework reflects incremental growth rather than a comprehensive long-term vision for the Village. Key constraints include low-density residential standards, fragmented commercial zoning, environmental and hazard limitations, and waterfront regulatory restrictions.

Key opportunities include:

- Clarifying a cohesive village structure and commercial focus area;

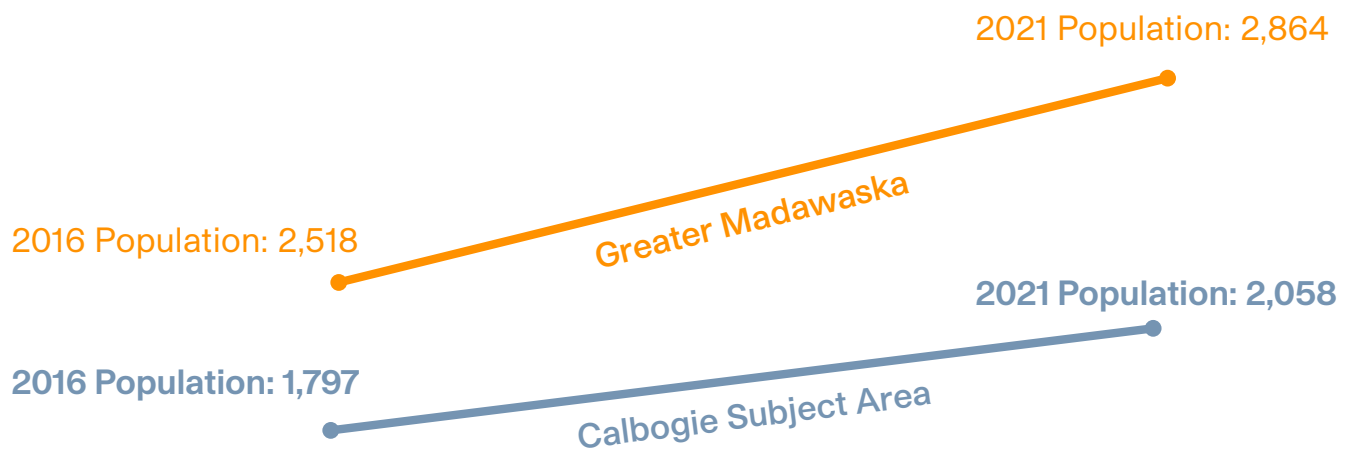


Figure 3 Population Growth, Census Canada 2021

4.0 People and Housing

4.1 Use of Census Divisions

For the purposes of this analysis, population characteristics were examined using 2021 Census data for the surrounding Dissemination Areas (DAs) encompassing and adjacent to the Calabogie Secondary Plan area (refer to Figure 4). Given the relatively small size of the community and the way Statistics Canada aggregates rural census geography, reviewing multiple surrounding DAs provides a more representative understanding of local demographic trends and conditions. The selected DAs capture both the settlement area and the broader rural context that influences housing demand, seasonal population patterns, and longer-term growth trends within Calabogie.

4.2 Growth

Between 2016 and 2021, the Township of Greater Madawaska experienced steady population growth, increasing from 2,518 residents in 2016 to 2,864 in 2021, representing an increase of approximately 346 people (13.7%). Over the same period, the combined three Dissemination Areas encompassing Calabogie grew from 1,797 to 2,058 residents, an increase of 261 people (14.5%). This indicates that population growth within the Calabogie area occurred at a slightly higher rate than the Township overall, reinforcing Calabogie's role as a key settlement area and focal point for residential growth within Greater Madawaska.

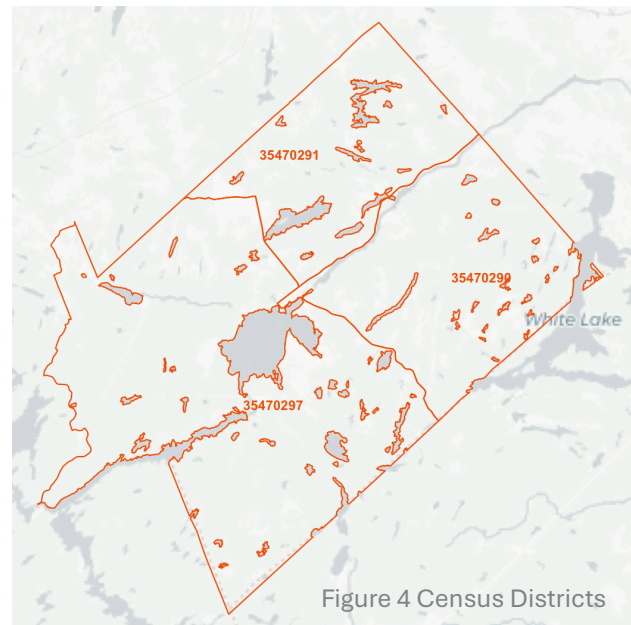


Figure 4 Census Districts

While overall population growth occurred between 2016 and 2021, the data indicates that migration, particularly intraprovincial migration, was the primary driver. In 2021, 565 residents had moved from elsewhere in Ontario, more than double the 260 recorded in 2016. Interprovincial migration also increased from 50 to 75 residents over the same period. In contrast, births and international immigration remained comparatively modest contributors to growth. This pattern suggests that recent population increases in and around Calabogie are largely attributable to in migration from within Ontario, consistent with broader migration trends observed during the COVID 19

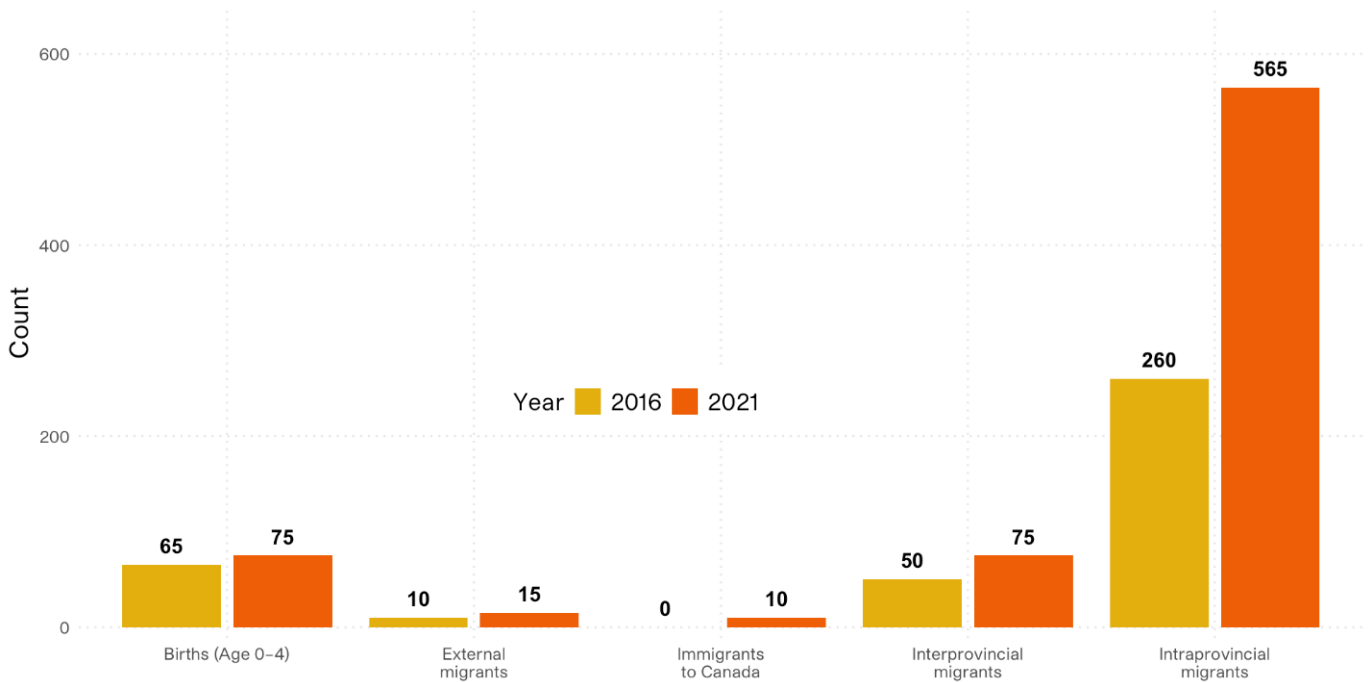


Figure 5 Population Growth, Census Canada 2021

period, when remote work flexibility and shifting housing preferences contributed to movement toward smaller communities.

4.3 Age

Between 2016 and 2021, the age structure in and around Calabogie shifted modestly toward an older population profile. The share of residents aged 60–74 increased from 32.6% to 34.8%, and those aged 75+ rose from 9.2% to 9.7%, reinforcing the community’s strong retiree presence. At the same time, the proportion of residents in the 45–59 age group declined from 25.3% to 22.6%, and the 30–44 cohort remained relatively stable (12.5% to 12.4%). Children aged 0–14 saw a slight increase (9.2% to 10.2%), while youth and young adults aged 15–29 declined marginally (11.4% to 10.0%). Overall, the data indicates continued aging of the population, with growth concentrated in older age cohorts, while younger and core working-age groups remain comparatively smaller shares of the population.

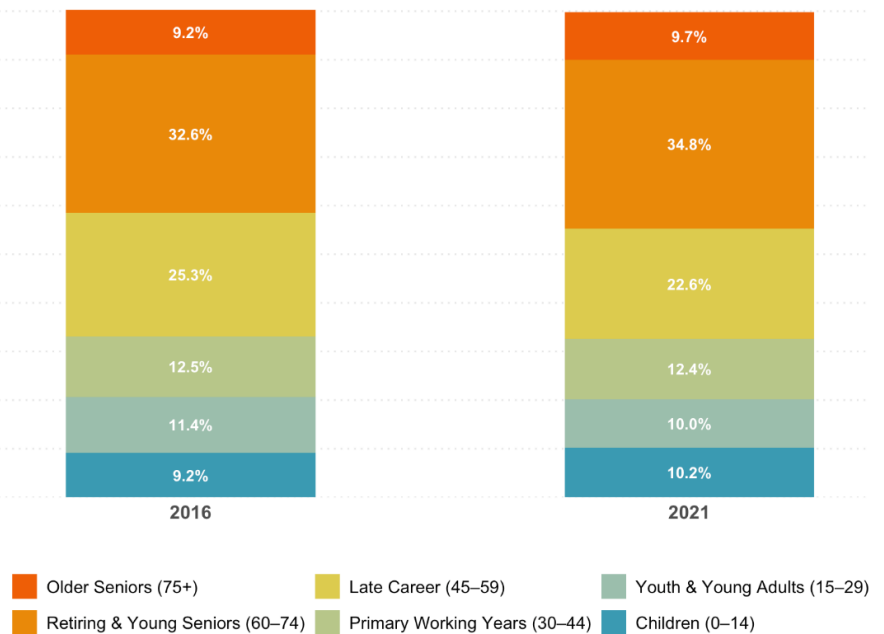


Figure 6 Age Cohort Growth, Census Canada 2021

4.4 Demographic Diversity

Between 2016 and 2021, demographic diversity in and around Calabogie increased modestly, though the overall population remains relatively homogeneous. The number of residents identifying as Indigenous rose from 80 to 100 over the five year period. The total number of immigrants declined slightly from 145 to 130; however, recent immigrants were newly represented in the 2021 data. As of 2021, 25 residents identified as visible minorities, representing approximately 1.2 percent of the total population.

Household Formation in and around Calabogie, 2016 vs 2021

Private households by household size

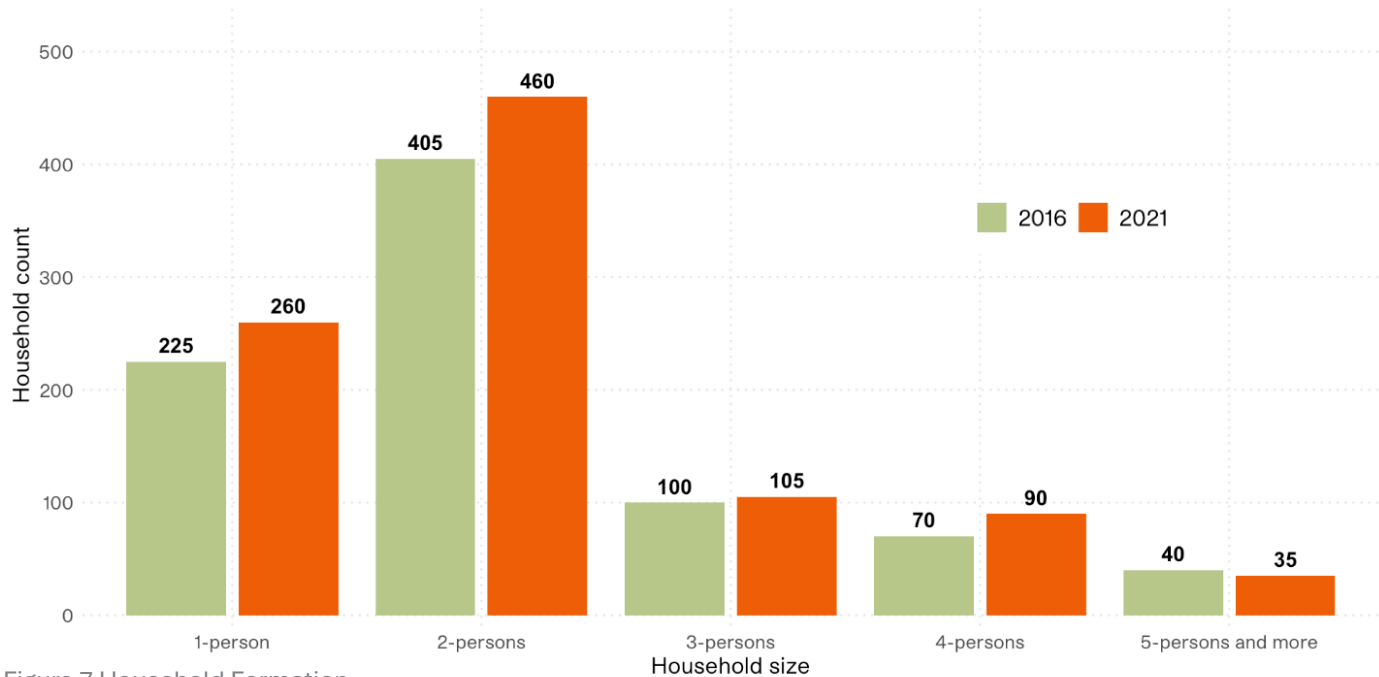


Figure 7 Household Formation

4.5 Household Size

Household formation in and around Calabogie reflects a continued predominance of smaller households between 2016 and 2021. One person households increased from 225 to 260, while two person households grew from 405 to 460, remaining the largest household type. Three person households saw only modest growth from 100 to 105, and four person households increased from 70 to 90. In contrast, households with five or more persons declined slightly from 40 to 35. Overall, the data indicates that growth has largely occurred among smaller household sizes, consistent with the area's aging population profile and the prevalence of couples and single person households.

4.6 Household Income and Distribution

Between 2016 and 2021, household income distribution in and around Calabogie shifted upward. The number of households earning over \$100,000 increased significantly from 255 to 430, representing the largest growth of any income category. Moderate income brackets between \$60,000 and \$100,000 remained relatively stable, while several lower and middle

income brackets below \$60,000 declined slightly or remained flat. This trend suggests rising household incomes and potentially changing housing market dynamics within the area.

At the same time, the number of residents identified as low income declined modestly among children aged 0 to 17 and working age adults 18 to 64, while increasing slightly among residents aged 65 and older. Although overall income levels appear to be rising, the continued presence of low income seniors highlights the need to consider affordability and housing options suitable for older residents on fixed incomes.

4.7 Housing Stock Age

The housing stock in and around Calabogie reflects a largely established built form, with a significant share constructed prior to 2000. In 2021, 15.3 percent of dwellings were built in 1960 or earlier, and the largest proportion, 22.2 percent, were constructed between 1961 and 1980. A further 19.0 percent were built between 1981 and 1990, and 16.9 percent between 1991 and 2000.

Household Income Distribution in and around Calabogie, 2016 vs 2021

Counts of households by income group

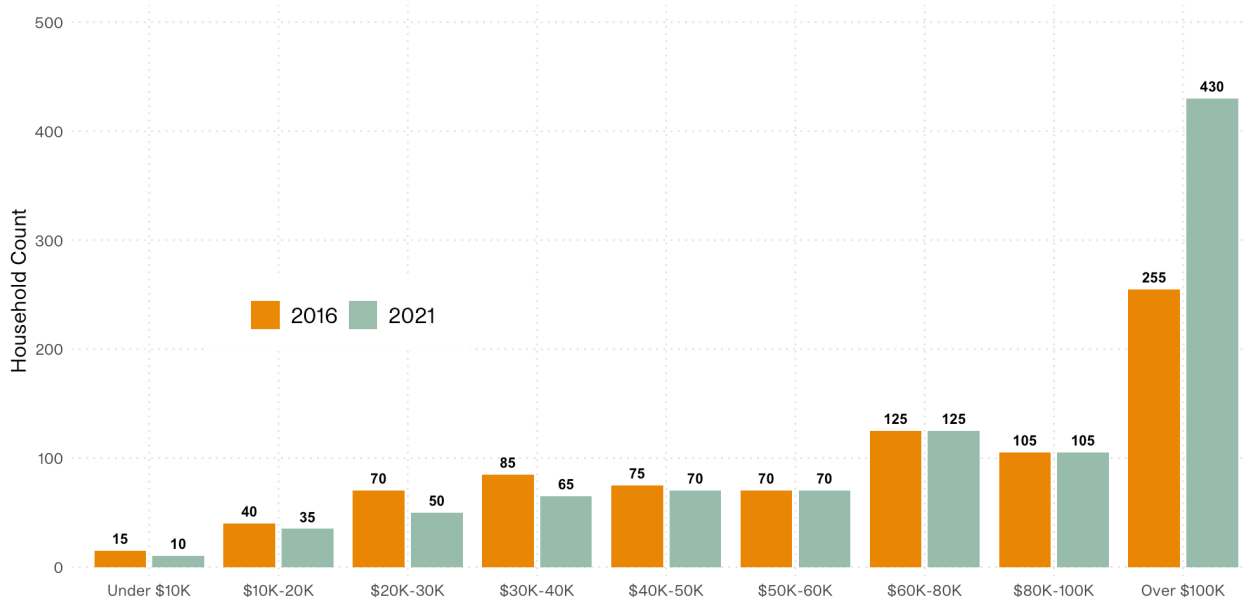


Figure 8 Household Income, Census Canada 2021

More recent construction represents a smaller share of the total housing stock. Dwellings built between 2001 and 2005 account for 5.8 percent, while those constructed between 2006 and 2010 represent 9.0 percent. Homes built from 2011 onward each account for approximately 5.8 percent per period. Overall, the data indicates that much of the community's housing supply is over 30 years old, with more limited but steady additions in recent decades. This has implications for housing condition, reinvestment, and the need to accommodate future growth through a mix of infill and new development.

Housing Stock Age and its Share in and around Calabogie, 2021

Period of construction for occupied private dwellings

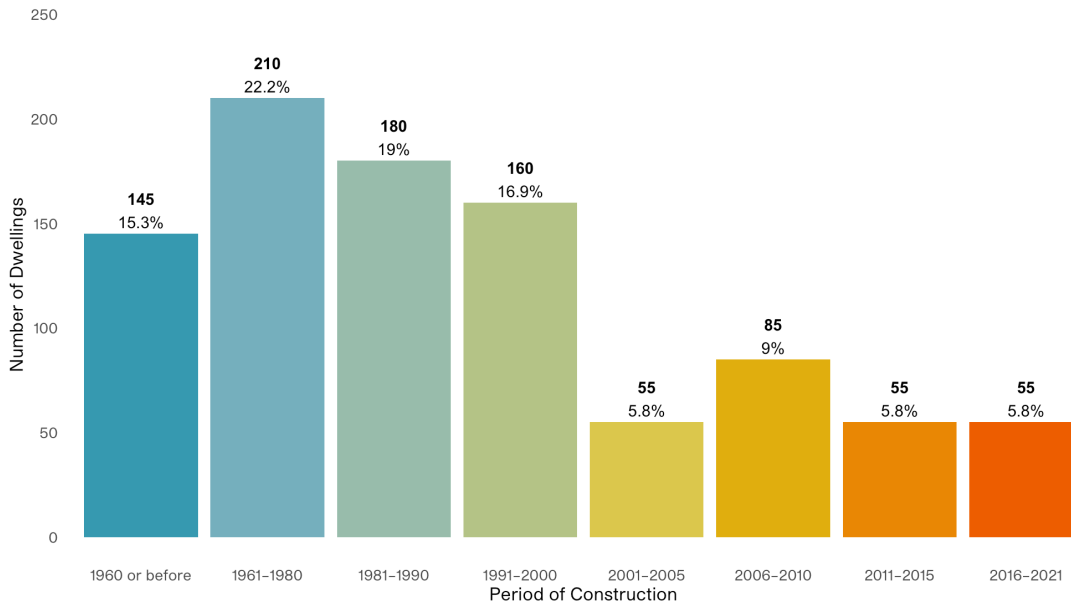


Figure 9 Housing Stock Age, Census Canada 2021

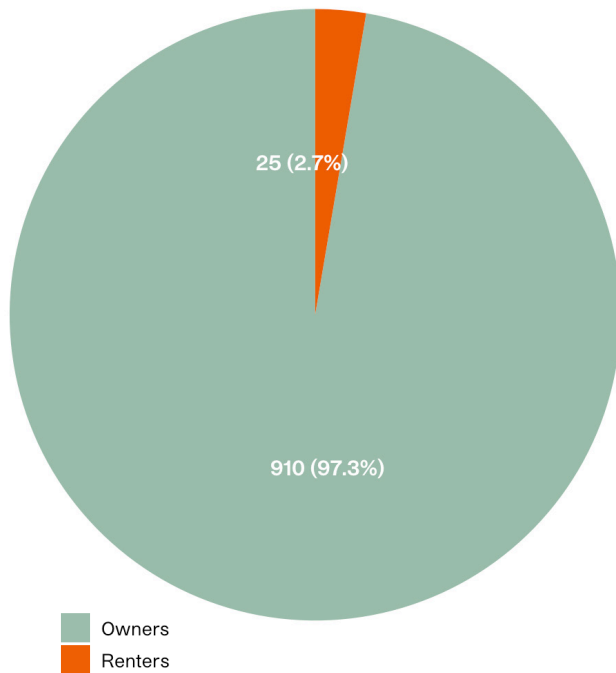


Figure 10 Housing Tenure, Census Canada 2021

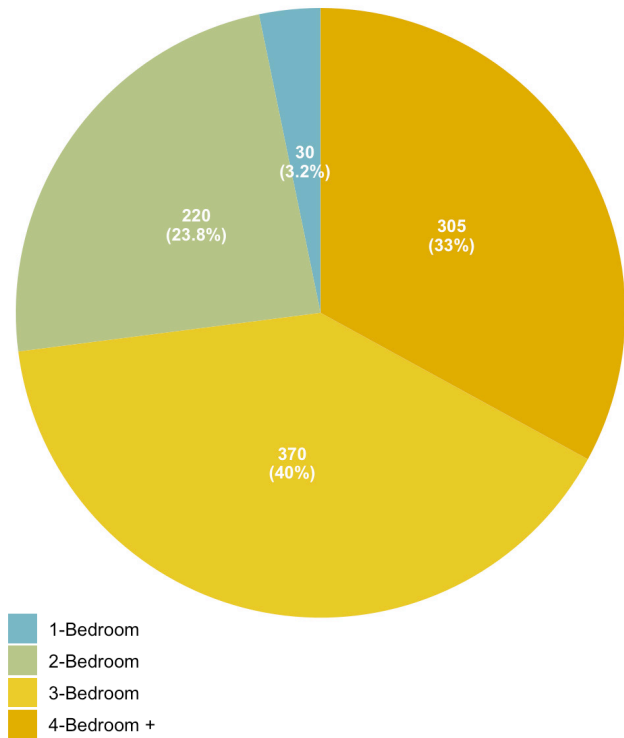


Figure 11 Housing Size and Type, Census Canada 2021

4.8 Housing Tenure

Housing tenure in and around Calabogie is overwhelmingly ownership based. In 2021, approximately 97.3 percent of households were owner occupied, representing 910 dwellings, while only 2.7 percent, or 25 dwellings, were renter occupied.

This distribution indicates a very limited rental housing supply within the area. The dominance of ownership housing has implications for housing choice, affordability, and flexibility, particularly for younger households, seasonal workers, seniors seeking to downsize, or residents who may prefer rental options. Expanding the range of tenure options may be an important consideration as the community grows and diversifies.

4.9 Housing Typologies

The dwelling stock in and around Calabogie is almost entirely comprised of single detached homes. In 2021, 930 of the 950 occupied private dwellings, representing 97.9 percent, were single detached units. Apartments in low rise buildings accounted for approximately 1.1 percent of the housing stock, with a similarly small share categorized as other dwelling types.

This distribution highlights the limited diversity of built form within the area. The predominance of single detached housing has implications for affordability, housing choice, and the ability to accommodate smaller households, aging residents, and new entrants to the market. Introducing a broader mix of dwelling types may support more flexible and inclusive housing options over time.

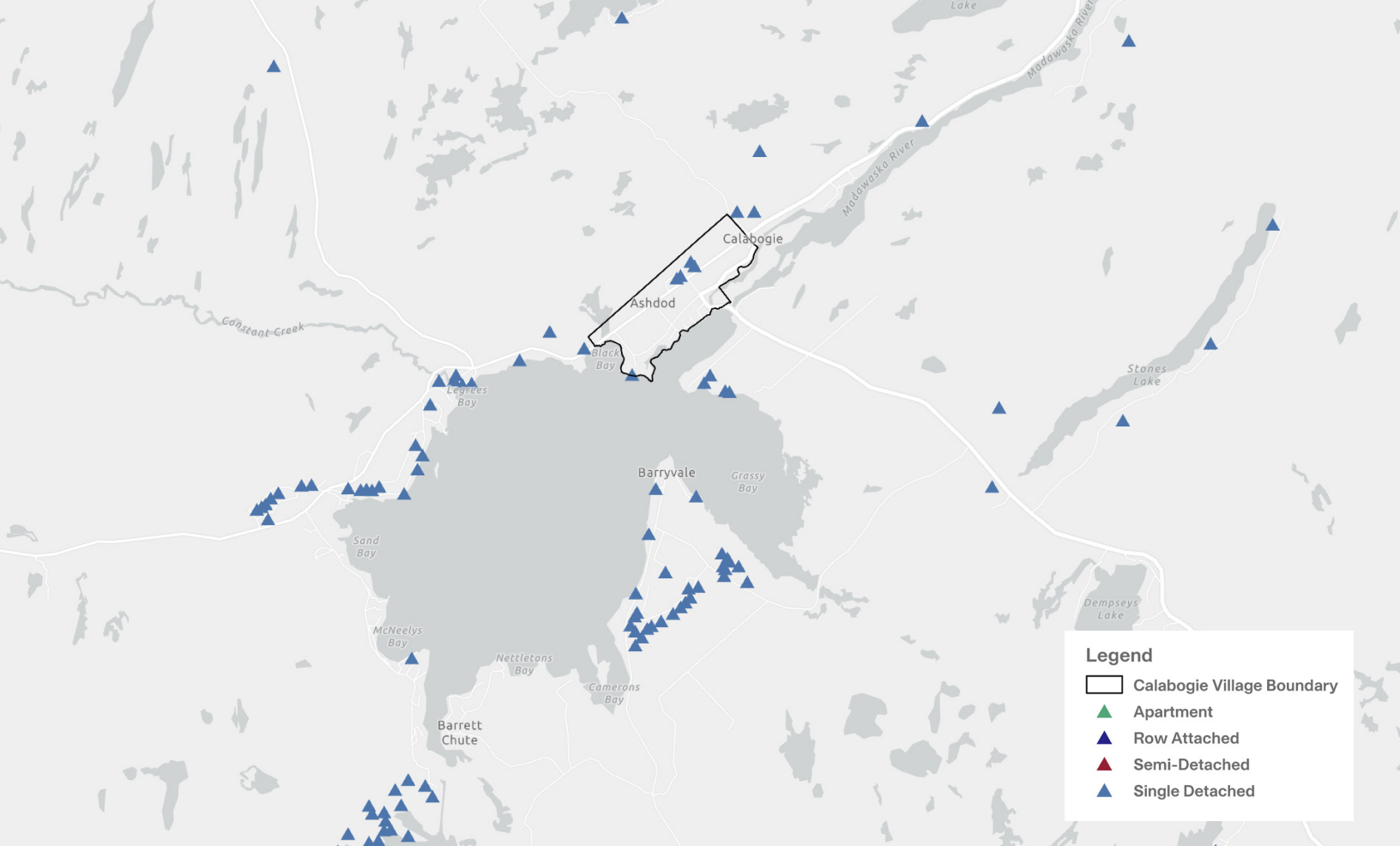


Figure 12 2020-2023 Residential New Builds - County of Renfrew

4.10 Housing Affordability

Housing cost burden among owners with mortgages increased between 2016 and 2021. In 2016, approximately 31.2 percent of owners with a mortgage were spending 30 percent or more of their income on shelter costs. By 2021, this share had risen to 36.5 percent.

No comparable data was reported for renters within the selected Dissemination Areas, likely reflecting the very small rental population in the area. The increase among mortgaged owners suggests growing affordability pressures, particularly as housing prices and carrying costs have risen. While overall incomes have increased, the data indicates that a significant share of households remain vulnerable to housing cost pressures.

4.11 Short Term Rental Context

Short term rental accommodations form part of the housing landscape in Greater Madawaska, particularly in and around Calabogie where recreational and waterfront properties are

prevalent. In 2024, the Township introduced a licensing framework to regulate short term rental operations. The by law establishes requirements related to registration, safety, and operational standards, reflecting Council's intent to manage this use in a structured and accountable manner.

Available listing data indicates a concentration of short term rental properties in proximity to Calabogie Lake and key recreational destinations. While these accommodations support tourism and seasonal economic activity, their presence is notable in a community characterized by limited rental housing and a predominantly ownership based housing market.

From a land use planning perspective, short term rentals represent an important consideration in understanding housing supply dynamics, neighbourhood character, and the balance between seasonal and permanent residency. As Calabogie continues to evolve, the relationship between short term accommodations and long term housing availability warrants ongoing monitoring.

Patterns in Housing Provision in and around Calabogie, 2016–2021

Structural type of occupied private dwellings

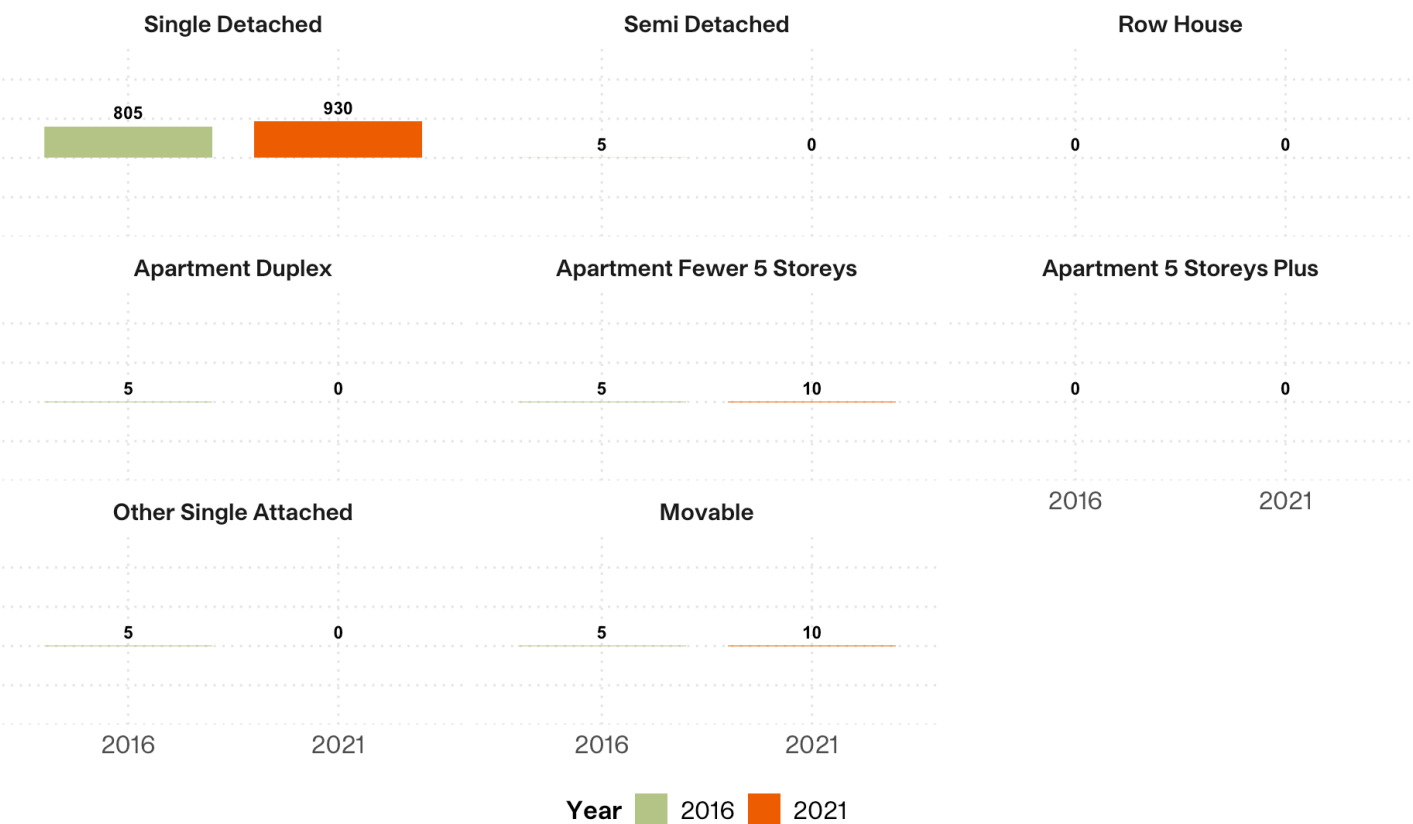


Figure 13 Housing Provisions, Census Canada 2021

4.12 Township of Greater Madawaska Housing Needs Assessment, 2023

The Township of Greater Madawaska completed a Housing Needs Assessment in 2023 to evaluate demographic trends, housing supply characteristics, and affordability conditions across the municipality. The findings of the Assessment align with the Census analysis undertaken for this Secondary Plan and provide additional context for future housing planning.

Key findings of the Assessment include:

- Population growth in recent years has been driven primarily by in migration, particularly from within Ontario.
- The Township has an aging population profile, with a significant proportion of residents over the age of 55.
- Households are predominantly small in size, with an average of approximately 2.1 persons per dwelling.

- The housing stock is overwhelmingly comprised of single detached dwellings, with very limited medium density or apartment style housing.
- Home ownership rates are high, and the rental housing supply is limited, with no non-market housing currently available.
- While affordability pressures are less acute than in larger urban centres, a portion of households experience housing cost burden.
- Recent residential construction activity has largely consisted of single detached dwellings, with continued demand anticipated from both permanent and seasonal residents.

Overall, the Housing Needs Assessment reinforces the importance of planning for a broader range of housing types and tenure options to respond to demographic trends and evolving market conditions within the Township, including the Calabogie Secondary Plan area.



4.13 Key Findings and Recommendations

Balancing Managing Growth While Maintaining Community Character

Together, these findings demonstrate that Calabogie's housing market is characterized by limited form and tenure diversity, strong ownership dominance, an aging demographic, and emerging affordability pressures. At the same time, recent building permit activity indicates sustained development interest, reinforcing the need for proactive planning direction.

The Township is expected to experience continued growth driven by improved regional access through the Highway 417 expansion, increased interest in rural living, and the flexibility of remote work. While this growth may broaden the municipal tax base and support enhanced services, it also presents important considerations. The Township must balance accommodating new residents with maintaining its rural identity, landscape character, and existing community structure. Addressing this shift will require careful planning to ensure infrastructure capacity aligns with projected

demand and that housing options evolve beyond predominantly single-detached forms to better respond to a range of household needs and affordability levels. Thoughtful growth management will be necessary to support both long-term residents and future households.

The Secondary Plan presents an opportunity to align land use policy with identified housing needs by:

- Supporting a broader range of housing types in appropriate locations
- Enabling gentle intensification that respects village character
- Encouraging rental and multi-unit development where infrastructure permits
- Ensuring that environmental and hazard constraints are balanced with housing supply considerations

By grounding policy direction in measurable housing conditions, the Secondary Plan can establish a forward-looking framework that supports affordability, resilience, and long-term community sustainability while maintaining Calabogie's waterfront and rural identity.

5.0 Economic Development

5.1 Employment and Office Market

According to Environics (2025) and Statistics Canada (2021) study area has an estimated population of 454 residents across 223 households. The median age is approximately 57.9 years, indicating a significantly older population profile. The average household income is approximately \$115,971.

The Labour Force Replacement Ratio (LFRR) is 0.45, meaning there are fewer individuals aged 0–14 relative to those aged 50–64. A ratio below 1.0 indicates potential labour force shortages as older residents retire.

Total annual household expenditure is approximately \$138 thousand. Major spending categories include housing-related costs such as property tax (approximately \$3,080 per household), food expenditures (approximately \$10,985), and transportation (approximately \$15,311).

5.2 Employment by Industry

Employment in the area is concentrated in construction, retail trade, health care and social services, public administration, accommodation and food services, and professional services. There is comparatively limited representation in manufacturing, utilities, and resource extraction sectors.

The employment profile suggests a service-oriented and construction-driven local economy, with some reliance on tourism-related sectors.

5.3 Educational Attainment

Educational attainment levels vary, with a significant share of residents holding high school diplomas or college credentials. A smaller proportion of residents hold university degrees compared to the broader municipal context.

5.4 Growth Readiness Action Plan, 2022

The Township of Greater Madawaska completed a Growth Readiness Action Plan in 2022 to assess the municipality's preparedness for future growth and to identify strategic actions to support residential development, infrastructure planning, and economic expansion. The Plan forms part of a broader municipal initiative that also included updates to development standards and the Township's comprehensive zoning by-law.

The Growth Readiness Action Plan identifies three primary focus areas: planning and development, infrastructure, and economic development.

Planning and Development

The Plan emphasizes the importance of maintaining an efficient and transparent development approvals process in order to accommodate anticipated growth. It highlights the need to review planning procedures, simplify application processes, and remove regulatory barriers that may limit housing diversification. The document specifically references opportunities to support multi-unit housing, shared housing arrangements, and secondary suites as part of a broader strategy to increase housing choice.



Economic Development Summary

Polygon

Area: 23.96 square kilometers



454

POPULATION



57.9

MEDIAN AGE



223

HOUSEHOLDS



CA\$115,971

AVG. INCOME

LABOUR FORCE REPLACEMENT RATIO



0.45

The Labour Force Replacement Ratio (LFRR) is calculated by taking the 0-14 years of age variable and dividing it by those 50-64 years of age. A score over 1.0 indicates a surplus of labour as the older population retires, while a score under 1.0 indicates a labour short fall.



CA\$138,358

TOTAL
EXPENDITURE



CA\$10,985

FOOD



CA\$3,080

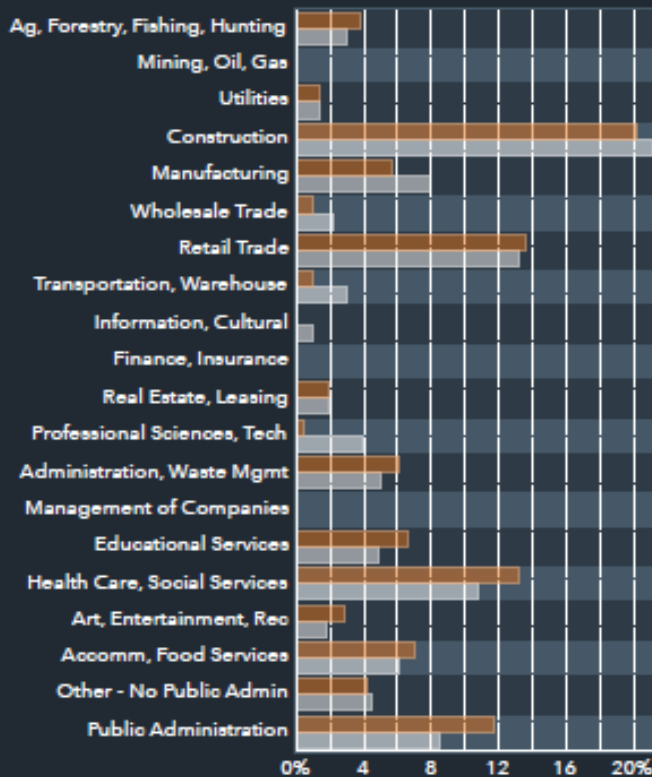
PROPERTY TAX



CA\$15,311

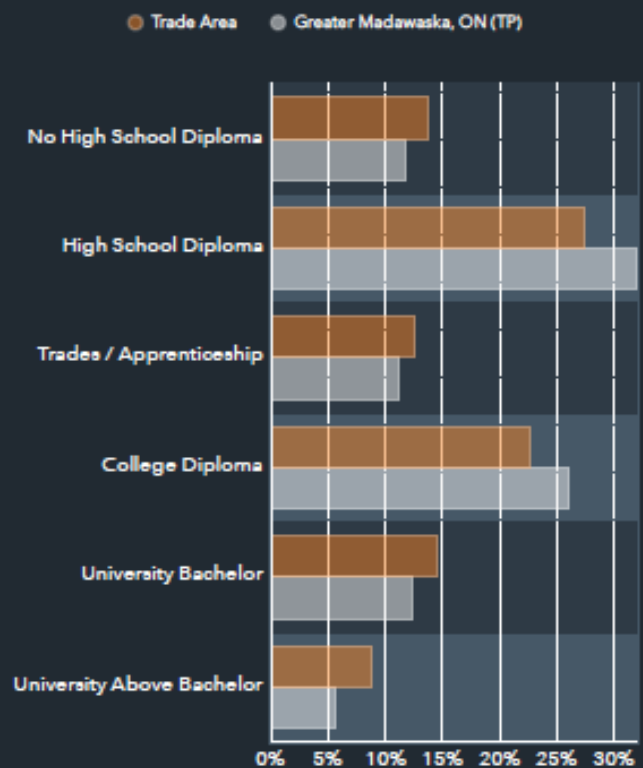
TRANSIT

EMPLOYMENT BY INDUSTRY CLASSIFICATION



Bars show comparison to Greater Madawaska, ON (TP)

EDUCATIONAL ATTAINMENT



Bars show comparison to Greater Madawaska, ON (TP)



esri Canada

Source: This infographic contains data provided by Environics (2025), Statistics Canada (2021).

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Figure 14 Economic Development Summary



Figure 15 Growth Readiness Action Plan Survey Results

The Plan also identifies potential tools to encourage affordable housing development, including fee reductions and other municipal incentives. These recommendations align with findings from the Township's Housing Needs Assessment, reinforcing the need to examine whether current land use permissions and zoning standards support evolving housing demand.

Infrastructure

Infrastructure readiness is identified as a key factor in supporting growth. The Plan highlights the importance of active transportation planning, digital connectivity improvements, and strategic infrastructure investment. Safe walking and cycling routes were identified as a priority by community respondents, particularly in areas experiencing development pressure.

The document also emphasizes the value of Geographic Information Systems (GIS) in asset management, growth forecasting, and decision-making. Strengthening digital infrastructure, including internet and cellular service, is positioned as critical to attracting both residents and businesses.

Economic Development

The Action Plan outlines a proactive approach to economic development, including supporting existing businesses, enhancing municipal marketing, and positioning the Township competitively within the region. Calabogie is identified as a priority growth area and a key economic hub within the Township.

Waterfront development is highlighted as a strategic opportunity to strengthen tourism and expand the community's economic base.

The Plan recommends exploring initiatives that enhance the waterfront's role as a destination while ensuring long-term sustainability.

5.5 Tourism

Tourism plays an important role in the local economy of Calabogie and the surrounding Township of Greater Madawaska. The community functions as a regional recreation destination, attracting visitors for waterfront activities, outdoor recreation, seasonal events, and access to surrounding natural landscapes. Tourism-related activity supports a range of local businesses including accommodations, restaurants, retail, recreation services, and seasonal operations. This visitor economy contributes to employment in accommodation and food services, retail trade, and recreation sectors, while also supporting local amenities that benefit both residents and visitors. As a result, tourism represents an important component of the economic structure of Calabogie and has implications for land use planning, particularly in areas related to waterfront access, recreational infrastructure, and the provision of visitor-oriented services.

5.6 Key Findings and Recommendations

The employment profile, demographic characteristics, and findings from the Township's Growth Readiness Action Plan provide several considerations for the Calabogie Secondary Plan. Together, these sources highlight both opportunities and constraints related to workforce availability, economic activity, and future growth.

Key implications include:

- An aging population and low Labour Force Replacement Ratio suggest potential long-term workforce constraints, reinforcing the importance of attracting new residents and supporting housing options that appeal to a range of household types and age groups.
- The local employment profile is largely service-oriented, with strong representation in construction, retail, health care, accommodation and food services, and other service sectors. Land use policies should support small-scale commercial activity and local business development within the village.
- Tourism and recreation play an important role in the local economy, supporting accommodations, restaurants, retail businesses, and seasonal services. The Secondary Plan should consider opportunities to strengthen Calabogie's role as a recreation and visitor destination, particularly in relation to waterfront areas and outdoor amenities.
- The Growth Readiness Action Plan identifies Calabogie as a focal point for economic activity and future growth within the Township, reinforcing the importance of a coordinated planning framework for the village.
- Infrastructure coordination, including active transportation improvements and digital connectivity, will be important in supporting both residential growth and economic development opportunities.

The Secondary Plan provides an opportunity to translate these considerations into a coordinated land use framework for the Village of Calabogie, supporting housing diversification, tourism and economic activity, and infrastructure planning within a cohesive long-term vision.



6.0 Mobility and Connectivity

6.1 Mobility Network

Existing Network

The Calabogie settlement area is served by a small but important mobility network that connects the community to surrounding regional destinations while supporting local access within the village. The existing network includes provincial and local roads, recreational trail corridors, and informal active transportation routes that collectively support movement through and around the community.

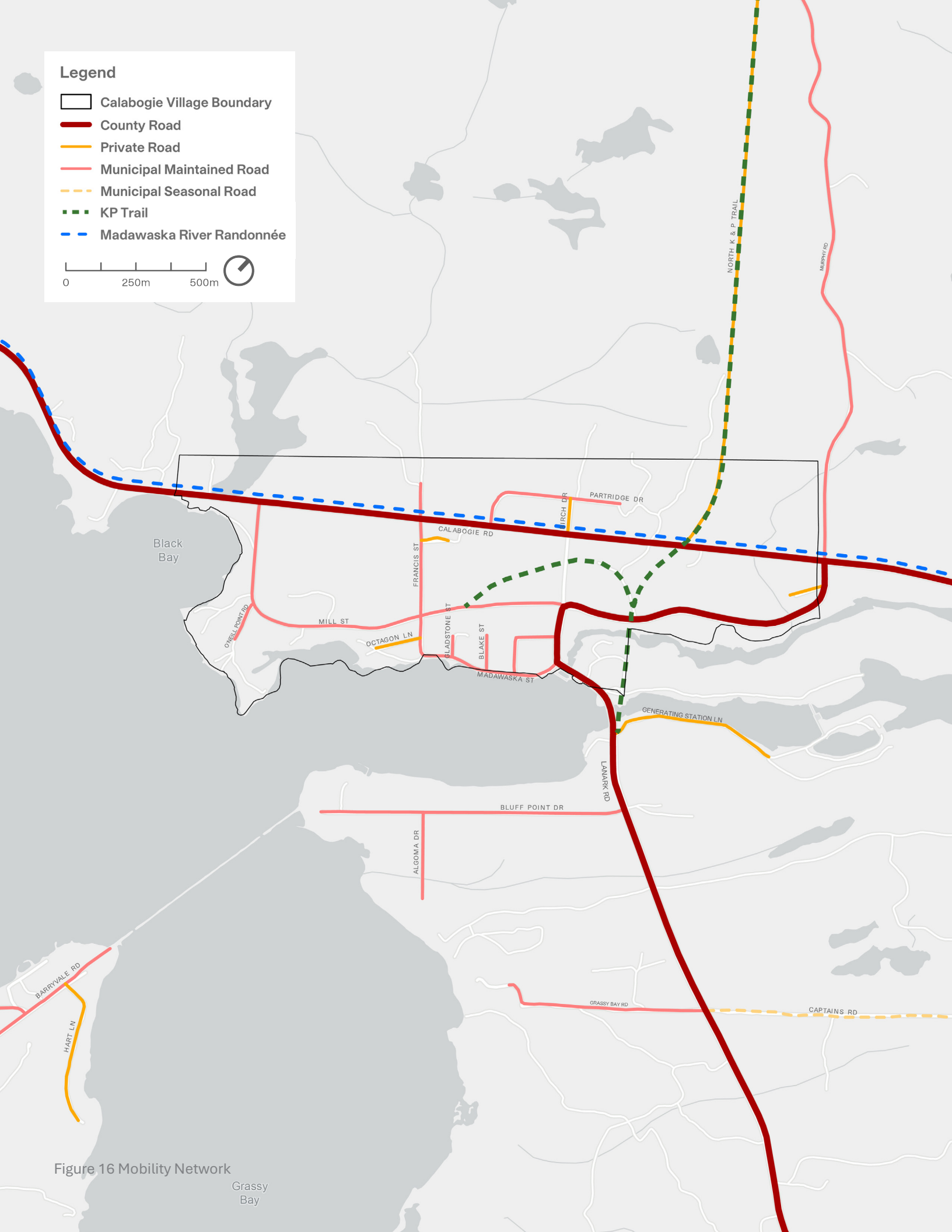
Road Network

Calabogie is primarily accessed via Calabogie Road (County Road 508), which functions as the main east–west transportation corridor through the village and connects the community to Renfrew to the east and Lanark County to the

west. This corridor serves as the primary route for residents, visitors, and tourism traffic accessing Calabogie Lake, the Calabogie Peaks Resort area, and surrounding recreational destinations.

A secondary north–south connection intersects within the village, linking the settlement area to surrounding rural areas and providing access across the Madawaska River corridor. Local roads extend south toward waterfront residential areas and recreational destinations, including access to Calabogie Lake and nearby cottage areas.

The road network within the settlement area is relatively limited and largely oriented around the shoreline of Calabogie Lake, reflecting the community’s historic development pattern and waterfront geography.



Legend

- Calabogie Village Boundary
- County Road
- Private Road
- Municipal Maintained Road
- Municipal Seasonal Road
- KP Trail
- Madawaska River Randonnée



Figure 16 Mobility Network

Grassy Bay

Active Transportation and Trail Network

The community is also connected to a regional recreational trail system. The K&P Trail corridor passes through the settlement area and forms part of a broader regional trail network extending across Renfrew County.

The Madawaska River Randonnée is outlined by the County to identify a broader active recreation network in the area. While these trails provide important recreational connectivity, dedicated pedestrian and cycling infrastructure within the village road network remains limited.

Existing Cycling and Pedestrian Facilities

Cycling and pedestrian facilities in Calabogie consist primarily of shared roadway conditions and regional trail infrastructure. Dedicated pedestrian infrastructure within the village is limited, and most streets do not include formal sidewalks. Pedestrians typically use road shoulders, informal pathways, and low-speed local streets to access nearby destinations.

Cycling facilities are similarly informal. There are no designated on-street bicycle lanes within the settlement area, and cyclists generally travel along existing roadways, including County Road 508 and surrounding local roads. These routes function as shared spaces where cyclists and vehicles use the same travel lanes.

Regional recreational trails provide additional active transportation infrastructure in the area. The K&P Trail corridor and other trail routes in the Madawaska River valley support walking and cycling activities and form part of Renfrew County's broader recreational trail network. These trails provide off-road opportunities for active transportation and recreation in proximity to the Calabogie settlement area.

6.2 Cycling and Recreational Activity Patterns (Strava Data)

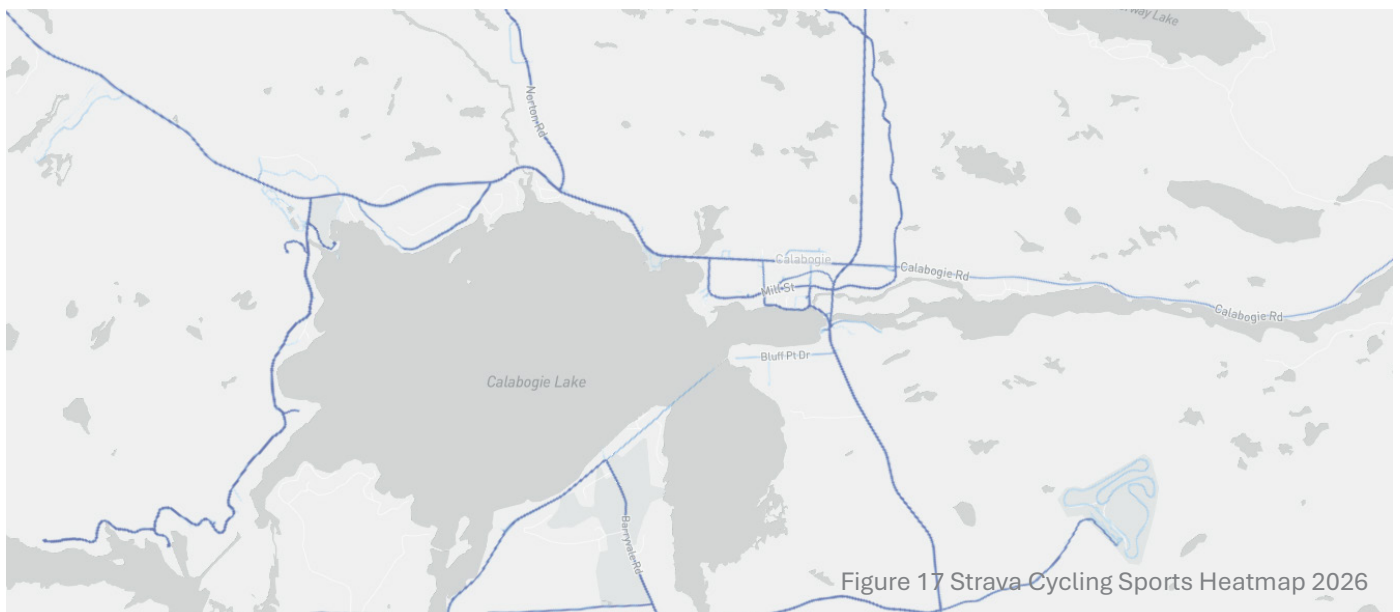
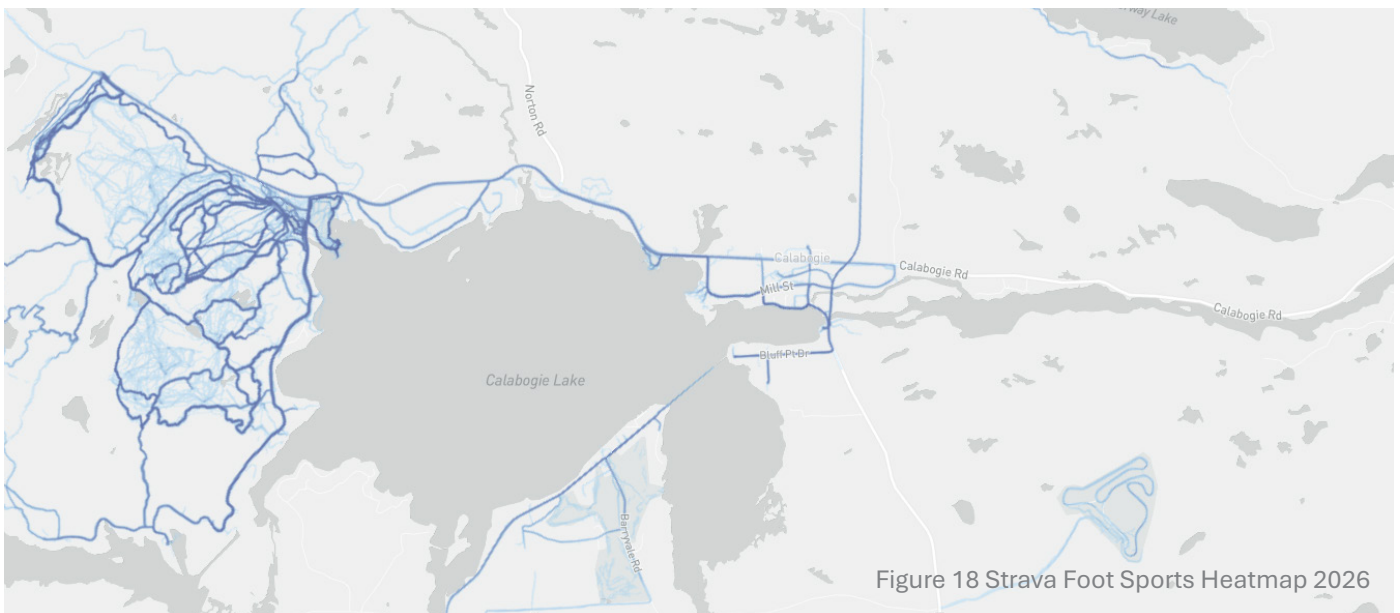
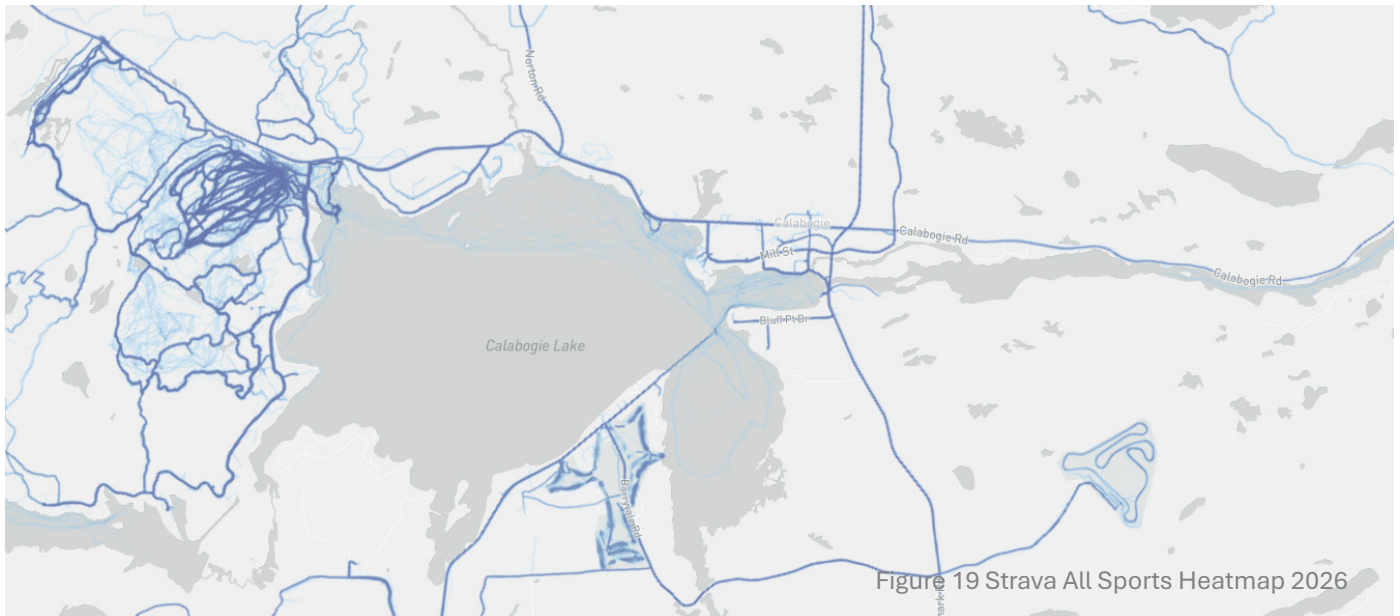
To better understand recreational mobility patterns in and around Calabogie, Strava Metro data was reviewed. Strava is a fitness tracking platform commonly used by cyclists, pedestrians, and runners that records route activity through GPS-enabled devices. Aggregated Strava data provides insight into frequently used cycling and recreational routes and can help illustrate patterns of movement that may not be captured through traditional transportation data sources.

While Strava data does not represent all users and tends to reflect recreational and sport activity more than everyday travel, it can provide useful insight into popular routes, connections, and recreational corridors. In Calabogie, where outdoor recreation and tourism play a significant role in the local mobility network, these patterns help highlight routes that are actively used by cyclists and recreational users.

The following figures illustrate cycling activity patterns derived from Strava data and provide additional context for understanding how the existing road and trail network is used by recreational cyclists within the community and surrounding area.

Strava Heatmap – All Sports

The All Sports heatmap illustrates cumulative recreational movement patterns within the Calabogie area, including walking, running, cycling, and other recorded activities. Activity is strongly concentrated along Calabogie Road and key west and north-south corridors connecting the Village core to surrounding areas. Significant intensity is also visible along waterfront routes and around the Madawaska River, reflecting recreational and tourism-related use. The map indicates that movement is corridor-based, with activity clustering around the Village centre and along primary access roads rather than dispersed throughout the broader landscape.



At a broader scale, activity is concentrated within the Calabogie Village core and along Calabogie Road, which functions as the primary east–west spine connecting the community to surrounding areas. Significant intensity is also visible west of the Village toward Calabogie Peaks and along waterfront corridors, reflecting recreational and tourism-oriented use. Movement patterns extend south across the Madawaska River and along Bluff Point Drive, indicating connectivity between residential areas and the shoreline. Beyond these corridors, activity becomes more dispersed. The heatmap confirms that recreational movement is structured primarily around key roads, the waterfront, and established recreation destinations.

Strava Heatmap – Foot Sports

The Foot Sports heatmap illustrates walking and running activity within the Calabogie area. Activity is strongly concentrated along Calabogie Road, Mill Street, and Madawaska Street, forming a clear east–west spine through the Village. High-intensity use is also visible along waterfront-adjacent routes and Bluff Point Drive, indicating recreational walking and running near shoreline areas. Compared to the All Sports map, activity is more tightly clustered within the Village core and along connected local roads, with limited dispersion into surrounding rural lands. The pattern suggests that pedestrian and running activity relies primarily on established road corridors and waterfront routes rather than dedicated off-road trail networks within the settlement.

Strava Heatmap – Cycling

The Cycling heatmap shows strong activity along Calabogie Road, which functions as the primary east–west cycling corridor through the Village and connecting to surrounding rural areas. High-intensity use is also visible along Murphy Road and Lanark Road, indicating longer-distance road cycling routes extending beyond the settlement. Within the Village core, cycling activity follows Mill Street and Madawaska Street, with connections toward Bluff Point Drive and waterfront areas. Compared to foot-

based activity, cycling routes extend further into the rural landscape, reflecting recreational and training-oriented use along regional road networks rather than localized circulation alone.

6.3 County of Renfrew Active Transportation Strategy

The County of Renfrew Active Transportation Strategy (2012, revised 2017) establishes a long-term framework to support walking, cycling, and other non-motorized forms of travel across the County. The Strategy promotes improved connectivity between communities, integration of active transportation into capital road programs, and ongoing investment in trail infrastructure, including the Algonquin Trail and K&P Trail corridors.

Calabogie is directly influenced by this policy framework given its location along the K&P Trail and its role as a recreational destination within Renfrew County. The continued enhancement of regional trail infrastructure, including hardened surfaces and improved linkages, strengthens Calabogie’s connectivity to surrounding communities and supports both tourism and local mobility.

For the Calabogie Secondary Plan area, the Strategy provides direction to consider active transportation in future land use planning, subdivision design, and infrastructure improvements. This includes strengthening connections between residential areas, commercial destinations, community facilities, and trail access points, as well as integrating pedestrian and cycling infrastructure into roadway upgrades. Aligning with the County’s active transportation objectives will support safe, accessible, and connected growth as the community evolves.

6.4 Key Findings and Recommendations

The existing mobility network in Calabogie reflects the community’s small-village structure, recreational identity, and reliance on a limited number of key road corridors. Movement through the settlement area is concentrated



along Calabogie Road (County Road 508) and Lanark Road (Highway 511), which function as the primary regional access routes for residents and visitors. At the same time, the presence of regional trail infrastructure and strong recreational cycling activity highlights the importance of active transportation and outdoor recreation within the community.

Several considerations emerge for the Calabogie Secondary Plan.

- Strengthen connections between key destinations. Improve connections between residential areas, the village core, waterfront access points, parks, and recreational destinations through enhanced pedestrian and cycling infrastructure.
- Enhance pedestrian safety and accessibility. Introduce sidewalks, multi-use paths, and improved crossings along key corridors such as Calabogie Road, Mill Street, Madawaska Street, and Lanark Road where feasible.
- Support recreational mobility. Recognize the role of cycling and outdoor recreation in the local mobility network and consider opportunities to accommodate recreational cycling routes and trail access within the village.
- Integrate local roads with regional trail infrastructure. Strengthen connections between the K&P Trail, local streets, and community destinations to support both recreational use and everyday mobility.
- Incorporate active transportation into future development. Ensure that new development and roadway improvements include pedestrian and cycling infrastructure to support safe and convenient movement within the settlement area.
- Align with the County of Renfrew Active Transportation Strategy. Future planning and infrastructure upgrades should support the County's broader objectives of improving connectivity, expanding trail networks, and integrating active transportation into transportation planning.
- Support a complete and connected mobility network. Over time, improvements to the pedestrian, cycling, and trail network can help create a more accessible and connected community while reinforcing Calabogie's role as both a residential community and recreational destination.

7.0 Public Realm

7.1 Streetscapes

The streets in Calabogie primarily consist of collector and local roads rather than traditional grid-pattern main streets. These roads often experience both local traffic and through traffic, with limited separation between vehicles and pedestrians. Generally, the streets are a mix of asphalt surfaces, with narrow gravel shoulders.

The streets generally lack consistent pedestrian infrastructure such as sidewalks, crosswalks, and traffic calming measures. Calabogie features three different types of streets: County Roads, Private Roads, and Municipal Maintained Roads. Below is an overview of the existing conditions by typology in Calabogie:

County Roads:

- Calabogie is primarily served by two main county roads. On the northern edge of the municipal boundary, Calabogie Road, also known as Highway 508, runs east-west and extends 2.2 km within the boundary. It has an approximate right-of-way (ROW) of 10 meters and is one of the key roads leading into the community.
- Lanark Road, or Highway 511, is classified as a county road, extending 1.5 km with an approximate ROW of 8 meters. This road winds through the eastern edge of the community and crosses the Madawaska River. Streetlights are mounted on hydro poles located on both sides of the street throughout the study area alongside a narrow sidewalk on the western edge of the street, and the character of the streetscape varies along the length of the area.



Figure 23 Existing condition of Calabogie Road/Highway 508

Municipal Maintained Roads:

- Francis Street runs north-south through the center of the community and transitions into Madawaska Street, featuring an approximate right-of-way (ROW) of 8 meters. The street is characterized by one-way traffic lanes in each direction, with street trees lining both sides and ample setbacks from residential and commercial properties. As Francis Street approaches the waterfront, a narrow sidewalk can be found along the northern edge, adjacent to low-density, low-rise residential developments. On the southern side, there is street parking, grassy areas, and access to the docks.
- Mill Street extends approximately 1.45 kilometers across the community, also with an approximate ROW of 8 meters. The streetscape along Mill Street varies throughout the municipality. On the northern side, there are predominantly low-rise residential houses, while the southern edge is lined with forested areas.

- O'Neill Point Road, connected to Mill Street, features a winding paved or gravel road with a varied right-of-way. It lacks pedestrian sidewalks and has trees lining both sides.
- Perpendicular to Madawaska Street, there are smaller municipal roads including Gladstone Street, Blake Street, Mowat Street, and Parnell Street. These streets typically have a ROW of 6 to 7 meters, feature low-rise residential properties on both sides, and lack sidewalks, with varying setbacks from the paved areas.



Figure 24 Existing condition of Francis Street



Figure 25 Existing condition of Madawaska Street



Figure 26 Existing condition of Blake Road

Private Roads:

- Octagon Lane, Leclerc Lane, and Trailer Lane are identified as smaller private roads on the edges of Calabogie. These roads often serve as intimate access points to lakes, forests, and cottage properties and are generally maintained by homeowners or private contractors. The narrow roads vary in surface from gravel, dirt or unpaved.

Recommendations:

There are opportunities to protect significant natural features and enhance views of the waterfront, promote biodiversity, establish prominent gateway features, and create connections to the broader open space network. Recommendations for the road network and streetscape character include:

- Establish a clear street hierarchy that recognizes and enhances the function and character of existing streets. Introducing continuous sidewalks, multi-use paths, and strategically placed crosswalks can improve walkability between residential, commercial, and recreational areas.

- Implement formal traffic calming measures by enhancing road safety road by narrowing asphalt widths and integrating new features such as boulevard bump-outs, raised pedestrian crossings, special surface paving treatments, and signage on main roads including Highway 511, Highway 508, and Lanark Road.
- Enhance the design of all streets while respecting Calabogie's quiet, meandering, and rural character.
- Consider speed limit reductions and evaluate the possibility of reducing speed limits and implementing a one-way configuration for Francis Street, Madawaska Street, and a segment of Lanark Road to enhance accessibility, safety, and expand the public realm. And removal of on-street parking on Madawaska Street.
- Improve streetscape design by formalizing shoulder areas on all roads and promoting an urban tree canopy on all streets.
- Designate and formalize a commercial mixed-use main street The town features small commercial establishments such as restaurants, shops, and services, interspersed with residential buildings and recreational amenities. Defining a main street character with a consistent building edge, landscape treatment, and street wall would enhance the area.
- Monitor and evaluate measures that can minimize traffic noise from racetrack and ATVs to improve the community's quality of life.
- Implement continuous and accessible cycling infrastructure and sidewalks on select key municipal roads in Calabogie, such as Mill Street, Lanark Road, and Madawaska St to strengthen connections with surrounding communities and natural amenities.
- Ensure that streets, pathways, and trails are connected to natural amenities and the village core.
- Integrate Low Impact Development (LID) best practices such as rain gardens, bioswales, and permeable paving for stormwater management, while adding visual interest and appeal. Prioritize choosing native and drought tolerant species for low maintenance.

7.2 Street Furniture and Landscaping

The streetscapes in Calabogie and the surrounding area feature limited formal street furniture, such as benches, bike racks, garbage bins, and standardized lighting. Public seating, like benches, is generally available in parks and along the waterfront. The landscaping adjacent to roads, particularly in residential front yards, is characterized by well-maintained grass that occupies most of the frontage, along with trees. Some residential properties also include accent planting or low vegetation next to the street.

Recommendations:

- Establish a unified and consistent streetscape furniture palette that reflects Calabogie's cultural, natural, and rural identity through thoughtful material choices, colors, and styles. The selected materials should be durable and low-maintenance, suitable for year-round use and winter conditions. A defined palette that includes pedestrian-scaled lighting, street furniture, waste receptacles, and wayfinding elements will enhance pedestrian comfort and safety at key activity nodes, such as shops, cafés, parks, waterfront areas, and recreational spaces.
- Integrate bicycle racks in key recreational areas, parks, and waterfront locations to support active transportation and accommodate tourism traffic, particularly during peak summer months.
- Retain and enhance the existing tree canopy and plant native species in public spaces. Where possible, trees should be planted on both sides of the street. Street trees, native

plantings, and pollinator gardens can help frame pedestrian routes, provide shade, improve the local microclimate, and serve as traffic calming measures.

- Streets that are adjacent to or approach the waterfront should receive special attention regarding views, seating, landscaping, and prioritizing active mobility.
- Adopt unified signage standards that incorporate natural materials, color palettes, and visual motifs that reflect Calabogie's cultural identity, history, and character.

7.3 Waterfront

The town of Calabogie has strong connections to Calabogie Lake and the Madawaska River, but the surrounding streets and public spaces currently lack cohesion. While the waterfront is cherished and valued by the community, it is mostly dominated by private docks, on-street parking, and issues related to safety and accessibility. There are opportunities to develop a year-round, vibrant, walkable, safe, and accessible waterfront for both visitors and residents.

Recommendations:

- Ensure safe and continuous public access along the waterfront edge. There are opportunities to enhance public access and increase the variety of both passive and active experiences. This will require a balance to maintain and promote existing boating access on the waterfront. Key considerations include:
 - The distance between the road and the water's edge should be sufficient to accommodate trails, boardwalks, and other desired public amenities.
 - The waterfront should feature public facilities, amenities, and designated areas for launching and docking recreational boats.
- Create a diverse, balanced, and vibrant waterfront. Building upon Calabogie's existing year-round recreation amenities, the waterfront should encourage a variety of outdoor activities for all seasons. New uses and changes for the waterfront could include:
 - Integrating diverse land uses, such as open spaces and cultural recreation.
 - Maintaining a balance between active and passive recreational uses, incorporating small-scale outdoor and indoor attractions or shelter spaces.
 - Enhancing and integrating seasonal event spaces, such as temporary markets, cafes, and skating rentals, that can invigorate the waterfront. Supporting and enhancing existing activities like swimming, boating, fishing, hiking, and picnicking.
 - Enhance the visual and physical connections to the waterfront. Key streets that provide access to the waterfront include Mill Street, Francis Street, Madawaska Street, and Lanark Road. Several physical barriers limit easy access for pedestrians and cyclists, including limited crossings, inadequate pedestrian sidewalks, and street parking adjacent to the water's edge.
 - Integrate natural or built shading features, such as canopy trees or awnings, along with appropriate lighting, seating, and walkways leading to the waterfront.
 - Create pedestrian priority areas along the waterfront that balance ecological protection with accessibility.
 - Incorporate interpretive signage at key waterfront locations to highlight the natural and cultural history of the area.



Figure 27 Existing condition of a cultural point of interest along the waterfront.



Figure 28 Existing condition of private docks along the waterfront

7.4 Public Spaces

The central hub of the Calabogie community is the Community Hall and rink, which hosts celebrations, hockey tournaments, and farmers' markets. Other significant gathering spaces in the area include Most Precious Parish Catholic Church, St. Andrew's United Church, Greater Madawaska Public Library, and Barnet Park. There is also an opportunity to enhance the community by integrating and expanding public

spaces into a connected network. This could involve linking parks, parkettes, the farmers' market, trailheads, and the village core.

Recommendations:

- Establish a hierarchy of public spaces with consistent design standards. Consider creating a main plaza, pocket parks, and other gathering areas.
- Integrate public art and heritage markers and engage with the community to develop both informal and formal public spaces that enhance well-being and foster a sense of belonging.
- Explore the redevelopment of vacant public lands into prominent, multifunctional spaces that support markets, performances, casual recreation, play zones, gathering areas, and trail connections. These spaces should cater to families, residents, and visitors alike.
- The planning, design, and development of new public spaces should be grounded in a community-based process that prioritizes the creation of engaging, accessible, and safe areas that can accommodate people of all ages and abilities throughout the year.
- Incorporate high-quality landscaping and design elements that contribute to place-making within Calabogie.



Figure 29 Calabogie Community Centre, farmers market

7.5 Public Art and Placemaking

Calabogie currently lacks public art and formal placemaking initiatives within the community. However, there is a significant opportunity to celebrate and enhance the unique cultural and historical identity of Calabogie by improving public space design and integrating art into the landscape.

Recommendations:

- Public art should be strategically placed at the ends of view corridors, in parks, at gateways, and within community nodes. It is important to integrate placemaking and artistic elements such as murals and temporary installations, while also engaging with local and Indigenous artists.
- Celebrate Calabogie's unique cultural identity, including its logging and mining heritage, the K&P Railway, the Black Donald Graphite Mine, hydrological history, and the diverse cultural groups in the area. Interpretive plaques, museums, and smaller indoor venues can effectively showcase the local history and heritage.
- Build capacity for land-based Indigenous placemaking and foster conversations that create spaces for ceremony, teaching, and community engagement.
- Develop interpretive elements that highlight Calabogie's natural history, conservation efforts, and traditional land use. These elements can be featured along trails, by the waterfront, in parks, and in public spaces.
- Create an 'Arts Trail' with outdoor art installations along existing hiking trails and pathways. Collaborating with local businesses and artists could lead to opportunities for pop-up galleries, art-integrated signage, and outdoor installations.

7.6 Signage and Wayfinding

The current signage along the streets and points of interest in Calabogie varies in style and size. There's an opportunity to develop a unified wayfinding, signage, and branding strategy for the community and waterfront areas. This would enhance Calabogie's identity and contribute to a cohesive and vibrant public space. Gateways are essential elements in placemaking and wayfinding, serving as strategic access points into the town. They should be positioned in prominent locations with high public visibility and designed to reflect Calabogie's authentic, small-village atmosphere.



Figure 30 Mill St and Calabogie Rd Intersection and entrance. Currently lacks gateway signage and prominent signage to indicate the entrance into the community.



Figure 31 Francis St and Calabogie Rd Intersection and entrance.



Figure 33 Kingston and Pembroke Trailhead crossing into the Calabogie village core.



Figure 32 Lanark Rd and Calabogie Rd Intersection and entrance.

Recommendations:

- Establish gateway treatments at key intersections and transition areas through the provision of accent planting, signage, lighting, surface paving treatments, and enhanced landscaping. Recommended gateway locations include:
 - Madawaska St and Lanark Road
 - Calabogie Road and Mill St
 - Calabogie Road and Lanark Rd
 - Calabogie Road and Francis St
 - Trail signage for Kingston and Pembroke Trail
- Develop and implement a comprehensive wayfinding and signage strategy to guide visitors and residents to key destinations within the town, including the waterfront, parks, businesses, and trails.
- Create a signage system that maintains consistent typography, colors, and materials.
- Integrate interpretive panels at significant heritage or natural sites. Ensure that

all signage is accessible, legible, and strategically placed at key intersections, gateways, and trailheads. Notable historical sites and buildings to highlight include Heritage Point, old homesteads, and Octagon House.

- Develop a visitor's experience and wayfinding network to promote local and adjacent attractions such as Eagle's Nest Lookout, Ironwoods Golf Course, Madawaska Nordic Ski, and Recreational Trail Network.

7.7 Key Findings and Recommendations

The public realm in Calabogie is closely shaped by its natural setting, waterfront character, and small-village form. While the community benefits from strong connections to outdoor recreation and natural landscapes, many public spaces and streets currently lack coordinated design, pedestrian infrastructure, and consistent placemaking elements. The Secondary Plan presents an opportunity to strengthen the public realm through a cohesive framework that enhances mobility, reinforces community identity, and improves connections between the village core, waterfront, and surrounding natural areas.

Key recommendations include:

- Strengthen connections between the village core, waterfront, and open space network. Improve pedestrian and cycling connections along key streets such as Francis Street, Madawaska Street, Mill Street, and Lanark Road to better link community destinations, parks, trails, and waterfront areas.
- Enhance streetscapes while maintaining Calabogie's small-village character. Introduce sidewalks, multi-use paths, street trees, and traffic calming measures on key corridors while respecting the community's quiet and natural character.
- Establish a recognizable village main street environment. Support the development of a mixed-use main street with consistent streetscape design, landscaping, and pedestrian amenities that reinforce Calabogie's role as a community gathering place.
- Improve public access and experience along the waterfront. Enhance safe and continuous access to Calabogie Lake through trails, seating areas, and public gathering spaces while maintaining ecological protection and boating access.
- Introduce consistent streetscape furniture, landscaping, and wayfinding. Develop a unified palette of lighting, signage, street furniture, and materials that reflects Calabogie's natural and cultural identity.
- Support placemaking and cultural interpretation. Integrate public art, interpretive elements, and heritage markers that celebrate Calabogie's history, Indigenous presence, and outdoor recreation culture.
- Enhance gateway features and community identity. Establish prominent gateway treatments and wayfinding elements at key entrances to the village and along major trails.

8.0 Built Form

8.1 Built Form

The built form within the Calabogie settlement area reflects the community's evolution as a waterfront village and recreational destination. Development is generally characterized by low-rise buildings, modest lot coverage, and a pattern of buildings oriented toward the roadway or waterfront. The built environment consists primarily of detached residential dwellings, small-scale commercial buildings, and recreational or tourism-related uses.

Building placement and form vary across the settlement area depending on proximity to the village core, Calabogie Lake, and surrounding natural features. Residential areas typically consist of detached dwellings set within landscaped lots, while the village core includes small-scale commercial and mixed-use buildings that contribute to the local main street character.

Overall, the built form is defined by a low-density pattern, generous setbacks, and strong visual connections to the surrounding natural landscape. These characteristics contribute to the community's identity as a lakeside village and recreational hub.

8.2 Built Form

Within the settlement area, residential development represents the dominant built form. Housing is primarily comprised of single detached dwellings located along local roads and around the shoreline of Calabogie Lake. Building styles vary, reflecting a mix of permanent residences, seasonal cottages, and newer homes constructed in recent decades.

The village core contains a small cluster of commercial and service-oriented uses that support both residents and visitors. These buildings are typically one to two storeys in height and are located close to the roadway,

creating a modest main street environment. Additional recreational and tourism-related uses are located throughout the area, including accommodations, restaurants, and outdoor recreation facilities.

Development patterns are influenced by the surrounding natural environment, including the lake, forested areas, and the Madawaska River valley. As a result, built form tends to be dispersed and integrated within the landscape rather than concentrated in a compact urban pattern.

8.3 Building Heights

Building heights within the Calabogie settlement area are generally low-rise in scale. Most residential buildings are one to two storeys in height, reflecting the predominance of detached dwellings and cottage-style development throughout the community. Commercial and service-oriented buildings within the village core also typically range from one to two storeys, maintaining a modest built form that is integrated with the surrounding landscape.

In certain locations, larger tourism and accommodation uses introduce slightly greater building massing and height. One notable example is Calabogie Lodge, located along the shoreline of Calabogie Lake. The lodge complex includes multi-storey accommodation buildings that exceed the typical height of surrounding residential structures and represent one of the more prominent built form elements within the community.

Despite these occasional larger buildings, the overall height profile of Calabogie remains low-rise and consistent with its lakeside setting. Building heights generally remain below three storeys and are visually moderated by surrounding vegetation, topography, and the expansive lakefront landscape.



9.0 Community Services and Amenities

9.1 Amenities and Community Facilities

Calabogie contains a range of local amenities and community facilities that serve both residents and visitors. Many of these uses are concentrated along Calabogie Road (County Road 508) within the village core, where small-scale commercial, service, and institutional uses form the primary activity area. These include local businesses such as restaurants, retail shops, and service providers that support daily needs and tourism-related activity.

Community and civic facilities are also located within or near the village core. These include the Greater Madawaska Public Library, Township

municipal offices, Calabogie Post Office, and the Calabogie War Memorial. These facilities provide important gathering spaces and services for residents and contribute to the social and civic life of the community.

Tourism and recreation amenities are an important component of the local facility network. Facilities such as the Calabogie and District Snowmobile Club, waterfront access areas, restaurants, and tourism information points support the community's role as a regional recreation destination. These amenities complement the surrounding natural features, including Calabogie Lake and nearby trail networks, which attract visitors throughout the year.

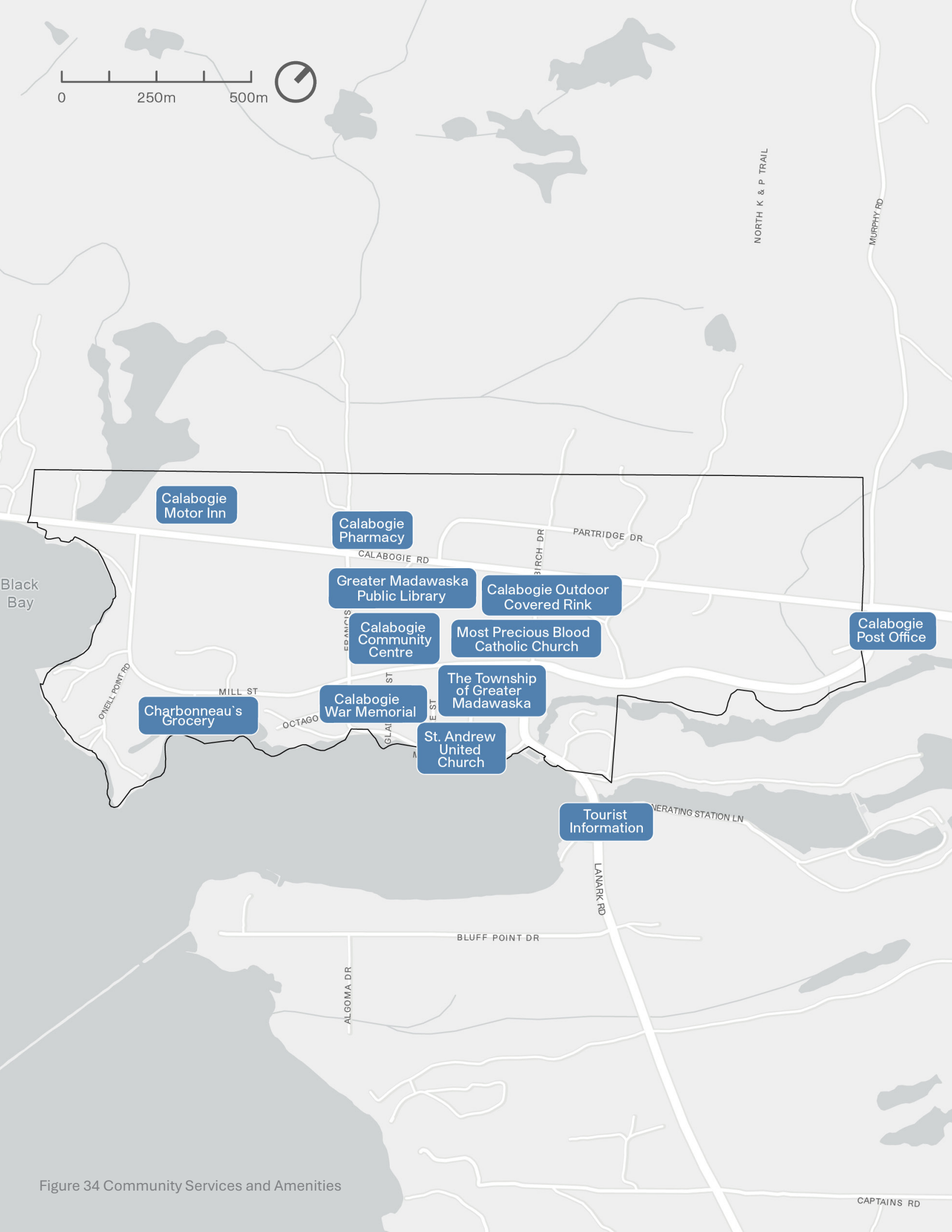


Figure 34 Community Services and Amenities

9.2 Key Findings and Recommendations

The existing distribution of amenities and community facilities reflects Calabogie's role as both a local service centre and a recreational destination. As the community continues to evolve, the Secondary Plan provides an opportunity to strengthen the village core, improve connections between amenities, and ensure that facilities continue to meet the needs of residents and visitors. The following considerations may help guide future planning and investment in amenities and community facilities within the Secondary Plan area.

- Strengthen the village core as the primary service hub. Encourage the clustering of small-scale commercial, civic, and community uses along Calabogie Road to reinforce a recognizable village centre and improve access to everyday services.
- Support small-scale commercial and tourism-serving uses. Given Calabogie's role as a recreation destination, planning policies should allow for compatible tourism-oriented businesses such as cafés, small retail, accommodations, and recreational outfitters.
- Improve connections to community facilities. Future pedestrian and cycling improvements should prioritize links between the village core, waterfront areas, civic facilities, and recreational destinations.
- Enhance public gathering spaces. Opportunities may exist to improve or expand public spaces such as waterfront access points, small parks, and community gathering areas that support local events and visitor activity.
- Plan for growth in community services. As population and seasonal visitation increase, the Township may need to consider future space requirements for community facilities, emergency services, or visitor services.



10.0 Parks and Open Spaces

The Calabogie Secondary Plan area is situated within a landscape characterized by extensive natural features, including forests, wetlands, waterways, and shoreline areas associated with Calabogie Lake and the Madawaska River. These natural areas provide important recreational opportunities while contributing to the environmental character of the community.

Open spaces within and around the settlement area include waterfront access points, trail corridors, natural areas, and publicly owned lands. Together, these spaces support a range of outdoor activities such as walking, cycling, boating, fishing, and seasonal recreation. The surrounding natural landscape plays a key role in shaping the identity of Calabogie as a recreation-oriented community.

10.1 Parkland

Formal municipal parkland within the Calabogie settlement area is limited, though several public spaces and waterfront areas provide opportunities for recreation and community gathering. Barnett Park is the closest formal parkland within walkable access to the village boundary. Waterfront access points along Calabogie Lake and the Madawaska River serve as important recreational resources for residents and visitors.

In addition to designated park spaces, recreational use occurs within informal open spaces, trail corridors, and natural shoreline areas. These spaces support activities such as swimming, boating, and community events, and contribute to the overall recreational character of the settlement area.



Eagles Nest
Lookout

Calabogie
Peaks Resort

Calabogie
Lake Lookout

Manitou
Mountain
Trail

Juniper
Ridge
Lookout

Red Arrow
Rock Outlook

Barnet Park

K&P Trail



Community Hall
Baseball Diamond

Figure 35 Parkland and Open Spaces

10.2 Conservation Areas

The Calabogie area contains a variety of environmentally significant landscapes, including wetlands, forested areas, and river corridors associated with the Madawaska River system. These natural features provide ecological functions such as habitat protection, water quality regulation, and flood attenuation.

While not all natural areas are formally designated conservation lands, many are protected through environmental policies and land use planning controls. These landscapes contribute to the environmental integrity of the region and provide opportunities for passive recreation such as hiking, wildlife viewing, and nature appreciation.

10.3 Crown Lands

Significant portions of land surrounding the Calabogie settlement area are Crown lands managed by the Province of Ontario. These lands provide extensive opportunities for outdoor recreation, including hiking, hunting, snowmobiling, and off-road vehicle use.

Crown lands also support broader ecological functions and contribute to the natural character of the region. Their presence reinforces Calabogie's role as a gateway to outdoor recreation and supports tourism activity throughout the year.

10.4 Key Findings and Recommendations

The surrounding network of parks, natural areas, and Crown lands represents a significant asset for the Calabogie community. As the settlement area evolves, the Secondary Plan can support the integration of open spaces and recreational opportunities within future development.

Key considerations for the Secondary Plan include:

- Protecting natural features and shoreline areas that contribute to the environmental character of the community.
- Potentially identifying additional formal parkland and open spaces within the Calabogie Village Boundary.
- Strengthening connections between the village core, waterfront areas, and surrounding recreational landscapes.
- Enhancing access to public open spaces, trails, and waterfront areas where appropriate.
- Supporting recreational infrastructure that complements Calabogie's role as a regional outdoor recreation destination.
- Ensuring that future development is designed to respect and integrate surrounding natural landscapes.



Technical Assessment Summaries



1.0 Transportation Assessment Summary

A transportation assessment was completed to evaluate existing roadway conditions, traffic volumes, and network performance within the Calabogie Secondary Plan area. The assessment reviewed the road network, estimated traffic volumes based on population and land use assumptions, and evaluated roadway capacity. The full technical memorandum is included in Appendix A.

1.1 Key Findings and Recommendations

The transportation network in Calabogie is structured around Calabogie Road (Highway 508) and Lanark Road (Highway 511), which function as the primary access routes into and through the community. Local roads distribute traffic within the settlement area and provide access to residential areas and the waterfront.

- The existing road network has capacity to accommodate current conditions and moderate growth
 - Future development may require further review of traffic conditions and distribution as part of site-specific studies
 - Additional analysis may be required in future phases of the Secondary Plan to assess transportation impacts associated with growth and land use changes
-
- Based on estimated trip generation and distribution assumptions, the existing road network is operating below its theoretical capacity. The highest volume-to-capacity ratio occurs along Calabogie Road during peak periods, but remains below capacity thresholds. Overall, the findings indicate that the current road network can accommodate existing traffic volumes.
 - The road network is centered on a limited number of primary access routes, including Calabogie Road and Lanark Road
 - Traffic volumes are currently below roadway capacity across all assessed segments
 - The highest traffic volumes occur along Calabogie Road, reflecting its role as the primary east–west corridor
 - Local roads distribute traffic within the settlement area and are not currently constrained

2.0 Drainage and Stormwater Assessment Summary

A drainage background review was completed to assess existing conditions within the Calabogie Secondary Plan area. The review examined drainage patterns, watercourses, wetlands, and infrastructure such as culverts and roadside ditches. The full technical assessment is provided in Appendix B.

2.1 Key Findings and Recommendations

Drainage within the study area is primarily influenced by natural topography and the surrounding water system, including Calabogie Lake and the Madawaska River. Surface runoff generally follows these natural patterns, with existing development relying on roadside ditches and natural channels. Wetlands and watercourses play an important role in conveying stormwater and supporting ecological functions.

- No significant drainage constraints were identified within existing developed areas. However, as growth occurs, drainage patterns, culvert capacity, and downstream impacts will require careful consideration. Future development will require site-specific analysis and appropriate stormwater management to maintain water quality and natural hydrologic function.
- Protect and integrate natural drainage features, including wetlands and watercourses, into future planning
- Incorporate stormwater management approaches that maintain water quality and natural flow conditions
- Integrate Low Impact Development measures such as bioswales, rain gardens, and permeable surfaces where appropriate
- Ensure infrastructure planning accounts for culvert capacity and evolving drainage conditions
- Consider drainage implications as part of growth boundary adjustments and future land use planning

3.0 Archeological Management Plan Summary

An Archaeological Management Plan (AMP) was prepared for the Village of Calabogie to support the identification, protection, and appropriate management of archaeological resources within the Secondary Plan area. The study examined environmental and historical factors that contribute to archaeological potential and produced archaeological potential mapping for use in municipal planning and development review. The full Archaeological Management Plan is included in Appendix D.

The archaeological potential mapping is intended to assist the Township in determining when archaeological assessments may be required prior to development or site alteration in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists issued by the Province of Ontario. The AMP also provides guidance for integrating archaeological resource protection into municipal planning processes and future planning initiatives.

3.1 Key Findings and Recommendations

- **Use of Archaeological Potential Mapping:** The archaeological potential mapping developed through the Calabogie Archaeological Management Plan should be used by the Township when reviewing development applications to determine whether archaeological assessments are required.
- **Archaeological Assessment Requirements:** Development and site alteration within areas identified as having archaeological potential should not proceed unless the requirements of the Ontario Heritage Act are satisfied. Where potential is identified, archaeological assessments must be undertaken by a licensed archaeologist in accordance with provincial standards.
- **Development Review Process:** As part of the development review process, the Township may require the submission of archaeological assessment reports where archaeological potential has been identified. Assessments must be completed to the satisfaction of the Province prior to development approval.
- **Protection of Archaeological Resources:** Where archaeological resources are identified, they should be protected through avoidance, site redesign, or other mitigation measures recommended by a licensed archaeologist and accepted by the Province.
- **Accidental Discovery Protocols:** If archaeological resources are discovered during construction or site alteration, work in the immediate area should cease and a licensed archaeologist should be contacted to assess the find. If human remains are encountered, work must stop immediately and the appropriate authorities must be notified in accordance with provincial legislation.
- **Indigenous Engagement:** Opportunities should be provided for Indigenous Nations and communities with interest in the area to be informed of archaeological work and to participate where they express interest.

- **Integration with Municipal Planning Tools:** The Township may incorporate archaeological management policies and mapping into municipal planning tools, including zoning by-laws, development review procedures, and future updates to planning policies.
- **Data Management and GIS Integration:** Archaeological potential mapping should be maintained within the Township's Geographic Information System (GIS) to support planning and development review. Archaeological site location information must be managed in accordance with provincial data-sharing requirements and confidentiality provisions.
- **Periodic Review and Updates:** The Archaeological Management Plan should be periodically reviewed to reflect new archaeological information, completed assessments, or updates to municipal planning initiatives.

Future phases of the Calabogie Secondary Plan will consider archaeological potential in relation to proposed growth boundary adjustments and land use changes, ensuring that archaeological resources are appropriately considered as the planning process advances.

4.0 Cultural Heritage Resource Assessment Summary

The Cultural Heritage Resource Assessment (CHRA), provided in Appendix E, identifies and evaluates cultural heritage resources within the Village of Calabogie to inform the Secondary Plan. The study identified 19 potential built heritage resources and recognizes the broader cultural landscape, particularly Calabogie Lake and its waterfront, as central to the community's identity. The findings highlight that Calabogie's heritage value is rooted not only in individual buildings, but in the relationship between its natural setting, historical development, and community traditions. The CHRA emphasizes the importance of conserving these elements while supporting compatible growth, adaptive reuse, and enhanced interpretation of the community's cultural heritage.

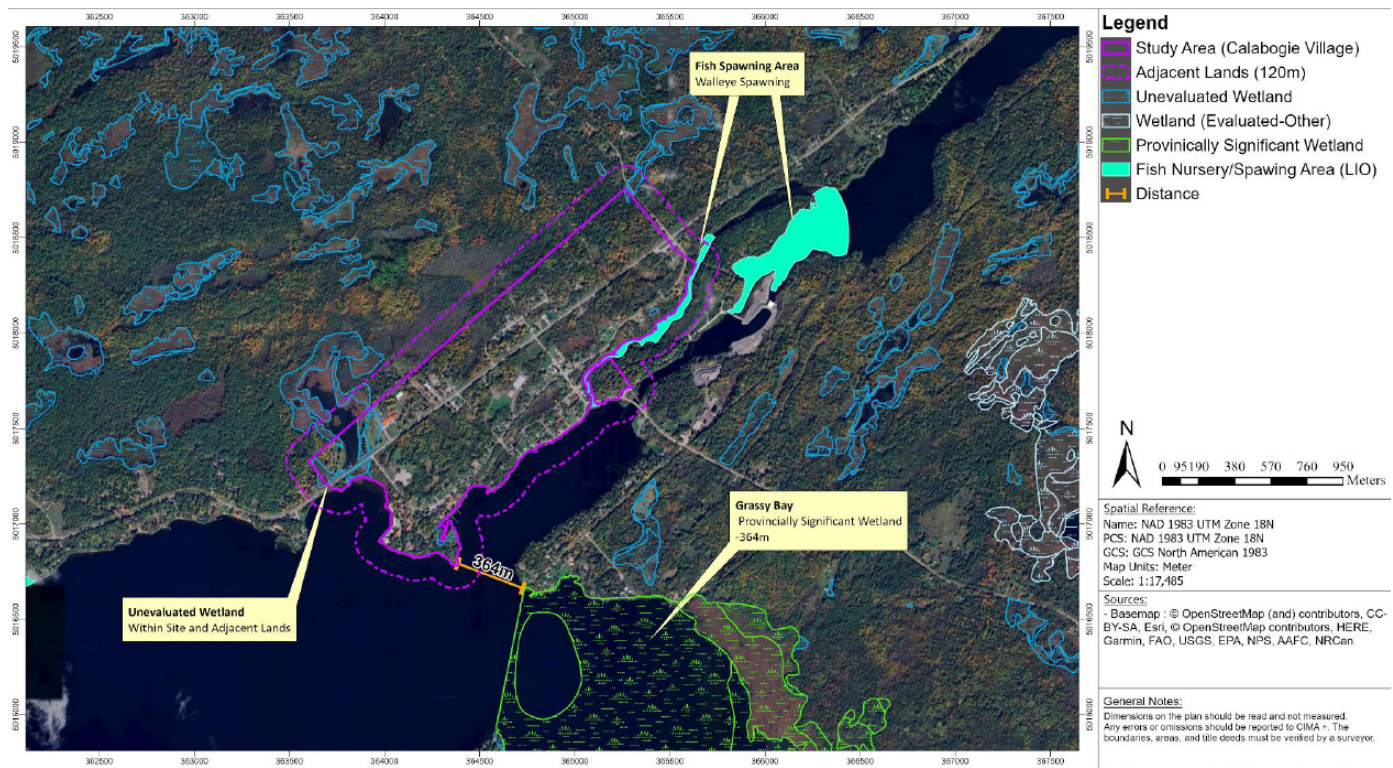
4.1 Key Findings and Recommendations

The CHRA establishes a cultural heritage framework that is directly relevant to future planning in Calabogie. In particular, it:

- Supports the identification, conservation, and potential designation of built heritage resources within the Village
- Emphasizes the importance of conserving and enhancing cultural heritage landscapes, including the waterfront and broader lake setting
- Encourages new development to be compatible with the existing built form, character, and small-town identity of Calabogie
- Promotes adaptive reuse and continued active use of heritage buildings to support long-term viability

- Identifies opportunities to develop a coordinated interpretation strategy that reflects Indigenous history, industrial heritage, and tourism
- Highlights the importance of integrating heritage conservation with public realm improvements, waterfront planning, and tourism development
- Reinforces the need to balance growth and development with the protection of community identity and cultural continuity

The Secondary Plan provides an opportunity to embed these heritage objectives into land use policy, urban design direction, and implementation tools to ensure that Calabogie's cultural heritage is conserved, celebrated, and integrated into future growth.



5.0 Natural Heritage Assessment Summary

A Natural Heritage assessment was completed to identify natural features within and adjacent to the Calabogie Secondary Plan area and to evaluate their significance in accordance with the Natural Heritage Reference Manual (Ontario Ministry of Natural Resources, 2010), the Provincial Planning Statement (PPS), and applicable provincial and federal guidance. The assessment included a background review and field investigations to confirm the presence of natural features and evaluate potential impacts associated with future development. The full Natural Heritage assessment is provided in Appendix C.

The study determined that several provincially recognized natural heritage features are not present within the Study Area, including Areas of Natural and Scientific Interest

(ANSIs), significant woodlands, and significant valleylands. However, a number of natural features were identified within the Study Area or in adjacent lands that require consideration in future planning and development.

5.1 Key Findings and Recommendations

- No Areas of Natural and Scientific Interest (ANSIs) were identified within the Study Area or adjacent lands.
- No significant woodlands or significant valleylands were identified within the Study Area.

- The following features were identified as present, potentially present, or assumed present within the Study Area or adjacent lands:
 - Habitat for endangered or threatened species.
 - Local or unevaluated wetlands, including wetland areas located near the northern edge of Calabogie Road.
 - Provincially Significant Wetland (PSW) located within adjacent lands.
 - Fish habitat and watercourses, including the outflow from Calabogie Lake to the Madawaska River.
 - Environmental Protection Areas identified within the study area.
 - Potential Significant Wildlife Habitat associated with wetlands, forested areas, and aquatic environments.

The assessment also identified a number of species at risk that may occur within the broader area, based on desktop screening and habitat characteristics. While field confirmation was not undertaken for all species, suitable habitat may exist for species such as Blanding's Turtle, Least Bittern, several bat species, Butternut, and Black Ash.

The aquatic system associated with Calabogie Lake and the Madawaska River represents an ecologically important feature in the area. The outflow corridor between the lake and the river provides habitat for fish species including Walleye and River Redhorse and functions as a spawning and nursery area. These water bodies are considered fish habitat under the Fisheries Act.

In addition, several unevaluated wetlands were identified within the study area. While many are relatively small and isolated, a larger wetland located along the northern edge of Calabogie Road exhibits diverse vegetation communities and may warrant further evaluation to determine its significance.

The assessment concludes that while several natural heritage features occur within or adjacent to the Secondary Plan area, potential impacts associated with future development can be addressed through appropriate avoidance, mitigation, and further study where required.

Future phases of the Calabogie Secondary Plan will consider natural heritage features in relation to proposed growth boundary adjustments and land use changes. Additional site-specific environmental studies may be required as development proposals proceed to ensure that natural heritage features and ecological functions are appropriately protected.

Conclusions and Recommendations



Conclusions and Next Steps

This Background Report provides an overview of existing conditions in the Village of Calabogie and establishes a foundation for the preparation of the Secondary Plan. The findings confirm that Calabogie is a distinct waterfront community shaped by its natural environment, recreational character, and small-village form, with emerging pressures related to growth, housing, and infrastructure.

Overall, the analysis identifies opportunities to support more coordinated growth, enhance the public realm, improve connectivity, and respond to evolving housing and economic needs, while maintaining the community's character and protecting natural and cultural heritage features.

The next phases of the project will build on this work through:

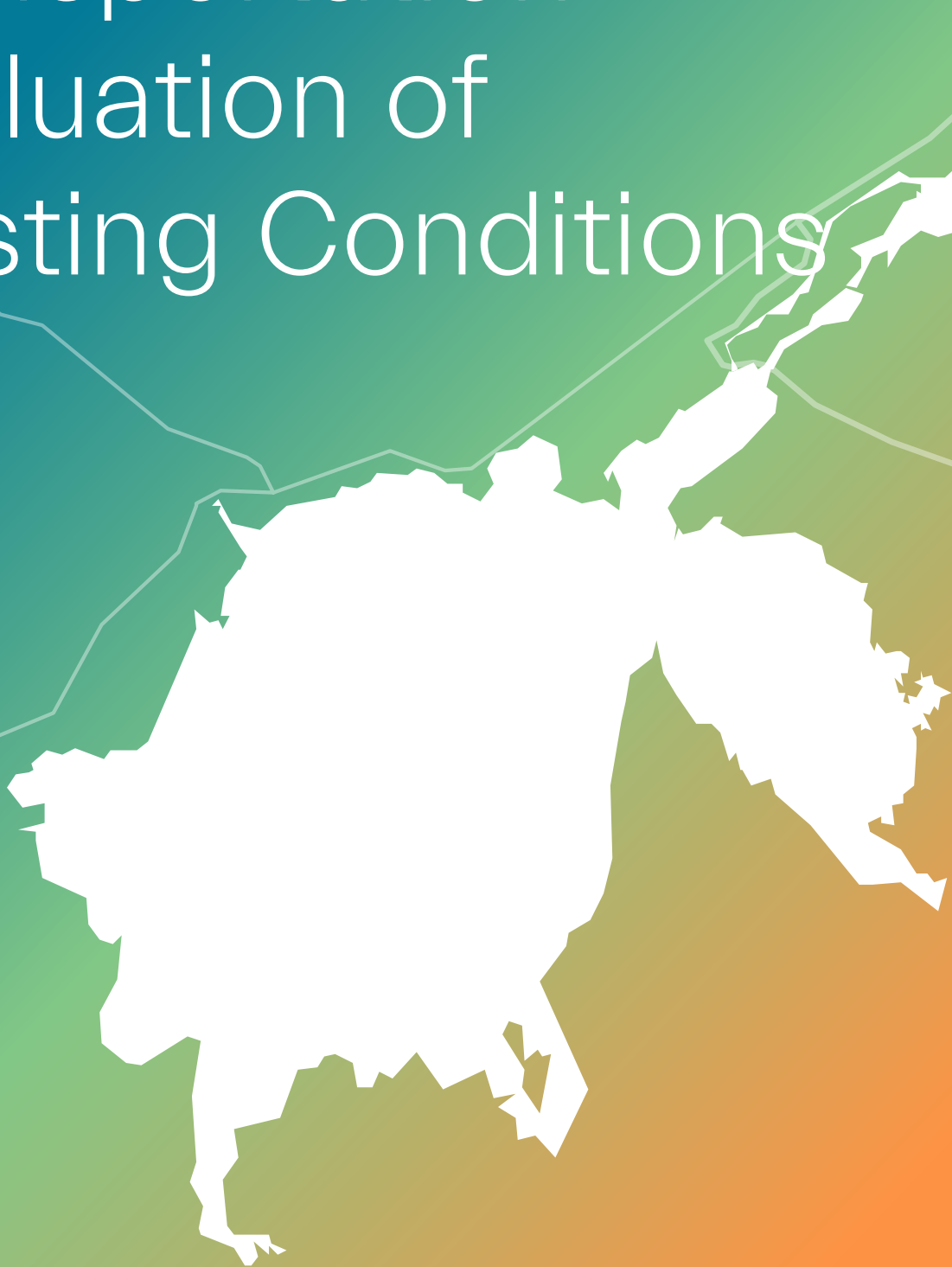
- Indigenous engagement to ensure that planning reflects Indigenous knowledge, values, and interests
- Public and rights holder engagement to define a shared vision and priorities for the future of Calabogie
- Evaluation of growth scenarios, including potential adjustments to the settlement boundary and land use framework
- Preparation of the Secondary Plan, including policy direction, land use designations, and implementation tools
- Continued coordination with technical studies to integrate infrastructure, natural heritage, drainage, and cultural heritage

considerations

- The Secondary Plan will translate these directions into a coordinated framework to guide future growth and development in Calabogie.
- Conserve and celebrate cultural heritage resources, including built heritage and cultural landscapes, and integrate heritage interpretation into public spaces
- Coordinate land use planning with infrastructure planning, including transportation, servicing, and digital connectivity, to support long-term growth
- Ensure that future development is compatible with the existing character of Calabogie, reinforcing its identity as a small, waterfront-oriented community

The Calabogie Secondary Plan represents an opportunity to build on these findings by establishing a clear and coordinated framework for future growth. By aligning land use, infrastructure, environmental stewardship, and community identity, the Plan can support a resilient, vibrant, and well-connected community while preserving the qualities that define Calabogie.

Appendix A: Transportation Evaluation of Existing Conditions



TECHNICAL MEMORANDUM

Presented to: Michelle Blom | Partner | Urban Design and GIS - REPUBLICURBANISM

Project: Calabogie Secondary Plan

Version: E01

Date: 05-01-2026

O/Ref.: Z0028761

Y/Ref.:

Object: Evaluation of Existing Conditions (TRANSPORTATION)

1. Introduction

In accordance with project 20028761 – Calabogie Secondary Plan, and at the request of the Village of Calabogie, a technical assessment was conducted to review the existing land use, existing roadway segments, existing pedestrian/cycling supporting infrastructure and potential generators/attractor of active transportation movement. The assessment aims estimate current roadway conditions through the approximation of population/population density in conjunction with the road network.

1.1 Study Area

Figure 1 showcases the subject the surrounding lands. The land use surrounding the study area is characterized by a mix of uses that includes low-density, detached residential neighbourhoods within the immediate vicinity of the study area, as well as some agricultural lands. The area is approximately 13.5 square kilometres of lands, of which 60% is estimated to be provincial crown land.

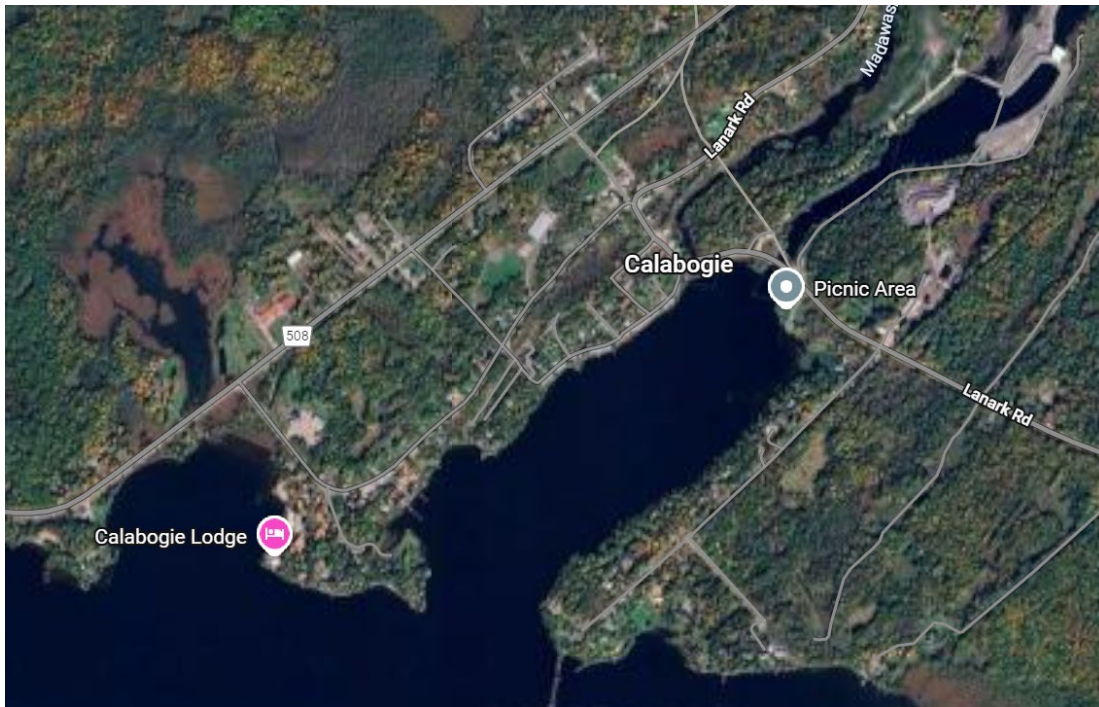


Figure 1: Study Area

2. Area Overview

2.1 Roadway Assessment

Currently, the residential portion of the lands is surrounded by Highway 508 (Calabogie Road) to its north, which runs east-west and Highway 511 (Lanark Road) to its east, which runs north-south. As these appear to be the major arterial roads connecting the village to other major populations, it is assumed that the majority of traffic will travel along these roadways.

2.2 Roadway Capacity

While no directional driving patterns are accessible at this time, based on the inner networks of the Village it is assumed that approximately 70% of all local traffic will access the area from north, via Calabogie Road and 30% will access the area from the south, via Lanark Road. Each road is assumed to have a capacity of 600 vehicles per lane.

Table 1: Roadway Capacity

Roadway	Lanes Per Direction	Capacity
Calabogie Road	1	600
Lanark Road	1	600
Mill Street	1	600
Francis Street	1	600
Birch Drive	1	600
Bluff Point Drive	1	600

2.3 Traffic Estimates

A report prepared by the Renfrew City Economic Development estimates that the Township of Greater Madawaska has approximately 1226 households, while Statistics Canada, estimates 87% of the township's population resides in the Calabogie area. Using these data points, it can be assumed that 1067 homes are within the Calabogie area. However, to provide a conservative estimate, the 1226 value was used for the analysis.

Additionally, Renfrew City Economic Development report indicates that a significant majority of the homes within the Greater Madawaska area are single-family detached home. For the sake of this assessment, it was assumed that all homes are single-family detached homes.

2.3.1 Hourly Traffic Rates

Using Land-Use-Code (LUC) 210, from the Institute of Transportation Engineers 11th Edition Trip Generation Manual (ITE), the estimated trips during the AM are 733 total, with 191 inbound and 542 outbound; and 1048 total during the PM, with 660 inbound and 388 outbound. Section 4.10 in Book 12 of the Ontario Traffic Manual (OTM Book 12) estimates that the average hourly volume can be calculated by dividing the peak hour volume (PM peak) by 2. Additionally, the weekday calculations for LUC 210, show the directional distribution as 50% inbound and 50% outbound.

Using this information, we can roughly estimate the average hour traffic, which is approximately 524 Total, with 262 inbound and 262 outbound vehicles.

Table 2: Land Use Code 210

AM				PM			
Equation/Average Rate	In %	Out %	Total Trips	Equation/Average Rate	In %	Out %	Total Trips
$\ln(T)=0.91\ln(X)+0.12$	0.26	0.74	733	$\ln(T)=0.94\ln(X)+0.27$	0.63	0.37	1048

2.4 Capacity Assessment

Refining the information provided in section 2.3.1, it is assumed that for the north portion of traffic an even distribution is used for the connecting roadways (Mill Street, Francis Street and Birch Drive), and for the south portion of traffic, a-third of the vehicles will use the connected roadway (Bluff Point Drive).

As shown within the tables below, with these assumptions, each lane is expected to operate below the 600-vehicle threshold. With the highest volume-to-capacity (v/c) ratio, being a 0.77 seen along Calabogie Road's inbound lane during the PM peak hour.

Table 3: Estimated Hourly Usage

Roadway	AM Peak		PM Peak		Average Hour	
	Inbound Lane	Outbound Lane	Inbound Lane	Outbound Lane	Inbound Lane	Outbound Lane
Calabogie Road	134	379	462	272	183	183
Lanark Road	57	163	198	116	79	79
Mill Street	45	126	154	91	61	61
Francis Street	45	126	154	91	61	61
Birch Drive	45	126	154	91	61	61
Bluff Point Drive	19	54	66	39	26	26

Table 4: Volume-to-Capacity Ratios

Roadway	AM Peak					
	Inbound Lane	Capacity	v/c ratio	Outbound Lane	Capacity	v/c ratio
Calabogie Road	134	600	0.22	379	600	0.63
Lanark Road	57	600	0.1	163	600	0.27
Mill Street	45	600	0.08	126	600	0.21
Francis Street	45	600	0.08	126	600	0.21
Birch Drive	45	600	0.08	126	600	0.21
Bluff Point Drive	19	600	0.03	54	600	0.09

TECHNICAL MEMORANDUM

Evaluation of Existing Conditions (TRANSPORTATION)

05-01-2026 - E01

CIMA+ Ref.: Z0028761

Roadway	AM Peak					
	Inbound Lane	Capacity	v/c ratio	Outbound Lane	Capacity	v/c ratio
Roadway	PM Peak					
	Inbound Lane	Capacity	v/c ratio	Outbound Lane	Capacity	v/c ratio
Calabogie Road	462	600	0.77	272	600	0.45
Lanark Road	198	600	0.33	116	600	0.19
Mill Street	154	600	0.26	91	600	0.15
Francis Street	154	600	0.26	91	600	0.15
Birch Drive	154	600	0.26	91	600	0.15
Bluff Point Drive	66	600	0.11	39	600	0.07
Roadway	Average Hour					
	Inbound Lane	Capacity	v/c ratio	Outbound Lane	Capacity	v/c ratio
Calabogie Road	183	600	0.31	183	600	0.31
Lanark Road	79	600	0.13	79	600	0.13
Mill Street	61	600	0.1	61	600	0.1
Francis Street	61	600	0.1	61	600	0.1
Birch Drive	61	600	0.1	61	600	0.1
Bluff Point Drive	26	600	0.04	26	600	0.04

Prepared by:

Verified by:

Michael Jarrett, T. Dipl.

Jaime Garcia, P.Eng., Ph.D.

Appendix B: Drainage and Stormwater Assessment





Calabogie Secondary Plan

Background Review - Drainage

February 18, 2026

Project number: Z0028761



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Engineering for **people**

Township of Greater Madawaska

Calabogie Secondary Plan Background Review - Drainage

Project No: Z0028761

Prepared by: Mercedeh Tahery, EIT
Water Resources

Verified by: Madhva Baral, M.A.Sc. P. Eng.
Director, Water Resources

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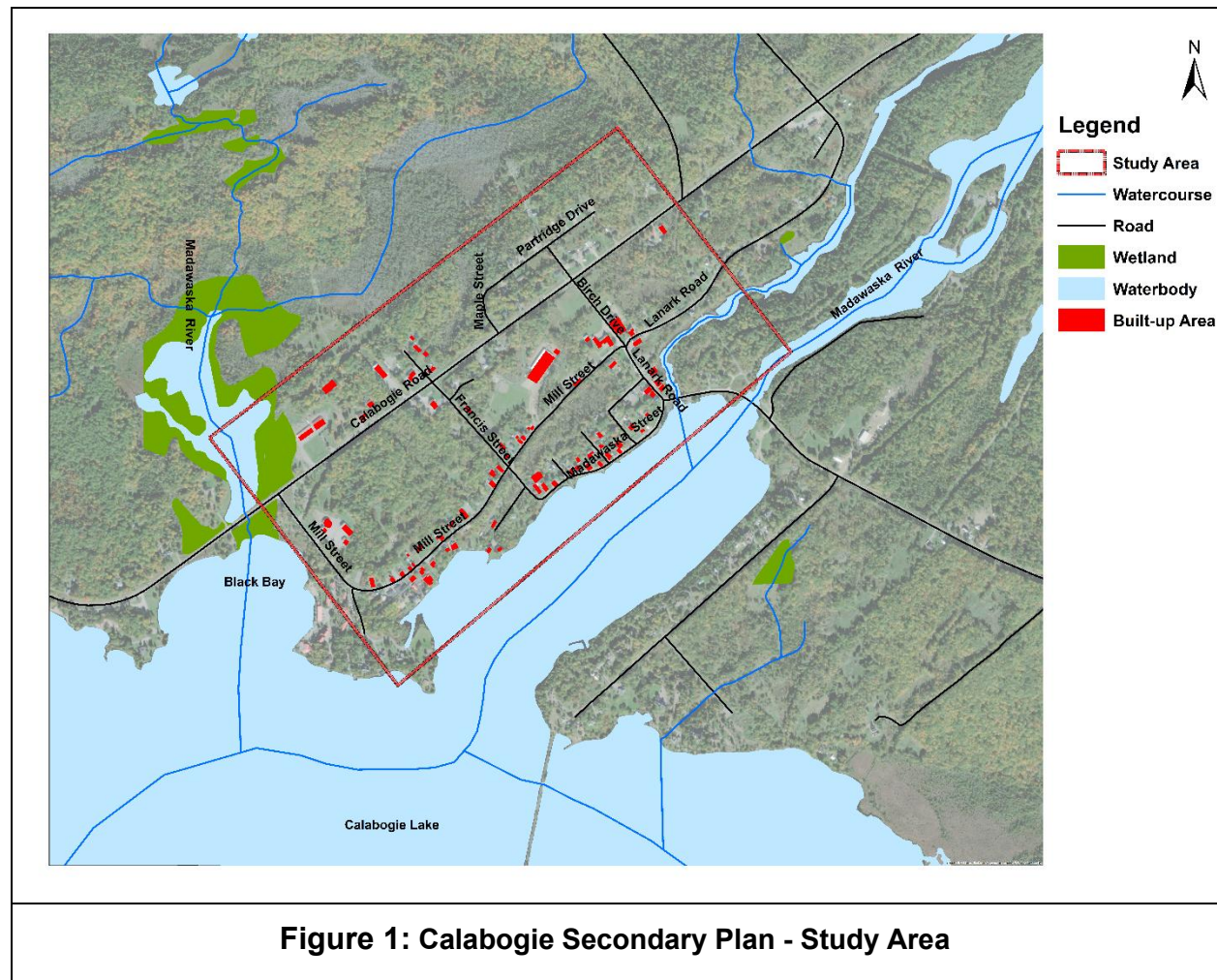
Appendix A: Site Photos

Appendix B: Rainfall Data

1. Introduction

CIMA+ was retained by the Township of Greater Madawaska to develop the Calabogie Secondary Plan which will provide a policy and implementation framework to guide the future growth and development of this area. As shown in **Figure 1**, the Secondary Plan study area is situated on the north side of Calabogie Lake, mostly between Calabogie Road and Madawaska Street. The area is within the jurisdiction of the Township of Greater Madawaska, which is a lower-tier municipality within the County of Renfrew.

The area has a mostly rural drainage pattern including ditches to convey the stormwater; however, some existing roadways are partially urbanized as they have curb/gutter geometry and municipal drains. The major river within the study area is Madawaska River which discharges into Ottawa River. No areas are within the jurisdiction of any conservation authority in this study region.



1.1 Purpose of study

The Township intends to complete a Secondary Plan within its jurisdiction to identify the characteristics of the existing drainage system, recommend reconfiguration of existing drainage features, and implement new drainage improvements to consider the effects of the urban development and climate change.

1.2 Scope of Work

This report provides the background review of the existing drainage system within the study area. However, the overall scope includes the analysis of existing drainage system and determine the target SWM criteria for the planned development. The report will also address the potential impact of the climate change due to the anticipated future changes in rainfall patterns. It includes the development of updated IDF curves and the analysis of stormwater system response to different climate change scenarios. Finally, the study will outline drainage stormwater management recommendations for future development based on the planned changes.

Briefly, the scope of work entails the following:

- Assemble available data from the Township of Greater Madawaska and County of Renfrew, including information compiled within their GIS database that includes digital maps of existing infrastructures
- Review the Township's drainage planning and design policies
- Prepare drainage mosaics illustrating the drainage areas and features
- Analysis existing drainage system (hydrology) based on the existing and projected land use changes
- Identify the existing drainage issues for the baseline scenario and recommend practical solutions to resolve the drainage issues
- Consider potential impacts of land development and climate change on existing drainage systems and propose a set of solutions to improve their performance and resilience under future conditions

1.3 Applicable Policy and guidelines

The guidelines and policies that provide the framework for the current study have been reviewed as a part of study. They include:

- Township of Greater Madawaska Official Plan, administrated by the Township and County of Renfrew.

- County of Renfrew Official Plan, March 2020.
- Stormwater Management Planning and Design Manual, March 2003, Ministry of Environment, Conservation and Park (MECP) (former MOE)
- MTO Highway Drainage Design Standards (2023)
- CAN/CSA S6-14 – Canadian Highway Bridge Design Code (CHBDC) (2014)

1.4 Supporting Studies / Data Sources

Background data listed below were reviewed by CIMA+ to verify the quality and completeness of the available data and to identify data gaps.

- Calabogie stormwater infrastructure map including storm sewer layout and culvert locations, prepared by County of Renfrew and Township of Greater Madawaska, February 2025
- Greater Madawaska combined infographics, prepared by Renfrew County Economic Development, June 2023
- GIS data including Hazar Map, Infrastructure Map, Mineral Aggregate Resource Map, Natural Heritage Map, Property Parcel, and Subdivision Outlines.
- Calabogie Secondary Plan including interactive online map, prepared by RE:PUBLIC, Matrix Heritage, and CIMA+, September 2025

1.5 Site Investigation

A field investigation of the existing drainage features was conducted by CIMA+ staff on October 16, 2025. CIMA+ staff also met Town's Public Work Supervisor during the site visit and obtained some information about drainage, flooding condition and potential future land use. The purpose of the field investigations was to review the existing drainage conditions of the area, confirm the drainage patterns, document physical conditions and characteristics of the existing drainage systems, and provide recommendations for their rehabilitation or replacement.

Appendix A includes some photographs of the drainage site investigation.

1.6 Limitations & Assumptions

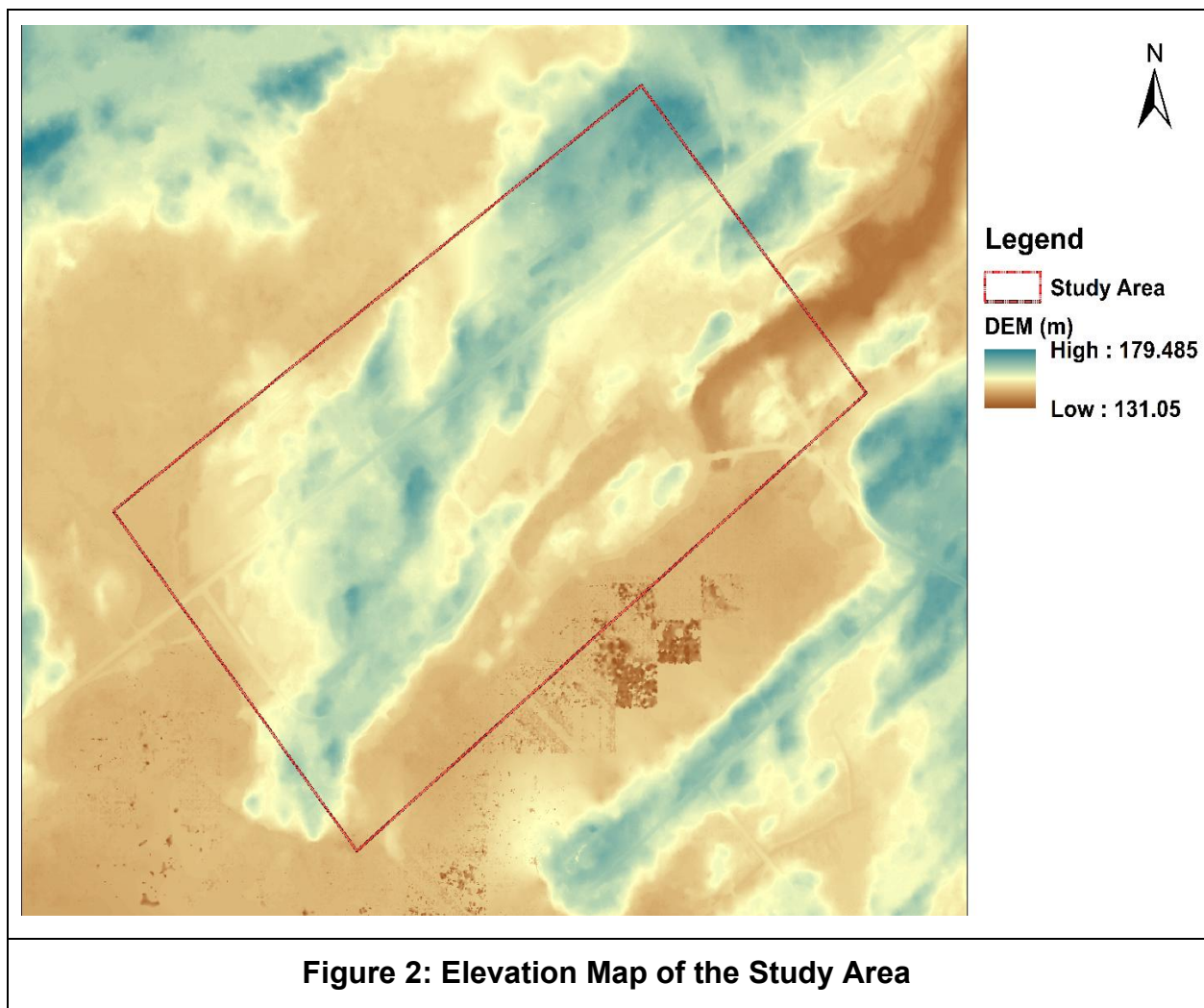
Since there is no survey data for the Secondary Plan Area, the information about drainage structures, including culverts, catch basins, and storm sewers, were considered based on the site visit photos using Google Earth. This information contains the location, invert elevation, length, and slope of the culverts, and diameter of the storm sewer pipes in some locations.

2. Existing Conditions

This section provides details of the data and methodology used to develop the hydrologic and hydraulic model simulating the existing surface water collection system.

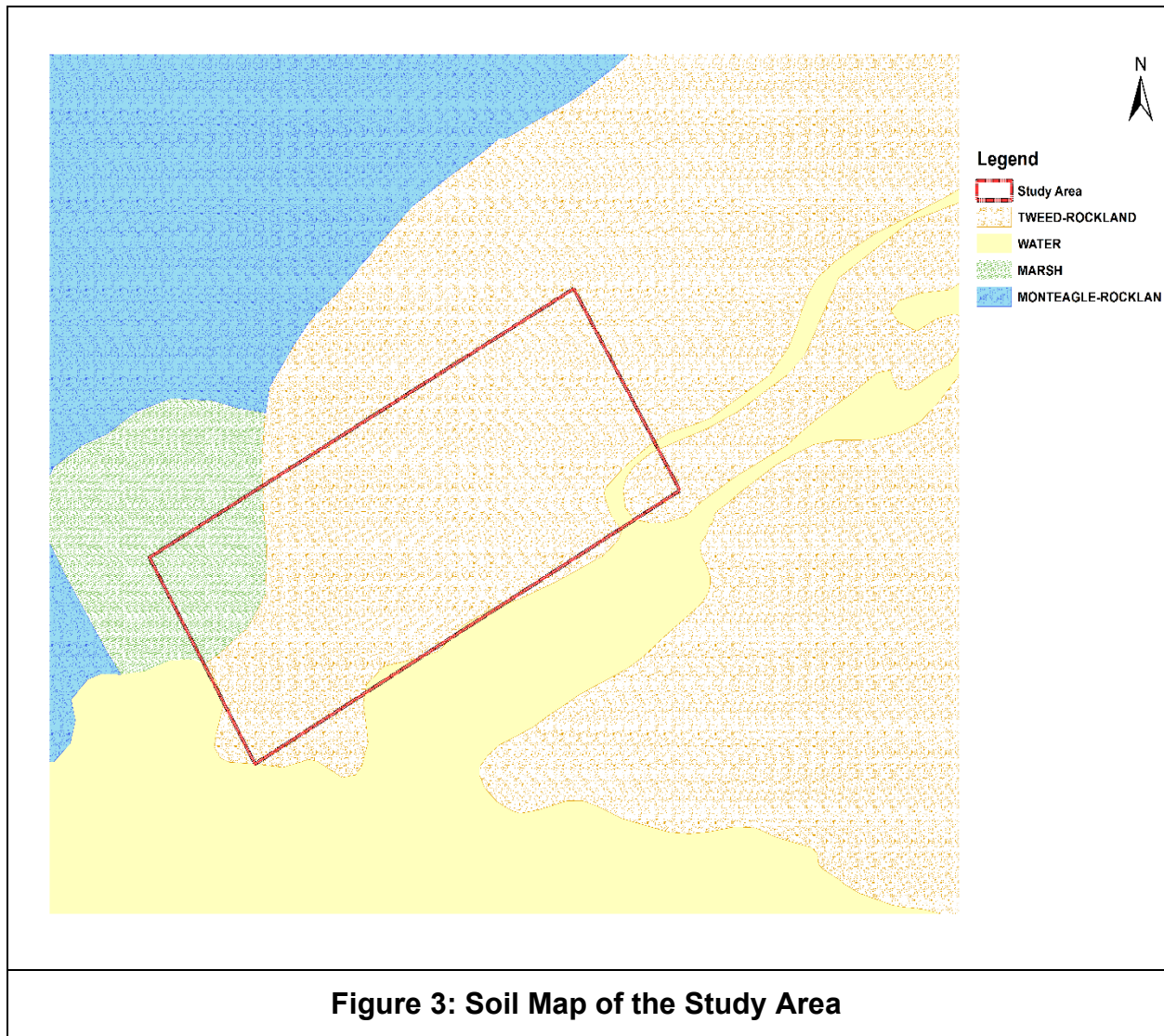
2.1 Topography & Physiography

The ground elevation within the study area ranges from 153.16 m to 172.3 m. As shown in **Figure 2**, higher elevations occur in the northern portion of the area and some in southwest side while lower elevations are primarily located in the southeast and west with the study area. This indicates that the drainage pattern is generally drains from north to southeast and east, southwest to east and northwest, which ultimately drain into the Madawaska River and its tributaries.



2.2 Soils & Hydrogeology

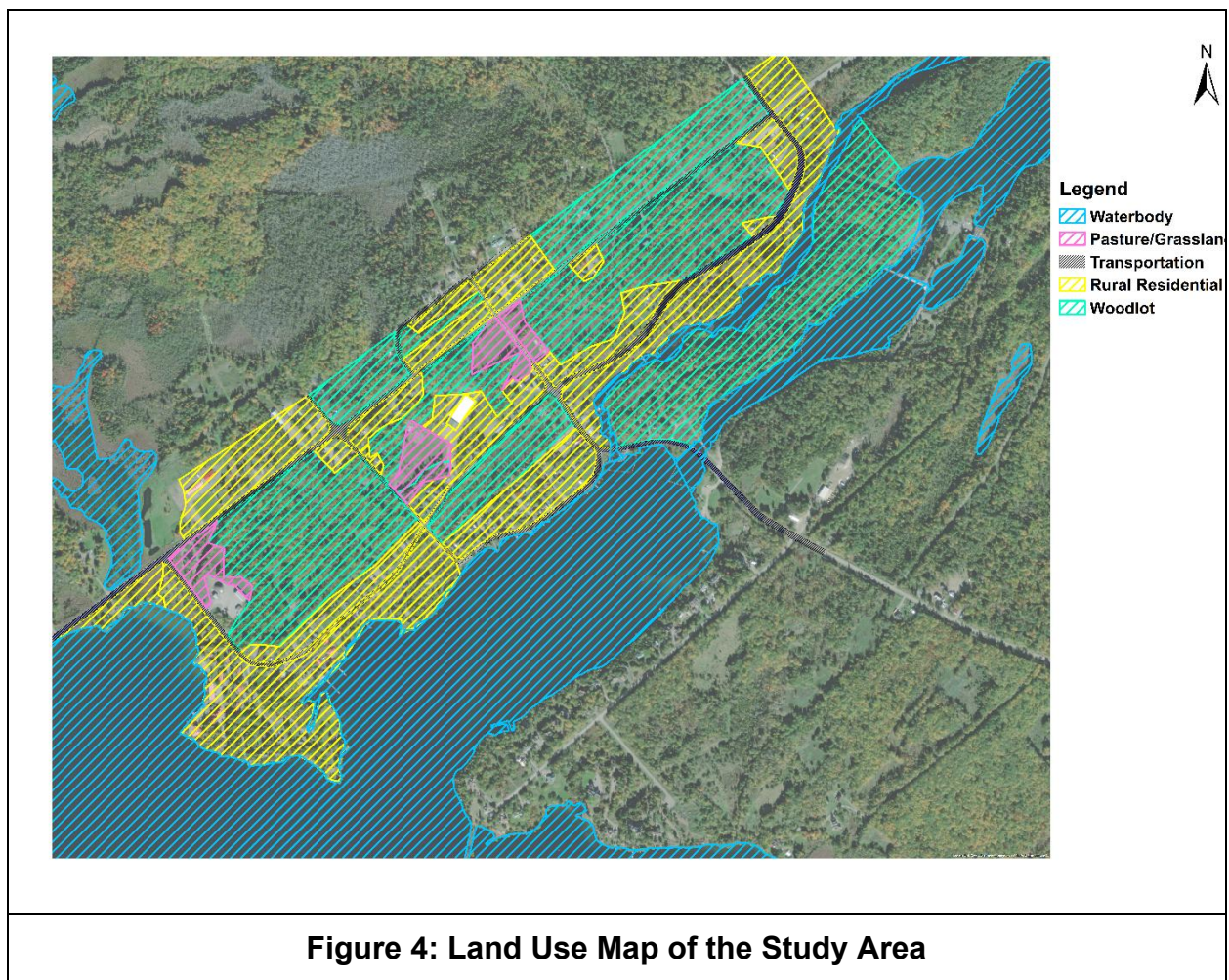
According to the Soil Map of Renfrew County, Ontario, the study area predominantly falls within the Tweed–Rock complex, which is composed of sandy loam and rock outcrop. **Figure 3** presents the soil map of the region. The proportion of each soil type within this complex is approximately 50%, and the hydrologic soil group for these soils is classified as Group B. Therefore, the study region has a moderate but spatially variable permeability (higher in the sandy loam areas and very low over the bedrock) and generally moderate susceptibility to erosion. In sandy loam areas where the nature of local soils typically permits a degree of infiltration, surface ponding effects may be reduced even if the topography is flat. However, the erosion concern still exists as the sandy soils may not be cohesive.



2.3 Current Land use and Hydrologic soil conditions

The area is composed of different land covers including waterbody, grassland, rural residential, woodlot, and roads as impervious areas. According to **Figure 4**, the major land use type is woodlot, accounting for 50.3% of the total area, followed by rural residential at 38.8%, transportation at 6.8%, and grassland at 4.04%.

As discussed in **Section 2.2**, the soil type of the area is Tweed–Rock complex, for which the hydrologic soil group is classified as Group B. Given that the soil types are distributed evenly (50% sandy loam and 50% rockland), and their respective permeabilities are moderate and very low, the overall permeability of the region can be classified as moderate. In addition, the erosion susceptibility ranges from low to moderate, as rockland exhibits high resistance to erosional processes.



2.4 Existing Drainage System

The existing drainage system within the Calabogie Secondary Plan area conveys runoff in all directions, including north, east, south, and west, with all flows ultimately discharging to the Madawaska River and, thereafter, to the Ottawa River.

Municipal drainage infrastructure, including storm sewers and catch basins, are present along Mill Street between Lanark Road and Francis Street, as well as along Madawaska Street and Lanark Road, where an urbanized roadway section is in place.

The remaining areas within the Secondary Plan rely on roadside ditches and driveway / roadside culverts for conveyance.

Aside from the storm structures located within the Calabogie Secondary Plan area, there are also number of cross culverts throughout the study area, which are noted below:

- A 450 mm diameter 18 m long CSP culvert on Francis Street just north-west of Mill Street and Francis Street Intersection
- A 900 mm diameter 27 m long CSP culvert at Mill Street at approximately 170 m east of Francis Street
- A 600 mm diameter, 18 m long CSP Culvert on Francis Street at approximately 55 m south of Mill Street
- A 600 mm diameter, 20 m long CSP Culvert on Mill Street just south of Calabogie Road. This culvert falls on the right-of-way of Calabogie Road.
- A 450 mm diameter 10 m long CSP on Partridge Drive at approximately 140 m north of Calabogie Road
- A 450 mm diameter 11 m long CSP on Partridge Drive at approximately 140 m east of Birch Drive
- A 450 mm diameter 12 m long CSP on Birch Drive near the intersection with Partridge Drive

In addition to this, there are number of driveway culverts on Partridge Drive and Mill Street.

Due to the lack of survey data, the slope and invert elevations of the culverts will be assumed based on side condition for the hydraulic modeling.

There are few existing storm sewers along Lanark Road ranging from 300 mm diameter to 450 mm diameter. There are number of Catch basins on Mill Street east of O'Neil Point

Road and on Madawaska Street, which are directly discharged to Madawaska River. Capacity of these storm sewers will be reviewed for the 5-year storm.

2.5 Existing Watercourses & Receiving Bodies

Madawaska River and its tributaries are the only major watercourses in the study area. The Madawaska River originates at Source Lake, located in Canisbay Township, then flows generally eastward for 230 km² before discharging into the Ottawa River.

Within the study area, the river crosses Calabogie Lake. On the east side of the study area (near Lanark Road) it drains approximately 0.45 km², and on the west side (near Black Bay) it drains roughly 6.9 km² (source MNRF, Ontario Watershed Information Tool). There are also several wetlands located on the northwest side of the area, surrounding the Madawaska River.

2.6 Flooding & Erosion Concerns

No flooding and erosion concern is identified within the study limit.

3. Review of Design Criteria & Regulatory Requirements

3.1 Quantity Control Criteria

General description of peak flow control requirements to ensure post-development flows do not exceed pre-development conditions. Since the Runoff from the site drains to Calabogie Lake/Madawaska River, Quantity control is not required.

3.2 Quality Control Requirements

According to MECP guidelines, a minimum of 80% TSS removal will be required from all new construction and improvement works.

3.3 Erosion Control Criteria

According to MECP guidelines a 25mm storm needs to be retained on site for a minimum of 24-hour for erosion control.

3.4 Hydraulic Design Standards

The MTO's *Highway Drainage Design Standards* prescribe standards for designing Surface Drainage Systems (SD) and Water Crossings (WC). The standards that are relevant to this study are as follows:

- **WC-1: Design Flows Natural Watercourse Crossings for Culverts:** This standard identifies the minimum design flows that should be used for the sizing of culverts. For Local Road, for structures with span less than or equal to 6.0 m, the flow generated by the 10-year storm is used as the design flow.
- **WC-7: Freeboard at Culvert Water Crossings of Natural Watercourses:** This standard identifies the minimum freeboard at culvert crossings. The minimum freeboard is measured vertically from the high-water level for the design flow to the edge of the travelled lane at road low point. The minimum freeboard at culvert crossings for Local Road should be greater than or equal to 0.3 m. WC-7 also identifies the design standard for flood depth at the upstream face of the culvert. It is expressed as a ratio of the flood depth at the upstream face of the culvert (HW) to the diameter or rise of the culvert (D). The HW/D Ratio at culvert crossing of Local Roads should be less than or equal to 1.5 for culverts with diameter or rise less than 3.0 m and less than or equal to 4.5 for culverts with diameter or rise 3.0 m to 4.5 m.

3.5 Design Storm

The Town of Greater Madawaska does not have its own Intensity-Duration-Frequency (IDF) data for use. The potential Rainfall IDF data that can be used in the future of the drainage infrastructure design has been investigated. Table 1 provides a comparison of following rainfall IDF data close to the project site:

- MTO IDF Curve Lookup tool – IDF data generated for the Town
- Environment Canada (EC) for stations “PEMBROKE CLIMATE (6106367) with an elevation of 161 m
- CORNWALL (6101874) with an elevation of 64 m
- OTTAWA MACDONALD-CARTIER INT’L A (6106000) with an elevation of 114 m

The IDF parameters are summarized in **Table 1** also provides the 6-hour and 12-hour rainfall depths.

Since the average elevation of the study area is 159.86, it could be concluded that the station PEMBROKE CLIMATE, compared to other two EC stations, could be a suitable climate representative for the Calabogie Secondary Area. It will be further analysed and a suitable IDF data will be recommended for the Town.

Additionally, MTO data represent higher rainfall intensities compared to PEMPROKE CLIMATE data. These rainfall data will be analysed further and a suitable rainfall IDF will be recommended which will be used for the stormwater management design with the Town of Greater Madawaska.

Table 1: Rainfall IDF Data– Baseline Scenario (2025)

Parameters		2-year	5-year	10-year	25-year	50-year	100-year
A	MTO	20.658	27.137	31.605	37.084	41.078	45.044
	PEMBROKE CLIMATE (6106367)	19.8	25.0	28.3	32.6	35.8	39.0
	CORNWALL (6101874)	20.2	25.7	29.4	34.0	37.4	40.7
	OTTAWA MACDONALD-CARTIER INT’L A (6106000)	21.8	29.3	34.3	40.6	45.3	50.0
B	MTO	-0.694	-0.695	-0.695	-0.695	-0.696	-0.697
	PEMBROKE CLIMATE (6106367)	-0.707	-0.706	-0.706	-0.706	-0.706	-0.706
	CORNWALL (6101874)	-0.690	-0.668	-0.658	-0.649	-0.643	-0.639
	OTTAWA MACDONALD-CARTIER INT’L A (6106000)	-0.704	-0.696	-0.693	-0.689	-0.688	-0.686

Parameters		2-year	5-year	10-year	25-year	50-year	100-year
6-hr Rainfall Depth (mm)	MTO	35.4	46.8	54.6	63.6	70.8	77.4
	PEMBROKE CLIMATE (6106367)	35.1	45.8	52.9	61.8	68.4	75.0
	CORNWALL (6101874)	36.0	50.1	59.4	71.2	79.9	88.5
	OTTAWA MACDONALD-CARTIER INT'L A (6106000)	38.1	53.1	63.0	75.5	84.8	94.0
12-hr Rainfall Depth (mm)	MTO	44.4	57.6	67.2	79.2	87.6	96
	PEMBROKE CLIMATE (6106367)	40.6	52.0	59.6	69.2	76.3	83.3
	CORNWALL (6101874)	40.6	57.0	67.8	81.6	91.7	101.8
	OTTAWA MACDONALD-CARTIER INT'L A (6106000)	44.5	61.8	73.3	87.7	98.4	109.1

3.6 Climate Change Considerations

To assess the resilience of drainage features and structures, it is necessary to include climate change impacts into the rainfall events. For this purpose, the MTO IDF Curve Lookup application was used to determine the future rainfall predictions for year 2080.

The IDF parameters are summarized in **Table 2** along with the 6-hour and 12-hour rainfall depths. Hyetographs for the 6-hour and 12-hour duration storm events were generated for each return period using the SCS Type II storm distribution. All IDF curves are appended under **Appendix B** of this report.

Table 2: Rainfall IDF Data– Climate Change Scenario for Yera 2080

Parameters	2-year	5-year	10-year	25-year	50-year	100-year
A	22.276	28.905	33.175	38.715	42.682	46.677
B	-0.679	-0.684	-0.686	-0.687	-0.689	-0.69
6-hr Rainfall Depth (mm)	39.6	51.0	58.2	67.8	74.4	81.6
12-hr Rainfall Depth (mm)	49.2	63.6	72.0	84.0	92.4	100.8

4. Conclusion

There is limited background information available related to the drainage and stormwater system within the study area. Few record drawings of the drainage system within the study area was available. Most of the information was collected during the site visit and discussion with the Town staff on October 16, 2025.

A

Appendix A: Site Photos



Photo 1: Looking east at Mill Street, approximately 250 m south of Calabogie Road - rural section

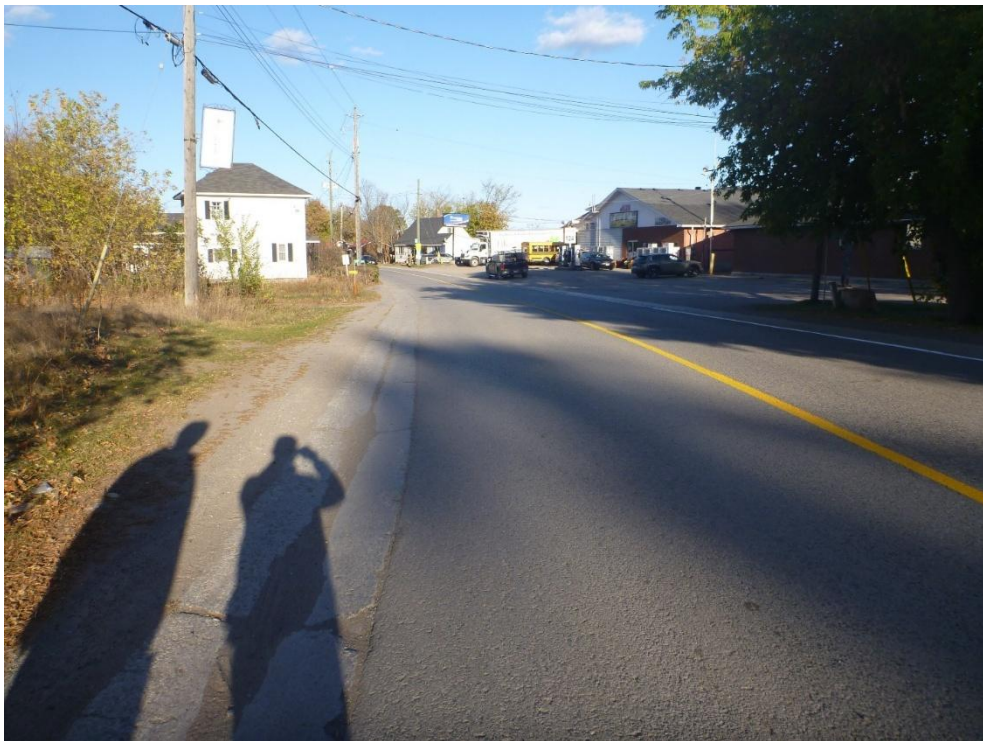


Photo 2: Looking east at Mill Street, approximately 550 m west of Francis Street—urbanized section



Photo 3: Catchbasins, located on Mill Street, approximately 367 m west of Francis Street, southly conveying stormwater to the Madawaska River



Photo 4: Looking south through barrel from end- Cross culvert located on Mill street, approximately 165 m east of Francis Street



Photo 5: South elevation- Cross culvert located on Mill street, approximately 165 m east of Francis Street



Photo 6: Looking north at roadway over the cross culvert located on Francis Street, approximately 56 m south of Mill Street



Photo 7: Looking west at the cross culvert located on Francis Street, approximately 56 m south of Mill Street



Photo 8: Looking west at the cross culvert located on Francis Street, approximately 100 m north of Calabogie Road



Photo 9: Drainage system, located on Madawaska Street approximately 265 m west of Lanark Road, conveying stormwater south to the Madawaska River



Photo 10: Outlet pipe, located on Madawaska street approximately 265 m west of Lanark Road, dischrnging stormwater south to the Madawaska River



Photo 11: Drainage system, located on Gladstone street approximately 400 m west of Lanark Road, conveying stormwater south to the Madawaska River



Photo 12: Outlet pipe, located on Gladstone street approximately 400 m west of Lanark Road, dischrjing stormwater south to the Madawaska River



Photo 13: Looking south at Lanark Road, approximately 45 m south of Mill Street



Photo 14: Alongside the Lanark Road, approximately 120 m south of Mill Street



Photo 15: Looking north at Maple Street, approximately 65 m north of Calabogie Road



Photo 16: Cross culvert located on the Maple Street, approximately 140 m north of Calabogie Road



Photo 17: Looking north through the cross culvert located on Calabogie Road, approximately 80 m east of Mill Street



Photo 18: Looking west through the cross culvert located on Mill street, approximately 25 m south of Calabogie Road

B

Appendix B: Rainfall Data

Environment Canada/Environnement Canada

Short Duration Rainfall Intensity-Duration-Frequency Data
Données sur l'intensité, la durée et la fréquence des chutes
de pluie de courte durée

Gumbel - Method of moments/Méthode des moments

2014/12/21

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CORNWALL                                ON          6101874

Latitude:  45 1'N      Longitude: 74 45'W      Elevation/Altitude: 64      m

Years/Années :  1991 - 2006      # Years/Années :      15
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Table 1 : Annual Maximum (mm)/Maximum annuel (mm)

Year Année	5 min	10 min	15 min	30 min	1 h	2 h	6 h	12 h	24 h
1991	5.2	5.9	6.4	9.2	14.8	18.6	32.9	34.9	47.0
1992	7.3	10.7	15.0	22.5	22.7	22.7	33.0	34.6	35.6
1993	8.0	13.6	14.5	15.4	18.0	18.3	18.3	19.5	37.0
1994	7.8	11.1	15.5	20.6	20.6	20.6	23.4	26.5	29.6
1995	7.0	7.7	9.9	13.7	15.1	24.8	41.1	49.6	60.0
1997	9.7	16.2	20.9	24.1	25.0	25.0	25.0	25.0	28.0
1998	7.2	8.8	12.2	16.5	25.8	28.8	29.0	29.0	54.0
1999	10.5	15.4	19.4	24.1	27.9	28.4	32.2	43.7	47.9
2000	8.3	12.0	12.6	17.9	21.7	29.4	37.3	39.3	52.8
2001	5.2	8.8	9.6	12.3	18.9	22.2	22.6	30.1	55.6
2002	10.2	15.9	17.2	18.2	20.6	29.5	47.9	53.2	68.4
2003	8.7	14.7	16.9	18.3	19.7	22.0	55.8	62.7	67.5
2004	9.5	12.6	17.3	23.8	27.9	28.8	46.1	57.5	69.0
2005	7.9	10.3	12.4	18.3	28.8	43.8	75.5	89.1	92.0
2006	9.7	16.8	19.8	25.7	33.4	50.0	59.8	60.0	60.7

# Yrs. Années	15	15	15	15	15	15	15	15	15
Mean Moyenne	8.1	12.0	14.6	18.7	22.7	27.5	38.7	43.6	53.7
Std. Dev. Écart-type	1.6	3.4	4.1	4.8	5.3	8.8	15.9	18.5	17.2

Skew.	-0.42	-0.19	-0.34	-0.33	0.33	1.61	0.93	0.98	0.40
Dissymétrie									
Kurtosis	3.17	2.57	3.08	2.99	3.09	5.84	4.00	4.49	3.86

*-99.9 Indicates Missing Data/Données manquantes

Table 2a : Return Period Rainfall Amounts (mm)
Quantité de pluie (mm) par période de retour

Duration/Durée	2	5	10	25	50	100	#Years
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	Années
5 min	7.9	9.3	10.3	11.5	12.4	13.3	15
10 min	11.5	14.5	16.4	18.9	20.8	22.6	15
15 min	14.0	17.6	20.0	23.1	25.4	27.6	15
30 min	17.9	22.2	25.0	28.5	31.2	33.8	15
1 h	21.9	26.6	29.7	33.6	36.5	39.4	15
2 h	26.1	33.9	39.0	45.6	50.4	55.2	15
6 h	36.0	50.1	59.4	71.2	79.9	88.5	15
12 h	40.6	57.0	67.8	81.6	91.7	101.8	15
24 h	50.9	66.0	76.1	88.8	98.2	107.5	15

Table 2b :

Return Period Rainfall Rates (mm/h) - 95% Confidence limits
Intensité de la pluie (mm/h) par période de retour - Limites de confiance de 95%

Duration/Durée	2	5	10	25	50	100	#Years
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	Années
5 min	94.5	111.8	123.3	137.8	148.5	159.1	15
	+/- 9.1	+/- 15.3	+/- 20.7	+/- 27.9	+/- 33.4	+/- 38.9	15
10 min	68.9	86.8	98.6	113.6	124.7	135.7	15
	+/- 9.4	+/- 15.8	+/- 21.4	+/- 28.8	+/- 34.5	+/- 40.2	15
15 min	55.8	70.5	80.1	92.3	101.4	110.4	15
	+/- 7.7	+/- 12.9	+/- 17.5	+/- 23.5	+/- 28.2	+/- 32.8	15
30 min	35.8	44.3	50.0	57.1	62.4	67.6	15
	+/- 4.5	+/- 7.5	+/- 10.2	+/- 13.7	+/- 16.4	+/- 19.1	15
1 h	21.9	26.6	29.7	33.6	36.5	39.4	15
	+/- 2.5	+/- 4.2	+/- 5.6	+/- 7.6	+/- 9.1	+/- 10.6	15
2 h	13.0	16.9	19.5	22.8	25.2	27.6	15
	+/- 2.0	+/- 3.5	+/- 4.7	+/- 6.3	+/- 7.5	+/- 8.8	15
6 h	6.0	8.3	9.9	11.9	13.3	14.8	15

	+/-	1.2	+/-	2.1	+/-	2.8	+/-	3.8	+/-	4.5	+/-	5.3	15
12 h		3.4		4.7		5.7		6.8		7.6		8.5	15
	+/-	0.7	+/-	1.2	+/-	1.6	+/-	2.2	+/-	2.6	+/-	3.1	15
24 h		2.1		2.8		3.2		3.7		4.1		4.5	15
	+/-	0.3	+/-	0.6	+/-	0.8	+/-	1.0	+/-	1.2	+/-	1.4	15

Table 3 : Interpolation Equation / Équation d'interpolation: $R = A \cdot T^B$

R = Interpolated Rainfall rate (mm/h)/Intensité interpolée de la pluie (mm/h)

RR = Rainfall rate (mm/h) / Intensité de la pluie (mm/h)

T = Rainfall duration (h) / Durée de la pluie (h)

Statistics/Statistiques	2	5	10	25	50	100
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans
Mean of RR/Moyenne de RR	33.5	41.4	46.7	53.3	58.2	63.1
Std. Dev. /Écart-type (RR)	32.9	39.7	44.2	50.0	54.2	58.4
Std. Error/Erreur-type	6.9	9.2	10.9	13.0	14.5	16.1
Coefficient (A)	20.2	25.7	29.4	34.0	37.4	40.7
Exponent/Exposant (B)	-0.690	-0.668	-0.658	-0.649	-0.643	-0.639
Mean % Error/% erreur moyenne	6.9	7.5	7.9	8.6	9.4	9.9

Environment Canada/Environnement Canada

Short Duration Rainfall Intensity-Duration-Frequency Data
Données sur l'intensité, la durée et la fréquence des chutes
de pluie de courte durée

Gumbel - Method of moments/Méthode des moments

2014/12/21

=====

OTTAWA MACDONALD-CARTIER INT'L A ON 6106000

Latitude: 45 19'N Longitude: 75 40'W Elevation/Altitude: 114 m

Years/Années : 1967 - 2007 # Years/Années : 39

=====

Table 1 : Annual Maximum (mm)/Maximum annuel (mm)

Year Année	5 min	10 min	15 min	30 min	1 h	2 h	6 h	12 h	24 h
1967	13.2	15.2	15.7	16.5	24.6	35.3	43.4	45.7	55.6
1968	8.1	14.0	18.5	23.1	33.3	34.0	41.1	44.7	44.7
1969	7.6	13.2	19.8	26.4	32.5	32.5	46.7	47.2	50.3
1970	14.5	23.4	27.7	34.3	35.6	36.6	43.2	43.4	43.4
1971	15.7	16.0	16.5	18.8	33.3	35.1	36.8	37.3	37.3
1972	11.4	17.3	23.4	31.7	38.1	38.4	48.8	53.8	60.5
1973	7.4	11.9	15.7	20.6	30.2	34.5	43.4	43.7	45.2
1974	5.6	7.9	10.2	19.3	20.6	30.7	31.0	35.8	39.1
1975	10.4	18.3	22.9	26.2	34.8	36.8	37.8	39.9	41.4
1976	9.7	12.7	13.5	13.7	14.5	18.3	27.9	28.2	33.0
1977	9.1	14.7	15.5	19.0	21.8	30.5	39.1	39.6	39.6
1978	17.5	22.2	29.3	35.5	36.2	36.3	36.3	36.5	39.4
1979	13.2	25.5	32.1	41.4	43.9	44.0	44.0	62.3	63.0
1980	8.9	16.0	17.4	17.8	18.3	18.4	28.3	42.8	47.2
1981	7.9	14.4	19.4	27.5	35.3	63.7	108.9	111.3	115.9
1982	7.1	10.6	14.1	19.7	20.9	21.5	35.0	40.3	40.3
1983	5.1	7.3	9.1	9.9	12.0	19.6	32.6	38.2	56.7
1984	8.2	9.3	11.7	16.4	18.4	19.4	26.1	36.1	44.3
1985	5.4	9.6	11.2	15.9	19.0	34.5	39.6	39.6	39.6
1986	12.2	21.0	24.4	31.1	34.9	35.6	42.4	46.0	69.3
1987	8.8	13.2	15.5	21.4	21.8	41.4	42.3	58.4	59.0
1988	12.7	17.0	21.0	24.2	28.2	36.4	44.2	45.4	45.8

1989	6.7	10.4	15.4	19.2	23.7	25.9	34.5	36.3	40.6
1990	10.4	12.6	13.6	17.5	20.8	24.7	35.0	53.5	54.0
1991	4.1	5.8	6.8	8.6	15.0	19.8	24.6	30.4	41.2
1992	6.2	10.3	13.8	19.6	31.5	37.4	43.3	49.7	54.2
1993	6.4	8.8	11.9	12.8	13.2	13.2	22.3	43.0	55.5
1994	15.6	20.0	21.8	23.6	23.8	23.8	32.5	35.0	42.9
1995	6.2	8.5	11.1	11.9	17.1	26.5	54.3	76.2	83.4
1996	6.4	11.9	14.3	18.9	26.9	27.1	33.0	35.6	44.1
1997	5.8	6.9	7.8	11.7	13.5	15.4	26.6	34.9	40.4
1998	9.1	12.1	12.3	15.8	15.8	17.8	24.0	30.5	43.6
1999	8.9	12.9	16.3	17.7	17.7	20.4	39.4	39.7	39.8
2000	7.7	8.7	9.9	11.5	15.9	19.6	38.8	46.7	46.7
2002	8.7	14.6	20.7	33.6	45.4	54.4	57.0	57.0	59.5
2003	7.4	10.8	12.1	17.1	20.0	20.0	26.1	38.2	44.6
2004	8.0	13.0	18.3	25.6	31.9	50.4	98.9	125.7	136.6
2006	11.3	12.8	14.9	16.9	18.1	21.3	40.0	46.1	50.7
2007	8.2	12.8	13.6	21.3	23.2	23.2	44.4	67.8	67.8

# Yrs.	39	39	39	39	39	39	39	39	39
Années									
Mean	9.1	13.4	16.4	20.9	25.2	30.1	40.9	47.8	52.7
Moyenne									
Std. Dev.	3.2	4.6	5.8	7.5	8.9	11.2	17.0	19.5	20.3
Écart-type									
Skew.	0.88	0.78	0.84	0.80	0.49	0.90	2.76	2.71	2.79
Dissymétrie									
Kurtosis	3.38	3.55	3.71	3.53	2.45	4.10	12.14	11.25	11.80

*-99.9 Indicates Missing Data/Données manquantes

Warning: annual maximum amount greater than 100-yr return period amount

Avertissement : la quantité maximale annuelle excède la quantité
pour une période de retour de 100 ans

Year/Année	Duration/Durée	Data/Données	100-yr/ans
1981	6 h	108.9	94.0
1981	12 h	111.3	109.1
2004	6 h	98.9	94.0
2004	12 h	125.7	109.1
2004	24 h	136.6	116.5

Table 2a : Return Period Rainfall Amounts (mm)

Quantité de pluie (mm) par période de retour

Duration/Durée	2	5	10	25	50	100	#Years
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	Années
5 min	8.6	11.5	13.3	15.7	17.5	19.2	39

10 min	12.7	16.7	19.4	22.8	25.4	27.9	39
15 min	15.4	20.6	23.9	28.2	31.4	34.5	39
30 min	19.6	26.3	30.7	36.3	40.4	44.5	39
1 h	23.7	31.6	36.8	43.4	48.3	53.1	39
2 h	28.3	38.2	44.7	53.0	59.1	65.2	39
6 h	38.1	53.1	63.0	75.5	84.8	94.0	39
12 h	44.5	61.8	73.3	87.7	98.4	109.1	39
24 h	49.4	67.3	79.2	94.3	105.4	116.5	39

Table 2b :

Return Period Rainfall Rates (mm/h) - 95% Confidence limits

Intensité de la pluie (mm/h) par période de retour - Limites de confiance de 95%

Duration/Durée	2	5	10	25	50	100	#Years
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	Années
5 min	103.5	137.4	159.9	188.4	209.5	230.4	39
	+/- 11.1	+/- 18.7	+/- 25.2	+/- 34.0	+/- 40.6	+/- 47.4	39
10 min	76.0	100.4	116.6	137.0	152.2	167.2	39
	+/- 8.0	+/- 13.4	+/- 18.1	+/- 24.4	+/- 29.2	+/- 34.0	39
15 min	61.8	82.2	95.8	112.9	125.6	138.2	39
	+/- 6.7	+/- 11.2	+/- 15.2	+/- 20.5	+/- 24.5	+/- 28.5	39
30 min	39.3	52.6	61.4	72.5	80.8	89.0	39
	+/- 4.3	+/- 7.3	+/- 9.9	+/- 13.3	+/- 15.9	+/- 18.6	39
1 h	23.7	31.6	36.8	43.4	48.3	53.1	39
	+/- 2.6	+/- 4.3	+/- 5.8	+/- 7.9	+/- 9.4	+/- 11.0	39
2 h	14.1	19.1	22.4	26.5	29.6	32.6	39
	+/- 1.6	+/- 2.7	+/- 3.7	+/- 4.9	+/- 5.9	+/- 6.9	39
6 h	6.3	8.8	10.5	12.6	14.1	15.7	39
	+/- 0.8	+/- 1.4	+/- 1.9	+/- 2.5	+/- 3.0	+/- 3.5	39
12 h	3.7	5.2	6.1	7.3	8.2	9.1	39
	+/- 0.5	+/- 0.8	+/- 1.1	+/- 1.4	+/- 1.7	+/- 2.0	39
24 h	2.1	2.8	3.3	3.9	4.4	4.9	39
	+/- 0.2	+/- 0.4	+/- 0.6	+/- 0.7	+/- 0.9	+/- 1.0	39

Table 3 : Interpolation Equation / Équation d'interpolation: $R = A \cdot T^B$

R = Interpolated Rainfall rate (mm/h)/Intensité interpolée de la pluie (mm/h)

RR = Rainfall rate (mm/h) / Intensité de la pluie (mm/h)

T = Rainfall duration (h) / Durée de la pluie (h)

Statistics/Statistiques	2	5	10	25	50	100
-------------------------	---	---	----	----	----	-----

	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans
Mean of RR/Moyenne de RR	36.7	48.9	57.0	67.2	74.7	82.2
Std. Dev. /Écart-type (RR)	36.3	48.0	55.8	65.6	72.9	80.2
Std. Error/Erreur-type	8.5	11.0	12.6	14.6	16.1	17.6
Coefficient (A)	21.8	29.3	34.3	40.6	45.3	50.0
Exponent/Exposant (B)	-0.704	-0.696	-0.693	-0.689	-0.688	-0.686
Mean % Error/% erreur moyenne	7.7	7.8	7.8	7.9	7.9	7.9

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Short Duration Rainfall Intensity-Duration-Frequency Data
Données sur l'intensité, la durée et la fréquence des chutes
de pluie de courte durée

Gumbel - Method of moments/Méthode des moments

2021/03/26

```
=====
PEMBROKE CLIMATE                                ON          6106367
(composite)
Latitude:  45 52'N    Longitude: 77 15'W    Elevation/Altitude: 161      m

Years/Années :  1996 - 2017          # Years/Années :      14
=====
```

Table 1 : Annual Maximum (mm)/Maximum annuel (mm)

```
*****
```

Year Année	5 min	10 min	15 min	30 min	1 h	2 h	6 h	12 h	24 h
1996	6.8	9.0	9.9	12.1	14.6	17.4	-99.9	-99.9	37.6
1997	7.1	10.2	11.4	11.7	11.7	13.4	20.7	23.2	29.1
1998	9.5	11.5	13.8	16.5	23.4	35.1	58.3	61.6	61.6
1999	9.5	11.6	12.6	16.5	24.9	35.3	45.4	55.4	56.2
2001	4.3	7.3	10.1	14.8	21.3	26.1	-99.9	-99.9	40.6
2002	8.3	10.1	10.3	16.8	17.5	17.5	24.2	35.4	57.9
2003	6.6	10.6	12.2	18.3	24.7	33.1	44.3	46.4	54.8
2004	6.2	10.4	12.6	14.8	19.5	27.1	30.7	33.5	35.1
2006	8.5	14.1	15.7	16.1	18.4	35.6	53.4	62.5	63.5
2011	15.8	19.6	20.8	21.8	23.8	31.4	34.3	41.6	52.9
2012	7.3	13.1	17.8	20.2	20.2	20.2	20.6	24.4	38.3
2013	9.1	13.2	16.1	22.9	37.1	44.0	50.3	52.0	52.0
2014	8.6	13.0	15.0	17.4	24.0	31.9	40.2	40.2	40.2
2015	9.6	11.2	12.2	12.8	16.8	23.4	27.6	29.0	29.4
2016	9.8	14.6	17.4	17.6	20.6	29.2	38.0	53.2	53.4
2017	13.0	18.4	23.4	28.0	28.2	28.4	31.4	39.8	43.6

# Yrs. Années	16	16	16	16	16	16	14	14	16
Mean Moyenne	8.8	12.4	14.5	17.4	21.7	28.1	37.1	42.7	46.6

Std. Dev.	2.7	3.2	3.9	4.2	5.9	8.1	12.1	12.9	11.2
Écart-type									
Skew.	1.14	0.94	0.93	1.00	0.91	-0.10	0.24	0.04	-0.12
Dissymétrie									
Kurtosis	5.65	4.36	3.83	4.76	5.57	3.20	2.65	2.56	2.26

*-99.9 Indicates Missing Data/Données manquantes

Table 2a : Return Period Rainfall Amounts (mm)
Quantité de pluie (mm) par période de retour

Duration/Durée	2	5	10	25	50	100	#Years Années
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	
5 min	8.3	10.7	12.3	14.3	15.8	17.3	16
10 min	11.8	14.7	16.6	18.9	20.7	22.4	16
15 min	13.8	17.3	19.5	22.4	24.6	26.7	16
30 min	16.7	20.4	22.9	26.1	28.4	30.7	16
1 h	20.7	25.9	29.4	33.7	37.0	40.2	16
2 h	26.7	33.9	38.7	44.7	49.2	53.6	16
6 h	35.1	45.8	52.9	61.8	68.4	75.0	14
12 h	40.6	52.0	59.6	69.2	76.3	83.3	14
24 h	44.8	54.7	61.3	69.5	75.7	81.8	16

Table 2b :

Return Period Rainfall Rates (mm/h) - 95% Confidence limits
Intensité de la pluie (mm/h) par période de retour - Limites de confiance de 95%

Duration/Durée	2	5	10	25	50	100	#Years Années
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	
5 min	99.6	128.5	147.5	171.6	189.5	207.2	16
	+/- 14.7	+/- 24.7	+/- 33.3	+/- 45.0	+/- 53.8	+/- 62.7	16
10 min	71.0	88.1	99.4	113.6	124.2	134.7	16
	+/- 8.7	+/- 14.6	+/- 19.7	+/- 26.6	+/- 31.8	+/- 37.1	16
15 min	55.3	69.1	78.2	89.7	98.3	106.8	16
	+/- 7.0	+/- 11.8	+/- 16.0	+/- 21.5	+/- 25.8	+/- 30.0	16
30 min	33.4	40.9	45.8	52.1	56.8	61.4	16
	+/- 3.8	+/- 6.4	+/- 8.7	+/- 11.7	+/- 14.0	+/- 16.3	16
1 h	20.7	25.9	29.4	33.7	37.0	40.2	16
	+/- 2.7	+/- 4.5	+/- 6.0	+/- 8.1	+/- 9.7	+/- 11.3	16
2 h	13.4	17.0	19.3	22.4	24.6	26.8	16

	+/-	1.8	+/-	3.1	+/-	4.2	+/-	5.6	+/-	6.7	+/-	7.8	16
6 h		5.9		7.6		8.8		10.3		11.4		12.5	14
	+/-	1.0	+/-	1.6	+/-	2.2	+/-	3.0	+/-	3.6	+/-	4.1	14
12 h		3.4		4.3		5.0		5.8		6.4		6.9	14
	+/-	0.5	+/-	0.9	+/-	1.2	+/-	1.6	+/-	1.9	+/-	2.2	14
24 h		1.9		2.3		2.6		2.9		3.2		3.4	16
	+/-	0.2	+/-	0.4	+/-	0.5	+/-	0.6	+/-	0.8	+/-	0.9	16

Table 3 : Interpolation Equation / Équation d'interpolation: $R = A \cdot T^B$

R = Interpolated Rainfall rate (mm/h)/Intensité interpolée de la pluie (mm/h)

RR = Rainfall rate (mm/h) / Intensité de la pluie (mm/h)

T = Rainfall duration (h) / Durée de la pluie (h)

Statistics/Statistiques	2	5	10	25	50	100
	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans	yr/ans
Mean of RR/Moyenne de RR	33.8	42.6	48.4	55.8	61.2	66.7
Std. Dev. /Écart-type (RR)	34.5	43.9	50.1	58.0	63.8	69.7
Std. Error/Erreur-type	5.9	6.1	6.4	6.7	6.9	7.1
Coefficient (A)	19.8	25.0	28.3	32.6	35.8	39.0
Exponent/Exposant (B)	-0.707	-0.706	-0.706	-0.706	-0.706	-0.706
Mean % Error/% erreur moyenne	6.1	6.1	6.5	7.0	7.3	7.5

Active coordinate

45° 17' 45" N, 76° 43' 14" W (45.295833,-76.720833)
Retrieved: Thu, 12 Feb 2026 18:34:01 GMT



Location summary

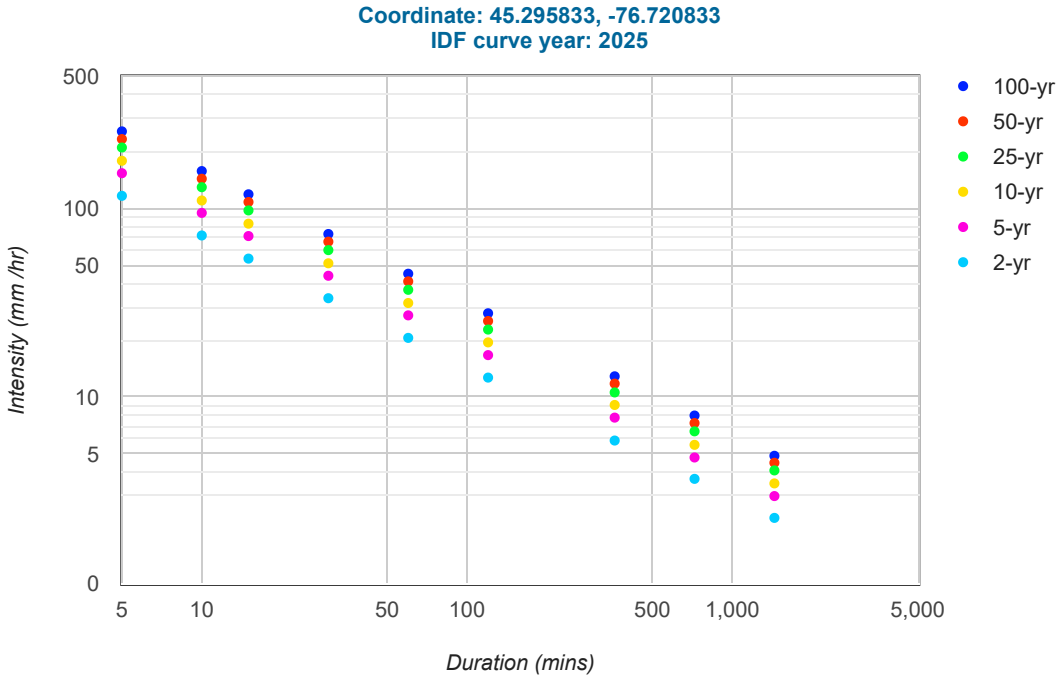
These are the locations in the selection.

IDF Curve: 45° 17' 45" N, 76° 43' 14" W (45.295833,-76.720833)

Location	Coordinates
1	45.294688,-76.731599
2	45.293299,-76.720527
3	45.29982,-76.722844
4	45.301631,-76.713145
5	45.294084,-76.711686

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 45° 17' 45" N, 76° 43' 14" W (45.295833,-76.720833)

Retrieved: Thu, 12 Feb 2026 18:34:01 GMT

Data year: 2010

IDF curve year: 2025

Statistics

Rainfall intensity (mm hr⁻¹)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	116.2	71.7	54.1	33.4	20.6	12.7	5.9	3.7	2.3
5-yr	153.1	94.4	71.2	43.9	27.1	16.7	7.8	4.8	3.0
10-yr	178.1	109.8	82.8	51.1	31.5	19.5	9.1	5.6	3.5
25-yr	209.3	129.1	97.3	60.0	37.0	22.8	10.6	6.6	4.1
50-yr	232.0	143.1	107.8	66.5	41.0	25.3	11.8	7.3	4.5
100-yr	254.8	157.1	118.4	73.0	45.0	27.8	12.9	8.0	4.9

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	9.7	12.0	13.5	16.7	20.6	25.4	35.4	44.4	55.2
5-yr	12.8	15.7	17.8	21.9	27.1	33.4	46.8	57.6	72.0
10-yr	14.8	18.3	20.7	25.6	31.5	39.0	54.6	67.2	84.0
25-yr	17.4	21.5	24.3	30.0	37.0	45.6	63.6	79.2	98.4
50-yr	19.3	23.9	26.9	33.3	41.0	50.6	70.8	87.6	108.0
100-yr	21.2	26.2	29.6	36.5	45.0	55.6	77.4	96.0	117.6

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Active coordinate

45° 17' 45" N, 76° 43' 14" W (45.295833,-76.720833)
Retrieved: Thu, 12 Feb 2026 18:51:36 GMT



Location summary

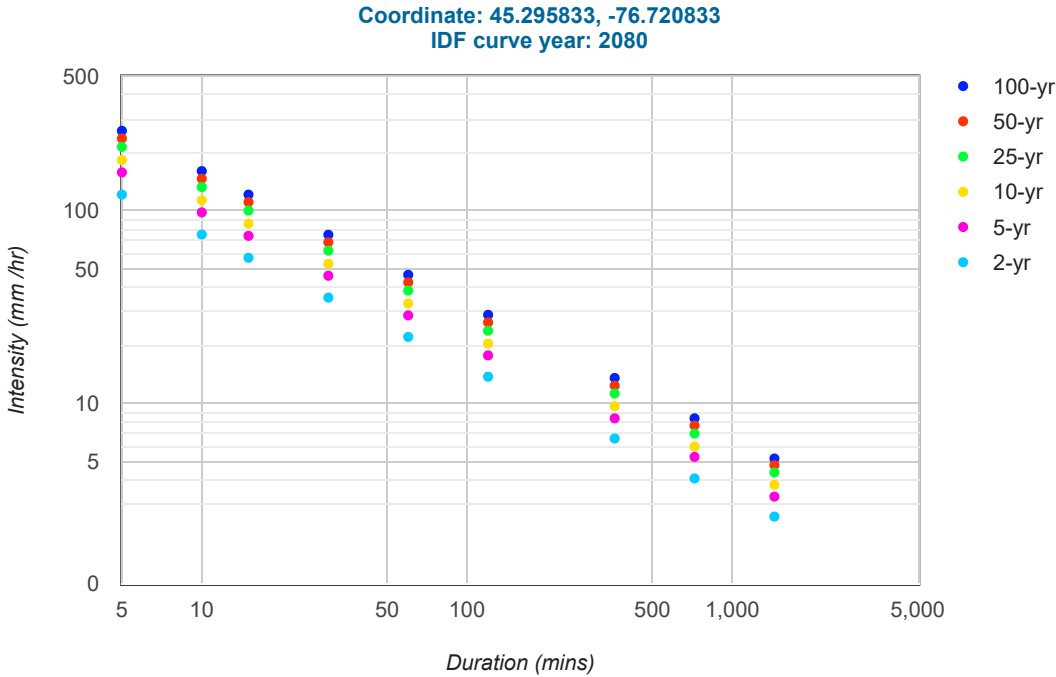
These are the locations in the selection.

IDF Curve: 45° 17' 45" N, 76° 43' 14" W (45.295833,-76.720833)

Location	Coordinates
1	45.294688,-76.731599
2	45.293299,-76.720527
3	45.29982,-76.722844
4	45.301631,-76.713145
5	45.294084,-76.711686

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 45° 17' 45" N, 76° 43' 14" W (45.295833,-76.720833)

Retrieved: Thu, 12 Feb 2026 18:51:36 GMT

Data year: 2010

IDF curve year: 2080

Statistics

Rainfall intensity (mm hr⁻¹)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	121.4	75.4	57.1	35.5	22.2	13.8	6.6	4.1	2.6
5-yr	158.3	98.2	74.2	46.1	28.7	17.8	8.4	5.3	3.3
10-yr	183.3	113.5	85.8	53.2	33.1	20.5	9.7	6.0	3.8
25-yr	214.5	132.8	100.3	62.2	38.6	23.9	11.3	7.0	4.4
50-yr	237.3	146.8	110.9	68.7	42.6	26.4	12.4	7.7	4.8
100-yr	260.0	160.8	121.4	75.2	46.6	28.9	13.6	8.4	5.2

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	10.1	12.6	14.3	17.8	22.2	27.6	39.6	49.2	62.4
5-yr	13.2	16.4	18.6	23.1	28.7	35.6	50.4	63.6	79.2
10-yr	15.3	18.9	21.4	26.6	33.1	41.0	58.2	72.0	91.2
25-yr	17.9	22.1	25.1	31.1	38.6	47.8	67.8	84.0	105.6
50-yr	19.8	24.5	27.7	34.4	42.6	52.8	74.4	92.4	115.2
100-yr	21.7	26.8	30.4	37.6	46.6	57.8	81.6	100.8	124.8

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for **people**

Appendix C: Natural Heritage Assessment



Re:Public Urbanism

CALABOGIE VILLAGE SECONDARY PLAN

Z0028761



Natural Heritage Assessment



CIMA+ file number: Z0028761
15 September 2025 - Review 000

CIMA+

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Glossary of Terms

Adjacent Lands Typically 120 m, or wider to address other guidelines (i.e., MECP with respect to endangered or threatened species)

List of Acronyms

ANSI	Area of Natural and Scientific Interest
ARA	Aquatic Resource Area
CASAR	Canadian Aquatic Species at Risk
CC	Coefficient of Conservation
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DBH	Diameter-at-breast Height
DFO	Fisheries and Oceans Canada
EAA	Environmental Assessment Act, 1990
ELC	Ecological Land Classification
ESA	Endangered Species Act, 2007(Provincial)
FA	Fisheries Act
FWCA	Fish and Wildlife Conservation Act, 1997 (Provincial)
GHD	General Habitat Description
LIO	Land Information Ontario
MBCA	Migratory Bird Convention Act, 1994 (Federal)
MECP	Ministry of Environment, Conservation and Parks
MNR	Ministry of Natural Resources
MTO	Ministry of Transportation of Ontario
NHAR	Natural Heritage Assessment Report
NHIC	Natural Heritage Information Centre
NHRM	Natural Heritage Reference Manual
NHS	Natural Heritage System
OBBA	Ontario Breeding Bird Atlas
OMNR/MNRF	Ontario Ministry of Natural Resources (old name) Ministry of Natural Resources and Forestry (new name)
OP	Official Plan
ORAA	Ontario Reptile and Amphibian Atlas
OWES	Ontario Wetland Evaluation System
PPS	Provincial Policy Statement
PSW	Provincially Significant Wetlands
SAR	Species at Risk (in this report, they refer to species that are provincially or federally listed as endangered or threatened and receive protection under ESA or SARA)
SARA	Species at Risk Act (Federal)
SARO	Species at Risk in Ontario
SCA	<i>Species Conservation Act</i>
SWH	Significant Wildlife Habitat
SWHTG	Significant Wildlife Habitat Technical Guide
UTM	Universal Transverse Mercator

List of Definitions

SRANK Definitions

- S1 Critically Imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- S2 Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S3 Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure; uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 Secure; Common, widespread, and abundant in the nation or state/province.
- ? Inexact Numeric Rank—Denotes inexact numeric rank
- SNA Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
- S#B Breeding
- S#N Non-Breeding

SARA Status Definitions

- END Endangered: a wildlife species facing imminent extirpation or extinction.
- THR Threatened: a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
- SC Special Concern: a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

SARO Status Definitions

- END Endangered: A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
- THR Threatened: A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- SC Special Concern: A species with characteristics that make it sensitive to human activities or natural events.

Coefficient of Conservatism (CC) Ranking Criteria

- 0 Obligate to ruderal areas.
- 1 Occurs more frequently in ruderal areas than natural areas.
- 2 Facultative to ruderal and natural areas.
- 3 Occurs less frequent in ruderal areas than natural areas.
- 4 Occurs much more frequently in natural areas than ruderal areas.
- 5 Obligate to natural areas (quality of area is low).
- 6 Weak affinities to high-quality natural areas.
- 7 Moderate affinity to high-quality natural areas.
- 8 High affinity to high-quality natural areas.
- 9 Very high affinity to high-quality natural areas.
- 10 Obligate to high-quality natural areas

1. Introduction

CIMA+ was retained by Re:Public Urbanism to provide environmental and engineering consulting services to support the preparation of the Calabogie Village Secondary Plan. As part of the environmental scope, this Natural Heritage Assessment (NHA) report has been prepared.

1.1 Project Description and Location

The Village of Calabogie, located at the north side of Calabogie Lake, is a settlement area of the Township of Greater Madawaska. Calabogie Village and its abutting lands have the highest density of commercial and institutional operations, as well as residential dwellings and tourist facilities within the Township. Population growth within the Township has surged in recent years, necessitating a plan to accommodate this growth. The Township's Growth Readiness Action Plan (2022) identified that implementing a Secondary Plan for the Village of Calabogie would be constructive to direct growth and development in the region. To inform the Secondary Plan, the Township is working with consultants to complete supporting studies and document the Village's existing conditions.

1.1.1 Location

Calabogie Village (the "Study Area") comprises approximately 150 ha in the Township of Greater Madawaska, part of the County of Renfrew. It spans lots across Concessions 6 to 12 within the historical Geographic Township of Bagot (centroid at Universal Transverse Mercator (UTM) 18T 364664 m E, 5017828 m N; Longitude -76.7265723° and Latitude 45.3009139°) (Figure 1).

1.2 Purpose and Scope of Assessment

The purpose of this NHA is to complete a thorough desktop assessment to evaluate the existing conditions in the Study Area from a natural heritage perspective. This report incorporates a background review of all available informational sources, legislation, and existing studies to provide sufficient information to inform the identification of natural heritage constraints for the Secondary Plan.

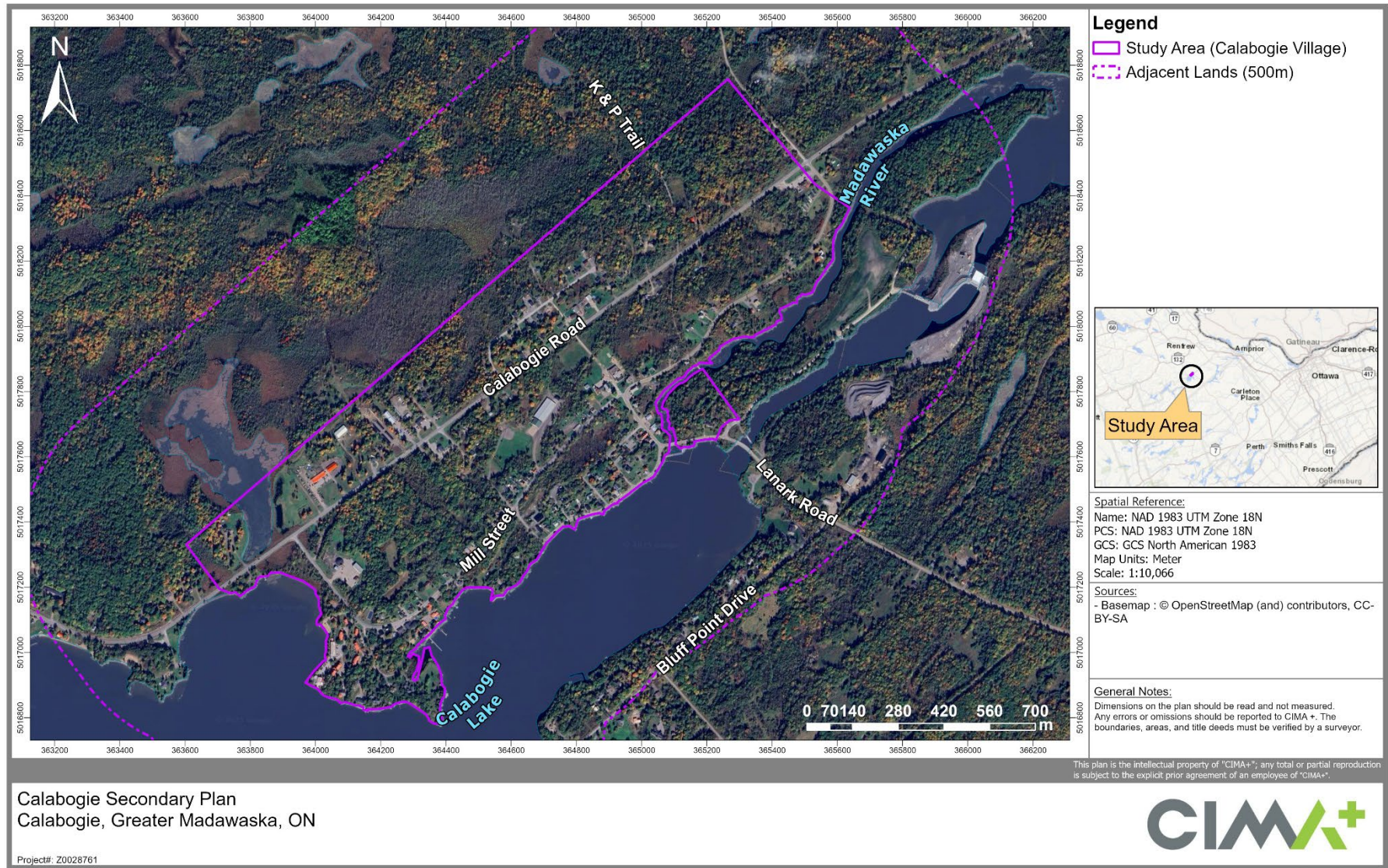


Figure 1: Study Area

2. Legislative Context

This section provides a summary of the relevant regional, provincial, and federal Acts, regulations and policies that apply to the Study Area with respect to the natural heritage features.

2.1 Provincial Policy Statement and Official Plans

The *Planning Act* (1990) and the guidelines in the accompanying Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing [MMAH], 2024) provides the basis for land use planning in Ontario and the creation of official plans. This section reviews the Official Plan (OP) in effect for the Study Area, which is the OP of the County of Renfrew (March 2020, consol. May 2024), as the Township of Greater Madawaska is regulated under the OP of the County.

The OP designates natural heritage features into an Environmental Protection Area (EPA), as depicted on Schedule A – Map 1. OP Policy 2.2(8) and 8.3 outline the natural heritage and natural water features:

- Habitat of endangered and threatened species;
- Areas of natural and scientific interest (ANSIs);
- Significant wildlife habitat;
- Fish habitat;
- Significant woodlands;
- Significant valleylands; and,
- Local and significant wetlands (natural water system).

Additionally, the Natural Heritage System (NHS) refers to the combination of natural heritage features, areas, and linkages that provide connectivity and support biodiversity. (OP Policy 2.2(8)(g)) The natural heritage features on Schedule A – Map 1, altogether, comprise the NHS of the County. Relevant OP policies are described below in Table 1.

Table 1: Official Plan Policies Related to Natural Heritage Features

Natural Heritage Feature	Reference for County of Renfrew OP (consol. May 2024, updated March 2020)	Relevant Schedules	Adjacent Lands
Environmental Protection Area (EPA)	Section 8.3(1 to 4).	Schedule A – Map 1, Schedule B – Map 4.	Variable
Habitat of endangered and threatened species (SAR)	Section 2.2(8)(a). No development or site alteration will be permitted in SAR habitat except in accordance with provincial and federal requirements.	Not specifically depicted on any Schedules. Part of EPA on Schedule A – Map 1 and Schedule B – Map 4.	Variable
Areas of natural and scientific interest (ANSIs)	Section 2.2(8)(b), Section 8.3(6). Development or site alteration may be permitted within an ANSI or its adjacent lands, subject to an approved study demonstrating no negative impacts on form or function and following Section 2.2(23).	Schedule A – Map 1, Schedule B – Map 4, or as updated on MNR mapping.	50 m (Earth Science) 120 m (Life Science)
Significant wildlife habitat (SWH)	Section 2.2(8)(c). Development or site alteration may be permitted within SWH if shown on Schedule B or adjacent lands, subject to an approved study demonstrating no negative impacts on form or function and following Section 2.2 (23).	Schedule B – Map 4.	120 m
Fish habitat	Section 2.2(8)(d). No development or site alteration will be permitted in fish habitat except in accordance with provincial and federal requirements. Fish habitat is defined under the Fisheries Act (FA). The FA, managed by Fisheries and Oceans Canada (DFO), is the authority for decision-making with respect to fish and fish habitat. Any demonstrated	Known fish habitat - Schedule B – Map 4.	120 m

Natural Heritage Feature	Reference for County of Renfrew OP (consol. May 2024, updated March 2020)	Relevant Schedules	Adjacent Lands
	alteration or disturbance to fish habitat shall require approval from DFO. Development or site alteration within the adjacent lands will not be permitted unless an approved study demonstrates no negative impacts.		
Significant woodlands	Section 2.2(8)(e). Criteria for the assessment of significance are provided in this section. Development within or adjacent to a significant woodland will require an approved study and evaluation demonstrating no negative impacts and following Section 2.2(23).	Schedule B – Map 4	120 m
Significant valleylands	Section 2.2(8)(f). Valleylands are identified by the OP, but not all valleylands mapped on Schedule B are significant. Development within or adjacent to significant valleylands <i>may</i> be subject to an approved study demonstrating no negative impacts, dependent on the nature of the development.	Schedule B – Map 4 (30 m from watercourses)	120 m
Local wetlands	Section 8.3(5)(a). Development will not be permitted in local wetlands but is permitted in the adjacent lands.	Part of EPA on Schedule A – Map 1.	n/a
Provincially significant wetlands (PSW)	Section 8.3(5)(b). Development or site alteration will not be permitted in PSWs. Development within adjacent lands may be permitted, subject to an approved study demonstrating	Schedule A – Map 1, Schedule B – Map 4.	120 m

Natural Heritage Feature	Reference for County of Renfrew OP (consol. May 2024, updated March 2020)	Relevant Schedules	Adjacent Lands
	no negative impacts and following Section 2.2(23). Note that connectivity between features should be maintained or improved. Existing agricultural uses may continue.		

2.2 Provincial – Other

2.2.1 Endangered Species Act

The *Endangered Species Act, 2007* (ESA) prohibits killing or damaging the habitat of species that are listed on the SAR in Ontario list. Endangered (END) indicates that the species lives in the wild in Ontario but is facing imminent extinction or extirpation. Threatened (THR) indicates the species lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address the factors threatening it. Note that species listed as special concern are not afforded protection under the Act.

The ESA is applicable on private and provincial lands. It can also sometimes be applicable to federal lands. The relevant sections to the project are:

- Prohibition on killing or harming of END or THR individuals (Section 9)
- Prohibition on damage to END or THR habitat (Section 10)

Note that ESA is currently being amended and is anticipated to be replaced by a new Act entitled *Species Conservation Act* (SCA) around 2026.

2.2.2 Fish and Wildlife Conservation Act

In addition to the protections offered by the statutes and policies noted above, the *Fish and Wildlife Conservation Act* (FWCA), 1997, administered by the Ministry of Natural Resources (MNR), needs to be considered. This Act imposes restrictions on the hunting, trapping, and fishing of wildlife, as well as the possession of animals (live or dead). These restrictions include the capturing or harassing of specially protected wildlife or any wild bird species (not a game bird and not listed as an exception) regardless of its live stage (egg, adult) (Part II 5 (1)). It also protects nests or eggs of wild bird species (other than American Crow, Brown-headed Cowbird, Common Grackle, House Sparrow, Red-winged Blackbird, or European Starling) (Part II 7(1)). In case of conflicting provisions with the *Endangered Species Act, 2007*, the Act providing greater protection for the animal, invertebrate, or fish in question will prevail.

2.3 Federal

2.3.1 Fisheries Act

The *Fisheries Act*, last amended on August 28, 2019, is intended to provide a framework for the management of threats to fish¹ and fish habitat, including the prevention of pollution, regardless of their attachment to a fishery. The most relevant sections to works, undertakings and activities are:

¹ Summary of the FA definition of fish: parts of fish, shellfish, crustaceans, marine animals, and any parts of these, and eggs, sperm, spawn, larvae and juvenile stages of the above list.

- Prohibition of the Death of Fish (Section 34.4 (1));
- Prohibition of the Harmful alteration, disruption, or destruction of Fish Habitat (Section 35 (1)); and
- The provisional Ministerial powers to ensure the free passage of fish or the protection of fish or fish habitat with respect to existing obstructions (Section 34.3).

2.3.2 Migratory Birds Convention Act

The *Migratory Birds Convention Act, 1994* (MBCA) regulates the protection and conservation of migratory birds as populations and individuals. It also offers protection for nests containing a live bird or viable eggs for most migratory bird species. Schedule 1 under the Migratory Bird Regulations (2022) lists 18 species that may reuse nests and whose nests are protected year-round regardless of occupation, unless the nest has been reported and deemed abandoned after a waiting period. Species listed under Schedule 1 that occur in Ontario include Great Egret, Great Blue Heron, Cattle Egret, Green Heron, Snowy Egret, Black-crowned Night Heron, and Pileated Woodpecker. The Migratory Bird Regulations (2022) prohibit the disturbance, damage, or destruction of migratory bird nests or eggs. These prohibitions and regulations apply to any areas where migratory birds and their nests are found in Canada.

2.3.3 Species at Risk Act

Federally protected species are listed in 'Schedule 1' of the *Species at Risk Act, 2002* (SARA). The application of SARA varies depending on the species and the level of government with jurisdiction over the land. In general, the relevant sections are:

- Prohibition of killing, harming, harassment, capturing or taking of an individual listed as extirpated, endangered, or threatened (Section 32(1))
- Prohibition of possessing, collecting, buying, selling, or trading an individual listed as extirpated, endangered, or threatened (Section 32(2))
- Prohibition against the damaging or destruction of residences of species listed as endangered or threatened. For extirpated species, the recovery strategy must also recommend the reintroduction of the species into the wild in Canada (Section 33)

However, on lands that are not federal, Sections 32 and 33 do not apply except for aquatic species (those listed as "fish" under the *Fisheries Act* or a migratory bird as per the *Migratory Birds Convention Act, 1994* (MBCA), unless a federal order has been created. It is highlighted, that bird species with defined residences, that the residences are protected year-round on all lands (the nests are protected during the nesting period) (Canadian Wildlife Services (CWS), 2025).

3. Methodology

3.1 Study Area

The areas under consideration for this background analysis include the Study Area and its adjacent lands. For this study, the “Adjacent Lands” refer to the 500 m around the Study Area, to capture opportunities for expansion of the settlement area. However, this area is widened when analyzing the potential for species at risk (SAR) as their protected habitats vary with the species being considered.

3.2 Background Review

When completing a comprehensive desktop review, a larger area (~5 km) was applied to obtain a better understanding of the local characteristics and occurrences of species at risk. The data was then reviewed and analyzed for applicable site-specific information. Information from government websites, available consulting reports, and personal knowledge has also been included, as appropriate. The data sources included:

- Aerial/Satellite Imagery (ESRI, 2021)
- Atlas of the Mammals of Ontario (Dobbyn, 1994)
- Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping (DFO, 2023)
- Geographic information from Land Information Ontario (LIO, 2021)
- iNaturalist (I Naturalist, 2025)
- eBird (eBird, 2025)
- Global Biodiversity Information Facility (GBIF, 2025)
- The Ministry of Natural Resources and Forestry’s (MNRF) Natural Heritage Information Center (NHIC) Make A Map – search was completed May 2025 (NHIC, 2025).
- Ontario Breeding Bird Atlas (Atlas 2- 2001-2005)
- County of Renfrew Official Plan (OP) (consol. May 2024, updated March 2020)

Background information collected for the Study Area and adjacent lands is summarized in subsequent sections.

4. Background Data

4.1 Summary of Known Natural Heritage Features

The Study Area is situated in Ecoregion 5E – Georgian Bay and part of the Madawaska River Watershed. It is designated a Village Community as per OP Schedule A – Map 1.

A review of information from NHIC, provincial atlases, and satellite imagery identifies the following natural heritage features as present or potentially present in the Study Area (cross ref):

- Habitat for endangered or threatened species;
- Local / unevaluated wetlands (LIO, County of Renfrew on-line mapping);
- Fish habitat (LIO, Schedule B – Map 4); and,
- Undifferentiated EPA.

In addition, several natural heritage features were identified within 500 m of the Study Area:

- Grassy Bay – Provincially significant wetland;
- Local / unevaluated wetlands (LIO, County of Renfrew on-line mapping);
- Fish habitat - Walleye spawning area (LIO);
- Fish habitat – Calabogie Lake

Information on natural heritage features is summarized in Table 2.

Table 2: Summary of Natural Features on-Site and the Adjacent Lands

Natural Heritage Feature	Present within Study Area	Present within 500 m of Study Area	Comments
Habitat of Endangered and Threatened Species (SAR)	Potential for endangered or threatened species needs to be determined on a case-by-case basis following assessment of the suitable habitats in or near the Study Area. The list in Table 3 of potential SAR is based on a review of the satellite imagery and background information on potential species.		Discussed in 5.1.1.
Wetlands	No PSWs identified on OP Schedules or provincial mapping. Local / unevaluated wetlands present (provincial and County mapping).	Grassy Lake PSW present approximately 360 m south of the Study Area. Several local / unevaluated wetlands are also present within 500 m.	Discussed in 5.1.2.
Significant woodlands	None identified on Schedules.		Discussed in xxx.
Significant valleylands	None identified on Schedules.		Not discussed further.
Significant Wildlife Habitat	Potential for significant wildlife habitat needs to be determined following assessment of suitable habitats in or near the Study Area. To be assessed based on provincial reference documents (i.e., <i>Significant Wildlife Habitat Technical Guide</i> , 2000).		A desktop evaluation is provided in Appendix C.
Areas of Natural and Scientific Interest (ANSI)	None identified on provincial databases.		Not discussed further.

Natural Heritage Feature	Present within Study Area	Present within 500 m of Study Area	Comments
Fish Habitat / Watercourses	Present. Major features include Madawaska River and Calabogie Lake. Fish spawning habitat (walleye) is present within 500 m of the Study Area, in Madawaska River.		Discussed in 5.1.3.

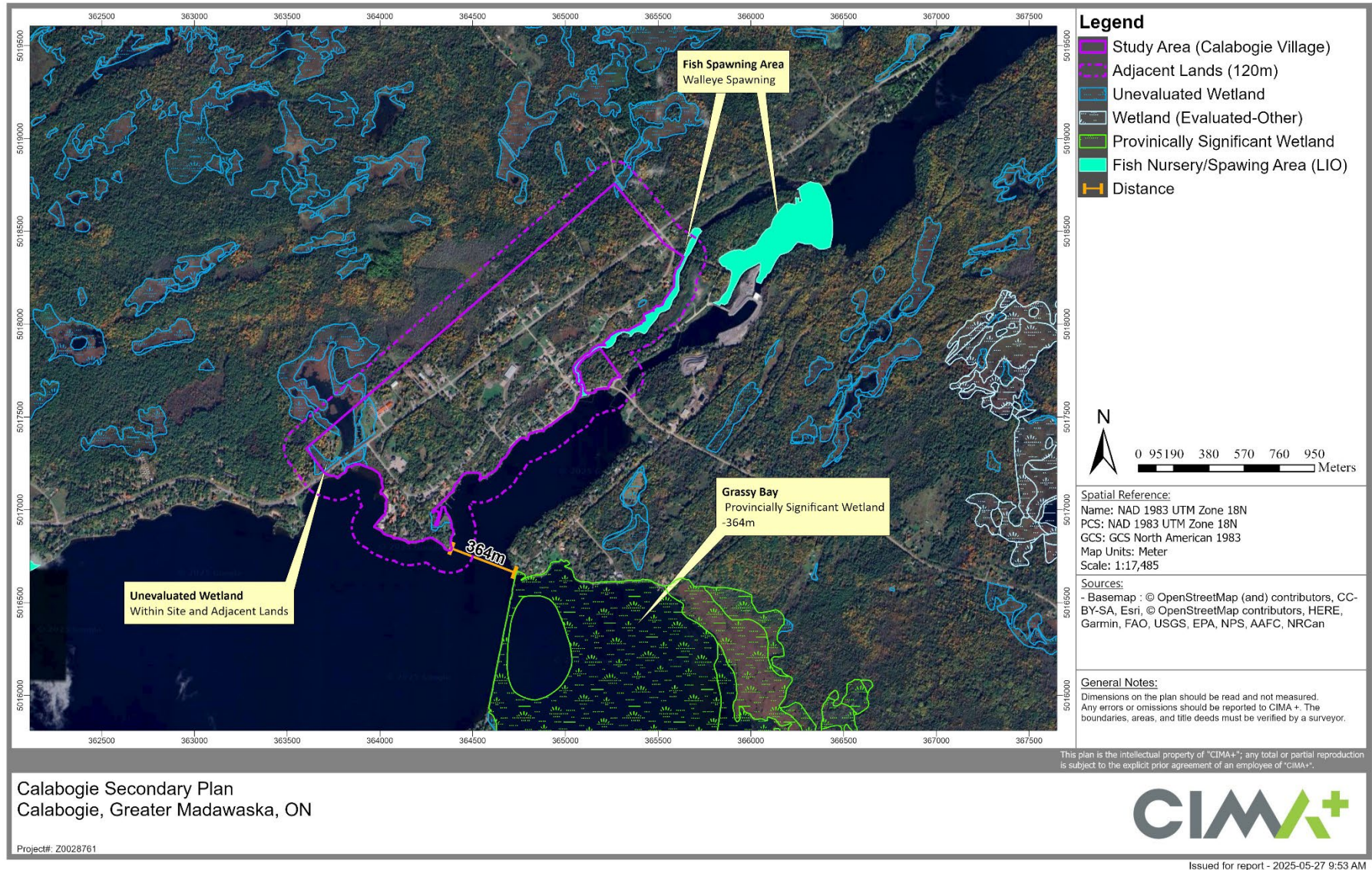


Figure 2: Summary of Known and Candidate Natural Heritage Features

4.2 Habitat of Endangered and Threatened Species

Endangered and threatened SAR are protected under the provincial ESA. The federal SARA applies only to fish and bird species with defined residences on private land. Together, both provincially and federally protected species are referred to as SAR herein. The likelihood of presence based on habitat suitability and provincial or federal guidance was not evaluated in this report.

For some species, the federal and/or provincial governments provide guidelines on what habitats should receive automatic protection. This is usually based on distances from known sightings or suitable habitat. Federally, the habitat is typically classed based on function, while provincially, it is categorized as either regulated or general habitat. Regulated habitat has a detailed description and is prescribed in an Ontario Regulation (O.Reg.). General habitat typically splits habitat requirements into up to 3 categories, Categories 1-3, where 1 indicates the greatest sensitivity to disturbances and 3 indicates the highest tolerance to disturbances.

A list of potential endangered and threatened species was compiled using various sources (Table 3). The NHIC database provides information available to the public on SAR documented as occurring within the general area. It should be noted that not all information for all species is available to the public. Furthermore, the absence of a record does not necessarily indicate that the species is absent from the area. The purpose of the NHIC database is to help determine what species may occur within the Study Area. Bird species observed as part of the Ontario Breeding Bird Atlas (OBBA) were also reviewed, and any SAR were considered to potentially occur within the subject lands. Similarly, SAR reptiles and/or SAR amphibians listed on the Ontario Reptile and Amphibian Atlas (ORAA) within the vicinity of the Study Area were included in the assessment. Finally, added to this list were species that often occur within the general area based on personal experience and/or observations.

Note that there was the potential for restricted species to occur in the general area. Data on these species' occurrences is not publicly available due to their sensitivity to exploitation or disturbance. As well, extirpated and species that have not been recorded in the past 20 years have been omitted, for example Short-eared Owl.

The resulting list contains 17 SAR:

- 1 fish (American Eel);
- 1 reptile (Blanding's Turtle);
- 5 birds (Lesser Yellowlegs, Chimney Swift, Bank Swallow, Bobolink, Eastern Meadowlark);
- 7 mammals (SAR bats);
- 1 lichen (Pale-bellied Frost Lichen); and,

- 2 plants (Butternut, Black Ash).

These are discussed further in Section 5.1.1.

4.3 Fish Communities

Two (2) watercourses/water bodies were noted based on the background information: Madawaska River and Calabogie Lake. The Study Area lies at the intersection of the Madawaska River (roughly 230 km long) and Calabogie Lake (roughly 1350 ha in size). The intersection continues to the sub watersheds, with the lake being part of the Calabogie Lake – Madawaska River and the river being part of the Lake Madawaska – Madawaska River watersheds.

Madawaska River

Information on the fish communities in the Madawaska River upstream of the study area was obtained from the LIO Aquatic Resource databases (LIO), DFO Canadian Aquatic Species at Risk Mapping (CASAR), and iNaturalist. This information identified 27 warm to cold water species which are listed in Table 1; the provincial database indicates that the thermal regime of the river is cool. The list of species included:

- 6 sport fish (Northern Pike, Muskellunge, Channel Catfish, Smallmouth Bass, Largemouth Bass, Walleye);
- There is one provincially listed SAR or special concern identified in the Study Area (River Redhorse);
- All fish species identified had an Srank of S4 or S5, other than the River Redhorse (S2) and Greater Redhorse (S3);
- DFO's CASAR mapping identifies the potential presence of one (1) special concern species (River Redhorse). No other federally listed species or any critical habitat were identified (accessed May 2025).

Calabogie Lake

Information on the fish communities in Calabogie Lake downstream of the study area was obtained from the LIO Aquatic Resource databases (LIO), DFO Canadian Aquatic Species at Risk Mapping (CASAR), and iNaturalist. This information identified 18 warm to cold water species which are listed in Table 1. The provincial database indicates that the thermal regime is cold. The list of species included:

- Six sport fish (Cisco, Northern Pike, Channel Catfish, Smallmouth Bass, Largemouth Bass, and Walleye)

- There is one provincially listed SAR or special concern identified in the Study Area (American Eel)
- All fish species identified had an Srank of S4 or S5; other than the American Eel (SAR)
- DFO CASAR mapping does not identify any federally listed species or their critical habitat (access May 2025).

4.4 Vegetation Communities (Desktop)

The vegetation communities were mapped based on aerial imagery. The minimum size of each vegetation community was 0.5 ha, as per both Ecological Land Classification (ELC) and Ontario Wetland Evaluation System (OWES), unless a significant smaller community is identified. The natural environment includes:

- Cultural meadow (CUM – ELC code) (dominated by herbaceous species with no more than 25% cover provided by either shrub or tree species)
- Cultural woodland (CUW – ELC code) (dominated by trees with 35%–60% cover)
- Coniferous forest (FOC – ELC code) (dominated by trees with 60% of more cover and more than 75% of the tree cover being coniferous)
- Deciduous forest (FOD – ELC code) (dominated by trees with 60% of more cover and more than 75% of the tree cover being deciduous) (ELC)
- Mixed forest (FOM – ELC code) (dominated by trees with 60% of more cover and more than 25% cover provided by both deciduous and coniferous species)
- Robust emergent marsh (reM – OWES code) (wetland with under 25% cover by woody species and dominated by robust emergents)
- Rooted floating plant open water marsh (fW – OWES code) (wetland with under 25% cover by woody species and dominated by non-emergent species)
- Tall shrub swamp (tsS – OWES code) (wetland dominated by woody species 1–8m in height)

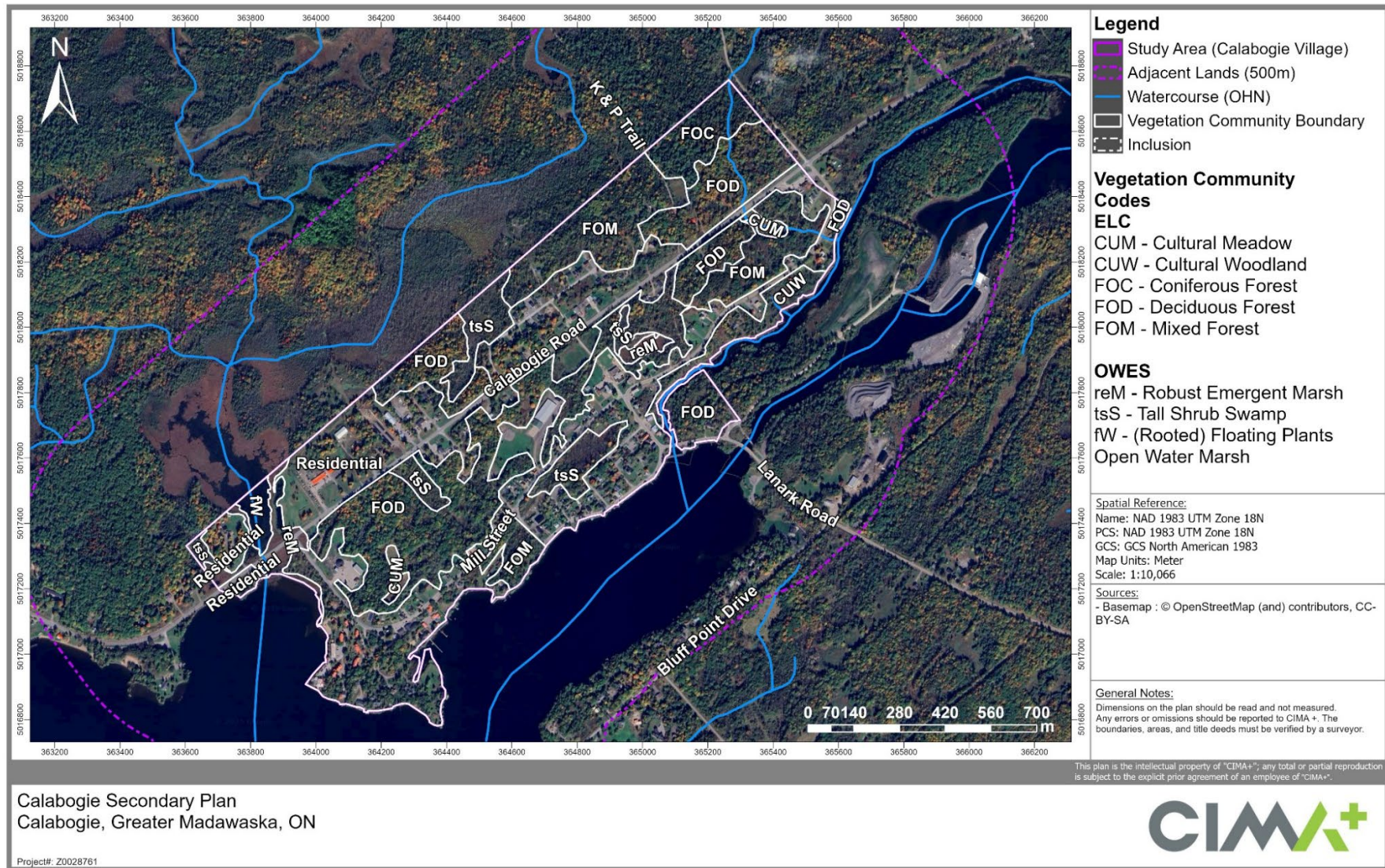


Figure 3: Vegetation Communities

5. Discussion of Findings

The following section evaluates identified or potential natural features and the results from the background review, corrected with the field investigations to assess whether the feature is present. If present, its significance is assessed based on the Natural Heritage Reference Manual (Ontario Ministry of Natural Resources (OMNR), 2010) or other provincial/federal guidelines, as applicable. The OP was also considered.

The following were absent in the Study and the adjacent lands:

- NO Areas of national and scientific interest (ANSIs);
- NO Significant woodlands;
- NO Significant Valleylands;

Features identified as present, potentially present, or assumed present across the Study Area and adjacent lands were:

- Habitat of endangered and/or threatened species;
- Local / unevaluated wetlands;
- Provincially significant wetland (adjacent lands);
- Fish habitat / watercourses; and,
- Environmental Protection Areas
- Potential Significant Wildlife Habitat

The next sections test the known or potential natural features identified for significance based on the appropriate reference document. Where it is determined that a significant natural heritage feature is present or assumed to be present, the potential impacts are determined based on the understanding of project activities and impact assessment methods. These methods are summarized below followed by an evaluation for each feature.

5.1 Impact Assessment Methods

The assessment of the potential impacts is completed by analyzing the impact of various activities associated with the Project. The significance of the potential impacts is measured using four different criteria:

- Area affected may be:
 - local in extent signifying that the impacts will occur within the Area Investigated
 - regional signifying that the impacts may extend beyond the immediate Area Investigated.
- Nature of Impact:
 - negative or positive.

- direct or indirect.
- risk (certainty, understanding of impacts).
- Duration of the impact may be:
 - short term (1-2 years).
 - medium term (>2years).
 - long term (>7 years).
 - permanent.
- Magnitude of the impact may be:
 - negligible signifying that the impact is not noticeable
 - minor signifying that the Project's impacts are perceivable and require mitigation.
 - moderate signifying that the Project's impacts are perceivable and require mitigation as well as monitoring and/or compensation.
 - major signifying that the Project's impacts would destroy the environmental component within the Site.

Where identified, the boundaries of any significant features are noted and the potential for the development to cause negative impacts is assessed. For features which may be negatively impacted, avoidance and mitigation measures are recommended as appropriate. The PPS (MMAH, 2024) states that a negative impact signifies:

- "a) in regard to policy 2.2, degradation to the quality and quantity of water, sensitive surface water features and sensitive ground water features, and their related hydrologic functions, due to single, multiple, or successive development or site alteration activities.*
- c) in regard to fish habitat, any permanent alteration to, or destruction of fish habitat, except where, in conjunction with the appropriate authorities, it has been authorized under the Fisheries Act.*
- d) in regard to other natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities."*

5.1.1 Habitat of Endangered and Threatened Species

An initial assessment of potential SAR and SAR habitat is provided below based on the findings of the site investigations. These remain candidate SAR based on the desktop review.

As noted in Section 4.2, a list of 17 endangered or threatened species were identified as potentially occurring. These species are described in Table 3 with their status, preferred habitats, and guidelines. As mentioned, species that have not been recorded in the past 20 years have been omitted (Short-eared Owl).

For some species, the federal and/or provincial governments provide guidelines on what habitats should receive automatic protection. This is usually based on distances from known sightings or suitable habitat. Federally, the habitat is typically classed based on function, while provincially, it is categorized as either regulated or general habitat. Regulated habitat has a detailed description and is prescribed in an Ontario Regulation (O.Reg.). General habitat typically splits habitat requirements into up to 3 categories, Categories 1-3, where 1 indicates the greatest sensitivity to disturbances.

Table 3 below lists the candidate SAR along with their habitat needs. Where guidance is provided by the government, it is used to evaluate whether to bring the species forward for assessment. If no guidance is provided, the available literature is used to evaluate the suitability of the habitat in the Study Area for that species.

Note: The evaluation of presence in this report follows the existing ESA guidelines established prior to June 5, 2025, which are expected to exceed the interim ESA guidelines and the proposed SCA requirements. For informational purposes, the changes to the application of the ESA as a result of Bill 5 remain unclear at the time of this report. MECP provided Interim ESA advice in June 2025 confirming the following (MECP, 2025):

- Species protection continues to extend to individuals for killing and harming, but not for harassment.
- Habitat protection will be limited:
 - For animals: the dwelling place and immediate surrounding area;
 - For plants, the critical root zone and as per personal communications with MECP, this is currently 18x the maximum diameter-at-breast height (dbh) of the species.
 - For all other species, the area on which any member of the species directly depends to carry out its life processes.

Note that the evaluation of presence is based solely on available background information.

Table 3: List of Potential Endangered or Threatened Species Based on Desktop Screening

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat / Guidelines	Desktop Evaluation of Presence
FISH						
American Eel	<i>Anguilla rostrata</i>	S1?	END	No Status	Near cover over muddy bottoms in lakes, ponds, rivers and creeks at depths <15 m; preferred water temperature range 16-19°C. (Committee on the Status of Endangered Wildlife in Canada (COSEWIC), 2006).	Potential to occur within Lake Calabogie however this species is likely extirpated from the Madawaska watershed due to downstream barriers.
REPTILES						
Blanding's Turtle	<i>Emydoidea blandingii</i>	SNR	THR	END	Shallow water, large marshes, shallow lakes or similar such water bodies. General habitat protection is provided for suitable habitat that is within 2 km of an occurrence when certain conditions are met (COSEWIC, 2016).	Potential to occur in any aquatic habitat in the study area. Higher potential to occur in wetland habitats in the west.
BIRDS						
Least Bittern	<i>Ixobrychus exilis</i>	S4B	THR	THR	Freshwater marshes habitat with dense vegetation (Sandilands, 2005; COSEWIC, 2009a). Nests are typically in cattail marshes, near edge or openings but they have been found in other emergents and occasionally in willow (Woodcliff, 2007). Recovery strategy states that the species must have permanent marsh/shrub swamps and a mosaic of tall and robust herbaceous or woody vegetated with open water areas and natural regime water levels (ECCC, 2014). The open water areas can be shallow (10-50cm) (OMNRF, 2016). Movements within this suitable habitat can extend within a 500m radius of the nest (ECCC, 2014). and are usually found in those that are larger than 5 ha (COSEWIC 2009a; OMNRF, 2014). The province does not currently have any guidance on the general habitat requirements of this species.	Potential to occur in the robust emergent marsh community on the western side of the study area.

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat / Guidelines	Desktop Evaluation of Presence
Chimney Swift	<i>Chaetura pelagica</i>	S4B, S4N	THR	THR	Cities, towns, villages, rural, and wooded areas. This species rarely utilizes trees; they prefer trees greater than 50 cm in diameter and that are within 1 km of waterbodies (COSEWIC, 2007). Provincially, this species' protected habitat consists of Category 1 habitat, which is a human-made nesting/roosting feature or natural nesting/roosting tree cavity, as well as the area within 90 m of the natural tree cavity (MECP, 2013). No Category 2 or 3 habitats are outlined for this species (MECP, 2013).	Potential to occur in buildings with open chimneys.
Bank Swallow	<i>Riparia riparia</i>	S4B	THR	THR	This species nests within vertical banks, with a preference for sand-silt substrate. Nesting sites more likely near open upland habitats. (COSEWIC, 2013a). Provincially, the species general habitat description (GHD) includes the 50 m in front of a breeding colony's bank face and all suitable foraging habitat within 500 m (MECP, 2024).	No areas with tall banks appear to be present in the imagery. This species is unlikely to occur.
Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	Grasslands, wet meadows, hayfields, old fields, and pastures. This species is sensitive to edge effects and prefers areas with few shrubs as well as a litter layer deeper than a couple of centimetres (COSEWIC, 2022). Provincially, the GHD for this species protects 60m from a nest and 300m of suitable habitat around a nesting site.	No large grassland communities within the study area. This species is unlikely to occur.
Eastern Meadowlark	<i>Sturnella magna</i>	S4B	THR	THR	This is a grassland breeding bird, typically requiring larger habitats but have been known to breed in habitats that were 1 ha in the United States. Usually, their defended territories are of 2.8-3.2 ha of uncut meadow or field (McCracken et al, 2013). Personal observations of successful nesting habitat for this species in Eastern Ontario has not found any successful nesting pairs in habitats that were less than 5 ha. (COSEWIC, 2011). Provincially. the GHD for this species protects 100m from a nest and 300m of suitable habitat around a nesting site.	No large grassland communities within the study area, this species is unlikely to occur.
MAMMALS						
Little Brown Myotis	<i>Myotis lucifugus</i>	S4	END	END	Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Overwinter in cold and humid hibernacula (caves/mines)	No rocky habitats are visible in imagery. As such no hibernacula or maternity

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat / Guidelines	Desktop Evaluation of Presence
					(COSEWIC, 2013b). Critical habitat has not yet been defined. Provincially, these hibernacula have a buffer of 200m. Buffers for maternity sites have not been established.	habitat for Eastern Small-footed Myotis are expected.
Northern Myotis	<i>Myotis septentrionalis</i>	S3	END	END	Older (late successional or primary forests) with large interior habitat and snags that are in the mid-stage of decay. They prefer intact interior habitat and are sensitive to edge habitats (Menzel et al., 2002; Broders et al., 2006). Critical habitat has not yet been defined. Provincially, these hibernacula have a buffer of 200m. Buffers for maternity sites have not been established.	All wooded areas have potential to provide maternity habitat for SAR bats.
Eastern Small-footed Myotis	<i>Myotis leibii</i>	S2S3	END		Roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. The recovery strategy for the eastern small-footed myotis indicates that the preferred maternity habitat of this species consists of open rock habitats. In the winter, these bats hibernate, most often in caves and abandoned mines (Humphrey, 2017). Provincially, these hibernacula have a buffer of 200m. Buffers for maternity sites have not been established.	
Tri-colored Bat	<i>Perimyotis subflavus</i>	S3?	END	END	Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Overwinter in cold and humid hibernacula (caves/mines). (COSEWIC, 2013b).	
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	S4	END (as of 2025)	No status	Females establish summer maternity colonies in large diameter trees (COSEWIC 2023). They also use buildings as roosting sites. Critical habitat has not yet been defined. Provincially, hibernacula have a buffer of 200m. Buffers for maternity sites have not been established.	
Eastern Red Bat	<i>Lasiurus borealis</i>	S4	END (as of 2025)	No status	Day roosts can be in a variety of deciduous and coniferous forest types, usually in trees but occasionally shrubs. Trees used as maternity roosts tend to be large diameter and tall (COSEWIC, 2023). Migrate south to hibernate in the southern United States (COSEWIC, 2023). Critical habitat has not yet been defined. Provincially, hibernacula have a buffer of 200m.	
Hoary Bat	<i>Lasiurus cinereus</i>	S4	END (as of 2025)	No status	Buffers for maternity sites have not been established.	

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat / Guidelines	Desktop Evaluation of Presence
LICHEN						
Pale-bellied Frost Lichen	<i>Physconia subpallida</i>	S3	END	END	Grows mainly on hardwood tree species on bark with high pH and moisture holding capacity, which occur predominantly on the thicker bark of its preferred host species, which include hop-hornbeam (ironwood), ash, and elm	Possible to occur in older wooded areas, the northern edge appears to be more suitable than the rest.
VASCULAR PLANTS						
Butternut	<i>Juglans cinerea</i>	S2?	END	END	Can occur on a variety of sites but grows best on well-drained fertile soils in shallow valleys and on gradual slopes (COSEWIC, 2003). Provincially, this species' habitat is described as up to 50 m from the stem (depending on the size and classification of the individual).	Possible to occur in all terrestrial habitats.
Black Ash	<i>Fraxinus nigra</i>	S4	END	No Status	Swamps, bogs, and riparian areas, occasionally poorly drained upland areas (COSEWIC, 2018). Provincially, this species' habitat is described to include 30 m from the stem.	Possible to occur in most wetland habitats.

Table Updated: May 2025

SRANK DEFINITIONS

- S2 Imperiled, Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S3 Vulnerable, Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure, Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S#S# Range Rank, A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
- ? Inexact Numeric Rank–Denotes inexact numeric rank
- S#B Breeding

SARO STATUS DEFINITIONS

- END Endangered: A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
- THR Threatened: A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- SC Special Concern: a species with characteristics that make it sensitive to human activities or natural events.

SARA STATUS DEFINITIONS

- END Endangered, a wildlife species facing imminent extirpation or extinction.

THR	Threatened, a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC	Special Concern, a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

5.1.1.1 American Eel

The American eel is listed as endangered provincially. They breed in the Sargasso Sea and mature for 5-20 years in freshwater rivers in North America (Becker, 1983; MacGregor et al., 2013; Scott and Crossman, 1998). There is an NHIC record in the general area which is likely historical as this species is likely extirpated from the Madawaska River shed due to downstream barriers (Woods et al. 2022). No critical habitat or general habitat description has been provided by the province. It is noted that this species can also travel on land where needed to move around obstacles. This species is considered unlikely to be present.

5.1.1.2 Blanding's Turtle

Blanding's Turtles (*Emydoidea blandingii*) are associated with a variety of shallow, slow aquatic habitats with soft substrate, submergent and emergent plants. These turtles require basking sites located near the water such as exposed rocks or partially submerged logs. They tend to prefer wetlands with soft organic substrates overflowing water and are usually in shallow depths (<2 m) (ECCC, 2018a). They require both aquatic and terrestrial habitats. Though they favour environments with water depths <2 m, depths up to 4.5 m are considered habitat for this species (ECCC, 2018a). The nesting sites are located within areas of loose substrates varying from sand to cobblestone and may occur along roadways as far as 400 m away. Marsh habitat is important for the juveniles for protection from predators. The species overwinters within permanent water bodies (COSEWIC, 2016). This species can migrate far distances of up to 6 km, and their routes can include overland movement (OMNR, 2013).

Some habitats, such as active agricultural croplands, sand pits, large waterbodies, fast-flowing systems, and high-use highways, are not considered suitable habitat (ECCC, 2018a). While the province has adopted the federal recovery strategy, whose description of suitable habitat is included above, the province has also established GHD for Blanding's Turtle. The GHD provides protection to the areas surrounding a nest, or perceived nest area. The level of protection varies with the distance from the nest and has been categorized by MNRF into three (3) categories. These, along with their protection level are:

- Category 1: Nest and the area within 30 m or Overwintering sites and the area within 30 m
- Category 2: The wetland complex (i.e., all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies
- Category 3: Area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence

Without in-field assessment, there is potential for all aquatic habitats to be suitable for this species, however the most suitable area from imagery appears to be the marsh on the western side of the study area.

5.1.1.3 Least Bittern

The Least Bittern is listed as a threatened species both provincially and federally. It is a secretive species that requires marsh habitats with dense vegetation (Sandilands, 2005; COSEWIC, 2009). This species prefers to nest within cattail marshes along the edge or near openings (Woodliffe, 2007). However, they have also been found to nest in bulrushes, grasses, horsetails, and willow (Woodliffe, 2007). The province has adopted the federal recovery strategy which defines suitable habitat for this species as permanent wetlands with tall and robust emergent herbaceous or woody vegetation interspersed with open water in areas with natural water level fluctuations (OMNRF, 2016). The recovery strategy defines critical habitat as occupied suitable habitat and the surrounding 500 m (OMNRF, 2016). Occupied habitat is suitable habitat in which either confirmed breeding evidence or 2 records of probable breeding evidence within 5 years has been recorded since 2001 (OMNRF, 2016). This species has potential to occur within the robust emergent marsh community on the western edge of the study area.

5.1.1.4 Chimney Swift

The Chimney Swift can often be found in developed areas and prefers to utilize large (>50 cm diameter) trees or man-made structures such as chimneys for its nesting habitat (COSEWIC, 2007). The use of large trees is considered a rare event, and the documented occurrences have all be in trees that were <1 km from a waterbody (large enough to be shown on 1:50,000 topographical maps) (COSEWIC, 2007). They have potential to inhabit the structures or any large cavity trees within the study area.

5.1.1.5 SAR Bats

The potential SAR bats within the general area are Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, Tri-colored Bat, Eastern Red Bat, Hoary Bat, and Silver-haired Bat. To date, there has been no firm response from MECP on the survey requirements. However, recent discussions with some MECP reviewers have indicated that all treed areas (with trees of 10 cm or larger dbh) need to be assessed for habitat during the leaf-off season, followed by acoustical monitoring during June (if habitat may be impacted).

A review of the primary types of habitats required by bats including hibernation, maternity sites, and day-roost sites is provided below for each species.

Hibernacula

Four of the seven protected bat species (Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, and Tri-colored Bat) prefer to hibernate in caves or mines. They can hibernate in buildings but that is rare for these species (COSEWIC, 2013b). No rocky habitat appears to be present in imagery, but this requires in field assessment to completely rule out.

The three newly listed species are migratory and do not overwinter in this part of Ontario. Further, the Eastern Red-bat and Hoary Bat do not overwinter in Canada. The Silver-haired Bat is unlikely to overwinter in Canada and has never been recorded hibernating as far north as Calabogie (COSEWIC, 2023).

Maternity

The recovery strategy for the Eastern Small-footed Myotis indicates that its preferred maternity habitat consists of open rock habitats and that it rarely uses old buildings as roosting/maternity sites (Humphrey, 2017). There have only been two reports of maternity colonies in Ontario, one historical report in Renfrew County in 1953 and another in Hamilton in 2016 (Humphrey, 2017).

The Atlas of Mammals of Ontario (Dobbyn, 1994) suggests that the Tri-colored Bat has the southernmost distribution relative to other species and is most commonly found along Lake Erie and Lake Ontario shores in Ontario. The Recovery Strategy notes that it tends to prefer older forests with snags and to forage in closed canopies (ECCC, 2015). Some studies have shown a preference for roosting in dead leaves and tree lichens and occasionally in barns (ECCC, 2015).

The Northern Myotis tends to prefer larger expanses of older forests (late successional or primary forests) and choose maternity sites in snags that are in the mid-stage of decay. They prefer habitat with intact interior habitat and is shown to be negatively correlated with edge habitat (Broders et al., 2006; Environment Canada, 2015; Menzel et al., 2002; Yates et al., 2006).

The Little Brown Myotis is one of the few bat species that can use anthropogenic structures as maternity sites. Potential suitable structures can include buildings, bridges, barns, and bat boxes. They can also use tall, large diameter cavity trees that are in the early-to mid-stages of decay as maternity roosts, as well as loose or raised tree bark, and crevices in cliffs (ECCC, 2018). This bat species occurs in higher densities in mature deciduous and/or mixed forests due to increased opportunities for large snags. However, unlike the Northern Myotis, the Little Brown Myotis does not exclusively require mature forest stands to find appropriate maternity roosts (COSEWIC, 2013b).

Eastern Red Bat and Hoary Bat tend to require forested areas for maternity habitat roosting in trees or (less commonly) shrubs that are over 5 m tall. The trees used for maternity are typically larger diameter, face south where there is more sun exposure, and in areas protected from wind. The maternity sites are often in the taller and larger trees in the woodlot (i.e., exceeding the height of the rest of the canopy). Eastern Red Bat tends to avoid areas with large variations in temperature (COSEWIC, 2023). Foraging habitat is often associated with edge or aquatic habitat (COSEWIC, 2023).

Silver-haired Bat prefers larger diameter trees for its summer habitat and can roost under bark or in cavities (including old woodpecker cavities) (COSEWIC, 2023). This species is associated with areas containing large, decaying trees (COSEWIC, 2023). As they tend to select sites with high snag density it is unlikely they would select this Site for maternity roosting. Additionally, as the three cavity trees are to be retained, there is little chance maternity habitat for this species would be impacted.

Day-roosts

All species could use trees for day-roosting during movement. Silver-haired Bat is known to use buildings for roost sites during migration. Eastern Red Bat and Hoary Bat can but are less likely to use other structures such as shrubs, bridges, and buildings during migration (COSEWIC, 2023). Male Eastern Red Bats can utilize smaller diameter trees (down to saplings) during the summer (COSEWIC, 2023). Day-roosts are not considered critical habitat and impacts to bats can be minimized by removing trees outside of the day-use period.

5.1.1.6 Pale-Bellied Frost Lichen

In Canada, the pale-bellied frost lichen is restricted to southern Ontario where it is at the northern edge of its range. There is a NHIC record in the general Calabogie area.

The pale-bellied frost lichen is listed as endangered provincially and federally. Geographical information for recent sightings of this species is currently lacking. This lichen grows mainly on hardwood tree species of suitable bark pH, calcium content, and moisture holding capacity. It requires bark with high pH and moisture holding capacity, which occur predominantly on the thicker bark of its preferred host species, which include hop-hornbeam (ironwood), ash, and elm (Environment Canada, 2015; COSEWIC, 2009b).

The Pale-bellied Frost Lichen Habitat Protection Summary describes regulated habitat as the host tree, 50 m from the trunk of the host tree, and the area within 100 m with site characteristics that maintain the interior forest conditions preferred by the species (e.g., level of humidity, air circulation, shade) (MECP, 2026). This regulation only applies where lichen occurs in the following areas: the Township of Greater Madawaska, the Township of Lanark Highlands, the townships of Central Frontenac and North Frontenac, and the Township of Addington Highlands (MECP, 2021).

5.1.1.7 Butternut

Butternut (*Juglans cinerea*) is listed as an endangered species provincially and federally, signifying that it is at risk of becoming extinct or extirpated in Ontario and in Canada. Butternut is a shade-intolerant species that is often found along edge habitats on rich, moist, well-drained loams or well-drained gravels (COESWIC, 2003). It is threatened by a canker for which there is no known control (COESWIC, 2003). Butternuts are assessed based on the amount of canker present, their size and health, as per the province's protocols. This method classes the individual trees as one of three categories:

- Category 1: individuals that are heavily infected to the point that they are not expected to survive.
- Category 2: individuals that may have some canker but are still considered healthy.
- Category 3: same as Category 2, but these are larger individuals are situated near heavily cankered trees and province believes that some may be showing immunity to the disease.

Butternuts could be present in any naturally vegetated terrestrial habitat.

5.1.1.8 Black Ash

Black ash was listed as an endangered species provincially on January 25, 2024. It is not yet listed federally but is under consideration for listing as threatened. Black ash is a facultative wetland species found primarily in swamps, fens, floodplain forests, and shorelines, with occasional occurrences in upland habitat (Catling et al. 2022). There are limitations on its protection (O. Reg. 6/24). Individuals and the surrounding 30m are protected if they meet the following criteria:

- They fall within a defined geographic area;
- Are in good health;
- Equal to or greater than 8 cm in diameter at breast height

There is potential for black ash to be present, particularly in the tall shrub swamp habitats and adjacent to watercourses and waterbodies.

5.1.2 Local / Unevaluated Wetlands and Environmental Protection Area

There are several unevaluated wetlands within the Study Area, most are relatively small and isolated. However, the wetland that runs mostly offsite along the northern edge side of Calabogie Road is large and has a diverse set of vegetation communities. It should be evaluated prior to any work in or adjacent to it as it has potential for significance. An Environmental Protection Area is identified in Appendix A. It corresponds to some of the marsh habitats on site.

5.1.3 Aquatic Habitat

The outflow of Calabogie Lake into the Madawaska River forms a dynamic transitional aquatic habitat characterized by moderate to high seasonal flow variability, coarse substrate composition, and well-oxygenated water conditions. This zone functions as an ecologically significant spawning and nursery corridor for several warmwater and coolwater fish species and must be treated as sensitive habitat when considering construction activities. Both water bodies are considered Fish Habitat under *the Fisheries Act*.

Walleye and other lithophilic (gravel-spawning) species utilize clean, well-sorted gravel in flowing water to broadcast eggs. Northern pike may utilize adjacent vegetated shallows during spring inundation.

Overall, the outflow from Calabogie Lake into the Madawaska River represents a hydraulically active, gravel-dominated system that provides essential spawning habitat for Walleye and River Redhorse.

6. Conclusion

There is a potential for endangered and threatened species within the Site and adjacent lands. It is recommended that the Ministry of Environment, Conservation and Parks (MECP) for review. Note that MECP's advice can occur without notice and while the information herein is based on recent experience, it is best to confirm with MECP.

7. Study Limitations and Constraints

CIMA+ completed diligent and reasonable research in conducting this evaluation, with respect to recognized laws and standards of practice. The facts presented in this report are strictly limited to the period of investigation. Conclusions are based on available information and documents, observations made during Site investigations, and communications with various contacts. Interpretation is therefore limited to this data.

CIMA+ is not responsible for erroneous conclusions due to voluntary abstention or the non-availability of pertinent information. Any opinion expressed in relation to legal or regulatory conformity is technical and should not be, in any case, considered legal advice.

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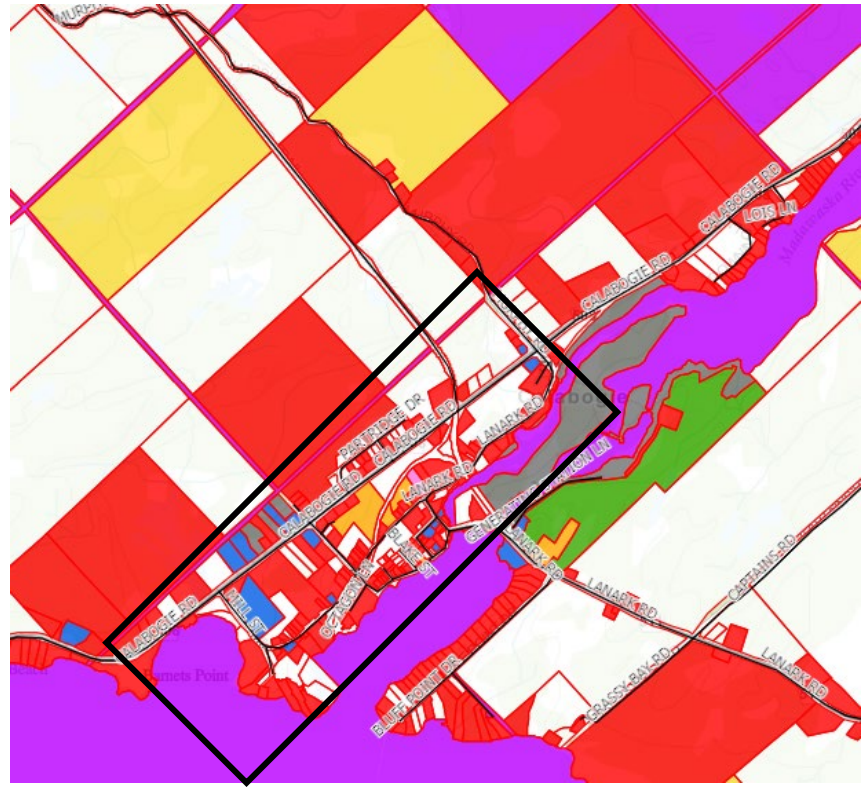
A

Appendix A Background Information on Terrestrial Environment

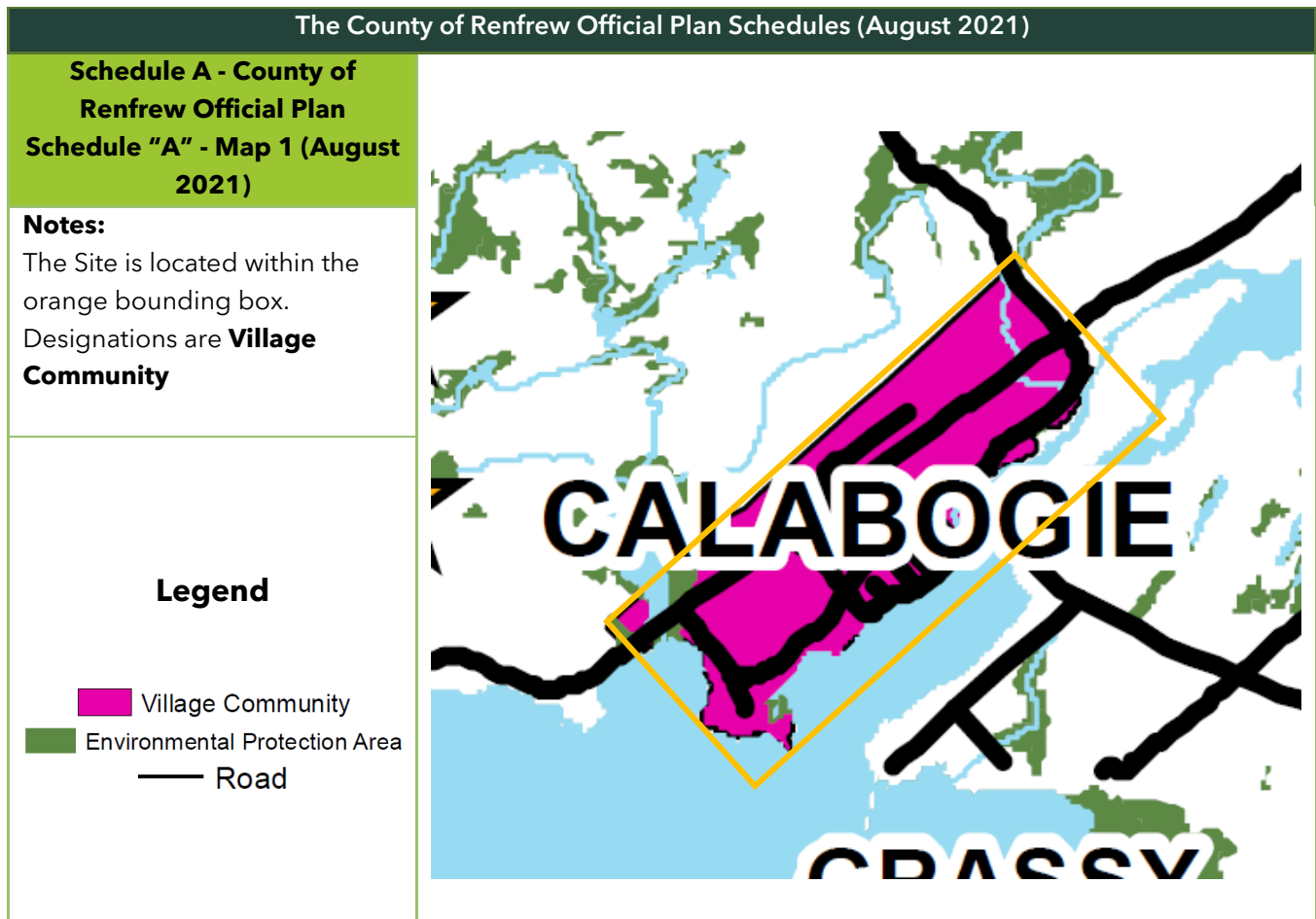
Public Map - County of Renfrew - Land Use

Designations include
**Residential, Vacant, Special
Purpose, Commercial,
Industrial**

- Residential
- Vacant
- Farm
- Commercial
- Industrial
- Special Purpose
- Unassessed
- Institutional
- Government



The County of Renfrew-Public Map – Land Use



The County of Renfrew Official Plan Schedule "A" - Map 1

The County of Renfrew Official Plan Schedules (August 2021)

Schedule B - County of Renfrew Official Plan Schedule "B" - Map 4 Natural Heritage Features (August 2021)

Notes: The Site is located within the orange bounding box. Designations include the **Madawaska River Watershed**

Legend

-  Madawaska River Watershed
-  County Road
-  Municipal Road

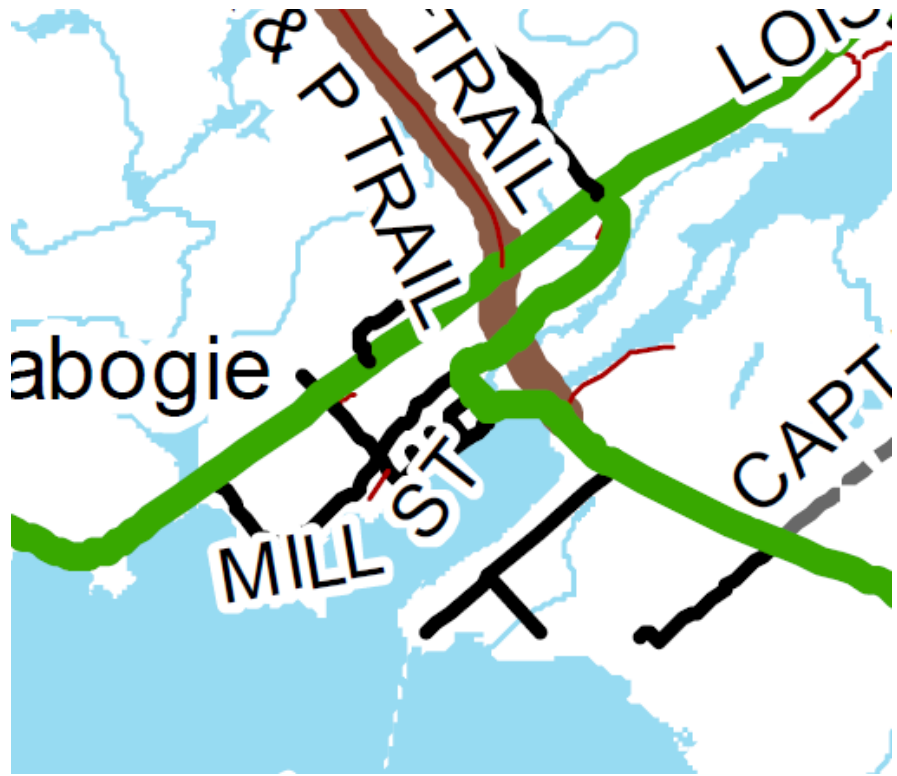


County of Renfrew Official Plan - Schedule B

The County of Renfrew Official Plan Schedules (August 2021)

Schedule B - County of Renfrew Official Plan Schedule "B" - Map 2 Natural Heritage Features (August 2021)

Notes: The Site is located within
the orange bounding box.
Designations include **Aquatic
Habitat**



County of Renfrew Official Plan – Schedule B

B

Appendix B Background Information on Aquatic Environment

Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
American Eel	<i>Anguilla rostrata</i>	invertivore/carnivore	A.1.1. Non guarder, Pelagic spawner, buoyant eggs, none or poorly developed embryonic respiratory organs, little pigment, no photophobia.	Near cover over muddy bottoms in lakes, ponds, rivers and creeks at depths <15 m; preferred water temperature range 16-19°C. (COSEWIC 2006)	S1?	END	No Status		Y	Aquatic Resource Area (ARA) Poly
Cisco	<i>Coregonus artedii</i>	planktivore/invertivore	A.1.2. Non-guarders. Open substrate spawners. Rock and gravel spawners with pelagic larvae.	Lakes and may occur in large rivers. All-season depth range 13-53 m. Preferred water temp. 7-10°C.	S5	No status	No status		Y	ARA Poly
Northern Pike	<i>Esox lucius</i>	carnivore	A.1.5 Non-guarder. Open substrate spawner. Obligate plant spawners. Scatters eggs onto submerged live or dead aquatic plants or recently flooded live terrestrial plants. Well developed embryonic respiratory structures.	Clear, slow-moving water with dense aquatic vegetation. Preferred water temp 17-21°C.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly
Muskellunge	<i>Esox masquinongy</i>	carnivore	A.1.5 Non-guarder. Open substrate spawner. Obligate plant spawners. Scatters eggs onto submerged live or	Clear, slow-moving water. Preferred water temp 22-26°C.	S4	No status	No status	Y		ARA Poly

Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
			dead aquatic plants or recently flooded live terrestrial plants. Well developed embryonic respiratory structures.							
Common Shiner	<i>Luxilus cornutus</i>	invertivore	B.2.3 Guarder. Rock and gravel nesters (lithophils). Adhesive eggs.	Stream dweller, prefers pools located below faster water. Bottom velocities of 0.1-0.5 m/s.	S5	No status	No status	Y		ARA Poly
Golden Shiner	<i>Notemigonus crysoleucas</i>	invertivore/herbivore	A.1.5 Non-guarder. Open substrate spawner. Obligate plant spawners. Scatters eggs onto submerged live or dead aquatic plants or recently flooded live terrestrial plants. Well developed embryonic respiratory structures.	Clear water with aquatic vegetation and slow velocities. Preferred water temp. 17-24°C.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly
Emerald Shiner	<i>Notropis atherinoides</i>	planktivore	A.1.1 Non-guarder. Pelagic spawners. Buoyant eggs.	Prefers pool and run habitat in rivers and lakes with sand or gravel substrates. Preferred water temp. is 9-23°C.	S5	No status	No status	Y		iNaturalist
Spottail Shiner	<i>Notropis hudsonius</i>	invertivore/planktivore	A.1.6. Non-guarders. Open substrate spawners. Psammophils; sand spawners. Adhesive eggs in running water	Prefers lakes and larger slow moving slow-moving rivers. Preferred water temp. 13-22°C.	S5	No status	No status	Y		ARA Poly

Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
			on sand or fine roots over sand. Phototropic. Poorly developed respiratory structures.							
Mimic Shiner	<i>Notropis volucellus</i>	invertivore/herbivore	Categorized as A.1.4 in Ministry of Transportation (MTO) 2006 but little is known of spawning behaviour. Is assumed to broadcast its eggs over vegetation. Non-guarder. Open substrate spawner. Deposits eggs in clear water on submerged plants or debris.	Prefers waters with little flow. Prefers sandy substrate.	S5	No status	No status	Y		ARA Poly
Bluntnose Minnow	<i>Pimephales notatus</i>	detritivore	B.2.7 guarder. Nest spawner. Speleophils; Hole Nester. Either cavity roof top nester or bottom burrow nesters.	Variety of habitats. Prefers water temp of 29°C.	S5	NAR	No status	Y	Y	ARA Poly, ARA Poly
Longnose Dace	<i>Rhinichthys cataractae</i>	invertivore	A.1.3 Non-guarder. Open substrate spawner. Lithophil; Rock and gravel spawners with benthic larvae. Early hatched embryo photophobic, hide under stones.	Fast flowing water with rocky substrate. Prefers depths <30 cm deep and surface velocities over 0.45 m/s. Prefers water temp. of 13-21°C.	S5	No status	No status	Y		ARA Poly
Fallfish	<i>Semotilus corporalis</i>	invertivore/carnivore	A.2.3 Non-guarder. Brood hiders. Lithphils. Buries eggs in gravel.	Clear water, with noticeable flow and	S4	No status	No status	Y		ARA Poly

Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
			Early hatch free embryos photophobic, large emerging alevins.	rocky substrate (prefers gravel).						
White Sucker	<i>Catostomus commersonii</i>	invertivore/detritivore	A.1.3 Non-guarder. Open substrate spawner. Lithophil; Rock and gravel spawners with benthic larvae. Early hatched embryo photophobic, hide under stones.	Slow moving water, pools. Preferred water temp. 17-23°C.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly
Silver Redhorse	<i>Moxostoma anisurum</i>	invertivore	A.1.3 Non-guarder. Open substrate spawner. Lithophil; Rock and gravel spawners with benthic larvae. Early hatched embryo photophobic, hide under stones.	Can be found in small to large rivers with a variety of substrates.	S4	No status	No status	Y	Y	ARA Poly, ARA Poly
River Redhorse	<i>Moxostoma carinatum</i>	invertivore	A.1.3 Non-guarder. Open substrate spawner. Lithophil; Rock and gravel spawners with benthic larvae. Early hatched embryo photophobic, hide under stones.	Prefers medium to large watercourses with rocky substrate.	S2	SC	SC	Y		ARA Poly, ARA Poly
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	invertivore	A.1.3 Non-guarder. Open substrate spawner. Lithophil; Rock and gravel spawners with benthic larvae. Early hatched	Clear water, sandy to gravel substrate. Preferred water temp 26-27.5°C.	S5	No status	No status	Y		ARA Poly

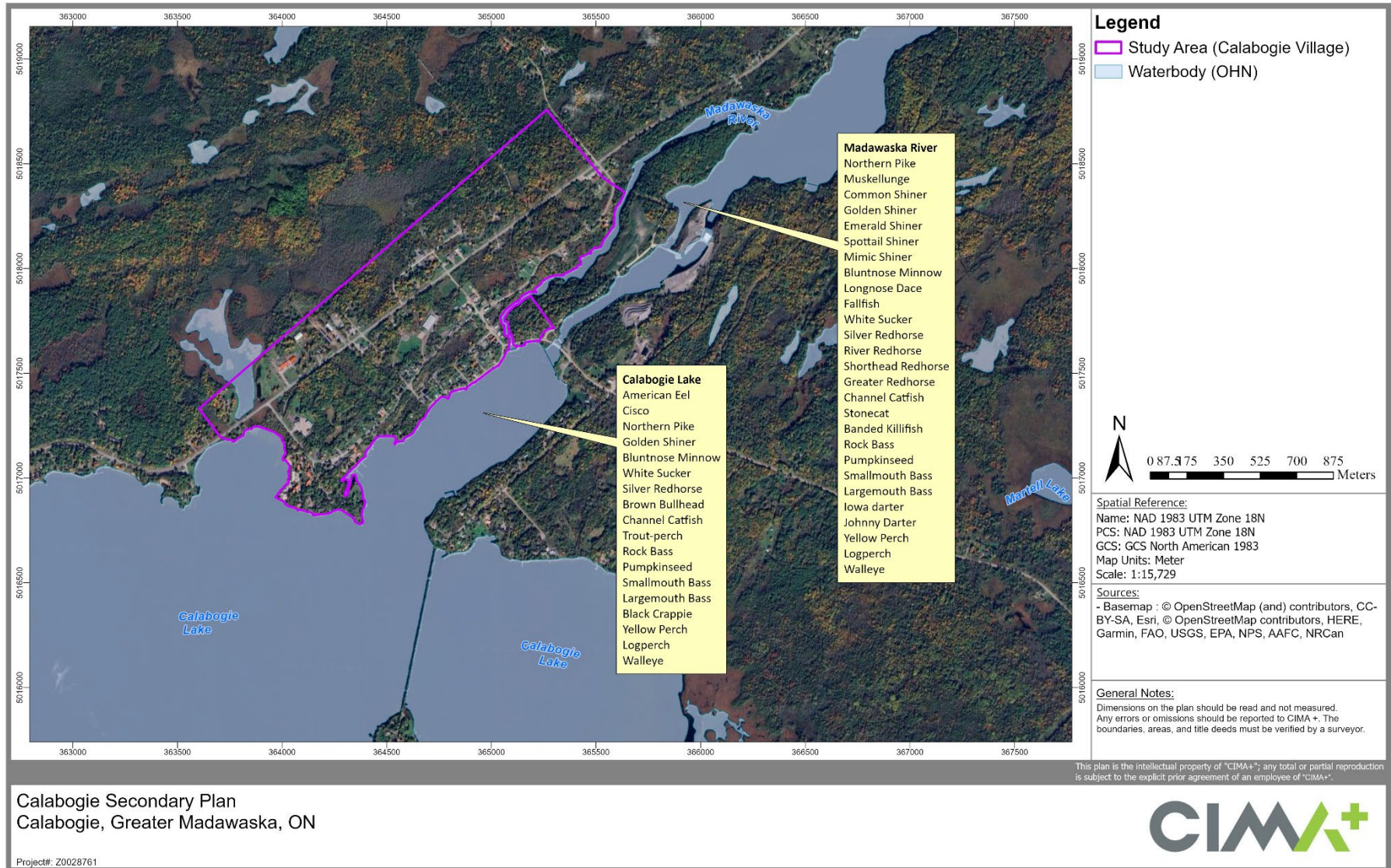
Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
			embryo photophobic, hide under stones.							
Greater Redhorse	<i>Moxostoma valenciennesi</i>	invertivore	A.1.3 Non-guarder. Open substrate spawner. Lithophil; Rock and gravel spawners with benthic larvae. Early hatched embryo photophobic, hide under stones.	Clear water, sand, gravel or boulder substrate. Areas with a mean depth of 45 cm and surface velocities of <0.05 m/s. Prefers to be located on the edge of runs.	S3	No status	No status	Y		ARA Poly
Brown Bullhead	<i>Ameiurus nebulosus</i>	invertivore/ herbivore/ carnivore	B.2.7 guarder. Nest spawner. Speleophils; Hole Nester. Either cavity roof top nester or bottom burrow nesters.	Shallow, slow moving water with abundant aquatic vegetation.	S5	No status	No status		Y	ARA Poly
Channel Catfish	<i>Ictalurus punctatus</i>	invertivore/ carnivore	B.2.7 guarder. Nest spawner. Speleophils; Hole Nester. Either cavity roof top nester or bottom burrow nesters.	Lakes and moderate to large rivers. Prefer cool clear deeper water. Preferred water temp. 27-31°C.	S4	No status	No status	Y	Y	ARA Poly, ARA Poly
Stonecat	<i>Noturus flavus</i>	invertivore/ carnivore	B.2.7 guarder. Nest spawner. Speleophils; Hole Nester. Either cavity roof top nester or bottom burrow nesters.	Cobble and boulder riffles and runs of creeks and small to large rivers, and gravel shoals of lakes. Riffle, run or rapids with large loose rocks as substrate.	S4	No status	No status	Y		ARA Poly
Trout-perch	<i>Percopsis omiscomaycus</i>	invertivore/ carnivore	A.1.3 Non-guarder. Open substrate spawner. Lithophil; Rock and gravel	Found in deeper habitats over sand and gravel substrates.	S5	No status	No status		Y	ARA Poly

Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
			spawners with benthic larvae. Early hatched embryo photophobic, hide under stones.							
Banded Killifish	<i>Fundulus diaphanus</i>	invertivore/planktivore	A.1.5 Non-guarder. Open substrate spawner. Obligate plant spawners. Scatters eggs onto submerged live or dead aquatic plants or recently flooded live terrestrial plants. Well developed embryonic respiratory structures.	Quiet shallows with sand or gravel substrate and aquatic vegetation.	S5	NAR	No status	Y		ARA Poly
Rock Bass	<i>Ambloplites rupestris</i>	invertivore/carnivore	B.2.3 Guarder. Rock and gravel nesters (lithophils). Adhesive eggs.	Rocky areas in lakes and streams. Prefers water temp of 25-29°C.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly
Pumpkinseed	<i>Lepomis gibbosus</i>	invertivore/carnivore	B.2.2 Nest guarder. Shallow depressions created in areas with aquatic vegetation. May occur within a variety of substrates. Adhesive eggs.	Prefers slow moving water with aquatic vegetation or small woody debris. Prefers water temp of 22-30°C.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly
Smallmouth Bass	<i>Micropterus dolomieu</i>	invertivore/carnivore	B.2.3 Guarder. Rock and gravel nesters (lithophils). Adhesive eggs.	Clear water with rocky or sandy substrate. Prefers water temp. of 20-26°C.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly
Largemouth Bass	<i>Micropterus salmoides</i>	invertivore/carnivore	B.2.5 Guarder. Nest spawner. Phytophils;	Prefers shallow bays and lakes over rivers.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly

Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
			Plant material nester. Adhesive eggs.	Strongly associated with soft substrate and aquatic vegetation or large woody debris. Prefers water temp. of 26-30°C.						
Black Crappie	<i>Pomoxis nigromaculatus</i>	invertivore/carnivore	B.2.5 Guarder. Nest spawner. Phytophils; Plant material nester. Adhesive eggs.	Clear, quiet warm water of ponds, large lakes. Associated with abundant growths of aquatic vegetation and sand to mud bottoms. Prefer water temp. 21-25°C.	S4	No status	No status		Y	ARA Poly
Iowa darter	<i>Etheostoma exile</i>	invertivore	A.1.4 Non-guarder. Open substrate spawner. Nonobligatory plant spawner. Adhesive eggs on submerged live or dead plants, late hatching, not photophobic, extremely well developed emphyronic respiratory structures.	Clear, slow-moving water with macrophytes and soft substrate. It is intolerant of turbidity. Preferred temp. 12-25°C.	S5	No status	No status	Y		ARA Poly
Johnny Darter	<i>Etheostoma nigrum</i>	invertivore	B.2.7 guarder. Nest spawner. Speleophils; Hole Nester. Either cavity roof top nester or bottom burrow nesters.	Variety of habitats but prefers areas with moderate to no current over sandy or mixed substrate.	S5	No status	No status	Y		ARA Poly

Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
				Prefers water temp. of 22.8°C.						
Yellow Perch	<i>Perca flavescens</i>	invertivore/carnivore	A.1.4 Non-guarder. Open substrate spawner. Nonobligatory plant spawner. Adhesive eggs on submerged live or dead plants, late hatching, not photophobic, extremely well developed empyronic respiratory structures.	Variable, prefer open water with some aquatic vegetation, slow moving water. Prefers water temp. of 20-24°C.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly
Logperch	<i>Percina caprodes</i>	invertivore	A.1.6. Non-guarders. Open substrate spawners. Psammophils; sand spawners. Adhesive eggs in running water on sand or fine roots over sand. Phototropic. Poorly developed respiratory structures.	Rocky or sandy habitats in lakes or streams.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly
Walleye	<i>Sander vitreus</i>	invertivore/carnivore	A.1.2. Non-guarders. Open substrate spawners. Lithopelagophil; Rock and gravel spawners with pelagic larvae. No photophobia. Limited embryonic respiratory structures.	Prefer shallow turbid lakes or deep rivers. Prefers water temp. of 19-23°C.	S5	No status	No status	Y	Y	ARA Poly, ARA Poly

Common Name	Scientific Name	Trophic Class*	Reproductive Guild	General Habitat (Adult)	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Madawaska River	Calabogie Lake	Source
Total # of Species								27	18	



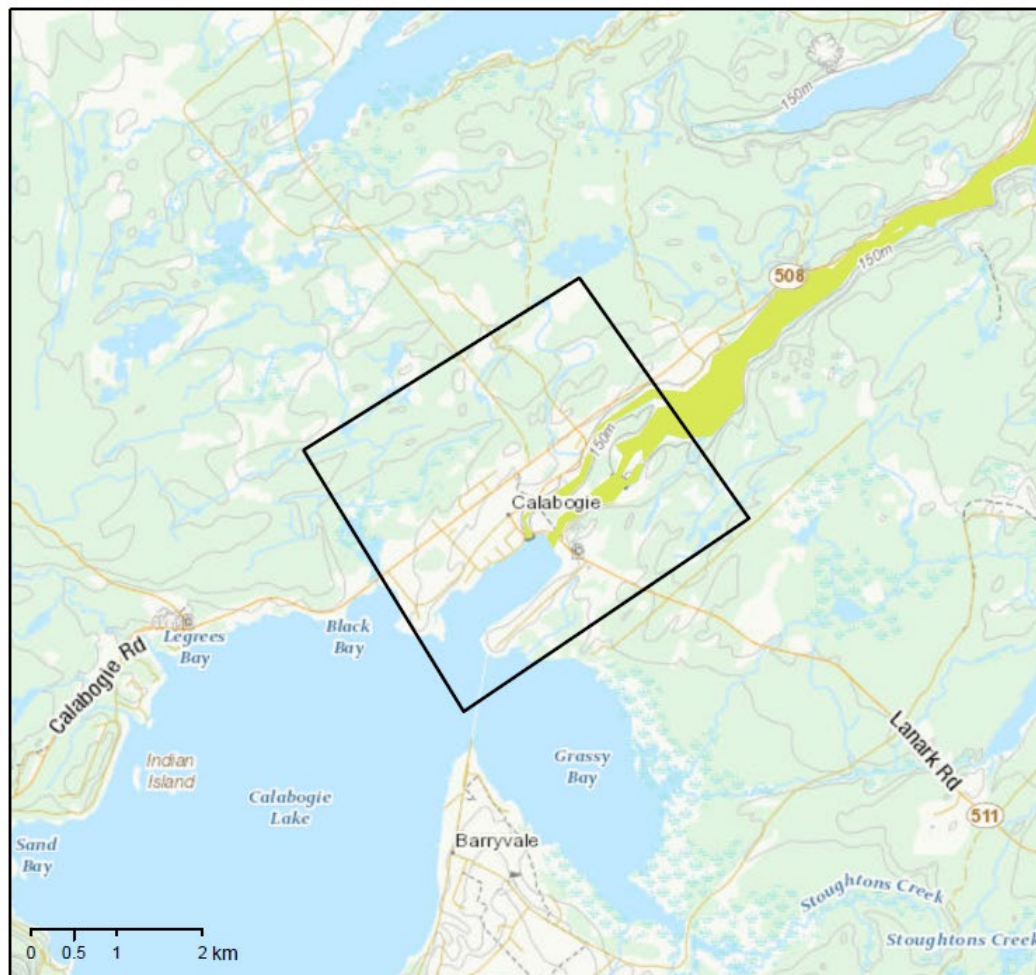
Fish Communities as per Background Sources



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Aquatic Species at Risk Report



One or more aquatic species listed under the Species at Risk Act are found (or potentially found) within the coloured areas.



Critical Habitat



Extirpated, Endangered, or Threatened



Special Concern

How to use this information:

1. The map and species list are intended to provide a general overview of aquatic species at risk and their critical habitat that may occur within the mapped area.

2. To assess your project go to:
www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html

If you encounter an aquatic species at risk in an area that is not currently mapped, please notify your regional Fisheries Protection Program office to ensure that you are compliant with the Species at Risk Act. The official source of information for species at risk is the Species at Risk Public Registry
<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>

To protect fish and fish habitat, including aquatic species at risk, their residences, and their critical habitat, efforts should be made to avoid, mitigate and/or offset harm. Following the measures to avoid harm will help you comply with the Fisheries Act and the Species at Risk Act.

Critical habitat for these species is found within the outlined area

Critical habitat is identified in recovery strategies or action plans for species listed under Schedule 1 of the Species at Risk Act as extirpated, endangered or threatened.

Name	Where Found	Species Status
	No critical habitat	

Species found (or potentially found) within the outlined area

Name	Where Found	Species Status
River Redhorse	Madawaska River (Rivière)	Special Concern

C

Appendix C Desktop Significant Wildlife Habitat Assessment

Desktop Assessment of Significant Wildlife Habitat (Criteria Schedule for Ecoregion 5E)

Significant Wildlife Habitat	ELC Codes	Description Additional Criteria Summary	Candidate SWH Within Study Area	Comments
Seasonal Concentration Areas of Animals				
Waterfowl Stopover and Staging Areas (terrestrial)	Certain cultural meadow or thicket <u>Plus</u> , evidence of annual spring flooding	Fields flooded from mid-March to May	No suitable fields present.	Not Present; Not discussed further
Waterfowl Stopover and Staging Areas (aquatic)	Specific aquatic habitat types (marsh, swamps)	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used for migration. Stormwater and sewage management facilities are not included.	Potential within the marsh habitat in the northwest.	Candidate habitat present.
Shorebird Migratory Stopover Area	Beach/Bar Sand Dunes Meadow marsh	Shorelines used in May to mid-June and early July to October. Stormwater and sewage management facilities are not included.	No suitable habitat present.	Not Present; Not discussed further
Raptor Wintering Area	Requires combination of forest (deciduous, mixed, or coniferous) and upland (cultural meadow, cultural thickets, cultural savannahs or cultural woodlands)	Combination of habitats must >20 ha and the field portion must be wind swept with little accumulation of snow. Where site is for eagles, open water and large trees and snags must be available.	No suitable field adjacent to forest habitat. Lake Calabogie freezes and as such is unsuitable for eagle overwintering.	Not Present; Not discussed further
Bat Hibernacula	Crevices and caves	Active mines are not to be included. Buildings are not included.	No rocky habitat visible in imagery but can't be discounted without in field assessment.	Possible.
Bat Maternity Colonies	Deciduous, or mixed forests Deciduous or mixed Swamps (>5m tall)	>10/ha large diameter (>25 cm diameter at breast height) Snag trees in the decay classes 1-3 are preferred.	Candidate habitat present in all wooded communities.	Candidate habitat present.
Turtle Wintering Areas	Swamps, marshes, open water, shallow water, open fen, or open bog	Water that is deep enough not to freeze solid with soft bottoms. Must be permanent waterbody (or wetlands with adequate dissolved oxygen)	Candidate habitat present in the marsh habitat in the northwest.	Candidate habitat present.
Reptile Hibernaculum	Any habitat except wetlands	For snakes - needs to be below frost lines.	Possible, field assessment required.	Candidate habitat present.

Significant Wildlife Habitat	Description		Candidate SWH Within Study Area	Comments
	ELC Codes	Additional Criteria Summary		
	Talus, rock barren, cave and alvar			
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff Swallow)	Exposed sandy slopes of banks or piles. Cliff faces or structures (bridges, silos etc....)	Does not include licensed aggregate areas. Does not include man-made structures or recently (within 2 years) disturbed soil	No features present in imagery that suggest exposed sandy slopes would be present.	Not Present; Not discussed further
Colonially - Nesting Bird Breeding Habitat (Trees/Shrubs)	Swamps – deciduous or mixed (trees >5m) Treed fen	Typically requires tall trees as nests are usually 11-15m from ground, but shrubs and emergent vegetation could be used.	Low potential within the two tall shrub swamps.	Candidate habitat present.
Colonially - Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula on lake or large river. For Brewer’s Blackbird – near watercourses in open fields, pastures		No rocky islands present	Not Present; Not discussed further
Deer Yarding Areas	Mixed or coniferous forests or swamps (>5m tall trees) Can include plantations, cultural thickets, or dry-fresh poplar-white birch deciduous forest	These are mapped by OMNRF	Present on provincial mapping.	Present
Rare Vegetation Communities or Specialized Habitat for Wildlife				
Beach/ Beach Ridge/ Bar/ Sand Dunes	Vegetation can vary from patchy and barren to tree cover but less than 60%. Characterised by unstable sand.	Any identified beach, beach ridge, or sand dune.	No beach/dune habitat present.	Not Present; Not discussed further
Shallow Atlantic Coastal Marsh	Shallow marsh occurs on shallow sand or sandy peat shoreline subject to low wave energy, on inland lakes and beaver ponds.	Must have >4 indicator species	No coastal habitat present.	Not Present; Not discussed further
Cliffs and Talus Slopes	Near vertical face that is >3m in height (cliff or talus)	<60% tree cover, ≥3 indicator species	No cliff habitat appears to be present in imagery.	Not Present; Not discussed further

Significant Wildlife Habitat	Description		Candidate SWH	Comments
	ELC Codes	Additional Criteria Summary	Within Study Area	
Rock Barren	Any rock barren area greater than 1 ha.	<60% tree cover, >4 indicator species	No rock barrens present.	Not Present; Not discussed further
Sand barren	Sand barrens various types but tree cover is always ≤ 60%	Must be >0.5ha	No sand barrens present.	Not Present; Not discussed further
Alvar	Alvar, Coniferous forest, cultural meadow, cultural savannah, cultural thickets, and cultural woodlands	Must have at least 4 indicator species with substantial cover (must not have large amounts of exotic or introduced species) Must be >0.5ha	No alvar habitat present.	Not Present; Not discussed further
Old Growth Forest	Any forest or treed (>5 m) swamp	Must be at least 30 ha with at least 10 ha of interior habitat (edge considered 100 m) Have specific characteristics (snags, mosaic of gaps, multi-layered canopy)	Possible on the edges if including contiguous habitat outside the immediate study area, but forest habitat on the majority of site is too fragmented.	Possible
Bog	Any sized bog as defined by ELC	Any bog	No bog habitat is present.	Not Present; Not discussed further
Savannah	Tallgrass prairie savannah and cultural savannah	Must have indicator species	No savannah habitat is present	Not Present; Not discussed further
Tallgrass Prairie	Tallgrass prairie (open prairie - <25% tree cover)	No minimum size	No prairie habitat is present	Not Present; Not discussed further
Rare Forest Type (White Oak/Red Spruce)	Any sized forest with >10% white oak or red spruce		Possible, in field assessment required.	Possible
Specialized Habitat for Wildlife				
Waterfowl Nesting Area	Shallow marsh, meadow marsh, thicket swamp or deciduous (treed >5 m tall) swamps	Wetland must be 0.5 ha or consist of up to 3 smaller wetlands within 120 m of each other if known nesting is occurring.	Candidate habitat present in the western wetland communities.	Candidate habitat present.
Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat	Any forest or swamp (trees >5m) type of habitat that is immediately next to rivers, lakes, ponds, or wetlands	Nests on man-made structures are not included.	Candidate habitat present in all wooded areas adjacent to open water.	Candidate habitat present.

Significant Wildlife Habitat	Description		Candidate SWH	Comments
	ELC Codes	Additional Criteria Summary	Within Study Area	
Woodland Raptor Nesting Habitat	Any forest habitat or treed swamp (>5m tall) or coniferous plantation	Stand must be > 30 ha with >10 ha of interior habitat (edge is 200 m)	Candidate habitat present in wooded habitat on the northeastern and western edges of site including the contiguous forested habitat outside the study area.	Candidate habitat present.
Turtle and Lizard Nesting Areas	Turtles: Shallow marsh, shallow water, open bog	Close to water but away from roads. It must provide sand and gravel that turtles can dig through and be in open sunny areas.	Possible adjacent to the marsh habitat, however much of the terrestrial habitat in that area appears to be manicured lawn.	Possible, in field assessment required.
	Lizards: Partially wooded areas with loose rocks or logs	Areas on the sides of municipal or provincial roads are not included.		
Seeps and Springs	Any forested community could have a seep/spring	Forest area with <25% meadow/pasture in the headwaters of a stream.	Candidate habitat present. In field assessment required.	Candidate habitat present.
Aquatic Feeding Habitat	Habitat may be found in all forested ecosites adjacent to water.	Wetlands and isolated embayment in rivers or lakes which provide an abundance of submerged aquatic vegetation. Adjacent stands of lowland conifer or mixed woods will provide cover and shade	Candidate habitat present in the marsh on the western edge of site.	Candidate habitat present.
Mineral Licks	Habitat may be found in all forested ecosites	This habitat component is found in upwelling groundwater and the soil around these seepage areas. It typically occurs in areas of sedimentary and volcanic bedrock. In areas of granitic bedrock, the site is usually overlain with calcareous glacial till	Candidate habitat present. In field assessment required	Not Present; Not discussed further
Denning Sites for Mink, Otter, Marten Fisher and Eastern Wolf	Habitat may be found in all forested ecosites.	Mink prefer shorelines dominated by coniferous or mixed forests. Otters prefer undisturbed shorelines along water bodies that support productive fish populations with abundant shrubby vegetation and downed woody debris for denning.	No large or coniferous forest adjacent to the water, likely insufficient natural shoreline for otter denning.	Not Present; Not discussed further

Significant Wildlife Habitat	ELC Codes	Description	Candidate SWH	Comments
		Additional Criteria Summary	Within Study Area	
		Marten and fisher share the same general habitat, requiring large tracts of coniferous or mixed forests of mature or older age classes.		
Amphibian Breeding Habitat (woodland)	Any forest or treed swamp (>5m tall trees)	Wetland, pond, or vernal pool must be > 500 m ² Those with water until mid-July (during most years) are better candidates	Vernal pools possible within all wooded habitat.	Candidate habitat potentially present.
Amphibian Breeding Habitat (wetlands)	Swamps, marsh, fen, bog, open water, or shallow water	Unless it is a larger wetland, must be >120 m from woodlands Must be > 500 m ²	Candidate habitat present within all wetlands.	Candidate habitat present.
Mast Producing Areas	Deciduous forests with beech or oak trees.	Most important areas are mature forests >0.5 ha containing numerous large beech and red oak trees that supply the energy-rich mast that wildlife prefer	Possible, in field assessment required.	Possible.
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)				
Marsh Bird Breeding Habitat	Meadow marsh, shallow water, fen, or open bog		Marsh habitat present.	Candidate habitat present.
Open Country Bird Breeding Habitat	Cultural meadows	Must be large grasslands (>30 ha) Agricultural class 1 and 2 are not included Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included.	No large open fields present.	Not Present; Not discussed further
Shrub/Early Successional Bird Breeding Habitat	Cultural thickets or woodlands	Must be > 10 ha Agricultural class 1 and 2 are not included Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included	Woodlands and thickets present but all are too small to support significant early successional bird populations.	Not Present; Not discussed further

Significant Wildlife Habitat	Description		Candidate SWH Within Study Area	Comments
	ELC Codes	Additional Criteria Summary		
Special Concern and Rare Wildlife Species	All special concern or species ranked as S1-S3, SH (plants or animals)	Habitat depends on the species.	Potential for several SC species.	Candidate habitat present.
Animal Movement Corridors				
Amphibian Movement Corridor	Any habitat but amphibian breeding <u>wetland</u> habitat must be identified		No habitat adjacent to the wetlands on site is well positioned to provide movement corridors.	Not Present; Not discussed further
Deer/Moose Movement Corridor	All forests but project must be in Stratum II Wintering Area and Deer Wintering Habitat or Moose Aquatic Feeding Area and Mineral Lick Habitat must be confirmed.		Possible on the northern edges.	Possible
Furbearer Movement Corridor	All Forested Ecosite Codes adjacent to or within shoreline habitats where denning sites are identified.		Shoreline habitat is too fragmented.	Not Present; Not discussed further



Appendix D: Archaeological Management Plan





**Matrix
Heritage**

ORIGINAL REPORT

Archaeological Management Plan:

Township of Greater Madawaska's Secondary
Plan for the Village of Calabogie
Geographic Township of Bagot,
Township of Greater Madawaska,
Renfrew County, Ontario

Prepared For

Township of Greater Madawaska
Renfrew County, Ontario

March, 2026

Report: MH1390-REP.01

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1.0 Executive Summary

This report presents an Archaeological Management Plan (AMP) prepared for the Village of Calabogie Secondary Plan area within the Township of Greater Madawaska, Renfrew County, Ontario. The purpose of the AMP is to support municipal land-use planning by identifying areas of archaeological potential and providing guidance for the protection and management of archaeological resources during future development.

The study area is located along Calabogie Lake and the Madawaska River system within the former geographic Township of Bagot. The landscape is characteristic of the Canadian Shield, consisting of exposed bedrock, thin soils, mixed forest cover, wetlands, and numerous lakes. These environmental features have historically influenced patterns of settlement, transportation, and land use within the region.

The Calabogie area lies within the traditional territory of the Algonquin Anishinaabeg, whose presence in the Ottawa River watershed extends back thousands of years. Waterways such as the Madawaska and Ottawa Rivers formed part of extensive travel and trade networks connecting Algonquin communities across eastern Ontario and beyond. The region remains part of the unceded Algonquin territory, which is currently the subject of the ongoing Algonquins of Ontario (AOO) land claim negotiations.

European settlement in the area began in the mid-19th century, with early development closely tied to the timber industry along the Madawaska River. Settlement remained relatively limited due to the challenging terrain and poor agricultural soils. The damming of the Madawaska River in the early twentieth century significantly altered the landscape, creating reservoirs such as Calabogie Lake and inundating earlier shorelines. These environmental changes may have resulted in the submergence or displacement of archaeological resources associated with earlier land use.

The AMP was prepared through a review of historical, environmental, and archaeological data, consistent with the Standards and Guidelines for Consultant Archaeologists (2011) issued by the Ministry of Citizenship and Multiculturalism (MCM). Information sources included historical mapping, archival documents, land registry records, and archaeological site data maintained within the Ontario Archaeological Sites Database (OASD). Using these sources, areas of archaeological potential were identified based on established provincial criteria, including proximity to water, known archaeological sites, historic transportation routes, and early settlement locations.

The resulting archaeological potential mapping identifies areas within the Secondary Plan boundary where archaeological resources are more likely to occur. These areas include lands near water bodies, early transportation corridors, and locations associated with historic settlement and land use. Areas that have experienced extensive disturbance or development may have reduced or removed archaeological potential.

The AMP also outlines the legislative and policy framework governing archaeological resource management in Ontario. Archaeological resources are primarily protected under the Ontario Heritage Act, which requires archaeological assessments to be conducted by licensed archaeologists where development is proposed in areas of archaeological potential. Additional policy direction is provided through provincial planning policies, federal legislation applicable to federal lands, and municipal land-use planning processes.

To support the long-term protection of archaeological resources within the Village of Calabogie, this report provides a series of management recommendations. These include the integration of archaeological potential mapping into municipal planning review processes, procedures for the accidental discovery of archaeological resources or human remains, and guidance for Indigenous engagement during archaeological investigations.

The Archaeological Management Plan is intended to serve as a planning tool for municipal staff, developers, and archaeologists. By identifying areas of archaeological potential and establishing procedures for the management of archaeological resources, the AMP will assist the Township of Greater Madawaska in balancing future growth and development with the protection of cultural heritage resources.

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1.0 Project Personnel

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2.0 Abbreviations

AMP	Archaeological Management Plan
BAO	Bereavement Authority of Ontario
CAHP	Canadian Association of Heritage Professionals
CHVI	Cultural Heritage Value or Interest
CIA	Cemetery Investigation Authorization
CIP	Canadian Institute of Planners
EA	Environmental Assessment
ERO	Environmental Registry of Ontario
FBCSA	Funeral, Burial and Cremation Services Act
HCD	Heritage Conservation District
MCM	Ministry of Citizenship and Multiculturalism
MECP	Ministry of the Environment, Conservation and Parks
MHC	Municipal Heritage Committee
OAS	Ontario Archaeological Society
OASD	Ontario Archaeological Sites Database
OHA	<i>Ontario Heritage Act</i>
OLT	Ontario Land Tribunal
OPA	Official Plan Amendment
OPPI	Ontario Professional Planners Institute
PIF	Project Information Form
PPS	<i>Provincial Planning Statement</i>
RFI	Request for Information
R.S.O.	Revised Statutes of Ontario
S.O.	Statutes of Ontario
TRC	Truth and Reconciliation
UNDRIP	<i>United Nations Declaration on the Rights of Indigenous Peoples</i>
UNESCO	United Nations Education, Scientific and Cultural Organization
ZBA	Zoning By-law Amendment

3.0 Introduction

3.1 Purpose and Objectives of the AMP

The Archaeological Management Plan (AMP) for Calabogie, Ontario, is designed to serve as a strategic and practical guide to the identification, management, and conservation of archaeological resources within the community. Given Calabogie's rich historical and Indigenous heritage, combined with increasing development pressures, the AMP provides a structured approach to balance growth with the imperative of cultural heritage preservation. Specifically, the objectives of this AMP are to:

1. Provide a comprehensive framework for the identification, evaluation, and management of archaeological resources within Calabogie.
2. Define and map areas of archaeological potential based on established criteria and methodologies.
3. Develop clear and effective policies and protocols for the assessment and management of archaeological resources within municipal planning processes.
4. Ensure effective engagement with Indigenous communities, recognizing their intrinsic connection and stewardship roles related to cultural heritage resources.
5. Promote awareness and appreciation of archaeological resources among community members, property owners, developers, and municipal staff.
6. Outline processes for addressing unanticipated archaeological discoveries, including emergency situations involving human remains, to ensure respectful and lawful handling.
7. Provide recommendations for policy integration into the municipal Official Plan and land-use planning frameworks to safeguard archaeological heritage for future generations.

3.2 Definition and Importance of Archaeological Resources

Archaeological resources are physical remnants of past human activities, ranging from isolated artifacts to extensive sites containing structural remains, cultural landscapes, or ceremonial grounds. These resources are invaluable, providing direct evidence of past human occupation, settlement patterns, subsistence activities, cultural practices, and historical events. They offer unique insights not often captured by historical documentation, contributing significantly to our understanding of past societies and cultural developments.

The protection and careful management of archaeological resources are critical due to their inherent fragility and non-renewable nature. Once disturbed or destroyed, archaeological resources cannot be restored or replaced, and the historical knowledge they embody may be lost forever. Furthermore, archaeological resources often hold profound significance for Indigenous communities, who maintain ongoing spiritual and cultural relationships with these sites and landscapes. Respectful preservation and management of archaeological resources also reinforce a broader commitment to reconciliation and mutual respect with Indigenous peoples.

3.3 Overview of Calabogie's Cultural Heritage Context

Calabogie is located within the Township of Greater Madawaska in Eastern Ontario, situated along the Madawaska River near Calabogie Lake, an area recognized for its rich environmental diversity and natural beauty (Map 1). This environment has supported human occupation and settlement for millennia, evidenced by documented Indigenous use of the area. Historically, the region served as a significant area of seasonal and permanent habitation for various Indigenous groups, notably the Algonquin Anishinabeg, whose traditional territories encompass this region.

European settlement in Calabogie dates back to the early 19th century, initially driven by the lumber industry and agriculture. Over time, the community evolved into a vibrant rural settlement characterized by a unique blend of natural landscapes, residential development, tourism, and outdoor recreational activities. Important historical themes in Calabogie include Indigenous land use, early European colonization, natural resource exploitation, and evolving tourism economies.

Today, Calabogie is experiencing increasing development pressures driven by tourism and residential growth, which heighten the risk to archaeological resources. This AMP will assist in balancing these development pressures with the imperative to protect the rich archaeological legacy of Calabogie, thereby ensuring that its heritage remains accessible and meaningful to both current and future generations.

4.0 Legislative Framework and Policies

4.1 International Obligations

4.1.1 UNESCO conventions

1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property

In 1970, the General Conference of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) passed a *Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property*. Article 4 affirms that cultural property acquired through archaeological, ethnological, or scientific missions forms part of the cultural heritage of each State, reinforcing that such materials belong to the country of origin and cannot be legally transferred without authorization. Canada ratified the Convention in 1978 and later implemented its provisions through the Cultural Property Export and Import Act (1985), which regulates export permits and enables the recovery and return of illegally exported cultural property.

1972 Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention)

Adopted by UNESCO in 1972, the *Convention Concerning the Protection of the World Cultural and Natural Heritage*, commonly called the World Heritage Convention, establishes an international framework for identifying and protecting cultural and natural heritage sites considered to have "Outstanding Universal Value." The Convention established the World Heritage List, the World Heritage Committee, and the World Heritage Fund to support conservation efforts and international cooperation in protecting globally significant heritage resources. Countries that ratify the Convention commit to identifying, conserving, and managing significant heritage sites within their territories and reporting on their condition. Article 1 of the

Convention defines cultural heritage to include monuments, groups of buildings, and sites of historical, artistic, or scientific importance, including archaeological sites. Article 5 requires States Parties to adopt policies, legal protections, and management measures to identify, conserve, and transmit cultural and natural heritage to future generations. Canada accepted the Convention in 1976, committing to the protection and management of heritage resources of outstanding significance and to international cooperation in heritage conservation.

2001 Convention on the Protection of the Underwater Cultural Heritage

Adopted by UNESCO in 2001, the *Convention on the Protection of the Underwater Cultural Heritage* establishes an international framework for protecting archaeological and historical remains located underwater. Article 1 defines underwater cultural heritage as all traces of human existence of a cultural, historical, or archaeological nature that have been partially or totally underwater for at least 100 years, including shipwrecks, submerged settlements, and associated artifacts. The Convention promotes the in situ preservation of underwater cultural heritage as the first management option and prohibits its commercial exploitation. It also establishes rules for responsible archaeological investigation through the Annex Rules, which outline best practices for underwater archaeological research and site management. Canada has not ratified the 2001 Convention, although many of its principles are reflected in Canadian underwater heritage management practices and archaeological standards.

4.1.2 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)

In addition to UNESCO conventions, the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP) is one of the most significant international instruments shaping responsibilities related to the protection of cultural heritage. Adopted by the United Nations General Assembly in 2007, the Declaration affirms the rights of Indigenous Peoples to self-determination and to maintain, protect, and develop their cultural heritage, traditional knowledge, and cultural expressions. Articles 11 and 12 specifically recognize Indigenous Peoples' rights to practice and revitalize cultural traditions and to protect and control archaeological and historical sites, artifacts, and ceremonial objects. The Declaration also emphasizes the principle of free, prior, and informed consent (FPIC) for activities affecting Indigenous lands, territories, and resources. The Truth and Reconciliation Commission of Canada (TRC) identified UNDRIP as the framework for reconciliation in Canada, and several Calls to Action urge governments to fully adopt and implement the Declaration. Canada endorsed UNDRIP in 2016 and later committed to its implementation through the United Nations Declaration on the Rights of Indigenous Peoples Act (2021), which affirms the Declaration as a framework guiding the development of federal laws and policies affecting Indigenous rights and heritage.

4.1.3 International Council on Monuments and Sites (ICOMOS)

The International Council on Monuments and Sites (ICOMOS) is an international non-governmental organization established in 1965 to promote the conservation and protection of cultural heritage sites worldwide. ICOMOS provides expert advice on the conservation of monuments, archaeological sites, and cultural landscapes, and serves as an advisory body to UNESCO for the implementation of the World Heritage Convention. Through international charters and guidelines, such as the 1964 *Charter for the Conservation and Restoration of Monuments and Sites* (Venice Charter) and the 1990 ICOMOS Charter for the Protection and Management of the Archaeological Heritage (Lausanne Charter), and the 1996 *Charter for the Protection and Management of the Underwater Cultural Heritage*. ICOMOS establishes principles and best practices for heritage conservation and archaeological site management.

Although ICOMOS charters are not legally binding, they have significantly influenced heritage conservation policies, professional standards, and archaeological practice internationally, including in Canada.

4.2 Federal Legislative Context

4.2.1 Canadian Impact Assessment Act (2019)

The *Impact Assessment Act* (S.C. 2019) establishes the federal framework for assessing the environmental, social, economic, and health effects of designated major projects under federal jurisdiction. Enacted in 2019 under Bill C-69, the Act replaced the Canadian Environmental Assessment Act, 2012 and created the Impact Assessment Agency of Canada to oversee federal impact assessments. The legislation requires that designated projects undergo an assessment that considers a range of factors, including potential effects on physical and cultural heritage, the current use of lands and resources for traditional purposes by Indigenous Peoples, and impacts on Indigenous rights. The Act also emphasizes early and meaningful engagement with Indigenous communities and the public throughout the assessment process. As such, it represents the principal federal mechanism through which potential impacts to cultural and archaeological heritage resources may be identified, assessed, and mitigated during project planning and approval.

4.2.2 Cultural Property Export and Import Act (1985)

The *Cultural Property Export and Import Act* (R.S.C. 1985) regulates the export and international movement of cultural property in order to protect objects of historical, archaeological, ethnographic, and artistic significance. Enacted in 1985, the Act implements Canada's obligations under the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. The legislation establishes a system of export permits for designated cultural property and provides mechanisms to prevent the illegal export of significant heritage objects from Canada. It also enables the return of cultural property that has been unlawfully exported from other countries, supporting international cooperation in the protection and repatriation of cultural heritage.

4.2.3 Parks Canada Guidelines and Federal Agencies

In addition to federal legislation, several federal departments and agencies have developed their own policies and guidelines for the management of archaeological resources on federal lands and within federally administered projects. These include guidance developed by organizations such as Parks Canada, the National Capital Commission (NCC), and the Department of National Defence (DND). These policies are generally consistent with the federal government's *Archaeological Heritage Policy Framework* (1990), which establishes the federal commitment to the protection and management of archaeological resources. The framework states that, as heritage protection is an essential element of Canadian identity and archaeological resources are an important source of knowledge and inspiration, it is the policy of the Government of Canada to protect and manage archaeological heritage. Parks Canada's *Cultural Resource Management Policy* and associated guidelines further outline principles and best practices for the identification, evaluation, conservation, and stewardship of archaeological and cultural resources on lands administered by the federal government.

4.2.4 Truth and Reconciliation Commission (TRC)

The *Truth and Reconciliation Commission of Canada* (TRC) was established in 2008 as part of the Indian Residential Schools Settlement Agreement to document the history and lasting

impacts of the residential school system on Indigenous Peoples in Canada. In 2015, the Commission released its final report, which included 94 Calls to Action aimed at advancing reconciliation between Indigenous and non-Indigenous peoples. Several of these Calls to Action relate directly to cultural heritage, commemoration, archives, and education, and emphasize the importance of recognizing and protecting Indigenous cultural heritage and histories. The TRC also identified the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP) as the framework for reconciliation in Canada and called on governments to adopt and implement it in policy and legislation. While the TRC itself is not legislation, its findings and recommendations have significantly influenced government policies, heritage management practices, and engagement with Indigenous communities across Canada.

4.3 Provincial Legislative Context

4.3.1 Ontario Heritage Act

The *Ontario Heritage Act* (OHA) provides the legislative framework for the conservation, protection, and preservation of cultural heritage resources in Ontario, including archaeological sites, artifacts, built heritage resources, and cultural landscapes. Administered by the Ministry of Citizenship and Multiculturalism, Part I of the Act establishes the authority of the provincial government to develop policies, priorities, and programs for the conservation, protection, and preservation of Ontario's heritage. Under Section 2, the Minister is empowered to oversee the administration of the Act and to regulate archaeological activities within the province. This authority is exercised through several mechanisms, including establishing a system to license individuals permitted to identify and investigate archaeological sites, developing technical standards and guidelines governing archaeological fieldwork and reporting, maintaining a provincial register of known archaeological sites, and overseeing the transfer and curation of archaeological collections. Through these powers, the Ministry provides oversight and direction for the management and protection of Ontario's archaeological heritage.

Part VI of the Act sets out the requirements for archaeological licences and inspections and provides the Minister with the authority to designate or remove the designation of properties of archaeological significance, as well as to issue stop-work orders where archaeological or historical resources may be threatened. Section 65 requires that newly identified archaeological sites be reported to the province and establishes the Ontario Archaeological Sites Database and Provincial register of archaeological reports. Section 66 allows artifacts recovered from archaeological sites to be deposited in approved public institutions to be held in trust for the people of Ontario. Part VII outlines offences and penalties related to violations of the Act, including undertaking archaeological fieldwork without a licence, altering or removing artifacts from an archaeological site without authorization, or failing to comply with reporting requirements. Convictions may result in fines and/or imprisonment.

Other parts of the Ontario Heritage Act not directly related to archaeology include Part II, which establishes the Ontario Heritage Trust; Part III, which establishes the Conservation Review Board to hear matters related to heritage conservation; and Part IV, which enables municipalities to designate individual properties of cultural heritage value or interest.

4.3.2 Planning Act

The *Planning Act* governs land use planning and development in Ontario and establishes the legislative framework through which municipalities regulate land use, subdivision, and development approvals. The Act is administered by the Ministry of Municipal Affairs and Housing (MMAH) and was most recently consolidated on 20 April 2024. It applies to a wide range of land

development applications, including plans of subdivision and condominium, official plan amendments, site plan approvals, zoning by-law amendments, and smaller-scale applications such as consents (severances). The Act requires planning authorities to have regard for matters of provincial interest, including the conservation of cultural heritage resources and archaeological resources.

Under Section 34 (3.3) of Part V, municipalities may enact zoning by-laws to prohibit certain land uses or the erection of buildings on lands containing archaeological resources. In addition, Part VI of the Act, including Ontario Regulation 544/06 (Schedule 1, s.2), outlines the information required to accompany applications for plans of subdivision. This regulation requires applicants to identify whether lands contain areas of archaeological potential and, where development is proposed in areas of known archaeological resources or archaeological potential, to provide an archaeological assessment prepared by a licensed archaeologist under Part VI of the Ontario Heritage Act. Where archaeological resources are identified, a conservation plan must also be provided to ensure that these resources are appropriately protected or mitigated prior to development.

4.3.3 Provincial Policy Statement (2024)

The *Provincial Policy Statement* (PPS) provides policy direction on matters of provincial interest related to land use planning in Ontario and is issued under the authority of Section 3 of the Planning Act. The current PPS came into force on October 20, 2024 and identifies the conservation of cultural heritage resources, including archaeological resources, as a matter of provincial interest. The PPS requires that planning authorities make decisions that are consistent with its policies. It includes provisions for the conservation of significant built heritage resources, cultural heritage landscapes, and significant archaeological resources. Section 4.6 states that development and site alteration shall not be permitted on lands containing significant archaeological resources or areas of archaeological potential unless the resources have been conserved. Where archaeological resources are identified, appropriate mitigation measures, such as archaeological assessment and documentation, must be undertaken prior to development or site alteration. The PPS also requires planning authorities to consider marine archaeological resources, which is particularly relevant for waterfront, river, or lakebed projects. Municipal planning decisions must be consistent with these policies.

4.3.4 Environmental Assessment Act

The Environmental Assessment Act (R.S.O 1990) was consolidated in 2024 and establishes the legislative framework for assessing the environmental effects of public sector projects in Ontario before they proceed. The Act requires an Environmental Assessment to identify, evaluate, and mitigate potential environmental impacts associated with proposed undertakings, including impacts on the natural, social, cultural, and built environments. As part of this process, the potential effects of a project on cultural heritage and archaeological resources must be considered. Archaeological assessments are therefore often conducted as a component of environmental assessment studies where land disturbance or development may affect areas of archaeological potential. The environmental assessment process also includes opportunities for consultation with Indigenous communities, government agencies, and the public, ensuring that potential impacts to heritage resources are identified and addressed prior to project approval.

4.3.5 Funeral, Burial, and Cremation Services Act

The *Funeral, Burial, and Cremation Services Act* (FBCSA) governs the management, protection, and regulation of burial sites, cemeteries, and human remains in Ontario. Administered by the

Bereavement Authority of Ontario (BAO), the Act establishes procedures to be followed when human remains or burial sites are encountered. If human remains are discovered, work must immediately cease and the police or coroner must be notified to determine whether the remains are of forensic concern. If the remains are determined to be archaeological in origin, the discovery is then addressed in accordance with the provisions of the Ontario Heritage Act and the FBCSA. The Act also establishes procedures for the investigation, protection, and appropriate treatment of burial sites, including consultation with descendant communities where applicable.

4.3.6 Other relevant provincial acts

Aggregate Resources Act

The *Aggregate Resources Act* (ARA) regulates the extraction of aggregates such as sand, gravel, clay, and bedrock in Ontario. Administered by the Ministry of Natural Resources, the Act requires operators to obtain licences or permits for aggregate extraction and to prepare detailed site plans outlining how extraction activities will be carried out and rehabilitated. As part of the approval process, proponents must address potential impacts to cultural heritage resources, including archaeological resources, within proposed extraction areas. Where areas of archaeological potential are identified, archaeological assessments conducted in accordance with the *Ontario Heritage Act* may be required prior to licensing or site development to ensure that archaeological resources are identified and appropriately mitigated.

Renewable Energy Approvals Regulation (O. Reg. 359/09)

The *Renewable Energy Approvals Regulation* (Ontario Regulation 359/09) was enacted under the Environmental Protection Act as part of Ontario's Green Energy framework to establish a streamlined approval process for renewable energy projects such as wind, solar, bioenergy, and waterpower facilities. The regulation requires proponents to obtain a Renewable Energy Approval (REA) from the Ministry of the Environment, Conservation and Parks before constructing or operating a renewable energy facility. As part of the approval process, proponents must undertake a series of studies to identify and assess potential impacts on the natural, social, and cultural environment, including archaeological and heritage resources. Where areas of archaeological potential are identified, proponents are required to complete archaeological assessments conducted by a licensed archaeologist in accordance with the *Ontario Heritage Act*, and to implement appropriate mitigation measures where archaeological resources are identified.

Ontario Ministry of Natural Resources Forest Management Guide for Cultural Heritage Values (2007)

The Forest Management Guide for Cultural Heritage Values, prepared by the Ontario Ministry of Natural Resources (MNR), provides mandatory direction for identifying, protecting, and managing cultural heritage values within areas subject to forest management planning on Crown lands. The guide establishes procedures for recognizing and managing five key classes of cultural heritage values: archaeological sites, areas of archaeological potential, cultural heritage landscapes, historical Aboriginal values, and cemeteries. It outlines requirements for the identification of these values during forest management planning and prescribes protective measures, such as operational restrictions or buffer zones, to ensure their conservation. The guide supports the integration of cultural heritage protection into forestry activities and operates in conjunction with the *Ontario Heritage Act* to ensure archaeological resources on Crown lands are appropriately identified and protected.

4.4 Municipal Policies

Land use planning within the village of Calabogie, located in the Township of Greater Madawaska, is currently guided by the County of Renfrew Official Plan, which provides policy direction for land use planning and development across the county. The Official Plan identifies the conservation of cultural heritage resources, including archaeological resources, as an important planning objective and requires that development proposals consider potential impacts to such resources. Where lands are identified as having archaeological potential, archaeological assessments conducted by a licensed archaeologist may be required prior to development or site alteration in accordance with the *Ontario Heritage Act* and the *Provincial Policy Statement*.

The preparation of the Calabogie Secondary Plan provides an opportunity to further refine land use policies and planning guidance within the community, including the identification and protection of cultural heritage and archaeological resources within the secondary plan area. Consistent with the Provincial Policy Statement (2024), the Planning Act, and the Ontario Heritage Act, the Secondary Plan should include policies requiring that archaeological resources and areas of archaeological potential identified through this Archaeological Management Plan be considered and conserved during the planning and development process. Where development or site alteration is proposed within areas identified as having archaeological potential in this plan, archaeological assessments conducted by a licensed archaeologist may be required prior to development approval to ensure that archaeological resources are appropriately identified, protected, or mitigated.

5.0 Management of Archaeological Resources

5.1 Roles and Responsibilities

- 5.1.1 Federal, provincial, municipal roles
- 5.1.2 Consultant archaeologists' responsibilities
- 5.1.3 Proponent/developer responsibilities
- 5.1.4 Public involvement

5.2 Archaeological Assessment Process

- 5.2.1 Standards and Guidelines for Consultant Archaeologists

Archaeological investigations in Ontario are conducted under the authority of the *Ontario Heritage Act* and must follow the *Standards and Guidelines for Consultant Archaeologists* (2011) issued by the Ministry of Citizenship and Multiculturalism (MCM). Under the Act, archaeological fieldwork may only be carried out by individuals who hold a valid archaeological licence issued by the Province. The Standards and Guidelines establish the required procedures for archaeological fieldwork, analysis, and reporting, and define the staged process used to assess archaeological potential and identify archaeological resources.

Archaeological assessments in Ontario follow a four-stage process (Stages 1–4) that guides the identification, evaluation, and mitigation of archaeological resources that may be affected by development. Archaeological investigations conducted as part of the planning and development review process must follow this staged approach and be documented in reports submitted to the Ministry.

As the licensing authority, the MCM administers the archaeological licensing program and reviews archaeological reports to ensure compliance with the Standards and Guidelines and other licensing requirements. However, the Ministry does not act as the approval authority for development applications that trigger archaeological assessments. While the Ministry reviews archaeological reports for compliance with provincial standards, it does not determine whether an archaeological assessment fulfills planning or regulatory requirements outside of licensing. That responsibility rests with the relevant approval authorities, such as municipalities responsible for land-use planning approvals.

5.2.2 Archaeological Assessment Stages

Archaeological assessments in Ontario are conducted following the staged approach outlined in the Standards and Guidelines for Consultant Archaeologists. The four stages of archaeological assessment are summarized below.

Stage 1: Background Study and Property Inspection

A Stage 1 assessment consists of archival examination of any historical, environmental and archaeological data for the study property. This information is then used to determine the archaeological potential of the property. Sources used for Stage 1 investigations include historical maps, land registry records, census rolls, oral histories, and Ministry of Tourism, Culture and Sport site data files. Areas that are identified as having moderate to high archaeological potential require further archaeological investigation in the Stage 2 assessment.

Stage 2: Field Assessment

Stage 2 investigations consist of a field survey to identify any archaeological resources on the proposed land development property and to determine if any may be of potential significance. Where ploughing is possible, fields will be walked in 5 m intervals looking for artifacts on the surface. In areas that cannot be ploughed, such as forested and overgrown pasture areas subsurface testing will occur, which consists of hand excavated test pits at 5 m intervals. The archaeologist will then determine whether any archaeological resources found are of sufficient cultural heritage value to require a Stage 3 assessment. If nothing is found, a report is made to the Ministry of Culture, Tourism and Sport and the property will be cleared for development.

Stage 3: Site-specific Assessment

Stage 3 archaeological assessments are triggered when a potentially culturally significant archaeological site was encountered during the Stage two investigation. This requires additional excavation of the site in order to determine the extent of the site and evaluate its cultural heritage value or interest. For a site located on a ploughed field, a controlled surface pickup is conducted, in which all surface artifacts are individually plotted. The deposit is subjected to a series of test excavations to determine its age, cultural affiliation, density, and extent. In forests, overgrown pasture areas or any other places cannot be ploughed, the archaeologist maps the limits of a site and acquires further information about the site's characteristics by excavating one-meter by one-meter test units across the site. Stage 4 assessments are recommended for sites that demonstrate significant cultural heritage value as determined by the Ministry's Standards and Guidelines.

Stage 4: Mitigation and Conservation

Stage 4 assessments include implementing long-term protection strategies for the archaeological site, while development proceeds around it. A site which is endangered and cannot be preserved is subjected to mitigative excavation, which involves documenting and

removing the archaeological site through large-scale excavation, prior to the development of the site.

5.3 Criteria for Determining Archaeological Potential

5.3.1 Provincial standards and guidelines

The Standards and Guidelines for Consultant Archaeologists (2011) issued by the Ministry of Citizenship and Multiculturalism (MCM) provide direction for identifying areas of archaeological potential in Ontario.

Potential for pre-contact Indigenous sites is based on physiographic variables that include distance from the nearest source of water, the nature of the nearest source/body of water, distinguishing features in the landscape (e. g. ridges, knolls, eskers, wetlands), the types of soils found within the area of assessment and resource availability.

Potential for historical Euro-Canadian sites is based on proximity to historical transportation routes, community buildings such as schools, churches, and businesses, and any known archaeological or culturally significant sites.

Conversely, archaeological potential may be considered low or removed in areas that have been subject to extensive and documented disturbance, such as areas of deep grading, quarrying, or modern infrastructure development. These criteria are used to identify areas where further archaeological assessment may be required prior to development or site alteration.

5.4 Unanticipated Finds and Emergency Discoveries

5.4.1 Procedures for accidental discovery of archaeological resources

In the event that previously unknown archaeological resources are discovered during construction or other ground-disturbing activities, the following procedures must be followed:

1. **Suspend work immediately.** All ground-disturbing activities in the immediate area of the discovery must cease to prevent further disturbance of the potential archaeological resource.
2. **Notify the appropriate authorities.** The landowner, project manager, or construction supervisor must notify a licensed archaeologist and the relevant approval authority (e.g., the Township or planning authority). Photographs of the discovery should be taken where possible and provided to assist in the preliminary assessment.
3. **Initial assessment by a licensed archaeologist.** A licensed archaeologist will review the discovery, either through photographs or a site visit, to determine whether the material represents an archaeological resource requiring further investigation.
4. **Determination of archaeological significance.**
 - If the licensed archaeologist determines that the discovery is not archaeological in nature, the approval authority will be notified and construction activities may resume.
 - If the archaeologist determines that the discovery may represent an archaeological resource, the Archaeology Programs Unit of the Ministry of

Citizenship and Multiculturalism will be notified and additional archaeological assessment may be required.

5. **Mitigation and protection of the resource.** If further investigation is required, the licensed archaeologist will develop an appropriate mitigation strategy in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists (2011). Mitigation strategies may include avoidance of the resource, documentation and recording, or controlled archaeological excavation.
6. **Provincial review and clearance.** Once the required archaeological work has been completed, the licensed archaeologist will submit the appropriate documentation or report to the Archaeology Programs Unit of the Ministry of Citizenship and Multiculturalism. No ground disturbance can occur until a letter of concurrence with a clearance recommendation is received from the MCM. Concurrence letters can only be issued by the MCM, not by the consulting archaeologist.
7. **Resumption of work.** Ground-disturbing activities in the discovery area may only resume once the approval authority has confirmed that archaeological requirements have been satisfied.

5.4.2 Protocol for emergency discovery of human remains

The discovery of human remains is a highly sensitive situation that must be treated with respect and managed in accordance with the *Funeral, Burial and Cremation Services Act* (2002) and other applicable legislation. In the event that human remains or suspected burial features are discovered during construction or other ground-disturbing activities, the following procedures must be followed.

1. **Suspend work immediately.** All ground-disturbing activities in the vicinity of the discovery must cease immediately and the area must be secured to prevent further disturbance.
2. **Protect the discovery.** The remains must not be removed or disturbed. Measures should be taken to protect the area from damage, weather exposure, or public access until the appropriate authorities have completed their investigation.
3. **Notify the police or coroner.** The discovery must be reported immediately to the local police service or coroner, who will determine whether the remains are of forensic concern.
4. **Police and coroner investigation.** The police and/or coroner will investigate the discovery to determine whether the remains are associated with a criminal investigation. If the remains are determined not to be of forensic concern, jurisdiction over the discovery falls under the *Funeral, Burial and Cremation Services Act*.
5. **Notification of the Bereavement Authority of Ontario.** Once the remains are determined to be archaeological or historical in nature, the Bereavement Authority of Ontario (BAO), acting on behalf of the Registrar under the *Funeral, Burial and Cremation Services Act*, with the Ministry of Government and Consumer Services (MPBSD) must be notified. The Registrar will provide direction regarding the protection of the burial site and any required Burial Site Investigation (BSI).

- a) The intent of the BSI, is to provide the following information in a timely manner to the Registrar, Funeral, Burial and Cremation Services Act, 2002 (FBCSA):
- A determination of the probable cultural origin or religious affiliation of the person(s) whose remains are interred and the basis upon which it is made.
 - A description of the boundaries of the burial site.
 - Details of the style and manner in which the human remains are interred.
 - A description of any artifacts that, in the opinion of the investigator, form part of the burial site.
 - An opinion as to whether the burial site was set aside with the apparent intention of interring human remains in accordance with cultural affinities and the basis upon which the opinion is made.
 - Information relevant to the preparation of a site disposition agreement. O. Reg. 133/92, s. 2 (2).
6. **Archaeological investigation.** A licensed archaeologist will be retained to undertake any required archaeological investigation in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists* (2011). The Archaeology Programs Unit of the Ministry of Citizenship and Multiculturalism will also be notified where appropriate.
7. **Consultation and site disposition.** Where the burial site is determined to be archaeological in origin, consultation with descendant communities and other relevant parties may be required as part of the burial site investigation and site disposition process.
8. **Resumption of work.** Construction or ground-disturbing activities in the discovery area may only resume once all regulatory requirements have been satisfied and authorization has been provided by the Bereavement Authority of Ontario and other relevant authorities.

Legislative / Procedural Context Under FBCSA

Below are the key legal steps and obligations under the Funeral, Burial and Cremation Services Act, 2002 (FBCSA) and its regulations relevant to the situation:

Stage	Key FBCSA / Regulation Provisions	What is Required / What Happens
Discovery of Human Remains	Section 95 of FBCSA requires immediate notification of police or coroner upon discovery.	Work must stop; remains and associated artifacts must be protected from further disturbance until further instructions.
Forensic Determination	Coroner (or forensic anthropologist under coroner's office) determines whether remains are of forensic interest.	If foul play (recent criminal interest) suspected → police/criminal processes. If not of forensic interest → jurisdiction transitions to Registrar (Ministry of Government and Consumer Services, MPBSD) for burial site provisions.

**Registrar
Notification &
Preservation**

Once remains are considered historic (i.e. no recent forensic concern), coroner must ensure Registrar is notified. Landowner must preserve site, remains, artifacts. Regulations (O. Reg. 30/11) specify preservation until final disposition.

Means no further ground disturbance, protection from damage, etc.

**Burial Site
Investigation
(BSI) under
Regulation**

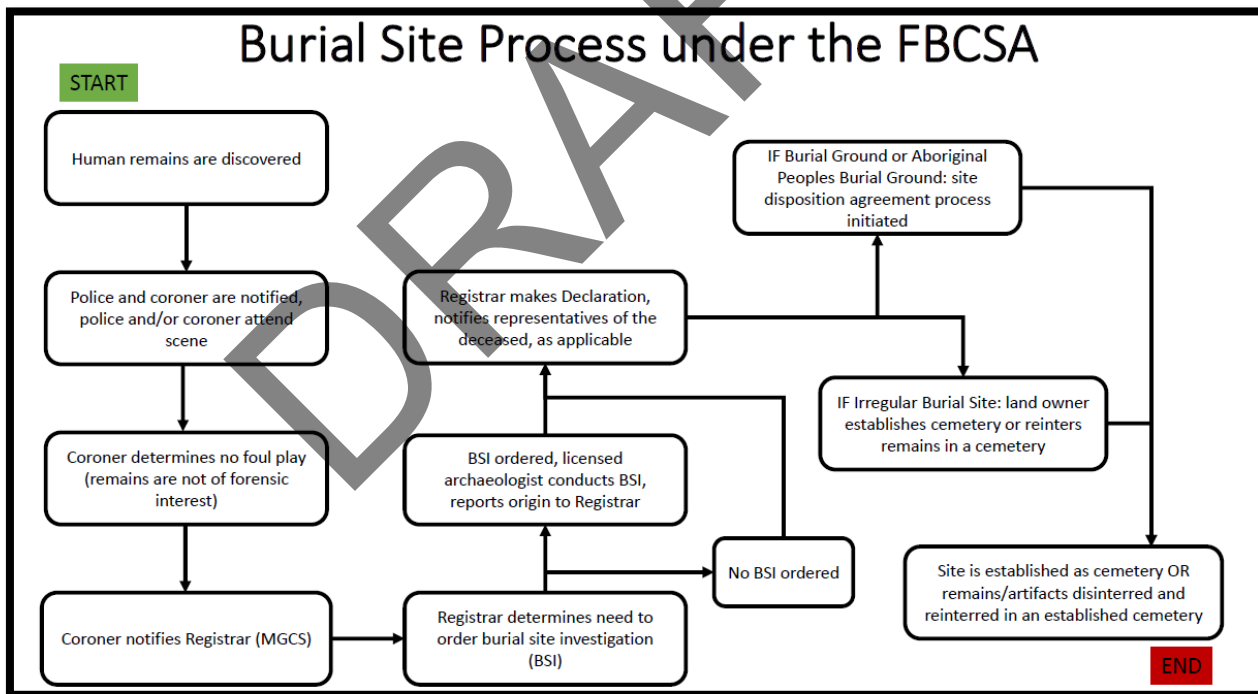
If the Registrar deems it necessary, a BSI may be ordered. Under O. Reg. 30/11 sections 145 and 174-184 related to burial site provisions.

A professionally licensed archaeologist must be hired to prepare a report that covers: cultural or religious affiliation; boundaries of the site; style/manner of interment; associated artifacts; whether the site was intentionally set aside for burials; and information for a Site Disposition Agreement.

**Site
Disposition
Agreement
(SDA)**

If site is known and historic, rather than requiring a full BSI, the SDA may be updated (if the landowner has an existing SDA that applies).

The SDA sets out how the remains will be handled (in situ, reinterment elsewhere, etc.), who is responsible, legal protections, etc.



6.0 Indigenous Engagement Protocol

6.1.1 Introduction and rationale for engagement

Indigenous engagement is an important component of archaeological practice and contributes to the respectful identification, interpretation, and management of cultural heritage resources. Indigenous Nations and communities maintain long-standing relationships with the lands and waterways within the study area, and their knowledge, perspectives, and interests can provide valuable insight into archaeological resources and cultural landscapes. As such, engagement with Indigenous Nations and communities should be considered an important part of archaeological investigations undertaken within the village of Calabogie.

6.1.2 Overview of Indigenous communities with interest in Calabogie (e.g., Algonquins of Ontario, Algonquins of Pikwakanagan)

The Calabogie Secondary Plan area is located within the traditional territory of the Algonquin Anishinaabe, whose presence in the Ottawa Valley and surrounding waterways extends back thousands of years. The lakes, rivers, and upland landscapes within the study area formed part of broader travel, settlement, and resource use networks associated with Algonquin communities.

Indigenous communities with known or potential interest in the study area include the Algonquins of Pikwakanagan First Nation, the only federally recognized Algonquin First Nation in Ontario, whose reserve is located near Golden Lake, approximately 50 km east of the study area. In addition, the Algonquins of Ontario (AOO) represent a number of Algonquin communities participating in the ongoing Algonquin land claim process and who maintain cultural and historical connections to the broader Ottawa River watershed, including areas within Renfrew County.

Given the cultural and historical significance of the region, these communities may have interest in archaeological work undertaken within the village of Calabogie. Engagement with Indigenous Nations and communities who express interest in the archaeological process can provide valuable knowledge regarding cultural heritage resources and assist in the respectful management of archaeological sites.

Additional Indigenous communities may identify interest during the engagement process, and opportunities for participation should be extended where appropriate as archaeological work proceeds.

The Algonquins of Ontario have also developed Enhanced Archaeological Standards and Guidelines that outline expectations for archaeological work undertaken within the unceded Algonquin Settlement Area. These standards are intended to complement provincial requirements under the Ontario Heritage Act and provide additional direction regarding engagement with Algonquin communities, archaeological methods, and the protection of Algonquin cultural heritage resources.

6.1.3 Summary of consultation conducted

To be completed following engagement with AOO and AOPFN.

6.1.4 Recommended engagement practices for future archaeological assessments and land development projects

Under the *Standards and Guidelines for Consultant Archaeologists* (2011) issued by the Ministry of Citizenship and Multiculturalism, engagement with Indigenous Nations and communities is not a mandatory requirement during Stage 1–3 archaeological assessments. However, engagement is strongly encouraged in the spirit of reconciliation and to support the development of respectful working relationships between archaeologists, Indigenous communities, and project proponents. Early engagement may also assist in identifying areas of cultural importance, informing archaeological strategies, and ensuring that Indigenous perspectives are considered in the management of archaeological resources.

For archaeological investigations undertaken within the village of Calabogie, it is recommended that project proponents and their archaeological consultants provide opportunities for Indigenous Nations and communities to be informed about proposed archaeological work and to participate where they express interest. Engagement activities may include providing information about project objectives and methodologies, offering opportunities to review archaeological findings, and documenting communications through a Record of Indigenous Engagement (RIE) where appropriate.

DRAFT

7.0 Historical Context and Archaeological Context

7.1 Natural History and Geography

7.1.1 Geological and ecological setting

The Township of Bagot is dominated by Canadian Shield terrain, characterized by extensive bedrock outcrops, thin soils, and mixed forests interspersed with wetlands and small clearings. The landscape includes forest cover, scattered open meadows, exposed rock, and marshland, with the study area situated on the northeastern shore of Calabogie Lake. Greater Madawaska exhibits the rugged, rocky uplands, numerous lakes, and irregular topography typical of the Shield (Map 2).

The Madawaska River is the largest of the Ottawa River tributaries, running 3,300 square miles from Source Lake in Algonquin Provincial Park to Arnprior where it meets the Ottawa River. The river follows the path of glacial melt waters, carved through the bedrock of the Canadian Shield, creating a fast-flowing river, characterized by falls, chutes, gorges and rapids (Chapman and Putnam 2007). The Madawaska meets the study area at the foot of Calabogie Lake, the village situated on the north shore of the lake, beside a small island that cuts the Madawaska River into two channels. Calabogie Lake is a large round lake, covering approximately 1315 ha, the shoreline all around dotted with marshes and bays. Wild rice, a member of the grass family, grows in several of the bays around the lake, though the biggest concentration grows in Grassy Bay, the largest bay, directly south of the study area. Wild rice is a protected plant and is only allowed to be harvested by the First Nations (Robillard 2009).

7.1.2 Physiography

The site area lies within the Algonquin Highlands physiographic region (Map 3), which is characterized by a generally shallow stony, sandy, and acid soil underlain by granite and other hard Precambrian rocks forming a relief of rough, rounded knobs and ridges. The depth of the soil can vary greatly over short distances and there are frequent outcrops of bare rock as well as low lying swamp and bog areas in the hollows. The vast majority of soil in this region is forested, being mainly non-agricultural due to the shallow acidic low nutrient soil, rough topography with rocky outcrops, and boggy swamp areas. The trees in the area can range from sugar maple, yellow birch, pine, hemlock, balsam, spruce and cedar depending on the varying soil conditions. To the west there is a glacial spillway associated with the Saint Patrick scarp which connects to the drumlins and till moraines of the Opeongo Mountain range to the northwest. Spillways are typically broad, entrenched troughs, the 'bed' consisting entirely or almost entirely of gravel, at various depths, and often occupied by a stream (Chapman and Putnam 2007).

The soils in the study area includes Marsh soils and soils of the Tweed Series (Map 3). The Tweed soil series consists of a loose stony, sandy loam glacial till with many outcrops of limestone bedrock. The landscape is quite variable due to soil coverings alternating with bare rock outcrops and loose boulders. In general, Tweed soils are not considered arable, and the most productive use is for forestry. Marsh soils are seasonally wet and have little organic material present over the shallow subsoil, making it poor for agricultural uses, but important for wild-life habitats (Gillespie and Wicklund 1964).

The surficial geology of the study area is a drift complex bedrock in a Precambrian terrain, with the presence of glaciofluvial and organic deposits along and within the western boundary of the study area (Map 3).

The western boundary of the study area borders on the mouth of Constant Creek, and the southern boundaries traces the shore of Calabogie Lake.

7.1.3 Impact on archaeological site distribution

The dense forests and significant rocky terrain of the Algonquin Highlands make traversing the land on foot incredibly difficult, and the ferocity of the Madawaska River, with its long stretches of falls and rapids, make accessing the area by boat difficult as well. Calabogie Lake, to the south of the study area, is described as calm, lacking any significant currents, despite being fed by the Madawaska River and some of its tributaries. Constant Creek, which feeds into the lake along its northern shoreline, just west of the study area, was described by early settlers as the first 'highway' as its calm and easily traversable waters connect this section of the Madawaska to the top of Mount Saint Patrick, enabling easy access back and forth (Kruzich 2011).

The damming of the Madawaska River in the early 20th century caused drastic changes along its route, in places creating a deeper river, eliminating rapids, covering historic shorelines, and creating new lakes (Graham n.d.). Topographical maps from after the construction of the dam in 1936 and 1951, demonstrate this drastic change. It is likely then, that sites have been submerged or potentially displaced by the water. Taking the changes in the waterway into consideration is important for determining archaeological potential (Map 4).

7.2 Indigenous History

7.2.1 Pre-contact chronology and lifeways

Naming

The Anishinabe Algonquin name for themselves is Anishinabeg, which means "human being." The word Algonquin supposedly came from the Malecite word meaning "they are our relatives", which French explorer Samuel de Champlain recorded as "Algoumequin" in 1603. The name stuck and the term "Algonquin" refers to those groups that have their traditional lands around the Ottawa Valley. Some confusion can arise regarding the term "Algonquian" which refers to the broader language family, of which the dialect of the Algonquin is one. The Algonquian linguistic group stretches across a significant part of North America and comprises scores of Nations related by language and customs.

The Algonquin peoples living in the Ottawa Valley were further sub-divided by the tributary river they lived along. The Algonquin name for the Madawaska River is 'Madweashka' meaning 'the murmuring sounds of the water hitting the rocks and shore', and the people living along the Madawaska River and its tributaries were called the 'Matouweskarini', meaning 'Madawaska people', (Kruzich 2011). Anishinaabemowin is a polysynthetic language, in which words are composed of many morphemes¹ each carrying distinct meanings, making it a highly descriptive language. These place names not only denote specific locations but also vividly depict the physical features of the landscape and historical activities that took place there (Williams and Kapyrka 2015:99–103).

¹ Morphemes are word parts that have independent meaning but may or may not be able to stand alone.

Early Human Occupation

Indigenous histories speak of the advance and retreat of glaciers and of their presence on the land from time immemorial. Presently, the earliest human occupation of the Americas has been archaeologically documented to predate 14,000 years ago. However, at this time much of eastern Canada was covered by thick and expansive glaciers and the Laurentide Ice Sheet of the Wisconsinian glacier blanketed southwestern Ontario until about 12,500 B.P. At this time the receding glacial terminus was at the southern edge of present-day Georgian Bay and melt water in the region created Early Lake Erie and Lake Iroquois (the basin of today's Lake Ontario).

The earliest archaeologically recovered evidence in northeastern North America dates from circa 11,000 B.P. and relates to groups archaeologically referred to as Paleo people. For Ontario the Paleo period is divided into the Early Paleo period (11,000 - 10,400 B.P.) and the Late Paleo period (10,500-9,400 B.P.), based on changes in tool technology (Ellis and Deller 1990). The Paleo people, who had moved into hospitable areas of southwest Ontario (Ellis and Deller 1990), likely consisted of small groups of exogamous hunter-gatherers relying on a variety of plants and animals who ranged over large territories (Jamieson 1999).

Archaeological information suggests that ancestral Anishinabe Algonquin people lived in the region for at least 8,000 years before the Europeans arrived in North America. This traditional territory is generally considered to encompass the Ottawa Valley on both sides of the river, in Ontario and Quebec, from the Rideau Lakes to the headwaters of the Ottawa River. The region is dominated by the Canadian Shield which is characterized by low rolling land of Boreal Forest, rock outcrops and muskeg with innumerable lakes, ponds, and rivers. This environment dictated much of the traditional culture and lifestyle of the Anishinabe Algonquin peoples. At the time of European contact, the Anishinabe Algonquin territory was bounded on the east by the Montagnais people, to the west by the Nipissing and Ojibwa, to the north by the Cree, and to the south by the lands of the Iroquois.

Archaic Period

As the climate continued to warm, the glacial ice sheet receded further northwards allowing areas of Eastern Ontario to be travelled and occupied in what is known as the Archaic Period (9,500 – 2,900 B.P.). In the Boreal forests of the Canadian Shield this cultural period is referred to as the “Shield Archaic”. The Archaic period is generally characterized by increasing populations, developments in lithic technology (e.g., ground stone tools), and emerging trade networks.

Archaic populations remained hunter-gatherers with an increasing emphasis on fishing. People began to organise themselves into small family groups operating in a seasonal migration, congregating annually at resource-rich locations for social, religious, political, and economic activities. Sites from this period in the region include Morrison's Island-2 (BkGg-10), Morrison's Island-6 (BkGg-12) and Allumette Island-1 (BkGg-11) near Pembroke, and the Lamoureaux site (BiFs-2) in the floodplain of the South Nation River (Clermont 1999). Often sites from this time are located on islands, waterways, and at narrows on lakes and rivers where caribou and deer would cross, suggesting a common widespread use of the birchbark canoe that was so prominent in later history (McMillan 1995). It is suggested that the Algonquin peoples in the Ottawa Valley area developed out of this Shield Archaic culture.

Woodland / Pre-European Contact Period

Generally, the introduction of the use of ceramics marks the transition from the Archaic Period into the Woodland period. Populations continued to participate in extensive trade networks that extended across much of North America. Social structure appears to have become increasingly complex with some status differentiation recognized in burials. Towards the end of this period domesticated plants were gradually introduced to the Ottawa Valley region. This coincided with other changes including the development of semi-permanent villages. The Woodland period is commonly divided into the Early Woodland (1000 – 300 B.C.), Middle Woodland (400 B.C. to A.D. 1000), and the Late Woodland (A.D. 900 – European Contact) periods.

The Early Woodland is typically noted via lithic point styles (i.e., Meadowood bifaces) and pottery types (i.e., Vinette I). Early Woodland sites in the Ottawa Valley region include Deep River (CaGi-1) (Mitchell 1963), Constance Bay I (BiGa-2) (Watson 1972), and Wyght (BfGa-11) (Watson 1980). The Middle Woodland period is identified primarily via changes in pottery style (e.g., the addition of decoration). Some of the best documented Middle Woodland Period sites from the region are from Leamy Lake Park (BiFw-6, BiFw-16) (Laliberté 1999). On the shield and in other non-arable environments, including portions of the Ottawa Valley, there seems to remain a less sedentary lifestyle often associated with the Algonquin groups noted in the region at contact (Wright 2004:1485–1486).

The Woodland Period Algonquin peoples had a social and economic rhythm of life following an annual cyclical pattern of seasonal movements. Subsistence was based on small independent extended family bands operating an annual round of hunting, fishing, and plant collecting. Families returned from their winter hunting camps to rejoin with other groups at major fishing sites for the summer. The movements of the people were connected with the rhythm of the natural world around them allowing for efficient and generally sustainable subsistence. Their annual congregations facilitated essential social, political, and cultural exchange.

The Algonquin peoples established significant trade networks and a dominance of the Ottawa River (in Algonquian the “Kitchissippi”) and its tributaries. The trade networks following the Ottawa River connected the Algonquins to an interior eastern waterway via Lake Timiskaming and the Rivière des Outaouais to the St. Maurice and Saguenay as well as the upper Great Lakes and interior via Lake Nipissing and Georgian Bay. From there their Huron allies would distribute goods to the south and west. The Iroquois and their allies along the St. Lawrence River and the lower Great Lakes dominated the trade routes on those waterways to the south thus leading to a rivalry that would escalate with European influence (Moreau et al. 2016).

7.2.2 Historical Indigenous occupation and use

European Contact

The addition of European trade goods to artifacts of native manufacture in archaeological material culture assemblages’ ushers in a new period of history. Archaeological data shows that European goods penetrated the Canadian Shield as early as 1590 and the trade was well entrenched by 1600 through the trade routes established by the Anishinabe Algonquin peoples along the Ottawa River (Moreau et al. 2016) and their neighbouring allies the Michi Saagiig and the Chippewa nations.

The first recorded meeting between Europeans and Anishinabe Algonquin occurred at the first permanent French settlement on the St. Lawrence at Tadoussac in the summer of 1603. Samuel de Champlain came upon a party of Algonquins, the Kitchissipirini under Chief Tessouat, who

were celebrating a recent victory over the Iroquois with their allies the Montagnais and Malecite (Hessel 1993). Champlain made note of the “Algooumequins” and his encounter with them, yet the initial contact between Champlain and the Algonquin people within their own territory in the Ottawa Valley was during his travels of exploration in 1613.

By the time of Champlain’s 1613 journey, the Anishinabe Algonquin people along the Ottawa River Valley were important middlemen in the rapidly expanding fur-trade industry. Champlain knew this and wanted to form and strengthen alliances with the Algonquins to further grow the fur-trade, and to secure guidance and protection for future explorations inland and north towards a potential northwest passage. Further, involving the Algonquins deeper in the fur trade promised more furs filling French ships and more Indigenous dependence on European goods. For their part, the French offered the promise of safety and support against the Iroquois to the south.

Early historical accounts note many different Algonquian speaking groups in the region at the time. Of note for the lower Ottawa Valley area were the Kichesipirini (focused around Morrison Island); Matouweskariini (upstream from Ottawa, along the Madawaska River); Weskarini (around the Petite Nation, Lièvre, and Rouge rivers west of Montreal), Kinouchepirini (in the Bonnechere River drainage); and the Onontchataronon, (along the South Nation River) (Holmes and Associates 1993a; Morrison 2005; Pilon 2005). However, little archaeological work has been undertaken regarding Anishinabe Algonquin at the time of contact with Europeans (Pilon 2005).

Fur Trade, Early Contact with the French

Champlain understood that the Anishinabe Algonquin would be vital to his eventual success in making his way inland, exploring, and expanding the fur trade. This was partially due to their language being the key to communication with many other groups, as well as their dominance over trade routes surrounding the Ottawa River and the connection with the Huron in the west.

When the French arrived, there was already a vast trade network in place linking the Huron and the Algonquins, the Michi Saagiig and Chippewa, extending from the Saguenay to Huronia. This route existed at least from the very early beginnings of agricultural societies in Ontario around A.D. 1000 (Moreau et al. 2016). This trade increased rapidly after the arrival of the Europeans with the introduction of European goods and the demand for furs. The Huron held a highly strategic commercial location controlling the trade to the south and the west, and the Algonquin, Michi Saagiig, and Chippewa were their critical connection to goods from the east, including European products.

By the mid-17th century, the demands of the fur trade had caused major impacts to the traditional way of life including a change in tools, weapons, and a shift in diet to more European as hunting was more for furs and not for food. This dependence on European food, ammunition, and protection tied people to European settlements (McMillan 1995). The summer gathering sites shifted from prominent fishing areas to trading posts. This further spurred social changes in community structure and traditional land distribution and use.

The well-situated Anishinabe Algonquin, particularly the Kitchisipirini who controlled passage around Allumette Island, were originally reluctant to cede any of their dominance in fear of being cut out of their lucrative middleman role in the trade economy. However, an alliance with the French meant protection and assistance against the Iroquois. The French, as well as other Europeans like the Dutch and English, were able to align their own political and economic rivalries with those of the native populations. The competitive greed and obsession with

expanding the fur trade entrenched the rivalries that were already in place, and these were intensified by European weapons and economic ambition.

Haudenosaunee (Iroquois) Wars

Little information exists about inter-tribal warfare prior to European contact, however, there was existing animosity between the Haudenosaunee and the Anishinabe Algonquin when Champlain first arrived in the Ottawa Valley. Like his fellow Europeans, Champlain was able to use this existing rivalry to make a case for an alliance, thus gaining crucial access to the established trade networks and economic power of the Anishinabe Algonquin. Prior to European contact, the hostilities had been mainly skirmishes and raids, but everything changed as European reinforcement provided deadlier weapons and higher economic stakes with the introduction of the fur trade.

Along with the French, the Anishinabe Algonquin were allied against the Haudenosaunee with the Huron, Nipissing, Michi Saagiig, and Chippewa. French records suggest that at the end of the sixteenth century the Algonquins were the dominant force and were proud to have weakened and diminished the Iroquois. The first Algonquin campaign the French took part in was a 1609 attack against the Mohawk. The use of firearms in this fight marked the beginning of the escalation of brutality between these old enemies. The Haudenosaunee corn stalk shields could stop arrows but not bullets or French swords (Hessel 1993).

Eventually the tide changed and as the Haudenosaunee exhausted the beaver population in their own territory they became the aggressors, pushing into the lands of the Anishinabe Algonquin, Michi Saagiig, Chippewa, and Huron, with the added strength of Dutch weaponry. Through the 1630s and 40s constant and increased raiding into Anishinabe Algonquin, Michi Saagiig, and Chippewa territory by the Haudenosaunee nations had forced many multi-generational residents to leave their lands in seek protection from their French allies in places like Trois Rivières and Sillery while others fled to the north. By 1650 Huronia, the home of the long-time allies of the Anishinabe Algonquin and traditional and treaty territory of the Chippewa, had been destroyed by the Haudenosaunee. The Anishinabe Algonquin of the Ottawa Valley had largely been scattered or displaced, reduced through war and disease to small family groups under the protection of the French missions only fifty years after the first Europeans had travelled the Ottawa River (Morrison 2005:26).

There is some evidence that the Anishinabe Algonquin did not completely abandon the Ottawa Valley but withdrew from the Ottawa River to the headwaters of its tributaries and remained in those interior locations until the end of the century. Taking advantage of the Anishinabe Algonquin absence, the Ottawa people, originally from the area of Manitoulin Island, used the river for trade during this time and their name became historically applied to the river.

Aftermath of War

As the Haudenosaunee push continued and the Anishinabe Algonquin sought refuge amongst their French allies, other factors came into play that significantly contributed to their displacement and near destruction. The introduction of European diseases, the devastating influence of alcohol, and the increasing pressure to convert to Christianity massively contributed to the weakening of the Anishinabe Algonquin people and their traditional culture.

The Anishinabe Algonquin thought of themselves as part of the natural world with which they must live in harmony. The traditional stories of Anishinabe Algonquin folklore contained lessons

and guides to behaviour. The French missionaries regarded them as “heathens” and dismissed their religion as superstition (Day 2005). The missionaries believed it was their duty to convert these people to Christianity to save them from evil. Anishinabe Algonquin chief Tessouat had seen his Huron neighbours become ill and die after interactions with the European missionaries and had thus originally warned his people about abandoning their old beliefs and the dangers of conversion (Hessel 1993). Eventually the French imposed laws allowing only those converted to Christianity to remain within the missions and under French protection. This created divisions amongst the Anishinabe Algonquin themselves which weakened the social structure as some settled into a new religion and new territory.

Starting in the 1630s and continuing into the 1700s, European disease spread among the Anishinabe Algonquin groups along the Ottawa River, bringing widespread death (Trigger 1986:230). As disease spread through the French mission settlements the priests remained certain that the suffering was punishment for resisting Christianity. An additional threat lurking amongst the French settlements was alcohol which precipitated many issues.

The Long Way Back

After the Haudenosaunee (Iroquois) Wars, the remaining Anishinabe Algonquin people were generally settled around various French trading posts and missions from the north end of the Ottawa Valley to Montreal. A large settlement at Oka was the first mission established on Anishinabe Algonquin lands in 1720. This settlement included people from many groups who had been collected and moved around from various locations. It became a type of base camp; occupied during the summer while the winters were spent at their traditional hunting territories in the upper Ottawa Valley. This arrangement served the French well, since the Anishinabe Algonquin converts at Oka maintained close ties with the northern bands and could call upon the inland warriors to join them in case of war with the British or Iroquois League.

As the British gained control of Canada from the French in 1758-1760 they included in the Articles of Capitulation a guarantee that the Indigenous allies of the French would be maintained in the lands they inhabited. Many of the Anishinabe Algonquin and other native groups that had been living on French mission settlements were shuffled around to new reserves while others began to migrate back to their traditional territories. Those who had remained on the land and continued to be active in the fur trade, now did so with the English through companies in Montreal like the North West Company, and in the north with the Hudson Bay Company.

Some Anishinabe Algonquin people began to return to their traditional territory to join those groups who had remained in the lower Ottawa Valley and continued their traditional lifeway through to the influx of European settlement in the late 1700s and early 1800s. This included bands noted to be living along the Gatineau River and other rivers flowing into the Ottawa. These traditional bands maintained a seasonal round focused on harvesting activities into the 1800s when development pressures and assimilation policies implemented by the colonial government saw Indigenous lands taken up, albeit under increasing protest and without consideration for Indigenous claims, for settlement and industry. Anishinabe Algonquin lands began to be encroached upon by white settlers involved in the booming lucrative logging industry or having been granted the land as Loyalist soldiers or through other settler groups.

As some Anishinabe Algonquin had been redistributed to lands in Quebec, their traditional territory within the Ottawa Valley was included in multiple land transfer deals, agreements, and sales with the British Crown beginning in the 1780s and continuing till the 1840s. The Anishinabe Algonquin were not included in these transactions and numerous petitions and inquiries on

behalf of their interests were often overruled or ignored (Holmes and Associates 1993a; Holmes and Associates 1993b; Sarazin). The Constitution Act of 1791 divided Quebec into the Provinces of Upper and Lower Canada with Ottawa River as the division line, thus the lands claimed by the Algonquins fell under two separate administrations creating more confusion, exclusion, and oversight.

Two “protectorate” communities were eventually established in the nineteenth century for the Anishinabe Algonquin people at Golden Lake in Ontario and River Desert (Maniwaki) in Quebec. One of the last accounts of the Anishinabe Algonquin living traditionally was from 1865. The White Duck family was living just west of Arnprior when they were forced to leave their wigwams as surveyors arrived to tell them the railway was being expanded through their land (Hessel 1993).

Anishinabe Algonquin people continue to live in the wider Ottawa Valley and there are still many speakers of several Algonquian dialects. Outside of the officially recognized bands there are an unspecified number of people of Anishinabe Algonquin descent throughout the Ottawa Valley unaffiliated with any reserve. Today there are ten Anishinabe Algonquin communities that comprise the Algonquins of Ontario: The Algonquins of Pikwakanagan First Nation, Antoine, Kijicho Manito Madagouskarini, Bonnechere, Greater Golden Lake, Mattawa/North Bay, Ottawa, Shabot Obaadjiwan, Snimikobi, and Whitney and area.

Struggles to officially secure title to their traditional land and fight for hunting and fishing rights have continued into modern times. The Algonquins of Ontario (AOO) and the Governments of both Canada and Ontario are working together to resolve this land claim through a negotiated settlement. The claim includes an area of 9 million acres of unceded territory within the watersheds of the Ottawa and Mattawa Rivers in Ontario including the city of Ottawa and most of Algonquin Park. The signing of the Agreement-in-Principle in 2016 by the AOO and the provincial and federal governments, signifying a mutual intention for a lasting partnership, was a key step towards a final agreement to clarify the rights and nurture new economic and development opportunities in the area.

7.3 Early European Contact and Settlement

7.3.1 Land Treaties

Early Euro-Canadian land divisions into districts, counties, townships, etc. and the expansion of settlement were facilitated by the Indigenous Nations who agreed to enter formal treaty relationships with the newcomers to share the land and resources. The study area is located within the traditional territory of the Mississauga Anishinàbeg, which was part of the lands of the Rideau Purchase and the Algonquin Land Claim area (Map 5).

The Rideau Purchase was negotiated between the Crown and the Michi Saagiig for a three-million-acre tract of land along the south shore of the Ottawa River between Pembroke and Ottawa, extending south and west. With the Rideau Purchase the Crown sought to alleviate disputes regarding previously uncaded lands north of the poorly defined limits of the Crawford Purchase (1783). This was largely to facilitate increasing demands for settlement in the Rideau Corridor and throughout the watersheds of the Ottawa valley and the Madawaska and Mississippi rivers.

The uncaded Algonquin Anishinàbeg territories encompass nine million acres of land across much of Eastern Ontario. The AOO land claim, one of the largest and most complex ongoing

Indigenous land claims in Canada, covers approximately 36,000 square kilometres and asserts that the Algonquins never signed a treaty surrendering their traditional lands. Negotiations between the Algonquin Anishinàbeg, collectively represented by the AOO, and the Crown (Ontario and Canada) have been ongoing since the early 1990s (Holmes and Associates 1993a). A significant milestone was reached in 2016 with the signing of a draft Agreement-in-Principle, which outlines proposed land transfers, financial compensation, and governance arrangements intended to recognize Algonquin interests while clarifying land ownership in the region. The Agreement-in-Principle represents an important step toward a final settlement, although negotiations remain ongoing (Government of Ontario 2024).

7.3.2 Euro-Canadian Colonial History

The area that is now Renfrew County was originally part of the Johnstown District, which was formed in 1798 when the new Parliament of Upper Canada subdivided the territory of the Eastern District. In 1822, the Johnstown District territory was reduced with the creation of the Bathurst District, the northernmost portion of the former district. The Bathurst district contained Carleton County. In 1824, Lanark County was created from part of Carleton County, which originally comprised ten townships and the remainder of unsurveyed lands within the Bathurst District including what would become Renfrew County. In 1838, Carleton County was withdrawn to create the Dalhousie District, and the Bathurst District was reorganized. Renfrew County was removed from the remaining portion of Lanark County, but the two remained united for electoral purposes. Renfrew county originally contained six townships including McNab, and by 1845 all ten townships within the county had been surveyed. In 1850, the Bathurst District was abolished, and the "United Counties of Lanark and Renfrew" replaced it for municipal and judicial purposes. The United Counties were dissolved in 1866 (Smallfield and Campbell 1914:191).

The Upper Ottawa Valley was an area rich in natural resources and Europeans were drawn there initially to exploit its vast timber supplies. Accessibility to this area was through the Ottawa and Madawaska Rivers and one of the earliest lumber firms to cut timber in what would later become McNab Township in Renfrew County were the McConnell Brothers of Hull. As early as 1812 this firm cut squared timber in the area seasonally and soon "the banks of the Madawaska were denuded of their choicest timber before the advent upon the scene of the pioneer settler" (Belden & Co. 1881:51). Thus began the Ottawa Valley's prosperous lumber industry, one that supported the valley economically for nearly one hundred years and would soon generate millions of dollars and employ tens of thousands of men annually (Ottawa River Heritage Designation Committee 2005).

The Ottawa Valley's early lumber industry was supported by the United Kingdom's need for lumber, which was in large part due to the country's involvement in the Napoleonic Wars with France (1793-1815). Customarily, Britain acquired lumber from Baltic countries, but during the war France imposed several economic blockades which greatly limited the trade of timber between Britain and the Baltic. Britain still needed timber to build ships and to maintain their naval supremacy over France; therefore, they were forced to look for other sources of timber. Ottawa, with its vast forests of white pine and its position along an accessible water route connected to the St. Lawrence River, became an obvious choice. English timber merchants first established themselves in Quebec in 1803, but the turning point for the timber industry in the Ottawa Valley occurred in 1806 (Ottawa River Heritage Designation Committee 2005:101).

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become McNab Township in Renfrew County were the McConnell Brothers of Hull. As early as 1812, this firm cut squared timber in the area seasonally and soon “the banks of the Madawaska were denuded of their choicest timber before the advent upon the scene of the pioneer settler” (Belden & Co. 1881:51). Temporary lumber camps began to dot the landscape and the transient workforce that worked them were fed by squatters who would clear and farm the lands near them. The Madawaska area has a rich history of lumbering where semi-permanent logging camps were set up for felling trees as well as temporary camps near rapids since several days would be needed to drive the logs through. The earliest European squatters of the township settled on government land with the intention to acquire legal title before the township was surveyed in the early 1824.

The Madawaska River was a hub of early commercial lumbering in Ontario, with peak activity between 1860 and 1890. As early as the 1840s, the government supported the industry by constructing slides and booms to aid log drives along the river. By 1867, logging companies had built dams on key reservoirs such as Bark Lake and Palmer Rapids in the area of the village of Madawaska (Ontario Power Generation 2009:23).

Most logging in the Ottawa Valley was undertaken in the winter, as it was easier to store the felled trees at the closest tributary awaiting springtime to be floated downstream to the Ottawa River where they would then be rafted together. Rafts could range greatly in size, from a few hundred logs to over twenty-five hundred logs. Although the process of rafting seems simple enough, log jams were common and often deadly, causing extensive delays, sometimes taking crews upwards of two years to bring the logs down from where they were cut to Quebec City. The danger associated with rafting was well worth it as larger rafts could bring upwards of \$12,000 in the early-mid 19th century. Those same rafts were worth approximately \$100,000 closer to the turn of the century (Legget 1975:103).

Although much of what would become Eastern Ontario was logged throughout the mid 19th century, settlement in Upper Canada was concentrated along the St. Lawrence River and lower Great Lakes. In 1853, the Public Lands Act was passed to encourage settlement in the back country granting free land along the recently established settlement roads. Settlers were required to clear at least 12 acres within four years, build a house within a year, and reside on the grant for at least five years to receive title to the land. The Public Lands Act created a “Colonization Fund” to establish new roads in unsettled areas (Murray 2013:174).

By 1920, the Madawaska River's role in timber transportation had diminished giving way to a new era of resource exploitation—hydroelectric power. The Calabogie Generating Station was built in 1917 and was purchased in 1929 by Ontario Power Generation (Ontario Power Generation 2009:44).

The Geographic Township of Bagot was first surveyed in 1842 and opened for European settlement in 1843 (Middleton 1927). The most prominent early community was Springtown which became superseded by the community of Calabogie following the arrival of the Kingston and Pembroke Railway in the early 1880s (Graham 2021). The township of Bagot amalgamated with four other original townships (Blythfield, Brougham, Griffith, and Madawatchin) in 2001 to form the Township of Greater Madawaska.

7.3.1 Key historical events influencing settlement patterns

Early settlement was mainly lumbermen who began some of the earliest commercial lumbering in Ontario situated along the Madawaska River (Graham 2021). The river served as a water

highway for shipping felled trees to market from remotely located stands of timber, but one of the biggest challenges was High Falls. A series of falls along the Madawaska River, followed by miles of rapids before reaching the calm waters of Calabogie Lake, it was common for the logs to get jammed and stuck on the rocks requiring the log drivers to risk life and limb to free them. It was not until 1838-1839 with the construction of the timber slide at High Falls that the upper reaches of the Madawaska were made easily accessible to the men of the trade (Robillard 2009).

With the ability to more easily access the areas northwest of High Falls the lumber trade experienced a significant boom, with hundreds of men hired in the surrounding townships and counties. The difficulty of getting supplies to the numerous shanties and lumber camps incentivised the lumber companies to encourage settlement in the area around the Madawaska. Some lumber barons are reported as having purchased their own farmland, and encouraging their men, and others, to do the same (Robillard 2009)

7.3.2 Historical overview of early settlers

The earliest record of settlers within the modern village limits of Calabogie are recorded in the 1851 census. Five families were recorded as living on Lots 18 Concession 10 and 11, and Lot 17 Concession 10, by the census of 1861 there is still only five families within the village limits, and it was not until the 1880s that there would be anyone on Lot 17 Concession 11. One theory for this limited growth, despite the booming lumber trade, is that the parcels were 100-acres, sometimes more, and the land was incredibly difficult to cultivate. It wasn't uncommon for land to be purchased and never touched until it was sold in smaller parts, or entirely (Robillard 2009). It is important to note that there are some discrepancies between the land records and censuses concerning the location of some of the families.

7.3.3 Lot 18 Concession 10

According to the land registry records the Crown granted 100 acres on the east half of the lot to John G. Malloch in 1845 (LRO 49). Malloch was a judge in Perth and never actually lived in Bagot Township, but he would go on to purchase more land on what would become Calabogie, which would be held in his estate after his death (Robillard 2009).

The 1851 agricultural census lists Hiram Cummings on Lot 18 Concession 10 as holding 100 acres and having successfully cultivated six acres (Ancestry.ca). He was born in the United States around 1817, and it is unknown when he moved to Canada, but, his marriage to Mary Noons is recorded in the Marriage Register in Pakenham, Ontario in 1848 (Ancestry.ca). One of the witnesses was Alexander Spence who was also an early settler in Bagot Township. Hiram was recorded as a farmer, and reported in the 1851 agricultural census that he grew potatoes and produced maple sugar but had no livestock or other produce (Ancestry.ca). He does not appear in the land registry records, and he does not appear on the 1861 census, or on the 1863 map of Bagot Township.

In 1846 Judge Malloch sold 95 acres on the east half of the lot to Robert McIntyre (LRO 49). Robert McIntyre immigrated from Scotland with his family sometime before his marriage to Margaret Murphy in Pakenham, Ontario, in 1845 (Ancestry.ca). In the 1851 census, his household included his wife Margaret and their children Catherine, James, and Margaret. McIntyre was recorded as a farmer producing wheat, oats, potatoes, and hay. He also kept cows and sheep and produced maple sugar, flannel, butter, and salt pork (Ancestry.ca). In the agricultural schedule of the census, there is a discrepancy indicating that he farmed the same property as his brother, Daniel McIntyre, who owned 95 acres on the western half of Lot 18, Concession 9, adjacent to Robert's property. However, land records confirm that the brothers

occupied separate properties at this time (LRO 49). Robert McIntyre's residence is correctly shown on Lot 18, Concession 9 on the 1863 map of Bagot Township (Map 6). Subsequent census records indicate that he continued to live and farm on this property. McIntyre also served as the Calabogie postmaster from 1884 until his resignation in 1888 (Library and Archives Canada 2026). He lived in Calabogie until he died from gangrene in 1900 (Ancestry.com 2010).

In 1863, the Crown granted 95 acres on the western half of the lot to Dennis Dillon (LRO 49). Dillon was born in Ireland and immigrated to Canada sometime before his marriage to Mary Hartney in Springtown in 1857 (Ancestry.com 2017). He first appears in the 1861 census, where his household is recorded as consisting of his wife Mary and their two sons, Thomas and Denis (Ancestry.ca). Dillon listed his occupation as "innkeeper," but also cultivated crops on his land. Similar to the other early settlers in the area, he grew wheat, peas, oats, potatoes, and hay (Ancestry.ca). On the 1863 Map of Bagot Township, Denis Dillon's house is marked on the southwestern corner of the lot near the crossroads (Map 6). Dillon served as the second postmaster in Calabogie, taking the role from his brother in 1858 and holding the role until 1884 (Library and Archives Canada 2026). In Fuller's directories for 1866 and 1867, Dillon is listed as both a general merchant and the local postmaster (Fuller 1867). Census records indicate that he continued to live in Calabogie until 1891. He later appears in the Frontenac death register, where it is recorded that he died of jaw cancer in 1902 (Ancestry.com 2010).

7.3.4 Lot 18 Concession 11

In 1846, 84 acres of Lot 18 Concession 11 was granted by the Crown to John L. McDougall. In 1846, 84 acres of Lot 18 Concession 11 was granted by the Crown to John L. McDougall. There is no John L. McDougall recorded within census record for Bagot Township at this time, however there was one in Horton Township, a farmer and general store owner, he eventually sold the property to Michael Killoren in 1857 (LRO 49).

Although not listed in the land registry records, Michael Prentice is recorded as living on the lot in the 1851 agricultural census. Prentice was born in the United States in 1823 and married Eliza Jane Oram in Bathurst, Ontario, in 1850 (Ancestry.ca). On the 1851 census, he reported living on four acres with his wife and their daughter, Cathrine. Prentice's occupation was listed as labourer. At the time, this term was commonly used to describe individuals who cultivated land they did not own, though it may also indicate that he undertook wage labour, potentially for one of the lumber companies operating in the area. Census records also indicate that Eliza Jane served as a midwife for the local community (Bennett 1993). In the agricultural schedule of the census, Prentice reports only two acres of wheat. At the end of the entry, the enumerator, John Halliday, noted that he found it "impossible" to determine the truth of the report, suggesting he questioned the accuracy of Prentice's account of his household's production. By the 1861 census, Michael Prentice is recorded as a shantyman working for a lumber company along the Madawaska River, although his wife was not listed with him at that time (Ancestry.ca). By 1871, the family had relocated to Hastings County, where Michael was again living with his wife and children (Ancestry.com 1871).

Alexander Spence was enumerated in the 1851 agricultural census as a farmer working the land Lot 18, Concession 11. He held 80 acres and grew wheat, oats, and potatoes, and also produced maple sugar and wool. Spence was born in Scotland around 1823 and the only other member of his household was his wife, Anne. Although he does not appear in the land registry records, he is recorded as a witness at the marriage of Hiram Cumming in 1848 (Ancestry.ca). Spence does not appear in any subsequent census records for Bagot Township or the surrounding townships, and his whereabouts after 1851 remain unknown.

Michael Killoren, who acquired the property in 1857, was born in Ireland around 1832. In the 1851 census, at about 20 years of age, he is recorded as a member of his father Dominick Killoren's household (Ancestry.ca). Michael married Mary Doras at the Roman Catholic Church in Springtown in 1858 (Ancestry.com 2017). Shortly before their marriage, Michael purchased 84 acres from John L. McDougall in 1857 (LRO 49). In the 1861 census, the Killoren household was enumerated as Michael and his wife Mary with their four children, Charles, Cathrine, James, and Jane. Michael was listed as a farmer. The agricultural portion of the 1861 census does not have Michael recorded, but he is noted on the 1863 Map of Bagot Township, on the southwestern side of the lot (Map 6). He is enumerated again in the 1871 census. By that time, the only members of his household were himself and his son John, and he reported his marital status as widowed, though the date of Mary's death is unknown. In the agricultural schedule for 1871, Killoren reported growing wheat, peas, potatoes, and hay (Ancestry.com 1871). He died in 1904 of pneumonia.

7.3.5 Lot 17 Concession 10

In 1845 the Crown granted 150 acres to Gerrard McRae, which he sold to Ezra Rose in 1851 (LRO 49). Ezra Rose was born in Grenville, Ontario in 1813, and married his wife Ursula Noons in 1845 (Ancestry.ca). On the 1851 census, Ezra reports his wife and daughter, Adeline, as the members of his household. He was a miller, reporting two mills on the property, with three people employed annually (Ancestry.ca). He also farmed on the land, growing wheat, oats, potatoes, and hay, and produced maple sugar, butter, and pork. He sold Sarastan 1 acre in 1851, then in 1853 Ezra sold the remaining 150 acres to John G. Malloch (LRO 49). By the 1861 census Ezra had moved to St Vincent, Ontario with his wife and children (Ancestry.ca).

Surraston N. Holden was born in Canada in 1833, he was 18 at the time of the 1851 census and lived in his father's household (Ancestry.ca). He does not appear on the 1861 census, but he is labeled on the eastern side of the road on the lot on the 1863 map (Map 6), and on the 1871 census he no longer lives on Lot 17 Concession 10. According to the land records he partitioned his property from 1865 until 1903 (LRO 49). Over time, this subdivision of the land formed the core of what became the village of Calabogie.

7.3.6 Lot 17 Concession 11

In 1858, the Crown granted eight acres to Edward McCrea, who sold the property to Mary Killoren in 1864 (LRO 49). Mary Killoren was married to John Killoren and was recorded in the 1851 census as living in Blythfield Township. The Killorens had one son, Patrick. John was enumerated as a labourer, likely associated with work at a lumber camp or at the timber slide at High Falls. John Killoren died in 1859, he was working on the river with another man named John McAdam and both reportedly drowned between Calabogie and Burnstown (Clarke 1967). It is unknown if his body was ever recovered but he has a headstone in cemetery at Springtown (Ancestry.com 2012). By the 1861, Mary moved to Bagot Township with her children, Patrick, Mary, Cathrine, Bridget, Rose and Anne, and was recorded as a widow. By this time her son Patrick was listed as head of the household as a labourer (Ancestry.ca). Mary continued to live in Bagot Township until her death from pneumonia in 1900 (Ancestry.com 2010). Over time, the property was subdivided and sold in portions, eventually forming what became the western half of the village of Calabogie.

In 1882, James Carswell and Jonathan Francis, owners of the lumber company Francis, Carswell & Co., purchased 25 acres of land where they built a saw mill along with a boarding house, mill store, and an octagonal office (Robillard 2009). In 1884, they were granted

permission to have a spur line built in to connect the Kingston and Pembroke Railway directly to the mill (LRO 49) (Figure 1). The mill continued to operate until 1965, when it was deconstructed (Robillard 2009).

7.3.1 Village of Calabogie

The origin of the name 'Calabogie' is unknown, though several theories suggest either an Algonquin or Gaelic origin. In Alfred Clarke's *A History of Calabogie*, he states the name was "the Indian name for Sturgeon", noting that sturgeon travel up the Madawaska River to spawn in the lake (Clarke 1967). However, with an improved understanding of Anishinaabemowin it is now understood that *Name* (pronounced *nah-may*) is the word for sturgeon (Robillard, 2009).

Two possible Gaelic origins have also been proposed. The first is *Calladh Bogaigh* meaning "marshy bay", of which there are many around the lake. The second derives from two separate Gaelic words *Caladh* meaning "harbour", and *Bogadh* meaning "quiet," "still," or "soft." This interpretation reflects the calm waters of Calabogie Lake in contrast to the rushing rapids and falls of the Madawaska River nearby (Robillard 2009).

The start of the lumbering era in 1806 brought the vast numbers of lumberjacks and shantymen to Renfrew and Lanark County. The Madawaska River was a persistent source of difficulty for the lumber barons with timber licenses northwest of lake Calabogie, with several long stretches of rapids, chutes, and falls. The earliest known lumbering efforts in the area were those of the McConnel brothers in 1812, but due to the nature of the Madawaska there was not much progress until the construction of the timber slide at High Falls, at the head of Calabogie Lake, in 1838. After the square timber came down the slide and into the lake, it would be sorted by the lumbermen, before continuing down the river to Arnprior. While waiting to continue the drive the men would camp along the shores of the lake, and for some of the men it would become their final resting place. Log driving was a dangerous job, and there are supposedly hundreds of unmarked graves along the banks of the Madawaska (Robillard 2009).

The first post office in the area was opened in Springtown in the home of John Halliday in 1848, with the services expanding to Calabogie in 1857. Timothy H. Dillon was the first postmaster for Calabogie but resigned in 1859 when he moved to High Falls. Dennis Dillon took over the position and served as the postmaster until 1884. By the 1861 census, only five families were living within the village limits, although a few of the original families had left. H.F Walling's 1863 map of Bagot Township includes the newcomers and some of the original families (Map 6).

In Fuller's 1866/67 *Directory of Leeds, Grenville, Lanark, and Renfrew*, Springtown is described as "the only village in the municipality of Bagot and Blythfield." However, the directory notes that its listings include "not only the businessmen of Springtown, but also those who reside in the municipality" (Fuller 1867). Among those listed are Dennis Dillon, Ephraim Hunter, a miller, and Robert Wyatte, a general merchant.

As the lumber era continued to boom through to the late 1800s, Calabogie remained the first stopping place for the men returning from the more remote areas of the Madawaska River. As a result, the demand for inns and taverns grew exponentially. By 1871, Samuel Legree and his brother Alfred Legree were the only innkeepers recorded on the census. The Legrees were the owner of the Legree Hotel, situated on the corner of Madawaska Street and Carswell Street (now Lanark Road), also known as the 'Legris Hotel' and the 'Calabogie Hotel', it was likely the earliest hotel in Calabogie (Robillard, 2009). Although Dennis Dillon was recorded as an

innkeeper in an earlier census, he likely boarded travellers in his home, as he was also recorded as being the postmaster and a general merchant.

The Kingston and Pembroke Railway (K&P) was incorporated in Kingston in 1871, with the objectives of developing mineral resources and a faster outlet for lumber transport (Figure 2). Construction began in 1872. The rough terrain of the Canadian posed significant challenges; to reduce costs, more than one-third of the line was curved to travel around rock outcrops rather than blasting through them (Railway Heritage Park 2017). The K&P reached Calabogie in 1883 after bankruptcy stalled the construction near Sharbot Lake. The K&P was nicknamed the “Kick and Push” due to the unreliable nature of early trains that often needed to be kicked and pushed to keep going.

Michael ‘M.J.’ O’Brien’s company agreed to take over the completion of the line from Renfrew. In the Calabogie area, major works included the construction of a causeway across the mouth of Grassy Bay, a half-mile rock cut blasted at Bluff Point, and bridges built across both channels of the Madawaska River. The railway’s construction brought a significant influx of workers, with approximately 200 men drawn to the area for employment.

The first station was called ‘Madawaska’ until another station along the railroad adopted that name, and the station at Calabogie was renamed ‘Calabogie’. The original station was simple in form, located on the main shoreline just north of the island and consisting essentially of a long shed. Alfred Clarke, a resident of Calabogie, described it as having “the office in one end and the rest a freight shed with a platform the same level as the floor of a boxcar” (Clarke 1967:11).

The K&P allowed farmers in the Calabogie area to export their goods farther than previously possible, with goods such as fresh cream and cattle transported as far as Toronto. It gave the community access to hospitals in Kingston and Renfrew and made travel between communities easier. The natural beauty of the surrounding landscape drew hunters, campers and anglers to the extent there was a ‘weekly campers special’. This train departed Renfrew, arriving in Calabogie on Saturday evening and returning early Monday morning so campers could be back in time for work (Robillard 2009). As a result, Calabogie became a popular destination for visitors and tourism increased in the early twentieth century.

Calabogie throughout the lumbering era was often described as ‘wild’ and ‘unruly’, a ‘frontier town’ not unlike those of the ‘wild west’. The isolation of the lumber shanties meant that when the log drivers arrived in the village, it was likely the first settlement they had seen in months. The arrival of the K&P railway, and discovery of valuable mineral resources, graphite and iron, in the area also brought significant numbers of men looking for work. By the 1880s there were several hotels and taverns along Madawaska Street. The Legree hotel, Mrs. Bryer’s Hotel, and the Byrne’s Hotel were the three main establishments throughout this time. The Legree Hotel and Mrs. Bryer’s Hotel are both recorded on the official Town Plan registered in 1886 (Figure 3).

The 20th century brought more changes and infrastructure to the village. The onset of WWI increased the need for electrical power in Renfrew County and so, M. J. O’Brien, the same who’s company funded the branch of the K&P railway through Calabogie, constructed a power generating station on Calabogie Island in 1917. It brought electricity to the village but also supplied power to munitions factories in Renfrew and the Renfrew Molybdenum Mines. The Calabogie Generating Station is the oldest on the Madawaska River, and was operated and maintained by M.J. O’Brien Limited until Ontario Hydro acquired it in 1929 (Unterman et al. 2019:6).

The last square timber was cut in the Ottawa Valley in 1912, due in part to the reduced availability of viable pine and spruce trees. Yellow birch became the first hardwood species sought after as there was demand brought on by WWII for the manufacture of 'Mosquito' bomber planes. By the 1930s, the change in demand and increased road and railroad access moved the lumber trade away from river driving for good (Algonquin Forest Authority 2026).

Tourism continued to grow in Calabogie throughout the late 20th century with the construction of Calabogie Lodge and the development of various recreational activities. Over time, tourism became the primary industry in the village.

7.4 Modern Context

7.4.1 Current land use and development pressures

The village of Calabogie is a small community where tourism and outdoor recreation form a significant part of the local economy. Land use in and around the village includes residential development, tourism and recreational facilities, transportation infrastructure, and natural areas associated with Calabogie Lake and the Madawaska River.

Calabogie Peaks Resort, located on the west side of Calabogie Lake, operates year-round and provides recreational opportunities including skiing, hiking, golfing, and other seasonal outdoor activities. Recreational use of Calabogie Lake itself is also common, with activities such as boating and fishing occurring throughout much of the year.

The K&P Heritage Trail, which follows the route of the former Kingston and Pembroke Railway, passes through the village and crosses the Madawaska River. The trail is used for walking, cycling, and other recreational activities during the warmer months and for snowmobiling and snowshoeing in winter (Map 7).

Development pressures in the Calabogie area are largely associated with tourism-related infrastructure, residential growth, and cottage development along the shoreline of Calabogie Lake. These activities have the potential to affect archaeological resources, particularly in areas where ground disturbance occurs in proximity to the lake and river corridors.

7.4.2 Historical features of continued significance

The K & P Recreational Trail

The K&P Railway was abandoned in stages between 1962 and 1986. The 14.4-mile section between Calabogie and Renfrew was abandoned and the ties and tracks were removed in 1977 (Railway Heritage Park 2017). The Canadian Pacific Railway retained ownership of the corridor until 2001, when it was purchased by the County of Renfrew. The County subsequently established the K&P Management Advisory Committee to determine how the corridor could best be used as a multi-use recreational trail (County of Renfrew 2003).

The trail runs south from Renfrew through the eastern side of Calabogie, where it crosses the Madawaska River on a bridge to the west side of Calabogie Island. It then continues across the south channel of the river before turning west through the rock cut at Bluff Point (Map 8). The corridor has been designated as a multi-use recreational trail and is open to walking, running, cycling, horseback riding, and ATV use during the warmer months, and to snowmobiling, snowshoeing, and cross-country skiing during the winter. The trail also provides vehicle access to cottages and residences, as well as access for hunting, fishing, and logging operations.

Some refurbishment and maintenance work has been undertaken to support continued use of the trail. The original bridges over the north and south channels around Calabogie Island were replaced after major flooding washed away the earlier wooden structures. Gravel has been added in places to reduce flooding and erosion caused by trail use, and signage and posts have been installed to manage and restrict vehicle access in certain areas (Figure 4).

Kick & Push Guest House

The former train station in Calabogie has had several owners since the abandonment of the K&P Railway. The building is located on the west side of the K&P Recreational Trail at the north end of the bridge that crosses the Madawaska River to Calabogie Island (Map 8). The 1/6-acre property was purchased by Michael J. Scully in 1891, who constructed a house with an attached store that was used for a short period as the local train station (Robillard 2009).

Following the closure of the railway, the building was repurposed for a variety of uses, first operating as a store and more recently as a short-term rental property. When the house was purchased in the early 2000s by Richard and Mary-Joan Hale, they discovered the words “Waiting Room” painted on an old door, suggesting its former use associated with the railway station. In recent years, the property has been marketed as the Kick & Push Guest House, available for both short- and long-term cottage rentals (Figure 5).

Octagon house

Octagon houses represent a comparatively rare nineteenth-century building form in Ontario and across North America, with their principal period of popularity generally situated in the mid-nineteenth century. The style's best-known advocate was Orson Squire Fowler (1809–1887), a phrenologist and publisher who, in 1849, issued *A Home for All*, securing a place in North American architectural history through his promotion of the eight-sided plan (Fowler 1854). In practice, Ontario octagons did not always conform to Fowler's idealized prescriptions. Blumenson notes that Fowler travelled and lectured widely (including in Ontario), and that the popularity of octagonal houses had spread through Canada and the United States by the 1860s; however, stylistic treatments varied considerably, and octagons could reflect contemporary influences ranging from Georgian to Second Empire (Blumenson 1990).

Within this broader pattern, the Calabogie “Octagon House” in Renfrew County is understood as a local example of the typology. The building has been identified in secondary inventories as an octagonal structure at 15 Octagon Lane, with reported construction dates that vary by source (Map 8). According to Robillard, the office was built sometime in 1882 by the lumber company Francis, Carswell & Co, as the office associated with their mill and is labeled on the 1905 town plan (Robillard 2009). In the later 20th century, the building was purchased by a local artist and used as a gallery, then sold again and used as a home (Figure 6).

Churches

In 1892, the first cornerstone of the Presbyterian Church of Calabogie was laid, and the building was opened for worship later that same year. The building underwent various renovations throughout the 20th century, the most significant of which was the removal of the tall spire and church bell in 1979 (Figure 7). The church is still standing along the shoreline of the Madawaska River on Madawaska Street and continues to serve as a place of worship and community gathering within the village (Map 8, Figure 8).

Dennis Dillon donated the land for the Roman Catholic Church, the Church of the Most Precious Blood, in 1896. It is located just west past the intersection of Mill Road and Lanark Road (Map 8). As the number of Roman Catholic parishioners increased, Calabogie was established as a

parish in 1913, with mission churches in Black Donald and Springtown. The parish priest at the time, Father W. H. Dooner, initiated a fundraising campaign to construct a brick presbytery, a two-room school, as well as a barn and stable (Robillard 2009). The school was staffed by the Sisters of Saint Joseph of Pembroke, for whom a convent was later constructed in 1924 (Figure 9).

In 1892, St. Mary's Church was built on the hill along Mowat Street (Map 8). It was the first Anglican church in Calabogie, and its first minister is believed to have been Rev. Charles Thomas Davis. Records suggest the church operated until 1917. Sometime prior to 1931, the building was sold to George D. Charbonneau, who converted it into a residence and business (Figure 10) (Robillard 2009).

7.4.3 Historic Documentation

Notable histories of the Anishinabe Algonquin include: *Algonquin Traditional Culture* (Whiteduck 1995) and *Executive Summary: Algonquins of Golden Lake Claim* (Holmes and Associates 1993a). A notable history of the families related to Chief Pinesi and his son Kigoniz is *The Ancestors Are Arranging Things: A Journey on the Algonkin Trail* (Kruzich 2011).

The subject property is in the Geographic Township of Bagot, in the County of Renfrew. There are a few publications of the early history of the county and township. Notable references include *Renfrew County, People and Places* (Bennett 1989), *Founding Families of Bagot, Blythfield, & Brougham* (Bennett 1993), and *The Story of Renfrew, From the Coming of the First Settlers about 1820 to 1928* (Smallfield and Campbell 1914). Another useful resource is the Renfrew Supplement in the *Illustrated Atlas of the Dominion of Canada* (Belden & Co. 1881).

For the village of Calabogie specifically notable resources include; *Calabogie: Timber, Trains & Tourists* (Robillard 2009), *A History of Calabogie* (Clarke 1967), and *Tweedsmuir History: Calabogie Women's Institute* (Calabogie Women's Institute).

7.5 Archaeological Context

7.5.1 Current Conditions

The study area is a 146.16 ha village located on Lots 18, Concession 10 and 11 and Lots 17, Concession 10 and 11, in the Geographic Township of Bagot, now the Township of Greater Madawaska, Renfrew County, Ontario (Map 1). The village is moderately developed, with residential properties and local businesses occupying much of the land, along with some public green space. The western boundary of the study area meets the mouth of Constant Creek and the northern shoreline of Calabogie Lake. The southern boundary follows the northern shore of Calabogie Lake, while the eastern boundary follows the shoreline where the lake meets the northern channel of the Madawaska River as it separates around Calabogie Island, which forms the southeastern corner of the study area.

The landscape within the study area includes manicured lawns and park space, roadways, walking paths and trails, shoreline areas, and sections of sloping hills and exposed rocky outcrops.

7.5.2 Previous Archaeological Assessments

Archaeological work in the region has primarily consisted of cultural resource management studies related to specific properties or development projects. Most projects within the Geographic Township of Bagot have involved Stage 1 and Stage 2 assessments. A list of these assessments is provided below (Table 1). To date, only one archaeological assessment has been conducted within the village of Calabogie bolded in the table below (Map 9).

PIF	Date	Project	Company
P1066-0367-2023	2025	Stage 1 Archaeological Assessment HONI Wood Pole Replacement Program 2024: Ottawa Circuit (Multiple Lots & Concessions, Geographical Townships of West Hawkesbury, Longueuil, Alfred, Plantagenet, Gloucester, Pakenham, McNab, Bagot, Blithfield, Alice, Cumberland, Edwardsburgh, Osnaburck, Russell, Fitzroy, March, North Gower, Nepean, Goulbourn, Ross & Horton) Various Counties and the City of Ottawa	Archaeological Services Inc.
P415-0475-2023	2024	Stage 1-2 Archaeological Assessment: Calabogie Property, Highway 508/Calabogie Road and Mill Street Lot 18, Concession 11, Geographic Township of Bagot, now Township of Greater Madawaska, Renfrew County, Ontario	Stantec Consulting
P1066-0279-2022, P1066-0280-2022, P1066-0281-2022, P1066-0282-2022, P1066-0283-2022	2022	Stage 1-2 AA EORN Cell Gap Project: Tranche 3 Area 2 Various Lots and Conc: Pt Lot 22, Conc 9 (Geo Twp Denbigh) Twp Addington Highlands, County Lennox and Addington; Lot 13, Conc 1 (Geo Twp Denbigh) Twp Addington Highlands, County Lennox and Addington; Lot 16, Conc 5 (Geo Twp Matawatchan) Twp Greater Madawaska, County Renfrew; Lot 22, Concession 3 (Geo Twp Griffith) Twp Greater Madawaska, County Renfrew; and, Lots 16-17, Conc 6 (Geo Twp Bagot) Twp Greater Madawaska, County Renfrew	Archaeological Services Inc.
P208-0219-2020	2021	Stage 2 Archaeological Resource Assessment of the proposed Calabogie Generating Station Redevelopment of Area 2B in Lot 17, Concession 10, in Bagot Township, Greater Madawaska Township, Renfrew County, Ontario	Woodland Heritage Northeast Limited
P208-0213-2020	2021	Stage 2 Archaeological Monitoring of the tree clearing activities at the Calabogie Generation Station, on Lots 17 and 18, Concession 10, and Lot 17, Concession 9, in Bagot Township, in the Township of Greater Madawaska, Renfrew County, Ontario	Woodland Heritage Northeast Limited
P208-0187-2018, P208-192-2018	2020	Stage 1 and 2 Archaeological Resource Assessment of the proposed Calabogie Generating Station Redevelopment in Lots 17 and 18, Concession 10, and Lot 17, Concession 9, Bagot Township, Greater Madawaska Township, Renfrew County, Ontario	Woodland Heritage Northeast Limited
P016-0441-2016	2017	Stage 1 Archaeological Resource Assessment of the Proposed Redevelopment of the Calabogie Hydroelectric Generation Site, in Lot 17 Concessions 9 and 10, Bagot Township, Renfrew County, Ontario	Woodland Heritage Services
2002-046-010, , 2002-046-010- S4EX	2002	A Stage 1 & 2 Archaeological Assessment of the O'Neill Family Subdivision on Calabogie Lake on Part of Lot 17, Concession 11, Bagot Twp (Geo), Renfrew County	Kinickinick Heritage Consultants
P039-047	2005	Stage 1-2 AA of the Proposed Pedley Subdivision Part Lot 16, Concession 11, Bagot Township (Geo), Greater Madawaska Twp, Renfrew County	Kinickinick Heritage Consultants

Table 1: Previous Archaeological work within the Geographic Township of Bagot.

7.5.3 Registered Archaeological Sites and Commemorative Plaques

A search of the Ontario Archaeological Sites Database indicated that there are no archaeological sites recorded within the village of Calabogie, however there are six registered archaeological sites within a 1 km radius of the study area.

The O'Neill Terrace site (BhGe-3) is a Pre-Contact lithic scatter site located on the southern tip of O'Neill Point, within the southwestern boundary of the study area, it is not indicated in the site record if there is further CHVI or not.

The O'Neill Cottage Site (BhGe-4) is a pre-Contact camp site located on O'Neill Point, within the southwestern boundary of the study area, it is not listed whether there is further CHVI.

The Grassy Bay Site (BhGe-5) is a Middle Woodland campsite located on the eastern shoreline of Grassy Bay, just south of the study area, it is not listed whether there is further CHVI.

The Upper Terrace Site (BhGe-6) is a mixed context site, with both pre-contact and 20th century historical artifacts present. It is located on the shoreline of Grassy Bay, south of Bluff Point, and it is not listed whether there is further CHVI.

The Middle Terrace Site (BhGe-7) is recorded as being south of Bluff Point Road, it is not clear what the context of the site is, and it is not listed as whether there is further CHVI.

The O'Neil Peak Site (BhGe-2) is a post-contact, Late Woodland site located in the southwest corner of the study area near the Madawaska River, on O'Neill Point, listed as having further CHVI.

There are no historical plaques within the vicinity the study area. The Calabogie Cenotaph is located along Madawaska Street and commemorates the locals who died during the First and Second World Wars. It was erected by Bagot and Blythfield Centennial Committee in 1967.

8.0 Archaeological Potential Model

8.1 GIS-based archaeological potential mapping

A Geographic Information System (GIS) is a type of software that combines various tools for the collection, storage, retrieval, manipulation, and display of spatial data taken from real world sources (Ebert 2004). GIS describes objects in terms of geographical position, non-spatial attributes, and the spatial relationship between objects, simply, where something is with what something is. GIS allows for the visualization of various complex data sets for analysis and comparison and is the theoretical basis for constructing an archaeological potential model. A GIS based approach to building archaeological potential models has been in practice since the 1980s (Sylaiou et al. 2025). While traditional methods of survey and in person data collection are effective for identifying archaeological potential, they are time consuming and imprecise. A GIS approach allows for the combination of multiple complex data sets which allows for analysis in a timely manner.

A predictive model is made up of three key elements, the available knowledge or body of information applicable to the study area, the methods used to transform the information into predictions and the predictions themselves (Ebert 2004). Data sources typically include physical

environmental characteristics such as topography, slope, and proximity to water sources (Lausanne et al. 2018), as well as proximity to known archaeological sites and historic documentation.

8.1.1 Methodology and criteria for determining archaeological potential (Pre-contact and Post-contact)

The Standards and Guidelines for Ontario Archaeologists clearly define the variables that indicate potential for archaeology. Standard 1.3.3 specifically lists; previously identified archaeological sites, water sources, elevated topography, pockets of well-draining soil, distinctive land formations such as waterfalls and outcrops, resource areas, areas of early Euro-Canadian settlement, early historical transportation routes, a heritage property as designated under the Ontario Heritage Act or that is a recognized historic landmark or site, or a property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations (MCM 2011).

Potential for pre-contact Indigenous sites is based on physiographic variables that include distance from the nearest source of water, the nature of the nearest source/body of water, distinguishing features in the landscape (e.g., ridges, knolls, eskers, and wetlands), the types of soils found within the area of assessment and resource availability. The study area has potential for pre-contact Indigenous archaeological sites due to the proximity to; pre-contact archaeological sites, the Madawaska River, Calabogie Lake, Constant Creek, the wild rice in Grassy Bay, as well as the presence of glacial spillways and of large quartz veins present throughout the area.

Potential for historical Euro-Canadian sites is based on proximity to historical transportation routes, historical community buildings such as schools, churches, and businesses, and any known archaeological or culturally significant sites. The subject property is in an area of potential for historical period archaeological sites due to the impacts of the lumber trade and the settlers that it brought, historical buildings, proximity to historical archaeological sites and to historical roads, railways, and trails.

8.1.2 Composite mapping layers

The construction of the potential model made use of several map layers, as well as maps, and background research. Some of these layers have been included in the final product and some have not, but the layers were chosen based on their ability to best convey the information while ensuring the created map was legible and clear. The layers in no order are as follows; a shapefile identifying important roads, trails, and railways, areas that were subject to previous archaeological assessments and whether further assessment was recommended, archaeological site locations within one kilometer of the study area, waterways, and the final shapefile indicating areas of terrestrial and marine archaeological potential. Several historic maps, topographic maps, previous archaeological assessments and their associated field maps, and historic photographs were used to assist in the background research but were not included in the final product again to ensure clarity and legibility in the final map set. The final potential model consists of two polygons, the orange polygon represents potential for terrestrial archaeology, and the blue polygon represents the potential for marine archaeology.

The final potential map includes a shapefile depicting only the historic roads and the current route of the K&P recreational trail. As per Standard 1.3.1 any area within 300 m of a historic transportation route is considered to have archaeological potential (MCM 2011). As such they

have been included to act as a visual aid for proving the existence of archaeological potential throughout the study area. Roadways are also considered to be deeply and pervasively disturbed, meaning they do not have archaeological potential, they further assist in visualizing the buffer of disturbance around the roadways. The section of the K&P that cut through the village itself, while noted on Map 8 (Historic Features) was not included here as the railway ties and tracks were removed after the abandonment, but it is unclear how complete this removal was so there is the potential for archaeological resources associated with the K&P to still be present in the space.

Given the significant historic connection to the Madawaska River and Calabogie Lake not only for the resources present, but as a transportation route for millennia through to the lumber trade, there is archaeological potential present along the shorelines and in the water in Calabogie. As per Standard 1.3.1, waterways, such as lakes, rivers and streams, and secondary water sources such as marshes, intermittent streams and creeks, are indicators of archaeological potential (MCM 2011). Two shapefiles identifying primary water sources and provincially significant wetland were used to identify the areas where there is potential for marine archaeology. Further, historic topographic mapping (Map 4) was used to identify potential original shorelines before the hydro-dam construction in 1917, as the rising water levels may have submerged archaeological resources. Any area with marine archaeological potential is identified in the potential model as a blue polygon, as the marine checklist is separate from a terrestrial assessment.

Significant resource areas, meaning food or medicinal plant areas, such as spawning areas or wild rice marshes, scarce material resources, such as quartz or chert, and early European industry, such as logging and fur trading, are also indicators of archaeological potential (MCM 2011). The wild rice marsh in Grassy Bay is a prime example of a resource area in the Calabogie area. Pre-contact quartz tools and lithic debitage were also found at the sites on O'Neill Point by Ken Swayze (2002). All of this was taken into consideration when determining the contributing factors for the potential model, however there were no specific shapefiles or maps to include as there were no significant resource areas within the boundaries of the village.

The presence of archaeological sites within one kilometre of an area of interest adds to the determination of archaeological potential (MCM 2011). There is a total of six sites within one kilometer of the village of Calabogie, though only three of the sites fall within the boundaries of the village. The general area that was assessed is identified on Map 9 (Previous Assessments). It is not possible to provide the exact locations of the sites due to concerns about the protection of archaeological resources. However, Ken Swayze's 2002 assessment report outlines the areas recommended for further work, as well as those where no further assessment is required. This is reflected on the final potential map as a separate polygon, to clearly define the area where further work has been recommended. The area where further archaeological work has been recommended has been identified as having cultural heritage value. Should any future development be proposed within this area, the recommended archaeological work would be required prior to development proceeding.

Identified areas of high potential within Calabogie

A majority of the Village of Calabogie has been identified as having archaeological potential, based on the criteria for indicating archaeological potential outlined in Standard 1.3.1 (MCM 2011) (Map 10). Terrestrially, the only areas identified as having low potential are those that have been deeply disturbed, such as roadways and the footprints of the existing buildings. The

area on O'Neill Point that was previously assessed by Ken Swayze in 2002 and not recommended for further archaeological assessment has also been excluded (Swayze 2002).

Areas within the village boundary have been identified as having potential for marine archaeology, given the drastic changes in the water levels in Calabogie Lake and the use of the Madawaska River and Constant Creek by pre-contact Indigenous groups and later by Euro-Canadian lumber workers.

8.1.3 Mapping outputs and interpretation guidelines

The mapping outputs provided represent the archaeological potential model based on the criteria outlined above. They do not represent property-specific assessments or provide guarantees that areas that fall outside high potential areas will not contain archaeologically significant resources. These mapping outputs should be treated as probability-based tools for planners and stakeholders to understand the risk of encountering archaeological resources during ground disturbance activity both on land and in the water. Potential modelling is not a substitute for archaeological assessment and should only be used to guide planning activities. The possibility of encountering archaeological resources, including Indigenous artifacts, features and burials, remains even when an area is deemed not to have low archaeological potential due to a lack of high potential attributes or previous disturbance. The municipality must assess the risks of exempting a property or location from archaeological assessment requirements and should consider the scope and scale of impacts even when they are proposed for areas outside the high archaeological potential layer. In some cases Stage 1 or Stage 2 archaeological assessment may be deemed prudent to determine the extent of previous disturbance more thoroughly than the current model can.

9.0 Implementation and Recommendations

9.1 Policy recommendations for inclusion in Official Plans and zoning by-laws

The following policy recommendations are intended to support the identification, protection, and appropriate management of archaeological resources within the Village of Calabogie. These policies may be incorporated into the Calabogie Secondary Plan and other municipal planning documents, including zoning by-laws and future amendments to the Township's Official Plan.

1. **Use of Archaeological Potential Mapping:** The archaeological potential mapping prepared as part of the Calabogie Archaeological Management Plan should be used by the municipality when reviewing development applications to determine whether archaeological assessments are required prior to approval.
2. **Archaeological Assessment Requirement:** Development and site alteration within areas identified as having archaeological potential in the Calabogie Archaeological Management Plan shall not proceed unless the requirements of the *Ontario Heritage Act* are met. Where archaeological potential is identified, proponents shall undertake archaeological assessments conducted by a licensed archaeologist in accordance with the *Standards and Guidelines for Consultant Archaeologists* issued by the Province of Ontario.
3. **Development Review Process:** As part of the development review process, the municipality may require the submission of archaeological assessment reports where archaeological potential has been identified. Archaeological assessments shall be completed to the satisfaction of the Province prior to the approval of development or site alteration.
4. **Protection of Archaeological Sites:** Where archaeological resources are identified, they should be protected through avoidance, site redesign, or other mitigation measures recommended by a licensed archaeologist and accepted by the Province. Protection measures may include preservation in situ, site buffers, or other appropriate strategies.
5. **Accidental Discovery of Archaeological Resources:** If archaeological resources are discovered during construction or site alteration, all work in the immediate area shall cease and the proponent shall contact a licensed archaeologist to assess the find. Appropriate authorities shall be notified in accordance with provincial legislation.
6. **Discovery of Human Remains:** If human remains are encountered, all work shall stop immediately and the police or coroner shall be notified, along with the appropriate provincial authorities, in accordance with the *Funeral, Burial and Cremation Services Act* and other applicable legislation.
7. **Indigenous Engagement:** Project proponents are encouraged to provide opportunities for Indigenous Nations and communities with interest in the area to be informed of archaeological work and to participate where they express interest. Opportunities for engagement may include sharing information about project objectives and methodologies, review of archaeological findings, and participation of Indigenous archaeological liaisons during field investigations where requested.
8. **Integration with Municipal Planning Tools:** The municipality should consider incorporating archaeological management policies and mapping into municipal planning

documents, including zoning by-laws, development review procedures, and future updates to municipal planning policies.

9.1.1 Guidelines for municipal planners and developers

The archaeological potential mapping developed as part of this Archaeological Management Plan should be used by municipal planners, developers, and their consultants when reviewing development proposals within the Village of Calabogie Secondary Plan area. The mapping identifies areas where archaeological potential has been identified and where archaeological assessments may be required prior to development or site alteration, in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists*.

9.1.2 Data management and GIS maintenance procedures

The archaeological potential mapping prepared as part of this Archaeological Management Plan should be maintained by the municipality within its Geographic Information System (GIS) to support development review and land-use planning processes within the Village of Calabogie Secondary Plan area.

The mapping should be treated as a planning tool to assist municipal staff in identifying areas where archaeological assessments may be required under the *Ontario Heritage Act*. Municipal planners should consult the mapping when reviewing development applications involving ground disturbance.

Where new archaeological information becomes available through completed archaeological assessments or other heritage studies, the municipality may update the GIS mapping to reflect improved understanding of archaeological potential and site locations. Updates should be undertaken in consultation with a qualified heritage professional or licensed archaeologist, where appropriate.

Archaeological site location data should be managed in accordance with provincial data-sharing requirements and confidentiality provisions to ensure that sensitive information regarding archaeological site locations is appropriately protected. Detailed archaeological site location information is maintained by the Province of Ontario through the Ontario Archaeological Sites Database (OASD) and is subject to access restrictions. As such, sensitive site location data should not be publicly distributed and should only be accessed by licensed archaeologists and other authorized users in accordance with provincial policies.

9.1.3 Recommended periodic updates and reviews

This Archaeological Management Plan should be reviewed periodically to ensure that it reflects the most current archaeological information and planning context within the Village of Calabogie Secondary Plan area. Updates may be appropriate where new archaeological sites are identified, additional archaeological assessments are completed, or new environmental or historical information becomes available that improves the understanding of archaeological potential in the area.

Periodic updates to the archaeological potential mapping may also be undertaken to incorporate new data and to refine areas of archaeological potential. Any updates should be completed in consultation with a qualified heritage professional or licensed archaeologist.

A review of this Archaeological Management Plan may also be considered during future updates to municipal planning documents, including the Calabogie Secondary Plan or other related planning initiatives.

9.1.4 Community outreach and education strategies

Public awareness and appreciation of archaeological resources can contribute to the protection and stewardship of cultural heritage within the Village of Calabogie. Opportunities may exist to incorporate archaeological themes into community education initiatives, interpretive materials, or local heritage programming where appropriate.

Community outreach initiatives could include the development of educational materials, presentations, or partnerships with local heritage organizations, museums, or community groups to promote awareness of the archaeological history of the region. Such initiatives may highlight the long history of Indigenous presence in the area and the importance of protecting archaeological resources.

Any outreach or educational initiatives should ensure that sensitive information regarding archaeological site locations is not publicly disclosed and that activities are undertaken in a manner that respects the cultural significance of archaeological resources and the interests of Indigenous Nations and communities.

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11.0 Figures

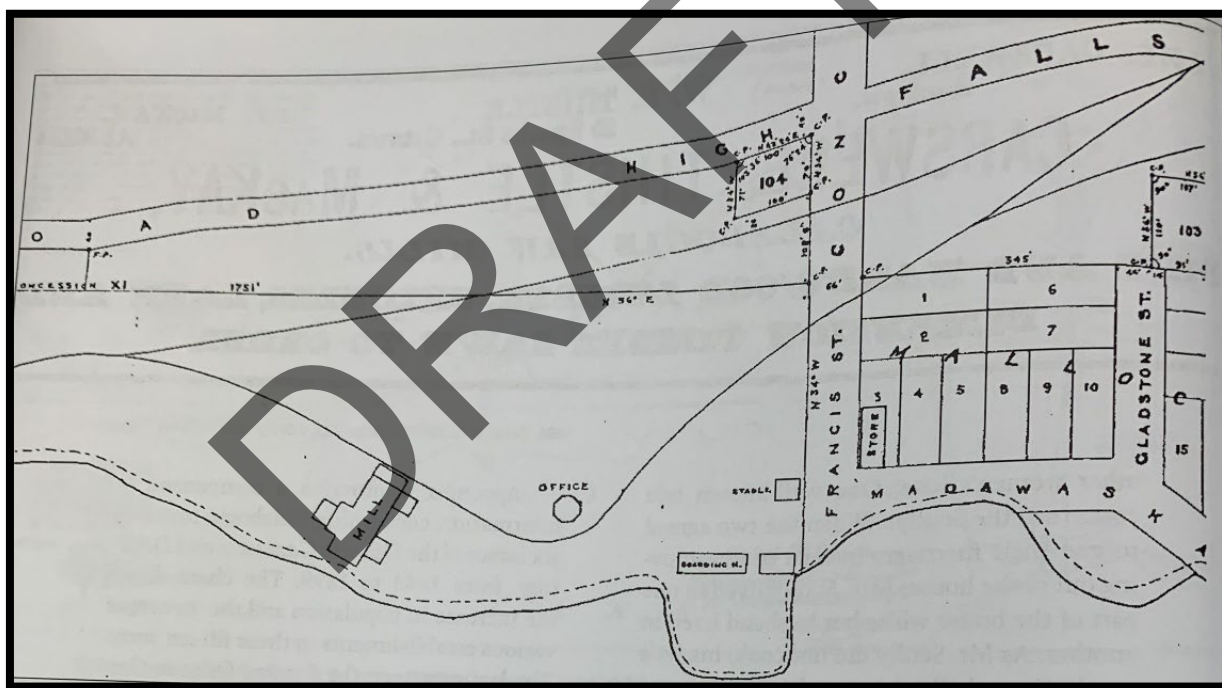


Figure 1: Segment of the 1905 Plan of Calabogie showing the Francis, Carswell and Co. Mill Property.

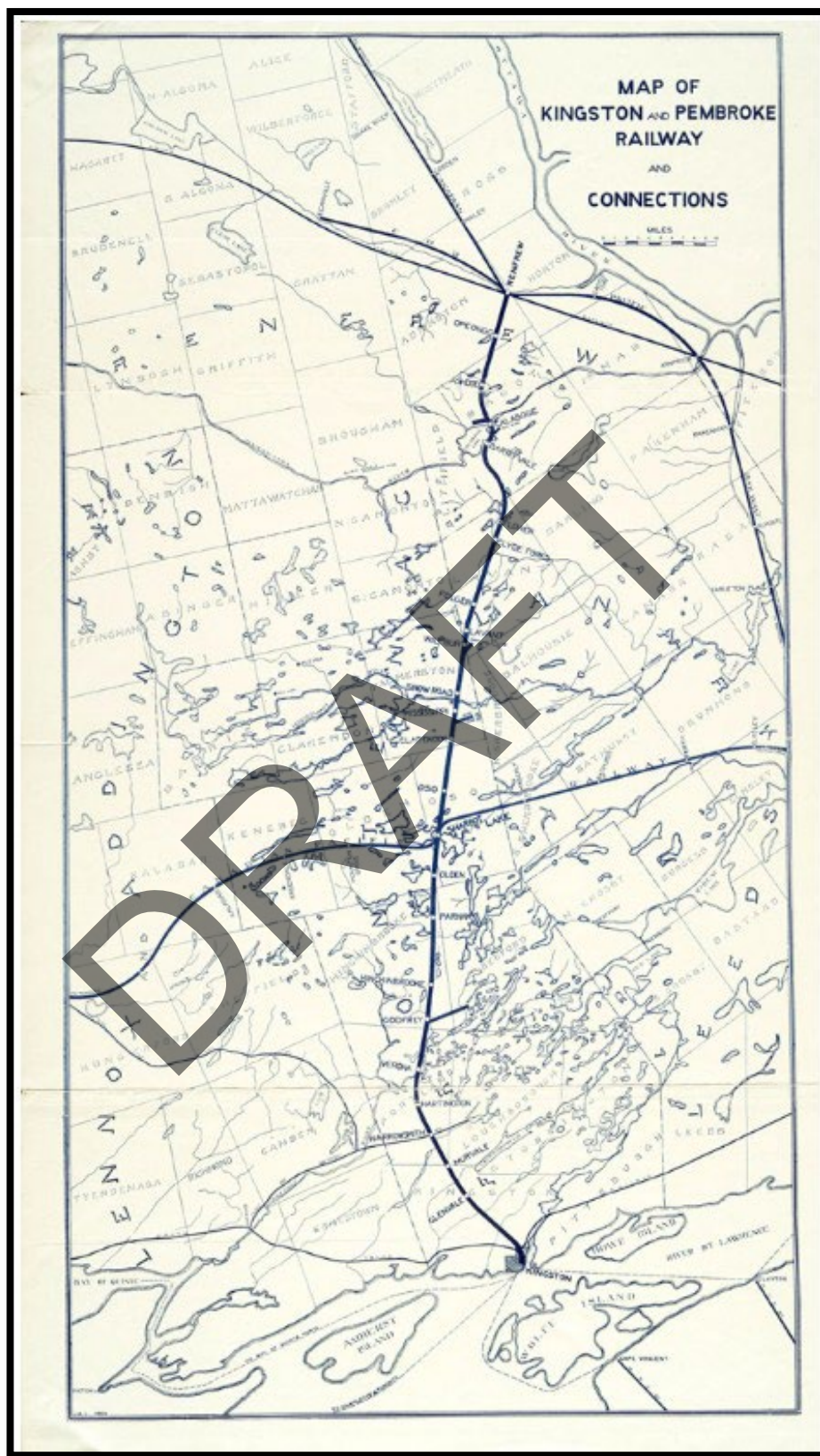


Figure 2: 1886 Map of the Kingston and Pembroke Railway with its Connections. (From the Railway Heritage Park, Sharbot Lake).

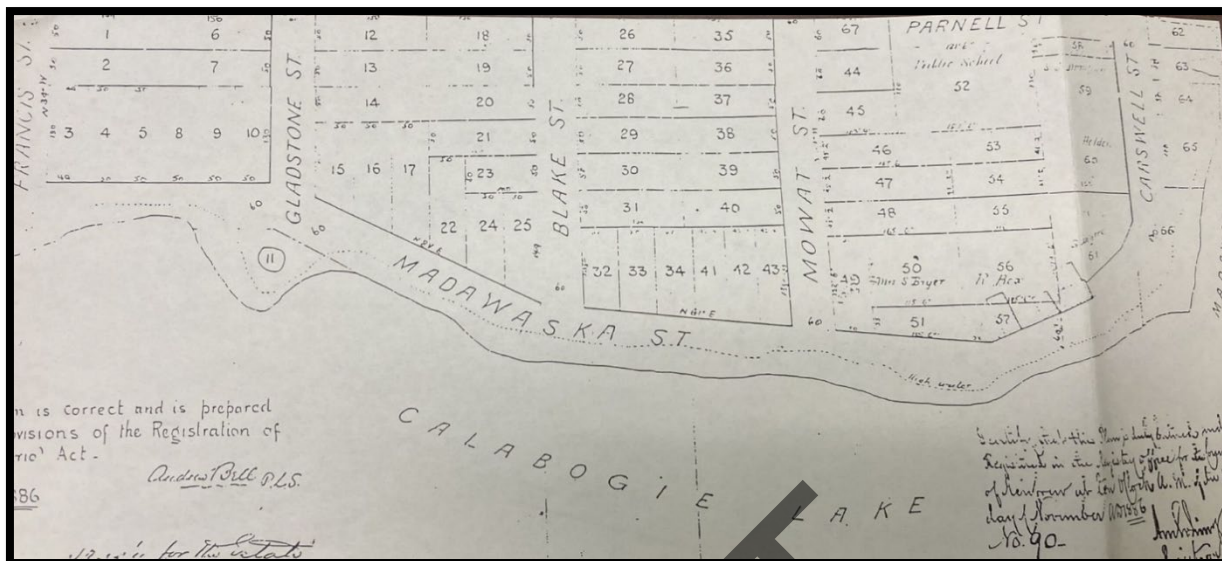


Figure 3: 1886 Plan of the Village of Calabogie, (The Greater Madawaska Public Library).



Figure 4: Trailhead for the K&P Recreational Trail.

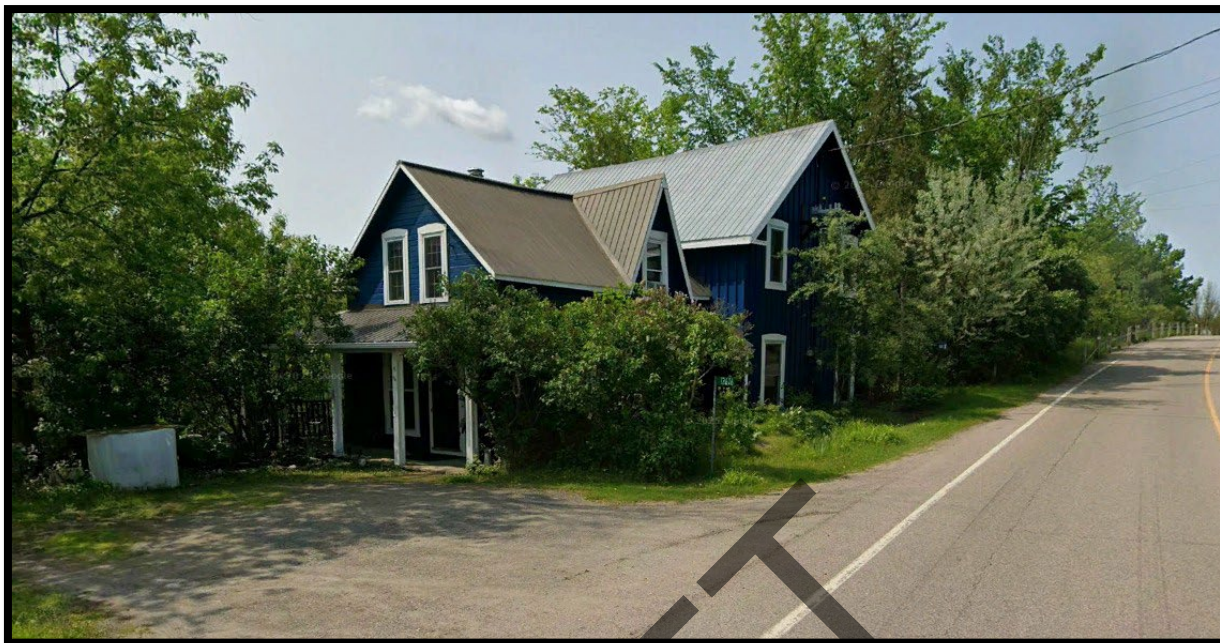


Figure 5: The old 'Madawaska' Train station, now the Kick & Puch Guest House.

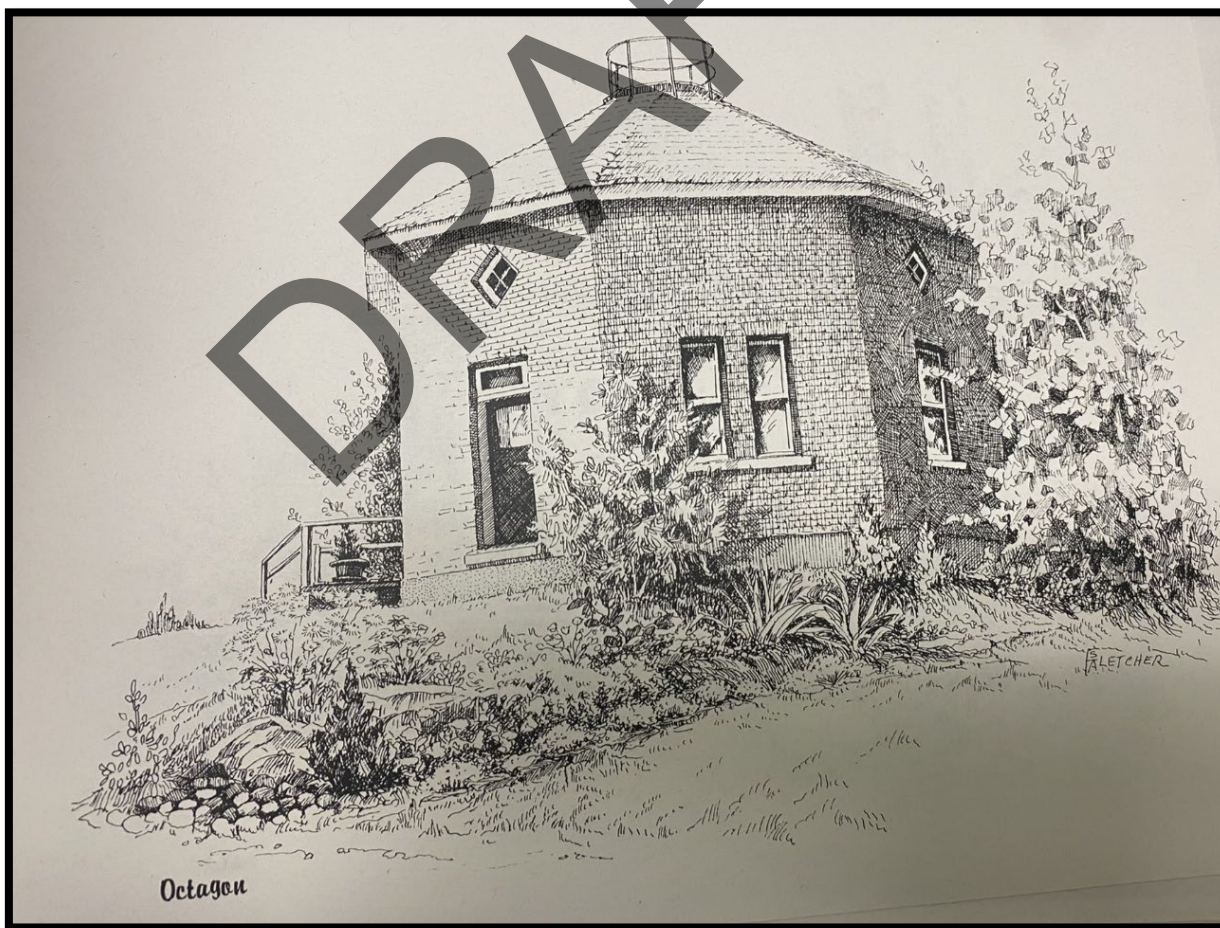


Figure 6: Sketch of the Octagon House. (Artist Signature: Fletcher, from the Greater Madawaska Library, Calabogie)

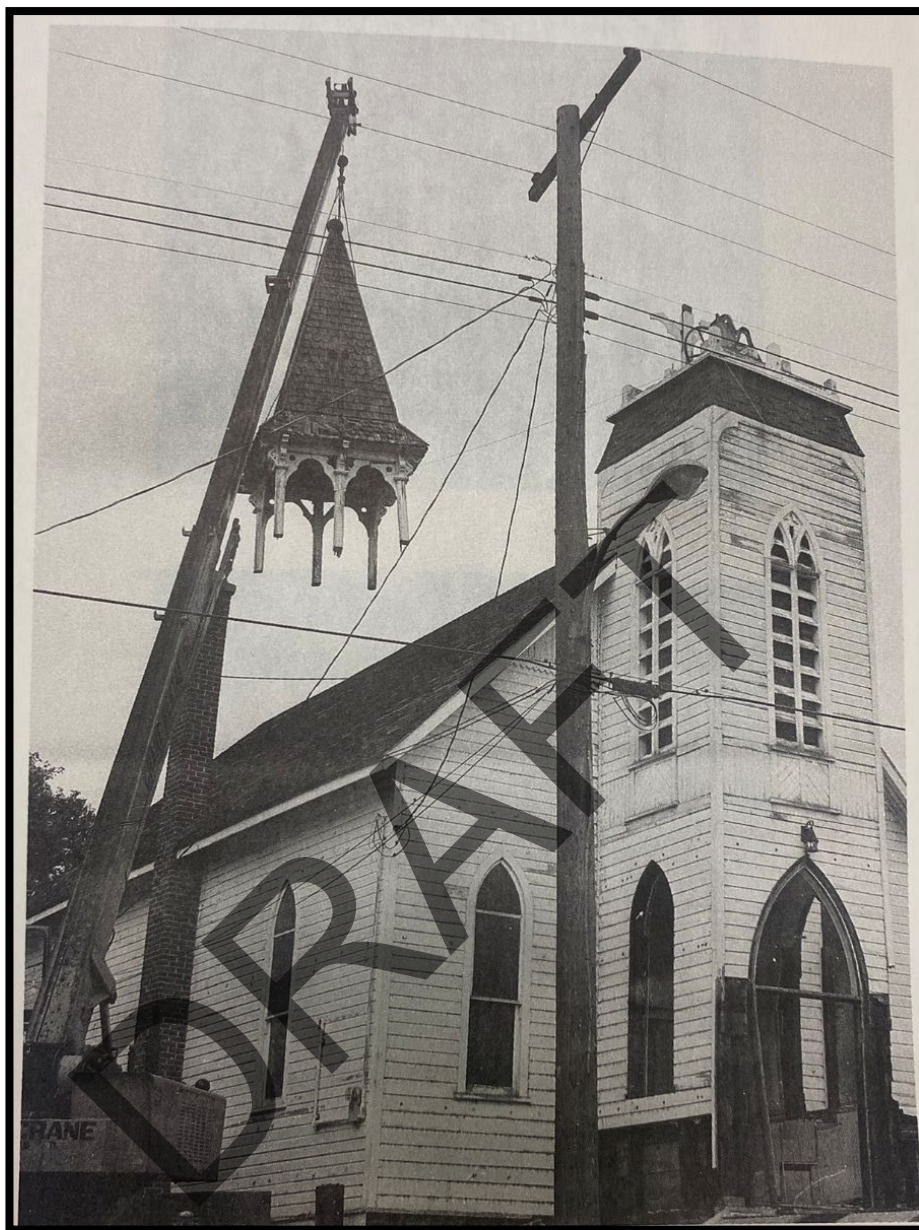


Figure 7: Removal of the Original Church Spire in 1979.



Figure 8: St. Andrew's United Church in the Modern Landscape.



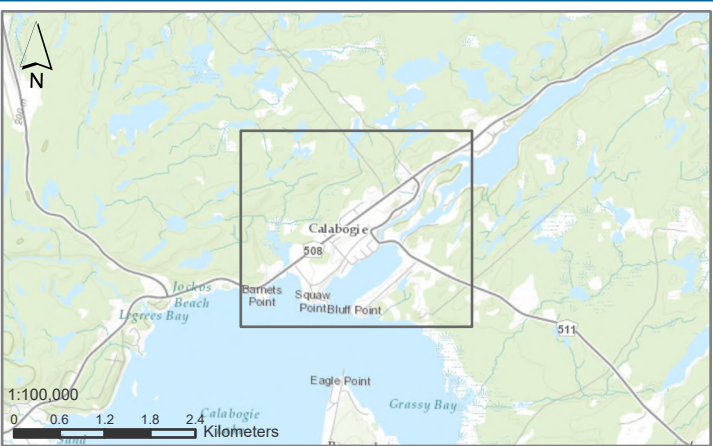
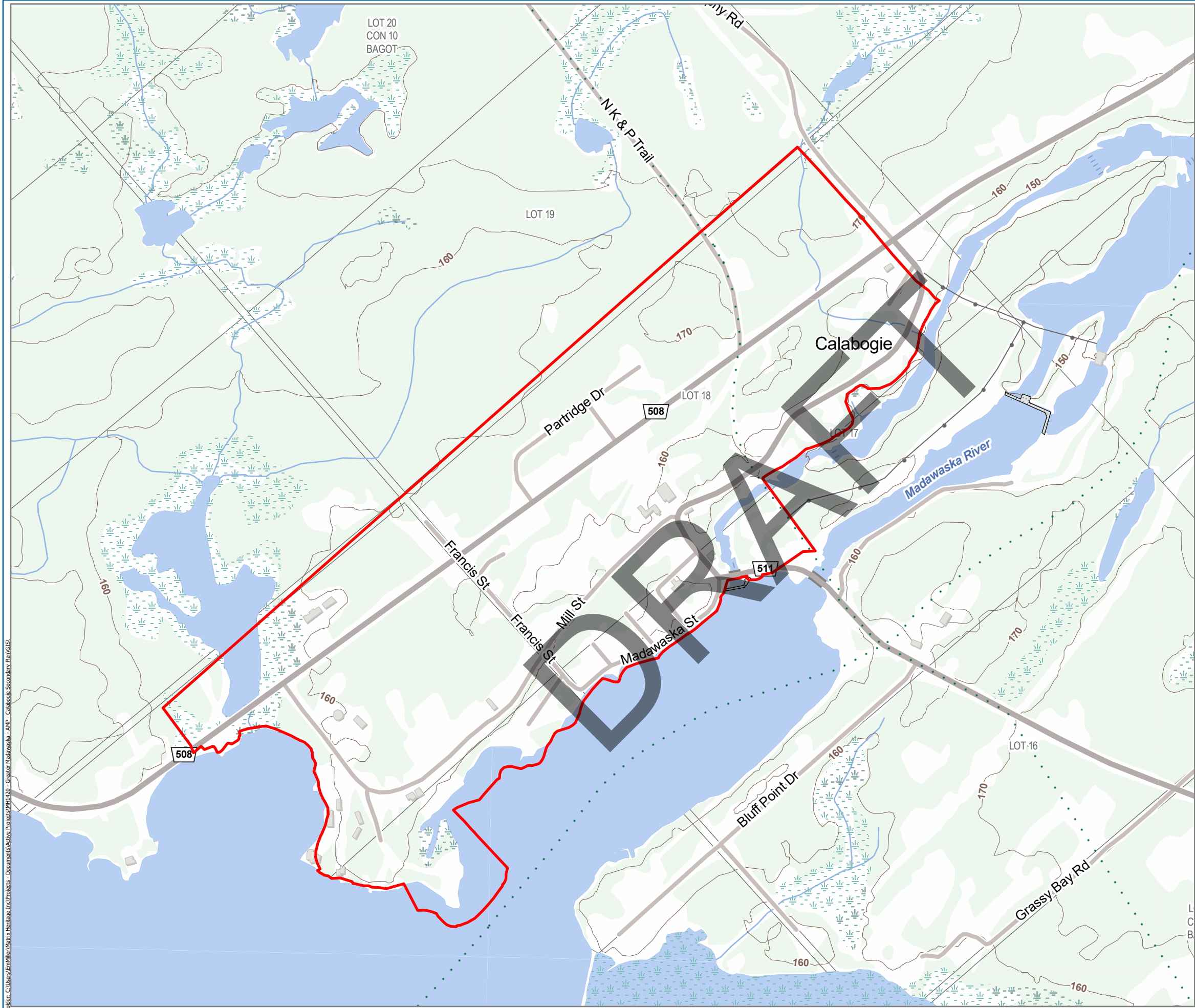
Figure 9: Our Most Precious Blood Catholic Church.



Figure 10: The home on Moffat Street that was once St. Mary's Anglican Church.

12.0 Maps

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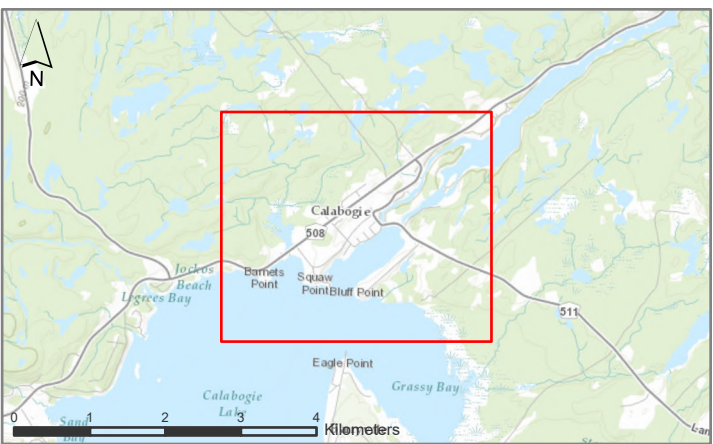
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STUDY AREA



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TITLE LOCATION	MAP 1



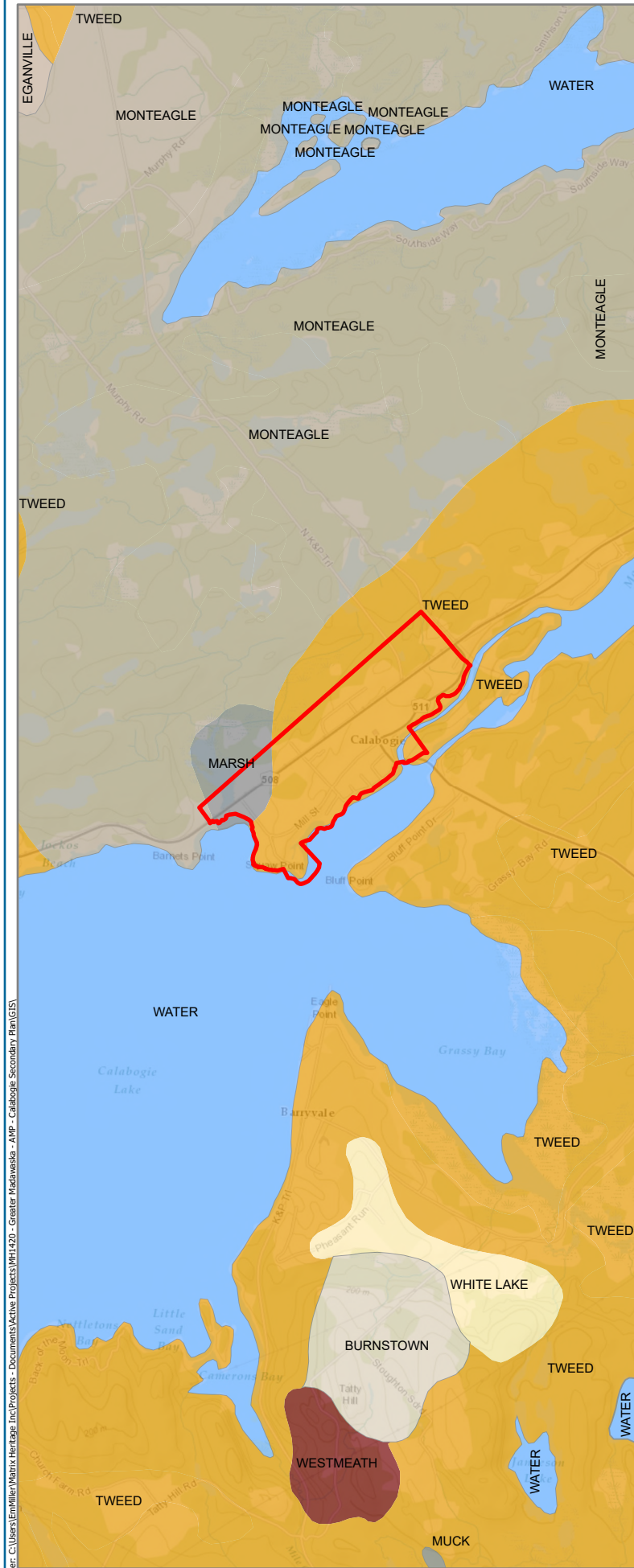
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-  STUDY AREA
- ONTARIO WATERBODIES
 -  PERMANENT STREAM/RIVER
 -  WATER
 -  WETLAND WITH SIGNIFICANCE

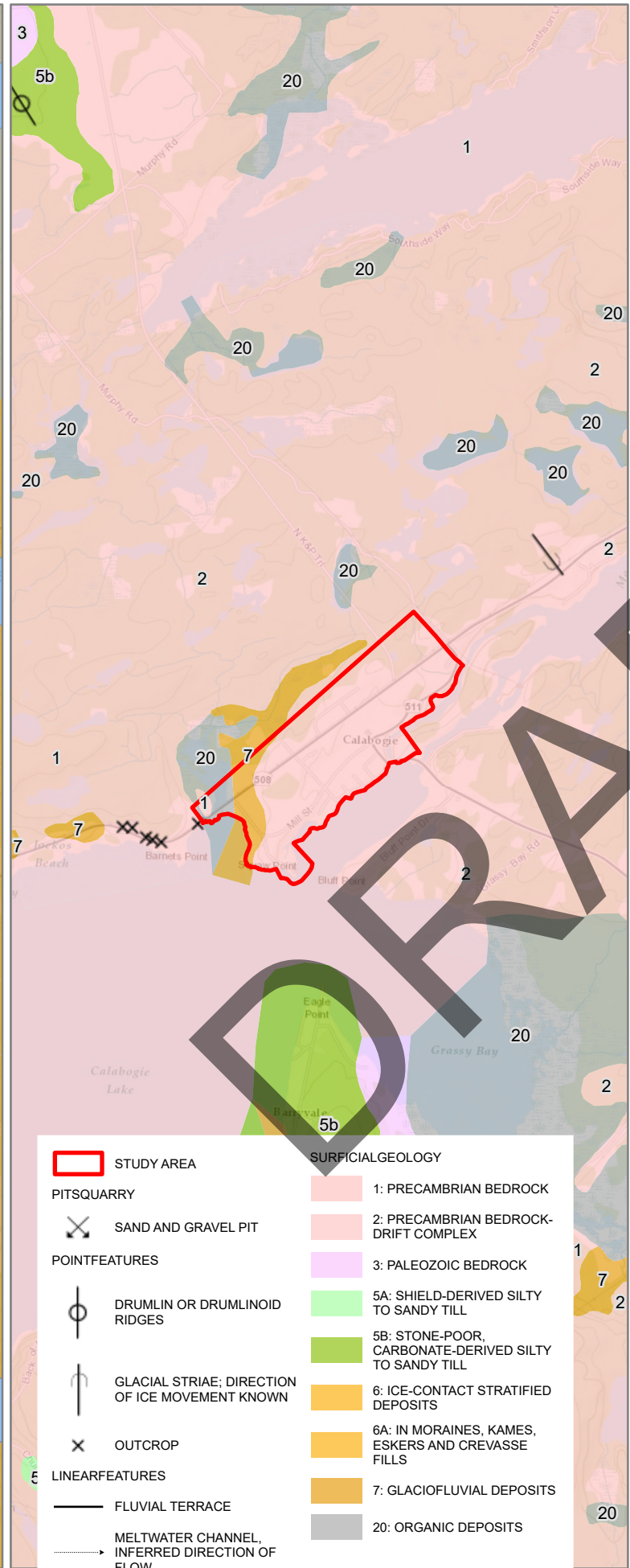


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MAP BY GOVERNMENT OF CANADA.

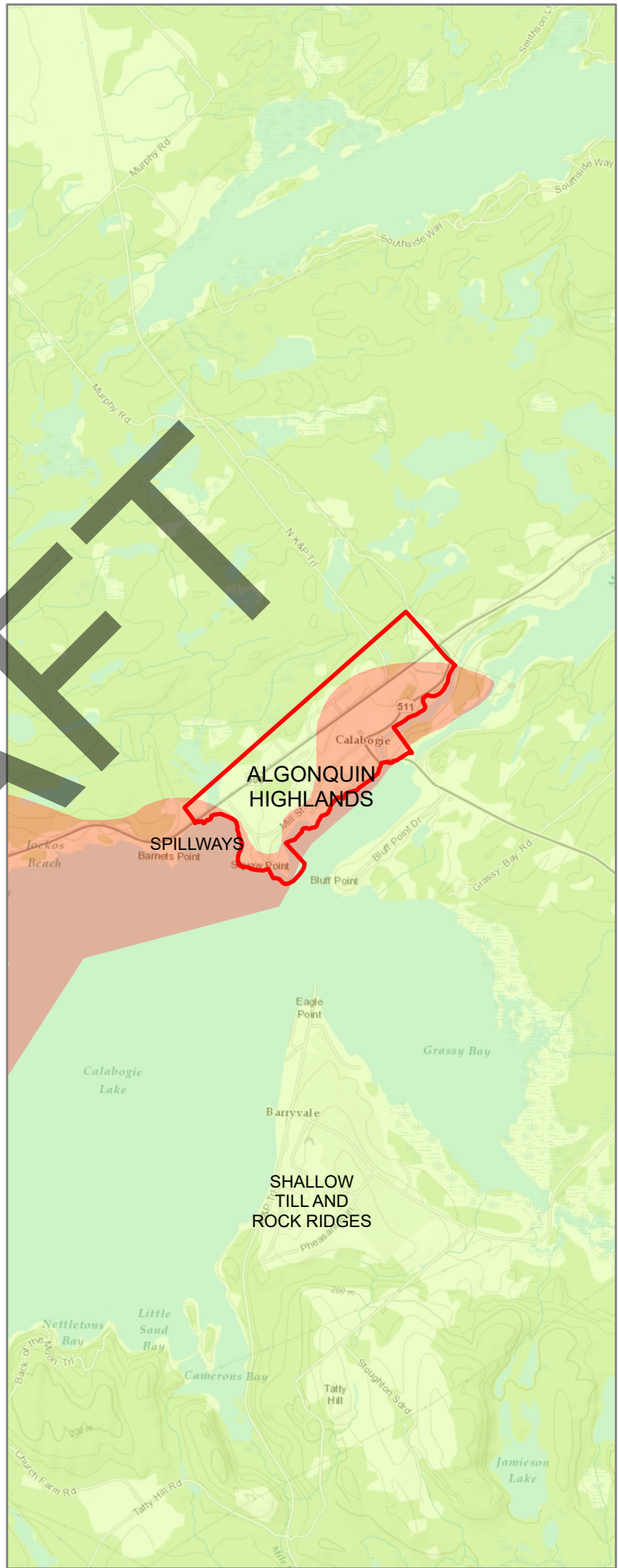
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TITLE SIGNIFICANT WATERBODIES	MAP 2



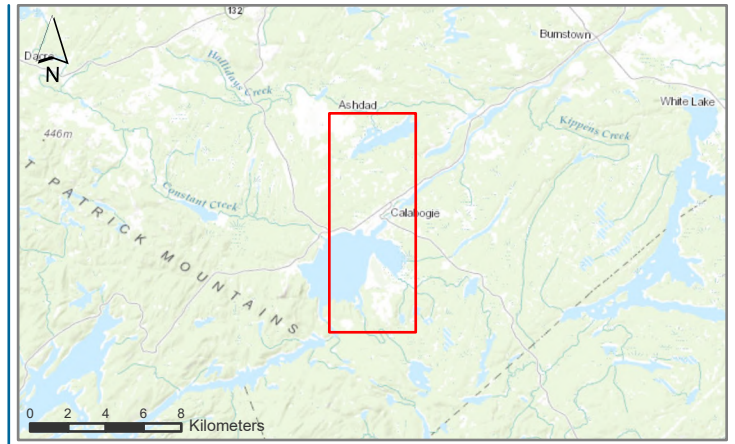
SOIL SURVEY COMPLEX



SURFICIAL GEOLOGY



PHYSIOGRAPHY



LEGEND

STUDY AREA

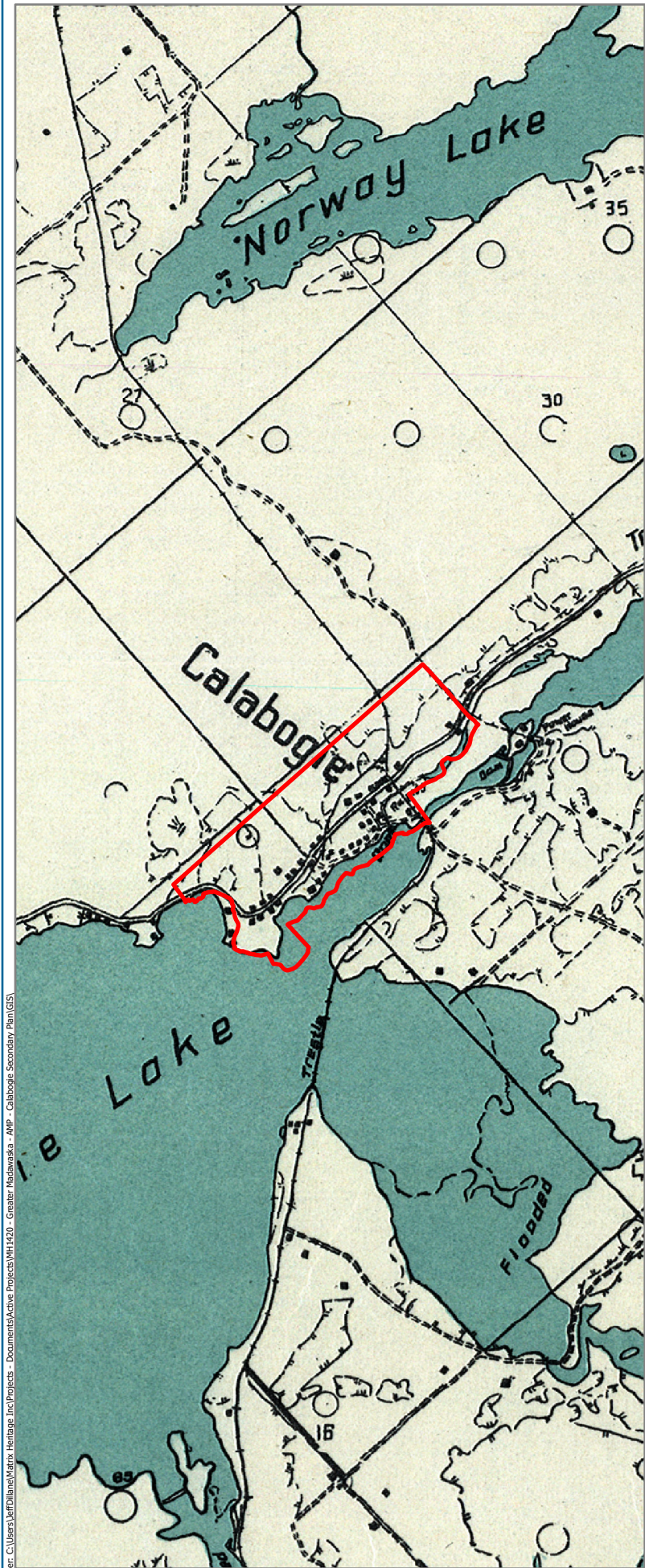


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REFERENCES:
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 SURFICIAL GEOLOGY OF SOUTHERN ONTARIO 2003
 CHAPMAN AND PUTNAM 2007 PHYSIOGRAPHY OF SOUTHERN ONTARIO

FILEMH1420 DATE 2026-03-05
 PROJECTION: NAD 1983 UTM Zone 18N CREATED BY: EM
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 ARCHAEOLOGICAL MANAGEMENT PLAN; CALABOGIE,
 GREATER MADAWASKA, ON

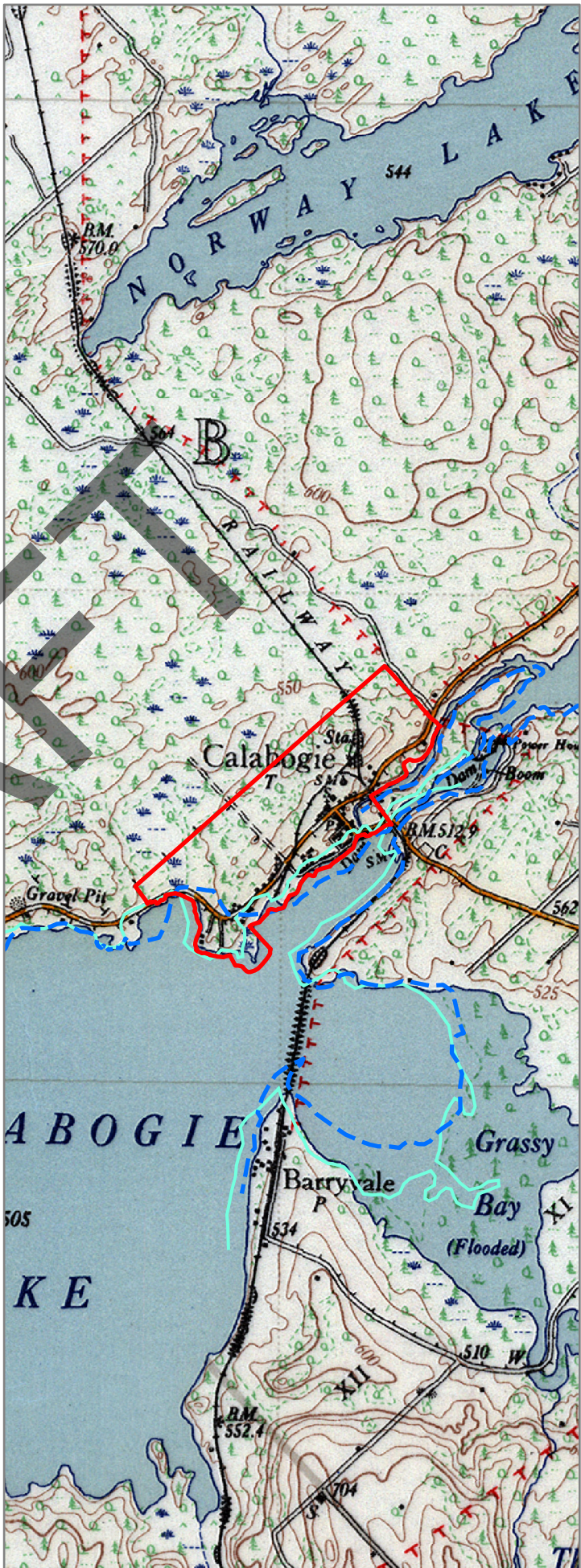
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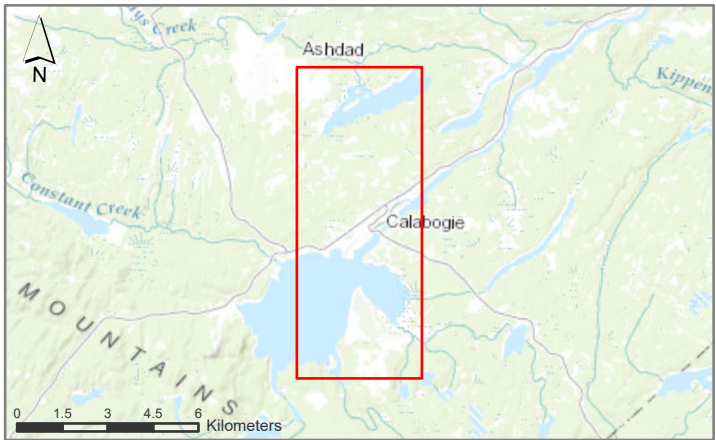
1936 TOPOGRAPHIC



1951 ENERGY AND MINES



2025 TOPOGRAPHIC



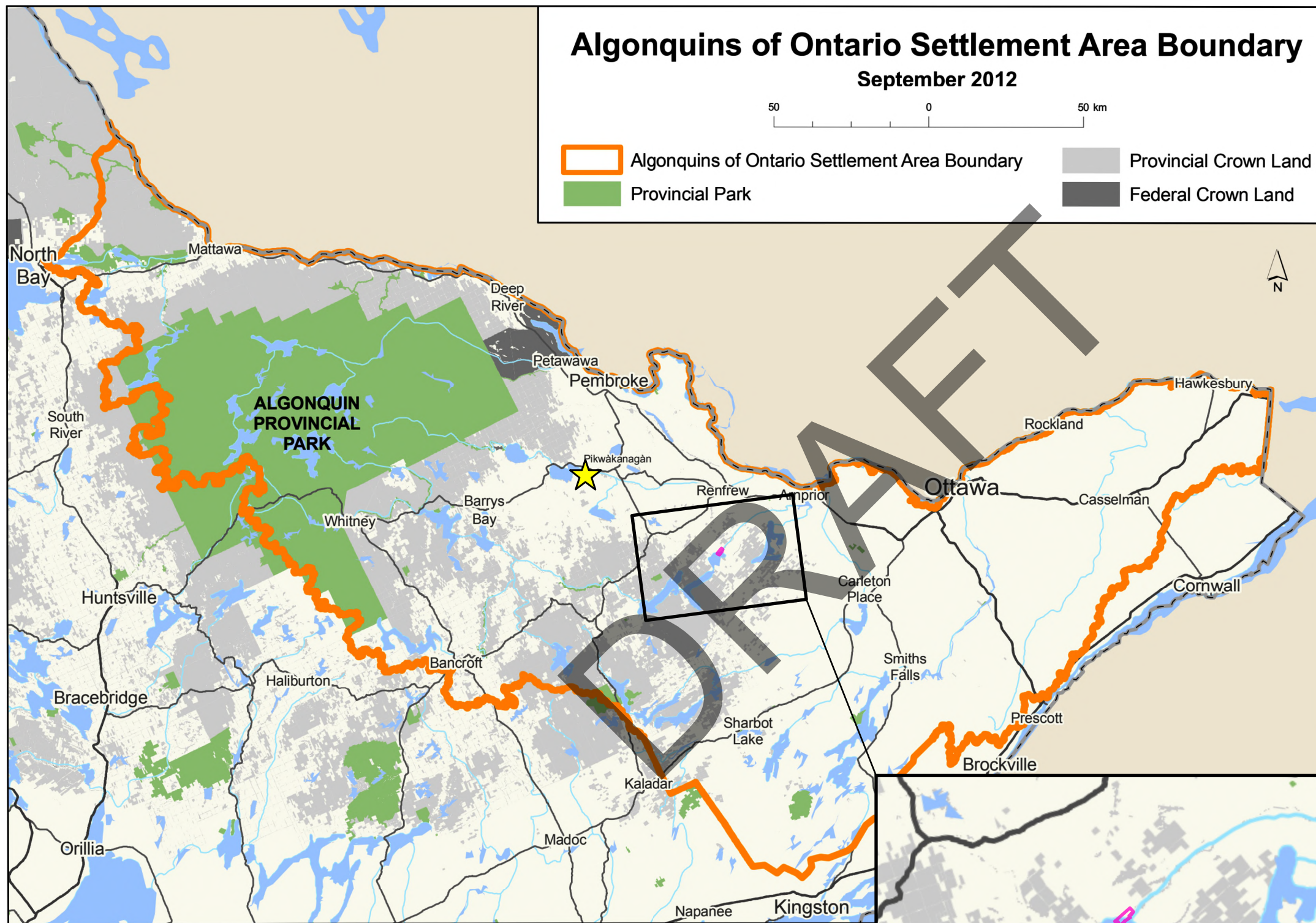
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- OLD SHORELINES
- 1936 SHORELINE
 - 1951 SHORELINE
 - STUDY AREA



REFERENCES:
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1936 TOPOGRAPHICAL MAP OF RENFREW, ONTARIO, FROM SURVEYS BY THE ROYAL CANADIAN AIR FORCE, FOR THE DEPARTMENT OF MILITIA AND DEFENCE, CANADA.
SEGEMENT OF 1951 MAP OF RESOURCES, DEPARTMENT OF ENERGY AND MINES, CANADA.

FILE MH1420
PROJECTION: Name: NAD 1983 UTM Zone 18N
PROJECT
ARCHAEOLOGICAL MANAGEMENT PLAN; CALABOGIE, GREATER MADAWASKA, ON

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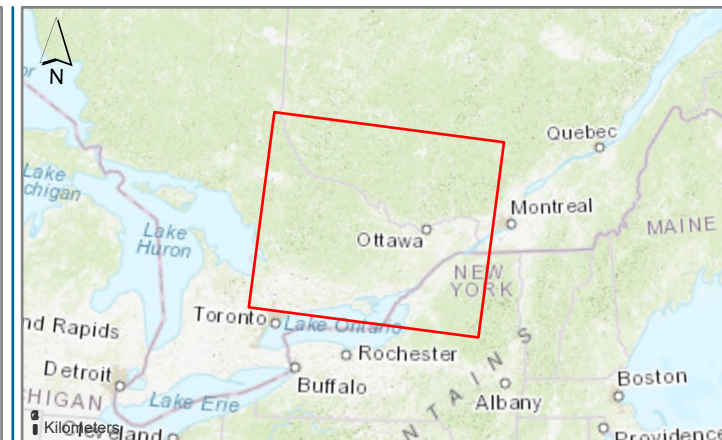


Algonquins of Ontario Settlement Area Boundary

September 2012

50 0 50 km

- Algonquins of Ontario Settlement Area Boundary
- Provincial Park
- Provincial Crown Land
- Federal Crown Land



LEGEND

- STUDY AREA
- ALGONQUINS OF PIKWAKANAGAN RESERVE



0 19,000 38,000 57,000 76,000 Meters 1:1,500,000

REFERENCES:
ESRI, HERE, GARMIN, FAO, NOAA, USGS, EPA, AAFC, NRCAN
MAP BY GOVERNMENT OF CANADA.

FILEMH1420 DATE 2026-03-05

PROJECTION: NAD 1983 UTM Zone 18N CREATED BY: EM

PROJECT
ARCHAEOLOGICAL MANAGEMENT PLAN; CALABOGIE,
GREATER MADAWASKA, ON CHECKED BY: NK

TITLE ALGONQUIN LAND CLAIM MAP 5



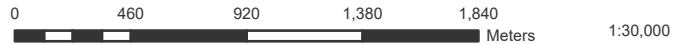
WALLING 1863



BELDEN 1879

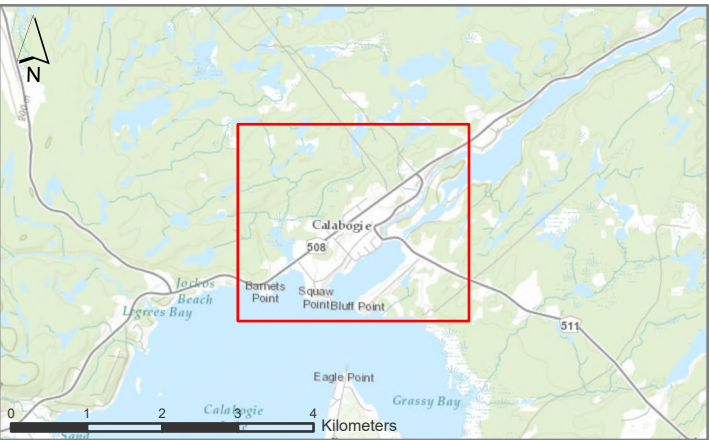


LEGEND
[Red rectangle] STUDY AREA



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1863 MAP OF THE COUNTIES OF LANARK AND RENFREW CANADA WEST FROM ACTUAL SURVEYS UNDER THE DIRECTION OF H.F. WALLING
1879 MAP OF BAGOT TOWNSHIP IN THE UNITED COUNTIES OF LANARK AND RENFREW, BELDEN.

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PROJECTION: NAD 1983 UTM Zone 18N	CREATED BY: EM
PROJECT ARCHAEOLOGICAL MANAGEMENT PLAN; CALABOGIE, GREATER MADAWASKA, ON	CHECKED BY: NK
TITLE HISTORIC	MAP 6



LEGEND

STUDY AREA

ROADWAYS

- COUNTY ROAD
- MUNICIPAL ROAD
- PRIVATE ROAD

DISCONTINUED RAILWAYS

- SECTION OF THE KINGSTON & PEMBROKE RAILWAY

KINGSTON AND PEMBROKE RAILWAY CORRIDOR

- TRAIL

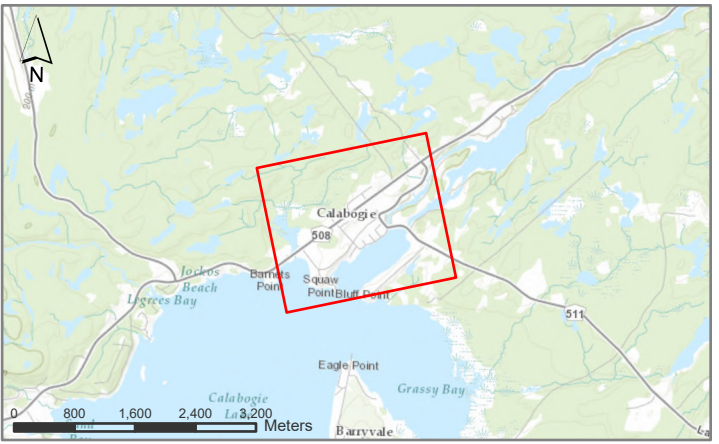
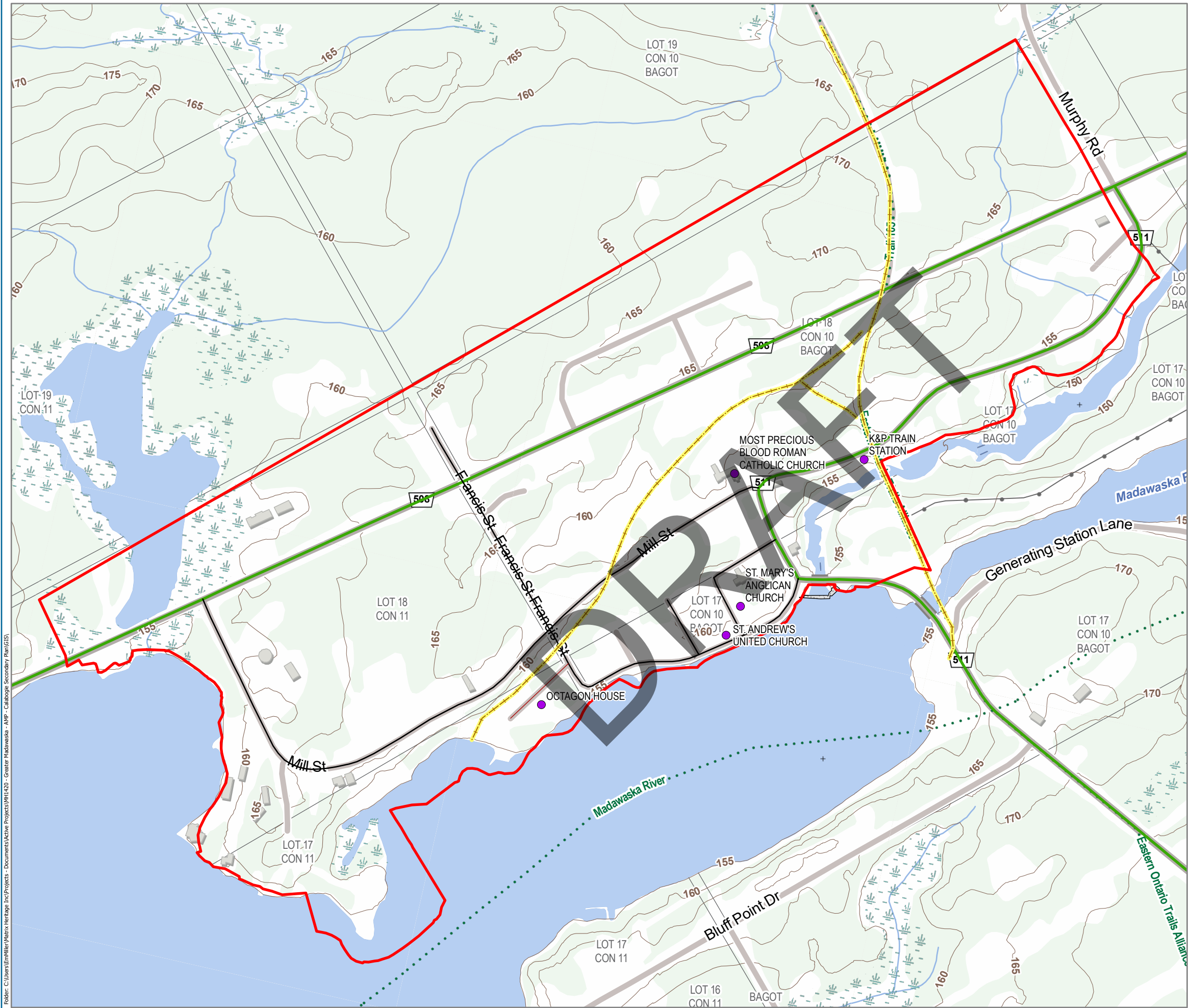
WATER COURSES

- PERMANENT STREAM/RIVER
- WETLAND WITH SIGNIFICANCE



REFERENCES:
[HTTPS://WWW.ONTARIO.CA/PAGE/OPEN-GOVERNMENT-LICENCE-ONTARIO](https://www.ontario.ca/page/open-government-licence-ontario) , [HTTPS://WWW.ONTARIO.CA/PAGE/OPEN-GOVERNMENT-LICENCE-ONTARIO](https://www.ontario.ca/page/open-government-licence-ontario), VANTOR, PROVINCE OF ONTARIO, ONTARIO MNR, ESRI CANADA, ESRI, HERE, GARMIN, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA, AAFC, NRCAN
MAP BY GOVERNMENT OF CANADA.

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TITLE	MAP
SITE PLAN	7



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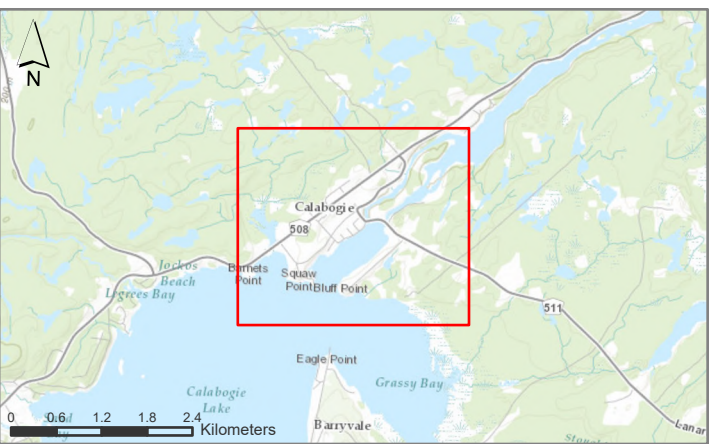
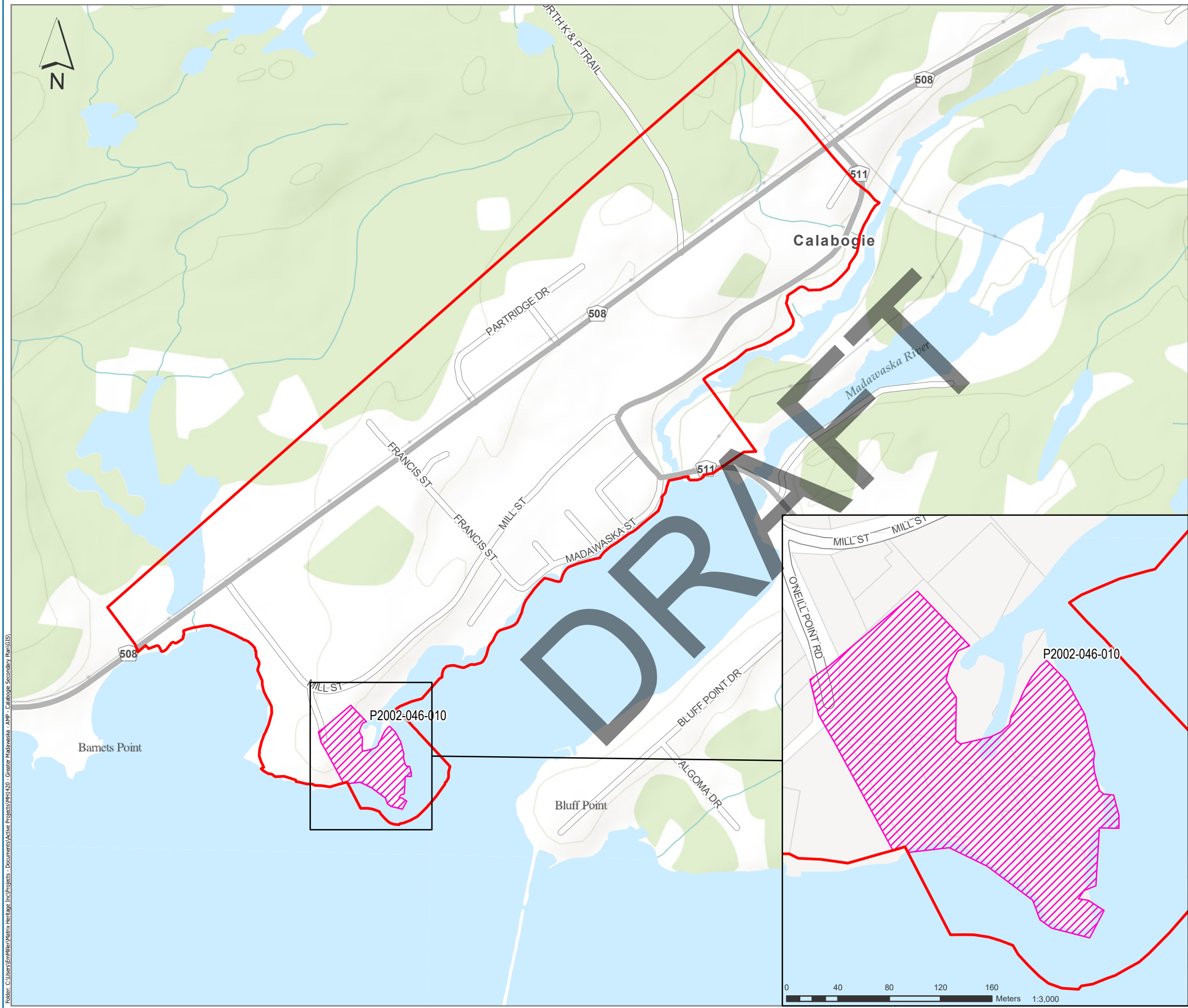
- STUDY AREA
- HISTORIC BUILDINGS
- HISTORIC ROADWAYS**
- COUNTY ROAD
- MUNICIPAL ROAD
- PRIVATE ROAD
- DISCONTINUED RAILWAYS**
- KINGSTON AND PEMBROKE RAILWAY



REFERENCES:
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PROJECT ARCHAEOLOGICAL MANAGEMENT PLAN; CALABOGIE, GREATER MADAWASKA, ON	
TITLE HISTORICAL FEATURES	MAP 8

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STUDY AREA

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REFERENCES:
SOURCES: ESRI, VANTOR, AIRBUS DS, USGS, NGA, NASA, CGIAR, N ROBINSON, NCEAS, NLS, OS, NMA, GEODATASTYRELSEN, RIJKS WATERSTAAT, GSA, GEOLAND, FEMA, INTERMAP, AND THE GIS USER COMMUNITY, PROVINCE OF ONTARIO, ONTARIO MNR, ESRI CANADA, ESRI, HERE, GARMIN, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA, AAFC, NRCAN

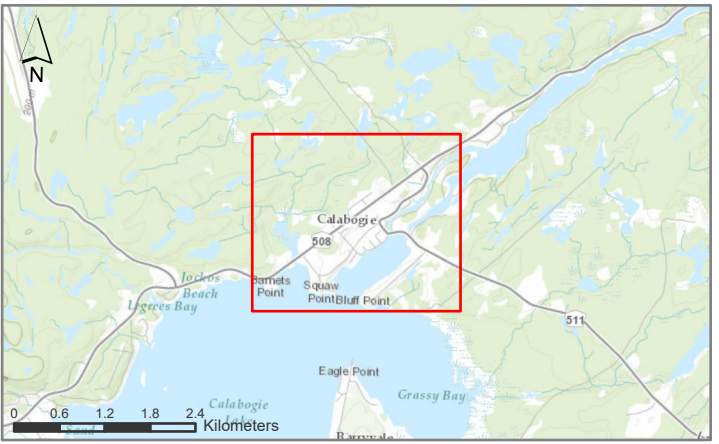
FILE MH1420 DATE 2026-03-05

PROJECTION: NAD 1983 UTM Zone 18N CREATED BY: EM

CHECKED BY: NK

PROJECT
ARCHAEOLOGICAL MANAGEMENT PLAN; CALABOGIE,
GREATER MADAWASKA, ON

TITLE PREVIOUS ARCHAEOLOGICAL ASSESSMENTS MAP 9



LEGEND

HIGH ARCHAEOLOGICAL POTENTIAL

-  TERRESTRIAL
-  MARINE
-  LOW POTENTIAL/DISTURBED

PREVIOUSLY ASSESSED

-  NO FURTHER WORK RECOMMENDED
-  FURTHER WORK RECOMMENDED



REFERENCES:
VANTOR, PROVINCE OF ONTARIO, ONTARIO MNR, ESRI CANADA, ESRI, HERE, GARMIN,
INCREMENT P, USGS, METI/NASA, EPA, USDA, AAFC, NRCAN
1999 POTENTIAL MAPPING FROM GEOOTTAWA

FILE MH1420 DATE 2026-03-06

PROJECTION: NAD 1983 UTM Zone 18N CREATED BY: EM
CHECKED BY: NK

PROJECT
ARCHAEOLOGICAL MANAGEMENT PLAN; CALABOGIE,
GREATER MADAWASKA, ON

TITLE MAP
ARCHAEOLOGICAL POTENTIAL MOD

Appendix A: Map Catalogue

Map Number	Description	Created By
1	Location	E. Miller
2	Significant Waterbodies	E. Miller
3	Geology and Soils	E. Miller
4	Historic Topographic	E. Miller
5	Algonquin Land Claim	E. Miller
6	Historic	E. Miller
7	Site Plan	E. Miller
8	Historic Features	E. Miller
9	Previous Assessments	E. Miller
10	Potential Model	E. Miller

DRAFT

Appendix E: Cultural Heritage Resource Assessment





ORIGINAL REPORT

Cultural Heritage Resource Assessment
Calabogie, Greater Madawaska Township
Renfrew County, Ontario

Prepared For
Township of Greater Madawaska
Renfrew County, Ontario

27 March 2026

Submitted By
Natalie Anderson Rathwell
MA, CAHP
Senior Architectural Historian
& Heritage Consultant
Matrix Heritage

Report: MH1387-REP.01

Matrix Heritage Inc.
6131 Perth Street, Richmond
Ontario K0A 2Z0
Tel: (613) 807-2071
www.MatrixHeritage.ca

Executive Summary

Matrix Heritage was contracted by Republic Urbanism (Republic) on behalf of the Township of Greater Madawaska, ON, to complete a Cultural Heritage Resource Assessment (CHRA) in support of the development of a Secondary Plan for the Village of Calabogie (Calabogie).

The purpose of the CHRA is to ensure that properties of cultural heritage value or interest (CHVI) are appropriately identified, understood, and conserved as part of an up-to-date planning framework for Calabogie. The CHRA identifies known and potential cultural heritage resources (CHRs), including built heritage resources (BHRs) and cultural heritage landscapes (CHLs), within the study area and provides appropriate policy recommendations and recommendations for further reporting to support the conservation of CHRs.

- Nineteen (19) potential BHRs were identified within the study area (see section 6.1, and Table 1).
- Calabogie Lake, as a whole, has potential to be understood as a CHL and is recommended for further study, separate from that of the Village of Calabogie Secondary Plan.

The Village of Calabogie offers significant opportunities for interpretation and development that conserves the valued aspects of Calabogie's history in the form of both physical cultural heritage resources and intangible values. Specific recommendations for the conservation and interpretation of CHRs are identified in section 7.0.

The following policies are recommended for inclusion in the Village of Calabogie Secondary Plan:

1. Built heritage resources and cultural heritage landscapes of the Village of Calabogie shall be conserved and enhanced.
2. New development, site alterations, building alterations, and additions shall be sympathetic with the design of surrounding built heritage resources and cultural heritage landscapes.
3. Preservation, rehabilitation, and restoration, including adaptive reuse, of built heritage resources in keeping with the *Standards and Guidelines for the Conservation of Historic Places in Canada* will be encouraged and supported in order that they remain in active use.
4. The cultural heritage of the Village of Calabogie shall be promoted through establishment of a cohesive Interpretation Plan, and corresponding interpretive actions centred on the themes of Anishinabe Algonquin Knowledge and History, Industrial and Settlement History, and Tourism History.
5. Development within the Village of Calabogie shall be in keeping with the character of the Village, which includes its:
 - a. Small-town atmosphere and welcoming feel, supported by:
 - i. Walkability
 - ii. Accessibility of Village amenities
 - iii. Availability of housing to year-round residents
 - iv. Promotion of local businesses.

- b. Natural setting, waterfront, and outdoor lifestyle, supported by:
 - i. Public access to the waterfront
 - ii. Significant tree canopy
 - iii. Public park space
 - iv. Retention or enhancement of significant views.
- c. History and heritage, supported by:
 - i. Built heritage resources and cultural heritage landscapes
 - ii. Recognition of Anishinabe Algonquin knowledge and history
 - iii. Interpretation program.
- d. Role as a tourism destination, supported by:
 - i. Amenities accessible to seasonal and occasional visitors
 - ii. Consideration of the needs of visitors, including transportation, signage, and information
 - iii. Consideration of the relationships between year-round residents, seasonal residents, and occasional visitors.

It is additionally recommended that if Council adds any or all of the identified properties to the Cultural Heritage Register for the Township of Greater Madawaska, a map of CHRs be appended to the Village of Calabogie Secondary Plan. Adding these properties to the Register will afford them protection under the Ontario Heritage Act, including allowing the Township to request a Heritage Impact Assessment as part of a development application to ensure CHRs are appropriately conserved and integrated into proposed development and it will provide the CHRs interim protection from demolition (See section 7.1).

Report Personnel

Heritage Personnel

Lead Natalie Anderson Rathwell, MA, CAHP
Senior Architectural Historian and Heritage Consultant

Research & Reporting Assistance Giulia Santocono, MArch
Junior Architectural Historian and Heritage Consultant

Andrea Jackson, MLitt, APA
Staff Archaeologist

Archival Research Assistance Em Miller, BA

GIS Jeff Dillane, MA, APA
Archaeological Operations Manager and GIS Specialist

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(613) 807-2071

Client Representative

Michelle Blom
Partner, Urban Design and GIS
Republic Urbanism
438-377-4081
blom@republicurbanism.com

Property Information

Village of Calabogie
Geographic Township of Bagot,
Township of Greater Madawaska,
Renfrew County, Ontario

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1.0 Introduction

1.1 Purpose of the Report

Matrix Heritage was contracted by Republic Urbanism (Republic) on behalf of the Township of Greater Madawaska, ON, to complete a Cultural Heritage Resource Assessment (CHRA) in support of the development of a Secondary Plan for the Village of Calabogie (Calabogie).

The purpose of the CHRA is to ensure that properties of cultural heritage value or interest (CHVI) are appropriately identified, understood, and conserved as part of an up-to-date planning framework for Calabogie. The CHRA identifies known and potential cultural heritage resources (CHRs), including built heritage resources (BHRs) and cultural heritage landscapes (CHLs), within the study area and provides appropriate policy recommendations and recommendations for further reporting to support the conservation of CHRs. Archaeological resources or archaeological potential are beyond the scope of this CHRA and are addressed in the *Archaeological Management Plan* (Matrix Heritage, 2026). Natural heritage is outside of the scope of the CHRA and subject to separate requirements.

The results of the CHRA will inform and guide the development of the Calabogie Secondary Plan. The CHRA will identify potential heritage properties to be reviewed by the Township for potential designation or inclusion on the Township of Greater Madawaska's Heritage Register.

1.2 Approach and Methodology

The CHRA describes the cultural heritage environment relevant to the development of the Village of Calabogie through research, field review, and assessment tasks in accordance legislation and heritage best practice, including the Ontario Heritage Act, O. Reg. 9/06 and 10/06, the Pan-Canadian standards set by the *Standards and Guidelines for the Conservation of Historic Places in Canada* (Parks Canada, 2010), *Ontario Heritage Toolkit* (2025 and 2006), *Standards and Guidelines for the Conservation of Provincial Heritage Policies* (Ontario, 2010), and *Working with Cultural Landscapes* (National Capital Commission, 2023).

To meet the objectives of the report this CHRA will:

- Summarize the historic context of the study area;
- Identify existing baseline conditions within the study area, from a cultural heritage perspective, following a site visit of the study area;
- Provide an inventory of known (designated or listed), previously identified, and potential BHRs and CHLs in the study area;
- Respond to input from municipal staff, as well as from public and Indigenous engagement results;
- Recommend appropriate policies for CHRs within the Village of Calabogie Secondary Plan study area consistent with heritage best practise, the Provincial Planning Statement, Renfrew County Official Plan, and Township of Greater Madawaska Official Plan.

1.3 Qualifications of the Consultant

This Cultural Heritage Report is authored by Natalie Anderson Rathwell (the consultant). Mrs. Anderson Rathwell is a Senior Architectural Historian and Heritage Consultant for Matrix Heritage, a heritage consulting and archaeological firm based in Ottawa, Ontario. She holds a BA and MA in Art History (including architectural history) from Carleton University and completed doctoral level research in nineteenth and early twentieth-century Canadian architecture at York University. Her experience includes cultural heritage evaluation reports, heritage impact assessments, histories, cultural landscape studies, and other professional advice and reporting for private and public sector clients at the municipal, provincial, and federal level. She is a member, and current board member of the Society for the Study of Architecture in Canada, and a Professional Member of the Canadian Association of Heritage Professionals.

Giulia Santocono, MArch, Junior Architectural Historian and Heritage Consultant for Matrix Heritage assisted with research.

Mapping was completed by Jeff Dillane, MA, APA, Archaeological Operations Manager and GIS Specialist for Matrix Heritage.

1.4 Study Area

The village of Calabogie is situated at the north-eastern extent of Calabogie Lake, along the banks of both Calabogie Lake and the Madawaska River, within the Township of Greater Madawaska, Renfrew County, Ontario. The study area is a 146.16 ha village located on Lots 17 and 18, on Concessions 10 and 11, in the Geographic Township of Bagot, Township of Greater Madawaska, Renfrew County, Ontario (Map 1). The north-western boundary of the study area follows the unopened road allowance between Lot 19 and Lot 18. The south-western boundary of the study area meets the mouth of Constant Creek and the northern shoreline of Calabogie Lake. The south-eastern boundary follows the northern shore of Calabogie Lake and the Madawaska River. The north-eastern boundary follows the western side of Murphy Road.

2.0 Legislation and Policy Context

2.1 Ontario Heritage Act

The Ontario Heritage Act¹ (OHA) gives municipal and provincial authorities powers to identify and conserve individual properties and districts of cultural heritage value or interest.

2.1.1 Part IV

Part IV of the OHA pertains to the conservation of individual properties. Section 27 pertains to the establishment and maintenance of a municipal heritage register. Properties listed on the heritage register include properties fully designated under Part IV, Section 29 of the OHA, and non-designated properties, often referred to as “listed” properties, under Section 27, where the council of the municipality believes the property to be of cultural heritage value or interest, and the property meets the prescribed criteria.

2.1.1.1 O.Reg. 9/06

The *Criteria for Determining Cultural Heritage Value or Interest* for properties designated or listed under Part IV of the OHA are Ontario Regulation 9/06 (O.Reg. 9/06). A property may be listed on the heritage register if it meets one or more of the following criteria, and may be fully designated with an individual by-law under Part IV, Section 29 of the OHA if it meets two or more of the following criteria:

1. The property has design value or physical value because it is a rare, unique, representative or early example of a style, type, expression, material or construction method.
2. The property has design value or physical value because it displays a high degree of craftsmanship or artistic merit.
3. The property has design value or physical value because it demonstrates a high degree of technical or scientific achievement.
4. The property has historical value or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community.
5. The property has historical value or associative value because it yields, or has the potential to yield, information that contributes to an understanding of a community or culture.
6. The property has historical value or associative value because it demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.
7. The property has contextual value because it is important in defining, maintaining or supporting the character of an area.
8. The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings.
9. The property has contextual value because it is a landmark. O. Reg. 569/22, s. 1.

¹ The Ontario Heritage Act is available online at <https://www.ontario.ca/laws/statute/90o18 - BK32>.

2.1.2 Part V

Part V of the OHA pertains to Heritage Conservation Districts.

2.1.2.1 O.Reg. 10/06

O.Reg. 10/06 provides the *Criteria for Determining Cultural Heritage Value or Interest of Provincial Significance*.

2.2 Provincial Planning Statement

The Provincial Planning Statement, 2024 (PPS), “provides policy direction on matters of provincial interest related to land use planning and development.” Section 4.6 pertains to Cultural Heritage and Archaeology and provides the following policies:

1. *Protected heritage property*, which may contain *built heritage resources* or *cultural heritage landscapes*, shall be *conserved*.
2. Planning authorities shall not permit *development* and *site alteration* on lands containing *archaeological resources* or *areas of archaeological potential* unless the *significant archaeological resources* have been *conserved*.
3. Planning authorities shall not permit *development* and *site alteration* on *adjacent lands* to *protected heritage property* unless the *heritage attributes* of the *protected heritage property* will be *conserved*.
4. Planning authorities are encouraged to develop and implement:
 - a) archaeological management plans for conserving *archaeological resources*; and
 - b) proactive strategies for conserving *significant built heritage resources* and *cultural heritage landscapes*.
5. Planning authorities shall engage early with Indigenous communities and ensure their interests are considered when identifying, protecting and managing *archaeological resources*, *built heritage resources* and *cultural heritage landscapes*.

Section 6.2 of the PPS explains that a “coordinated, integrated and comprehensive approach should be used when dealing with planning matters,” including the management of CHRs.

The PPS provides the following definitions:

Built heritage resource: means a building, structure, monument, installation or any manufactured or constructed part or remnant that contributes to a property’s cultural heritage value or interest as identified by a community, including an Indigenous community.

Cultural heritage landscape: means a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association.

Conserved: means the identification, protection, management and use of *built heritage resources*, *cultural heritage landscapes* and *archaeological resources* in a manner that ensures their cultural heritage value or interest is retained. This may be achieved by the implementation of recommendations set out in a conservation plan, archaeological assessment, and/or heritage impact assessment that has been approved, accepted or adopted by the relevant planning authority and/or decision-maker. Mitigative measures and/or alternative development approaches should be included in these plans and assessments.

2.3 Renfrew County Official Plan

From Section 2.2.6.2 of the Official Plan of Renfrew County:

(2) Built Heritage and Cultural Landscape Resources

Council recognizes the importance of cultural heritage resources within the municipality. Therefore, Council will encourage the identification, conservation, protection, restoration, maintenance and enhancement of cultural heritage resources. All new development permitted by the land use policies and designations of this Plan shall strive to conserve cultural heritage resource and incorporate them into development plans. In addition, all new development will be planned in a manner which preserves and enhances the context in which cultural heritage resources are situated.

(a) Designation

Pursuant to the Ontario Heritage Act, and in consultation with the Municipal Heritage Committee, Council may, by by-law:

- i. designate properties to be of cultural heritage value or interest
- ii. define the municipality, or any area or areas within the municipality as an area to be examined for designation as a heritage conservation district; and
- iii. designate the municipality, or any area or areas within the municipality, as a heritage conservation district.

(b) Municipal Heritage Committees (MHC)

Pursuant to Section 28 of the Ontario Heritage Act, a municipality may establish a Municipal Heritage Committee (MHC) to advise and assist local council on matters related to Parts IV and V of the Act. Council may expand the role of the Municipal Heritage Committee to advise and assist Council on other matters of cultural heritage conservation.

(c) Municipal Register

In accordance with Section 27 of the Ontario Heritage Act, the municipal clerk shall maintain a register of all property designated under Part IV and Part V of the Ontario Heritage Act. This register may also contain properties that have heritage conservation easements placed upon them and properties that are not designated, but which are considered by Council to be of cultural heritage value or interest.

(d) Municipal Initiative

Council shall conserve cultural heritage resources by:

- i. conserving heritage buildings, cultural heritage landscapes and archaeological resources that are under municipal ownership and/or stewardship;
- ii. conserving and mitigating impacts to all significant cultural heritage resources when undertaking public works;
- iii. respecting the heritage designations and other heritage conservation efforts by area municipalities; and
- iv. respecting the heritage resources recognized or designated by federal and provincial agencies;

(e) Demolition Control for Built Heritage Resources

Council shall ensure that it has accurate and adequate architectural, structural and economic information to determine the feasibility of rehabilitation and reuse versus demolition when considering demolition applications of designated heritage properties.

(f) Heritage Impact Assessments

Council will require the preparation of a conservation plan or a heritage impact assessment to be conducted by a qualified professional whenever a development has the potential to affect a protected heritage property/ cultural heritage resource.

(g) Accessibility and Heritage Conservation

In attaining its goal for establishing a barrier-free environment, municipalities shall endeavour to provide access solutions in a manner that respects the cultural heritage value or interest of a protected property. Council recognizes that standardized designs may not always suffice and that each heritage property will require unique accessibility plans to ensure that alterations do not adversely affect the heritage attributes. Council encourages this practice for privately-owned heritage buildings that are open to and used by the public.

(h) Waste Reduction/ Adaptive Re-use

Council shall support the reduction of waste from construction debris as a result of the demolition of buildings by promoting and encouraging the adaptive reuse of older and existing building stock.

(i) Energy Efficiency and Heritage Conservation

Retrofits for achieving energy efficiency will only be undertaken in a heritage building where it is demonstrated that retrofitting can be accomplished without compromising the heritage integrity of the building.

2.4 Township of Greater Madawaska Official Plan

The Township currently operates under the County of Renfrew's Official Plan which provides overall guidance to promote growth to match the needs and visions of the local communities and Council.

DRAFT

3.0 History

3.1 History of Renfrew County

For a more complete account of the Indigenous history of the region, please see the *Archaeological Management Plan* (Matrix Heritage, 2026). Notable references for the early colonial history of Renfrew County include: *Renfrew County, People and Places*,² and *The Story of Renfrew, From the Coming of the First Settlers about 1820 to 1928*.³ Another useful resource is the Renfrew Supplement in the *Illustrated Atlas of the Dominion of Canada* Belden & Co., *Renfrew Supplement in Illustrated Atlas of the Dominion of Canada*.⁴

3.1.1 Indigenous History

Archaeological information suggests that ancestral Anishinabe Algonquin people lived in the region for at least 8,000 years before the Europeans arrived in North America. This traditional territory is generally considered to encompass the Ottawa Valley on both sides of the river, in Ontario and Quebec, from the Rideau Lakes to the headwaters of the Ottawa River.

Archaic period populations (9,500 – 2,900 B.P.) were generally hunter-gatherers with an increasing emphasis on fishing. People began to organise themselves into small family groups operating in a seasonal migration, congregating annually at resource-rich locations for social, religious, political, and economic activities. In the Boreal forests of the Canadian Shield, the Archaic period is referred to as the “Shield Archaic,” characterized by adaptations to a forested environment with a focus on hunting, fishing, and gathering, using stone tools made from locally available materials.

The Woodland Period Algonquin peoples (ca. 3000 B.P. until European contact.) had a social and economic rhythm of life following an annual cyclical pattern of seasonal movements. Subsistence was based on small independent extended family bands operating an annual round of hunting, fishing, and plant collecting. Families returned from their winter hunting camps to rejoin with other groups at major fishing sites for the summer. The movements of the people were connected with the rhythm of the natural world around them allowing for efficient and generally sustainable subsistence. Their annual congregations facilitated essential social, political, and cultural exchange.

The Algonquin peoples established significant trade networks and a dominance of the Ottawa River (in Algonquian the “Kitchissippi”) and its tributaries. The trade networks following the Ottawa River connected the Algonquins to an interior eastern waterway via Lake Timiskaming and the Rivière des Outaouais to the St. Maurice and Saguenay as well as the upper Great Lakes and interior via Lake Nipissing and Georgian Bay. From there their Huron allies would

² Carol Bennett, ed., *Renfrew County, People and Places*. (Juniper Books, 1989).

³ W. E. Smallfield and Rev. Robert Campbell, *The Story of Renfrew, From the Coming of the First Settlers about 1820 to 1928* (Pinkham Press, 1914).

⁴ Belden & Co., *Renfrew Supplement in Illustrated Atlas of the Dominion of Canada* (Toronto, ON., 1881).

distribute goods to the south and west.⁵ The Haudenosaunee (Iroquois) and their allies along the St. Lawrence River and the lower Great Lakes dominated the trade routes on those waterways to the south thus leading to a rivalry that would escalate with European influence.

3.1.2 European Contact

Champlain made note of the “Algonmequins” and his encounter with them in 1603, yet the initial contact between Champlain and the Algonquin people within their own territory in the Ottawa Valley was during his travels of exploration in 1613. By the time of Champlain’s 1613 journey, including the immediate vicinity of Cobden, ON, the Anishinabe Algonquin people along the Ottawa River Valley were important middlemen in the rapidly expanding fur-trade industry. Champlain knew this and wanted to form and strengthen alliances with the Algonquins to further grow the fur-trade, and to secure guidance and protection for future explorations inland and north towards a potential northwest passage.

By the mid-17th century, the demands of the fur trade had caused major impacts to the traditional way of life including a change in tools, weapons, and a shift in diet to more European as hunting was more for furs and not for food, which resulted in a greater dependence on European settlements. As the economies of both communities became more entwined, the French, as well as other Europeans like the Dutch and English, were able to align their own political and economic rivalries with those of the native populations. The competitive greed and obsession with expanding the fur trade entrenched the rivalries that were already in place, and these were intensified by European weapons and economic ambition.

Through the 1630s and 40s constant and increased raiding into Anishinabe Algonquin, Michi Saagiig, and Chippewa territory by the Haudenosaunee nations had forced many multi-generational residents to leave their lands in seek protection from their French allies in places like Trois Rivières and Sillery while others fled to the north. As the Anishinabe Algonquin sought refuge amongst their French allies, other factors came into play that significantly contributed to their displacement and near destruction including the introduction of European diseases, the devastating influence of alcohol, and the increasing pressure to convert to Christianity.

Some Anishinabe Algonquin people began to return to their traditional territory to join those groups who had remained in the lower Ottawa Valley and continued their traditional lifeway through to the influx of European settlement in the late 1700s and early 1800s when development pressures and assimilation policies implemented by the colonial government saw Indigenous lands taken up, albeit under increasing protest and without consideration for Indigenous claims, for settlement and industry. Anishinabe Algonquin lands began to be encroached upon by white settlers involved in the booming lucrative logging industry or having been granted the land as Loyalist soldiers or through other settler groups. Anishinabe Algonquin people continue to live in the wider Ottawa Valley and there are still many speakers of several Algonquian dialects.

⁵ Jean-Francois Moreau, F. Guindon, and E. Langevin, “The Northern Route, between the Saguenay and Georgian Bay: Construction of a Hypothesis,” in *Contact in the 16th Century*, Mercury Series, Archaeology Paper 176 (Ottawa: Canadian Museum of History and the University of Ottawa Press, 2016).

3.1.3 Settlement

The area that is now Renfrew County was originally part of the Johnstown District, which was formed in 1798 when the new Parliament of Upper Canada subdivided the territory of the Eastern District. In 1822, the Johnstown District territory was reduced with the creation of the Bathurst District, the northernmost portion of the former district. The Bathurst district contained Carleton County. In 1824, Lanark County was created from part of Carleton County, which originally comprised ten townships and the remainder of unsurveyed lands within the Bathurst District including what would become Renfrew County. In 1838, Carleton County was withdrawn to create the Dalhousie District, and the Bathurst District was reorganized. Renfrew County was removed from the remaining portion of Lanark County, but the two remained united for electoral purposes. Renfrew county originally contained six townships, and by 1845 all ten townships within the county had been surveyed. In 1850, the Bathurst District was abolished, and the "United Counties of Lanark and Renfrew" replaced it for municipal and judicial purposes. The United Counties were dissolved in 1866.⁶

The Upper Ottawa Valley was an area rich in natural resources and Europeans were drawn there initially to exploit its vast timber supplies through the excellent accessibility to the area provided through the Ottawa and Madawaska Rivers. One of the earliest lumber firms to cut timber in what would later become McNab Township, were the McConnell Brothers of Hull. As early as 1812 this firm cut squared timber in the area seasonally and soon "the banks of the Madawaska were denuded of their choicest timber before the advent upon the scene of the pioneer settler."⁷ Temporary lumber camps began to dot the landscape and the transient workforce that worked them were fed by squatters who would clear and farm the lands near them. The earliest European squatters of the township settled on government land with the intention to acquire legal title before the township was surveyed in the early 1824.

The Geographic Township of Bagot was first surveyed in 1842 and opened for European settlement in 1843.⁸ In the early days of settlement, communities developed around the needs of the logging men beginning with hotels and general stores. The most prominent early community was Springtown which became superseded by the community of Calabogie following the arrival of the Kingston and Pembroke Railway in the early 1880s.⁹ It is unclear where the name Calabogie comes from, some claim it is based on an Indigenous word for sturgeon, others say it derives from the Gaelic "Calladh Bogaigh" meaning marshy bay. The township of Bagot amalgamated with four other original townships (Blythfield, Brougham, Griffith, and Madawatchin) in 2001 to form the Township of Greater Madawaska.

⁶ Smallfield and Campbell, *The Story of Renfrew, From the Coming of the First Settlers about 1820 to 1928*, 191.

⁷ Belden & Co., *Renfrew Supplement in Illustrated Atlas of the Dominion of Canada*, 51.

⁸ Jesse E. Middleton, *The Province of Ontario: A History 1615-1927* (Toronto: Dominion Publishing, 1927).

⁹ Bill Graham, "A Look Back at Griffith and Matawatchan," *Township of Greater Madawaska*, 2021. <https://www.greatermadawaska.com/play-and-discover/history-and-culture/griffith-and-matawatchan/>

3.2 Study Area Specific History

For the village of Calabogie notable resources include *Calabogie: Timber, Trains & Tourists* (Robillard, 2009), which presents an extremely thorough, well researched and well illustrated account of the village, *A History of Calabogie* (Clarke, 1967), and *Tweedsmuir History: Calabogie Women's Institute* (Calabogie Women's Institute).

3.2.1 Indigenous History

The settlement of Calabogie is situated within the traditional territory of the Anishinabe Algonquin people, who have inhabited the Ottawa Valley for thousands of years.¹⁰ The Madawaska River and Calabogie Lake served as vital transportation corridors and seasonal settlement sites, offering prolific hunting and fishing resources.¹¹ Grassy Bay, a significant wetland on the lake, remains a protected area due to its historic and contemporary importance as a source of wild rice (manoomin), which remains a food staple that is protected for the reason of cultural significance.¹²

3.2.2 Settlement and Development History

While the region's lumbering era began as early as 1806, significant European settlement and infrastructure development followed the construction of a timber slide at High Falls in 1838.¹³ This improvement facilitated the movement of timber down the Madawaska River, attracting shantymen and early pioneers who established stopping places and mills at the foot of Calabogie Lake.¹⁴ Robillard's history describes the rough early character of the place, including several tales of untimely deaths. By 1851, the locality known as "Calaboga Mills" featured a grist and sawmill on the island at the lake's outlet, serving a growing population of Scottish and Irish settlers.¹⁵

The village's socio-economic character was transformed in 1833 by the arrival of the Kingston and Pembroke Railway, (the K&P, or "Kick and Push") which linked the remote highlands to major commercial centers.¹⁶ The rail connection spurred the registration of an official village plan in 1886 and transitioned the local economy from strictly timber-based to one diversified by mining and emerging tourism.¹⁷ The discovery of graphite in 1889 led to the establishment of the Black Donald Graphite Mine, which became one of the world's most significant producers of the mineral.¹⁸ An official village plan was registered in 1886, establishing the current street grid.¹⁹

¹⁰ Irene Robillard, *Calabogie: Timber, Trains & Tourists* (General Store Publishing House, 2009), 5.

¹¹ Robillard, *Calabogie*, 6.

¹² Robillard, *Calabogie*, 5.

And Bill Graham, Wes Bomhower, and Alfred Clarke, "Calabogie," Township of Greater Madawaska, 2025, <https://www.greatermadawaska.com/play-and-discover/history-and-culture/calabogie/>.

¹³ Robillard, *Calabogie*, 9–10.

¹⁴ Robillard, *Calabogie*, 10–13, 19.

¹⁵ Robillard, *Calabogie*, 25, 27.

¹⁶ Robillard, *Calabogie*, 45.

¹⁷ Robillard, *Calabogie*, 43, 57.

¹⁸ Robillard, *Calabogie*, 81, 83.

¹⁹ Robillard, *Calabogie*, 81–83.

The Village's core developed along Madawaska Street and Carswell Street (now Lanark Road), featuring prominent hotels such as the Legree House (1871) and the Moran Hotel.²⁰ Institutional development followed with the construction of the Calabogie Village Public School (1895), and the establishment of four major churches between 1886, 1896: Methodist, Presbyterian, Anglican (St. Mary's), and Roman Catholic (Church of the Most Precious Blood).²¹ Modernization continued in 1917 with the construction of a hydroelectric power plant at the foot of the lake by M.J. O'Brien, which eventually facilitated the transition of the area into a four-season recreational and tourism destination.²²

In the early 20th century, the community modernized further with the construction of a hydroelectric powerhouse at the foot of the lake in 1916, providing electricity to the village and surrounding industries.²³ As the extractive industries waned in the mid-century, the area's rugged landscape and rail access fostered its evolution into a prominent four-season recreational destination within the Township of Greater Madawaska.²⁴

3.2.2.1 Churches

The first church constructed in Calabogie was a wooden Methodist Chapel constructed between 1886-1887 just east of what is now Hillside Cemetery, west of the island at the foot of the lake on an acre sold to the congregation by the appropriately named William Church.²⁵ Prior to the construction of this chapel, worship would have been conducted in homes. As in most settlement communities, this first church was used by all Protestants until other churches were built. The Methodist Chapel no longer exists.

In 1892 two more churches were constructed. An Anglican church, St. Mary's Church, was built on the hill on Mowat Street at 16 Mowat Street. Records suggest the church only operated until 1917. Sometime before 1931 it was sold to George D. Charbonneau who turned the building into a home and business.²⁶

That same year, 1892, the first cornerstone of the Presbyterian Church of Calabogie, today St. Andrew's United Church, was laid and opened for worship later that year.²⁷ The majority of Canadian Presbyterian, Methodist, and Congregationalist churches amalgamated by an Act of Parliament to form the United Church of Canada in 1925. In 1979 the spire and bell of the church were removed, and a replaced by a shorter pyramidal roof to act as the spire and cap the tower. A mid-century hall adjoins the church on its east side. St. Andrew's United remains a center for worship and community in the village and a visual focal point for views towards Calabogie from the south.

Dennis Dillon donated the land for the roman catholic church, Church of the Most Precious Blood in 1896. As the Roman Catholic congregation grew, Calabogie became a parish in 1913, with missions located in Black Donald and Springtown. The priest at the time, Father W. H. Dooner, initiated a fundraising campaign in order to build a brick presbytery, two-room

²⁰ Robillard, *Calabogie*, 57–58.

²¹ Robillard, *Calabogie*, 60–68.

²² Robillard, *Calabogie*, 41, 66–67.

²³ Robillard, *Calabogie*, 94–95.

²⁴ Robillard, *Calabogie*, 53, 87.

²⁵ Robillard, *Calabogie*, 55, 66–68.

²⁶ Robillard, *Calabogie*, 66–68, 105.

²⁷ Robillard, *Calabogie*, 66–68.

school, barn, and stable.²⁸ The teaching staff at the school were the Sisters of Saint Joseph of Pembroke. An adjacent convent was later built for the nuns in 1924.

Both St. Andrew's United Church and the Church of the Most Precious Blood are each representative examples of churches constructed for their respective Christian denominations in the context of a small rural community, in their positioning relative to the surrounding village, massing, and architectural details.

3.2.2.2 History of Octagon Houses & Buildings

The Octagon House at Calabogie is the Village's most distinctive work of architecture. Originally an office for the Carswell Mill, the brick, post and beam building was constructed sometime after the Mill's establishment in 1884.²⁹ (The Mill operated until 1924, and the Mill building was dismantled in 1934). The building was converted into a home by artist Sheila Fletcher and her husband Wally Fletcher in 1984 and was concurrently used as the Octagon Gallery for twenty-five years.

While octagonal structures have roots tracing back to antiquity, often used in conjunction with funerary structures and later in Christian baptistries, round and octagonal structures emerged as structures facilitating the surveillance of a large number of people by a few in the work of English philosopher and social theorist Jeremy Bentham beginning with his publication *Panopticon; or, the Inspection-House* in 1787. *Panopticon* introduces its concept as,

“the idea of a new principle of construction applicable to any sort of establishment, in which persons of any description are to be kept under inspection; and in particular to penitentiary-houses, prisons, houses of industry, work-houses, poor-houses, lazarettos, manufactories, hospitals, mad-houses, and schools: with a plan of management adapted to the principle.”³⁰

Octagon houses represent a comparatively rare nineteenth-century building form in Ontario and across North America, with their principal period of popularity generally situated in the mid-nineteenth century. In Ontario, the type is commonly associated with the period c. 1850-1880, reflecting a brief but influential architectural fashion rather than a long-lived vernacular tradition.³¹ The style's best-known advocate was Orson Squire Fowler (1809–1887), a phrenologist and publisher who, in 1849, issued *A Home for All*, securing a place in North American architectural history through his promotion of the eight-sided plan.³² Fowler framed the octagon less as an aesthetic novelty than as a practical geometry: he argued that an eight-sided polygon approximated the circle - what he considered “nature's ideal” - and demonstrated mathematically that, for a comparable perimeter, an octagon could enclose substantially more interior area (often summarized as “one-fifth more”) than a square.³³ Consistent with his

²⁸ Robillard, *Calabogie*, 80.

²⁹ Robillard, *Calabogie*, 106, 148.

³⁰ Jeremy Bentham, *Panopticon; or, the Inspection-House*, 1787. Online at https://en.wikisource.org/wiki/Panopticon_or_the_Inspection-House

³¹ Pennsylvania Historical and Museum Commission, *Octagon Style, 1850–1870* (Harrisburg, PA, n.d.), <https://www.phmc.state.pa.us/Portal/Communities/Architecture/styles/octagon.html>.

³² John Blumenson, *Ontario Architecture: A Guide to Styles and Building Terms, 1784 to the Present* (Fitzhenry & Whiteside, 1990), 71.

³³ Blumenson, *Ontario Architecture: A Guide to Styles and Building Terms, 1784 to the Present*, 71.

emphasis on economy and utility, Fowler promoted cost-effective wall construction such as “gravel” (or concrete) wall techniques and described his own large, three-storey octagonal “gravel wall” house in upstate New York as an experiential proof of concept.³⁴ He further proposed a range of innovations - such as encircling verandahs and rooftop lookouts (belvederes), as well as service and comfort features including ventilation strategies and mechanical conveniences - while publishing plans and elevations for multiple eight-sided building types.³⁵ In 1858, George J. Hodgins included an octagonal school house as Plan No. 5 in his publication *The school house: It's architecture, external and internal arrangements* for Ontario's Ministry of Education.³⁶ Hodgins plans point to the design's ample dimensions and attractive design.

In practice, Ontario octagon structures did not always conform to Fowler's idealized prescriptions. Blumenson notes that Fowler travelled and lectured widely (including in Ontario), and that the popularity of octagonal houses had spread through Canada and the United States by the 1860s; however, stylistic treatments varied considerably, and octagons could reflect contemporary influences ranging from Georgian to Second Empire.³⁷ Surviving Ontario examples illustrate this diversity, including stuccoed octagons with scored surfaces intended to imitate cut stone, brick variants, and modest forms without a rooftop lookout or cupola - an absence that is “not uncommon on smaller or modest octagons.”³⁸

Within this broader pattern, the Calabogie “Octagon House” in Renfrew County is understood as a local example of the typology.

3.2.2.3 Tourism

From the beginning, tourism in the area has centered on the celebration of nature and a concept of the connection with some true ideal of the wilderness of Canada. Writing for *The Cornhill Magazine* of London, in 1887 an unnamed British author recounts traveling by private train car to Calabogie with a group of eight men and women in pursuit of a desire to “see something of the perfectly wild backcountry”.³⁹ The itinerary of this early tourist group was not unlike the recreational pursuits of today, including fishing, canoeing, hiking, and embracing the remoteness of the nature that surrounded them. The author's description of the sights he encounters portrays a land that remains untouched from the developing world with all the stereotypical quaint elements he anticipated like lumbermen (described in racialized terms and treated very much as facets of the landscape), canoes, and a rough adventure through the bush to discover beauty not yet known to other Englishmen. The impression that these late 19th century tourists had hoped to visit an area that was “authentic” or “undeveloped”, suggests that they wanted a sense of what Canada had really been like in the early days of European exploration. The conspicuous omission in this early account of the Village of Calabogie other than the sawmill,

³⁴ Blumenson, *Ontario Architecture: A Guide to Styles and Building Terms, 1784 to the Present*, 71.

³⁵ Blumenson, *Ontario Architecture*, 71.

³⁶ George J. Hodgins, Plan No. 5 in *The School House: It's architecture, external and internal arrangements* (Ontario Ministry of Education, 1858), 47-48. Online at https://archive.org/details/McGillLibrary-rbrc_the-school-house_LB3205S361858-22245/page/48/mode/2up

³⁷ Blumenson, *Ontario Architecture*, 71-72.

³⁸ Blumenson, *Ontario Architecture*, 72.

³⁹ “Calabogie,” *The Cornhill Magazine New Series Vol. VIII*, January to June 1887 (London: Smith, Elder & Co., 1887): 37-47. In Robillard, *Calabogie*, 50.

population at least 50 by the time of this visit,⁴⁰ attests perhaps to the roughness of the settlement relative to the elegant rail car described, and to the desire of the tourists for an idealized unspoilt wilderness. Like the paintings of Tom Thompson and the Group of Seven, however, this wilderness was accessible because of the railway, which was operational by 1883, and natural resource extraction from this same landscape. The author concludes his article with, "But, indeed, when I next visit Calabogie, I fully expect to be received in the rotunda of a big modern American hotel, at five dollars a day... The march of civilization is nowadays performed to double-quick time, and it intrusive toe already kicks the silent purlieus of the lonely Madawaska."⁴¹ These words would prove prophetic.

The appeal of Calabogie as a destination for recreation on the lake and mountain would only increase. Boating, fishing, hunting, cottaging, and skiing, natural features, as well as activities like the lumber drive were all draws. By the early 1900s Calabogie was a desirable location for recreation, with multiple hotels and guest houses, visitors arriving by train, and large-scale events like regattas and picnics. The push and pull of the profitability of tourism for the Village, versus the inconvenience of additional traffic and people for the area's permanent residents was also already evident by this time, with the importance of tourism winning out in public opinion.⁴²

Money from industry and tourism spurred the growth of Calabogie forward, but Calabogie residents would be defined by neither. In an Ottawa Citizen article on Nov 12, 1955 on the possible discovery of a large iron ore deposit in the area, staff writer Vern Bower describes the village as, "Calabogie – Known in recent years only as a jumping off point for hunters and fishermen, and as a center of small lumbering activities".⁴³ Taking issue with this assessment, E. Box, on behalf of members of the Women's Institute, responded with the following:

Progressive Calabogie

Editor, Citizen: We, the citizens of Calabogie, object to the Ottawa Citizen's reference to Calabogie village as a sleepy town and a jumping off place for hunters and fishermen, much as we welcome them and appreciate their help our thriving tourist trade.

To say the least, Calabogie is one of the most progressive villages in Ontario – six modern stores, three gas stations, two modern schools, Separate and Area school, equal to any city school, two churches, a well-equipped community hall, a first-rate hotel, a skating rink to be proud of, a village park and a bathing beach, two well-kept cemeteries, a Lion's Club and Women's Institute to boost activities.

For scenery and accommodation for tourists, Calabogie has no equal, and no town has more social life or a more friendly spirit prevailing. We also have two daily mails, a good bus and train service.

⁴⁰ Robillard, *Calabogie*, 56.

⁴¹ "Calabogie," *The Cornhill Magazine New Series Vol. VIII*, January to June 1887 (London: Smith, Elder & Co., 1887): 37-47. In Robillard, *Calabogie*, 55.

⁴² Robillard, *Calabogie*, 87-88.

⁴³

We feel you owe your readers here and apology.⁴⁴

While the face of the town has changed with the railway replaced by the K&P trail and the disappearance of the timber industry from the village, Calabogie continues to be a location of year-round tourism and recreational properties.

⁴⁴ E. Box, "Progressive Calabogie," The Ottawa Citizen (17 Nov 1955): 6.
<https://www.newspapers.com/image/456955927/>

4.0 **Current Conditions**

The study area is a 146.16 ha village located on Lots 18 and 19, on Concessions 10 and 11, in the Geographic Township of Bagot, Township of Greater Madawaska, Renfrew County, Ontario (Map 1). The north-western boundary of the study area follows the unopened road allowance between Lot 19 and Lot 18. The south-western boundary of the study area meets the mouth of Constant Creek and the northern shoreline of Calabogie Lake. The south-eastern boundary follows the northern shore of Calabogie Lake and the Madawaska River. The north-eastern boundary follows the western side of Murphy Road.

The landscape of the Village of Calabogie is rolling, descending from Calabogie Road towards the Lake and River. The village includes homes, small businesses, and some public green space. Village lot sizes accommodate individual wells and septic tanks. Properties within the village include lawns and park space, forested areas, paved roadways (some of which have paved or concrete sidewalks and curbs and some that are without curbs), walking paths and trails, and the lake and river shoreline which generally consists of grass or vegetation rather than the large rock outcrops seen in many lakes in Ontario. Commercial properties include some restaurants, an independent grocery store, a mechanic, boat rental premises, and some community and institutional buildings. The Calabogie Community Hall is the largest building in the village, and Calabogie Lodge, a significant resort property, occupies a substantial portion of the waterfront at the west end of the village. Calabogie Lake and the Madawaska River are the focus of the village, with many residences, Calabogie Lodge, and some commercial properties oriented towards the water. Much of the waterfront within the village is inaccessible to the public, consisting of private properties or private docks. Madawaska Street east of Blake Street includes publicly accessible shoreline and a public dock, with availability for visitors to rent watercraft from a local rental company opposite.

The landscape around the village of Calabogie is a four-season recreational destination. Attractions include the large lake, ski hill, accommodations, and summer hiking trails at Calabogie Peaks Resort at the western end of the lake, and the Calabogie Motorsports Park in the forested expanse to the east of the village. To the north of the study area much of the landscape is swamp.

Most of the buildings in Calabogie are over 40 years old. The phases of development represented architecturally are primarily the late nineteenth and early twentieth centuries, mid-twentieth century, and early twenty-first century to the present. The condition of buildings varies widely, reflecting both the age of housing stock and the range of economic means of village inhabitants.

5.0 Summary of Engagement

On June 27, 2025, Matrix Heritage provided the following engagement questions to Republic for integration into the wider program of engagement undertaken in support of the development of the Calabogie Secondary Plan:

- What is most important about Calabogie to you? Or What do you love about Calabogie?
 - What places in Calabogie do you consider important, and why?
 - Are there buildings or places in Calabogie that you think our consulting team should investigate because of their:
 - **Design or physical value** (appearance, architecture, craftsmanship, artistic merit, scientific or technical achievement)
 - **Historical or associative value** (related to an important historic event, belief, person, activity, theme, organization or institution)
 - or
 - **Contextual Value**
 - Because it defines or supports the character of the area
 - Because it is a local landmark
- (This question is best paired with a paper map to draw on, or a larger map to put dot stickers on.)
- What are your hopes/aspirations for the future of Calabogie?
 - More to say – what else would you like us to know about Calabogie?

A full account of engagement activities to September 2025 are found in the *What We Heard Progress Report 1*. Engagement included local year-round and seasonal residents as well as regular and occasional visitors who participated in an online survey, interactive mapping, and public engagement events held July 25-26, 2025.

In general, respondents value:⁴⁵

- **Community character:** small-town atmosphere, close-knit community, and welcoming feel.
- **Natural setting:** lakes, forests, trails, and four-season recreation opportunities.
- **Waterfront and outdoor lifestyle:** Barnet Park, Calabogie Lake, Eagles Nest, and trail networks.
- **History and heritage:** logging and mining heritage, K&P railway, and small-town traditions.
- **Balance of tourism and amenities:** unique, small-scale tourism and local businesses.

In relation to cultural identity and heritage, overall themes identified by the community were:⁴⁶

- Desire for more recognition of **industrial (logging, railway, and mining) history, and Indigenous history**.

⁴⁵ What We Heard Progress Report 1, 2.

⁴⁶ What We Heard Progress Report 1, 2.

- Interest in more **cultural events and activities celebrating the small town's history and preservation** of historic sites.
- Emphasis on maintaining **Calabogie's uniqueness**—resisting large franchises and protecting small-town traditions.

In response to the question of why Calabogie is meaningful to respondents:

Overall, respondents see Calabogie's waterfront, heritage, and community hubs as the heart of what makes Calabogie special. These are tied to deep personal memories, community gatherings, and the natural beauty of the area. Protecting public access to the lake, preserving heritage buildings, and maintaining vibrant community spaces are seen as critical to safeguarding Calabogie's identity.⁴⁷

Places identified as having significance to respondents with potential as CHLs or BHRs included:

- Landscapes
 - Calabogie Lake
 - Madawaska Street Waterfront
 - Barnet Park
 - Heritage Point (outside the village)
 - Causeway
 - The Eagles Nest (outside the village)
- Buildings & Structures
 - St. Andrew's United Church
 - Most Precious Parish Catholic Church
 - Octagon House
 - Old Train Station
 - Cenotaph
 - Historic homes and buildings along Madawaska St.

Stories, traditions, and cultural identities that respondents felt should be better recognized in planning and public spaces are summarized in the *What We Heard Progress Report 1* as:⁴⁸

Overall, respondents want planning and public spaces in Calabogie to better reflect its history and identity, particularly logging, railway, hydro, mining, Indigenous presence, and community traditions. They want to preserve the small-town character against commercialization, while celebrating the contributions of veterans, settlers, and long-standing families.

⁴⁷ What We Heard Progress Report 1, 14-15.

⁴⁸ What We Heard Progress Report 1, 17-18.

6.0 Cultural Heritage Resources

6.1 Identification of Known, Previously Identified, and Potential Built Heritage Resources and Cultural Heritage Landscapes

Table 1 summarizes the known, previously identified, and potential built heritage resources and cultural heritage landscapes within the Study Area. The results provided are based on data collection from the site visit, research, and engagement, application of Ontario Regulations 9/06, screening using the *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (Ministry of Heritage, Sport, Tourism and Culture Industries, now Ministry of Citizenship and Multiculturalism, 2016), application of the *Ontario Heritage Toolkit* (2025), *Standards and Guidelines for the Conservation of Provincial Heritage Properties* (Ministry of Heritage, Sport, Tourism and Culture Industries, 2010), *Standards and Guidelines for the Conservation of Historic Places in Canada*, Second Edition (Parks Canada, 2016), and *Working with Cultural Landscapes* (National Capital Commission, 2023).

6.1.1 Existing Heritage Designations

The following resources were searched for existing heritage designations:

Federal

- Parks Canada, Canadian Register of Historic Places
 - Identifies heritage resources across Canada, their statements of significance, and their recognition authority
- Parks Canada, Directory of Federal Heritage Designations
 - Identifies Federally designated heritage resources

Provincial

- Ontario Heritage Trust, *Ontario Heritage Act Register*
 - Identifies properties designated under Part IV (individual designations) and Part V (heritage conservation districts) of the *Ontario Heritage Act*
- Ontario List of Provincial Heritage Properties
 - Online list of Provincial Heritage Properties, and Provincial Heritage Properties of Provincial Significance

Municipal

- County of Renfrew GIS mapping application
- Madawaska Township Heritage Register

No Federal or Provincial heritage properties were identified within the study area.

No properties designated under Part IV or Part V of the Ontario Heritage Act or listed on the Heritage Register for the Township of Greater Madawaska were identified within the study area.

6.1.2 Potential Built Heritage Resources

Most houses and structures in Calabogie are over 40 years old, a minimum threshold for the determination of potential CHVI. However, much of the housing stock is in poor condition with most of the original features now lost. While condition is not a criterion for the determination of CHVI, it can attest to the significance a property is understood to have by the local population.

The Village of Calabogie does not contain any built heritage resources that would be considered significant on a provincial or national level, with the possible exception of the Octagon House. The housing stock and public buildings are common in their typologies, material, and craftsmanship within the provincial and context. Within the context of Calabogie, however, a number of examples of residential and institutional buildings demonstrate potential as BHRs that have architectural value as representative examples of a regional expression of wider provincial themes, as well as historical and contextual value to the Village of Calabogie.

Potential BHRs identified within the study area include (see Map 1 and Table 1):

- The Octagon House / Former Carswell Mill Office
- The Old Train Station
- St. Andrew's United Church (1892)
- Most Precious Parish Catholic Church (1895)
- Convent for the Sisters of St. Joseph of Pembroke (1924)
- St. Joseph's Separate School
- Township of Greater Madawaska Office / Former Public School (1914)
- Historic homes and buildings along Madawaska St.
 - 1048 Madawaska Street
 - 1068 Madawaska Street
 - 1078 Madawaska Street
 - 508 Blake Street
- Row of Worker's Cottages on Mill Street
 - 588 Mill Street
 - 584 Mill Street
 - 576 Mill Street
- Other houses with potential architectural value
 - 21 Mowat Street
 - 534 Mill Street
 - 513 Gladstone Street
- Cenotaph
- Centennial of Confederation Athletic Field marker

6.1.3 Potential Cultural Heritage Landscapes

Calabogie Lake, as a whole, has potential to be understood as a CHL. While all landscapes have a history and significance to the people who enjoy, live on, or make use of them, due to the interconnected layers of ecological, Indigenous, resource extraction/industrial, and tourism/recreational history of Calabogie Lake and its shoreline and their continued significance to the community, Calabogie Lake has potential as an *evolved* cultural landscape under UNESCO and the *Standards and Guidelines for the Conservation of Historic Places in Canada's* definitions.

6.1.4 Views

Significant publicly accessible views within Calabogie include:

- Views towards the lake and river from Madawaska Street.
- Views towards the lake and river from Lanark Road as it crosses the Madawaska River.
- Views towards Madawaska Street from Lanark Road as it crosses the Madawaska River, Heritage Point, and from the water.
- Emerging views of the mountain, travelling west on Calabogie Road.

Table 1. Identification of Known, Previously Identified, and Potential Built Heritage Resources and Cultural Heritage Landscapes

BHR	Type of Property	Location/Address	Heritage Recognition	Description of Known or Potential CHVI	Images
BHR-1	Residential; Former Commercial	Octagon House 15 Octagon Lane Property Parcel 470600601049400	None; Potential BHR identified on field review	• After 1884 • Originally an office for the Carswell Mill (1884-1924), significant to the establishment and development of Calabogie • Converted to house and gallery 1984 by artist Sheila Fletcher and Wally Fletcher • Brick, post and beam octagonal • Relatively rare building type • Potential design value as a rare example of a type • Potential historical and associative value for direct associations with an organization that is significant to a community • Potential contextual value because it is important in defining the character of an area, and is a landmark	
BHR-2	Residential; Former Residence and Train Station	Old Train Station 12676 Lanark Road Property Parcel 470600601041600	None; Potential BHR identified on field review	• Former train station for the Kingston and Pembroke Railway (railway established 1883) • The K&P railway was integral to the establishment and growth of Calabogie, transportation of people and goods, and tourism. • Potential historical and associative value for direct associations with an organization that is significant to a community • Potential contextual value because it is physically and historically linked to its surroundings	

BHR	Type of Property	Location/Address	Heritage Recognition	Description of Known or Potential CHVI	Images
BHR-3	Church	St. Andrew's United Church 1044 Madawaska Street Property Parcel 470600601050900	None; Potential BHR identified on field review	• 1892 • One of four original churches constructed in Calabogie between 1886 and 1896, of which two remain • 134 years of continuous use as a place of worship and community gathering place to date • Oriented towards the waterfront • Representative example of a Protestant place of worship in a village context, constructed in the Gothic Revival style • Potential design value as a representative example of its type • Potential historical and associative value because it is an institution that is significant to a community • Potential contextual value because it is important in defining the character of an area, is historically linked to its surroundings, and is a landmark	
BHR-4	Church	Most Precious Parish Catholic Church 504 Mill St. Property Parcel 470600601042900	None; Potential BHR identified on field review	• 1896 • One of four original churches constructed in Calabogie between 1886 and 1896, of which two remain • 130 years of continuous use as a place of worship and community gathering place to date • Associated with the establishment of St. Joseph's School, and the Convent of the Sisters of St. Joseph of Pembroke • Potential historical and associative value because it is an institution that is significant to a community • Potential contextual value because it is important in defining the character of an area, is historically linked to its surroundings, and is a landmark	

BHR	Type of Property	Location/Address	Heritage Recognition	Description of Known or Potential CHVI	Images
BHR-5	Residential / Hospitality; formerly religious institution	Convent for the Sisters of St. Joseph of Pembroke 12637 Lanark Rd. Property Parcel 470600601042700	None; Potential BHR identified on field review	• 1924 • Associated with the establishment of St. Joseph's School, and the Convent of the Sisters of St. Joseph of Pembroke • Potential historical and associative value because it has direct associations with an institution that is significant to a community • Potential contextual value because it is important in defining the character of an area	
BHR-6	School	St. Joseph's Separate School 12629 Lanark Rd. Property Parcel 470600601042600	None; Potential BHR identified on field review	• Significant to the development and community life of Calabogie • Demonstrates two phases of population growth in its construction phases • Potential historical and associative value because it has direct associations with an institution that is significant to a community • Potential contextual value because it is important in defining the character of an area	
BHR-7	Institutional; former school	Township of Greater Madawaska Office / Former Public School 19 Parnell St. Property Parcel 470600601054400	None; Potential BHR identified on field review	• 1914 • Example of a rural schoolhouse from the early twentieth century • Potential historical and associative value because it has direct associations with an institution that is significant to a community • Potential contextual value because it is important in defining the character of an area	

BHR	Type of Property	Location/Address	Heritage Recognition	Description of Known or Potential CHVI	Images
BHR-8	Residential	534 Mill Street Property Parcel 470600601043300	None; Potential BHR identified on field review	• Example of a Victorian cottage, in red brick, with gingerbread details • Potential design value as a representative example of its style • Potential contextual value because it is important in defining the character of an area	
BHR-9	Residential	576 Mill St. Property Parcel 470600601043600	None; Potential BHR identified on field review	• Worker's cottage on Mill St, part of a row of similar cottages • Modest proportions, simple massing, and little ornamentation • Potential design value as a representative example of its style • Potential contextual value because it is important in defining the character of an area, and is functionally and historically linked to its surroundings	
BHR-10	Residential	584 Mill St. Property Parcel 470600601043700	None; Potential BHR identified on field review	• Worker's cottage on Mill St, part of a row of similar cottages • Modest proportions, simple massing, and little ornamentation • Potential design value as a representative example of its style • Potential contextual value because it is important in defining the character of an area, and is functionally and historically linked to its surroundings	

BHR	Type of Property	Location/Address	Heritage Recognition	Description of Known or Potential CHVI	Images
BHR-11	Residential	588 Mill St. Property Parcel 470600601043800	None; Potential BHR identified on field review	• Worker's cottage on Mill St, part of a row of similar cottages • Modest proportions, simple massing, and little ornamentation • Potential design value as a representative example of its style • Potential contextual value because it is important in defining the character of an area, and is functionally and historically linked to its surroundings	
BHR-12	Residential	1078 Madawaska St. Property Parcel 470600601050100	None; Potential BHR identified on field review	• Simple waterfront cottage, evident in early images of Madawaska St and similar in design to many early homes in the region • Oriented towards the waterfront • Potential contextual value because it is important in supporting the character of an area, and is historically linked to its surroundings	
BHR-13	Residential	1068 Madawaska St. Property Parcel 470600601050200	None; Potential BHR identified on field review	• Early twentieth century • Use of local/regional brick • Potential contextual value because it is important in defining the character of an area, and is historically linked to its surroundings	

BHR	Type of Property	Location/Address	Heritage Recognition	Description of Known or Potential CHVI	Images
BHR-14	Residential	508 Blake St. Property Parcel 470600601050700	None; Potential BHR identified on field review	• The Box house, 1919 • The Box family had a general store in Calabogie from 1884 to 1965, begun by John A. Box. Robert E. Box, John's brother, at one time ran the store with his brother and was a postmaster. • Edwardian influence • Use of local/regional brick • Oriented towards the waterfront • Potential historical or associative value because it has direct associations with a person that is significant to a community • Potential contextual value because it is important in defining the character of an area, and is historically linked to its surroundings	
BHR-15	Residential	1048 Madawaska St. Property Parcel 470600601050800	None; Potential BHR identified on field review	• Late nineteenth century • Former manse of St. Andrew's United Church • Oriented towards the waterfront • Potential historical or associative value because it has direct associations with an institution that is significant to a community • Potential contextual value because it is important in defining the character of an area, and is functionally and historically linked to its surroundings	
BHR-16	Residential	513 Gladstone St. Property Parcel 470600601055900	None; Potential BHR identified on field review	• Example of a Victorian cottage, with original windows and gingerbread details • Wood siding is potentially preserved under mid-twentieth century faux-brick asphalt siding • Potential design value as a representative or possibly rare example of its style, • Potential contextual value because it is important in supporting the character of an area	

BHR	Type of Property	Location/Address	Heritage Recognition	Description of Known or Potential CHVI	Images
BHR-17		21 Mowat St. Property Parcel 470600601054600	None; Potential BHR identified on field review	• Example of Victorian vernacular architecture • Potential design value or physical value because it displays a high degree of craftsmanship or artistic merit • Potential contextual value because it is important in defining the character of an area	
BHR-18	Commemorative	Cenotaph Madawaska St. at Gladstone St. Property Parcel 470600601050300	None; Potential BHR identified on field review	• A designation is not required to establish the significance of the Cenotaph; however, the following criteria are met: • The property has historical value or associative value because it has direct associations with a theme, event, belief, and people that are significant to a community • The property has contextual value because it is historically linked to its surroundings and is a landmark	
BHR-19	Commemorative	Centennial of Confederation Athletic Field marker 1052 Francis St.	None; Potential BHR identified on field review	• Commemoration related to Canada's Centennial • Association with the establishment of a public park space • Historical value or associative value because it has direct associations with a theme and event that is significant to a community • Contextual value because it is historically linked to its surroundings	

BHR	Type of Property	Location/Address	Heritage Recognition	Description of Known or Potential CHVI	Images
CHL-1	Landscape	Calabogie Lake	None; Potential CHL identified on field review	Calabogie Lake, as a whole, has potential to be understood as a CHL. While all landscapes have a history and significance to the people who enjoy, live on, or make use of them, due to the interconnected layers of ecological, Indigenous, resource extraction/industrial, and tourism/recreational history of Calabogie Lake and its shoreline and their continued significance to the community, Calabogie Lake has potential as an evolved cultural landscape under UNESCO and the Standards and Guidelines for the Conservation of Historic Places in Canada's definitions.	

7.0 Recommendations – Conservation, Interpretation, and Development

The Village of Calabogie offers significant opportunities for interpretation, and development that conserves the valued aspects of Calabogie's history in the form of both physical cultural heritage resources and intangible values.

7.1 Conservation of Built Heritage Resources

Nineteen (19) potential BHRs were identified within the study area (see section 6.1, and Table 1).

In order to conserve the identified potential built heritage resources the following actions are recommended:

1. council for the Township of Greater Madawaska should consider any benefits they might offer to owners of properties either individually designated under Part IV or identified as contributing within a future heritage conservation district under Part V of the Ontario Heritage Act. Benefits might include funding such as grant programs to facilitate the retention or restoration of heritage attributes, or other forms of assistance or recognition.
2. It is recommended that property owners of potential built heritage resources are engaged with to promote an understanding of the benefits of inclusion on the heritage register, and to understand community feedback.
3. As the majority of properties identified as potential built heritage resources have the potential for contextual CHVI it is recommended that Council consider either:
 - a. undertaking a Heritage Conservation District Study for the purposes of exploring designation of the area south-west to north-east between 15 Octagon Lane and the K&P Trail, and south-east to north-west between the waterfront and properties along the north-side of Mill Street under Part V of the Ontario Heritage Act. Buildings within this area would be identified as contributing or non-contributing, with accompanying district policies and guidelines for conservation and development;
 - OR
 - b. prioritizing properties for individual designation under Part IV of the Ontario Heritage Act and adding these properties to the Heritage Register for the Township of Greater Madawaska, under section 27 of the Ontario Heritage Act. Municipalities are required to review non-designated properties within 2 years of being added to the municipal heritage register (where the property was added to the register on or after January 1, 2023). If council does not issue a Notice of Intention to Designate within 2 years of being added to the register the property must be removed from the register and cannot be put back on the register as a non-designated property for 5 years. A non-designated property that has been removed can still be added as a designated property, with the exception relating to prescribed events. Inclusion on the register Each property will require a CHER

to determine whether it meets the criteria of O.Reg. 9/06 for designation under Part IV, section 29 of the Ontario Heritage Act.

An additional opportunity is present in St. Andrew's United Church. As the only publicly accessible building overlooking the waterfront on Madawaska Street, St. Andrew's United Church offers potential partnership opportunities for community event space that could assist in ensuring the continued maintenance of the historic structure while providing a venue for public events at the waterfront.

7.2 Conservation of Cultural Heritage Landscapes

Calabogie Lake as a whole, and its immediate surroundings, including the mountain and Village, has potential to be understood as a CHL. It is recommended that:

1. Council for the Township of Greater Madawaska consider undertaking a Cultural Landscape Study of the Lake and immediately surrounding area, to be undertaken separately from the secondary plan process. The suggested study area is east to west between the Eagles Nest and K&P trail, and north to south between the northern extent of the Village of Calabogie and Barrett Chute.
2. the secondary plan for the Village of Calabogie should take a wholistic approach and consider implications for the wider area in its planning recommendations.

7.3 Interpretation

The Village of Calabogie offers significant opportunities for interpretation of its history for both a local and tourist audience. Interpretation, which overlaps with commemoration and provides one of the foundations for supporting a sense of place for the Village, should be grounded in a full understanding of the landscape as a place with layers of history experienced by various communities over time.

Interpretation can involve static elements, such as interpretive panels in selected locations, digital resources, and/or active elements, such as a program of walking/cycling/boating tours or rotating exhibitions. In all cases, interpretation requires the support and buy-in of residents, and Indigenous rightsholders in the case of presenting Indigenous history and present culture, to be effective.

7.3.1 Key Themes for Interpretation

Development of an interpretation plan for Calabogie should explore the following key themes:

1. Anishinabe Algonquin Knowledge and History
 - a. Overview of the region
 - b. Historical use of the area
 - c. Indigenous culture today
2. Industrial and Settlement History
 - a. Logging
 - b. Dams
 - c. Railway
 - d. Mining
 - e. Development & history of the Village and its relationships to industry.

3. Tourism History

7.3.2 Guiding Principles for Interpretation Planning in the Village of Calabogie

Drawing on literature about interpretation planning, and the research undertaken for this report, the following guiding principles are recommended to inform an Interpretation Plan for Calabogie.

1. Community engagement will be a foundation for interpretation planning, design, and evaluation.
2. Interpretation will be accessible and inclusive, addressing people of different ages, backgrounds, and learning preferences and capabilities.
3. Interpretation at Calabogie should be based on a plan that is thoughtful, creative, resilient, and sustainable.
4. Interpretation should be woven into each facet of development – from engagement with communities, to urban design, to heritage conservation actions, to smaller gestures (place names, plantings, street furnishings, etc.)

7.3.3 Suggested Locations for Interpretive Actions

The following locations are suggested for interpretive actions. Resources identified in section 6.1 and Table 1, including St. Joseph's Catholic School and private residences are not suggested as locations for interpretation in order to protect the privacy of residents and student safety.

1. Village Core
 - a. Madawaska Street waterfront
 - b. St. Andrew's Church
 - c. Cenotaph
 - d. Township of Greater Madawaska Offices/Formal Public School
 - e. Lanark Road between Mill Street and Madawaska Street (history of hotels and commerce)
2. K&P Trail
 - a. Rail bridge viewpoints
3. Vantage points outside of the Village
 - a. Heritage Point
 - b. The Causeway
 - c. Barnet Park

7.4 Village of Calabogie Secondary Plan

The following policies are recommended for inclusion in the Village of Calabogie Secondary Plan:

6. Built heritage resources and cultural heritage landscapes of the Village of Calabogie shall be conserved and enhanced.
7. New development, site alterations, building alterations and additions shall be sympathetic with the design of surrounding built heritage resources and cultural heritage landscapes.
8. Preservation, rehabilitation, and restoration, including adaptive reuse, of built heritage resources in keeping with the *Standards and Guidelines for the Conservation of Historic Places in Canada* will be encouraged and supported in order that they remain in active use.
9. The cultural heritage of the Village of Calabogie shall be promoted through establishment of a cohesive Interpretation Plan, and corresponding interpretive actions centred on the themes of Anishinabe Algonquin Knowledge and History, Industrial and Settlement History, and Tourism History.
10. Development within the Village of Calabogie shall be in keeping with the character of the Village, which includes its:
 - a. Small-town atmosphere and welcoming feel, supported by:
 - i. Walkability
 - ii. Accessibility of Village amenities
 - iii. Availability of housing to year-round residents
 - iv. Promotion of local businesses.
 - b. Natural setting, waterfront, and outdoor lifestyle, supported by:
 - i. Public access to the waterfront
 - ii. Significant tree canopy
 - iii. Public park space
 - iv. Retention or enhancement of significant views.
 - c. History and heritage, supported by:
 - i. Built heritage resources and cultural heritage landscapes
 - ii. Recognition of Anishinabe Algonquin knowledge and history
 - iii. Interpretation program.
 - d. Role as a tourism destination, supported by:
 - i. Amenities accessible to seasonal and occasional visitors
 - ii. Consideration of the needs of visitors, including transportation, signage, and information
 - iii. Consideration of the relationships between year-round residents, seasonal residents, and occasional visitors.

It is additionally recommended that if Council adds any or all of the identified properties to the Cultural Heritage Register for the Township of Greater Madawaska, a map of CHRs be appended to the Village of Calabogie Secondary Plan. Adding these properties to the Register will afford them protection under the Ontario Heritage Act, including allowing the Township to request a Heritage Impact Assessment as part of a development application to ensure CHRs

are appropriately conserved and integrated into proposed development and it will provide the CHRs interim protection from demolition.

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8.0 Figures



Figure 1. Waterfront, east end of Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 2. Looking south across the Madawaska River towards the shore to the west of Heritage Point. Matrix Heritage, 25 Sept 2025.



Figure 3. Looking towards Calabogie Lake from the east end of Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 4. Madawaska St. from near Lanark Rd. Matrix Heritage, 25 Sept 2025.



Figure 5. Relationship of the east end of Madawaska St. to the waterfront. Matrix Heritage, 25 Sept 2025.



Figure 6. Public dock, accessible from Madawaska St., opposite St. Andrew's United Church, 1044 Madawaska St. Matrix Heritage, 25 Sept 2025.



**Figure 7. View from the south side of Madawaska St., looking west towards Calabogie Lake.
Matrix Heritage, 25 Sept 2025.**



**Figure 8. View of Calabogie Lake from the shore to the west of the Cenotaph. Matrix Heritage, 25
Sept 2025.**



Figure 9. Cenotaph, Madawaska St. Google Streetview, June 2025.



Figure 10. Looking towards Lanark Rd from Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 11. Buoys marking the dam at Lanark Rd. and Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 12. Boat rental business at 1022 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 13. Boat rental business at 1022 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 14. St. Andrew's United Church, 1044 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 15. 1048 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 16. 508 Blake St. Matrix Heritage, 25 Sept 2025.



Figure 17. 1068 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 18. 1078 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 19. 505 Gladstone St. Matrix Heritage, 25 Sept 2025.



Figure 20. 513 Gladstone St. Google Streetview, May 2012.



Figure 21. 1086 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 22. 1088 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 23. 1094 Madawaska St. Matrix Heritage, 25 Sept 2025.



Figure 24. Part of the property at 1 Octagon Lane. Matrix Heritage, 25 Sept 2025.



Figure 25. Octagon House, Calabogie. Pinterest, Sonnu Apollo, n.d.



Figure 26. Municipal property parcel, entrance from Francis St. opposite Octagon Lane. Matrix Heritage, 25 Sept 2025.



Figure 27. 1031 Francis St. at the corner of Mill St. Matrix Heritage, 25 Sept 2025.



Figure 28. Looking west on Mill St. from the south-west corner of Francis St. Matrix Heritage, 25 Sept 2025.



Figure 29. 618 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 30. 624 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 31. Oh-el-la Café, 636 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 32. Housing along Mill St. Matrix Heritage, 25 Sept 2025.



Figure 33. Wooded area and steep hillside south of Mill St. Matrix Heritage, 25 Sept 2025.



Figure 34. 691 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 35. 688 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 36. 702 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 37. Charbonneau's Grocery, 699 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 38. 713 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 39. Calabogie Lodge. Matrix Heritage, 25 Sept 2025.



Figure 40. Calabogie Lodge. Matrix Heritage, 25 Sept 2025.



Figure 41. Calabogie Lodge. Matrix Heritage, 25 Sept 2025.



Figure 42. Tennis courts and large septic field for Calabogie Lodge. Matrix Heritage, 25 Sept 2025.



Figure 43. Properties overlooking the lake at 679 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 44. Properties overlooking the lake at 679 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 45. Municipal property opposite the waterfront at 758 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 46. Municipal property opposite the waterfront at 758 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 47. 594 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 48. 588 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 49. 588 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 50. Matrix Heritage, 25 Sept 2025.



Figure 51. Matrix Heritage, 25 Sept 2025.



Figure 52. Former garage at 578 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 53. The centre of Calabogie has significant foliage and tree cover. Matrix Heritage, 25 Sept 2025.



Figure 54. 534 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 55. 530 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 56. 522 Mill St. Matrix Heritage, 25 Sept 2025.



Figure 57. View towards the Priest's house and Most Precious Blood Catholic Church. Matrix Heritage, 25 Sept 2025.



Figure 58. View towards the Priest's house and Most Precious Blood Catholic Church Matrix Heritage, 25 Sept 2025.



Figure 59. Most Precious Blood Catholic Church. The church is situated on a rise of land, oriented towards Lanark Rd and the waterfront beyond. Matrix Heritage, 25 Sept 2025.



Figure 60. Most Precious Blood Catholic Church. Matrix Heritage, 25 Sept 2025.



Figure 61. Most Precious Blood Catholic Church. Matrix Heritage, 25 Sept 2025.



Figure 62. Most Precious Blood Catholic Church Matrix Heritage, 25 Sept 2025.



Figure 63. Greenspace behind Most Precious Blood Catholic Church. Matrix Heritage, 25 Sept 2025.



Figure 64. Significant mature tree in front of Most Precious Blood Catholic Church Matrix Heritage, 25 Sept 2025.



Figure 65. St. Joseph's School. Matrix Heritage, 25 Sept 2025.



Figure 66. St. Joseph's School. Matrix Heritage, 25 Sept 2025.



Figure 67. Former Convent for the Sisters of St. Joseph of Pembroke. Matrix Heritage, 25 Sept 2025.



Figure 68. St. Joseph's School and former Convent for the Sisters of St. Joseph of Pembroke Matrix Heritage, 25 Sept 2025.



Figure 69. View from between Most Precious Blood Catholic Church and St. Joseph's School towards Lanark Rd. Matrix Heritage, 25 Sept 2025.



Figure 70. Former general store, now residential property at 12628 Lanark Rd. Matrix Heritage, 25 Sept 2025.



Figure 71. Old train station, 12676 Lanark Road. Google Streetview, June 2025.



Figure 72. 12620 Lanark Rd. Matrix Heritage, 25 Sept 2025.



Figure 73. Calabogie Brewing Co., 12612 Lanark Rd. Matrix Heritage, 25 Sept 2025.



Figure 74. 21 Mowat St. Google Streetview, June 2025.



Figure 75. 21 Mowat St. Google Streetview, May 2012.



**Figure 76. Township of Greater Madawaska Office / Former Public School
19 Parnell St. Matrix Heritage, 25 Sept 2025.**



**Figure 77. Township of Greater Madawaska Office / Former Public School
19 Parnell St. Matrix Heritage, 25 Sept 2025.**



**Figure 78. Township of Greater Madawaska Office / Former Public School
19 Parnell St. Matrix Heritage, 25 Sept 2025.**



Figure 79. Centennial of Confederation Athletic Field. Matrix Heritage, 25 Sept 2025.



Figure 80. Centennial of Confederation Athletic Field marker. Matrix Heritage, 25 Sept 2025.



Figure 81. Centennial of Confederation Athletic Field marker. Matrix Heritage, 25 Sept 2025.

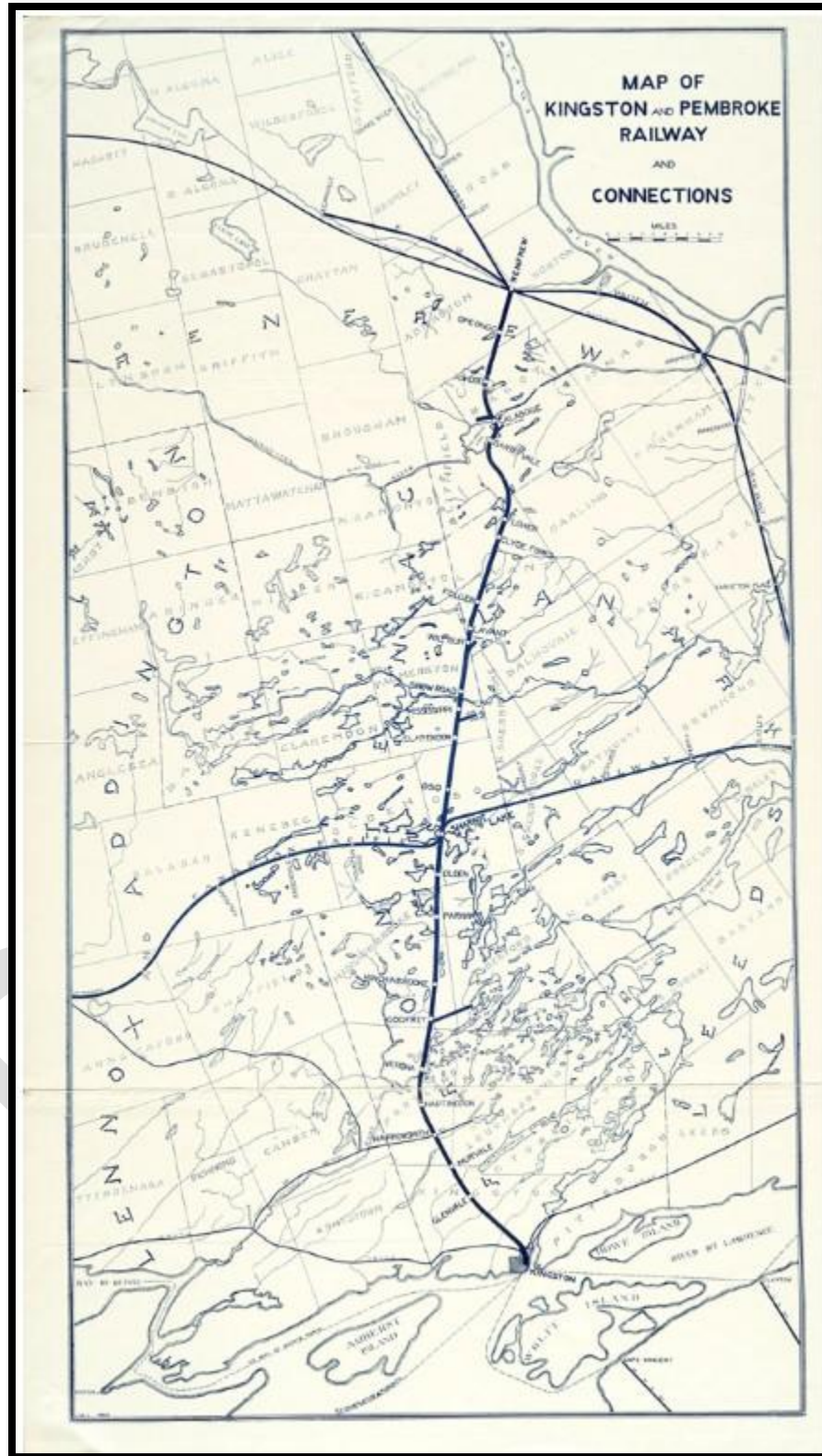


Figure 82. Map of the Kingston & Pembroke Railway showing the station at Calabogie, and siding for the Carswell Mill.

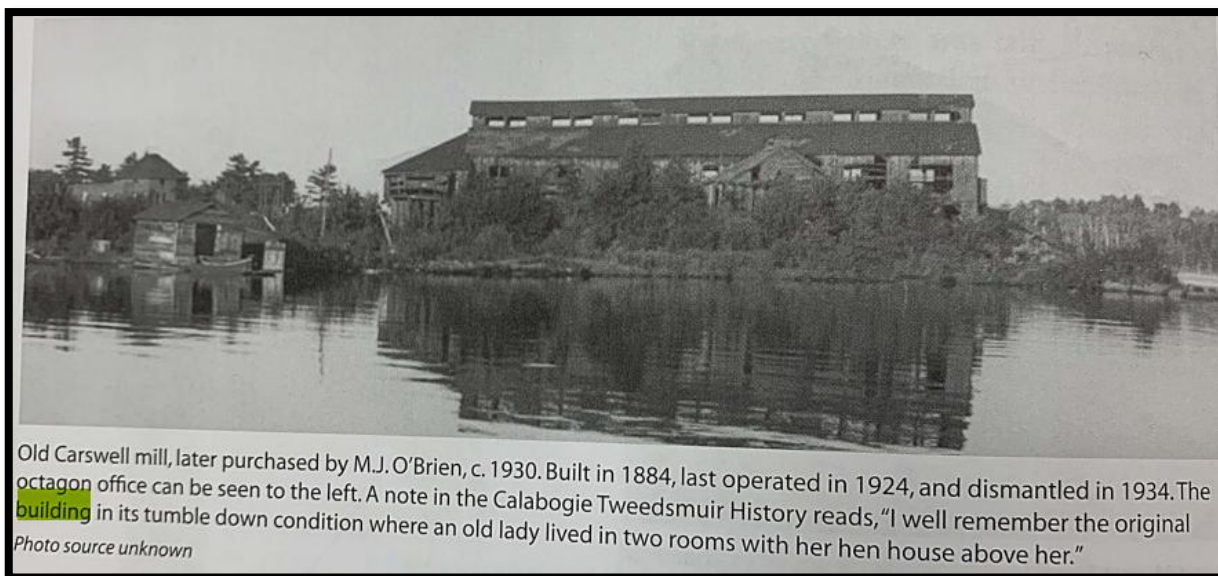


Figure 83. Carswell Mill (1884), c. 1930, Octagon House at left. Reproduced in Robillard, *Calabogie*, 106.

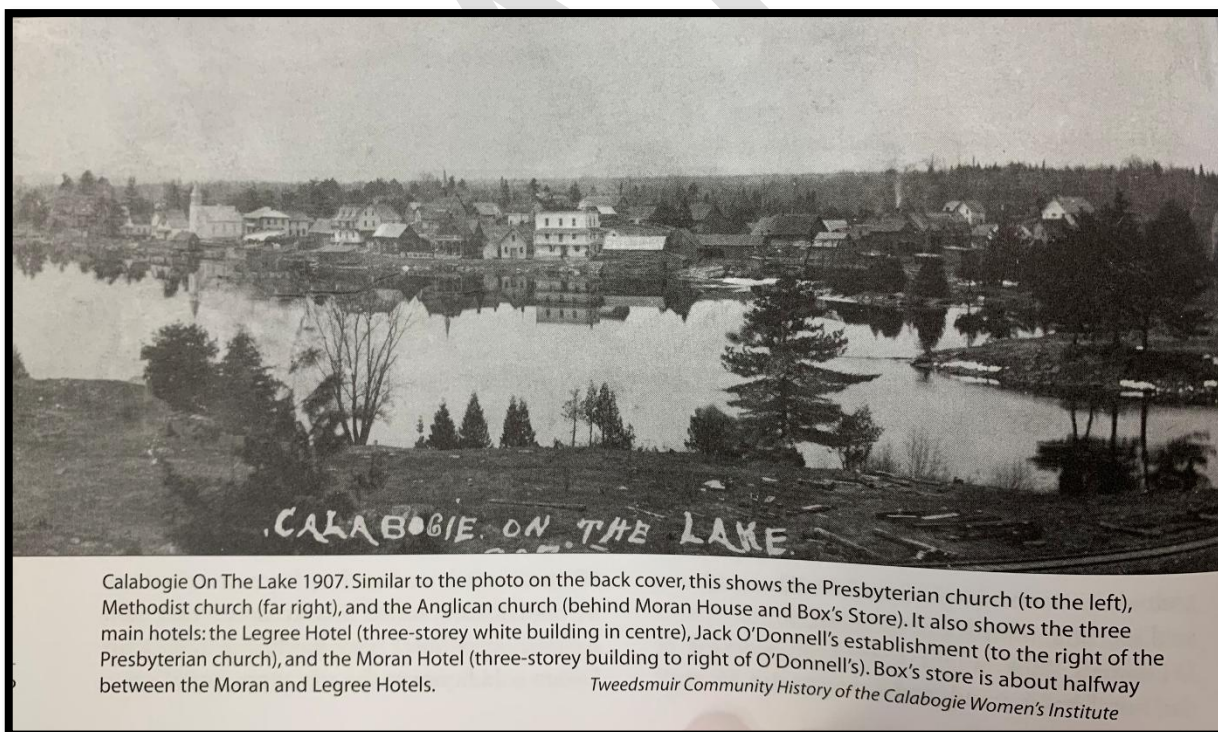


Figure 84. View towards Madawaska St. from across the river, 1907. Tweedsmuir Community History of the Calabogie Women's Institute, reproduced in Robillard, *Calabogie*, 70.

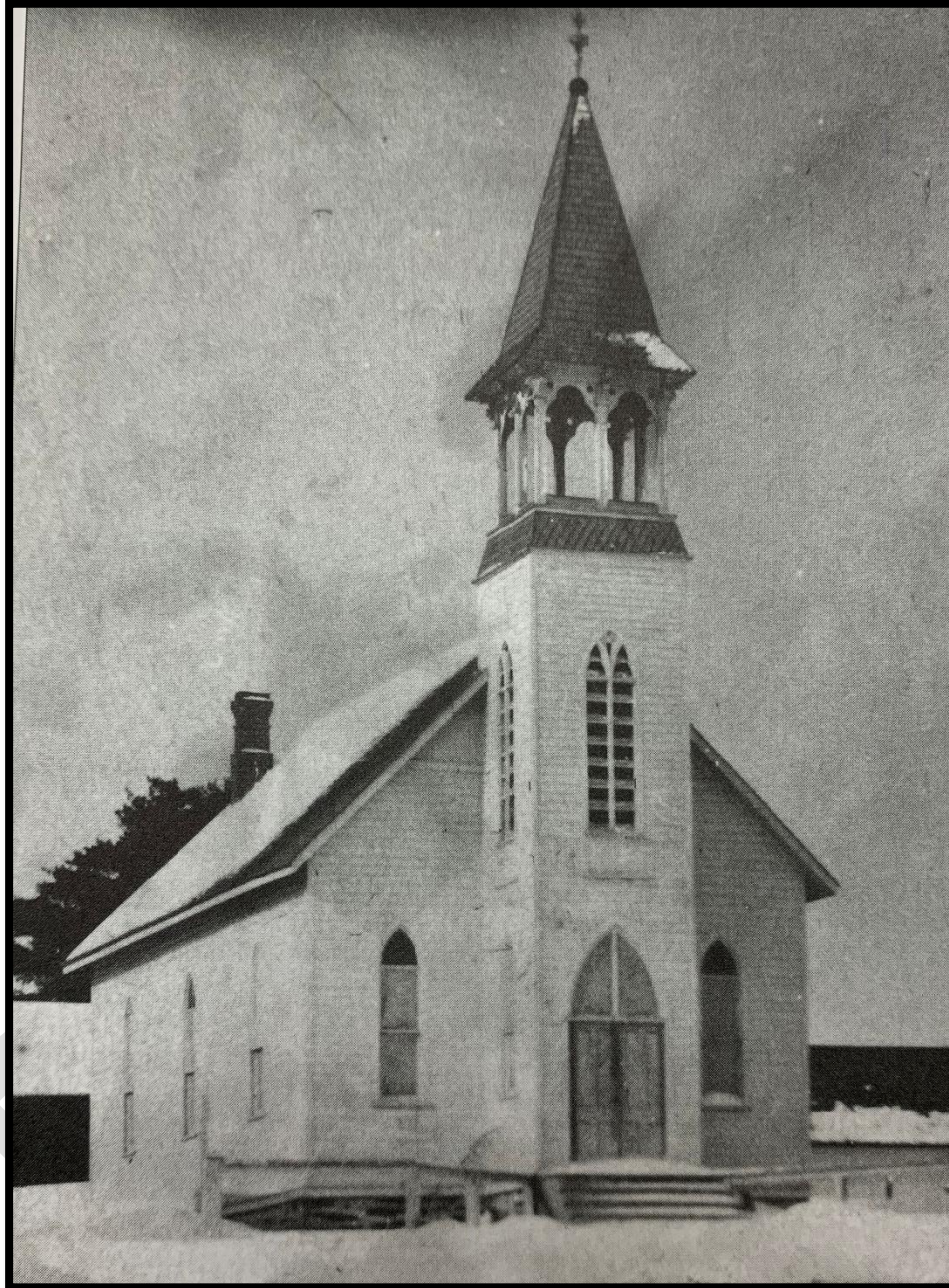


Figure 85. St. Andrew's Presbyterian Church before the removal of the bell and steeple.
Tweedsmuir Community History of the Calabogie Women's Institute, reproduced in Robillard,
Calabogie, 67.

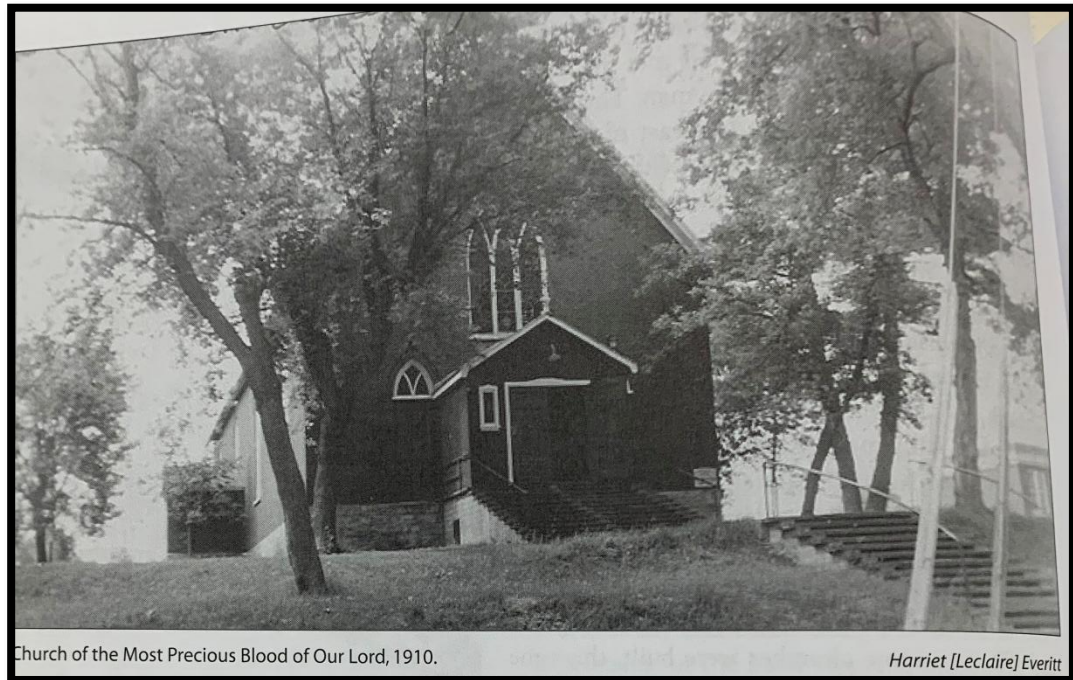


Figure 86. Most Precious Blood Catholic Church, 1910, prior to the front narthex addition and application of stucco. Photo by Harriet [Leclaire] Everitt, reproduced in Robillard, *Calabogie*, 68.

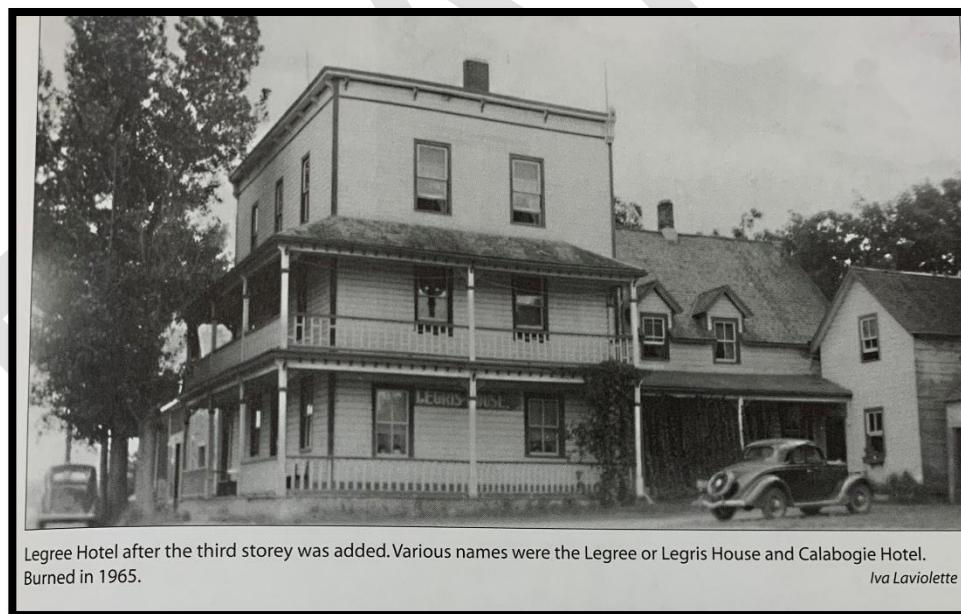
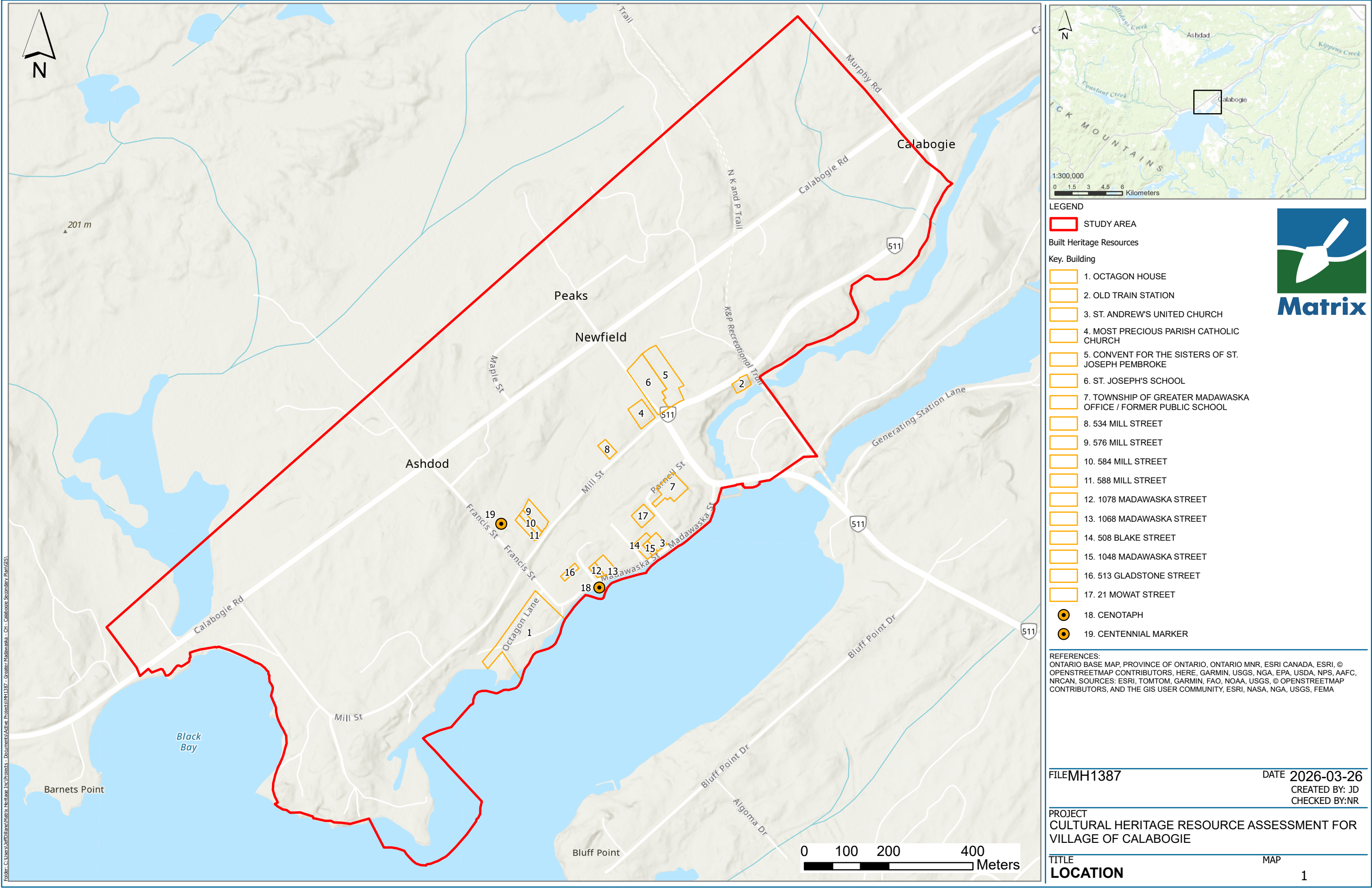
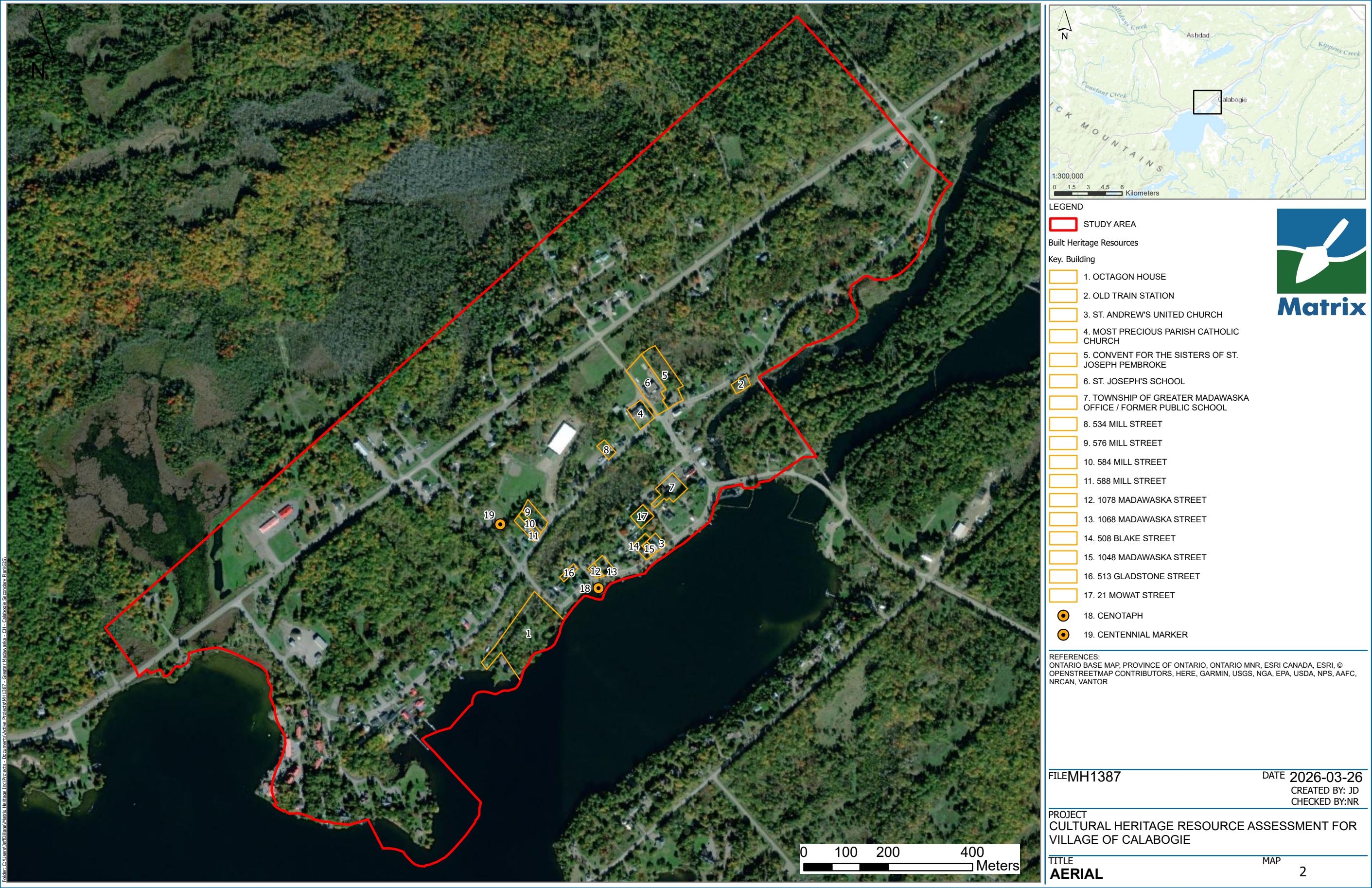


Figure 87. The Legree Hotel, one of several hotels in Calabogie in the first half of the twentieth century. Photo by Iva Laviolette, reproduced in Robillard, *Calabogie*, 69.



Figure 88. *On Calabogie Lake, c. 1910.* Library and Archives Canada, Item ID 3309735, Accession no. 1970-249 NPC, Box RV4 085, Photographer Augustus L. Handford.





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