



WATERSHED-BASED RESOURCE MANAGEMENT STRATEGY 2024

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Mattagami Region Conservation Authority
100 Lakeshore Road, Timmins, ON P4N 8R5



**Mattagami Region
Conservation Authority**

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Acknowledgments and Authors

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Watershed partners, Indigenous communities, and the MRCA Board of Directors are sincerely appreciated for their valuable input and feedback during the development of the MRCA Watershed Strategy.

The authors of the MRCA Watershed Strategy are David Vallier, General Manager and Jennifer Bonsall, Executive Assistant.

The MRCA Board of Directors provided final review and approval on January 7, 2025.

Land Acknowledgment

The Mattagami Region Conservation Authority respectfully acknowledges that the lands on which we gather, and the entire Mattagami Region Watershed, are on Treaty 9 land. Indigenous Peoples have called this land home since time immemorial. Today, our watershed is home to many First Nations, Metis and Inuit people. The MRCA acknowledges our shared responsibilities and obligations to preserve and protect the land and water, and we are grateful to have the opportunity to meet and work in this territory. Let us commit to improving our own understanding of local Indigenous people and their cultures while actively working toward reconciliation.

Introduction

Purpose

The Watershed-Based Resource Management Strategy (“**Watershed Strategy**”) has been prepared by the Mattagami Region Conservation Authority (MRCA) to meet the requirements as outlined in the *Conservation Authorities Act (CA Act)* and Ontario Regulation 686/21.

The purpose of the Watershed Strategy is to inform the design of Mattagami Region Conservation Authority programs and services and assist with evolving or enhancing their cost-effective delivery.

The Watershed Strategy may be used to identify actions and Category 2 and 3 programs and services, with cost estimates, that are recommended to support the delivery of mandatory Conservation Authority programs and services. It provides a mechanism to update the Conservation Authority programs and services inventory and could identify where opportunities exist for maintaining and improving watershed health.

Legislative Background

The *Conservation Authorities Act (CA Act)* is designed to provide for the organization and delivery of programs and services that further the conservation, restoration, development and management of natural resources in watersheds in Ontario. The *CA Act* and accompanying

regulations have been amended by the Province of Ontario since 2017, including the following updates made in 2021. Conservation Authority programs and services are categorized as follows per legislation:

- General Functions: Corporate-wide services that support several/all program areas
- Category 1: Mandatory programs and services
- Category 2: Municipal programs and services provided on behalf of a municipality
- Category 3: Programs and services advisable by the Conservation Authority to implement in the Authority's jurisdiction.

Ontario Regulation (O. Reg.) 687/21 and Section 21.1.2 (2) and 21.1.4 of the *CA Act* establish a requirement for Transition Plans including an inventory of the authority's programs and services, and Agreements to carry out the authority's programs and services. (Appendix A: Programs and Services Inventory).

O. Reg. 686/21 sets out the mandatory programs and services which must be delivered by Conservation Authorities in Ontario. Specifically, Section 12(1) of the regulation requires all Conservation Authorities to prepare a Watershed-Based Resource Management Strategy. Sections 12(4)-(7) of O. Reg. 686/21 set out the required components to be included in the Watershed Strategy.

<p>(4) The watershed-based resource management strategy referred to in paragraph 3 of subsection (1) shall include the following components:</p> <ol style="list-style-type: none">1. Guiding principles and objectives that inform the design and delivery of the programs and services that the authority is required to provide under section 21.1 of the Act.2. A summary of existing technical studies, monitoring programs and other information on the natural resources the authority relies on within its area of jurisdiction or in specific watersheds that directly informs and supports the delivery of programs and services under section 21.1 of the Act.3. A review of the authority's programs and services provided under section 21.1 of the Act for the purposes of,<ol style="list-style-type: none">i. determining if the programs and services comply with the regulations made under clause 40 (1) (b) of the Act,ii. identifying and analyzing issues and risks that limit the effectiveness of the delivery of these programs and services, andiii. identifying actions to address the issues and mitigate the risks identified by the review, and providing a cost estimate for the implementation of those actions.4. A process for the periodic review and updating of the watershed-based resource management strategy by the authority that includes procedures to ensure stakeholders and the public are consulted during the review and update process. <p>(5) Subject to subsections (6) and (7), a watershed-based resource management strategy may include programs and services provided by the authority under sections 21.1.1 and 21.1.2 of the Act.</p> <p>(6) If, in respect of programs and services the authority provides under subsection 21.1.1 (1) of the Act, a memorandum of understanding or other agreement is required, a watershed-based resource management strategy may not include those programs and services unless the memorandum of understanding or other agreement includes provisions that those programs and services be included in the strategy.</p> <p>(7) If, in respect of programs and services the authority provides under subsection 21.1.2 (1) of the Act, an agreement is required under subsection 21.1.2 (2), a watershed-based resource management strategy may not include those programs and services unless the agreement includes provisions that those programs and services be included in the strategy.</p>

Figure 1: Requirements of a Watershed-Based Resource Management Strategy

About the Mattagami Region Conservation Authority

The MRCA, previously known as the Mattagami Valley Conservation Authority, was formed under the *Conservation Authorities Act* of Ontario in 1961 at the request of its member municipalities. Through the amalgamation of the members, the MRCA currently serves one (1) member municipality, the City of Timmins, within the Upper Mattagami River and Frederick House River watersheds.

Our Vision: A healthy, safe and sustainable environment.

Our Mission: We manage the conservation, protection and restoration of our watershed.

Governance

The MRCA is governed by a Board of Directors comprised of 4 municipal councillors and 1 public member appointed by its member municipality, the City of Timmins.

The *CA Act* provides the mechanism for establishing and administering the MRCA. Additional responsibilities regarding the protection of sources of drinking water fall under the *Clean Water Act, 2006*.

Jurisdiction

Within the Upper Mattagami River and Frederick House River watersheds, the MRCA has jurisdiction specifically within the corporate boundaries of the City of Timmins.

Under the *Clean Water Act, 2006*, the City of Timmins is the Mattagami Region Source Protection Area, governed by the Mattagami Region Source Protection Authority (MRSPA).

Strategic Direction

Strategic Plan

The 2024-2028 MRCA Strategic Plan, approved by the MRCA Board of Directors, identifies the following 4 strategic priorities:

- Protect People and Property
- Connect People to Nature
- Inspire Watershed Champions
- Implement Organizational Efficiencies and Modernization

Guiding Principles

The following are the guiding principles of the MRCA's programs and services:

- Water and other natural resources are vital natural assets that help manage climate change impacts, mitigate natural hazards, filter contaminants, assimilate waste, sustain biodiversity, and provide green spaces for recreation and other community benefits.
- The Watershed Strategy informs policy and decision-making by the Conservation Authority and other partners.
- Resource management decisions are transparent and take into consideration a broad range of community uses, needs, and values, including ecosystem needs.

Objectives

Objectives are aligned to the legislated scope of the Watershed Strategy, reflecting Category 1 programs and services and, where supported through agreements, Category 2 and 3 programs and services.

The objectives of the MRCA Watershed Strategy are:

- To reduce or mitigate the risk to life and property from flooding and erosion.
- To mitigate the risk to municipal drinking water sources and to ensure a sustainable and clean water supply for communities.
- To conserve nature and provide opportunities for outdoor recreation and education.

Watershed Characterization

For more detailed information on MRCA's watershed characteristics, refer to the following documents:

- 1983 Mattagami Region Conservation Authority Watershed Plan: Phase One
- 2008 Watershed Characterization Report for the Mattagami Region Source Protection Area

Location and Size

The Mattagami River and Frederick House River watersheds encompass 10,944 km² of land and water area and are located within the Arctic watershed. The Authority's area of jurisdiction falls within Northeastern Ontario and forms part of these two major watersheds.

The northern and western boundaries are defined by the limits of the watershed of the Mattagami River system above the Lower Sturgeon Dam in Mahaffy Township. The Frederick House River system, upstream of where it enters Frederick House Lake, forms the north-easterly and easterly limit of the watershed, whereas the Height of Land or Arctic Drainage Divide delineates the southern boundary. The watershed is irregular in shape measuring approximately 185 km from south to north and 100 km from east to west. At a provincial scale, Timmins is situated 700 km north of Toronto and 300 km south of Moosonee. The Authority's jurisdiction encompasses the entire area within the corporate boundaries of the City of Timmins.

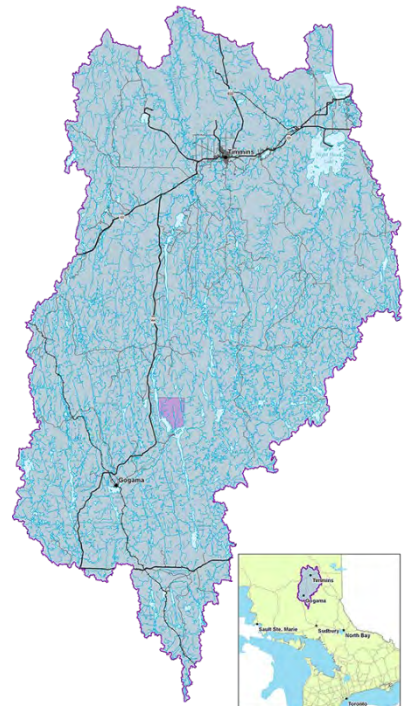


Figure 2: Mattagami Region Conservation Authority Watershed

Climate

Located within the boundaries of both the Northern Clay Belt and Height of Land climatic regions, the MRCA watershed has a climate classified as modified continental. This modification is the result of the proximity of the Great Lakes to the south and to a lesser extent, Hudson Bay

to the north. Although the climate of the region can be generally characterized as having warm wet summers and cold dry winters, the constant influence of several air masses, including moist subtropical air, dry arctic air and dry continental air masses, makes the area susceptible to extreme and rapid variations in the weather throughout the year. These variations are especially prevalent during the summer months when cyclonic storms mix warm humid air with dry cool air resulting in moderate to severe thunderstorms.

The influence of climate on the region's physical and economic development is significant in that it affects the scope and intensity of certain land use activities either directly or indirectly. A short growing season together with cool temperature influences the intensity of agricultural activity while long cold winters have a certain impact on outdoor recreational patterns. In terms of potential flooding, the amount of snowfall, depth and extent of frost and the precipitation levels in the spring all contribute significantly to how the watershed reacts during the spring runoff.

Physiography and Geology

The MRCA watershed is generally referred to as a glaciated peneplain comprised of rocks of the great Precambrian Shield region. The earliest known Precambrian sediments were deposited upon a surface of rugged topography that later underwent prolonged volcanic activity. As this activity subsided, the land mass started to form and undergo intermittent submergence developing into what is now a plain of low topographic relief. This continuous series of geologic processes resulted in the formation of a wide variety of igneous, metamorphic and sedimentary rocks. Almost the entire watershed is underlain by felsic rocks of the Early Precambrian age representing the Abitibi Subprovince of the Superior Province, the oldest known rock sequences in North America. The remainder of the watershed, notably the extreme eastern portion, represents Middle Precambrian rocks, part of the Cobalt Plate of the Southern Province and consists of Proterozoic sediments and metasediments.

Significant accumulations of tailings occur within the area. These tailings storage areas are associated with historical and on-going mining operations throughout Timmins and Porcupine, as well as in Ogden Township and Kidd Township.

The type and extent of the area's surficial deposits greatly affect soil development as well as drainage patterns and characteristics. It also directly influences the capacity and capability for agricultural and recreational activities.

Topography

The MRCA watershed is characterized by a flat terrain with numerous lakes and rivers in the northern portion and a more rugged Precambrian Shield landscape to the south. Generally, the entire area has low relief and muskeg is common. The flatness of the landscape is reflected in the average gradient of the Mattagami River, which is approximately 0.55m/km. This gentle sloping greatly reduces the capacity of rivers to carry high flows during times of increased runoff and is important when studying the susceptibility of a river to flooding and erosion.

Soils

Glacial activity has been largely responsible for the evolution and distribution of soil types in the watershed. Soil textures vary from coarse sands to fine clays, depending on the method of deposition, the parent material, climate and the time over which these deposits have been allowed to develop.

Soil characteristics and distribution have a significant influence on land use activities and patterns. Forest and agricultural capability, both classified as low to moderate, is closely related to soil-types. Significant in the near urban areas is the presence of extensive sand and gravel deposits for use in the aggregate industry.

Runoff and potential flooding are directly related to percolation and infiltration rates, characteristics which are influenced by soil type, texture and depth. This is especially important on the smaller watersheds like Town Creek where a lack of soil infiltration can lead to flash flooding.

Vegetation

The MRCA watershed lies entirely within the Boreal Forest region. This region is dominated by coniferous trees (white pine, red pine, jack pine, white and black spruce and tamarack) and scattered hardwood stands (white birch and trembling aspen). Differences in species number and type are the result of terrain, soil and climate variations.

The forest cover of the watershed is being constantly altered by the activities of both man and nature, whether it be fire, timber harvesting, pestilence or urbanization. The extensive wetland areas especially in the northern reaches of the watershed, are not only productive for wildlife and a variety of plants, but are also important in trapping and retaining runoff from storms and snowmelts. These wetlands also serve an important ecological function in maintaining water quality, species diversity and wildlife habitat.

Land Use

Existing land use in the MRCA watershed is predominantly wilderness, supporting logging, mining and outdoor recreation activities. Land use planning and the controls and regulations associated with it play an important role in assuring that environmental quality of the watershed is maintained. Planning controls are administered through the municipality, the province, the federal government and the Conservation Authority. Within the Conservation Authority's jurisdiction, the City of Timmins Official Plan is the major land use strategy document.

Water Quality

Based on the best available data it appears that the overall water quality within the region is good to excellent. With the exception of a number of identified point sources, pollution input and associated quality impairment is at present well within acceptable levels. Primary sources of potential contamination identified for the MRCA area of jurisdiction are urban runoff and

road salting impacts; nutrient loadings and bacteriological quality; and metal impacts from mining activities and natural sources.

Water Supply

The water supply for the City of Timmins is obtained solely from the Mattagami River. Rural areas rely mainly on subsurface supplies.

Surface Waters

The MRCA watershed is located within the Arctic-Hudson Bay drainage basin where all rivers flow northward, eventually reaching James Bay via the Moose River system. Within the watershed region the underlying geology and past glacial activity have greatly affected drainage patterns and characteristics. The shallow nature of the basin has given rise to rivers with extremely mild gradients.

The Mattagami Basin, 8,420 km² in size, is comprised of five main river systems. Man-made structures in the form of dams also have a major influence on the basin's hydrology. The rivers that make up the Mattagami Basin include:

- Mattagami River (main branch) including numerous lakes (Mesomikenda, Minisinakwa, Mattagami and Kenogamissi) and tributaries (Minisinakwa, Nabakwasi, and Opikinimika Rivers)
- Grassy River (including Peterlong Lake)
- Tatchikapika River and Lake
- Mountjoy River
- Kamiskotia River

There are six water control structures/facilities on the Upper Mattagami River system. Four of these facilities are reservoirs only and serve to store and release water as required for a variety of purposes (Mesomikenda, Minisinakwa, Mattagami, Peterlong). The other two structures (Wawaitin and Sandy Falls) include hydroelectric power generation facilities. Ontario Power Generation Inc. (OPG) owns and operates all of these structures, except the Minisinakwa facility, which is owned and operated by the Ontario Ministry of Natural Resources (MNR). Five of the six control structures are located along the main branch of the Mattagami River system. The Peterlong Lake Dam is located on the Grassy River. Within the Mattagami Basin, approximately 27% of the drainage area to Timmins is unregulated.

Smaller in size at 2,708 km², the Abitibi Basin is to the east of the Mattagami Basin and includes the Frederick House and Nighthawk River systems which flow via the Abitibi and Moose Rivers north into James Bay. Its major components are the Frederick House, Nighthawk, Redstone, Forks, Whitefish and Porcupine Rivers. Many of these have a very low gradient, which reflects the flatness of the area they drain. The Porcupine River is slow flowing and meandering, susceptible to both flooding and unstable water elevations.

Several of the smaller watercourses located within the City of Timmins form significant components of the watershed's hydrological regime including Town Creek, Crawford Creek, Melrose Creek and Kraft Creek.

Flooding

In the MRCA watershed, large runoff events occur in late spring when the snowmelt combines with rainfall to produce peak discharges. Frozen ground can greatly reduce the rate of infiltration and therefore augment these discharges.

Rainfall events, on the other hand, have had the greatest influence on the smaller watersheds. These watersheds, because of their low capacity to carry away large amounts of precipitation, are susceptible to "flash" conditions as produced by localized storm centres. Heavy rainfall over a short duration results in the rapid rise and fall of discharges. These peaks are greatly reduced when a rainfall event is centered over large watersheds where there is the capacity to absorb and control runoff.

Flood Centres

The three major flooding centres within the watershed are: the Mattagami River as it passes through Mountjoy Township, Town Creek, and Porcupine Lake. Minor centres have been identified on Kamiskotia Lake, Frederick House Lake, Gillies Lake, Pearl Lake, Kraft Creek and Crawford Creek.

MATTAGAMI RIVER

The Mattagami River is the largest of the river systems in the watershed and is to a large extent controlled by a number of dams operated by OPG and one by the MNR. These dams, designed primarily to facilitate power generation, and secondarily, to reduce flood peaks to downstream areas, create several lakes along the system. The Mattagami River is identified as a major flood centre as it passes through Mountjoy Township. The main cause of these flood events can be traced to a combination thaw/precipitation events where surface runoff elevates water levels.

TOWN CREEK

Located entirely within the City of Timmins, Town Creek is a steeply sloped watercourse susceptible to flash floods. As a major storm drain, Town Creek receives runoff from surrounding residential development, Gillies Lake, as well as mine tailings located in the headwater areas. Extensive rehabilitation work by the MRCA has greatly reduced annual flood damages. Structural improvements, including modification of channel slope, channel widening, replacement of undersized culverts and bank stabilization have reduced flood elevations and increased channel capacities considerably. Preventative measures taken to date include the implementation of floodplain regulations, proper zoning through municipal by-laws, and acquisition of floodplain properties. The MRCA operates a yearly maintenance program on the creek to ensure peak channel capacity is maintained at all times. Town Creek is also susceptible to ice build up in both the channel and the culverts. This situation, when combined with substantial precipitation, could lead to the inundation of a large number of residences and cause widespread flood damage.

PORCUPINE LAKE AND RIVER

As part of the Frederick House River system, Porcupine Lake and River are subject to periodic flooding, mainly during a thaw/precipitation event. Prolonged wet summers may also elevate water levels substantially. The river, one of low grade and poor flow characteristics, influences Porcupine Lake in such a way that water levels fluctuate over a wide range throughout the year.

PROGRAMS AND SERVICES

Natural Hazards Management

Regulation / Plan Review

Under Section 28 of the *CA Act*, the Conservation Authority is empowered to enact regulations for all or part of its watershed area to control and regulate the infilling of floodplain lands, the alteration of waterways and the construction of buildings within areas subject to flooding. Regulations apply to all shorelines and watercourses, wetlands and hazard lands within the area of jurisdiction within the boundaries of the Corporation of the City of Timmins. The regulations require anyone wishing to construct or infill within a regulated area to make application to the Conservation Authority.

Applications to construct within a floodplain area regulated under the *CA Act* or the *Planning Act* will be reviewed on an individual basis in light of broad guidelines determined by the MRCA Board of Directors. These guidelines will consider the following:

- Floodplain lands can be used for those activities that are most compatible to the hazards that high water conditions present. These land uses include agriculture, outdoor recreation and natural environment areas. Some structural development may be permitted to support these activities if they are not susceptible to substantial flood damages and they do not contribute to raising design storm elevations.
- No development or infilling will be allowed in those areas that are directly affected by floodway flows during a Regional Storm or 1 in 100-year flood event.
- No infilling of the floodplain will be allowed which will adversely affect flood elevations either on a lake or upstream of the development site. The Conservation Authority will also ensure that the placing of fill will not lead to future erosion problems within the floodplain area.

Applications to infill will be reviewed under the MRCA's regulations to ensure that infilling does not: adversely affect flood elevations by reducing channel capacity; increase erosion problems; lead to water quality impairment, either from siltation or introduction of pollutants; or negatively affect headwater and recharge areas significant in maintaining the basin's hydrologic regime.

The MRCA has a designated Provincial Offences Officer to oversee and enforce the *CA Act* relative to the development regulation under Section 28.

The MRCA provides guidance through plan input and review to their member municipality with the goal of preventing new development from increasing risk to public safety or causing property damage due to natural hazards. This review is completed through the *Planning Act*

commenting process and informally via general inquiries and pre-consultation meetings. The MRCA offers plan review services to the City of Timmins for circulated subdivisions, condominiums, severances, official plan and zoning by-law amendments, minor variances, and site plan control. These reviews focus on natural hazards, including flooding, erosion, dynamic beach hazards, and hazardous sites (Section 5.2 of the Provincial Planning Statement) and the applicability of Ontario Regulation 41/24, guided by the MRCA's regulatory policies.

The Province may also request the MRCA's support for the Ontario Land Tribunal in appeals or other matters under the *Planning Act*.

In addition to natural hazard reviews, the MRCA also provides plan input to the member municipality concerning activities within vulnerable areas (Intake Protection Zone 1 and Intake Protection Zone 2) as outlined in the Mattagami Region Source Protection Plan under the *Clean Water Act*.

Flood Forecasting and Warning

The MRCA maintains a flood forecasting and warning system to provide early warning of possible risks to people and property from flooding.

Flood warning in general is not as applicable on the smaller watersheds because of the fast reaction time between precipitation and runoff events. As such, any proposed flood warning system will concentrate on the larger Mattagami and Porcupine watersheds.

A number of stream gauges, snow courses and weather stations are monitored by the MRCA and partner agencies within the watershed, however not all are correlated to a real-time forecast system. The MRCA has in place a Flood Contingency Plan which is updated annually and outlines the roles and responsibilities of specific agencies during a flood situation.

The Conservation Authority will work towards refining its flood forecasting techniques, in partnership with the Timmins Flood Advisory Committee members: OPG and MNR. The Mattagami River system, largely regulated by dams operated by OPG, has a number of free-running rivers upstream of Timmins. Although the dams are not designed for flood control purposes, they are able to stabilize peak charges to some degree. The close working relationship between members of the Timmins Flood Advisory Committee has proven to be successful in managing high water flows throughout the spring freshet and high precipitation events.

In the event of a flood, the MRCA will undertake a complete flood occurrence and damage survey of those centres affected. This information will be used to correct any deficiencies in the present plan.

Flood and Erosion Control Operation and Management

The Conservation Authority has employed a variety of both structural and non-structural approaches to reduce the effects of flooding over the years, particularly on Town Creek and Gillies Lake. The Conservation Authority has determined that future structural works as a

management tool is economically unviable in the majority of flood centres, and on some sections of Town Creek, other management approaches are deemed more appropriate. Structural upgrading and repair work along Town Creek to protect banks and culverts from accelerated erosion during peak flows has proven successful.

Ice Management Services

Ice jamming on Town Creek, particularly within culverts and along sections of mild gradient, is monitored regularly throughout the winter months. The loss of channel capacity due to ice formation is particularly critical during rainfall events where any increased runoff from rain or snow melt has no defined channel to follow.

Low Water Response

Low water conditions in the MRCA Watershed are weather dependent and uncommon. The MRCA regularly monitors local waterbodies and stream gauges at the Porcupine River, Mattagami River and Kamiskotia River.

Natural Hazards Technical Studies and Information Management

M.M. Dillon Limited prepared the Flood Plain Mapping Study for Mattagami Region Conservation Authority in 1978. Additional mapping was completed in Mountjoy Township by Calder Engineering in 2013. New floodline mapping, based on MNR standards was completed by Greenland International Consulting Ltd in 2019. Based on the large drainage area for the Mattagami River, the 100-year storm is used as the design storm for the Mattagami River. The Timmins Storm is used as the design storm for regulatory purposes on the other waterbodies within the MRCA area of jurisdiction.

Natural Hazards Communications, Outreach and Education

Flooding

The MRCA promotes public awareness of natural hazards such as flooding through their website, social media, and media relations. Future communications programs will prioritize regions with high susceptibility to flooding based on historical data and vulnerability assessments.

Erosion Control

Erosion control is a critical component of watershed management strategies, as it plays a key role in preserving the health of ecosystems, water quality, and the overall sustainability of watersheds. Erosion control is a multi-agency responsibility that includes the Conservation Authority, the municipality and the Ministry of Natural Resources.

Educational guidelines have been developed by the MRCA to assist property owners in addressing all aspects of erosion control. These guidelines highlight such items as the need to revegetate and to maintain slope stability.

Conservation and Management of Conservation Lands

The MRCA owns or manages 432 hectares of land within the City of Timmins. This program includes the management and regular maintenance of four (4) conservation areas (over 274 ha)

and 55 km of trails accessible to the public for non-motorized recreational use. MRCA conservation areas and maintained trails comprise a major component of the park and open space network as identified in the City of Timmins Recreation Master Plan (2023).

Section 29 Minister's Regulation

MRCA has a designated Provincial Offences Officer under Section 29 of the *CA Act* to oversee and enforce rules governing Conservation Authority properties along with educating the public on the importance of adhering to regulations and respecting our natural resources.

Conservation Area Strategy

O. Reg. 686/21 sets out the requirement for Conservation Authorities to develop a Conservation Area Strategy for all lands owned by the Conservation Authority. This strategy will guide the management of MRCA property by classifying the land uses and identifying the programs and services provided within the properties including reducing the risk to people and property from natural hazards, supporting conservation and providing passive recreation opportunities. The Conservation Area Strategy will complement the MRCA Land Management Policy which governs the acquisition and disposition of lands, as aligned with the strategic goals of the Authority.

Land Inventory

O. Reg. 686/21 requires that Conservation Authorities develop a land inventory for every property owned which will include the property's location, surveys, site plans, maps, acquisition date, method of acquisition and land use as identified in the Conservation Area Strategy.

Management, Operation and Maintenance of Owned lands

The management and maintenance of MRCA owned lands is a strategic priority for the Conservation Authority and provides the community with a connection to nature. The overarching intent for management of these lands is to ensure the conservation of natural hazards features (floodplain) and providing safe, enjoyable passive recreation areas for public use while minimizing the environmental impact.

Drinking Water Source Protection

In the Mattagami Region Source Protection Area, MRCA collaborates with the City of Timmins to protect the sole source of municipal residential drinking water, the Mattagami River, as legislated through the *Clean Water Act, 2006*. The Mattagami Region Source Protection Plan uses locally produced science-based assessment reports to identify vulnerable areas and develop policies to address current and future identified threats to the municipal drinking water source. The MRCA is responsible for the administration of the Mattagami Region Source Protection Authority, including governance, meetings, reports and delivery of required activities.

Water Quality and Quantity Monitoring

Provincial Surface Water Quality Monitoring Network (PWQMN)

In partnership with the Ministry of Environment, Conservation and Parks (MECP), as part of the Provincial Surface Water Quality Monitoring Network (PWQMN), the MRCA collects surface water samples at four (4) sites on the Mattagami and Porcupine River systems. The samples are submitted to the MECP provincial lab for stream water quality monitoring, analysis and data management. These results will be used in the future development of an MRCA watershed report card.

Provincial Groundwater Monitoring Network (PGMN)

MRCA monitors groundwater at four (4) monitoring wells in partnership with the MECP Provincial Groundwater Monitoring Network program. The results of water sampling are available to the MRCA.

Issues and Mitigation Measures

Provincial funding levels to Conservation Authorities have decreased significantly over the past 25 years despite repeated requests for increased funding from Conservation Authorities and municipalities. Mandated responsibilities disproportionately impact smaller Conservation Authorities due to the limited population and tax base relative to the size of the watershed. Limited funding and capacity constraints restrict the ability of the MRCA to implement effective comprehensive watershed management programs beyond the minimum required mandated activities. Addressing these challenges requires an integrated approach incorporating a substantial amount of stakeholder collaboration and adaptive management strategies to safeguard the health and resilience of watersheds for current and future generations. Additionally, a number of Financial, IT and GIS services are contracted to the Conservation Authority's member municipality to reduce enabling program services expenses.

Natural Hazards Management

Regulation / Plan Review

Issues	Mitigation Measures
The City of Timmins is 3,210 km ² in area making it one of the largest cities in Canada land-wise. MRCA has limited staff capacity to ensure regulations are upheld throughout its entire jurisdiction.	Ensure staff efficiencies and focus efforts on developed areas. Collaborate with member municipality and like-minded government agencies to build upon existing synergies related to natural hazard management.
Enforcement staff position is a shared position with the municipality reducing the amount of time committed to MRCA concerns.	Ensure staff efficiencies until funding is available to implement full-time regulations staff. Invest in full-time regulation staff... limited by funding shortfalls.
Current staffing level does not provide for sufficient enforcement; property owners proceed with work without permits.	Ensure staff efficiencies until funding is available to implement full-time regulations staff.

	Invest in full-time regulation staff... limited by funding shortfalls.
Updating Section 28 implementation guidelines and administrative procedures to align with legislative changes.	Ensure staff efficiencies.
Development review staff lack support of technical expertise and specialized skills in fields that support integrated watershed management such as: hydrology, biology, hydrogeology, etc.	Continue to expand shared resource opportunities with municipality. Partner with other CA's for shared synergies.
Ongoing training is required for staff and management.	Partner with other CAs and CO for shared opportunities.
Limited staff capacity for updating required information about the number of structures in floodplain areas.	Ensure staff efficiencies until funding is available to implement full-time regulations staff. Invest in full-time regulation staff... limited by funding shortfalls.

Flood Forecasting and Warning

Issues	Mitigation Measures
MRCA like all other Conservation Authorities faces the need for modernization of its existing hydrologic and hydraulic models and corresponding floodline mapping. Additionally, expansion of mapping to the east end of the municipality may be required depending on future development pressures.	Continue flood hazard mapping where potential for increased federal/ provincial funding assistance for natural hazard modelling and mapping updates is available.
Watershed monitoring is not tied to real-time forecast system for flood forecasting.	Continue to work with Timmins Flood Advisory Committee (TFAC) to keep people aware of flood vulnerability and continue to provide timely flood warning messages.

Flood and Erosion Control Operation and Management

Issues	Mitigation Measures
Continued work on Town Creek maintenance flood and erosion control management is dependent on assistance through the Water and Erosion Control Infrastructure (WECI) program.	Continue applying for matching provincial funds for WECI projects.
Current and future shoreline erosion issues due to the high use of Mattagami River for recreational purposes.	Implement revegetation projects in areas with high erosion risk and promote sustainable development practices that prioritize natural vegetative buffers. Build citizen awareness and understanding about erosion.

Natural Hazards Technical Studies and Information Management

Issues	Mitigation Measures
Wetland mapping is outdated and should be reviewed to ensure its accuracy.	Continue to work with our member municipality and the MNR regarding updated wetland mapping.
Development of technical studies requires outside expertise. Municipal/provincial/federal funds and municipal agreements are needed to support completion of technical studies or mapping projects.	Continue to push all levels of government for financial support for technical studies.

Natural Hazards Communications, Outreach and Education

Issues	Mitigation Measures
Staff capacity for a marketing and communications program required to educate and engage the community in watershed management efforts and raise awareness of natural hazards, measures to risks and enhanced safety and to build a more resilient community.	Effectively repurpose staff resources and partner with DWSP communications and outreach activities. Simplify and localize information / Use diverse communication channels. Focus on action-oriented messaging. Integrate education into schools and community programs. Evaluate and adapt strategies continuously.

Conservation and Management of Conservation Lands

Section 29 Minister's Regulation

Issues	Mitigation Measures
Increased outdoor activity resulting in increased stresses on Conservation Areas including prohibited uses, trespass, property damage and encroachment (minor encampments).	Budget for increased maintenance. Post signage that clearly marks property boundaries and states property use rules. Target enforcement efforts to address the busiest areas and to curb any on-going concerns.

Conservation Area Strategy

Issues	Mitigation Measures
Staff resources required to completed legislated Conservation Area Strategy.	Ensure staff efficiencies.

Management and Operation of Owned Lands

Issues	Mitigation Measures
Lands that are easily accessible to the public were developed for passive outdoor recreation opportunities when significant provincial funding was available. In today's litigious society, the inability to restrict access to properties leads to more prohibited uses, opportunity for vandalism and damage and requires significant financial resources for ongoing property management. We maintain a minimal amount of infrastructure on conservation lands, but the current amenities require ongoing funds for maintenance.	Source external funding for property upgrades. Erect signage at properties. Develop asset management plan with financial strategy.
Recreational activities on conservation lands, particularly off-road vehicles, require additional maintenance supports.	Invest in natural physical barriers, fencing or gates (where applicable). Continue community outreach, engagement and education.
Limited funds for invasive species monitoring and management on conservation lands.	Begin allocating funds for invasive species management; ensure staff efficiencies.

Engagement of volunteers to assist with Conservation Lands and Trail management.	Implement an organized approach to a volunteer program.
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Drinking Water Source Protection

Issues	Mitigation Measures
Provincial funding is critical to provide the capacity to continue delivery of this program.	Continue to advocate for stable, multi-year funding to support local staff, projects, meetings, and training.

Water Quality and Quantity Monitoring

Issues	Mitigation Measures
Limited staff resources technological expertise and equipment.	Develop an integrated watershed management program with shared resources from local industries and partners with shared data collection and technical expertise.
Promote community engagement by reporting on monitored aspects of water quality.	Work with community partners in the development of Watershed Report Card.

Enabling Services

Issues	Mitigation Measures
Revenue is not keeping pace with inflation, the cost of delivering quality services to meet expectations, increased insurance costs and inconsistent legal costs.	<p>Advocate to restore provincial funding towards provincial programs to Conservation Authorities.</p> <p>Develop a donor recognition / sponsorship program and promote opportunities to provide financial assistance.</p> <p>Continue to formalize opportunities for shared services with other Conservation Authorities and our member municipality to reduce operational costs.</p> <p>Continue to research grant and funding opportunities.</p>

Additional Issues

Staffing

- MRCA has a small staff compliment with 5 full-time staff equivalents. The majority of staff have roles and responsibilities that span multiple program areas. At present, there is limited opportunity for advancement in the organization and 2 of the MRCA's FTE are nearing retirement within 10 years. Succession planning will be required.

Aging Infrastructure

- Aging infrastructure will need major maintenance, repairs or replacement. This applies to Conservation Area and trail amenities, flood and erosion control structures and buildings.

Legislative Changes

- Recent changes to the *Conservation Authorities Act* legislated mandatory deliverables CAs must undertake and update regularly. In addition, the legislation introduced categories for programs and services including defining those that are mandatory and non-mandatory, and a new Section 28 Regulation, O. Reg. 41/24 came into effect on April 1, 2024. These changes impact the way CAs do business and require updates to policies, procedures and mapping. Legislative changes can significantly impact MRCA's operations, funding, governance, and ability to fulfill its mandate.

Mitigation Measures

Staffing

- Secure funds to support staffing through employment grants and funding proposals.
- Focus on projects that align with CA's objectives to make the most of limited staff resources.
- Partner with other organizations or our member municipality to apply for joint funding opportunities, leveraging combined resources, expertise and shared services.
- Constantly improve upon personnel policies and adopt best management practices to ensure the MRCA continues to be an employer of choice.
- Evaluate current operations and identify areas where efficiency can be improved to reduce the need for additional staff, such as adopting new technologies or processes.
- Create opportunities for staff to share knowledge and skills among themselves, which can help in filling gaps without the need for additional hires.

Aging Infrastructure

- Employ a Capital Asset Management process to ensure sufficient funding and resources to accommodate accessible infrastructure upgrades.
- Inspect structures and ensure routine maintenance to maximize expected useful life.
- Secure grant funding to offset infrastructure repair or replacement costs and utilize reserves and municipal funding.

Legislative Changes

- Continue to explore alternative funding sources such as grants, donations, partnerships with private organizations, and revenue-generating activities to offset the loss of government funding and implementation of mandatory deliverables.
- Strengthen collaborative networks with other CA's and municipal partners to leverage collective influence and resources.
- Implement flexible strategic planning process to allow for adjustments in response to legislative changes without disrupting core programs and services.

Public Engagement and Consultation

To ensure our participating municipality, Indigenous communities, stakeholders and the public are consulted during the preparation of this Watershed Strategy, MRCA will undertake the following:

- Provide the member municipality (City of Timmins) with the draft Watershed Strategy and a 30-day comment period;
- Upload the draft Watershed Strategy to the MRCA website with an online form for questions and/or feedback within the same 30-day comment period, publicizing the opportunity via social media;
- Hold a public information session where members of the public and stakeholders can ask questions and/or provide feedback about the Watershed Strategy, advertising the session via social media; and
- Compile feedback received, incorporating changes to the draft Watershed Strategy as appropriate.

Periodic Review

The Watershed Strategy will be formally updated at minimum every 10 years or as legislatively required. MRCA staff will continue to work towards addressing local and current issues through the multi-year strategic planning exercises.

Conclusion

Watershed-based resource management will play a major role in the future of Ontario and the Mattagami Region watershed. The impacts of climate change are already causing significant harm and damages due to increases in extreme weather events. The MRCA must remain vigilant in delivering the vital services described in this report as efficiently and effectively as possible. The MRCA has a responsibility to the communities it serves to protect people and property from natural hazards posing a threat to community members in the Mattagami Region watershed such as flooding and erosion.

The continuation of Provincial funding for programs is vital to the MRCA's ability to provide the services listed in this report. Ensuring ongoing funding commitments will allow the MRCA to continue to deliver these services. Funding increases beyond the base level would allow the MRCA to improve and expand on these services, providing invaluable benefits to the communities in the Mattagami Region watershed and ultimately have an impact on the province.

Appendix A: Mattagami Region Conservation Authority Programs and Services Inventory

Mattagami Region Conservation Authority Programs and Services Inventory



Program/Service and (subservices)	Description	Category (1,2,3)	Category classification	Funding mechanism % contributions	Estimated annual cost	Program/ Service provided date
NATURAL HAZARDS MANAGEMENT PROGRAM						
Natural Hazard Management – see 21.1 (1) 1 i of the <i>Conservation Authorities Act</i> ; Sections 1-8 of the Mandatory Programs and Services Regulation O.R. 686/21						
Activities protecting life and property from flooding and other natural hazards						
Section 28.1 Permit Administration and compliance activities	Reviewing and processing permit applications, associated technical reports, site inspections, communication with applicants, agents, and consultants. Legal expenses for regulations and compliance.	1	Reg. 686/21 s.8	Self-generated—20% Municipal Levy—80%	\$100,000	Present
Review under Other Legislation	Input to the review and approval processes under other applicable law, (e.g. Lands and Rivers Improvement Act) with comments principally related to natural hazards, wetlands, watercourses and Section 28 permit requirements.	1	Reg. 686/21 s.6	Municipal Levy—85% Provincial TP—8% Self-generated—7%	\$50,000	Present
Municipal Plan Input and Review	Technical information and advice to municipalities on circulated municipal land use planning applications (Official Plan and Zoning By-law Amendments, Subdivisions, Consents, Minor Variances). Input to municipal land-use planning documents (OP, Comprehensive ZB, Secondary plans) related to natural hazards, on behalf of MNRF (delegated to CAs in 1983)	1	Reg. 686/21 s.7	Municipal Levy—80% Provincial TP—15% Self-generated—5%	\$75,000	Present
Flood Forecasting and Warning	Daily data collection and monitoring of weather forecasts, provincial & local water level forecasts and watershed conditions. Flood event forecasting. Flood warning and communications. Maintenance of Annual Flood Contingency Plan.	1	Reg. 686/21 s.2	Municipal Levy—75% Provincial TP—25%	\$75,000	Present
Flood and Erosion Control Infrastructure Operation and Management	Water & erosion control infrastructure and low flow augmentation. Maintenance on flood and erosion control structures dependent on Water and Erosion Control Infrastructure (WECl) funding from the province. New project: Develop Operational and Asset Management Plan	1	Reg. 686/21 s.5	Municipal Levy—80% Provincial TP—20% Provincial / Other (WECl) / Reserves—???	\$25,000	Present / Future

Ice Management Services	Implementing ice control measures, including potential standby equipment. Regular monitoring for ice thickness and potential jamming. New project: Development of ice management plans.	1	Reg. 686/21 s.4	Municipal Levy—70% Provincial TP—30%	\$20,000	Present / Future
Low water response	Conditions monitoring and analysis. Technical & administrative support to the Water Response Team representing major water users and decision makers, who recommend drought response actions.	1	Reg. 686/21 s.3	Municipal Levy—70% Provincial TP—30%	\$5,000	Present
Natural Hazards Technical Studies and Information Management	Data collection and study of designs to mitigate natural hazards. Development and use of systems to collect and store data and to provide spatial geographical representations of data. Includes floodplain management and regulations area mapping updates.	1	Reg. 686/21 s.1	Municipal Levy—75% Provincial TP—25%	\$7,000	Present
Natural Hazards Communications, Outreach and Education	Promoting public awareness of natural hazards including flooding, drought, and erosion. Includes public events, materials, social media services, and media relations.	1	Reg. 686/21 s.1(2) Reg. 686/21 s.1(3),3,4	Municipal Levy—75% Provincial TP—25%	\$20,000	Present
Additional programs (Category 2 or 3 – CA Specific) related to Natural Hazards						
City of Timmins Site Alteration By-Law Management	Service contract / MOU with the City of Timmins for MRCA to oversee the permitting, and management of Site Alteration	2	CAA s.21(1)(n)	Municipal Funding—100%	\$75,000	Present
CONSERVATION LANDS AND CONSERVATION AREAS						
Conservation Authority Lands and Conservation Areas see 21.1 (1) 1 ii of the <i>Conservation Authorities Act</i> ; Sections 9-1 of the Mandatory Programs and Services Regulation O.R. 686/21 Managing, maintaining and conserving lands owned or controlled by the Authority for the protection of biodiversity and natural heritage including the preservation of areas of significant environmental and ecological importance; and providing opportunities for outdoor recreation.						
Section 29 Minister’s regulation	Conservation areas enforcement and compliance Legal expenses for regulation and compliance	1	Reg. 686/21 s.9(1)4	Municipal Levy—90% Provincial TP—10%	\$75,000	Present
Conservation Area Strategy	Guiding principles, objectives, including for an authority’s land acquisition and disposition strategy, land use categories on	1	Reg 686/21 s.9(1)1	Municipal Levy—100%	\$25,000	Future

	conservation authority owned land, recommended management principles for different land categories, etc. New project: Development of a conservation area strategy to complement the ongoing management of the MRCA Land Management Policy					
Land Inventory	New project: Development of an inventory containing information for every parcel of land owned or controlled by the Authority.	1	Reg 686/21 s.9(1)3	Municipal Levy—50% Self-Generated—50%	\$5,000	Future
Management, Operation and Maintenance of CA owned lands	Management and maintenance of four conservation areas and 55 km of recreational trails. Includes passive recreation, risk management program, hazard tree management, gates, fencing, signage, brochures, communications, pedestrian bridges, trails, parking lots, pavilions, roadways, stewardship, restoration, and carrying costs such as taxes and insurance.	1	Reg 686/21 s.9(1)2	Municipal Levy—97% Self-Generated—3%	\$10,000	Present
Additional programs (Category 2 or 3 – CA Specific) related to CA Lands (e.g. a recreational activity is provided on the parcel that requires the direct support or supervision of staff employed by the authority or by another person or body, or commercial logging is carried out on the parcel)						
City of Timmins Trail Management	Service contract (MOU) with City of Timmins for management and maintenance of Community Recreational Trail Network or other amenities that support public access and recreational activities that can be provided without the direct support or supervision of staff employed by the authority or by another person or body.	2	CAA s.21(1)1(n)	MOU/Agreement—100%	\$???	Future
City of Timmins Weed Management	Service contract (MOU) with City of Timmins for weed management at public beach areas	2	CAA s.21(1)1(n)	Municipal Funding—100%	\$10,000	Present
City of Timmins Property Maintenance	Service contract (MOU) with City of Timmins for maintenance of public works properties	2	CAA s.21(1)1(n)	Municipal Funding—100%	\$20,000	Present
Land Acquisition and Disposition	Disposition of lands considered surplus to the vision, mission and mandate of MRCA. Acquisition and management of lands containing important natural heritage features or strategically aligned with existing MRCA land holdings i.e. Provincially Significant Wetlands (PSW's).	3	CAA s.21(1)c	Self-generated—100%	\$???	Present / Future

Land Lease Agreement Management	Management of current and future land leases and property agreements. These leases and agreements help drive land-based revenues to offset the costs associated with management and maintenance of MRCA land holdings	3	CAA s.21(1)c,d	Self-generated—100%	\$5,000	Present
Education and Community Events	Community event development, execution and support (i.e. Foundation supported activities)	3		Foundation or Other Funders—%	Funded by third party donors	Present
DRINKING WATER SOURCE PROTECTION						
Drinking Water Source Protection see 21.1 (1) 1 iii of the <i>Conservation Authorities Act</i> ; <i>Section 13 of the Mandatory Programs and Services Regulation O.R. 686/21</i> Contributing to the protection of existing and future sources of municipal drinking water by delivering the duties, functions, and responsibilities of a source protection authority under the <i>Clean Water Act</i>.						
Source Protection Authority role as set out in the Clean Water Act.	Source Protection Area, SPC support, SPA reports and meetings, activities required by the Clean Water Act and regulations. Assisting in the co-ordination and implementation of the source protection plan that applies to the authority's source protection area. Where the authority considers it advisable, reviewing and commenting on any proposal made under another Act that is circulated to the authority for the purpose of determining, i. whether the proposal relates to a significant drinking water threat that is governed by the plan, or ii. the proposal's potential impact on any drinking water sources protected by the plan.	1	Reg. 686/21 s.13	Provincial TP—100%	\$125,000	Present
Additional programs (Category 2 or 3 – CA Specific) related to Drinking Water Source Protection (e.g. monitoring, DWSP Risk Management Official)						
Risk Management Services	Provision of Risk Management Services to municipality.	2	Clean Water Act s.47(1) CAA s.21(1)1,n	Municipal Funding—100%	\$???	Future

WATER QUALITY & QUANTITY MONITORING						
Water Quality & Quantity Monitoring see 21.1 (1) 2 of the <i>Conservation Authorities Act</i> ; ; Section 12(2) and 12(3) of the Mandatory Programs and Services Regulation O.R. 686/21 A long-standing (20+ year) CA/MECP partnership for surface and groundwater monitoring at a Provincial scale.						
Provincial Water Quality Monitoring Network (PWQMN)	A long-standing (50+ year) CA/MECP partnership for stream water quality monitoring. CA takes water samples; MECP does lab analysis and data management.	1	Reg. 686/21 s.12(1)2 Reg. 686/21 s.12(3)	Provincial Grant—10% Municipal Levy—90%	\$5,000	Present
Provincial Groundwater Monitoring Network (PGMN)	A long-standing (20+ year) CA/MECP partnership for groundwater level and quality monitoring. CA maintains equipment, data transfer to MECP, water sampling; MECP provides equipment, standards, data management.	1	Reg. 686/21 s.12(1)2 Reg. 686/21 s.12(3)	Provincial Grant—10% Municipal Levy—90%	\$5,000	Present
Additional programs (Category 2 or 3 – CA Specific) related to Water Quality & Quantity (e.g. OBBN, temperature, additional gauges or water quality testing sites)						
CORE WATERSHED-BASED RESOURCE MANAGEMENT STRATEGY						
Core Watershed-based Resource Management Strategy see 21.1 (1) 2 of the <i>Conservation Authorities Act</i> ; Section 12(4)-(9) of the Mandatory Programs and Services Regulation O.R. 686/21 Advancing and contributing to the maintenance of a healthy and resilient natural environment.						
Strategy Development	New project: Strategic development shall include the guiding principles and objectives of delivery of mandatory programs, stakeholder and public consultation, implementation plans and annual reporting.	1	Reg 686/21 s.12(1)3 Reg 686/21 s.12(4)	Municipal Levy—?% Self-generated—?%	\$???	Future
Additional Programs and Services (Category 2 & 3 CA Specific) related to Watershed and Integrated Shoreline Management Planning/Science and Reporting						
Sub-watershed Planning	New project: Report back to the community on the current state of the watershed based on water quality, forest cover, and wetland cover. Watershed report cards provide an overview of the entire watershed. Watershed health checks focus on smaller watershed or sub-watershed areas.	3	CAA s.21 (1) a	Self-generated—?%	\$???	Future
Additional Programs and Services (Category 2 & 3 CA Specific) related to Conservation / Outdoor Education						
Partnership Building and Support	Management and enhancement of mutually beneficial community partnerships with partners, stakeholders,	3	CAA s.21(1)n	Provincial Grant—?% Municipal Levy—?%	\$???	Future

	committees and “friends” groups. These vital partnerships allow MRCA to provide substantial value in the delivery of programs and services.					
ENABLING PROGRAM SERVICES						
Enabling Program Services <i>NOTE: methodology for inclusion of these types of services will be finalized once Phase 2 regulations are released</i>						
Corporate Services	Administrative, human resources, operating and capital costs which are not directly related to the delivery of any specific program or service, but are the overhead and support costs of a conservation authority.	1	Enabling Services	Municipal Levy—95% Provincial TP—5%	\$45,000	
Financial Services	Annual budget, accounts payable and receivable, payroll, financial audit, financial reports for funding agencies, preparing and submitting reports to CRA, benefits program administration.	1	Enabling Services	Municipal Levy—95% Provincial TP—5%	\$45,000	
Legal Expenses	Costs related to agreements/contracts, administrative by-law updates.	1	Enabling Services	Municipal Levy—95% Provincial TP—5%	\$5,000	
Communications and Marketing	Supporting delivery of products and programs through communication platforms and promotion of revenue generating activities; websites creation and maintenance.	1	Enabling Services	Municipal Levy—95% Provincial TP—5%	\$35,000	
Governance	Supporting CA Boards, Advisory Committees, Office of GM.	1	Enabling Services	Municipal Levy—95% Provincial TP—5%	\$25,000	
Asset Management	Asset management planning, facilities & property management.	1	Enabling Services	Municipal Levy—95% Provincial TP—5%	\$33,000	
Information Technology Management / GIS	Data management, records retention. Development and use of systems to collect and store data and to provide spatial geographical representations of data.	1	Enabling Services	Municipal Levy—95% Provincial TP—5%	\$25,000	
Fleet and Equipment	Management and maintenance of MRCA fleet and equipment needs including capital purchases, fuel, licenses, repairs and maintenance.	1	Enabling Service	Municipal Levy—95% Provincial TP—5%	\$35,000	

Appendix B: Existing Technical Studies

1. City of Timmins Recreation Master Plan
Sierra Planning and Management; May 2023
2. Mattagami River Flood Plain Mapping Modernization Final Report
Greenland International Consulting Ltd.; November 2019
3. Mountjoy Township Watershed Flood Risk
Calder Engineering Ltd; April 2013
4. Approved Assessment Report for the Mattagami Region Source Protection Area
Mattagami Region Source Protection Committee; October 2010
5. Water Quality Risk Assessment Report for the Mattagami Region Source Protection Area
R.J. Burnside & Associated Limited; June 2009
6. Issues Evaluation & Threats Inventory Report for Mattagami Region Source Protection Area
R.J. Burnside & Associates Limited; May 2009
7. Mattagami Region Source Protection Area Groundwater Vulnerability Analysis
R.J. Burnside & Associates Limited; April 2008
8. Surface Water Vulnerability Analysis for the Mattagami Region Source Protection Area
Golder Associates Ltd.; April 2008
9. Water Characterization Report for the Mattagami Region Source Protection Area
Mattagami Region Source Protection Authority; March 2008
10. Mattagami Region Source Protection Area Tier 1 Water Quantity Assessment
Mattagami Region Source Protection Authority; October 2007
11. Mattagami Region Source Protection Area Conceptual & Tier 1 Water Budget
Mattagami Region Source Protection Authority; July 2007
12. Mattagami Region Conservation Authority Source Water Protection Water Quality Report
Golder Associates Ltd.; August 2006
13. Groundwater Management Study: Timmins, Black River-Matheson, Iroquois Falls Final Report
AMEC Earth & Environmental, R.J Burnside & Associated Limited, Hardy Stevenson and Associates Limited; March 2005
14. Porcupine River Environmental Monitoring Study
Ministry of Environment; May 2001
15. Upper Mattagami Water Management Study
Dillon Consulting Limited; September 2000
16. Report on the Study of the Potential Effects of Mine Flooding: Timmins, Ontario
Golder Associates Ltd; May 1997
17. Environmental Study: Town Creek/Mattagami River Estuary
A & A Environmental Services Inc.; September 1995
18. Draft Hydrologic Report Crawford Creek Update Study
Paragon Engineering Limited; August 1988

19. Mattagami River Study
Dillon Consulting Engineers & Planners; June 1987
20. Watershed Plan, Phase One
Mattagami Region Conservation Authority; 1983
21. Watershed Plan, Interim Watershed Strategy
Mattagami Region Conservation Authority; 1983
22. Porcupine River Channel Improvements Update Study
Acres Consulting Services Limited; October 1983
23. Gillies Lake Rejuvenation Study
The Latham Group Inc.; February 1983
24. Porcupine River Channel Improvement Study
Acres Consulting Services Limited; February 1980
25. Hersey Lake Conservation Area Master Plan
Mattagami Region Conservation Authority; March 1979
26. Report on Flood Plain Mapping of Selected Watercourses within the City of Timmins
M.M. Dillon; September 1978
27. The Recreational Corridor System, A Study of Recreational Potential in Timmins
G. R. Smith; August 1978
28. Porcupine Lake and River Study
Acres Consulting Services Limited; January 1978
29. Mattagami Conservation Area Master Plan
Mattagami Region Conservation Authority; 1976
30. Flood Plain Mapping Study for the Timmins Area
M.M. Dillon Limited; December 1975
31. The Mattagami Valley Conservation Authority Report on Gillies Lake Watershed
Gore & Storrie Limited; May 1969