

# Directions Report (Draft)

## Trout Lake Watershed Study and Management Plan



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### 1.0 Introduction

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J.L. Richards & Associates Limited (JLR) and Hutchison Environmental Sciences Ltd. (HESL) have been retained by the City of North Bay (North Bay), Municipality of East Ferris (East Ferris) and North Bay Mattawa Conservation Authority (Conservation Authority) to prepare a new Watershed Study and Management Plan for Trout Lake.

The study is being undertaken to review lake water quality data to understand the health of the lake, determine the effectiveness of the lake's existing management framework and to identify improvements to the management framework to ensure that the lake remains healthy, for current and future generations.

The study area of this watershed study includes Trout Lake, all major inflowing streams and lands within 300 metres of Trout Lake.

The findings from the background reports, and existing opportunities and constraints reports completed by both JLR and HESL respectively, aid in understanding the historic trends of the study area regarding land use, land development and water quality; the existing land use planning framework being implemented by North Bay and East Ferris, and best management practices being implemented across the province to protect, preserve and improve water quality. This report utilizes these findings, in conjunction with the results of the Lakeshore Capacity Modelling completed by HESL to determine areas within the lake management framework to be amended and recommendations on how to do so.

This project has been divided into the four phases. A summary of the related scope and deliverables for each phase is provided in the table below:

Phase	Scope	Deliverables	Status
Understanding	Review existing lake water quality and land use planning information	Background Report	Completed
	Synthesize the findings of the background report, results of the updated Lakeshore Capacity Modelling, and best management practices review to identify areas of possible improvement	Issues, Opportunities and Constraints Report	Completed
Directions	Examine areas of improvement and provide direction to strengthen land use planning framework	Directions Report	Completed
Planning	Finalize recommendations to the land use planning framework and management approach	Final Recommendations Report	To be Completed

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Implementation (optional)	Provide North Bay and East Ferris with a staff report and draft amendments	Official Plan and Zoning Amendment	To be Completed
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This is the third of four reports that JLR will prepare for the purposes of this study.

The first report was a Background Report that examined land use planning characteristics in the study area and described the current and in effect land use planning management framework to protect the health of Trout Lake.

The second report was an Issues, Opportunities and Constraints Report that compared North Bay's and East Ferris' approach to land use planning relative to other municipal jurisdictions. It also examined the findings of HESL's Trout Lake Study and Management Plan Issues, Opportunities and Constraints Report and identifies possible areas of improvement to the existing management framework of the lake.

This report describes improvements that should be made to North Bay's and East Ferris' current land use planning frameworks and management approaches in light of the study findings and feedback to date.

The balance of this report is structured as follows:

- Section 2 describes the study area and summarizes the findings from JLRs and HESLs Issues, Opportunities and Constraints reports, and public feedback from the open houses
- Section 3 describes policy recommendations for improvement
- Section 4 provides conclusions and next steps

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### 2.0 Background

#### 2.1 The Study Area

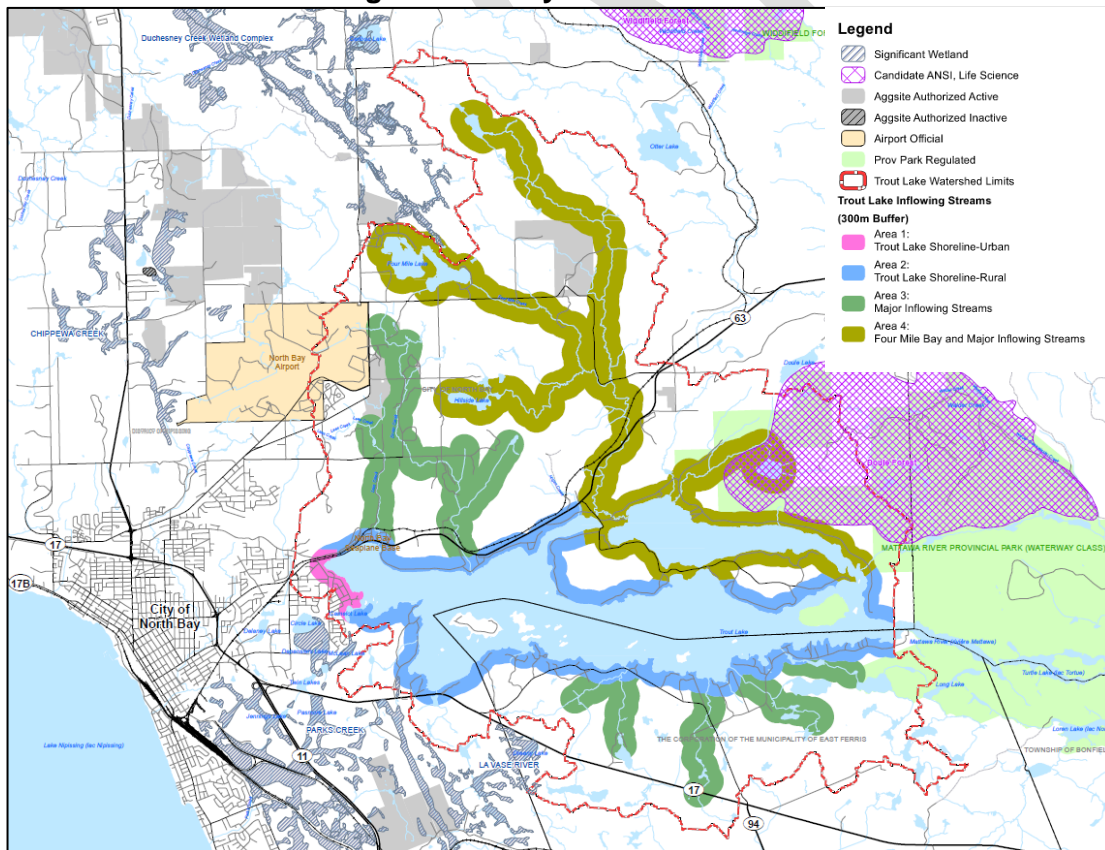
North Bay, East Ferris and the Conservation Authority have adopted a holistic definition of Trout Lake, one that includes all major inflowing streams and lands within 300 metres of Trout Lake and its major inflowing streams that have the highest potential to influence water quality in the lake.

This study maintains this holistic perspective. For the purposes of the study Trout Lake refers to Trout Lake; all major inflowing streams, islands within the lake and lands within 300 metres of the Trout Lake shoreline and the major inflowing streams.

Trout Lake represents a large geographic area where various development characteristics occur, impacting their potential influence on the quality of Trout Lake. To better understand the study area the following sub-areas have been identified:

- Area 1: Trout Lake Shoreline – Urban
- Area 2: Trout Lake Shoreline – Rural
- Area 3: Major Inflowing Streams
- Area 4: Four Mile Bay and Major Inflowing Streams

**Figure 2. Study Area Boundaries**



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### 2.2 JLR's Background Report

JLR's Background Report provides baseline information on key land use planning characteristics in the study area and best management practices used by North Bay, East Ferris and the Conservation Authority.

In terms of land use planning and development characteristics:

- Approximately 96 percent of parcels (66% of the land area) in the study area are privately owned.
- According to MPAC and using land areas, approximately 23 percent of the study area is residential, 15 percent is farm (farm includes managed forests), 8 percent is industrial, 9 percent is airport/military/cemetery, 21 percent is crown land and 23 percent is vacant.
- The predominant residential building type is single detached residential structures, be they permanent or seasonal residential.
- The average lot area is 23,784 square metres
- The average shoreline lot frontage is 57 metres
- About 70% of the shoreline lots do not meet current minimum lot area standards

In terms of best management practices, the Background Report documented that North Bay, East Ferris and the Conservation Authority use a range of best management practices to protect and improve water quality including:

- Minimum shoreline and vegetated buffer strips
- Shoreline setbacks
- Septic system operation and maintenance
- Site Plan Control
- Lot sizing, coverage and frontage
- Municipal Water Quality Objectives

### 2.3 HESL's Issues, Opportunities and Constraints Report

HESL's Issues, Opportunities and Constraints Report assessed existing and relevant lake water quality information to determine the general health of the lake, reviewed scientific understanding regarding waterfront Best Management Practices, refined the Lakeshore Capacity Model to determine development capacity of the lake, and provided a review of the recreational carrying capacity of Trout Lake.

Key conclusions from this report include the following:

- Trout Lake, including major inflowing streams, One Mile Bay, Four Mile Lake and Four Mile Bay in all development scenarios is not at-capacity for modelled Total Phosphorus (TP) and Mean Volume Weighted Hypolimnetic Dissolved Oxygen (MVWHDO)
- A standardized approach to assess the current and proposed level and type of recreational carrying capacity, including boating activity does not exist in Ontario. The Official Plan of Sequin Township includes provisions for recreational capacity on lakes. This was used for Trout Lake. Following the completion of this simple recreational carrying capacity assessment the Trout Lake Main Basin is under capacity while the Four Mile Bay is over capacity
- Improve the water quality monitoring and reporting to increase the parameter list for samples collected, implement consistent sampling methodology, continue to use the same water quality laboratory for consistency, develop a standardized and repeatable approach to

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collecting suitable date and calculating MVWHDO, and complete and distribute annual monitoring reports

- Modify septic system monitoring to ensure that all sample sites are sampled, that septic monitoring results are examined as received and follow-up is completed on those systems not averaging at least 93% phosphorus removal
- BMPs are effective in reducing the impact of development on lakes
- A comprehensive list of BMPs and development standards should be developed and applied to all waterfront development applications

#### 2.4 JLR's Issues, Opportunities and Constraints Report

JLR's Issues, Opportunities and Constraints Report, in part, benchmarked the best management practices used by North Bay, East Ferris and the Conservation Authority against 25 other lake based municipalities in Ontario. The outcome of the benchmarking exercise found that North Bay and East Ferris have comparable best management practices to communities across the province. Unique to North Bay and East Ferris are the municipal water quality objectives of a measured ice-free seasonal average phosphorus level of 7 µg/L and mean volume weighted hypolimnetic dissolved oxygen measure of 8 mg/L.

Provision	Precedent (Average*)	North Bay	East Ferris
Development Setback (min)	30 m	30 m	30 m
Septic Setback (min)	30 m	30 m	60 m
Lot Area (min)	0.4 ha	0.4 ha - 1.2 ha	0.8 ha - 2.02 ha
Lot Frontage (min)	60 m	60 m	60 m
Lot Coverage (max)	10% and 15%	Rural: 5% - 10% Urban: 45%	10%
Shoreline Buffer (min)	75% of linear shoreline frontage, 15 m depth	15 m or 30 m (as part of site plan agreements)	15 m
*Average determined by more frequently applied provision			

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The following table provides a summary of the existing land use policies within North Bay and East Ferris compared to other lake-based municipalities:

<b>Development Setback</b>	<ul style="list-style-type: none"><li>• Comparable to other municipalities</li></ul>
<b>Septic Setback</b>	<ul style="list-style-type: none"><li>• Comparable to other municipalities</li><li>• East Ferris' setback is more stringent than most of the precedent reviewed</li></ul>
<b>Lot Area</b>	<ul style="list-style-type: none"><li>• Mostly comparable to other municipalities.</li><li>• Minimum lot sizes do vary by zone</li><li>• East Ferris generally requires larger lot sizes than precedent reviewed</li></ul>
<b>Lot Frontage</b>	<ul style="list-style-type: none"><li>• Comparable to other municipalities</li></ul>
<b>Lot Coverage</b>	<ul style="list-style-type: none"><li>• Mostly comparable with precedent reviewed</li><li>• North Bay has large range of maximum lot coverages, which is reflective of the many zones captured in the study area</li></ul>
<b>Shoreline buffer</b>	<ul style="list-style-type: none"><li>• Comparable to other municipalities</li><li>• HESL report states: <i>scientific literature demonstrates that a 30 m buffer provides a range of ecological services, and this buffer size is commonly recommended in the peer-reviewed literature focused on shoreline development, aligning with Provincial guidance.</i></li></ul>

### 2.5 Public Feedback

Consultation was held with the Trout Lake Conservation Association (TLCA), a local stakeholder group on three occasions. The first October 4<sup>th</sup> to introduce them to the project by providing an overview the project objectives and scope, and to present the findings of the first set Background Report completed by JLR and HESL. The second meeting was held on April 13<sup>th</sup>, and the third was held on June 22<sup>nd</sup> to discuss the draft directions report.

In addition to meeting with the TLCA four open houses were held. Two were held on April 13<sup>th</sup>, the first was held in the Municipality of East Ferris and the second was held in the City of North Bay to inform the public of the project, provide the public the opportunity to ask questions and feedback on 'what they like about Trout Lake and what should be preserved' and 'what they don't like about Trout Lake and should be changed'. Two were held on June 22<sup>nd</sup>, the first was held in the Municipality of East Ferris and the second was held in the City of North Bay to discuss the proposed recommendations to the Municipality's and City's current land use planning frameworks and management approaches. Comments received from the 3<sup>rd</sup> and 4<sup>th</sup> open house reflected the discussions and feedback received at the first two open houses.

Based on the feedback received to date, the following general themes emerge:

#### 2.5.1 Like/Maintain:

It is clear that Trout Lake is valued by the residents of North Bay and East Ferris for a variety of reasons. The public expressed appreciation for and noted the importance of Trout Lake as not only the source of drinking water, but the wildlife, aesthetic, and recreational opportunities that Trout Lake provides so close to an urban environment. Many noted that Trout Lake makes these



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communities a beautiful place to live, that the lake is home, and that it should be protected. There is a desire to preserve the natural areas around the lake such as Camp Island, and the water quality by restricting new development and minor variances, preserving natural shoreline vegetation, requiring site plan controls to include shoreline buffers, putting a barrier or collection area along the shore where adjacent to Highway 63, improve stormwater management, maintain a Level 1 and TP objectives, and collecting and monitoring data.

### 2.5.2 Concerns/recommendations:

Several concerns and recommendations were expressed with respect to the management and use of Trout Lake which center around the following themes: (1) Study Area; (2) Water Quality/Shoreline Buffer; (3) Development; (4) Boats; (5) Enforcement; and (6) other.

#### 2.5.2.1 Study Area

Concern was expressed with regards to the study area, in particular with regards to the eastern boundary by the Mattawa River. The study area presented at the open house ended at the mouth of the Mattawa River, excluding some lots within East Ferris and Turtle Lake. Additionally, concern was expressed that the Algonquin Land Claim had not been considered.

#### 2.5.2.2 Water Quality/Shoreline Buffer

Comments were received with respect to concern of the shoreline from many observing clearing on several lots, and increased weed growth. It was suggested that plants be provided to landowners along Trout Lake to support a natural shoreline vegetative buffering, as well as to not salt roads in the winter months. Some questioned why PFAS/PFOs were not reviewed as part of this study.

#### 2.5.2.3 Development

Several questions were raised with respect to the current land use planning framework which restricts development within 300 m of Trout Lake. Some individuals favour the prohibition, while others do not. Some comments noted a desire for more flexibility for backlots in terms of development, lot creation, and for lots where only a portion of the parcel is within the 300 m. Others noted that minor variances appear to be too easy to get, and stricter provisions should be established. One comment noted that new development should be permitted where infill is possible and existing infrastructure can be used. Another comment supported development through implementing best practices (i.e. minimum impact lot policies).

#### 2.5.2.4 Boats

Concerns with respect to the impact of boats on the water quality of Trout Lake, and shoreline were expressed. Several comments regarding the impacts of wakes on the shoreline, such as erosion, were received. One comment suggested the

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consideration of the implementation of a no wake zone at the entrance of One Mile Bay. It was also noted that there are several houseboats and cruisers on the lake being used as houseboats, and that there is concern that boats may be discharging black and grey water into the lake, although this is not confirmed.

#### 2.5.2.5 Enforcement

Many comments regarding concern for the complaint based enforcement system around Trout Lake were received. The general feedback was that the policies in place are good, they just are not being enforced. Better enforcement of site plan control, the preservation of vegetation along the shoreline, the management of new construction, and development setbacks were requested, as well as a “best septic” when re-developing or replacing septic systems, and more frequent monitoring of culverts prone to freezing were requested.

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### 3.0 Discussion

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Based on the results of the Lakeshore Capacity Model it has been identified that Trout Lake is not at-capacity from a modelling perspective, although there are potential concerns regarding recreational capacity in Four Mile Bay and some caution signs in the measured data. A precautionary and responsible approach to development should continue to apply given the importance of the lake and uncertainty regarding climate change. Further, based on information available at this time, Turtle and Talon Lakes, which are downstream of Trout Lake, appear to be at capacity. This section provides an overview of policy topics that are recommended to be updated to strengthen lake management policies while allowing appropriate development to occur.

#### 3.1 Vision, Goals and Objectives

##### 3.1.1 Background

The purpose of this study and plan is to establish land use planning policies and provisions to protect and preserve the water quality, visual and aesthetic character, as well as the recreational, social and environmental experiences on Trout Lake, inflowing streams and Four Mile Lake.

As discussed in JLR's Background Report, North Bay, East Ferris and the Conservation Authority have created a comprehensive framework to guide growth and development in the study area. The fundamental thrust of the framework is to protect and improve water quality, recognizing the importance of Trout Lake as a drinking water source, habitat for lake trout and recreational resource for the communities.

North Bay's and East Ferris' Official Plans are the primary land use planning tools within this comprehensive framework. North Bay's Official Plan came into effect in 2012 and is currently undergoing a statutory periodic review and update. This study is being undertaken separate from this Official Plan Review process. East Ferris' Official Plan came into effect in 2016, except for policies regarding Trout Lake, which are pending provincial approval.

Given this and understanding the purpose of this study, the vision, goals and objectives of North Bay's and East Ferris' Official Plans should be reviewed to ensure that they continue to reflect the strategic goal of protecting and improving water quality for current and future generations.

##### 3.1.2 North Bay Official Plan

Section 1.4 of the North Bay Official Plan sets out the vision and guiding principles for land use planning in the community. The vision and guiding principles speak to the importance of the protection of the natural environment and link the City's goals for Trout Lake to its growth management goals.

- The Official Plan envisions are a City where "*individuals and families can enjoy a safe, healthy and secure quality of life; ... economic and community development that represents good planning and maintains or enhances the City's natural and cultural setting will be encouraged.*" (s. 1.4.1).

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- The Official Plan's guiding principles including the following: *"The City's natural amenities will be maintained and enhanced so that the community remains a sustainable community with a high standard for quality of life and a healthy natural environment; New development should be undertaken primarily in the Settlement Area in a manner that enhances the community's reputation of having a healthy natural environment;"* (s.1.4.2).
- Section 1.4 continues to describe the term "sustainability" in the context of land use planning and the relationship between growth management and Trout Lake. The Official Plan states *"The term sustainability in the City of North Bay land use context means that the community will continue to work towards maintaining and enhancing its attributes and improve conditions that lead to a better quality of life for future generations."* The Official Plan also states that *"Lands within the Settlement Area, on full municipal services, will be the focus of growth in the municipality. The majority of the Trout Lake Watershed is outside the designated Settlement Area to restrict urban development within the watershed."* (s.1.4.2).

#### 3.1.3 East Ferris Official Plan

Section 1.5 of the East Ferris Official Plan sets out the goals and objectives for land use planning in the community. The goals and objectives broadly speak to sustainable development, link the community's growth management and water quality goals and objectives, and recognize the link between shoreline development and lake water quality.

The goal of the Official Plan is to *"... provide an appropriate decision-making framework for land use development within the Municipality of East Ferris over the Planning Period ending 2025. Objectives of the Official Plan in accomplishing this goal are as follows:*

- *To develop a strong community in which the focus of growth will be a strategic balance between the Villages of Corbeil, Astorville and Derland and the rural area. ... Consideration must also be given to resource and recreational activities, most notably, shoreline residential development ....*
- *To conserve the natural heritage features of the community eg. wetlands, wildlife, shorelines, etc., ....*
- *To address specific settlement issues such as shoreline residential development (seasonal and cottage conversions) ... and the impact of shoreline residential and related uses (docks, boathouses, etc) on the water quality objectives of the municipality, the conservation authority, provincial agencies and neighbouring municipalities (Bonfield and North Bay)."*

#### 3.1.4 Directions

North Bay's and East Ferris' Official Plans generally speak to the strategic goal of protecting Trout Lake's water quality for current and future generations.

**Given the significance of Trout Lake to both communities, we recommend that Councils give consideration to updating Section 1.4 of North Bay's Official Plan and Section 1.5 of East Ferris' Official Plan to include more specific policy guidance regarding Trout Lake.**

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- In North Bay's case, this can be achieved through incorporating references to Trout Lake in the existing guiding principles and a statement regarding Trout Lake similar to the Downtown Waterfront statement made at the end of Section 1.4.
- In East Ferris' case, this can be achieved through the inclusion of an objective specific to Trout Lake.

As discussed in the JLR Background Report, Goals 11 and 13 of the U.N. Sustainable Development Goals call for member countries to: make cities inclusive, safe, resilient and sustainable; and, take urgent action to combat climate change and its impacts, respectively. These broad directions are consistent with the directions established in the Provincial Policy Statement (2020), which, in part, directs planning authorities to protect, improve or restore the quality and quantity of water by evaluating and preparing for the impacts of a changing climate to water resource systems at the watershed level. (Policy, 2.2.1.c). Feedback received from stakeholders and the public to date also reinforced the need to maintain a precautionary approach to lake water quality in light of the impacts of climate change on Trout Lake, North Bay and East Ferris.

According to the Government of Canada's Canadian Centre for Climate Services, the area's climate will change between now and 2050 if Greenhouse Gas Emissions (GHG's) continue to rise at current rates. For example, the number of + 30 °C days is expected to increase by 10 percent, the number of - 30 °C days is expected to increase by 3 percent, annual mean temperatures are expected to rise by 2.2 °C, and the number of heavy precipitation days (10 mm) is also expected to rise by 2.9 percent.

According to the Government of Ontario, climate change will alter Ontario's aquatic ecosystems as a result of increases in air and water temperature, decrease in ice and snow cover and changes in the timing and amount of precipitation. These changes will affect the hydrological cycle by altering the flow of water and water chemistry. Threats to freshwater fauna include nutrient enrichment, hydrological modifications, habitat degradation and loss, pollution, and the spread of invasive species. The habitat and productivity of cold water species, such as lake trout, may decline substantially with increased air and water temperatures.

**Given the above, we further recommend that Councils give consideration to including updated specific policy guidance relating to Trout Lake in Section 1.4 of North Bay's Official Plan and Section 1.5 of East Ferris' Official regarding the area's changing climate and associated anticipated impacts.**

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### 3.2 Municipal Water Quality Objectives

#### 3.2.1 Background

The Province of Ontario establishes water quality objectives for all lakes, rivers and streams in Ontario, pursuant to the *Environmental Protection Act* and the *Ontario Water Resources Act*.

Provincial Water Quality Objectives (PWQO) are intended to provide guidance in making water quality management decisions such as the designation of surface waters which should not be further degraded. PWQO's are numerical and narrative ambient surface water quality criteria. They apply to all surface waters in the province (unless exempt by the province). They are set at a level of water quality which is protective of all forms of aquatic life and all aspects of the aquatic life cycle during indefinite exposure to water. The PWQOs for protection of recreational water uses are based on public health and environmental considerations.

The current interim PWQO for phosphorous are as follows:

- To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 µg/L;
- A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 µg/L or less. This should apply to all lakes naturally below this level.
- Excessive plant growth in rivers and streams should be eliminated at a total phosphorous concentration below 30 µg/L.

The PWQO for phosphorous was given interim status in 1992. Since this time, the Province of Ontario has moved towards a revised PWQO for lakes on the Precambrian Shield and has established a PWQO for the protection of lake trout habitat.

- The revised PWQO for lakes on the Precambrian Shield allows for a 50 percent increase in phosphorous concentration from a modeled baseline of water quality in the absence of human influence. This is known as the "background + 50 percent" approach.
- The new PWQO for the protection of lake trout habitat requires 7 mg of dissolved oxygen per litre of water, measured as mean, volume-weighted, hypolimnetic dissolved oxygen concentration (MVWHDO) in the late summer.
- The province recommends that generally there will be no new municipal land use planning approvals for new or more intense residential, commercial or industrial development within 300 metres of lake trout lakes where the MVWHDO concentration has been measured at or below 7 mg/L.

This revised approach is seen as having the following advantages:

- each water body would have its own water quality objective, described as "background + 50 percent";
- development capacity would be proportional to a lakes original trophic status;
- each lake would remain closer to its original trophic status; and,
- the existing diversity of trophic status in Ontario would be maintained in perpetuity.

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These policies are consistent with those outlined in the Provincial Policy Statement (2020) which directs planning authorities to protect, improve or restore the quality and quantity of water (Policy 2.2.1). For further information on this policy, please refer to Section 4.2.2. of JLR's Background Report. According to the PPS, the policies in the document represent minimum standards. Decision makers may go beyond the minimum standards to address matters of importance to their community, unless doing so would conflict any PPS policy.

### 3.2.2 North Bay Official Plan

Policies for the Trout Lake Watershed are set out in Section 3.5 of North Bay's Official Plan.

- Section 3.5.3 provides context for some of the policies in this section and states "*Trout Lake's 1988 water quality status is classified as Level 1 or excellent by the Ontario Ministry of the Environment, which means that is average springtime constituent total phosphorous is between 0.0 and 10.0 micrograms/L. While long term monitoring has identified a wide divergence in annual data, overall averages indicate that the main body of Trout Lake has an average springtime total phosphorous level of 7.1 micrograms/L and that Four Mile Bay has a corresponding level of 7.2 micrograms/L of total phosphorous.*"
- Building on the above policy, Section 3.5.7 states "*Effective management will be achieved when predicted average nutrient concentrations will maintain or reduce existing nutrient levels in Trout Lake. This shall occur under a scenario where all existing lots or parcels of record are developed and steady state nutrient loading is occurring. Currently a measured ice-free seasonal average phosphorous level of 7 µg/L combined with a late summer volume weighted dissolved oxygen measure of 8 mg/L represents required long-term indicators of the overall health of Trout Lake and which defines one of the City of North Bay's minimum water quality objectives.*"

### 3.2.3 East Ferris Official Plan

Section 5.3.7.1 of the East Ferris Official Plan sets out adopted policies for Trout Lake. These policies have been adopted by East Ferris Council but have not been yet decided upon by the Province of Ontario. These policies are based on the 1989 Trout Lake Watershed Management Study and the 1990 Trout Lake Pollution Control Plan. Similar to North Bay, East Ferris has also established minimum water quality objectives in its adopted policies. For example, Section 5.3.7.1.2 of the Official Plan states "*The minimum water quality objective for Trout Lake is to maintain a measured average long term ice free phosphorous concentration below 7.0 mg/L and to maintain a measured mean (average) hypolimnetic dissolved oxygen concentration above 8 mg/L.*"

### 3.2.4 Directions

North Bay and East Ferris have defined Municipal Water Quality Objectives (MWQO) for Trout Lake in their respective Official Plans. The MWQO of measured ice-free seasonal average phosphorus level of 7 µg/L combined with a late summer MVWHDO of 8 mg/L, are more conservative than the interim PWQO. This reflects the strategic importance of Trout Lake and the community's desire to protect water quality for current and future generations. Based on the municipal precedent review undertaken for the purposes of this study, North Bay and East Ferris are unique in establishing MWQO in their Official Plans. While the MWQO reflect relatively recent provincial direction by establishing a MWQO of 7 mg/L for MVWHDO, neither reflect the "background + 50 percent" approach.

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As described in HESL's Background Report, average annual ice free total phosphorous concentrations measured in eight locations between 2002-2019 were below the MWQO and PWQO of 7 µg/L and 10 µg/L, respectively, except in two years where measured concentrations exceeded the MWQO of 7 µg/L (2008 – 7.06 µg/L and 2011 – 7.61 µg/L). Based on data available for nine years of monitoring MVWHDO met PWQO and MWQO in all years, except one (1994 – 6.94 mg/L in Four Mile Bay).

In their Existing Conditions, Issues and Opportunities and Constraints Report, HESL presents the results of the updated Lakeshore Capacity Assessment Model for Trout Lake.

In the context of this report section, key conclusions from this report relating to total phosphorous are:

	Main Basin	Four Mile Bay
<b>Existing Land Use Characteristic</b>		
# of permanent residential lots	772	249
# of seasonal residential lots	110	76
# of existing, vacant, legal lots of record	151	49
<b>Modelled TP<sup>1</sup> Concentrations and PWQO</b>		
Modelled Background TP (µg/L)	3.76	5.18
<b>PWQO Background + 50 percent (µg/L)</b>	<b>5.64</b>	<b>7.77</b>
Modelled TP – Conversions and Existing Lots (µg/L) <sup>2</sup>	5.13	6.63
Modelled TP – New Lots, Full Development (µg/L) <sup>3</sup>	5.63	7.76
<b>Modelled Spring Overturn TP and Predicted MVWHDO</b>		
Modelled Spring Overturn TP – Conversions and Existing Lots (µg/L)	5.74	7.25
Predicted MWVDO <sup>4</sup> (mg/L)	10.9	8.78

1. TP = Total Phosphorous
2. Assumes all existing seasonal residences are converted to permanent residences, all existing vacant legal lots of record are developed, and all future on-site septic systems achieve 86 percent retention of septic-related total phosphorous.
3. In addition to Assumption 2 above, assumes 414 new lots are created in the Main Basin and 254 lots are created in Four Mile Bay. This level of development is not recommended but presented for information purposes only. As discussed below, this report recommends that the existing MWQO of 7.0 µg/L for Four Mile Bay be maintained. If this approach is approved, this would create the potential for up to 80 lots to be created in Four Mile Bay.
4. Demonstrates potential impact of modelled TP concentrations on dissolved oxygen concentrations. For information purposes only.



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Based on the above, the following observations can be made:

- The updated Lakeshore Capacity Assessment Model results indicate that Trout Lake is not at capacity when considering the PWQO “background + 50 percent” for total phosphorous and the PWQO of 7 mg/L of MVWHDO.
- The PWQO “background + 50 percent” for the Main Basin is higher (more conservative) than the existing MWQO of 7 µg/L, while the PWQO for Four Mile Bay is lower (more permissive).
- Existing seasonal residences can be converted to permanent residential uses and existing vacant legal lots of record can be developed with appropriate best management practices in place, including septic system best management practices, while respecting the “background + 50 percent” and 7mg/L MVWHDO PWQO objectives.
- All development scenarios assume 86 percent soil retention of septic-related phosphorus both for existing and future development.
- New residential lots could be created in the Main Basin and Four Mile Bay area assuming these lots are developed with best management practices in place, the “background + 50 percent” PWQO can also be achieved.

Note that these statements do not account for other planning objectives that North Bay and East Ferris have in place such as growth management. They also do not account for the uncertainty that climate change represents, including its potential impact on lake trout habitat, or assess downstream impacts on Turtle Lake and Lake Talon.

**Based on the above, we recommend that North Bay and East Ferris consider updating their Municipal Water Quality Objectives to reflect a hybrid approach, as follows:**

- **Main Basin: 5.64 µg/L**
- **Four Mile Bay: 7.0 µg/L**

**This includes Sections 3.5.3 and 3.5.7 in North Bay’s Official Plan and 5.3.7.2 of East Ferris’ Official Plan.**

**If approved, moving towards this hybrid approach would bring the approaches currently used in North Bay and East Ferris another step closer towards provincial best practices for establishing lake water quality objectives while also maintaining a conservative approach to lake water quality given the strategic importance of Trout Lake.**

**Maintaining the existing MWQO would allow existing vacant legal lots of record to develop and conversion of existing seasonal residences to continue in the Main Basin and Four Mile Bay areas, subject to enhanced waterfront best management practices being implemented. The model results also suggest that lot creation may be appropriate in the Main Basin and Four Mile Bay. However, as described in HESL’s Existing Conditions, Issues, Opportunities and Constraints Report, other lines of evidence suggest that Four Mile Bay is crowded from a recreational carrying capacity perspective. There were also some caution signs in the measured data. With all this in mind, these items are discussed further in the following section of this report.**

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### 3.3 New Lot Creation

#### 3.3.1 Background

Many municipalities use their land use planning framework to “guide” development along lakes, rivers, streams and other waterbodies within the communities consistent local and provincial goals and objectives for the community.

The planning tools that are most commonly used today control the number of lots that can be created, the lot characteristics (e.g. minimum area and frontage on the adjacent water body), relationship of the development to the water (e.g. setbacks, vegetative buffers) and the intensity of development (e.g. minimum yard setbacks, maximum lot coverage).

In the context of that are either sensitive to phosphorous loading or that have been determined to be “at capacity” in accordance with provincial guidelines, a “300 metre setback tool” is also used. Generally speaking, this planning tool restricts the creation of a new lot or intensification of an existing use unless it is demonstrated that the septic system associated with the new lot or more intensive use is more than 300 metres from the shoreline of the receiving water body. This standard was established by the Province of Ontario and is seen as being large enough to ensure that any phosphorous that leaves the septic system is bound in the soil and does not reach the adjacent waterbody.

For example, as discussed above, the Lakeshore Capacity Assessment Handbook states that *the Province recommends that generally there will be no new municipal land use planning approvals for new or more intense residential, commercial, or industrial development within 300 metres of lake trout lakes where the MVWHDO concentration has been measured to be at or below 7 mg/L. This recommendation also applies to lakes where water quality modelling has determined that the development of existing vacant lots, with development approvals, would reduce the MVWHDO to 7 mg/L or less.*

Direction provided in the Lakeshore Capacity Assessment Handbook: protecting Water Quality in Inland Lakes, when waterbodies are deemed to be at capacity, new lot creation and other planning approvals should only be allowed to:

- To separate existing habitable dwellings, each of which is on a lot that is capable of supporting a Class 4 sewage system, provided that the land use would not change and there would be not net increase in phosphorus loading to the lake;
- Where all new tile fields would be located such that they would drain into a drainage basin which is not at capacity;
- Where all new tile fields would be set back at least 300 metres from the shoreline of lakes, or such that drainage from the tile fields would flow at least 300 metres to the lake

#### 3.3.2 North Bay Official Plan

North Bay’s Official Plan policies regarding new lot creation in the study area has evolved as information regarding lake health was first established and updated over the last 30 years. In 1990 and 1997, new lot creation along Trout Lake was “frozen” for five years. A subsequent Ontario Municipal Board (now Ontario Land Tribunal) Decision determined that there was capacity to create 43 “minimal impact lots” on the lake. 23 of these lots were assigned to North Bay and 20 were assigned to East Ferris.

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North Bay's in effect Official Plan policies reflect this evolving approach. For example:

Section 3.5.11 states *"Residential development with frontage on Trout Lake will only be permitted, within the rural areas, in areas designated as "Lakefront Residential" ... . The following uses shall be permitted within the "Lakefront Residential" designation: a) permanent or seasonal residential dwellings; b) local parks and playgrounds, and c) accessory uses to the above."*

Section 3.5.12 states *"In the event that the current prohibition on new vacant lot creation is removed, new multi-lot residential development with frontage on Trout Lake will only be permitted, within the rural area, in areas designated as "Lakefront Residential" ... . The following uses shall be permitted within the "Lakefront Residential" designation: a) permanent or seasonal residential dwellings; b) public parks, playgrounds, natural open spaces, and c) accessory uses to the above."*

Section 3.5.15 states *"It is the intent of this Plan to strictly control or limit the nature and extent of development along the shoreline of Trout Lake, including second-tier or backshore development, development on islands in Trout Lake, development along streams flowing into Trout Lake, as identified by the North Bay-Mattawa Conservation Authority on the schedule to the Development, Interference and Alteration to Waterways Regulations and development in the Trout Lake Watershed in general. This will be achieved by generally prohibiting the creation of new lots which front on Trout Lake or on a stream flowing into Trout Lake, enforcing larger setback distances from the shoreline of Trout Lake or a stream flowing into Trout Lake, by discouraging the removal of natural vegetation within the setback zone, by enforcing appropriate stormwater management policies which minimizes flows, erosion, siltation and nutrients, by strictly regulating lot design features through environmental education. The general intent of these measures is to minimize the disturbance of shoreline ecosystems and where they are affected by development, to restore natural ecosystem functions. It is the objective of these controls to maintain or improve the existing level of water quality, to maintain or improve the existing level of aesthetic and recreational qualities and to improve the lake's fishery. The City will work with other groups and agencies to see that programs and regulations under their respective jurisdictions are implemented to achieve these same objectives."*

*a) Studies indicate that there are already enough lots or parcels of record with frontage on Trout Lake and on streams flowing into Trout Lake to seriously impair the existing water quality of Trout Lake if full waterfront development occurs by way of conventional means and planning policies. Water quality deterioration may even be serious enough to cause the City of North Bay objectives of maintaining or improving existing water quality to be compromised if such full development occurs. This deterioration would be experienced over many years as new development occurs and as the effect of existing development is realized. Such deterioration could also negatively affect other identified resource management objectives.*

*b) Therefore, it will be the policy of Council to continue to prohibit the creation of new lots or dwelling units by Consent, Plan of Subdivision or Plan of Condominium along the un-serviced shoreline of Trout Lake over the next five (5) year review period. The prohibition on lot creation also applies to lands within 300 metres of the One Mile Bay and Four Mile Bay basins, major inflowing streams and watercourses flowing into Trout Lake as identified by the North Bay-Mattawa Conservation Authority and to further prohibit the creation of any new lot within 300 linear metres of the un-serviced shoreline of Trout Lake on lands deemed to constitute "second tier" or "back lot".*

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c) *New lots may be created in keeping with the policies contained within 3.4 of this Plan from existing Parcels that are considered "second tier" or that have a portion of the original parcel falling within 300 metres of the un-serviced portion of the Trout Lake shoreline or a major inflowing stream, provided that no portion of the lot to be created falls within 300 m of the un-serviced shoreline of Trout Lake or a major inflowing stream.*

d) *These policies do not encompass the serviced urban residential development located on the westerly limits of Trout Lake. Property owners within the serviced urban residential area along the Trout Lake shoreline shall be required to incorporate maximum building setback distances for development or redevelopment from the shoreline. ...*

f) *For the purposes of this policy, "non-impact lots" are considered to be lots or parcels of record in excess of 300 metres from the Trout Lake shoreline or any major inflowing stream to Trout Lake as identified by the North Bay-Mattawa Conservation Authority. Any proposal for "non-impact" residential development within the Trout Lake Watershed shall be accompanied by the types of technical justification studies and analyses identified in 3.5.16. ...*

Section 3.5.16 states "Notwithstanding other policies in this section, when an application is received for an Official Plan or Zoning By-law Amendment that would result in the development or redevelopment of a parcel or lot of record for a more intense use or for new lot creation in the Trout Lake Watershed, ... , by Consent, Plan of Subdivision, or Plan of Condominium, in an area not affected by 3.5.15 or for development or redevelopment on an existing lot or parcel of record in an area not affected by Site Plan Control, that such an application may, where required by the City or the appropriate regulatory agency, be accompanied by:

- a) *An erosion control and drainage plan which indicates how stormwater management principles will be incorporated into the lot and/or plans design;*
- b) *A report which states how existing vegetation will be protected or enhanced for the purpose of runoff and nutrient control. Disturbance by cutting, excavation, or removal of existing natural vegetation shall be restricted to a maximum of 10% of the area within 15 metres of the shoreline of Trout Lake or its tributaries;*
- c) *A soils report which identifies site soil characteristics, including soil type, depth, leaching characteristics, depth to water table and mitigation measures for any soil deficiency related to a proposed use. This report should be verified by a soils analyst or consultant with demonstrated competence in soils analysis;*
- d) *An impact study which shows the impact of the proposed use on water quality and how this impact can effectively be minimized. This study should be sent to the appropriate regulatory agency for review and comment;*
- e) *A fisheries habitat assessment of the existing shoreline or stream with recommendations on how the existing habitat conditions can be preserved and/or enhanced. This report should be sent to the appropriate regulatory agency for review and comment;*
- f) *A screening plan showing how proposed uses will be screened from view or how the existing aesthetic landscape of the waterfront will be preserved; and*
- g) *Any additional technical justification studies or analyses to identify or mitigate potential air, soil or water pollution risks arising from the proposed industrial, commercial or institutional use of such lands, where requested by the appropriate regulatory agency."*

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Section 3.5.17 states *“It is Council's intention to preserve and protect from construction or development of buildings or structures the lands within 30 metres of the shoreline of Trout Lake or any stream flowing into Trout Lake, within the rural area.”*

Section 3.5.18 states *“Natural shoreline and stream bank vegetative communities provide a variety of water quality and habitat benefits which include, but are not limited to, the following:*

- a) uptake of nutrients;*
- b) the entrapment of nutrients contained in runoff;*
- c) prevention of shoreline and stream bank erosion, and*
- d) the provision of shade and cover for aquatic life.”*

Section 3.5.19 states *“Cultivated vegetative communities comprised of lawns and gardens are far less effective due to the low density of vegetation and the single storey of vegetation.*

*a) Lawns provide little or no benefit due principally to their shallow root structure and lack of woody stems for long-term storage of nutrients. Inappropriate practices associated with typical lawn care such as the use of fertilizers, herbicides, and pesticides have a negative impact on water quality and are strongly discouraged.*

*b) It is, therefore, critical to preserve and enhance the natural shoreline vegetative community within the 15 metres immediately abutting the shoreline for the above-noted reasons and as an effective visual screen for aesthetic purposes.*

*c) The Plan recognizes that many property owners residing on water bodies are desirous of unobstructed access and site vistas to the water. Limited removal of the vegetative zone will be considered on a lot by lot basis in order to permit a cleared landscape corridor within the natural vegetative buffer up to a maximum of 4 metres width from the shoreline. Removal of any portion of the vegetative buffer will require the prior approval of the Managing Director of Community Services or their designate.*

*d) Certain maintenance of the natural vegetative buffer may be undertaken such as the removal of snags, dead trees and noxious plants. Replanting with trees, shrubs and/or flowers native to this area is required.*

*e) Where the natural vegetative community has been removed or disturbed by construction, replanting of trees and shrubs of a species and caliper suitable to the City is required.”*

#### 3.3.3 East Ferris Official Plan

Similar to North Bay, East Ferris Official Plan policies are based on previous studies regarding the capacity and water quality of Trout Lake. Official Plan policies regarding lot creation are set out in Section 5.7.3.1, which, in part, states:

*“... It is the intent of Council that this Plan strictly control or limit the nature and extent of development along the shoreline of Trout Lake, including second tier or back lot development, development on islands in Trout Lake, development along watercourses flowing into Trout Lake and development in the Trout Lake watershed in general. It is the objective of these controls to maintain or improve the existing level of water quality, aesthetic and recreational quality to improve the lake's fishery. It is also the objective of these controls to minimize the disturbance of shoreline ecosystems and where there are adverse effects from development, to restore natural ecosystem functions. While maintaining this commitment to protecting the water quality of Trout Lake, limited residential development or the commercial equivalent will be permitted based on the exercise of appropriate controls on the siting of buildings and structures, including tile beds, and the use of the best available technology for phosphorus removal. ...*

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*Based on previous water quality analysis (1999), the creation of approximately 20 new lots along the shoreline of Trout Lake or the bank of any designated watercourse flowing into the lake as identified on Schedule "D" and the development or redevelopment of existing parcels of record may be allowed, subject to the development controls and policies set out in this Plan. The Municipality will maintain a record on lots created in accordance with this policy. It is anticipated that there will be no adverse effect on the water quality of Trout Lake. ...*

*The creation of new lots where the on-site subsurface sewage disposal tile bed would be situated within 300 linear meters (984.3 ft.) of Trout Lake or the bank of a designated watercourse flowing into Trout Lake ... will be permitted provided that the water quality objective for Trout Lake is not exceeded. The minimum water quality objective for Trout Lake is to maintain a measured average long term ice free phosphorus concentration below 7.0 mg/L and to maintain a measured mean (average) hypolimnetic dissolved oxygen concentration above 8 mg/L.*

*The creation of new residential lots shall be phased over a period of time as follows: a maximum of 5 new lots will be permitted in each year (from 1999) to a maximum of 20 lots (subject to meeting the minimum lot size requirements). Should either of the measured water quality objectives for phosphorus or dissolved oxygen be exceeded or there is a clear trend indicating that they will be exceeded, then no new lots shall be created along the shoreline and designated watercourses of Trout Lake.*

*The minimum lot size for new lot creation shall be 0.81 hectares (2.00 acres) and the minimum lot frontage shall be 60 metres (196.85 feet) In conjunction with the requirements of Section 4.19 of this plan. Lots shall be properly proportioned, e.g., have sufficient depth, to accommodate the safe installation of a sewage disposal system.*

*It is the intent of Council to generally prohibit the creation of new lots where the setback for on-site subsurface sewage disposal beds from the shoreline of Trout Lake or the bank of the designated portion of a watercourse flowing into Trout Lake is less than 60 metres (196.8 feet)*

*It is the intent of Council to require the establishment and/or retention of a natural vegetative buffer on lands within 15 metres of the shoreline of Trout Lake or a designated inflowing watercourse. In situations where the natural vegetative buffer will be reduced to accommodate the expansion of an existing building, the replanting of an area equivalent or greater than the area required for the expansion, will be required . ..."*

### 3.3.4 Directions

North Bay and East Ferris' Official Plans are both based on scientific information regarding lake water quality and development capacity available to them at the time that the policies were developed. Both sets of policies recognize the importance of Trout Lake and the sensitivity of the lake to future development. HESL's Background Report and Existing Conditions, Opportunities and Constraints Report reaffirms the importance of Trout Lake. **We recommend that Councils give consideration to continuing to include statements in both Official Plans that recognize the importance and sensitivity of Trout Lake. We further recommend that Council's given consideration to removing any statements regarding Trout Lake being at capacity from both documents.**

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North Bay and East Ferris' Official Plans differ in their application of the 300 metre setback tool. North Bay uses the 300 metre tool to prohibit new lot creation in the study area, including "backshore lots", whereas East Ferris's adopted policies permit lot creation with on-site subsurface sewage disposal tile bed within the 300 metre setback area provided its MWQO for Trout Lake are met. HESL's updated Lakeshore Capacity Assessment Model demonstrates that Trout Lake is not at capacity. Modelled MVWHDO is below the PWQO. Therefore, the 300 metre setback tool is no longer applicable.

**We recommend that Councils give consideration to re-positioning how the 300 metre setback tool is used in both documents. In North Bay's case, this would involve removing and replacing the 300 metre lot creation prohibition policies with a 300 metre Trout Lake Influence Area overlay, wherein any future development applications would be subject to best management practices described in this document. In East Ferris' case, this would involve including the same overlay in its Official Plan. The overlay would apply to all lands within 300 metres of the shoreline of Trout Lake, it's islands, major inflowing streams and Four Mile Lake.**

North Bay and East Ferris' Official Plans both include policies that speak to the minimal impact lots that were previously approved by the Ontario Municipal Board (now Ontario Land Tribunal). 43 minimal impact lots were granted, 23 were assigned to North Bay and 20 were assigned to East Ferris. Of these lots, there are currently 4 remaining in North Bay and 1 remaining in East Ferris. It is understood that, at the time of writing this report, both municipalities have received development applications to develop the remaining minimal impact lots. **We recommend that Council's give consideration to removing references to minimal impact lots in both documents and replace the minimal impact lot policy framework with the framework described in this document, which achieves a similar outcome.**

HESL's updated Lakeshore Capacity Assessment Model suggests that a substantial number of new residential lots can be created in the Main Basin and Four Mile Bay, while respecting the recommended MWQO. However, HESL acknowledged that other capacity tools such as measured TP and MVHWDO data, recreational carrying capacity and uncertainty regarding downstream impacts and climate change, indicate that the number of lots is not recommended. Allowing the maximum number of lots in the study area is counter to North Bay and East Ferris' strategic goals for Trout Lake and desire to preserve the lake for current and future generations.

**Based on all of the above, we recommend that Councils give consideration permitting a limited number of new lots to be created in the Trout Lake Influence Area Overlay, subject to best management practices. Councils could permit up to 20 percent of the total number of available lots, subject to best management practices, including septic system monitoring and continued annual lake water quality monitoring. This includes up to 83 lots in the Main Basin and 20 lots in Four Mile Bay. The number of Main Basin lots should be divided between the two communities based on the percent of land area in the Main Basin portion of the study area (i.e. 50 in North Bay and 33 in East Ferris). The percentage or number of lots could not be further increased until the Lakeshore Capacity Assessment Model is updated and demonstrates that MWQO are being achieved. Any lot creation beyond this limit would be prohibited until the model is updated and demonstrates that the MWQO are being achieved. Understanding that some developments have already been approved within the 300 m setback area, with septic system outside the setback area any new lots created within the Trout Lake Influence Area overlay, with septic systems outside of the 300 m area would not count towards maximum lot cap.**

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In terms of best management practices, North Bay and East Ferris' Official Plans include policies to guide lot creation in the underlying land use designations such as "Lakefront Residential" and "Rural" in North Bay, and "Waterfront" in East Ferris. The approaches taken in the Official Plans differ, given their treatment of Trout Lake. In North Bay's case, the Official Plan includes policies that describe what information will need to be submitted to form part of a complete application for an Official Plan Amendment or Zoning By-law Amendment for lot creation. It also establishes minimum building setback, minimum vegetative buffer and cleared area standards. In East Ferris' case, the Official Plan set out development standards for new lot creation including minimum lot areas, minimum lot frontages, minimum septic system setbacks and minimum vegetative buffers.

**Building on our previous recommendations, and consistent with the best practices summarized in Section 2.4 of this report, we recommend that Councils give consideration to:**

- **Updating their Official Plans to guide limited and controlled lot creation in the Trout Lake Influence Area Overlay. These policies should establish a minimum lot area of 0.4 ha hectares, maintain the minimum lot frontage of 60 metres, increase the minimum building setback (including septic systems) to 32 metres and establish a minimum shoreline vegetative buffer of 30 metres, allowing a clearing width of 5 m to access the water;**
- **Updating both Official Plans require that development on new lots that are created by subject to Site Plan Control. Further recommendations regarding the use of Site Plan Control are described in Section 3.6, below.**

Understanding that some lots may only partially be located within the proposed 300 m Trout Lake Influence Area overlay and that the septic system may be beyond the 300 m setback,

### 3.4 Existing, Vacant, Legal Lots of Record

#### 3.4.1 Background

There are many lots in the study area in North Bay and East Ferris that are existing, vacant, legal lots of record. As described in JLR's Background Report, approximately 23% of land within the study area are existing, vacant lands. The same report also found that only 30 percent of existing lots along the Trout Lake shoreline met the current minimum lot standards established by North Bay and East Ferris.

#### 3.4.2 North Bay Official Plan

North Bay's Official Plan policies regarding the development of existing vacant legal lots of record is generally restrictive.

Section 3.5.21 recognizes that most existing lots of record within the rural area with frontage on Trout Lake do not meet the provisions establishes, and therefore have require a Minor Variance. This section establishes criteria to be used when assessment minor variances resulting in *development or redevelopment of an existing lot or parcel of record should only be approved when at least three of the following six criteria are met:*

- *a minimum frontage of 61 metres;*



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- *a minimum lot area of four-tenths of a hectare (0.4 ha);*
- *a minimum setback for new habitable buildings and all sub-surface septic systems of 30 meters;*
- *all habitable buildings are connected to municipal sanitary sewer services;*
- *all habitable buildings are incorporated into a mandatory annual septic tank pump out program;*
- *filing of a suitable Site Plan to illustrate either maintenance of the shoreline vegetable buffer zone or a replanting and rehabilitation scheme or the shoreline vegetative buffer zone*

Should three of the above criteria not be met, the OP does allow Council or its designate the consider an Application for Minor Variance provided the applicant can *demonstrate that the Minor Variance would result in redevelopment of an existing lot or parcel of record in a manner that would provide net improvement to water quality. To demonstrate a net improvement to water quality, the owner will be required to retain a professional with appropriate, demonstrated expertise, to the satisfaction of the City, to undertake the requisite justification studies.* This is typically done through site evaluation reports implemented through Site Plan Control.

North Bay also requires a Site Plan Control Agreement be entered into for the development of existing, vacant legal lots of record. This is to ensure that development is appropriate, that setbacks and vegetative buffers are established and maintained, stormwater is managed, and that erosion and sedimentation controls are in place.

#### 3.4.3 East Ferris Official Plan

The Official Plan for the Municipality of East Ferris provides that for *existing lots of record, the minimum setback for on-site subsurface sewage disposal tile beds from the shoreline of Trout Lake or the bank of a designated watercourse flowing into Trout Lake...shall be 60 linear metres.*

The OP also provides that *minor variances to the minimum setback for on-site subsurface sewage disposal beds may be considered provided such applications are accompanied by a report prepared by a competent professional engaged in the science and design of subsurface sewage disposal systems that clearly indicates that a minor variance is justified, but in no case shall a minimum setback of less than 30 metres (98.4 feet) be approved for development of a vacant existing lot.*

All lots designated Waterfront are subject to Site Plan Control. This is to ensure that appropriate development occurs that will not negatively impact the water. The location of proposed buildings, wells and sewage disposal systems are reviewed as well as the approximate location of all natural and artificial features on the subject land. Additional studies may be required to support the application such as a soils report, groundwater or surface water quality impact study, a fisheries habitat assessment...etc.

#### 3.4.4 Directions

North Bay and East Ferris' Official Plans speak to existing lots of record, but do not speak specifically to existing, vacant legal lots of record. **We recommend that Councils give consideration to updating their Official Plans to include policies to guide development on existing vacant legal lots of record that meet the minimum lot area and frontage requirements established by each municipality for such lots. These policies should also**

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include best management practices for development that are comparable to new lots. This includes a 32 metre setback, 30 metre vegetative buffer and maximum cleared width of 5 m to access the water. Further recommendations regarding legal non-conforming lots is discussed below.

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### 3.5 Expansion, Enlargement or Redevelopment of Legal Non-Complying/Non-Conforming Uses

#### 3.5.1 Background

Legal Non-Complying uses refers to the continuation of a use that lawfully existed under the previous by-law, however due to provisions updated in the successive Zoning By-law (i.e setbacks, height, coverage, lot area...etc.) the use no longer complies with the zoning regulations.

Legal Non-Conforming uses refers to the continuation of a use that is no longer permitted in the current Zoning By-law, but lawfully existed under the previous zoning by-law and is therefore permitted so long as it continues to be used for that purpose.

Section 45 (2) of the *Planning Act* allows Committees of Adjustment to authorize the expansion of buildings and structures associated with legal non-conforming uses, and some minor variation or more compatible continuation of legal non-conforming uses, subject to certain criteria, including that the expanded non-forming use does not extend beyond the property limit.

As part of this study, we reviewed minor variance applications provided by North Bay to understand how the polices were being administered. Our review indicated that in many cases, applicants are unable to meet three of the six policy tests for minor variances and will retain a qualified professional to demonstrate how the development will result in a net improvement in water quality. The various professional studies submitted in support of these applications demonstrate that a consistent approach is being taken to addressing lake water quality. Commonly recommendations from these reports include:

- Eavestroughs installed on the building shall outlet into a constructed soak away pit on the corner of the dwelling farthest from Trout Lake to redirect stormwater from impermeable surfaces and reduce over land stormwater flows
- Retain all existing natural vegetation and mature tree growth where possible (dead, diseased or hazardous trees may be removed at any time), with an emphasis on existing vegetation within 15 m of the shoreline
- The creation of a rain garden with native species
- Increase septic system setback from the waterbody

This indicates that the professional and administrative approach to addressing lake water quality in Trout Lake has matured to a point of certainty and consistency, and has the potential to be incorporated directly into planning policy in the area.

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Some municipalities included in the municipal best practice scan include policies and regulations that allow for limited expansion of legal non-conforming uses “as of right”, without the need to apply for and receive minor variance approval. For example, the Township of Georgian Bay provides the following general parameters for the expansion of legal non-complying uses, provided that additional provisions in the Zoning By-law are met:

1. For a legally existing dwelling located less than 10 meters from the front lot line:
  - Increase to the gross floor area by a maximum of 25%
  - Increase to the building width by a maximum of 20%
  - Increase to the height by a maximum of 1 m to a maximum height of 6 m
  - No portion of any expansion shall be permitted to encroach further to the shoreline
2. For a legally existing dwelling located between 10m-15 m from the front lot line:
  - Increase to the gross floor area by a maximum of 40%
  - Increase to the building width by a maximum of 30%
  - Increase to the height by a maximum of 1.5 m to a maximum height of 6 m
  - No portion of any expansion shall be permitted to encroach further to the shoreline
3. For a legally existing dwelling located between 15m-20 m from the front lot line:
  - Increase to the gross floor area by a maximum of 70%
  - Increase to the building width by a maximum of 60%
  - Increase to the height by a maximum of 2 m to a maximum height of 6 m
  - No portion of any expansion shall be permitted to encroach further to the shoreline

In terms of redevelopment of a legal non-complying use, the Township of Georgian Bay permits the reconstruction of a legal non-complying building provided that the new development does not increase in height, volume or gross floor area, nor reduce the front, side or rear yard setbacks. An increase in height of 1 m is permitted to improve the foundation, provided the maximum height zone requirement established in the By-law is met.

With regards to the expansion or enlargement of a legal non-conforming building or use, the Township of Georgian Bay does not allow for the expansion or enlargement of legal non-conforming uses unless for floodproofing, insulation, or if thereafter the building is used for a purpose permitted in by-law and complies with all relevant provisions of the by-law.

The reconstruction of an existing legal non-conforming building is permitted when damaged by causes beyond the control of the owner, other than flooding. The reconstruction is permitted to occur in the same location, even if zone provisions were not met, provided the non-conforming nature is not further increased.

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### 3.5.2 North Bay Official Plan

North Bay highlights the intent for non-conforming uses to, overtime, cease to exist so that these lots may revert to uses that conform with the intent of the Official Plan. Though, it is acknowledged that it may be desirable to permit the extension or enlargement of a non-conforming use in order to avoid unnecessary hardship provided that:

- *The expansion or redevelopment will not seriously jeopardize the possibility of future developments in their vicinity that may comply more closely with the intent of the Plan;*
- *In any such expansion or redevelopment, special efforts are made to enhance the compatibility of the use and to improve amenity and design*
- *The expansion or redevelopment is only permitted through an application to the Committee of Adjustment, as permitted by Section 42 of the Planning Act*

Minor variances are a common tool used to deal with the expansion, enlargement or redevelopment of legal non-complying/non-conforming lots/uses. As discussed in Section 3.4.2 of this report, the North Bay's Official Plan contains a list of criteria uses to assess minor variance applications.

### 3.5.3 North Bay Zoning By-law

North Bay clearly provides a restrictive approach to dealing with non-complying/non-conforming uses for rural, un-serviced lots fronting on Trout Lake or a watercourse flowing into Trout Lake. Sections 3.6, 3.7, 3.8 and 3.9 of the Zoning By-law contain parameters for the allowance of an enlargement, reconstruction or repair to non-conforming buildings, non-complying buildings, and development on undersized lots. All of these sections exempt properties in the rural area along the un-serviced shoreline of Trout Lake or lands with frontage on a watercourse flowing into Trout Lake and properties within a depth of one lot deep or 46 m from the Trout Lake shoreline. The intent of this is to not allow for non-complying and non-conforming buildings, structures or uses along Trout Lake.

### 3.5.4 East Ferris Official Plan

Direction is provided in the Official Plan to reduce the number of non-conforming properties the municipality where possible. Section 4.8 speaks to existing uses and non-conforming uses. The Official Plan provides that existing permanent dwellings on lands designated "Rural" can be expanded, reconstructed or renovated provided that all other provisions of the By-law are complied with.

This section further provides that legal non-conforming uses may be extended, enlarge or changed to a similar or more compatible use through an application for a 'permission' to the Committee of Adjustment subject to the following criteria:

- *The granting of the permission will not permit any change of use or performance standard that will aggravate any situation detrimental to adjacent complying uses;*
- *The permission does not constitute a danger to surrounding uses and persons by virtue of their hazardous or obnoxious nature or the traffic, parking, loading or access impacts they generate;*

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- *The extension or enlargement is in reasonable proportion to the existing use and to the land on which it is located and that such extension or enlargement does not extend beyond the limits of the land owned and used in connection with the use on the day the bylaw was passed;*
- *The use, building or structure does not pollute air and water or create noise pollution to the extent of interfering with the ordinary enjoyment of property;*
- *The use, building or structure does not interfere with the desirable development or enjoyment of adjacent areas; and,*
- *Infrastructure and public services such as roads, waste disposal, storm drainage, school bussing are adequate or can be made adequate.*

Further, the OP does permit the reconstruction of a legal non-conforming use is destroyed by natural causes, it may be reconstructed in accordance with the provisions established in the Zoning By-law.

#### 3.5.5 Directions

North Bay and East Ferris both acknowledge that non-conforming uses will eventually cease and properties will be developed in conformity with the Official Plan and compliance with the Zoning By-law. Some flexibility is provided through the minor variance process, which is common in Ontario. North Bay's Zoning By-law does not recognize legal non-complying/conforming buildings on Trout Lake. **We recommend that North Bay Council give consideration to updating its Zoning By-law to recognize legal-non complying/conforming buildings along Trout Lake, consistent with the *Planning Act*.**

North Bay's Official Plan contains policies to guide minor variance applications in the study area, while East Ferris' does not. **We recommend that East Ferris Council give consideration to including policies to guide the expansion of non-conforming or non-complying buildings in its Official Plan.**

Some municipalities have taken the step of establishing parameters for the limited expansion of legal non-complying buildings and structures. **We recommend that Councils give consideration to updating their Official Plans and Zoning By-laws to permit limited expansions of non-complying buildings and structures, as follows:**

**For dwellings located less than 7.5 metres from the shoreline:**

- **Increase to the gross floor area by a maximum of 10%**
- **Increase to the building width by a maximum of 10%**
- **No portion of any expansion shall be permitted to encroach further to the shoreline or further reduce any existing legal non-complying setbacks**
- **Increase the maximum height by 1 m provided that the minimum side yard setbacks established in the Zoning By-law are maintained**

**For dwellings located between 7.6 and 15 metres from the shoreline:**

- **Increase to the gross floor area by a maximum of 20%**
- **Increase to the building width by a maximum of 20%**
- **No portion of any expansion shall be permitted to encroach further to the shoreline or further reduce any existing legal non-complying setbacks**

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- Increase the maximum height by 2.0m provided that the minimum side yard setbacks established in the Zoning By-law are maintained

For dwellings located between 15.1 and 30 metres from the shoreline:

- Increase to the gross floor area by a maximum of 30%
- Increase to the building width by a maximum of 30%
- No portion of any expansion shall be permitted to encroach further to the shoreline or further reduce any existing legal non-complying setbacks
- Increase the maximum height by 3.0 m provided that the minimum side yard setbacks established in the Zoning By-law are maintained

This flexibility would be combined with other provisions that would require that all other provisions of the by-law must be met.

We further recommend that North Bay Council give consideration to expanding its policies for legal non-conforming minor variance applications to require that the administrative best practices described above (e.g. eavestroughs being redirected to soak away pits) be implemented on all minor variance applications and implemented through the Site Plan Control process.

We further recommend that East Ferris Council give consideration to updating its Official Plan to include similar policies to guide minor variance applications for legal non-conforming or complying uses.

### 3.6 Site Plan

#### 3.6.1 Background

Section 41 of the *Planning Act* gives municipalities the authority to use Site Plan Control, as a tool to guide and shape development in their communities. Through Site Plan Control a municipality can regulate:

- Building design and location including access to the building
- Overall site design
- Landscaping, fencing
- Drainage, grading, and stormwater management
- Lighting
- Parking, loading, vehicular access, drive-throughs, Fire Routes and maneuvering
- Access, movement and barrier-free design for pedestrians
- Signage
- Waste Management
- Impact on surrounding land uses

Site Plan Control does not include interior design, the layout of interior areas, excluding interior walkways, stairs, elevators and escalators, and the manner of construction or the standards of construction.

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Through Site Plan Control the municipality is able to ensure that the proposed development will be compatible with adjacent or nearby properties, have safe and easy access to pedestrians and vehicles, meet specific standards of quality and appearance, and be built in a manner by which the proposal was approved.

North Bay and East Ferris use Site Plan Control to regulate development in the study area. Common provisions of Site Plan Control Agreements observed in applications include the following:

- 30 m vegetative buffer on minimal impact lots. North Bay requires a 15 m vegetative buffer on existing lots (vacant and developed).
- Erosion and Sediment Control Plans to measures to mitigate short-term construction-related impacts and stormwater management techniques such as infiltration trenches and soak away pits to infiltrate roof runoff
- Site Evaluation Reports to evaluate site conditions and develop recommendations and Best Management Practices:
  - The use of mineral rich soils for tile field and mantle or tertiary treatment systems
  - Septic system monitoring and maintenance requirements
  - Infiltration trenches and soak away pits for roof runoff
  - 30 m natural buffer with 4 m wide path
  - No lawn fertilizer
  - No treated lumber
  - Installation of silt fences, check dams, and straw bales during construction

### 3.6.2 North Bay Official Plan

The North Bay Official Plan contains policies regarding development around Trout Lake that strictly control development. Utilizing Site Plan Control this is practiced.

North Bay's Official Plan identifies *all lands abutting Trout Lake within the "Residential" designation to be designated as a Site Plan Control area*. Further the Official Plan provides that when a development is proposed regarding the development or redevelopment of a lot within the Site Plan Control area the application should be accompanied by the following:

- *A site plan which shows the location of all existing and proposed buildings, structures and accessory buildings with indication of accurate dimensions and setback distances from lot lines and all abutting lakes and streams;*
- *A cross section plan which shows proposed final grade elevations from the water's edge to the back lot line, including all areas to be excavated and/or filled, as well as the location of all erosion control features; and*
- *A storm water management and landscaping plan which shows where existing vegetation will be disturbed and/or removed, including selective cutting and shoreline alterations; all areas to be vegetated, including a description of the vegetation to be planted, the location of all site erosion control features, and an indication of final site drainage with details of specific storm water management strategies.*



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### 3.6.3 East Ferris Official Plan

East Ferris' Official Plan designates all land within the Waterfront designation as a Site Plan Control Area. When an application is received it is reviewed against the Site Plan Control guidelines in order to determine appropriate Site Plan Controls respecting the following where needed:

- *The siting of septic system components;*
- *The siting of water supplies particularly drilled or dug wells;*
- *Proposed site drainage;*
- *House and/or building siting;*
- *Requirements for the protection, conservation and/or revegetation;*
- *Site grading and replacement of fill; and,*
- *A bond may be requested and held by the Municipality to ensure the works are completed to the satisfaction of the Municipality. The bond shall be released to the owner once the works have been completed.*

East Ferris requires a 15 m buffer as part of Site Plan Control Agreements to help reduce any phosphorus loading to Trout Lake, with a 9 m wide path for water access between the dwelling and the shoreline.

### 3.6.4 Directions

North Bay and East Ferris use Site Plan Control to regulate development within the Study Area. HESL's Issues, Opportunities and Constraints Report reviews the effectiveness of the Site Plan Control techniques employed for more significant recent developments including the Eastview Estates Development. HESL's report demonstrates that North Bay's approach to Site Plan Control, including the use of Site Evaluation Reports, phosphorous removing septic systems and septic system monitoring is effective in mitigating the amount of phosphorous leading to Trout Lake.

**Based on the above, we recommend that Councils give consideration to updating their Official Plans to bring a consistent approach to Site Plan Control. These policies would require that all new lots, redevelopment of existing lots, building additions/expansions and septic system replacements within the Trout Lake Influence Area Overlay be subject to site plan control, set out the requirements for a site plan control application (e.g. site plan, grading plan, erosion and sediment control plan) and establish a menu of proven best management practices to be used in the site plan process including:**

- **The use of mineral rich soils for septic tile field and mantle or tertiary treatments;**
- **The use of phosphorous removing septic systems;**
- **Septic system monitoring and maintenance requirements;**
- **Infiltration trenches and soakaway pits for roof runoff;**
- **Vegetative buffer with a depth of 30 metre measured from the shoreline, with a maximum clearing width of 5 m;**
- **Prohibitions on the use of lawn fertilizer;**
- **Prohibitions on the use of treated lumber;**
- **Installation of silt fences, check dams and straw bales during construction.**

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Consistently implementing such best management practices may avoid the need for site evaluation reports in certain circumstances. Notwithstanding, North Bay and East Ferris should retain the ability to require a Site Evaluation Report for more complex applications or sites to inform the appropriate development of such sites.

### 3.7 Additional Residential Units, Sleeping Cabins

#### 3.7.1 Background

In 2019 the Planning Act was amended as a result of Bill 108 - *More Homes, More Choice Act*, 2019, which further amended the second unit framework in subsection 16(3) of the *Planning Act* with new provisions for “Additional Residential Units”, which is intended to replace secondary dwelling units.

Subsection 16(3) of Part III (Official Plans) of the Planning Act provides the policies for additional residential units:

- (3) *An official plan shall contain policies that authorize the use of additional residential units by authorizing,*
- a) *the use of two residential units in a detached house, semi-detached house or rowhouse; and*
  - b) *the use of a residential unit in a building or structure ancillary to a detached house, semi-detached house or rowhouse. 2019, c. 9, Sched. 12, s. 2 (1).*

It is understood that the Ministry of Municipal Affairs and Housing will consider municipalities to not allow additional residential units where it can be demonstrated that they are not appropriate (i.e. lack of servicing, lake capacity constraints...etc.).

A desktop review of 25 municipalities across Ontario was completed to assess the range of watershed management practices. Of the municipalities observed, none had updated their planning frameworks to address ARU's and still contained policies regarding Secondary Dwelling Units. Based on the municipalities reviewed, some permitted secondary dwelling units within waterfront, or water-oriented properties while others did not. For those that do permit secondary dwelling units, most municipalities required that these units conform to the setbacks of the primary dwelling. Some municipalities prohibit additional residential units from being severed from the primary dwelling.

Sleep cabins (sometimes referred to as guest cabins or bunkies) are not considered a dwelling unit. They are accessory buildings used for temporary sleeping purposes and may or may not include washroom facilities and cooking facilities. Of the precedent municipalities reviewed, a range of provisions to manage this use were observed which included the following:

- Number of sleep cabins per lot
- Maximum gross floor areas
- Maximum height/number of storeys
- Setbacks

A more detailed analysis of these provisions is contained in JLR's Existing Conditions, Issues, Opportunities and Constraints Report.

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#### 3.7.2 North Bay Official Plan

North Bay's Official Plan has not yet been updated to reflect the additional residential unit terminology, however, provisions the OP does contain provisions for secondary dwelling units. Consistent with the precautionary approach North Bay has taken to manage development along Trout Lake, provisions regarding secondary dwelling units in the North Official Plan are restrictive. OP does not permit a secondary dwelling *within 300 metres of the un-serviced shoreline of Trout Lake and major inflowing streams of Trout Lake, as shown on Schedule 3C to the Official Plan.* With regards to sleep cabins, the Official Plan currently does not address this use.

#### 3.7.3 East Ferris Official Plan

East Ferris' Official Plan policies are compatible with those of North Bay which utilizes the precautionary principle and does not permit the secondary dwelling units, or the conversion of a single detached dwelling in the waterfront designation into a secondary unit dwelling. Like North Bay, the Municipality of East Ferris Official Plan currently does not address sleep cabins.

#### 3.7.4 Directions

North Bay and East Ferris do not permit Additional Residential Units or Sleeping Cabins in the Study Area. This policy was based on previous lake capacity studies and reflected a precautionary approach to development in the study area. Based on HESL's updated Lakeshore Capacity Assessment Model, there is development potential in Trout Lake. Permitting Additional Residential Units as of right, would substantially increase the number of dwelling units in the study area. For example, there are approximately 1,600 dwelling units in the study area. Assuming full uptake of the two additional units which are currently permitted, this would result in 4,800 dwelling units in the study area, which is higher than the maximum number of dwelling units that can be constructed while maintaining the revised MWQO described in Section 3.2 of this report.

**Given the above, and concerns regarding recreational capacity, we recommend that Councils give consideration to maintaining the current prohibition on Additional Residential Units in the study area.**

Sleep cabins are currently not addressed by North Bay nor East Ferris in their respective Official Plans. Sleep cabins are intended to be used as temporary sleeping accommodation and may or may not include washroom and cooking facilities. Based on the precedent review, for municipalities that permit this use, there are a number of provisions that must be met. Some municipalities specify whether a washroom or cooking facility is, or is not permitted.

**We recommend that Councils give consideration to permitting one sleeping cabin with a washroom facility (subject to septic system review) and without a cooking facility per lot in the study area, together with a policies that would prohibit the severance of the sleeping cabin from the primary dwelling and the conversion of the sleeping cabin to a permanent residential use or short term rental accommodation. Existing development controls such as setbacks, building height, lot coverage and gross floor area should be maintained and implemented in the Zoning By-laws.**

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### 4.0 Conclusion and Next Steps

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The Lake is an important resource that contributes to the high quality of life for both North Bay and East Ferris residents. It acts as the main source water for both communities, and is used by residents and visitors for various recreational purposes. It is clear from the community feedback to date that the Trout Lake provides each community with a sense of home, and that it should be protected.

Based on the results of the Lakeshore Capacity Model it has been identified that Trout Lake is not at-capacity from a modelling perspective, although there are potential concerns regarding recreational capacity in Four Mile Bay and some caution signs in the measured data. A precautionary and responsible approach to development should continue to apply given the importance of the lake and uncertainty regarding climate change. Further, based on information available at this time, Turtle and Talon Lakes, which are downstream of Trout Lake, appear to be at capacity.

To maintain the high water quality of Trout Lake, preserve the features, and protect downstream waterbodies, it is recommended that the precautionary principle be maintained, and limited development be permitted.

This report recommends that Councils give consideration to the following key recommendations:

1. Include guiding policies on climate change and its associated impacts regarding Trout Lake in both the North Bay and East Ferris Official Plans.
2. Implement a hybrid approach to the MWQO by updating the MWQO for the Trout Lake Main Basin to 5.64 µg/L of TP and maintain the existing MWQO of 7.0 µg/L of TP for the Four Mile Bay Basin in both the North Bay and East Ferris Official Plans.
3. Remove all reference and prohibitions on lot creation associated with the 300 metre setback from Trout Lake within the North Bay and East Ferris Official Plans.
4. Implement a Trout Lake Influence Area Overlay within the North Bay and East Ferris Official Plan, which would apply to all lands within 300 metres of the shoreline, islands, major inflowing streams and Four Mile Lake.
5. Permit a limited number of new lots to be created in the Trout Lake Influence Area, subject to best management practices. This includes 70 lots in the Main Basin (42 in North Bay and 28 in East Ferris) and up to 20 lots in Four Mile Bay.
6. Require development on existing, vacant legal lots of record to conform to updated development standards (e.g. setbacks and vegetative buffers) and best management practices.
7. Implement parameters in both the North Bay and East Ferris Official Plans and Zoning By-laws to permit limited expansions of non-complying buildings and structures, as of right and subject to best management practices.
8. Expand the policies in the North Bay Official Plan regarding legal non-conforming minor variance applications to require administrative best practices be implemented on all minor variances applications and implemented through Site Plan Control.
9. Include guidance on minor variance applications for legal non-conforming or complying uses to the East Ferris Official Plan.

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10. Require that all lots within the Trout Lake Influence Area Overlay be subject Site Plan Control, and establish site plan control application requirements within the Official Plans for both North Bay and East Ferris.
11. Establish consistent best management practices to be used in the site plan process in the North Bay and East Ferris Official Plans.
12. Continue to prohibit Additional Residential Units in the study area.
13. Permit sleep cabins, subject to site plan control and best management practices on waterfront lots. Establish sleep cabin development controls in the zoning by-laws for North Bay and East Ferris.

These recommendations will be shared with the public for their consideration and feedback. Based on feedback received, the recommendations will be adjusted, as appropriate, and presented to Councils in July 2022 for consideration and direction.

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