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Trout Lake Watershed Study and Management Plan – Issues Opportunities and Constraints Report (Draft)

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ENGINEERS · ARCHITECTS · PLANNERS

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1.0 Introduction

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.

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	Underway
Directions	Examine areas of improvement and provide direction to strengthen land use planning framework	Directions Report	To be Completed
Planning	Finalize recommendations to the land use planning framework and management approach	Final Recommendations Report	To be Completed
Implementation (optional)	Provide North Bay and East Ferris with a staff report and draft amendments	Official Plan and Zoning Amendment	To be Completed

This is the second 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.

This second report compares the North Bay's and East Ferris' land use management frameworks to other municipal jurisdictions. It also examines 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.

The balance of this report is structured as follows:

- Section 2 sets the provincial context for best management practices and compares the approaches in North Bay and East Ferris to the municipal comparator group;
- Section 3 reviews the key conclusions of HESL's Issues, Opportunities and Constraints Reports; and,
- Section 4 concludes by identifying, at a high level, possible improvements to the current management approaches that will be further explored during the next phase of the study process.

2.0 Existing Approach to Lake Management Planning

2.1 Background

Trout Lake is known for its pristine water quality. The lake is the source of drinking water for approximately 55,000 people, which includes the urban residents of the City of North Bay (North Bay) that receive municipal water services, as well as rural residents in both North Bay and the municipality of East Ferris (East Ferris) that have private water services.

Trout Lake is rare and globally significant. The lake provides low nutrient concentrations and high-quality lake trout habitat in the form of deep cold water with elevated dissolved oxygen concentrations and supports a naturally re-producing lake trout population. According to the Ontario Ministry of Northern Development, Mine, Natural Resources and Forestry, approximately one percent of Ontario's lakes contain lake trout. However, this small number of lakes represents about a quarter of all lake trout lakes in the world.

Trout Lake has important recreational values. People that live on and visit the lake come to relax, swim, boat, canoe, cross country ski, snowshoe and snowmobile. This recreational value is key to North Bay and East Ferris remaining healthy communities moving forward in the future.

2.2 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 and plan 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

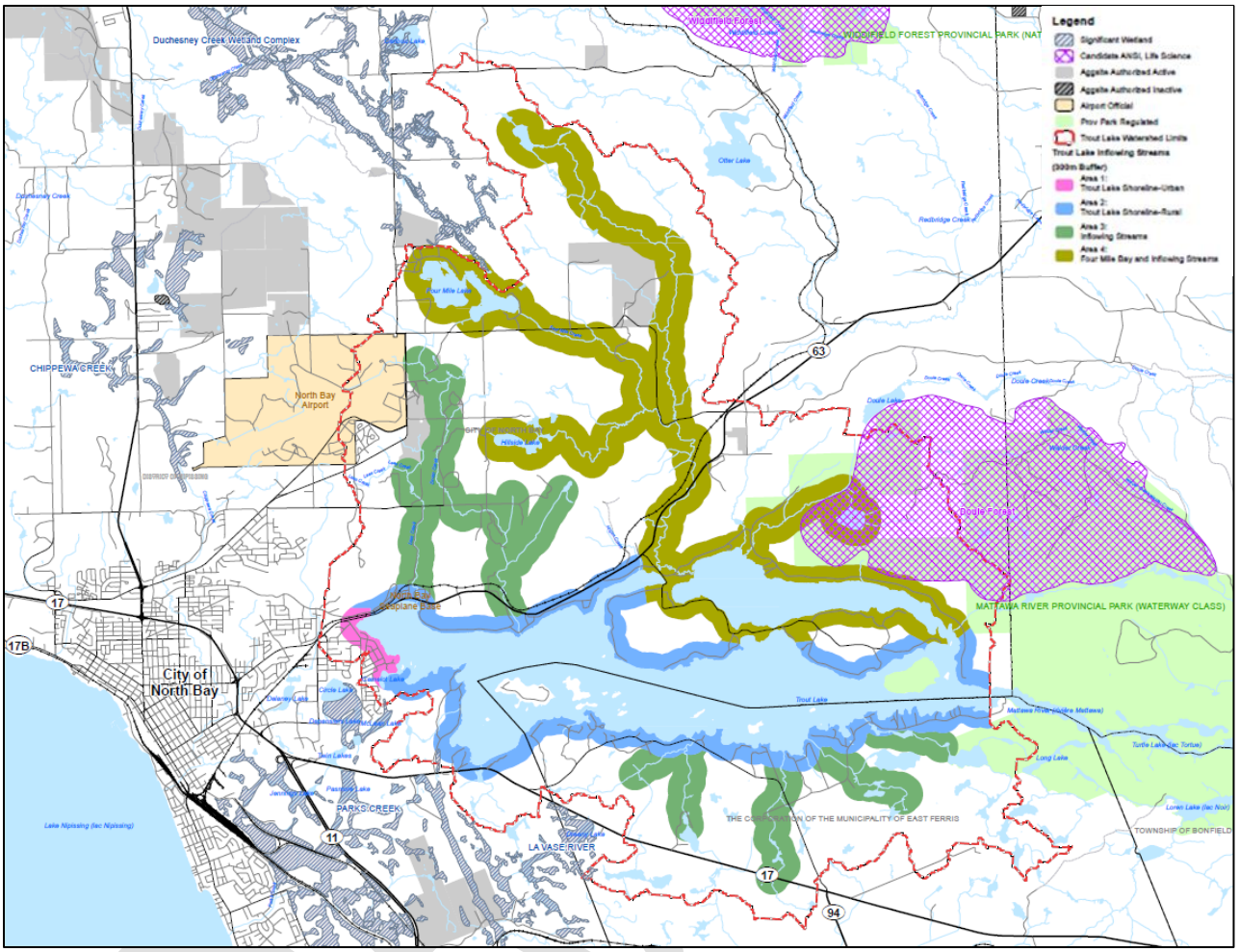

Figure 1 Study Area

The key physical and land use characteristics within the study area are as follows:

- the study area topography varies with elevations ranging from 195 m asl to 475 m asl;
- 96% of parcels (66% of the land area) is privately owned, while the remainder is publicly owned;
- the average lot size is 23,784 m² with the average lot frontage being 57 m;
- approximately, 30% of the existing shoreline lots conform to municipal standards;
- according to the Municipal Property Assessment Corporation, the majority of the land is vacant, followed by residential, crown land, farm, airport/military and industrial uses;
- the predominant residential building type is single detached dwellings used for permanent or seasonal residency; and,
- lot coverages remain low in the study area ranging from 0-10%. With the exception of the urban settlement of North Bay, the study area does not receive municipal water or sewage services.

2.3 The Provincial Context for Lake Management Planning

The Province of Ontario prepared the Lakeshore Capacity Assessment Handbook as a tool to provide guidance to municipalities and stakeholders for responsible management of shoreline development. The Lakeshore Capacity Assessment Handbook is intended to help municipalities and others that are attempting to control phosphorus from entering inland lakes on the Precambrian Shield by controlling shoreline development. Waterbodies with high levels of phosphorus can result in the loss of habitat for species of cold-water fish (i.e. lake trout), excessive plant and algae growth, loss of water quality, etc. While there are many ways for phosphorus to enter waterbodies, the primary human source is septic systems. The Lakeshore Capacity Assessment addresses some aspects of water quality, and can be used to predict the level of development that can be sustained along the shoreline of an inland lake.

Section 5.0 of the Lakeshore Capacity Assessment Handbook identifies best management practices (BMPs) that work to reduce phosphorus migration into waterbodies, ultimately reducing the effects of development on water quality. BMPs can occur during the planning and construction phases of shoreline development and design and construction of the septic system. BMPs can also occur through ongoing maintenance of a septic system and other operating practices of the landowner. BMPs include the following:

- Naturalized shoreline and vegetated buffer strips
- Shoreline setbacks
- Septic System design
- Inspection and Regulation
- Septic System Operation and Maintenance
- Water Conservation

As described in JLR's Background Report, North Bay, East Ferris and the Conservation Authority have implemented various best management practices over the years to improve the health of the lake for current and future generations.

2.4 Precedent Review

Ontario has an abundance of water bodies and water resources. Many municipalities have utilized the various tools available under the *Planning Act* and *Municipal Act* to better manage development along waterbodies and within watersheds through policies within their Official Plans and Zoning By-laws, as well as the implementation of Site Plan Control By-laws, Site Alteration By-laws, Tree Cutting By-law. It is anticipated that climate change represents increasing uncertainty for the health of the lake in the long run. From increased risk of flooding, more severe weather events, warmer temperatures, and invasive species, managing the expected impact of climate change is vital to ensuring that the water quality is preserved and even improved.

2.4.1 Municipalities Selected for Comparison

For the purposes of this assignment, 25 communities were selected based on population size, land size, and presence of waterbodies within the community that would experience similar pressures to Trout Lake. Single, Upper and Lower tier communities were selected to demonstrate a range of communities dealing with shoreline development and range of practices to ensure that the waterbodies present remain a viable and valued natural resource for current and future residents.

The selected municipalities are:

- City of Greater Sudbury
- Municipality of Temagami
- City of Kingston
- District of Muskoka
    - Town of Bracebridge
    - Town of Gravenhurst
    - Town of Huntsville
    - Township of Georgian Bay
    - Township of Lake of Bays
    - Township of Muskoka Lakes
- County of Haliburton
    - Municipality of Highlands East
    - Township of Algonquin Highlands
    - Township of Dysart et. Al.
    - Township of Minden Mills
- City of Peterborough
- County of Peterborough
    - Township of Asphodel-Norwood
    - Township of Cavan Monaghan
    - Township of Douro-Dummer
    - Township of Havelock-Belmont-Metheun
    - Township of North Kawartha
    - Township of Otonabee-South Monaghan
    - Township of Selwyn
    - Municipality of Trent Lakes

For each municipality we conducted a desktop review of information available on-line to document the management approaches used by each municipality (i.e. Official Plans, Zoning By-laws, Site Plan Control, Site Alteration, Tree By-laws) and the approach taken by each municipality (e.g. minimum setback for develop, minimum setback for septic systems, shoreline buffer widths, provisions around Lakes deemed at-capacity, etc.). A summary of the findings is presented below.

2.4.2 Summary of Findings

The results of our research into the mechanisms and approaches used by the 25 sample municipalities are included in Appendix A. The results of the research can be summarized as follows:

2.4.2.1 Waterfront Management Mechanisms

The sample municipalities use a range of mechanisms to manage the quality of water of the waterbodies present in their communities. Some use Official Plans and Zoning By-laws, and others also use Site Plan Control, Site Alteration and Tree Preservation By-laws. The Township of the Lake of Bays is unique amongst the sample municipalities as it utilizes its Official Plan and Development Permit System. Development Permit Systems are now known as Community Planning Permit Systems. The Towns of Huntsville is in the process of developing a Community Planning Permit System which will replace its Zoning By-law.

2.4.2.2 Shoreline Setbacks

The sample municipalities establish setbacks for development that range from 12 to 30 metres. The setbacks for development seemed to vary depending on the types of water bodies present (i.e. lakes, rivers and streams) and what is known about those water bodies (i.e. cold or warm water body, water quality issues, sensitivity of the water body to runoff). The vast majority of municipalities established a 30 metre setback for septic systems and leaching beds. Some of the municipality's have criteria in place that allow for the setback to be varied for both development and septic systems depending on the site conditions, lot and existing development characteristics. Some municipalities have setbacks for new lots, development on existing lots, and redevelopment of existing lots.

Common criteria established by the sample municipalities include the following:

1. sufficient lot depth not available
2. terrain or soil conditions exist which make other locations on the lot more suitable
3. where the setback is not further reduced
4. where setback is further reduced and a net improvement over the existing situation is achieved through the implementation of on-site phosphorus management and impact mitigation measures
5. lot is located within an urban centre or community area and net improvement over existing situation is achieved

6. a study may be required, such as a Site Evaluation Report or Environmental Impact Study to support the request for a reduced setback to the satisfaction of the municipality

2.4.2.3 Shoreline buffers/vegetation

The sample municipalities have established a range in shoreline buffers/vegetation provisions, some of which did not have any. Those that that included provisions established a minimum shoreline buffers/vegetation depth between 15m-30m. The City of Greater Sudbury Official Plan established a shoreline buffer to be left in its natural state to a depth of 12 m for permanently inflowing streams versus lots fronting on other waterbodies which would require a minimum shoreline buffer/vegetation depth of 20m. The sample municipalities which established shoreline buffer/vegetation provisions often included a percentage of the natural shoreline buffer/vegetation area which can be cleared for water access and/or shoreline structures. Most of the sample municipalities with these provisions established a maximum clearing of 25% (75% of the shoreline buffer/vegetation to be retained). The City of Greater Sudbury permits a maximum clearing of 25%, and further states that the maximum area to be cleared cannot exceed 276 m² in area, and cannot exceed 23 m in length.

2.4.2.4 Lot Sizing, Coverage and Frontage

The municipalities reviewed established lot sizes ranging from about 0.2 ha to 20 ha. Generally, residential lots abutting water that were privately serviced required a minimum lot size of 0.4 ha to 0.8 ha. Larger lot sizes (10 ha +) tended to be lots zoned Rural, while the water-oriented zones such as Shoreline Residential and Waterfront Residential zones which are intended specifically for single detached dwellings on lots fronting water often required a 0.4 to 0.8 minimum lot size for new lots.

Lot Coverages ranged from 4% and up. Most privately services residential waterfront lots had a maximum lot coverage ranging from 5%-15%. Lot frontages ranged from 7 m to 230 metres. Most privately services waterfront residential lots required a minimum lot frontage of 45 to 60 metres.

Similar to the lot sizes, generally, the lots that permitted a greater lot coverage (greater than 15%) and required a larger lot frontage were lots zoned Rural. While waterfront residential uses had smaller permitted lot coverages and lot frontages.

2.4.2.5 Lakes at Capacity

Most of the sample municipalities included provisions in their Official Plan regarding new lots and development where they are located within 300m of an "at capacity lake". Generally, development including lot creation is not permitted unless criteria established by the municipality can be met. There were common criteria established by the sample municipalities which include the following:

a) drainage of the proposed lot flows to a separate, non-sensitive watershed as a result of the physical features of the property;
b) detailed site specific hydrogeological studies show that the drainage of the sewage effluent effectively results in a circuitous flow path that extends for at least 300m before reaching the lake;
c) sewage disposal system will result in no adverse affect on the lake water quality
d) any conventional sewage disposal system to serve new development will be setback a minimum of 300 m from the high water mark;
e) a detailed site specific hydrogeological and soil study which assesses phosphorus distribution, migration velocity and long-term soil retention capabilities. At a minimum a 30 m setback with maintenance of the vegetative cover should be required.
f) two separate existing, habitable dwellings, each having a separate septic system, provided the land use will not change.

Some of the sample municipalities also identified moderately sensitive lakes as well. Generally, these are lakes which can usually accommodate development within 300 metres of the lake, with a minimum setback of 30 meres and non-disturbance of the vegetation and soils. For lots within 300 metres of a moderately sensitive lake significant development may be permitted when accompanied by an assessment of the impact of the development on the water quality.

2.4.2.6 Backlot development/Sleeping Cabins/Secondary dwellings

Backlot development is considered the development of land within an established setback from a waterbody that is separated from that waterbody by privately patented lands, or a road, and not being a shore road allowance, having a developable area sufficient in size to accommodate development. Backlot development appears to be discouraged by the sample municipalities. For those that acknowledged backlot development as a form of development a minimum lot size ranging from 1 ha to 4 ha. The Township of Dysart et.al established a minimum lot size of 12 ha. Interestingly the minimum lot size appears to be greater for backlot development than shoreline development. The minimum lot frontage ranged from 45m to 200m. Most required that backlot development have frontage on a year round maintained public road. The Township of Dysart et.al specified that backlot development will only be for permanent residential uses. In some sample municipalities such as the Township of Asphodel-Norwood and the Township of Douro-Dummer backlot development can only be developed through a plan of subdivision unless otherwise stated.

Sleeping cabins (referred to as guest cabins in some sample municipalities) are generally defined as an accessory building used for sleeping that does not contain any cooking facilities or an area for the preparation or servicing of food and shall not contain cooking or warming devices, fridges, ovens, stoves, of any other cooking related appliances. Washroom facilities are permitted in a sleeping cabin. Based on the sample municipalities a one (1) to two (2) sleeping cabins are permitted per lot. In those sample municipalities which permitted two sleeping cabins on a lot, it was lot size dependent. For example, the Township of Georgian Bay permits up to one sleeping cabin on a property within a lot are of 0.3 ha to 1.0 ha, and up to two sleeping cabins on a lot greater than 1 ha. Maximum gross floor areas were established in most sample municipalities ranging from 29.7 m² to 72 m². For those municipalities which permitted a second sleep cabin on a property, the second sleep cabin has a smaller permitted gross floor area. Sleep cabins appear to be limited to one storey, are generally not permitted above a boat house, but are permitted above a garage. Additionally, the sample municipalities appear to not permit sleeping cabins within the required setback from the high water mark.

Second Dwellings are accessory dwelling unit located within an existing detached, semi-detached or townhouse dwelling. Of the sample municipalities some permitted secondary dwellings within waterfront or water-oriented properties while others did not. Some municipalities like the Township of North Kawartha and the Township of Selwyn do not permit secondary dwellings within 300 metres from a lake deemed at capacity for development. For those that permitted secondary dwellings for the most part the secondary dwelling is subject to the zoning provisions of the zone the property resides, and did not permit this use within the required setback from the shoreline. The City of Kingston stated that secondary dwellings are permitted provided they are connected to municipal services or private water and sewage systems approved by the appropriate authority. Also, some municipalities such as the Township of North Kawartha and the Township of Selwyn stated that secondary dwellings cannot be severed from the primary dwelling.

2.4.2.7 Water Quality Objectives

Water quality objectives was one of the mechanisms reviewed when completing the precedent review. Of the 25 sample municipalities none had established their own water quality objectives.

The CNB has established a measured ice-free seasonal average phosphorus level of 7 ug/L combined with a late summer volume weighted dissolved oxygen measure of 8 mg/L as some of their minimum water quality objectives. MEF establishes a similar standard for late summer volume weighted dissolved oxygen. The CNB and MEF are unique, amongst the municipalities reviewed, in this regard.

2.4.3 Key Conclusions

The following tables compare North Bay's and East Ferris' approach to the municipal precedent group. As can be seen from the tables, North Bay and East Ferris' best management practices compare well to the municipal precedent group in terms of what tools are used and how they are used. Most notably, North Bay and East Ferris stand out from the precedent group due to their establishment and use of local water quality objectives.

Table 1. Summary comparison of key development standards

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%	Urban: 5% - 10% Rural: 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			

Table 2. Summary observations

Development Setback	• Comparable to other municipalities
Septic Setback	• Comparable to other municipalities • East Ferris' setback is more stringent than most of the precedent reviewed
Lot Area	• Mostly comparable to other municipalities. • Minimum lot sizes do vary by zone • East Ferris generally requires larger lot sizes than precedent reviewed
Lot Frontage	• Comparable to other municipalities
Lot Coverage	• Mostly comparable with precedent reviewed • North Bay has large range of maximum lot coverages, which is reflective of the many zones captured in the study area
Shoreline buffer	• Comparable to other municipalities • HESL report states: *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.*

3.0 Lake Water Quality Data

As part of this study and plan, HESL reviewed historic lake water quality information for Trout Lake and also updated the Lakeshore Capacity Model for Trout Lake. The results of this work is described in HESL's Trout Lake Watershed Study and Management Plan – Background Report and Trout Lake Watershed Study and Management Plan – Existing Conditions, Issues, Opportunities and Constraints. This section provides a brief overview of the findings of these two reports to provide additional context or the following section of this report Readers seeking additional information on these two reports should consult with them directly.

3.1 Historic Lake Water Quality Information

HESL's Trout Lake Watershed Study and Management Plan – Background Report is based on a review of available historic water quality data and a statistical analysis of key water quality data or parameters including total phosphorus, mean volume weighted hypolimnetic dissolved oxygen and Secchi disk depth and phytoplankton assemblages. Based on this, generally, the report concludes:

1. Historic and more recent data indicate that water quality in Trout Lake Is excellent and nutrient concentrations are low. Significant monitoring effort has been invested in the management of water quality of Trout Lake and there is little evidence of a marked impact of development on the lake. Long term phosphorous data collected from 2000-2019 has not shown any significant change in concentrations at the eight long term monitoring locations on the lake, suggesting that any potential phosphorous loading from development over the last 20 years has not occurred or has not been captured by the current monitoring program. Historic data analysis from previous reporting have not recorded an increase in phosphorous in the lake over time.

2. Ice free average total phosphorous concentrations have however exceeded the municipal minimum water quality objective of 8 micrograms/L at individual sites and in specific years when sites are combined. Total phosphorous concentrations are variable year to year but it is clear that total phosphorous concentrations are higher in Four Mile Bay, with three annual exceedances. Mean volume weighted dissolved oxygen concentrations were also different between Four Mile Bay and the Main Basin, resulting in multiple concentrations lower than the municipal objectives of 8 mg/L in Four Mile Bay and only a single concentration lower that the municipal objectives in the Main Basin. Note however that the data which MECP used to complete these calculations were heavily interpreted.

3. A significant decrease in water clarity measured through Secchi Disk Depth in Delaney Bay, the most developed bay in Trout Lake, may suggest a localized impact of runoff from urban practices to control sediment, erosion and run off into the lake from the urban areas may help to mitigate further reductions in water clarity within Delaney Bay.

3.2 Updated Lakeshore Capacity Model

HESL's Trout Lake Watershed Study and Management Plan – Issues, Opportunities and Constraints Report includes a review of the scientific understanding associated with waterfront best management practices (including a summary of septic system monitoring results from Trout Lake), an updated lakeshore capacity assessment to determine development thresholds based on utilization of the Lakeshore Capacity Assessment Model, a review of recreational capacity, and a discussion on development and phosphorous attenuation in inflowing streams. Based on this, generally, the report concludes:

1. Peer-reviewed scientific literatures indicates that septic system effluent total phosphorous is largely attenuated in Precambrian Shield soils. Septic system monitoring data for nine septic systems in the Eastview Development indicate that 86 percent of the total phosphorous from these septic systems is attenuated. Given the data collection methodology, attenuation is anticipated to be higher prior to runoff into Trout Lake.

2. Shoreline buffers can play an important role in protecting lake health, acting as a physical barrier between upland human activity and the aquatic environment. This barrier mitigates the effect of development and site alteration on water quality and wildlife habitat, while providing some measure of erosion and flood control. In general, larger buffers are better at consistently providing a range of protective functions. The scientific literature review demonstrates that a 30 metre 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.

3. Erosion and sedimentation control measures can help mitigate the impacts of development in the short and long term by encouraging infiltration of stormwater to the subsurface. Stormwater management options are often site specific and the best approach will be dictated by the site characteristics and the nature of proposed development.

4. The Lakeshore Capacity Assessment Model is a tool typically used to determine the development capacity of lakes on the Precambrian Shield in Ontario. The Trout Lake Lakeshore Capacity model completed by the province in 2018 was refined to include the scientific and observed evidence regarding total phosphorous attenuation rates, updates on the amount of cleared land in the model area, and updates to the land use characteristics in the model area.

    a. These changes resulted in estimated model results that accurately predict measured total phosphorous concentrations in the Main Basin and Four Mile Bay. The model also suggests that additional development can be accommodated in the Main Basin and Four Mile Bay, while respecting the provincial water quality objective of background +50 percent. This includes the development of all existing vacant lots and the conversion of all seasonal residential uses to permanent residential.

    b. Modelled mean volume weighted dissolved oxygen were predicted based on modelled existing and future total phosphorus concentrations in the Main Basin and Four Mile Bay to link increased total phosphorous loads and concentrations associated with future development with declines in mean volume weighted dissolved oxygen. The

model results suggest that modelled increases in total phosphorous were predicted to have minor reductions in mean volume weighted dissolved oxygen.

5. Recreational carrying capacity analysis using two measures - 1 lot/1.62 hectares of lake surface area and 60 metres of shoreline frontage per lot – suggest that while there is additional recreational carrying capacity remaining in the Main Basin to support additional development, that Four Mile Bay is overcrowded. The perceptions of the density of development and influence on lake character should be explored with the public and stakeholders.

6. The majority of remaining development potential in the study area is adjacent to Four Mile Creek and other inflowing watercourses. Development adjacent to these waterbodies and associated nutrient loading would be largely mitigated by attenuation in the septic system, floodplain and watercourse, especially if the existing precautionary approach is maintained and the development incorporates waterfront BMP's and is subject to Site Plan Control.

7. Waterfront BMPs are effective tools to limit development impacts on Trout Lake and have been successfully implemented through Site Plan Agreements. An future development adjacent to Four Mile Creek, other inflowing tributaries, Four Mile Bay and the Main Basin should include suitable Waterfront BMPs, such as those associated with sewage treatment systems and those already routinely implemented through Site Plan Agreements.

4.0 Conclusions and Next Steps

Trout Lake is an important resource for residents of North Bay and East Ferris. The lake serves as the drinking water source for both communities, supports a naturally reproducing population of lake trout – a globally rare species. It is a place where people live and, to a lesser extent work. It is a place where many come to recreate, whether it is enjoying the view from their residence or cottage to boating, fishing, canoeing and kayaking on the lake.

The approaches that the communities of North Bay and East Ferris have used to manage their relationship with Trout Lake has changed over the years, as scientific methods have improved, new information has become available and perspectives change.

As discussed in previous reports, the North Bay, East Ferris and the Conservation Authority have established and maintained a high level of service for management planning along Trout Lake. The approaches that are currently being used compare well against other communities.

As HESL notes in their background report, Trout Lake water quality is excellent and nutrient concentrations are low. This initial observation is supported by the updated Lakeshore Capacity Assessment Model, which suggests that a limited amount of development may be appropriate.

The outcomes of this project to date suggest that North Bay and East Ferris may have new choices available to them when thinking about how to manage their relationship with Trout Lake. Additional work is required before these choices can be made. In the next phase of the study process we will more closely examine the management approaches currently used in North Bay and East Ferris, review the scientific results of HESL's work and consider the implications of the choices described from various perspectives.

As part of this work, further consideration will be given to the following questions:

1. Should North Bay and East Ferris maintain and modify their local water quality objectives?
2. Should North Bay and East Ferris continue to restrict lot development in the study area?
3. Conversely, should North Bay and East Ferris permit development? If so, how?
4. How can the current best management practices be improved?
5. Are there opportunities to create greater consistency between North Bay and East Ferris' planning land use planning approaches?

These questions will be explored in more detail in JLR's forthcoming Directions Report.

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