

Municipality of Lakeshore

Regular Council Meeting Agenda



Tuesday, March 15, 2022, 6:00 PM

Electronically hosted from Council Chambers, 419 Notre Dame Street, Belle River

Pages

1. Call to Order
2. Land Acknowledgement
3. Moment of Reflection
4. Disclosures of Pecuniary Interest
5. Recognitions
6. Public Meetings under the Planning Act

1. Zoning By-Law Amendment ZBA-1-2022 – 21575 Lakeshore Road 303

8

Recommendation:

Approve Zoning By-law Amendment Application ZBA-1-2022 (By-law 21-2022, Municipality of Lakeshore By-law 2-2012, as amended), to rezone the subject property from Agricultural Zone Exception 31 (A-31) to Agricultural (A) 21575 Lakeshore Road 303 (indicated on the Key Map, Appendix A), in the Municipality of Lakeshore; and

Direct the Clerk to read By-law 21-2022 to amend the Zoning By-law, By-law 2-2012, as presented at the March 15, 2022 Council meeting.

7. Public Presentations
8. Delegations

1.	2020 Year End Reporting: Audited Consolidated Financial Statements, Building Services Annual Statement, Development Charge Reserve Funds Statement, and 2020 Parkland Dedication Reserve Statement	14
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Recommendation:

The Audited Consolidated Financial Statements for the year ended December 31, 2020 be approved;

The Audit Findings Report of KPMG for the year ended December 31, 2020 be received;

Administration be authorized to post the 2020 Consolidated Financial Statements on the Municipality of Lakeshore website;

The Statement of Revenue and Expenses and Accumulated Net Expense for Building Services for the year ended December 31, 2020 be received;

The Development Charges Reserve Funds Statement, for the year ended December 31, 2020 be received; and

The Parkland Dedication Reserve Statement, for the year ended December 31, 2020 be received.

1. Alicia Beneteau, KPMG

2.	2020 Year- End Financial Ratios and Indicators	81
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Recommendation:

This report is for information only.

1. Alicia Beneteau, KPMG

3.	County Road 22 Corridor - Preferred Alternative	89
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Recommendation:

This report is for information only.

1. David Lukezic, WSP and Jerry Behl, County of Essex 92

4. Shoreline Management Plan Final Report 105

Recommendation:

Adopt the Shoreline Management Plan, as presented at the March 15, 2022 Council Meeting; and

Direct Administration to forward the final report to the Essex Region Conservation Authority and the Lower Thames Conservation Authority for their formal review and adoption.

1. Amelia Sloan, Stantec Consulting and Peter Zuzek, Zuzek Inc. 365

9. Completion of Unfinished Business

10. Consent Agenda

Recommendation:

Approve minutes of the previous meetings and receive correspondence as listed on the Consent Agenda.

1. February 15, 2022 Regular Council Meeting Minutes 385
2. March 7, 2022 Special Council Meeting Minutes 395
3. Town of Tecumseh - Consideration of Support for Windsor-Essex Workers 400
4. Town of Tecumseh - Small Business Support in Essex - Windsor 405
5. Township of Clearview - Funding Support for Infrastructure Projects - Bridge/Culvert replacements in Rural Municipalities 410
6. Town of Bracebridge - Item for Discussion - Hospital Capital Funding 411
7. Chair Tom Allwood - Multi-Municipal Wind Turbine Working Group 413
8. Municipality of Shuniah - Expansion of Northern Ontario School of Medicine 420

11. Reports for Information

Recommendation:

Receive the Reports for Information as listed on the agenda.

1. Drainage Board Meeting February 7, 2022 421

2.	Access to Lake St. Clair for Winter Recreation	428
12.	Reports for Direction	
1.	ATRC Splash Pad – Exterior Shade Screens and Re-Opening	434
	<p>Recommendation: Direct Administration to proceed with acquiring retractable screens to cover the 22 windows located adjacent to the ATRC Splash Pad and shaded seating in accordance with the Municipal Procurement By-law; and</p> <p>When Retractable Screens are in place, reopen the ATRC Splash Pad, all as described in the ATRC Splash Pad – Exterior Shade Screens and Re-Opening report to Council report presented at the March 15, 2022 Council meeting.</p>	
2.	Digital Modernization RFP Award	454
	<p>Recommendation: Award the RFP for the Digital Modernization Project to Optimus Tech Solutions as the respondent with the highest total score, as presented at the March 9, 2022 Council meeting.</p>	
3.	Bulk Water Fill Station - Comber Survey	457
	<p>Recommendation: Approve the relocation of the bulk water fill station to the Public Works Rochester yard on County Road 31, including decommission of the existing bulk water fill station at the Municipality's Comber Fire Station, to be included in the 2023 draft budget, all as presented at the March 15, 2022 Council meeting.</p>	
4.	Use of Municipal Resources during Election Policy	465
	<p>Recommendation: Approve the Use of Municipal Resources during Election Policy, as presented at the March 15, 2022 Council meeting; and</p> <p>Direct the Clerk to prepare the necessary by-law for adoption.</p>	
13.	Announcements by Mayor	
14.	Reports from County Council Representatives	
15.	Report from Closed Session	

16. Notices of Motion

1. Deputy Mayor Bailey - Hydro One

474

Recommendation:

Whereas Hydro One's Chatham to Lakeshore preferred line cuts through 220 acres of prime employment land situated on the 401 interchange, restricting the use of this land and strongly interfering with the Community of Comber;

Whereas this engagement done by Hydro One in selecting their preferred route was insufficient;

Whereas hydro lines in close proximity to residential districts lowers property value and creates health concerns;

Whereas hydro lines seriously impede farm machinery from operating their GPS equipment;

Whereas the proposed 2A line chosen by Hydro One affects far more commercial and residential stakeholders than the existing line north of the 401;

Whereas Council of the Municipality of Lakeshore resolved November 9, 2021 by motion #381-11-2021 that they will only accept an alignment travelling west along the existing Hydro One corridor North of the 401 to the West side of the Rochester Townline Road. From here, travel south to the Substation

Therefore, be it resolved now that the Council of the Municipality of Lakeshore formally share Motion #381-11-2021 and request the support from the Municipality of Chatham-Kent.

2. Councillor Walstedt - Accessible Swings

475

Recommendation:

Administration review the accessible swing costs and potential use in Lakeshore Parks.

Recommendation:

Whereas, The Lakeshore Parks Master Plan, the Lakeview Park/West Beach Master Plan recommend a multi-year strategic plan for funding the Regional Park;

And Whereas, The Waterfront Park Report to Council in September 2020 for \$1.5 mil to be put into reserves each year for the next 6 to 8 years;

And Whereas, Lakeshore Council has not given specific direction to Administration to make a multi-year savings plan;

Be it resolved that, Council direct Administration to develop a funding model to deliver Lakeshore's Waterfront Park, to be presented to Council in the draft 2023 Budget with a goal of Constructing first phase in 2023.

17. Question Period

18. Non-Agenda Business

19. Consideration of By-laws

Recommendation:

By-law 14-2022 be read a first, second time and provisionally adopted;

By-law 112-2021 be read a third time and adopted; and

By-laws 22-2022 and 25-2022 be read and passed in open session on March 15, 2022.

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| 1. | By-law 112-2021, Being a By-law for the Gagnier Drain Fauteux Bridge | 477 |
| 2. | By-law 14-2022, Being a By-law for the West Townline Drain | 478 |
| 3. | By-law 22-2022, Being a By-law to Confirm the proceedings of the February 15 and March 7, 2022 Council Meetings | 479 |
| 4. | By-law 25-2022, Being a By-law to amend By-law 2-2012, Zoning By-law for the Municipality of Lakeshore (ZBA-1-2022) | 480 |

20. Closed Session

Recommendation:

Council move into closed session in Council Chambers at ____ PM in accordance with:

- a. Paragraph 239(2)(b) and (d) of the *Municipal Act, 2001* to discuss personal matters about an identifiable individual, including municipal or local board employees and advice that is subject to solicitor-client privilege, including communications necessary for that purpose, relating to the 2020 Financial Audit;
- b. Paragraph 239(2)(d) of the *Municipal Act, 2001* to discuss advice that is subject to solicitor-client privilege, including communications necessary for that purpose, relating to access to Lake St. Clair for winter recreation;
- c. Paragraph 239(2)(c) of the *Municipal Act, 2001* to discuss a proposed or pending acquisition of land by the municipality, relating to County Road 27.

21. Adjournment

Recommendation:

Council adjourn its meeting at ____ PM.

Municipality of Lakeshore – Report to Council

Growth & Sustainability

Community Planning



To: Mayor & Members of Council

From: Urvi Prajapati, BEDP, MES
Planner 1

Date: February 14, 2022

Subject: Zoning By-Law Amendment ZBA-1-2022 – 21575 Lakeshore Road 303

Recommendation

Approve Zoning By-law Amendment Application ZBA-1-2022 (By-law 21-2022, Municipality of Lakeshore By-law 2-2012, as amended), to rezone the subject property from Agricultural Zone Exception 31 (A-31) to Agricultural (A) 21575 Lakeshore Road 303 (indicated on the Key Map, Appendix A), in the Municipality of Lakeshore; and

Direct the Clerk to read By-law 21-2022 to amend the Zoning By-law, By-law 2-2012, as presented at the March 15, 2022 Council meeting.

Background

The applicant has applied for a zoning by-law amendment of the subject lands to rezone a portion of a farm parcel from (A-31) to Agricultural (A). Previously, the subject land contained a recycling facility which was established through a site plan agreement between the Municipality and the owner. However, the facility has closed its recycling facility for the last two years and is no longer operational. Therefore, the owner wants to remove the zone exception and change the zone from A-31 to just Agricultural (A).

Proposal

The proposed zoning by-law amendment application affects a 0.81 ha (2.0 acre) portion of a farm parcel located on the north side of Highway 401 and south of Lakeshore Road 303. The entire parcel is 23 ha (58 acres). The surrounding properties include agricultural land of varying sizes. The legal description of the land is Con 3 N PT Lot 21 and is situated in the community of Tilbury North. The subject property is situated in the flood prone area and comes under the conservation authority of Lower Thames Valley Conservation Authority (LTVCA).

Subject Land: (21575 Lakeshore Road 303)	0.81 ha (2.0 acre) Existing Use – Non-operational recycling facility Proposed Use – agriculture
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	Access — Lakeshore Road 303 Services — municipal water, septic
Neighbouring Land Uses:	North: Agricultural Lands South: Agricultural Lands East: Agricultural lands West: Agricultural lands
Official Plan:	Agricultural
Existing Zoning:	Agricultural Zone Exception 31 (A-31)

Comments

Provincial Policy Statement

The proposed application was reviewed under the rural and agricultural policies of the 2020 Provincial Policy Statement (PPS) and it was determined that the development is consist with the below policies:

1.1.4 Rural Areas

1.1.4.1 Healthy, integrated and viable rural areas should be supported by:

- a) Building upon rural character, and leveraging rural amenities and assets;*
- e) Using rural infrastructure and public service facilities efficiently;*
- f) Promoting diversification of the economic base and employment opportunities through goods and services, including value-added products and the sustainable management or use of resources;*
- g) Providing opportunities for sustainable and diversified tourism, including leveraging historical, cultural, and natural assets;*

1.1.5 Rural Lands in Municipalities

1.1.5.2 On rural lands located in municipalities, permitted uses are:

- d) Agricultural uses, agriculture-related uses, on-farm diversified uses and normal farm practices, in accordance with provincial standards;*

2.3 Agriculture

2.3.3 Permitted Uses

2.3.3.1 In prime agricultural areas, permitted uses and activities are: agricultural uses, agriculture-related uses and on-farm diversified uses.

- *Proposed agriculture-related uses and on-farm diversified uses shall be compatible with, and shall not hinder, surrounding agricultural operations. Criteria for these uses may be based on guidelines developed by the Province or municipal approaches, as set out in municipal planning documents, which*

achieve the same objectives.

2.3.3.2 In prime agricultural areas, all types, sizes and intensities of agricultural uses and normal farm practices shall be promoted and protected in accordance with provincial standards.

County of Essex Official Plan

The subject site is located just outside the secondary settlement area in the County of Essex Official Plan and therefore falls under the Agricultural designation. The following are the permitted uses of the agricultural designation:

3.3.3.1 Permitted Uses

The following uses are permitted within the “Agricultural” designation subject to the policies of this section:

a) Agricultural Uses, Secondary Uses and Agriculture-Related Uses.

Municipality of Lakeshore Official Plan

The site is designated as Agricultural in the Lakeshore Official Plan. The majority of lands within the Municipality are designated Agricultural and consist entirely of prime agricultural lands. The following criteria of the agricultural land use applies:

6.2.1 Permitted Uses

- a) The primary use of land will be for agricultural uses, agriculturally-related uses and secondary agricultural uses including: the growing of crops, including nursery and horticultural crops; raising of livestock; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; and associated on-farm buildings and structures, including accommodation for full-time farm labour when the size and nature of the operation requires additional employment; conservation uses; resource extraction, resource-based, and compatible uses.

The proposal for the subject parcel is to return to practice Agriculture on the land and it already meets the permitted uses and will be abiding by the Official Plan designation.

Zoning By-law

The subject property is currently zoned A-31, in the Lakeshore Zoning By-law 2-2012, as amended.

A Zoning By-law Amendment Application has been submitted to rezone the subject property to Agriculture (A). The Lakeshore Zoning By-law 2-2012, as amended defines Agriculture as the following:

AGRICULTURAL USE – shall mean the cultivation of land, the production of crops and the selling of such produce on the premises, and the breeding and care of livestock and the selling of such livestock or the product of such livestock raised on the premises, and without limiting the generality of the foregoing includes aviaries, apiaries, fish farming,

animal husbandry, the raising of birds, fish and fur bearing animals, horses, riding stables, horse training tracks, agricultural research stations and the raising and harvesting of field, bush, or tree crops, market gardening, nurseries, and greenhouses. However, agricultural use does not include facilities for the permanent or temporary housing of persons employed on the lot and, does not include a marihuana for medical purpose production facility and industrial hemp production facility

Correspondence from external and internal agencies

The application was circulated to external and internal agencies and the Lower Thames Valley Conservation Authority (LTVCA) had to say the following:

Please note that a permit will be required from the office of LTVCA prior to any construction that might take place on the subject land.

No comments were received from internal agencies opposing the rezoning of the subject lands. Additionally, it is be noted that no new buildings or structures are being proposed on the subject property.

Therefore, administration recommends that Council approve the zoning by-law amendment.

Conclusion

Administration recommends approval of the zoning by-law amendment, as it is consistent with the Provincial Policy Statement and conforms to the County of Essex and the Lakeshore Official Plans.

Based on the foregoing, Administration recommends that Council approve ZBA-1-2022 (Bylaw 21-2022).

Others Consulted

Notice was given to agencies and the general public as required under the provisions of the *Planning Act* and Regulations. As of the writing of this report, no comments were received from the public and no concerns were expressed from any agencies.

Financial Impacts

There are no budget impacts resulting from the recommendation.

Attachment

Appendix A – Applicant's sketch map

Report Approval Details

Document Title:	Zoning By-Law Amendment Application ZBA-1-2022 - 21575 Lakeshore Rd. 303.docx
Attachments:	- Key Plan.PNG
Final Approval Date:	Mar 9, 2022

This report and all of its attachments were approved and signed as outlined below:

Aaron Hair

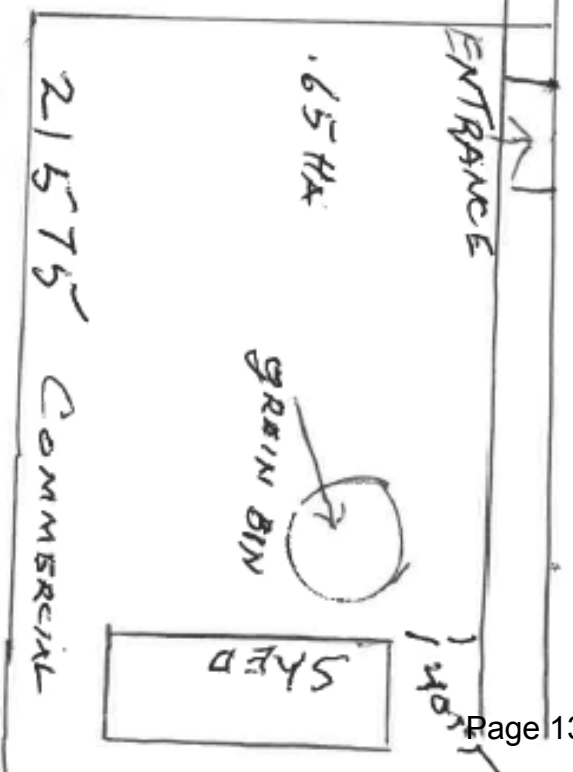
Tammie Ryall

Justin Rousseau

Kristen Newman

Truper McBride

LAKE SHORE RD 303
BATTLE DRAIN



21575 Farming Rd
21.27 HA

Municipality of Lakeshore – Report to Council

Finance & Technology

Accounting & Revenue



To: Mayor & Members of Council

From: Justin Rousseau, Corporate Leader – Chief Financial Officer

Date: February 22, 2022

Subject: 2020 Year End Reporting: Audited Consolidated Financial Statements, Building Services Annual Statement, Development Charge Reserve Funds Statement, and 2020 Parkland Dedication Reserve Statement

Recommendation

The Audited Consolidated Financial Statements for the year ended December 31, 2020 be approved;

The Audit Findings Report of KPMG for the year ended December 31, 2020 be received;

Administration be authorized to post the 2020 Consolidated Financial Statements on the Municipality of Lakeshore website;

The Statement of Revenue and Expenses and Accumulated Net Expense for Building Services for the year ended December 31, 2020 be received;

The Development Charges Reserve Funds Statement, for the year ended December 31, 2020 be received; and,

The Parkland Dedication Reserve Statement, for the year ended December 31, 2020 be received.

Background

The *Municipal Act, 2001* requires that all municipalities undertake an annual audit of their accounts and that the external auditors express an opinion on the Consolidated Financial Statements (Statements) based on the audit (Section 296); and that the audited financial statements of the municipality for the previous year be published (Section 294).

The *Development Charges (DC) Act*, section 43(1), requires the Treasurer of the municipality to annually provide Council with a statement about each Reserve Fund established under the Act. Ontario Regulation 82/98, paragraphs 12 and 13 indicate the information to be included in the report.

The Ontario *Building Code Act*, subsection 7(4) requires that an annual Statement of Revenue and Expenses and Accumulated Net Revenue (Expense) be completed. Ontario Regulation 332/12 (Building Code) Division C, Section 1.9.1.1 Annual Report, outlines the information to be included in the report.

The *Planning Act* has annual report provisions for disclosure of Parkland Dedications. This is a requirement under Section 42 of the Planning Act, resulting from the proclamation of the Smart Growth for Our Communities Act (Bill 73).

Under Section 42 of the *Planning Act* a municipality may require, as a condition of development, that land be conveyed to the municipality for park or other public recreational purposes. Alternatively, the Council may require a payment-in-lieu to the value of the land otherwise required to be conveyed. Those funds must be held in a special account (reserve fund), allocated interest income and spent only for the acquisition of land to be used for park or other recreational purposes including the erection, improvement or repair of buildings and the acquisition of machinery

Comments

In accordance with these legislative requirements outlined above, this report transmits the following statements for the year ended December 31, 2020:

1. 2020 Consolidated Financial Statements (audited) (Attachment A),
2. Development Charge Reserve Funds Statement (Attachment B),
3. Statement of Revenue and Expenses and Accumulated Net Expense for Building Services (Attachment C), and
4. Parkland Dedication Reserve Statement (Chart Below).

In addition, it transmits KPMG's Audit Findings Report (AFR) (Attachment D).

The 2020 Consolidated Financial Statements (attached in draft) are prepared in accordance with Canadian generally accepted accounting principles for governments, as recommended by the Public Sector Accounting Board (PSAB), and are a snapshot of the Municipalities financial position and performance that provides important information to financial institutions and the public.

These Statements are prepared on an accrual basis of accounting; as such they differ from the figures presented in the cash-based budget for determination of the municipal tax levy. The main reasons they differ include accounting treatment of amortization, inter-company transfers, principal and interest (P&I) payments and capital financing.

Together with management reporting on actual performance against budget (variance reports), these Statements provide a good picture of the financial state of affairs of the Municipality of Lakeshore.

KPMG's Audit Findings Report provides an overview of the 2020 year-end audit process, and assists in the review of the results of the audit of the Consolidated Financial Statements of the Municipality.

It should be noted that there are no material misstatements of note in the audit finding report, however one control deficiency was found and is noted in the Audit Findings Report.

Management brought to the attention of the audit team one instance of management override of the payroll control. In this instance, the proper procedures for management oversight were circumvented exposing a weakness in internal controls design. Management's mitigating controls to review the banking log, create bank reconciliations and review variance reports operated effectively to detect the override of the payroll control. Due to this finding from management, KPMG selected specific journal entry criteria to identify unusual journal entries to payroll accounts and did not observe any additional findings. Management has also worked with the banking provider to tighten controls on release of payroll files in the future.

The Development Charge (DC) Reserve Fund Statement is part of the year-end financial accounting process, resulting in the statement as outlined in Attachment B.

The Statement of Revenue and Expenses and Accumulated Net Expense for Building Services for the year ended December 31, 2020 (Attachment C) outlines the fiscal results as well as continuity for the building operations and capital reserve funds. The 2020 actual figures include allocated overhead costs (indirect) for building services and exclude costs not related to Building Code Act operations.

Others Consulted

KPMG- Cynthia Swift- Partner

Financial Impacts

Highlights of the **2020 Consolidated Financial Statements** (Attachment A) include the following:

i) Overview of the Consolidated Statement of Financial Position compared with the prior year:

- Cash has increased \$15.6 million (22%) Due to positive swings in cash flow management as well as increases in OCIF and Gas Tax funding holding. Increased holding in development charge funds, and water and wastewater reserves have also been experienced; all of which are held in reserves and reserve funds.
- Taxes receivable has had little change. The small increase is a result of a small increase in tax balances being experienced during the pandemic and a few larger balances properties outstanding at year end that are in tax sale registration process.

Administration regularly reviews the tax arrears status of properties and continues to work with residents to reduce their arrears and to avoid future arrears through registration in the pre-authorized payment program.

- Trade and other receivables have experienced minimal change for 2019 as well.
- Water receivables and unbilled revenue has increases by \$0.4 million (14%) as water consumption levels rose in 2020 due to the pandemic as more and more people were working from home.
- Drainage receivables and other Drainage recoverable decreased by \$1.1 million (32%) reflecting amounts due from landowners for new drainage construction projects in progress at yearend and drain maintenance works during the year.
- Investment reflects the own debentures of the municipality A breakdown of the investment is provided in Note 2 to the Consolidated Financial Statements.
- Short-term loans decreased by \$0.5 million (37%) resulting from payments of all temporary loans for construction.
- Accounts payable and accrued liabilities have decreased by \$1.4 million (13%) primary due to less large construction payments being due at the end of 2020.
- Deposits for building and planning applications increased by \$0.5 million (28%) as there are several significant developments with planning deposits in 2020.
- The balance of deferred revenue increased \$7.2 million (51%) to \$21.3 million. These funds are held as obligatory reserve funds, for a prescribed purpose, and consist of the Development Charges Reserve Funds, Federal Gas Tax Reserve Fund, Provincial Grant (OCIF) Reserve Fund and Other. Schedule 2 to the Consolidated Financial Statements provides a summary of the transactions during the year.
- Accrued interest on long-term debt had a decrease of \$0.02M (10%) due to a reduction of loans holdings that require accrued interest calculations.
- Municipal debt decreased by \$2.4 million (8%) to \$27.3 million. The decrease resulted from annual loan. A breakdown of long-term debt is provided in Note 6 to the Consolidated Financial Statements.
- Employee future benefit obligations have decreased by \$0.04 million this was because of a decrease in cost escalation of \$0.04 million for the municipality's total employee future benefit costs in 2020, based on actuarial assumptions. The municipalities contribute to the actuarial liability on a cash basis as actual payments are required. The actuarial valuation/projection considers post-

retirement life insurance for members, and corporate obligations for post-retirement health insurance and post-retirement dental insurance. A breakdown of the various components of the employee future benefit obligations is provided in Note 8 to the Consolidated Financial Statements.

- Accumulated sick leave as well as landfill closure cost liabilities saw very little change from 2019.
- Tangible Capital Assets (TCA) at the end of the year have a net book value of \$351 million, an Increase of \$14.3 million (4%). The municipality and developers made a net investment of \$29.9 million in capital assets during the year which largely consisted of asset renewals and improvements for roads, water and wastewater infrastructure. The change to the net book value of TCA includes the annual amortization of the capital assets in the amount of \$10.8 million. The amortization represents the proportionate cost of the assets used up as during 2020, based on their estimated useful life. Schedule 1 of the Consolidated Financial Statements details the activity during the year.
- Inventory of supplies had very little change from 2019
- Prepaid expenses decreased by \$0.08 million (54%) in 2020 and the main decrease is due to the timing of payment on software licencing and prepaid amounts for the disposal contract in 2019.
- The Accumulated Surplus summarizes the Town's consolidated equity which identifies the financial position, including TCAs and financial resources of the Town. Included in determining the surplus are a number of expenses mandated by PSAB for financial reporting purposes, for example employee future benefits, accrued interest on long-term debt, TCA amortization and accrued receivables and payables. Schedule 4 of the Consolidated Financial Statements details the components of the Accumulated Surplus, which indicates the Town's assets outweigh the Town's liabilities by \$389.7 million, an increase of \$26.2 million (7%).
- Reserves and Reserve Funds balances have Increased \$7.1 million (12%), as disclosed within the Accumulated Surplus position. The details of the Reserves and Reserve Funds can be found in Schedule 3 to the Consolidated Financial Statements, which is the schedule that provides Reserves and Reserve Funds continuity and balances at year end.

ii) Review of Statement of Financial Activities compared with the prior year:

As noted above, the figures disclosed in the Consolidated Financial Statements are based on the accrual basis of accounting, in accordance with PSAB reporting requirements. As such the revenue and expense amounts reported do not reflect the results reported in relation to the municipalities annual cash-based budget.

Revenues:

- Taxation, which includes property taxes and user fees, increased by \$2.3 million (7%) based on the fiscal levy increase, net impact of in-year assessment changes and increased supplementary tax revenue from new housing, which all account for \$2.3 million.
- Wastewater charges increased by \$0.6 million (12%). The increase reflects the net impact of 2020 wastewater rates applied to an increase flow volume.
- Water charges increased by \$0.55 million (6%) resulting from applying 2020 water rates against increased water usage volume, and fees based on an increase in demand for new water service connections.
- Recreation Revenue decreased by \$1.4 million (46%) resulting from the loss in revenue due to the closure forced by the pandemic
- Government transfers and Other Revenue Increases of \$0.5 Million as grant funding was up due to provincial covid relief funds
- Deferred Revenue earned is down by \$1.3 million (72%) as less capital projects are funded with Development charges and debt.
- Contributions from Developers accounted for \$11.6 Million dollars in contributed assets in 2020
- Loss on disposal of tangible capital assets of \$0.072 million is the calculated accounting loss from the sale of full-expired assets.

Expenses:

In accordance with PSAB reporting requirements, capital expenditures and principal repayments for long-term debt are removed and amortization expenses are included in the total expenses reported in the Consolidated Financial Statements.

- General government expenses increased of approximately \$0.1 million (6%) primarily due to increases in actuals cost of salaries and benefits and insurance premiums cost charged to the taxations budget centre.
- Protection to persons & property expenses Increased by \$0.5 million (5%). This increase is due to increased cost in the OPP contract and Fire cost increases as well.

- Transportation services expenses decreased by \$.5 million (6%) resulting from reductions in transportation capital expenditures in 2020 over 2019 amounts.
- Environmental Services expenses increased by \$0.5 million (3%) as due to more capital expenses in 2020 vs 2019. As well as some cost increases in operation cost in 2020.
- Recreation and Cultural Services expenses decreased by \$2.5 million (25%) resulting from an decrease in wages and benefit cost. Which was as of a result of COVID-19
- Planning and Development expenses decreased by \$0.072 million (5%) primarily due to staffing cost changes from year to year.

The Annual Surplus of \$26.2 million in 2020 (\$14.1 million in 2019) resulted from the items as outlined above; the surplus includes adjustments based on consolidation of equity in Union Water and mandatory PSAB reporting requirements which include the recognition of grants revenue as received in the year. As a result of these adjustments, the accrual based annual surplus reported in the Statements is not comparable to the cash-based budget surplus/deficit reported to the Council.

Highlights of the **2020 Development Charge Reserve Funds Statement** (Attachment B):

- Development Charges of \$6.1 million were collected in 2020.
- Interest income of \$0.12 million was earned on the investment in the reserve fund.
- A withdrawal of \$.3 million was made to cover the cost of the DC eligible loan payment for the ATC.

Highlights of the **2020 Statement of Revenue and Expenses and Accumulated Net Expense for Building Services** (Attachment C) include the following:

This statement outlines the fiscal results as well as continuity of building operations and capital reserve funds.

The 2020 actual figures include allocated overhead costs (indirect) and actual costs for delivery of building services under the Building Code Act.

The statement shows that 2020 resulted in a net surplus of \$283,375, Increasing the accumulated surplus reflected in the Building Services – Operations reserve fund. The net balance of the Building Services reserve funds, equal to the accumulated net surplus, totals \$2.2 million at the end of 2020. It is expected that accumulated surpluses or accumulated expenses will occur over time based on fluctuations in development activity. Any future surpluses from building services will be transferred to draw down on the accumulated expense, and Administration will continue to monitor and provide

recommendations with respect to building services fee adjustments and expense containment, as appropriate.

2020 Parkland Dedication Reporting

Chart 1 - 2020 Treasurer's Statement - Parkland Dedication Reserve Fund, shown below, outlines the Parkland Dedication activity for the year ended December 31, 2020. Total cash-in-lieu collections were \$309,800 in 2020.

Parkland Dedication Reserve Funds spent on capital projects totaled \$962,742 for 2020 mostly on the River Ridge Park, as well as some parks drainage work and a Skate Park Pad in Stoney Point.

**Municipality of Lakeshore
Treasurer Statement under Section 42 of the Planning Act
For the Year Ended December 31, 2020**

Parkland Dedication		
Opening Balance		\$1,019,028
Contributions	\$309,800	
Interest	\$ 14,689	
Total Funds Available		\$1,343,517
Less: Capital Projects	\$962,742	
Closing Balance		\$380,775

Attachments

- 2020 Consolidated Financial Statements (audited) (Attachment A),
- Development Charge Reserve Funds Statement (Attachment B),
- Statement of Revenue and Expenses and Accumulated Net Expense for Building Services (Attachment C), and
- KPMG's Audit Findings Report (AFR) (Attachment D)

Report Approval Details

Document Title:	2020 Year End Reporting Audited Consolidated Financial Statements.docx
Attachments:	- 2020 12 31_Lakeshore FS DRAFT.pdf - 2020 - DC Reserve Fund Reporting.pdf - 2020 Building Services Statement.pdf - Lakeshore AFR 2020.pdf
Final Approval Date:	Mar 9, 2022

This report and all of its attachments were approved and signed as outlined below:

Kristen Newman

Truper McBride

Consolidated Financial Statements of

**THE MUNICIPALITY OF
LAKESHORE**

And Independent Auditors' Report thereon

Year ended December 31, 2020

THE MUNICIPALITY OF LAKESHORE

Consolidated Financial Statements

Year ended December 31, 2020

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Management's Responsibility for the Consolidated Financial Statements

The accompanying consolidated financial statements of The Municipality of Lakeshore (the "Municipality") are the responsibility of the Municipality's management and have been prepared in compliance with legislation, and in accordance with Canadian public sector accounting standards. A summary of the significant accounting policies are described in Note 1 to the consolidated financial statements. The preparation of financial statements necessarily involves the use of estimates based on management's judgment, particularly when transactions affecting the current accounting period cannot be finalized with certainty until future periods.

The Municipality's management maintains a system of internal controls designed to provide reasonable assurance that assets are safeguarded, transactions are properly authorized and recorded in compliance with legislative and regulatory requirements, and reliable financial information is available on a timely basis for preparation of the consolidated financial statements. These systems are monitored and evaluated by management.

Management meets with the external auditors to review the consolidated financial statements and discuss any significant financial reporting or internal control matters prior to their approval of the consolidated financial statements.

The consolidated financial statements have been audited by KPMG LLP, independent external auditors appointed by the Municipality. The accompanying Independent Auditors' Report outlines their responsibilities, the scope of their examination and their opinion on the Municipality's consolidated financial statements.



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INDEPENDENT AUDITORS' REPORT

To the Members of Council, Inhabitants and Ratepayers of the Municipality of Lakeshore

Opinion

We have audited the consolidated financial statements of the Municipality of Lakeshore (the Municipality), which comprise:

- the consolidated statement of financial position as at December 31, 2020
- the consolidated statement of operations and accumulated surplus for the year then ended
- the consolidated statement of changes in net financial assets for the year then ended
- the consolidated statement of cash flows for the year then ended
- and the notes to the financial statements, including a summary of significant accounting policies

(Hereinafter referred to as the "financial statements")

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Municipality as at December 31, 2020, and its results of operations and its changes in its net financial assets and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibility under those standards are further described in the "***Auditors' Responsibilities for the Audit of the Financial Statements***" section of our auditors' report.

We are independent of the Municipality in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibility of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Municipality's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Municipality or to cease operations or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Municipality's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risk of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, internal omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purposes of expressing an opinion on the effectiveness of the Municipality's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.



- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to the events or conditions that may cast significant doubt on the Municipality's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Municipality's to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.
- Obtain sufficient audit evidence regarding the financial information of the entities or business activities within the Group Municipality to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

Chartered Professional Accountants, Licensed Public Accountants

Windsor, Canada

Approval date

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Consolidated Statement of Financial Position

December 31, 2020, with comparative information for 2019

	2020	2019
Financial assets		
Cash and temporary investments	\$ 86,706,180	\$ 71,065,126
Taxes receivable	3,344,409	3,335,502
Trade and other receivables	3,848,963	3,837,907
Water receivables and unbilled revenue	3,612,478	3,172,344
Drainage receivables	2,227,951	3,282,107
Drainage recoverable from others	715,666	767,035
Inventory held for resale	18,147	34,600
Investments (note 2)	1,049,000	777,978
	\$ 101,522,794	\$ 86,272,599
Financial liabilities		
Short-term loans (note 4)	\$ 1,000,000	\$ 1,585,000
Accounts payable and accrued liabilities	8,938,846	10,318,334
Deposits	2,323,706	1,812,411
Deferred revenue (note 5)	21,399,526	14,176,297
Accrued interest on long-term liabilities	171,788	190,633
Net long-term liabilities (note 6)	27,379,756	29,811,583
Post-employment benefits (note 8)	1,263,891	1,306,018
Accumulated vested sick leave (note 9)	5,036	19,051
Landfill closure cost liability (note 10)	617,735	615,887
	63,100,284	59,835,214
Net financial assets	38,422,510	26,437,385
Non-financial assets		
Tangible capital assets (Schedule 1)	351,088,481	336,800,497
Inventories of supplies	180,830	159,112
Prepaid expenses	76,263	165,383
	351,345,574	337,124,992
Contractual obligations and contingencies (notes 13 and 16)		
Accumulated surplus (Schedule 4)	\$ 389,768,084	\$ 363,562,377

See accompanying notes to consolidated financial statements.

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Consolidated Statement of Operations and Accumulated Surplus

Year ended December 31, 2020, with comparative information for 2019

	2020 Budget	2020 Actual	2019 Actual
Revenue:			
Taxation	\$ 35,869,119	\$ 35,827,531	\$ 33,447,475
User charges:			
Wastewater	5,992,924	6,428,370	5,755,148
Water	9,158,172	9,581,333	9,040,914
Recreation	2,909,283	1,706,408	3,185,572
Other	987,692	1,375,458	1,180,343
Government transfers	942,490	2,442,190	1,850,797
Other (note 11)	1,894,960	2,450,839	2,652,515
Deferred revenue earned (Schedule 2)	352,600	550,901	1,935,009
	58,107,240	60,363,030	59,047,773
Expenses (note 14):			
General government	5,090,975	2,108,537	1,986,355
Protection to persons and property	8,906,881	9,694,277	9,190,656
Transportation services	10,776,317	9,171,206	9,714,229
Environmental services	14,610,791	18,089,274	17,530,591
Recreation and cultural services	8,978,944	7,875,159	10,449,466
Planning and development	1,435,688	1,512,819	1,586,943
	49,799,596	48,451,272	50,458,240
Net revenue	8,307,644	11,911,758	8,589,533
Other:			
Grants and revenues (expenses) related to capital:			
Loss on sale of capital assets	-	(72,692)	(29,690)
Deferred revenue earned (Schedule 2)	(4,280,000)	2,002,867	3,068,442
Government transfers	2,052,494	387,252	2,387,135
Contribution from developers	-	11,693,714	-
Other	-	148,029	77,002
Capitalization of assets previously expensed	-	134,779	-
	(2,227,506)	14,293,949	5,502,889
Annual surplus	6,080,138	26,205,707	14,092,422
Accumulated surplus, beginning of year	363,562,377	363,562,377	349,469,955
Accumulated surplus, end of year	\$ 369,642,515	\$ 389,768,084	\$ 363,562,377

See accompanying notes to consolidated financial statements.

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Consolidated Statement of Change in Net Financial Assets

Year ended December 31, 2020, with comparative information for 2019

	2020	2019
Annual surplus	\$ 26,205,707	\$ 14,092,422
Amortization of tangible capital assets	10,805,570	10,341,463
Acquisition of tangible capital assets	(25,169,340)	(13,857,520)
Loss on sale of tangible capital assets	72,692	29,690
Proceeds on sale of tangible capital assets	3,094	33,940
	11,917,723	10,639,995
Acquisition of inventories	(180,830)	(159,112)
Acquisition of prepaid expenses	(76,263)	(165,383)
Consumption of inventories	159,112	245,298
Consumption of prepaid expenses	165,383	107,861
Change in net financial assets	11,985,125	10,668,659
Net financial assets, beginning of year	26,437,385	15,768,726
Net financial assets, end of year	\$ 38,422,510	\$ 26,437,385

See accompanying notes to consolidated financial statements.

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Consolidated Statement of Cash Flows

Year ended December 31, 2020, with comparative information for 2019

	2020	2019
Cash provided by (used in):		
Operations:		
Annual surplus	\$ 26,205,707	\$ 14,092,422
Items not involving cash:		
Amortization of tangible capital assets	10,805,570	10,341,463
Loss on sale of tangible capital assets	72,692	29,690
Change in non-cash operating working capital:		
Taxes, trade and water receivables	(460,097)	1,232,919
Prepaid expenses	89,120	(57,522)
Inventories	(5,265)	84,222
Drain receivables and debt recoverable from others	1,105,525	447,675
Accounts payable, accrued liabilities and deposits	(868,193)	2,789,970
Deferred revenue	7,223,229	2,070,918
Unfunded liabilities - interest, benefits, landfill	(73,139)	(158,855)
	44,095,149	30,872,902
Investing:		
Increase in investments	(271,022)	(265,112)
	(271,022)	(265,112)
Capital:		
Acquisition of tangible capital assets	(25,169,340)	(13,857,520)
Proceeds on disposal of tangible capital assets	3,094	33,940
	(25,166,246)	(13,823,580)
Financing:		
Long-term debt issued	-	100,000
Debenture principal repayments	(2,431,827)	(2,519,676)
	(2,431,827)	(2,419,676)
Increase in cash and cash equivalents	16,226,054	14,364,534
Cash and cash equivalents, beginning of year	69,480,126	55,115,592
Cash and cash equivalents, end of year	\$ 85,706,180	\$ 69,480,126
Supplemental cash flow information:		
Cash and temporary investments	\$ 86,706,180	\$ 71,065,126
Short term capital loan	(1,000,000)	(1,585,000)
Cash and cash equivalents, end of year	\$ 85,706,180	\$ 69,480,126

See accompanying notes to consolidated financial statements.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements

Year ended December 31, 2020

1. Significant accounting policies:

(a) Management responsibility:

The consolidated financial statements of The Municipality of Lakeshore ("Municipality") are the representations of management, prepared in accordance with accounting principles for local government as recommended by the Public Sector Accounting Board (PSAB) of the Chartered Professional Accountants Canada.

(b) Basis of accounting:

Revenues and expenses are reported on the accrual basis of accounting. The accrual basis of accounting recognizes revenues as they become available and measurable; expenses are recognized as they are incurred and measurable as a result of receipt of goods or services and the creation of a legal obligation to pay.

(c) Basis of consolidation:

The consolidated financial statements reflect financial assets, liabilities, operating revenues and expenses, reserves, reserve funds, and changes in investment in tangible capital assets of the Municipality.

The Municipality's proportionate share in the Union Water Supply System is accounted for on a proportionate consolidation basis, consistent with the Canadian public sector accounting standard's treatment for government units.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

1. Significant accounting policies (continued):

(d) Taxes receivable and related revenues:

Property tax billings are prepared by the Municipality based on assessment rolls issued by the Municipal Property Assessment Corporation ("MPAC"). Tax rates are established annually by Municipality Council, incorporating amounts to be raised for local services and amounts the Municipality is required to collect on behalf of the Province of Ontario in respect to education taxes and the County of Essex in respect of upper tier taxes. A normal part of the assessment process is the issuance of supplementary assessment rolls, which provide updated information with respect to changes in property assessment. Once a supplementary assessment roll is received, the Municipality determines the taxes applicable and renders supplementary tax billings. Taxation revenues are recorded at the time tax billings are issued. Assessment and the related property taxes are subject to appeal. Tax adjustments as a result of appeals are recorded based upon management's estimate of the outcome taking into consideration historical trends. The Municipality is entitled to collect interest and penalties on overdue taxes. These revenues are recorded in the period the interest and penalties are levied. Tax revenue is recorded net of reductions. Taxes receivable are reported net of any expense or allowance for doubtful accounts.

(e) Government transfers:

Government transfer payments are recognized in the financial statements in the year in which the payment is authorized and the events giving rise to the transfer occur, performance criteria are met, and a reasonable estimate of the amount can be made. Funding that is stipulated to be used for specific purposes is only recognized as revenue in the fiscal year that the related expenses are incurred or services performed. If the funding is received for which the related expenses have not yet been incurred or services performed, these amounts are recorded as deferred revenue at year end.

(f) Non-financial assets:

Non-financial assets are not available to discharge existing liabilities and are held for use in the provision of services. They generally have useful lives extending beyond the current year, and are not intended for sale in the ordinary course of operations. The change in non-financial assets during the year, together with the annual surplus, provides the change in net debt for the year.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

1. Significant accounting policies (continued):

(f) Non-financial assets (continued):

(i) Tangible capital assets:

Tangible capital assets are recorded at cost, which includes all amounts that are directly attributable to acquisition, construction, development or betterment of the asset. The cost, less residual value, of the tangible capital assets is amortized on a straight-line basis over their estimated useful lives as follows:

Asset	Useful Life - Years
Land improvements	20 – 50 years
Buildings	40 – 50 years
Machinery and equipment	10 – 30 years
Vehicles	8 – 20 years
Water and waste plants and networks:	
Underground networks	40 – 100 years
Treatment plants and water storage towers	70 – 75 years
Processing equipment	10 – 60 years
Transportation:	
Roads	10 – 20 years
Bridges and structures	50 – 75 years
Sidewalks	30 years
Storm sewers	25 – 100 years
Trails and walking paths	15 years
Pooled assets	5 – 25 years

One half of the annual amortization is charged in the year of acquisition and in the year of disposal. Assets under construction are not amortized until the asset is available for productive use, at which time it is capitalized.

The Municipality has a capitalization threshold of \$10,000 – \$25,000, depending on the asset so that individual tangible capital assets of lesser value are expensed, unless they are pooled because, collectively, they have significant value, or for operational reasons. Examples of pools are computers, bunker gear and other fire equipment, generators, road signs and street lights.

(ii) Contribution of tangible capital assets:

Tangible capital assets received as contributions are recorded at their fair value at the date of receipt, and that fair value is also recorded as revenue.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

1. Significant accounting policies (continued):

(f) Non-financial assets (continued):

(iii) Inventories:

Inventories held for consumption are recorded at the lower of cost or replacement cost.

(g) Investments:

Investments are recorded at cost. When there is a loss in value that is other than a temporary decline in value, the respective investment is written down to recognize the loss.

(h) Inventory:

Inventory of goods held for resale is recorded at the lower of cost and net realizable value. Cost is determined on the average cost basis.

(i) Deferred revenue:

Revenue restricted by legislation, regulation or agreement and not available for general municipal purposes is reported as deferred revenue on the consolidated statement of financial position. The revenue is reported on the consolidated statement of operations and accumulated surplus in the year in which it is used for the specified purpose.

(j) County and school boards:

The Municipality collects taxation revenue on behalf of the school boards and the County of Essex. The taxation, other revenues, expenses, assets, and liabilities with respect to the operations of the school boards and the County of Essex are not reflected in these consolidated financial statements. Amounts due from/to the County of Essex and the school boards are included in trade and other receivables/accounts payable and accrued liabilities on the consolidated statement of financial position.

(k) Employee future benefits:

The Municipality has adopted the accrual method for employee future benefits as required by the Chartered Professional Accountants Canada. The cost of future benefits earned by employees is determined using the projected benefit method prorated on service and assumption with respect to mortality and termination rates, retirement age and expected inflation rates with respect to employee benefit costs.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

1. Significant accounting policies (continued):

(l) Use of estimates:

The preparation of consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported revenues and expenses during the period. Significant items subject to such estimates and assumptions include valuation allowances for receivables, certain accrued liabilities and liabilities related to employee future benefits, the liability for post closure costs and the carrying value of tangible capital assets. Actual results could differ from these estimates.

(m) Related party disclosures

The Municipality defines related party and provides disclosure requirements, in accordance with the relevant standard. Disclosure is only required when the transactions or events between related parties occur at a value different from what would have been recorded if they were not related and the transactions could have a material financial impact on the financial statements. The Municipality also discloses related party transactions that have occurred where no amounts have been recognized.

(n) Future accounting changes:

Effective for fiscal periods beginning on or after April 1, 2021, all governments will be required to adopt PSAB Section 3450, Financial Instruments and Section 2601, Foreign Currency Translation. Section 3450 provides guidance on how to account for financial instruments including derivatives. Section 2601 provides guidance on how to account for and report transactions that are denominated in foreign currency in government financial statements.

Effective for fiscal period beginning on or after April 1, 2022, all governments will be required to adopt PSAB Section 3280, Asset Retirement Obligations. The new standard addresses the recognition, measurement, presentation and disclosure of legal obligations associated with retirement of tangible capital assets in productive use.

Management is currently in the process of evaluating the potential impact of adopting these standards.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

2. Investments:

	2020	2019
Own debentures	\$ 1,049,000	\$ 777,978
	\$ 1,049,000	\$ 777,978

3. Equity in the Union Water Systems Board of Management:

The equity in the Union Water System Board of Management is made up as follows:

	2020	2019
Cash and investments	\$ 730,944	\$ 648,179
Accounts receivable	41,290	37,229
Accounts payable	(58,999)	(84,582)
	713,235	600,826
Long-term debt	(336,365)	(372,736)
Tangible capital assets	1,328,973	1,366,879
	1,705,843	1,594,969
Reserves	336,538	233,464
Reserve funds	376,696	367,364
	713,234	600,828
Tangible Capital Assets - net book value:		
Water – land, land improvements, buildings and equipment	807,269	719,619
Water – linear	513,667	520,051
Water – assets under construction	8,037	127,209
	\$ 1,328,973	\$ 1,366,879

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

3. Equity in the Union Water Systems Board of Management (continued):

Included in the consolidated statement of operations and accumulated surplus is the Union Water System's share of:

	2020	2019
Amortization expense	\$ 44,576	\$ 40,003
Interest on long-term debt	37,694	41,286

The equity interest of each municipality shall be determined according to their proportional water consumption from the system, with the equity share being updated every four years per the Ownership Agreement. Lakeshore's equity in the System was reset to 3.15% effective January 1, 2017 with the next equity share reset to be effected January 1, 2021. The order also provides for the establishment of a Board of Management to govern the system.

4. Short term loans:

The balance of \$1,000,000 (2019 - \$1,585,000) is for drainage construction, which carries an interest rate at prime minus 0.25% from TD Canada Trust. This loan is unsecured and due upon demand.

5. Deferred revenue:

	2020	2019
Obligatory reserve funds:		
Development Charges Act and Agreements	\$ 15,713,560	\$ 7,963,218
Parking and trees	186,683	124,001
Parkland dedication	380,774	1,019,027
Federal gas tax	3,390,169	3,172,111
Building code	1,728,340	1,897,940
	\$ 21,399,526	\$ 14,176,297

The net change during the year in the deferred revenue balances is detailed in the Schedule 2 - Deferred Revenue.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

6. Long-term liabilities:

The balance of long term liabilities reported on the consolidated statement of financial position is comprised of the following:

	2020	2019
Total debentures payable	\$ 27,043,391	\$ 29,438,847
Share of Union Water System obligations	336,365	372,736
	<u>\$ 27,379,756</u>	<u>\$ 29,811,583</u>

Principal payments for the next five fiscal years and thereafter are as follows:

2021	\$ 2,593,524
2022	2,601,996
2023	2,596,343
2024	2,582,724
2025	2,580,284
Thereafter	14,424,885

Principal repayments on long-term debt will be funded as follows:

	2020	2019
Taxation	\$ 11,926,674	\$ 12,585,013
User rates:		
Water	9,203,586	10,313,772
Wastewater	5,533,830	6,145,763
Benefitting landowners	715,666	767,035
	<u>\$ 27,379,756</u>	<u>\$29,811,583</u>

Interest rates range from 2.50% to 5.14%. Total interest charges included in reporting on the consolidated statement of operations and accumulated surplus is \$1,011,179 (2019 - \$1,094,196). Of this amount, \$245,281 (2019 - \$269,576) was paid from wastewater rates, \$332,227 (2019 - \$368,764) from water rates, \$401,007 (2019 - \$421,264) from tax rates and \$32,664 (2019 - \$34,592) from benefitting landowners.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

7. Pension agreement:

The Municipality makes contributions to the Ontario Municipal Employees Retirement Fund (OMERS), which is a multi-employer plan on behalf of members of its staff. The plan provides defined pension benefits to employees based upon their length of credited service and rates of pay. However, as OMERS does not segregate its pension assets and liabilities information by individual employer, there is not sufficient information to enable the Municipality to account for the plan as a defined benefit plan.

At December 31, 2020, the OMERS plan is in an actuarial deficit position, which is being addressed through rate contributions and benefit reductions. Depending on an individual's normal retirement age and pensionable earnings, 2020 contribution rates were 9.0% and 14.6% (2019 - 9.0% and 14.6%). During the year, the Municipality paid \$879,450 (\$805,753 in 2019) in contributions towards the OMERS plan which are recorded in the statement of operations.

The last available report for the OMERS plan was on December 31, 2020. At that time, the plan reported a \$3.2 billion actuarial deficit (2019 - \$3.4 billion), based on actuarial liabilities for \$122 billion (2019 - \$107.7 billion) and actuarial assets for \$111 billion (2019 - \$104.3 billion). If actuarial surpluses are not available to offset the existing deficit and subsidize future contributions, increases in contributions will be required in the future.

8. Post-employment benefits

Employees who meet the criteria of having a minimum of 10 years of service and are a minimum age of 55 can retire, with the Municipality paying for dental and health benefits to the age of 65. The following assumptions were applied in estimating post-employment benefit liability:

- (a) a discount factor of 4.0% (2019 - 5.0%)
- (b) an annual increase of 5.0% (2019 - 5.0%) for health and dental benefits
- (c) an employee will retire when they meet the criteria for a full pension from OMERS
- (d) for those that will not meet the OMERS criteria, assume that they will retire at the age of 65
- (e) all employees will stay until retirement

There are currently 18 (2019 - 15) former employees who are receiving these benefits.

The liability based on the above assumptions at the year-end date is \$1,263,891 (2019 - \$1,306,018).

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

9. Liability for vested sick leave benefits:

Under the sick leave benefit plan, unused sick leave as at January 1, 2000 to a maximum of 100 days may be paid out at 50% when an employee leaves the Municipality's employment.

Days may be used while waiting for short term disability, to top up short term disability to 100% of their normal wages, and to top up long term disability to 90% of their normal wages.

Subsequent to January 1, 2000, 7 sick days per year are granted to all full-time employees, and if unused, may be paid out or accumulated to a maximum of 30 days. At the year end, the liability for the accumulated days amounted to \$265,625 (2019 - \$226,782) and is included in accounts payable.

The liability for these accumulated days, to the extent that they have vested and payment could be taken in cash by an employee upon termination, amounted to \$5,036 (2019 - \$19,051).

10. Landfill closure cost liability:

Essex County Landfill #3 was closed in 1997 and requires care consisting of hauling and treating leachate for an estimated period of 35 to 40 years. This landfill is the joint responsibility of the Municipality of Lakeshore, Municipality of Tecumseh and City of Windsor. The site is administered by the Essex-Windsor Solid Waste Authority. The liability was calculated assuming a 4% (2019 - 4%) discount rate and 2% (2019 - 2%) rate of inflation using current annual contributions. Payments are made on a bi-monthly basis. The liability calculated using the above assumptions amounted to \$617,735 at the year-end date (2019 - \$615,887).

11. Other income:

	2020	2019
Penalties and interest on taxation	\$ 336,363	\$ 609,563
Investment income	815,299	1,287,557
Permits and licenses	1,299,177	755,395
	<u>\$ 2,450,839</u>	<u>\$ 2,652,515</u>

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

12. Operations of School Boards and the County of Essex:

During the year, the following taxation revenue was raised and remitted to the school boards and the County of Essex:

	2020	2019
School boards	\$ 13,222,209	\$ 13,109,049
County of Essex	27,091,702	25,544,913
	<u>\$ 40,313,911</u>	<u>\$ 38,653,962</u>

13. Contractual obligation – Ontario Clean Water Agency:

In accordance with a service agreement entered into by the Municipality with the Ontario Clean Water Agency, the primary sewage system is operated by the Agency. The Municipality is obligated to meet all operating and capital costs and repay the long term liabilities related to these projects.

14. Expenses by object:

The consolidated statement of operations and accumulated surplus presents the consolidated expenses by function. The following is a summary of those same expenses by object:

	2020	2019
Salaries, wages and benefits	\$ 13,445,472	\$ 13,612,577
Interest on long-term debt	1,011,179	1,094,196
Materials and supplies	10,784,438	13,021,907
Contracted services	11,329,976	11,409,771
Rents and financial expenses	78,197	100,572
External transfers	996,441	877,754
Amortization	10,805,569	10,341,463
Total current expenses	<u>\$ 48,451,272</u>	<u>\$ 50,458,240</u>

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

15. Budget amounts:

The operating budget approved by Municipality Council for 2020 is reflected on the consolidated statement of operations and accumulated surplus. The budgets established for capital investment in tangible capital assets are on a project-oriented basis, the costs of which may be carried out over one or more years and, therefore, may not be comparable with current year's actual expenditure amounts. As well, the Municipality does not budget activity within reserves and reserve funds, with the exception being those transactions, which affect either operations or capital investments. Budget figures have been reclassified for the purposes of these consolidated financial statements to comply with PSAB reporting requirements.

16. Contingencies:

During the normal course of operations, the Municipality may be subject to various legal actions. The settlement of these actions, if any, is not expected to have a material effect on the consolidated financial statements of the Municipality.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

17. Segmented information:

The Municipality of Lakeshore is a diverse lower tier municipal government that provides a wide range of services to its citizens. The Municipality's operations and activities are organized functionally based on services provided and their activities are summarized by reportable segment in these statements.

For each reportable segment, the Municipality has reported expenses that represent both amounts that are directly attributable and amounts that are allocated on a reasonable basis. Revenues have not been presented by segment based on their nature and instead are shown by object as shown in Schedule 5.

The Municipality's reportable segments and their associated activities are as follows:

- (i) General government provides functions of general governance and corporate management comprised of tax levy revenue, council, council services, finance and administration activities.
- (ii) Protection services: are comprised of Police, Fire and Protective Inspection activities including building, by-law enforcement and animal control.
- (iii) Transportation services: includes Roads and related Asset Management and responsibility for road maintenance, hard-top and loose-top maintenance, road patrol, salt, sanding, snow removal, street lighting and administration of facilities.
- (iv) Environmental services: are comprised of water, sanitary and storm sewers, solid waste collection, disposal and recycling.
- (v) Recreation and cultural services: Recreational and cultural services are comprised of parks cultural activities and recreation facilities and responsibility for providing and facilitating the development and maintenance of high quality parks, recreation and cultural services.
- (vi) Planning and development: includes Planning, Agricultural Drainage and Engineering, responsible for administration of land use plans and policies for sustainable development of the Municipality.

The accounting policies used in these segments are consistent with those followed in preparation of the consolidated financial statements as disclosed in Note 1.

THE MUNICIPALITY OF LAKESHORE

Consolidated Notes to Financial Statements (continued)

Year ended December 31, 2020

18. Impact of COVID-19:

On March 11, 2020, the World Health Organization declared the COVID-19 outbreak a global pandemic, which has had a significant financial, market, and social dislocating impact. At the time of approval of these financial statements, the Municipality has experienced the following indicators of financial implications and undertaken the following activities in relation to the COVID-19 pandemic.

- The closure of a number of indoor and outdoor facilities to the general public.
- Revisions to the delivery of a number of municipal services in order to contribute towards physical distancing.
- Enhanced protocols implemented in line with Public Health guidelines.
- Put in place measures to limit and control access to the premises by staff and the general public; and
- In certain instances, the Municipality has reduced penalty and interest charges.

The federal and provincial governments have implemented various government programs to respond to the negative economic impacts of COVID-19.

For the year ended December 31, 2020, the Municipality received \$1,411,300 in Phase 1 funding under the federal-provincial Safe Restart Agreement to support municipal operating pressures as a result of COVID-19. The balance of this funding that was used to offset expenses in 2020 is included in the consolidated statement of financial activities.

The continued development and impact of COVID-19 on the Municipality and the overall economy are highly uncertain and cannot be determined at this time. Management is actively monitoring the situation.

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Schedule of Tangible Capital Assets

Schedule 1

Year ended December 31, 2020, with comparative information for 2019

	General					Infrastructure					
	Land	Land Improvements	Buildings	Equipment	Vehicles	Plants and Facilities	Roads	Underground	Bridges	Assets Under Construction	Total
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Cost:											
Beginning of year	6,890,108	13,799,648	67,057,616	26,606,014	8,428,841	75,527,620	124,777,744	158,570,671	7,304,327	10,214,078	499,176,667
Additions	-	96,207	119,802	2,007,927	532,493	41,444	8,591,765	9,843,054	2,487	8,720,080	29,955,259
Disposals	-	-	(46,423)	(219,297)	(101,786)	-	-	-	-	(4,785,919)	(5,153,425)
Balance, end of year	6,890,108	13,895,855	67,130,995	28,394,644	8,859,548	75,569,064	133,369,509	168,413,725	7,306,814	14,148,239	523,978,501
Accumulated Amortization:											
Beginning of year	-	2,566,267	10,014,588	12,827,485	4,643,749	13,680,718	77,806,671	37,472,348	3,364,344	-	162,376,170
Amortization - 2020	-	301,404	1,397,900	1,003,296	541,187	995,818	4,677,204	1,785,628	103,133	-	10,805,570
Accumulated amortization on disposals	-	-	(5,571)	(198,556)	(87,593)	-	-	-	-	-	(291,720)
Balance, end of year	-	2,867,671	11,406,917	13,632,225	5,097,343	14,676,536	82,483,875	39,257,976	3,467,477	-	172,890,020
Net book value of tangible capital assets	6,890,108	11,028,184	55,724,078	14,762,419	3,762,205	60,892,528	50,885,634	129,155,749	3,839,337	14,148,239	351,088,481

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Schedule of Tangible Capital Assets

Schedule 1

Year ended December 31, 2020, with comparative information for 2019

	General	Fire	Recreation	Roads	Water	Wastewater	Assets under construction	Total
	\$	\$	\$	\$	\$	\$	\$	\$
Cost:								
Beginning of year	3,754,175	6,491,618	82,813,457	179,683,859	129,776,802	86,442,678	10,214,078	499,176,667
Additions	119,005	548,199	247,735	13,595,401	5,477,954	1,246,885	8,720,080	29,955,259
Disposals	(22,709)	(217,440)	(87,761)	-	(39,596)	-	(4,785,919)	(5,153,425)
Balance, end of year	3,850,471	6,822,377	82,973,431	193,279,260	135,215,160	87,689,563	14,148,239	523,978,501
Accumulated Amortization:								
Beginning of year	1,375,499	4,324,567	13,728,208	93,535,907	27,905,511	21,506,478	-	162,376,170
Amortization - 2020	115,691	301,900	1,924,318	5,541,887	1,666,675	1,255,099	-	10,805,570
Accumulated amortization on disposals	(8,516)	(196,788)	(46,909)	-	(39,507)	-	-	(291,720)
Balance, end of year	1,482,674	4,429,679	15,605,617	99,077,794	29,532,679	22,761,577	-	172,890,020
Net book value of tangible capital assets	2,367,797	2,392,698	67,367,814	94,201,466	105,682,481	64,927,986	14,148,239	351,088,481

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Schedule of Deferred Revenue

Schedule 2

Year ended December 31, 2020, with comparative figures for 2019

	Balance, December 31, 2019	Interest Earned	Contributions Received	Revenue Earned - Capital	Revenue Earned - Operating	Other Disbursements	Balance, December 31, 2020
Parkland	1,019,027	14,690	309,800	(8,146)	-	(954,597)	380,774
Development Charges	7,397,195	128,136	6,051,889	-	(332,600)	-	13,244,620
Building Code	1,897,940	24,686	-	-	(194,286)	-	1,728,340
Federal Gas Tax	3,172,111	49,001	1,777,024	(1,607,967)	-	-	3,390,169
Trees	123,297	1,888	84,800	-	(24,015)	-	185,970
Provincial Grants	566,023	11,412	2,278,259	(386,754)	-	-	2,468,940
Parking	704	9	-	-	-	-	713
	14,176,297	229,822	10,501,772	(2,002,867)	(550,901)	(954,597)	21,399,526

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THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Schedule of Reserves and Reserve Funds

Schedule 3

Year ended December 31, 2020, with comparative information for 2019

	Balance, December 31, 2019	Interest earned	Contributions received	Inter Reserve Fund/Reserve transfers	Transfer to capital from (to)	Transfer from (to) operations	Balance, December 31, 2020
Reserve Funds							
Water	11,809,325	177,172	-	(865,613)	(1,085,510)	2,107,183	12,142,557
Union water system	367,364	-	-	-	-	9,332	376,696
Wastewater	5,012,395	69,735	-	(1,000,000)	(1,390,056)	632,160	3,324,234
Future employee benefits	703,862	9,446	-	-	-	-	713,308
ELK sale proceeds	926,360	13,439	-	-	-	248,920	1,188,719
	18,819,306	269,792	-	(1,865,613)	(2,475,566)	2,997,595	17,745,514
Reserves							
Working capital	2,793,040	-	-	(1,150,000)	(6,118)	1,229,384	2,866,306
Contingencies	1,274,841	-	-	-	-	181,000	1,455,841
Accumulated sick leave	55,000	-	-	-	-	-	55,000
Water operating	1,061,541	-	-	-	-	-	1,061,541
Union water system	233,464	-	-	-	-	103,074	336,538
Roads	9,068,119	-	-	(3,744,708)	(1,567,785)	5,844,300	9,599,926
Acquisition of capital assets	16,210,874	-	-	10,739,635	(7,173,749)	6,067,235	25,843,995
Future operating expenses	8,240,786	9,618	120,000	(2,976,410)	(458,483)	934,048	5,869,559
	38,937,665	9,618	120,000	2,868,517	(9,206,135)	14,359,041	47,088,706
	57,756,971	279,410	120,000	1,002,904	(11,681,701)	17,356,636	64,834,220

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Consolidated Schedule of Accumulated Surplus

Schedule 4

December 31, 2020, with comparative information for 2019

	2020	2019
Reserves and Reserve Funds:		
Reserve Funds (Schedule 3)	17,745,514	18,819,306
Reserves (Schedule 3)	47,088,706	38,937,665
	<u>64,834,220</u>	<u>57,756,971</u>
Surpluses:		
Tangible capital assets	324,673,954	308,075,025
General revenue fund	2,562,890	1,035,100
General reduction of user charges	-	(859,774)
Benefitting landowners related to special charges and special areas	(249,566)	(313,356)
Unfunded:		
Post employment liabilities and sick leave	(1,263,891)	(1,325,069)
Landfill closure cost liability	(617,735)	(615,887)
Accrued interest on long-term debt	(171,788)	(190,633)
	<u>324,933,864</u>	<u>305,805,406</u>
Accumulated Surplus	<u>389,768,084</u>	<u>363,562,377</u>

THE CORPORATION OF THE MUNICIPALITY OF LAKESHORE

Schedule of Segmented Disclosure

Schedule 5

For the year ended December 31, 2020

	General Government	Protective Services	Transportation Services	Environmental Services	Recreation	Planning & Development	Total
Revenue							
Property taxes	35,827,531	-	-	-	-	-	35,827,531
Government transfers	2,192,483	70,583	390,683	39,747	49,087	86,859	2,829,442
User fees and sale of goods	904,175	120,059	242,583	16,009,703	1,713,329	101,720	19,091,569
Investment income	815,299	-	-	-	-	-	815,299
Gain or (Loss) on sale of tangible capital assets	-	-	(72,692)	-	-	-	(72,692)
Donated assets	-	-	3,762,705	7,931,009	-	-	11,693,714
Deferred revenue earned	-	194,286	1,868,432	150,304	340,746	-	2,553,768
Fines and penalties	336,363	-	-	-	-	-	336,363
Other revenues	134,779	-	148,029	-	-	1,299,177	1,581,985
	40,210,630	384,928	6,339,740	24,130,763	2,103,162	1,487,756	74,656,979
Expenses							
Salaries, wages and employee benefits	3,283,482	2,258,198	1,213,839	3,024,354	2,612,711	1,052,888	13,445,472
Interest on long-term debt	-	-	-	577,495	401,323	32,361	1,011,179
Materials	1,027,792	693,697	2,351,953	4,534,892	2,048,758	127,346	10,784,438
Contracted services	406,673	5,195,537	270,580	4,892,184	385,705	179,296	11,329,975
Rents and financial expenses	32,875	6,843	-	-	38,479	-	78,197
External transfers	-	508,594	-	486,847	1,000	-	996,441
Amortization	92,643	318,449	4,994,023	3,465,543	1,934,912	-	10,805,570
Inter-functional adjustments	(2,734,928)	712,959	340,811	1,107,959	452,271	120,928	-
	2,108,537	9,694,277	9,171,206	18,089,274	7,875,159	1,512,819	48,451,272
Annual surplus (deficit)	38,102,093	(9,309,349)	(2,831,466)	6,041,489	(5,771,997)	(25,063)	26,205,707

Figure 1
The Corporation of the Municipality of Lakeshore
Development Charge Reserve Funds Statement
Year Ended December 31, 2020

Description	Services to which the Development Charge Relates						Total
	Non-Discounted Services						
	Services Related to a Highway	Water	Wastewater	Protection(3)	Parks and Recreation(4)	Administration	
Opening Balance, January 1, 2020	1,799,708	734,825	591,763	1,704,945	2,411,075	154,880	7,397,195
Plus:							
Development Charge Collections	1,866,350	1,413,790	1,256,294	122,261	1,113,161	280,034	6,051,889
Accrued Interest	33,060	16,634	14,110	23,463	37,438	3,430	128,136
Repayment of Monies Borrowed from Fund and Associated Interest	-	-	-	-	-	-	-
Sub-Total	1,899,410	1,430,424	1,270,404	145,724	1,150,599	283,464	6,180,025
Less:							
Amount Transferred to Capital (or Other) Funds (1)			-		332,600	-	332,600
Amounts Reallocated							-
Amounts Loaned to operations for Interim Financing Credits (2)							-
Sub-Total	-	-	-	-	332,600	-	332,600
Closing Balance, December 31, 2020	3,699,118	2,165,249	1,862,167	1,850,669	3,229,075	438,343	13,244,620

1 See Attachment 1 for details

2 See Attachment 2 for details

3 Service category includes: Police Services and Fire Services

4 Service category includes: Indoor Recreation Services and Parkland Development Services

The Municipality is compliant with s.s. 59.1 (1) of the *Development Charges Act*, whereby charges are not directly or indirectly imposed on development nor has a requirement to construct a service related to development been imposed, except as permitted by the *Development Charges Act* or another Act.

Attachment 1
The Corporation of the Municipality of Lakeshore
Amount Transferred to Capital (or Other) Funds - Capital Fund Transactions

Capital Fund Transactions	Gross Capital Cost	DC Recoverable Cost Share					Non-D.C. Recoverable Cost Share				
		D.C. By-Law Period			Post D.C. By-Law Period		Other Reserve/Reserve Fund Draws	Tax Supported Operating Fund Contributions	Rate Supported Operating Fund Contributions	Debt Financing	Grants, Subsidies Other Contributions
		D.C. Reserve Fund Draw	D.C. Debt Financing	Grants, Subsidies Other Contributions	Post-Period Benefit/Capacity Interim Financing	Grants, Subsidies Other Contributions					
<u>Services Related to a Highway</u>											
Sub-Total - Services Related to Highways	-	-	-	-	-	-	-	-	-	-	-
<u>Parks and Recreation</u>											
Sub-Total - Parks and Recreation	-	-	-	-	-	-	-	-	-	-	-
<u>Administration</u>											
Admin- Studies			-	-	-						
Sub-Total - Administration	-	-	-	-	-	-	-	-	-	-	-
<u>Water</u>											
Sub-Total - Water	-	-	-	-	-	-	-	-	-	-	-
<u>Wastewater</u>											
			-		-	-		-		-	-
Sub-Total - Wastewater	-	-	-	-	-	-	-	-	-	-	-

Amount Transferred to Capital (or Other) Funds - Operating Fund Transactions

Operating Fund Transactions	Annual Debt Repayment Amount	D.C. Reserve Fund Draw		Post D.C. By-Law Period			Non-D.C. Recoverable Cost Share		
		Principal	Interest	Principal	Interest	Source	Principal	Interest	Source
<u>Services Related to a Highway</u>	-	-	-	-	-	-	-	-	
Sub-Total - Services Related to Highways	-	-	-	-	-	-	-	-	
<u>Recreation</u>									
Growth related portion of ATC Debt	906,825	198,662	133,955	-	-	-	342,908	231,299	
Sub-Total - Wastewater	906,825	198,662	133,955	-	-	-	342,908	231,299	

Attachment 2
Town of Lakeshore
Statement of Credit Holder Transactions

Credit Holder	Applicable D.C. Reserve Fund	Credit Balance Outstanding Beginning of Year 2020	Additional Credits Granted During Year	Credits Used by Holder During Year	Credit Balance Outstanding End of Year 2020
Lakeshore New Centre Estates Ltd.	Wastewater	32,878		902	31,976
Alpha Holdings Ltd	Wastewater	39,270		1,080	38,190
Marcel St John	Wastewater	7,934		216	7,718
1156756 Ontario Ltd	Wastewater	94,218		2,602	91,616

The Corporation of the Municipality of Lakeshore

Statement of Revenue and Expenses and Accumulated Net Expense for Building Services

Year ended December 31, 2020

	2020 Budget	2020 Actual	2019 Actual
Revenue:			
Permit fees	804,800	1,274,712	739,757
Other revenue	-	-	
	<u>804,800</u>	<u>1,274,712</u>	<u>739,757</u>
 Expenses:			
Direct	894,553	850,373	776,793
Indirect	(21,029)	140,964	157,250
	<u>873,524</u>	<u>991,337</u>	<u>934,043</u>
 Net Surplus	(68,724)	283,375	(194,286)
Add: Accumulated net expense, beginning of year	-	1,897,940	1,612,971
Add: Transfers & Interest in the year	-	24,685	37,864
Less: close out of prior year		(194,286)	247,105
Accumulated net expense, end of year	<u>(68,724)</u>	<u>2,011,714</u>	<u>1,703,654</u>
 Building Reserve Fund - Operating:			
Balance, beginning of the year		1,732,927	1,451,588
Net transfer from/(to) operating		283,375	247,105
Interest income		22,471	34,234
Balance,end of the year		<u>2,038,773</u>	<u>1,732,927</u>
 Building Reserve Fund - Capital:			
Balance, beginning of the year		165,013	161,383
Net transfer from/(to) capital			
Interest income		2,214	3,630
Balance,end of the year		<u>167,227</u>	<u>165,013</u>

The Municipality of Lakeshore

Audit Findings Report
for the year ended
December 31, 2020



Licensed Public Accountants

Prepared for presentation on March 15, 2022

kpmg.ca/audit



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Our refreshed Values

What we believe



Audit Quality: How do we deliver audit quality?

Transparency report



Quality essentially means doing the right thing and remains our highest priority. Our **Global Quality Framework** outlines how we deliver quality and how every partner and staff member contributes to its delivery.

‘Perform quality engagements’ sits at the core along with our commitment to continually monitor and remediate to fulfil on our quality drivers.

Our **quality value drivers** are the cornerstones to our approach underpinned by the **supporting drivers** and give clear direction to encourage the right behaviours in delivering audit quality.

We define ‘**audit quality**’ as being the outcome when:

- audits are **executed consistently**, in line with the requirements and intent of **applicable professional standards** within a strong **system of quality controls**; and
- all of our related activities are undertaken in an environment of the utmost level of **objectivity, independence, ethics, and integrity**.



Visit our [Audit Quality Resources](#) page for more information.

Doing the right thing. Always.

Audit highlights

Purpose of this report¹

The purpose of this report is to assist you, as a member of Municipal Council, in your review of the results of our audit of the consolidated financial statements as at and for the period ended December 31, 2020.

Outstanding matters

As of March 15, 2022 we have completed the audit of the consolidated financial statements, with the exception of certain remaining procedures, which include amongst others:

- Completing our discussions with Council
- Obtaining evidence of the Council's approval of the financial statements.

We will update Council on significant matters, if any, arising from the completion of the audit, including the completion of the above procedures.

Our auditors' report, a draft of which is provided in Appendix: Draft Auditors' Report, will be dated upon the completion of any remaining procedures.

Going concern

No matters to report.

Significant risks and other significant matters

There are no significant findings to communicate related to significant risks or other significant matters.

Uncorrected audit misstatements

No matters to report.

Control deficiencies and other observations

We did not identify any control deficiencies that we determined to be significant deficiencies in internal control over financial reporting. A significant deficiency in internal control is a deficiency, or combination of deficiencies, in internal control that, in the auditor's professional judgment, is of sufficient importance to merit the attention of those charged with governance.

Other observations came to our attention and relate to the following areas:

- Employee future benefits

See pages 13.

Significant accounting policies and practices

There have been no initial selections of, or changes to, significant accounting policies and practices to bring to your attention.

¹ This Audit Findings Report is intended solely for the information and use of Management and Council, and should not be used for any other purpose or any other party. KPMG shall have no responsibility or liability for loss or damages or claims, if any, to or by any third party as this report has not been prepared for, and is not intended for, and should not be used by, any third party or for any other purpose.

What's new in 2020?

There have been significant changes in the year 2020 which impacted financial reporting, and our audit:

- COVID-19 pandemic – See pages 6-7
- New CAS auditing standards – See page 8

What's new in 2020

COVID-19 pandemic

In our Audit Planning Report, we communicated revisions to our audit plan arising from the impacts of the COVID-19 pandemic. We adapted our audit to respond to the continued changes in your business, including the impacts on financial reporting and internal control over financial reporting.

Area of Impact	Key Observations
Company's financial reporting impacts	<ul style="list-style-type: none">— We considered impacts to financial reporting due to the COVID-19 pandemic and the increased disclosures needed in the financial statements as a result of the significant judgements.— In areas of the financial statements where estimates involved significant judgements, we evaluated whether the method, assumptions and data used by management to derive the accounting estimates, and their related financial statement disclosures were still appropriate per the relevant financial reporting framework given the changed economic conditions and increased estimation uncertainty.
Materiality	<ul style="list-style-type: none">— We considered impacts to financial reporting on both the determination and the re-assessment of materiality for the audit of the financial statements. Materiality has not been changed from the amount initially calculated due to no reduction to the metrics used to determine materiality.
Risk Assessment	<ul style="list-style-type: none">— We performed a more thorough risk assessment specifically targeted at the impacts of the COVID-19 pandemic, including an assessment of fraud risk factors (i.e., conditions or events that may be indicative of an incentive/pressure to commit fraud, opportunities to commit fraud, rationalizations of committing fraud).— We did not identify additional risks of material misstatement as a result of impacts to financial reporting, which required an audit response compared to the prior year.
Working remotely	<ul style="list-style-type: none">— We used virtual work rooms, video conferencing, and internally shared team sites to collaborate in real-time, both amongst the audit team as well as with management.— We increased our professional skepticism when evaluating electronic evidence received and performed additional procedures to validate the authenticity and reliability of electronic information used as audit evidence.

What's new in 2020 (continued)

COVID-19 pandemic

We adapted our audit to respond to the continued changes in your business, including the impacts on financial reporting and internal control over financial reporting.

Key Observations

Direction and Supervision of the audit

- The manager and partner were actively involved in determining the impact that the COVID-19 pandemic had on the audit (as discussed above), including the impact on financial reporting and changes in internal control over financial reporting.
- Managers and partners implemented new supervision processes to deal with working in a remote environment, and our audit approach allowed us to manage the audit using meaningful milestones and frequent touch points.

Substantive Testing - Response

- Our evaluation of management's assessment of going concern was enhanced to respond to the uncertainties relating to prospective financial information and judgements about appropriate financial statement disclosures in the rapidly changing environment.

What's new in 2020 (continued)

New auditing standards

The following new auditing standards that are effective for the current year had an impact on our audit.

Standard	Key observations
CAS 540, Auditing Accounting Estimates and Related Disclosures	<ul style="list-style-type: none">— The new standard was applied on all estimates within the financial statements that had a risk of material misstatement due to estimation uncertainty and not just “key estimates”, “critical accounting estimates”, or “estimates with significant risk”.— The granularity and complexity of the new standard along with our interpretation of the application of that standard necessitated more planning and discussion and increased involvement of more senior members of the engagement team.— We performed more granular risk assessments based on the elements making up <u>each</u> accounting estimate such as the method, the assumptions used, the data used and the application of the method.— We considered the potential for management bias.— We assessed the degree of uncertainty, complexity, and subjectivity involved in making each accounting estimate to determine the level of audit response; the higher the level of response, the more persuasive the audit evidence was needed.— See page 11 under Audit Risk and Results for estimates that related to employee future benefits, which was determined to be a significant estimate subject to the new standard.

Materiality

Materiality determination	Comments	Amount
Materiality	Determined to plan and perform the audit and to evaluate the effects of identified misstatements on the audit and of any uncorrected misstatements on the financial statements.	\$1,290,000
Benchmark	Based on total revenues for the prior year-ended December 31, 2019.	\$64,520,972
% of Benchmark		2%
Audit Misstatement Posting Threshold (AMPT)	Threshold used to accumulate misstatements identified during the audit.	\$60,000

Materiality is used to identify risks of material misstatements, develop an appropriate audit response to such risks, and evaluate the level at which we think misstatements will reasonably influence users of the financial statements. It considers both quantitative and qualitative factors.

To respond to aggregation risk, we design our procedures to detect misstatements at a lower level of materiality.

We will report to Council:



Corrected audit misstatements



Uncorrected audit misstatements

Audit risks and results

We highlight our significant findings in respect of **significant financial reporting risks**, as well as any additional significant financial reporting risks identified.

Professional requirements

Fraud risk from revenue recognition:

- This is a presumed fraud risk under Canadian Auditing Standards.
- There are generally pressures or incentives on management to commit fraudulent financial reporting through inappropriate revenue recognition when performance is measured in terms of year-over-year revenue growth or profit.

We have rebutted the fraud risk from revenue recognition as this is not appropriate when we consider the manner in which performance is measured by the Municipality.

Fraud risk from management override of controls

- This is a presumed fraud risk under Canadian Auditing Standards.
- We have not identified any specific additional risks of management override related to the audit of the financial statements of the Municipality.

Our response and findings

- As the risk of management override of controls is not rebuttable, our audit methodology incorporated the required procedures in professional standards to address the risk. This included requisite testing over journal entries considered “high risk” and a retrospective review over complex estimates.
- Management brought to the attention of the audit team one instance of management override of the payroll control. In this instance, the proper procedures for management oversight were circumvented exposing a weakness in internal controls design. Management’s mitigating controls to review the banking log, create bank reconciliations and review variance reports operated effectively to detect the override of the payroll control. Due to this finding from management, KPMG selected specific journal entry criteria to identify unusual journal entries to payroll accounts and did not observe any additional findings. Management has also worked with the banking provider to tighten controls on release of payroll files in the future.

Audit risks and results - Estimates with significant risk

We believe management's process for identifying estimates with significant risk is considered adequate.

We have summarized our assessment of the subjective areas.

Liability	Carrying Amount (\$'000s)
Valuation of employee future benefits obligations	\$1,264

KPMG comment

Obligations related to employee future benefits are valued based on actuarial assumptions as prepared by management. We have reviewed the assumptions provided by management. Management has utilized a discount rate of 5%. As interest rates have fluctuated significantly over the past few years, we suggest updating the discount rate. Based on our sensitivity analysis this change would not result in a material change to the employee future benefit obligations.

See page 13 for our recommendation that the Municipality engage a third-party actuary to prepare the valuation going forward.

Uncorrected and corrected audit misstatements

Audit misstatements include presentation and disclosure misstatements, including omissions.

Uncorrected audit misstatements

We did not identify misstatements that remain uncorrected.

Corrected audit misstatements

We did not identify any misstatements that were communicated to management and subsequently corrected in the financial statements.

Other observations

Item	Observation
Employee future benefits calculation	<p>During our review of the employee future benefits calculation, we have noted the following:</p> <p>Observation</p> <p>KPMG observed that the Municipality does not use a third-party actuary to perform the calculation and instead uses a spreadsheet that was created internally many years ago to perform the calculation. KPMG also observed that many of the assumptions used in the calculation are not consistent with the accounting standards or the actual experience of the Municipality, given the new audit standard on estimates. This includes the use of a discount rate that is significantly higher than what the accounting standards would consider appropriate, resulting in the calculated obligation being lower than it should be. Discount rates should be based on the Municipality's long-term borrowing rates.</p> <p>Impact</p> <p>Given the complexity of this calculation, not using an expert to perform this calculation, and instead relying on a spreadsheet that was created many years ago, with limited understanding of the inputs increases the possibility of material errors in the recorded balance. Additionally, using inappropriate assumptions for discount rate and other inputs may result in the liability being materially understated or overstated.</p> <p>Recommendation</p> <p>KPMG recommends that the Municipality engages a third-party actuarial expert to perform the employee future benefit obligation calculation at least every three years. This will reduce the risk of material errors in the calculation and reduce the burden and time commitment on management to prepare the calculation. It will also increase the reliability and reduce the risk of the estimate for audit purposes saving time for both the audit team and management.</p>

Appendices

Content

Appendix 1: Other required communications

Appendix 2: Management representation letter

Appendix 3: Audit and assurance insights



Appendix 1: Other Required Communications

Report	Engagement terms
Refer to the draft report attached to the draft financial statements.	A copy of the engagement letter and any subsequent amendments has been provided to management.
Matters pertaining to independence	Representations of management
We confirm our independence to Council.	A copy of the management representation letter is attached.
Audit Quality in Canada	Control deficiencies
<p>The reports available through the following links were published by the Canadian Public Accountability Board to inform Council and other stakeholders about the results of quality inspections conducted over the past year:</p> <ul style="list-style-type: none"> • CPAB Audit Quality Insights Report: 2020 Interim Inspection Results • CPAB Audit Quality Insights Report: 2019 Annual Inspections Results <p>Visit our Audit Quality Resources page for more information including access to our Transparency report</p>	Other control deficiencies, identified during the audit, that do not rise to the level of a significant deficiency have been, communicated to management.

Appendix 2: Management representation letter

See management representation letter attached.

KPMG LLP
618 Greenwood Centre
3200 Deziel Drive
Windsor, Ontario N8W 5K8
Canada

March 15, 2022

Ladies and Gentlemen:

We are writing at your request to confirm our understanding that your audit was for the purpose of expressing an opinion on the financial statements (hereinafter referred to as "financial statements") of Corporation of the Town of Lakeshore ("the Entity") as at and for the period ended December 31, 2020.

GENERAL:

We confirm that the representations we make in this letter are in accordance with the definitions as set out in **Attachment I** to this letter.

We also confirm that, to the best of our knowledge and belief, having made such inquiries as we considered necessary for the purpose of appropriately informing ourselves:

RESPONSIBILITIES:

- 1) We have fulfilled our responsibilities, as set out in the terms of the engagement letter dated April 16, 2019, including for:
 - a) the preparation and fair presentation of the financial statements and believe that these financial statements have been prepared and present fairly in accordance with the relevant financial reporting framework.
 - b) providing you with all information of which we are aware that is relevant to the preparation of the financial statements, such as all financial records and documentation and other matters, including:
 - (i) the names of all related parties and information regarding all relationships and transactions with related parties; and
 - (ii) the complete minutes of meetings, or summaries of actions of recent meetings for which minutes have not yet been prepared, of shareholders, board of directors and committees of the board of directors that may affect the financial statements. All significant actions are included in summaries.

- c) providing you with unrestricted access to such relevant information
- d) providing you with complete responses to all enquiries made by you during the engagement
- e) providing you with additional information that you may request from us for the purpose of the engagement
- f) providing you with unrestricted access to persons within the Entity from whom you determined it necessary to obtain audit evidence.
- g) such internal control as we determined is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error. We also acknowledge and understand that we are responsible for the design, implementation and maintenance of internal control to prevent and detect fraud.
- h) ensuring that all transactions have been recorded in the accounting records and are reflected in the financial statements.
- i) ensuring that internal auditors providing direct assistance to you, if any, were instructed to follow your instructions and that management, and others within the entity, did not intervene in the work the internal auditors performed for you.

INTERNAL CONTROL OVER FINANCIAL REPORTING:

- 2) We have communicated to you all deficiencies in the design and implementation or maintenance of internal control over financial reporting of which we are aware.

FRAUD & NON-COMPLIANCE WITH LAWS AND REGULATIONS:

- 3) We have disclosed to you:
 - a) the results of our assessment of the risk that the financial statements may be materially misstated as a result of fraud
 - b) all information in relation to fraud or suspected fraud that we are aware of that involves:
 - management;
 - employees who have significant roles in internal control over financial reporting, or
 - others

where such fraud or suspected fraud could have a material effect on the financial statements.
 - c) all information in relation to allegations of fraud, or suspected fraud, affecting the financial statements, communicated by employees, former employees, analysts, regulators, or others.

- d) all known instances of non-compliance or suspected non-compliance with laws and regulations, including all aspects of contractual agreements, whose effects should be considered when preparing financial statements.
- e) all known actual or possible litigation and claims whose effects should be considered when preparing the financial statements.

SUBSEQUENT EVENTS:

- 4) All events subsequent to the date of the financial statements and for which the relevant financial reporting framework requires adjustment or disclosure in the financial statements have been adjusted or disclosed.

RELATED PARTIES:

- 5) We have disclosed to you the identity of the Entity's related parties.
- 6) We have disclosed to you all the related party relationships and transactions/balances of which we are aware.
- 7) All related party relationships and transactions/balances have been appropriately accounted for and disclosed in accordance with the relevant financial reporting framework.

ESTIMATES:

- 8) Measurement methods and significant assumptions used by us in making accounting estimates, including those measured at fair value, are reasonable.

GOING CONCERN:

- 9) We have provided you with all information relevant to the use of the going concern assumption in the financial statements
- 10) We confirm that we are not aware of material uncertainties related to events or conditions that may cast significant doubt upon the Entity's ability to continue as a going concern.

NON-SEC REGISTRANTS OR NON-REPORTING ISSUERS:

- 11) We confirm that the Entity is not a Canadian reporting issuer (as defined under any applicable Canadian securities act) and is not a United States Securities and Exchange Commission ("SEC") Issuer (as defined by the Sarbanes-Oxley Act of 2002). We also confirm that the financial statements of the Entity will not be included in the consolidated financial statements of a Canadian reporting issuer audited by KPMG or an SEC Issuer audited by any member of the KPMG organization.

RESERVES, RESERVE FUNDS AND FUNDS:

- 12) With regards to reserves, reserve funds and funds, all reserves are properly accounted for in the books of the Entity. Furthermore, all provisions and charges to the reserves were in accordance with the Municipal Act. Lastly, all reserve funds and their respective assets have been properly accounted for in the books of the Entity and, where necessary, all funds created during the year were approved by Council.

Yours very truly,

By: Mr. Justin Rousseau, Corporate Leader – Chief Financial Officer

Attachment I - Definitions

MATERIALITY

Certain representations in this letter are described as being limited to matters that are material. Misstatements, including omissions, are considered to be material if they, individually or in the aggregate, could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements. Judgments about materiality are made in light of surrounding circumstances, and are affected by the size or nature of a misstatement, or a combination of both.

FRAUD & ERROR

Fraudulent financial reporting involves intentional misstatements including omissions of amounts or disclosures in financial statements to deceive financial statement users.

Misappropriation of assets involves the theft of an entity's assets. It is often accompanied by false or misleading records or documents in order to conceal the fact that the assets are missing or have been pledged without proper authorization.

An error is an unintentional misstatement in financial statements, including the omission of an amount or a disclosure.

RELATED PARTIES

In accordance with Canadian public sector accounting standards *related party* is defined as:

- Related parties exist when one party has the ability to exercise, directly or indirectly, control, joint control or significant influence over the other. Two or more parties are related when they are subject to common control, joint control or common significant influence. Two not-for-profit organizations are related parties if one has an economic interest in the other. Related parties also include management and immediate family members.

In accordance with Canadian public sector accounting standards a *related party transaction* is defined as:

- A related party transaction is a transfer of economic resources or obligations between related parties, or the provision of services by one party to a related party, regardless of whether any consideration is exchanged. The parties to the transaction are related prior to the transaction. When the relationship arises as a result of the transaction, the transaction is not one between related parties.

Appendix 3: Audit and assurance insights

Our latest thinking on the issues that matter most to audit committees, Boards and Management.

Featured insight	Summary	Reference
Accelerate 2022	The key issues driving the audit committee agenda in 2022	Learn more
Audit Committee Guide – Canadian Edition	A practical guide providing insight into current challenges and leading practices shaping audit committee effectiveness in Canada	Learn more
Unleashing the positive in net zero	Real solutions for a sustainable and responsible future	Learn more
KPMG Audit & Assurance Insights	Curated research and insights for audit committees and boards.	Learn more
Board Leadership Centre	Leading insights to help board members maximize boardroom opportunities.	Learn more
KPMG Climate Change Financial Reporting Resource Centre	Our climate change resource centre provides insights to help you identify the potential financial statement impacts to your business.	Learn more
The business implications of coronavirus (COVID 19)	Resources to help you understand your exposure to COVID-19, and more importantly, position your business to be resilient in the face of this and the next global threat.	Learn more
Momentum	A quarterly Canadian newsletter which provides a snapshot of KPMG's latest thought leadership, audit and assurance insights and information on upcoming and past audit events – keeping management and board members abreast on current issues and emerging challenges within audit.	Sign-up now
Current Developments	Series of quarterly publications for Canadian businesses including Spotlight on IFRS, Canadian Securities & Auditing Matters and US Outlook reports.	Learn more
KPMG Learning Academy	Technical accounting and finance courses designed to arm you with leading-edge skills needed in today's disruptive environment.	Learn more



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KPMG member firms around the world have 227,000 professionals, in 146 countries.



Municipality of Lakeshore – Report to Council

Finance & Technology

Financial Planning & Analysis



To: Mayor & Members of Council

From: Corporate Leader – Chief Financial Officer, Justin Rousseau

Date: February 15, 2022

Subject: 2020 Year- End Financial Ratios and Indicators

Recommendation

This report is for information only.

Background

Financial ratios quantify many aspects of a business and are an integral part of the financial position analysis. Management and financial analysts use financial ratios to compare the strengths and weaknesses in various companies.

Administration monitors financial and operational effectiveness indicators and benchmarking to validate the Municipality's related policies and processes and to identify opportunities for change that would improve operational outcomes.

The financial ratio analysis focuses on important indicators such as the Municipality's ability to pay its short-term debts (liquidity ratios), to efficiently issue credit to its ratepayers/customers and collect funds from them in a timely manner (tax and accounts receivable ratios), and how much capital comes in the form of debt (loans) and or the Municipality's ability to meet its financial obligations (financial leverage ratios).

Comments

This report outlines key financial indicators and benchmarks for the Municipality based on the 2020 Audited Financial Statements, in comparison to the prior year ended. Calculation details are shown in the schedule attached to this report.

Liquidity Ratios

Current Ratio: This ratio is used to provide a picture of the Municipality's ability to pay back its short-term liabilities (debt and payables) with its short-term assets (cash, receivables). The higher the current ratio, the more capable the Municipality is of paying its obligations. A ratio under 1 suggests that the Municipality would be unable to pay off its obligations if they came due at that point in time.

The Ministry of Municipal Affairs and Housing (MMAH) evaluates this ratio as a sustainability indicator and identifies a ratio of greater than 0.5 to 1 as low risk, while most commercial banks call for a current ratio of no less than 1:1 or 1.25:1 as part of the banking covenants.

	2020	2019
Current Ratio (ratio of current assets to current liabilities)	8.19:1	6.23:1

The municipality's Current Ratio and cash liquidity has increased from 2019 and sits at a 8.19 to 1 ability to pay off all short-term debts.

It is important to note that some of the short-term assets (cash) are restricted for the purpose of future capital replacement.

The ratio is at an acceptable level and no corrective action is needed at this time.

Taxes Receivable as a Percentage of Total Tax Revenue: This ratio is used to determine how much of the Municipality's taxation revenue remains uncollected at year end. Uncollected tax revenues negatively affect the Municipality's cash flow, though the negative impact is offset through application of interest and penalty charges on the tax arrears.

	2020	2019
Taxes Receivable as a Percentage of Total Tax Revenue	9.33%	9.97%

The amount of taxes receivable, as a percentage of total tax revenue, has increased from the prior year. This ratio is a key indicator for both the Municipality's banking services provider and MMAH, which identifies 'low' risk as a factor of less than ten (10) percent.

Administration has been working for a number of years through collection efforts to reduce and maintain this number below 10%, as that target is viewed as a favourable by the MMAH.

Under the *Municipal Act, 2001* (Section 373), municipalities are provided with the authority to register a tax arrears certificate against a property that is two years in arrears. Lakeshore practice remains at three years as was allowed under the act. The possibility of moving collection up exists to help reduce the ratio however it requires more resources in the revenue department to process the additional tax sale registrations

The ratio reflects a positive trend in terms of decreased taxes receivable ratio at year end; however, significant improvement can be made but requires additional resources in revenue; no corrective action is needed at this time but a staffing review to look at the growth of the Municipality and how it impacts taxes and water billing has begun.

Total Accounts Receivable as a Percentage of Total Revenue: This ratio reflects how much of the total revenue remains uncollected at year end. Uncollected revenues negatively affect the Municipality's cash flow.

	2020	2019
Accounts Receivable as a Percentage of Total Revenue	22.78%	24.38%

The ratio reflects a positive trend due to a decrease of accounts receivable in all areas (taxes, trade, water and drainage); the decrease related to taxes receivable is discussed above.

Currently 22.78% of all annual revenue remains uncollected at year end. The growth in Lakeshore has placed additional pressure on the management of tax and water billings which has seen no change in staffing with an increases of 10% in population and houses. Administration is committed to reviewing staffing and resourcing in the area to provide proactive management in accounts receivable to improve cash flow and collections.

The ratio reflects a positive trend; however, significant improvement can be made but requires additional staffing resources in revenue; no corrective action is needed at this time but a staffing review to look at the growth of the Municipality and how it impacts taxes and water billing has begun.

Total Accounts Receivable over Accounts Payable (use of operating cash flow): This shows the amount of cash flow that the Municipality is financing at year end by comparing the amount of Accounts Receivable in relation to Accounts Payable.

Accounts Receivables over Accounts Payable	2020	2019
Total Accounts Receivable	\$13,749,467	\$14,394,895
Total Accounts Payable	\$11,434,340	\$12,321,408
Use of Operating Cash Flow	\$2,315,127	\$2,073,487

Administration is committed to efforts to reduce accounts receivable and improve cash flow for the Municipality. Items such as local improvements and drainage works, which the Municipality finances for residents over long periods of time, place additional pressure on total accounts receivable and cash-flow.

In 2020, the increase in accounts receivable and the timing of large construction invoices included in accounts payable at year end created a timing difference that was favourable to the Municipality's cash-flow and shows a positive trend from the prior year. Administration will continue to review opportunities to optimize cash-flow going forward.

Financial Leverage Ratios

Total Long-term Debt to Long-term Assets: is defined as the ratio of total long-term debt to total assets, expressed as a percentage, and can be interpreted as the proportion

of the municipalities assets that are financed by debt. The higher this ratio, the greater the municipalities financial risk.

Long-term Debt to Long-term Assets (Cost)	2020	2019
Total Long-term Debt	\$27,551,544	\$30,002,216
Total Tangible Capital Assets (Cost)	\$523,978,500	\$499,176,667
Debt as a Percentage of Assets (Cost)	5.26%	6.01%

The above ratio indicates that 5.26% of the original asset cost (Cost) of the municipalities total tangible capital assets is funded by debt.

Long-term Debt to Long-term Assets (NBV)	2020	2019
Total Long-term Debt	\$27,551,544	\$30,002,216
Total Tangible Capital Assets NBV*	\$351,088,481	\$336,800,497
Debt as a Percentage of Assets NBV*	7.85%	8.91%

*NBV (Net Book Value): The net value of an asset which is equal to its original cost (its book value) minus accumulated amortization.

The above ratio indicates that 7.85% of the net book value (depreciated value) of the municipalities total tangible capital assets is funded by debt.

The Municipality has seen improvement and reduction in both ratios, which reflects decreasing debt levels and increasing asset values, as legacy assets are replaced, and new assets are added.

The trends for these ratios are positive and Administration will continue to review opportunities to enhance the municipalities financial sustainability by reducing its reliance on long-term debt and reserve planning into the future.

Total Long-term Debt to Equity: This ratio indicates what proportions of equity and debt the Municipality is using to finance its assets. A high ratio usually indicates a higher degree of business risk because the entity must meet principal and interest payments on its obligations.

Long-term Debt to Equity	2020	2019
Total Long-term Debt	\$27,379,756	\$30,002,216
Accumulated Surplus (Equity)	\$389,768,084	\$363,562,377
Debt as a Percentage of Accumulated Surplus	7.07%	8.25%

This ratio reflects a positive trend as it indicates that the total debt has decreased as compared to total municipal equity position.

This positive trend is an indicator that the current funding models are improving the municipalities financial stability; however, there is still work to be done. Administration will continue to review opportunities to further reduce the municipalities reliance on long-term debt for large capital projects like the Denis St. Pierre Pollution Control Plant expansion. With a goal to increase reserve and reserve fund balances to support asset management through a strategy to reduce future debt loads and maintain desired service levels.

Other Financial Management Considerations

Annual Repayment Limit (ARL): is a long-term borrowing limit calculated based on 25% of certain annual revenues or receipts, less most ongoing annual long-term debt service costs (and similarly less most annual payments for other long-term financial obligations). The calculation of the municipalities Annual Repayment Limit (ARL) is based on data contained in the municipal Financial Information Return (FIR), as submitted to MMAH.

The Debt and Financial Obligation Limits regulation places a limit on how much a municipality can commit to principal and interest payments relating to debt and financial obligations, without first obtaining approval from the Ontario Municipal Board.

Annual Repayment Limit	2020	2019
Total Revenue for ARL	\$57,342,378	\$55,260,783
25% of Revenue (Debt Limit) (maximum allowed)	\$14,335,595	\$ 13,815,196
Actual Principal and Interest Payments	\$3,582,704	\$ 3,613,872
Additional Room	\$ 10,752,891	\$ 10,201,324
Percentage of Revenue applied to Debt Repayment	6.2%	6.5%

At 6.2%, the Municipality is within the maximum ARL for debt service (25%); no corrective action is required at this time.

However, MMAH considers this ratio a financial flexibility indicator and identifies 'low' risk as a factor of less than five (5) percent. Currently this indicator is the only area for Lakeshore that puts us a Moderate rating at on the MMAH indicators.

Others Consulted

Financial Impacts

In support of the key strategic goal of ensuring financial sustainability through a future long-term financial plan and maintenance of adequate reserves, Administration will continue to review opportunities to further reduce the municipalities reliance on long-term debt and to increase reserve and reserve fund balances to support asset management to achieve and maintain the desired service levels for the municipality.

Positive trends in debt reduction and improved financial stability are being observed with the results of 2020. No significant corrective actions are recommended at this time.

Attachments

2020 Year End Financial Indicators Appendix A

Report Approval Details

Document Title:	2020 Year End Financial Ratios and Indicators.docx
Attachments:	- 2020 Year End Financial Ratios and Indicators.pdf
Final Approval Date:	Mar 9, 2022

This report and all of its attachments were approved and signed as outlined below:

Kristen Newman

Truper McBride

Municipality of Lakeshore
Ratio Analysis & Important Factors
Year ended December 31, 2020

Liquidity Ratios:	2020	2019
(1) Current Ratio		
Current Assets:		
Cash	\$ 86,706,180	\$ 71,065,126
Taxes Receivable	3,344,409	3,335,502
Trade and Other Receivable	3,848,963	3,837,907
Water receivables and unbilled revenue	3,612,478	3,172,344
Drainage Receivable	2,943,617	4,049,142
Inventories	198,977	193,712
Investments	1,049,000	777,978
Prepaid Expenses	76,263	165,383
Total Current Assets	\$ 101,779,887 A	\$ 86,597,094 A
Current Liabilities:		
Short Term Indebtedness	\$ 1,000,000	\$ 1,585,000
Short Term Indebtedness	1,000,000	1,585,000
Accounts Payable and Accrued Liabilities	8,938,846	10,318,334
Deposits	2,323,706	1,812,411
Accrued Interest on Long Term Debt	171,788	190,663
Total Current Liabilities	\$ 12,434,340 B	\$ 13,906,408 B
Current Ratio (A/B)	8.19	6.23
(2) Tax Receivable as a percentage of total taxes	2020	2019
Taxes	\$ 35,827,531 A	\$ 33,447,475 A
Taxes Receivable	\$ 3,344,409 B	\$ 3,335,502 B
Percentage of Receivables to taxes(A/B)	9.33%	9.97%
(3) Total Accounts Receivable as a percentage of total income	2020	2019
Total Revenue	\$ 60,363,030 A	\$ 59,047,773 A
Taxes Receivable	3,344,409	3,335,502
Trade and other Receivables	3,848,963	3,837,907
Water receivables and unbilled revenue	3,612,478	3,172,344
Drainage Receivables	2,943,617	4,049,142
	\$ 13,749,467 B	\$ 14,394,895 B
Percentage of Receivables to total income (A/B)	22.78%	24.38%
(4) Accounts Receivable over Accounts Payable (use of cash flow)	2020	2019
Taxes Receivable	\$ 3,344,409	\$ 3,335,502
Trade and other Receivables	3,848,963	3,837,907
Water receivables and unbilled revenue	3,612,478	3,172,344
Drainage Receivables	2,943,617	4,049,142
	\$ 13,749,467 A	\$ 14,394,895 A
Accounts Payable and accrued liabilities	\$ 8,938,846	\$ 10,318,334
Deposits	\$ 2,323,706	\$ 1,812,411
Accrued interest on long term debt	171,788	190,663
	\$ 11,434,340 B	\$ 12,321,408 B
Use of cash flow (A-B)	\$ 2,315,127	\$ 2,073,487

Municipality of Lakeshore
Ratio Analysis & Important Factors
Year ended December 31, 2020

Financial Leverage Ratios:

(5) Total Long Term Debt to Long Term Assets Ratio	2020		2019	
Total Debt				
Municipal debt	\$ 27,379,756		\$ 29,811,583	
Accrued interest	171,788		190,633	
	<u>\$ 27,551,544</u>	A	<u>\$ 30,002,216</u>	A
Tangible Capital Assets (NBV)	\$ 351,088,481	B	\$ 336,800,497	B
Debt as a percentage of Assets (NBV) (A/B)	7.85%		8.91%	
Tangible Capital Assets (Cost)	\$ 523,978,500	C	\$ 499,176,667	C
Debt as a percentage of Assets Cost (A/C)	5.26%		6.01%	
(6) Total Debt to Equity Ratio	2020		2019	
Total Debt				
Municipal debt	\$ 27,379,756		\$ 29,811,583	
Accrued interest	171,788		190,633	
	<u>\$ 27,551,544</u>	A	<u>\$ 30,002,216</u>	A
Accumulated Surplus	\$ 389,768,084	B	\$ 363,562,377	B
Debt as a percentage of Accumulated Surplus (A/B)	7.07%		8.25%	
Annual Repayment Limit (ARL)	2020		2019	
Net Revenue per ARL schedule calculation	\$ 57,342,378	A	\$ 55,260,783	A
25% of Revenue (Annual Debt Repayment Limit Allowed)	\$ 14,335,595		\$ 13,815,196	
Actual Annual Debt Repayment	3,582,704	B	3,613,872	B
Additional Room	<u>\$ 10,752,891</u>		<u>\$ 10,201,324</u>	
Percentage of Revenue applied to Debt Repayment (B/A)	6.2%		6.5%	

Municipality of Lakeshore – Report to Council

Operations

Engineering & Infrastructure



To: Mayor & Members of Council

From: Krystal Kalbol, P. Eng., Corporate Leader – Operations

Date: March 8, 2022

Subject: County Road 22 Corridor - Preferred Alternative

Recommendation

This report is for information only.

Background

The County Road 22 Corridor (from Manning Road (County Road 19) to West Belle River Road) went through the Environmental Assessment (EA) process in 2006 and was approved by the Ministry of Environment, Conservation and Parks (MECP).

Based on the length of the corridor, several phases were undertaken since that time. The last phase, identified as Phase 6A, from East Puce Road to IC Roy was recently completed in 2017.

Since 2006 and with consideration of new developments and growth, it was identified that the next phase(s) of the corridor should be revisited.

As a result, the County of Essex, in conjunction with the Municipality of Lakeshore, contracted WSP to conduct the County Road 22 Corridor Alternatives and Strategies Study. This study included the remainder of the County Road 22 corridor within the Municipality of Lakeshore from County Road 25 (East Puce Road) to West Belle River Road, consisting of 5.8 kilometers of roadway.

As identified in previous reports, the study built upon and balanced the following documents:

- Environmental Assessment (EA) on County Road 22 from East Puce Road to Belle River Road (2006);
- Town of Lakeshore Corridor Transformation Strategy – County Road 22 Special Planning Area Design Guidelines (2012); and
- County Wide Active Transportation Systems (CWATS) Master Plan (2012).

Two forms of public consultation sessions were held as part of this study.

The first public consultation consisted of an online survey to assist with the direction of the study from the public and was conducted from December 21, 2020 until January 15, 2021.

Design alternatives were prepared and evaluated against the objectives and goals and considered the feedback through the public consultation survey.

These design alternatives were presented to the Lakeshore Council and the County of Essex Council.

A further second public consultation was held in June of 2021 that presented these alternatives.

The concerns raised during public consultation were mainly related to the closure of local access roadways (eight (8) closures) which the public felt would result in increased speed and traffic volume on some of Lakeshore's adjacent local roadways. As identified, this will be addressed as Lakeshore has approved funding in the 2022 budget to collect speed and traffic volume data on local roads prior to any road closures taking place.

Further, the Municipality will also continue to monitor traffic to see if traffic calming on local roads is warranted based as a result of the recommended closures.

Based on the above, the recommended preferred alternative (#2B) for County Road 22 is as identified in the attached presentation by WSP. The preferred alternative is consistent with the original cross section in the EA (3 lane cross section) and was enhanced through the addition of bicycle lanes, signals, road/access consolidation(s) and signals.

Upon completion of the public consultation and determination of the preferred alternative, the MECP and the Municipal Engineers Association (MEA) confirmed that the modification of the cross section does not require an EA addendum therefore this report is for information only and a 30-day review period or a formal amendment is not required.

Administration has no concerns with the County proceeding with detailed design of the preferred alternative as presented by WSP.

Comments

The County of Essex has received approval for funding in 2022 to move forward with detailed design based on the updated cross section.

Further, Administration proposes to work with the County of Essex related to the below implementation plan and associated timing:

- Undertake detailed design (2022)
- Installation of a traffic signal at Emery and closure of associated side roads (2022/2023)
- Property Acquisition, Relocation of utilities and Environmental Approvals (2023/2024)
- Construction of Phase 1 (from I.C. Roy Drive to Renaud Line Road) (2025)
- Construction of Phase 2 (from Renaud Line Road to Rourke Line Road) (2026)
- Construction of Phase 3 (from Rourke Line Road to West Belle River Road) (2027)

Others Consulted

WSP and the public was consulted through this process.

Financial Impacts

There is no financial impact based on this report.

It should be noted that Lakeshore's portion of any work associated with the above noted implementation plan have been included and improved in the 2022 Operations budget.

Further budget requests will be brought forward as required to implement the plan in future budget years, as required.

Report Approval Details

Document Title:	County Road 22 Corridor .docx
Attachments:	
Final Approval Date:	Mar 10, 2022

This report and all of its attachments were approved and signed as outlined below:

Justin Rousseau

Kristen Newman

Truper McBride

COUNTY ROAD 22 CORRIDOR ALTERNATIVES AND STRATEGIES STUDY

Municipality of Lakeshore Council Meeting | March 15, 2022



Background

The CR 22 Corridor Study reviewed the following guiding documents to establish what the long-term goals are for this corridor:

- The 2006 Municipal Class EA for CR 22
- Town of Lakeshore Corridor Transformation Strategy
- County Wide Active Transportation Study (CWATS) Master Plan

The CR 22 Corridor Study needed to establish a balance from the findings of these studies. The relevant recommendations from these documents are summarized below:

2006 EA Preferred Design Solution	Corridor Transformation Strategy	CWATS Master Plan
<ul style="list-style-type: none">▪ A five-lane cross-section from E. Puce Rd. to I.C. Roy Dr. (four travel lanes plus a two-way centre left-turn lane)▪ A three-lane cross-section from I.C. Roy Dr. to Belle River Rd. (two travel lanes plus a two-way centre left-turn lane)	<ul style="list-style-type: none">▪ Mixed-use corridor that supports a range of commercial, employment, residential and community uses▪ To create a corridor that accommodates the needs of pedestrians, transit users, cyclists and vehicles▪ Consolidate accesses where possible to minimize conflicts and provide uninterrupted streetscape	<ul style="list-style-type: none">▪ To link the seven local municipalities in the County with an approximately 800-kilometre-long active transportation network▪ The preferred design concept proposes to upgrade the sidewalk on the south side of CR 22 to a multi-use trail

The need for an addendum to the 2006 EA was assessed and it was identified that an addendum would not be required, because:

- The Corridor Study recommendations align with the 2006 EA's intent and do not introduce significant changes
- The 2006 EA recommended design was partially constructed in 2016/2017 (within 10 year of study completion)

Where We Are in the Process



NEXT STEP – DETAILED DESIGN



We are here!

What we Have Heard During the First Round of Consultation?

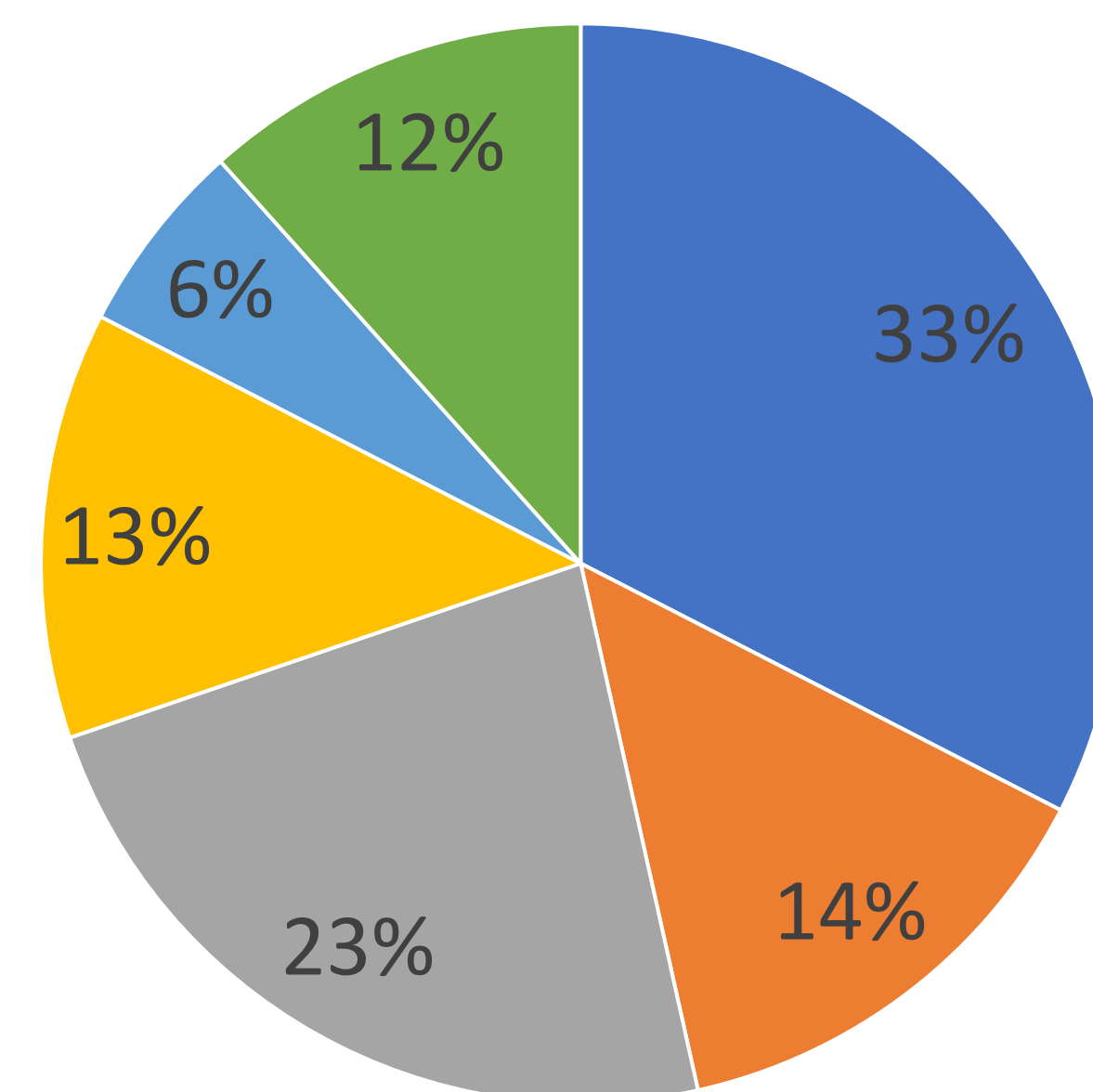
514 responses received..

Through an online survey that was hosted from December 2020 to January 2021

The most important improvements identified by respondents include:

- Improve roadway capacity, traffic operations and mobility.
- Strong support for access management along the corridor including closure of several side roads.
 - This should improve efficiency and increase safety along County Road 22.
- Improvements to pedestrian, cycling and active transportation infrastructure.

➡ Generally consistent with the outcomes of the Environmental Study Report (2006), however support for active transportation has increased



Public's priorities for CR 22:

- Roadway capacity, traffic operations & mobility
- Roadway safety
- Active Transportation
- Streetscaping
- Built form
- Mixed-use corridor supportive of future transit

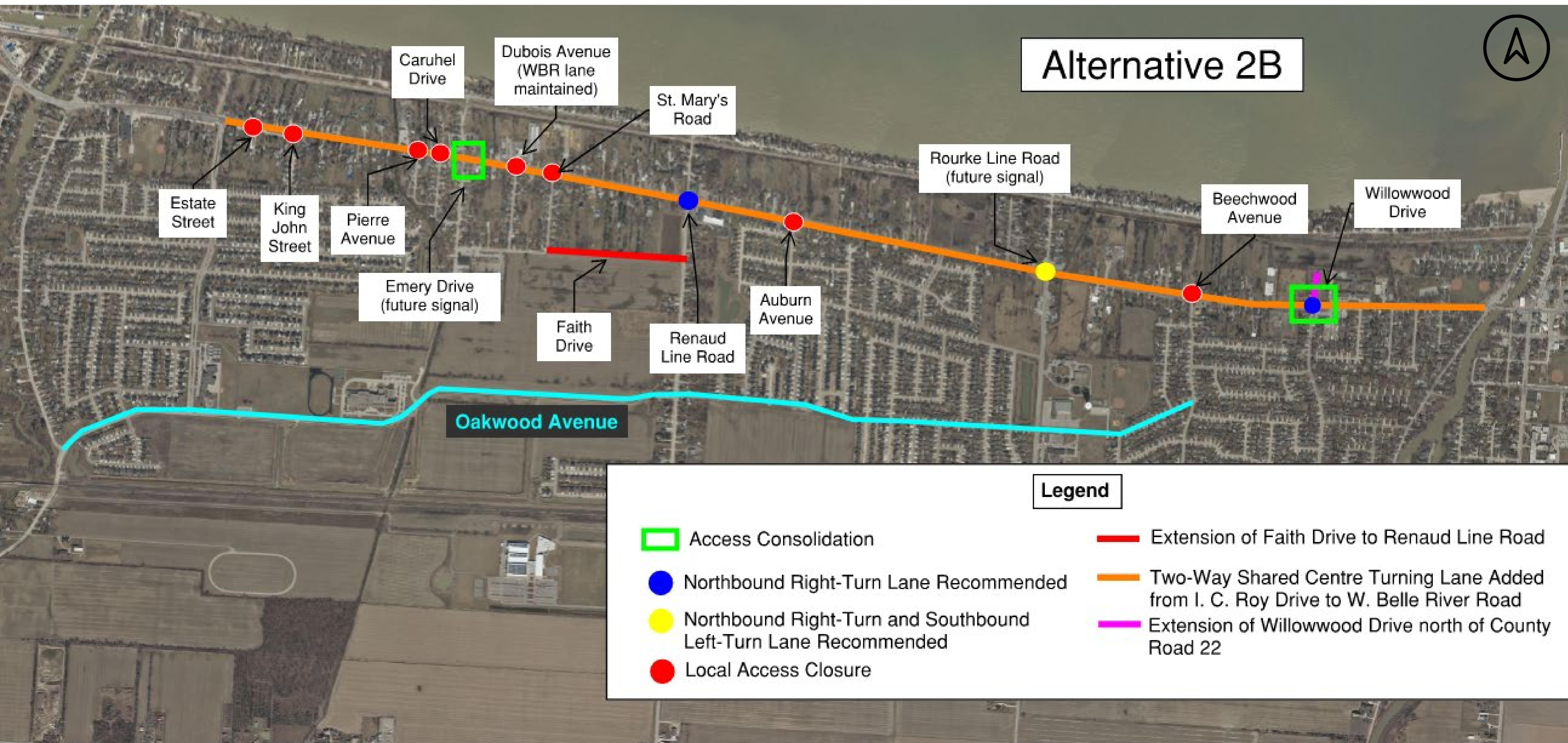
What we worked on

Alternatives that:

- Improved the capacity of CR 22 to carry traffic
- Improved facilities for cyclists and pedestrian
- A pleasant environment with boulevards, trees and street furniture
- A safe road for all users
- More traffic signals for vehicle access and pedestrian to cross CR 22

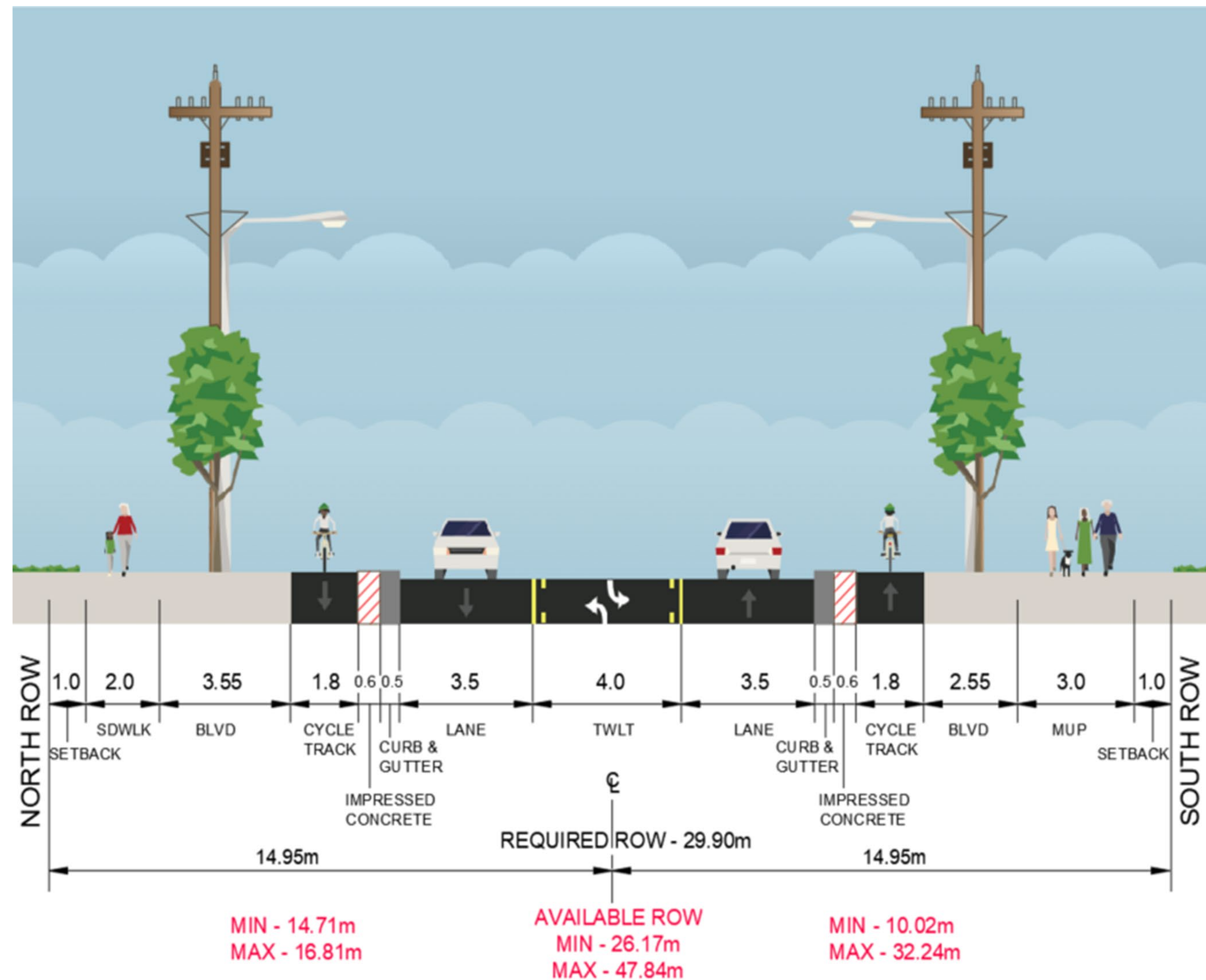
PREFERRED Alternative #2B:

ROW Widening Cycling Enhancement Option



Recommended Roadway Cross-Section

Alternative #2B: ROW Widening Cycling Enhancement Option



- Improves Level of Service (LOS), compared to existing conditions.
- Accommodates pedestrians & cyclists.
- Wide boulevards to accommodate streetscaping.
- *Some* land impact.

Detailed design of this alternative will follow.

Note: Location of hydro poles, trees and street lighting to be determined in detailed design stage

Second Round of Consultation

- The design alternatives and the preferred design were presented to the Municipal Council in Lakeshore, County of Essex Council and at a Public Information Centre in June 2021
- Members of the public were provided multiple avenues to provide feedback on the preferred design alternative. These avenues included:
 - An online Public Information Centre
 - An online survey posted to the PlaceSpeak page shared by Essex County and the Municipality of Lakeshore
 - Letters delivered to residents along the affected corridors
 - Emails to the project team

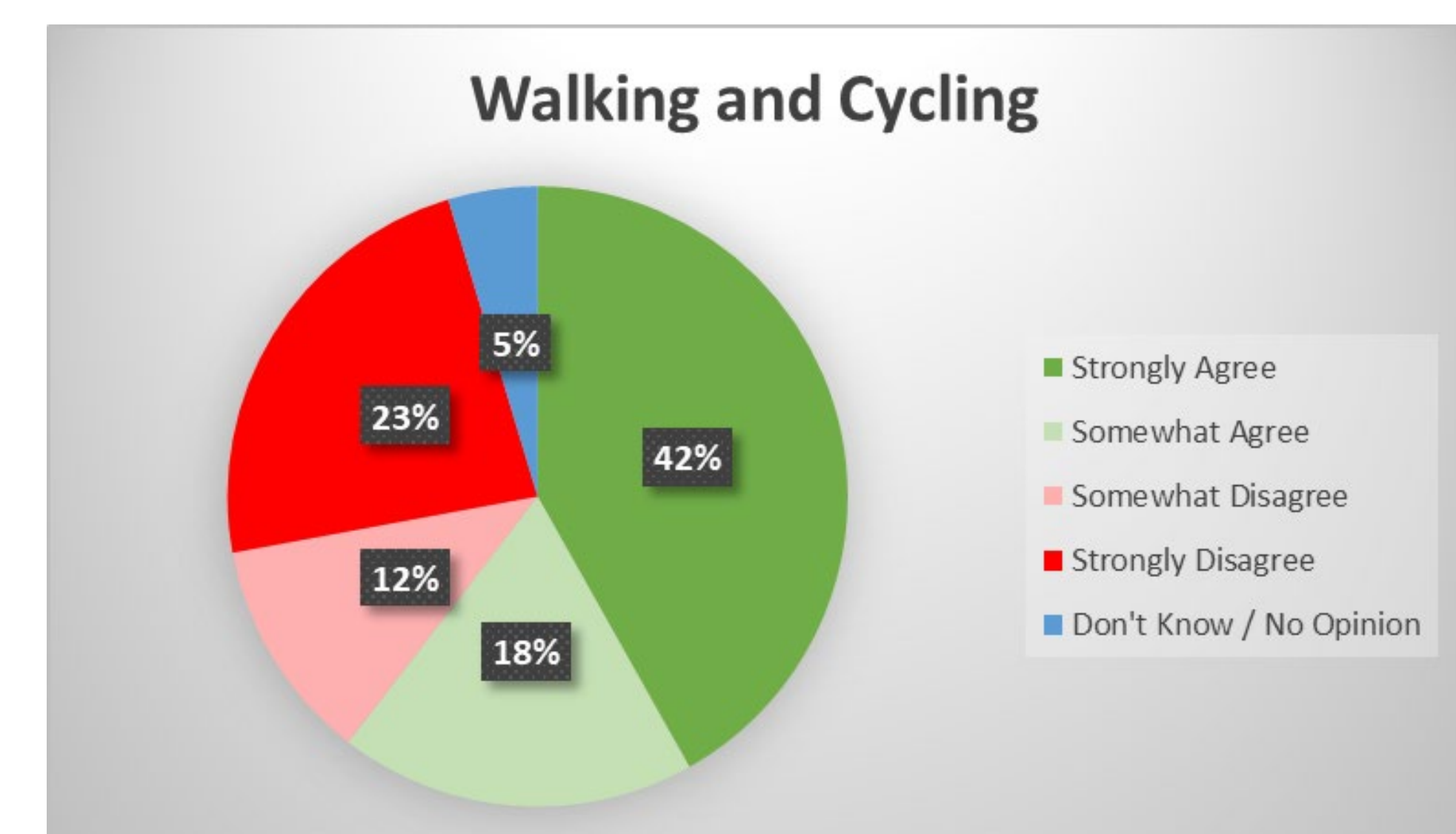
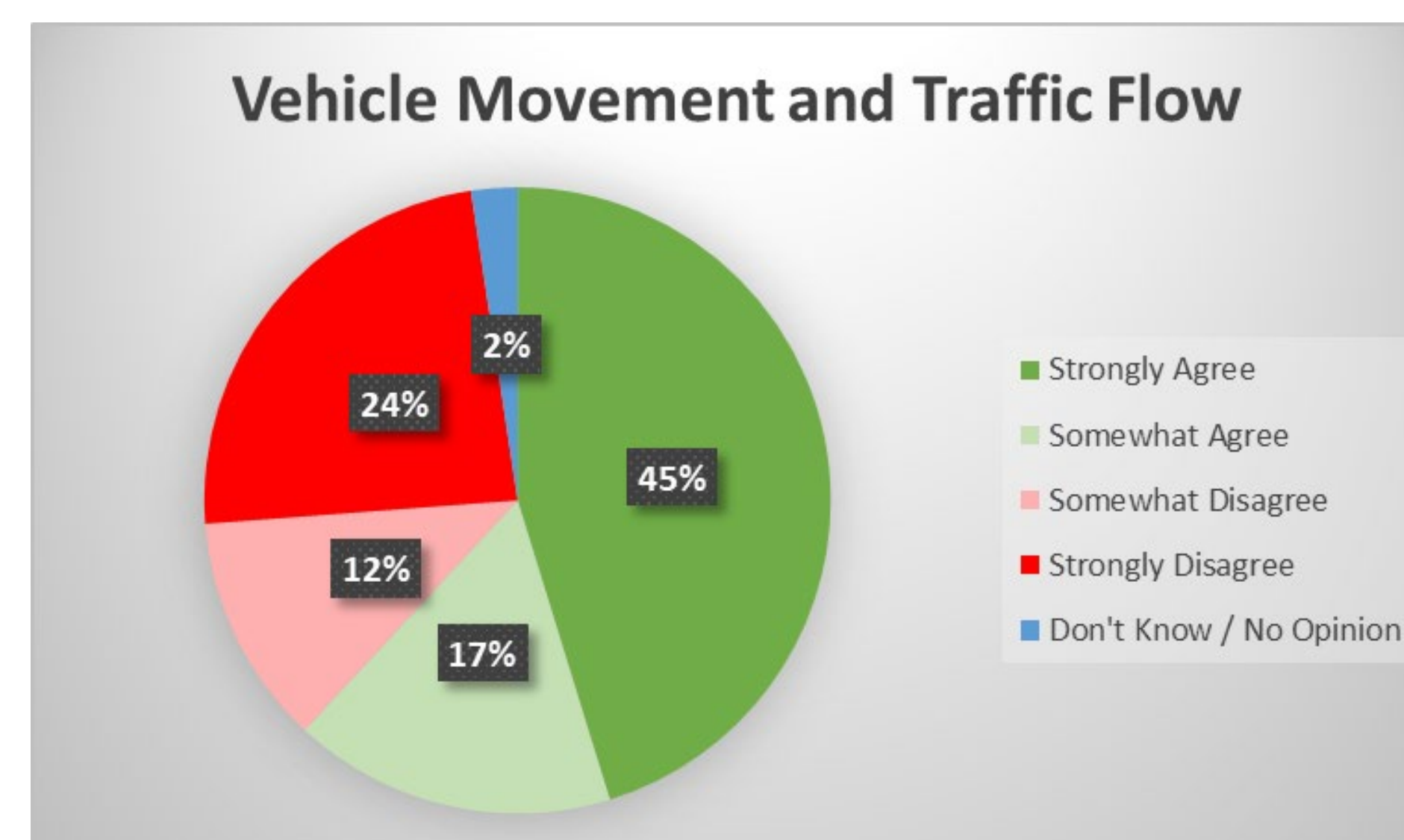
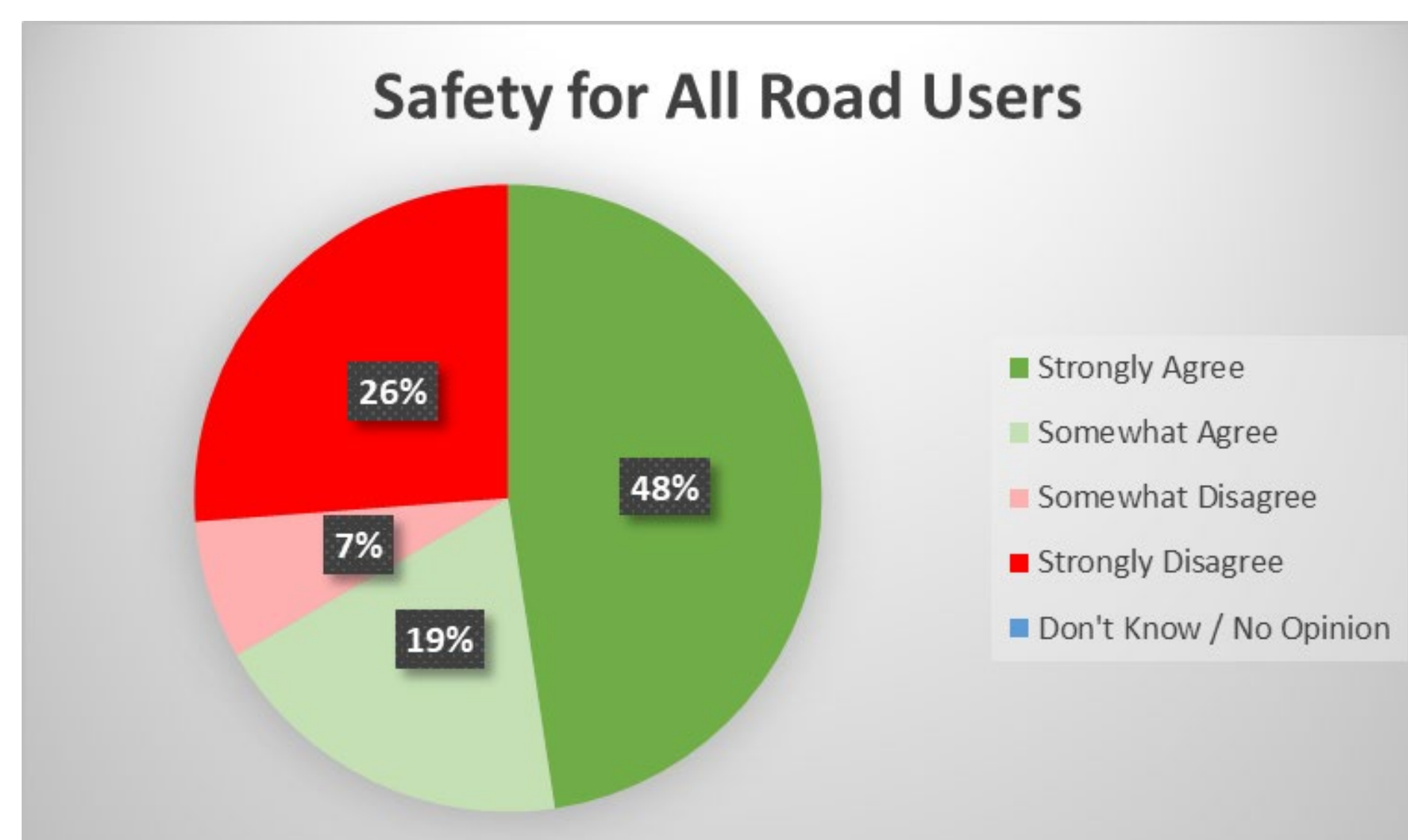
❖ **PIC attended by 61 people – posted on website and viewed 123 times**

❖ **PlaceSpeak survey completed by 43 people**

Second Round of Consultation (cont'd)

PlaceSpeak Survey results indicate:

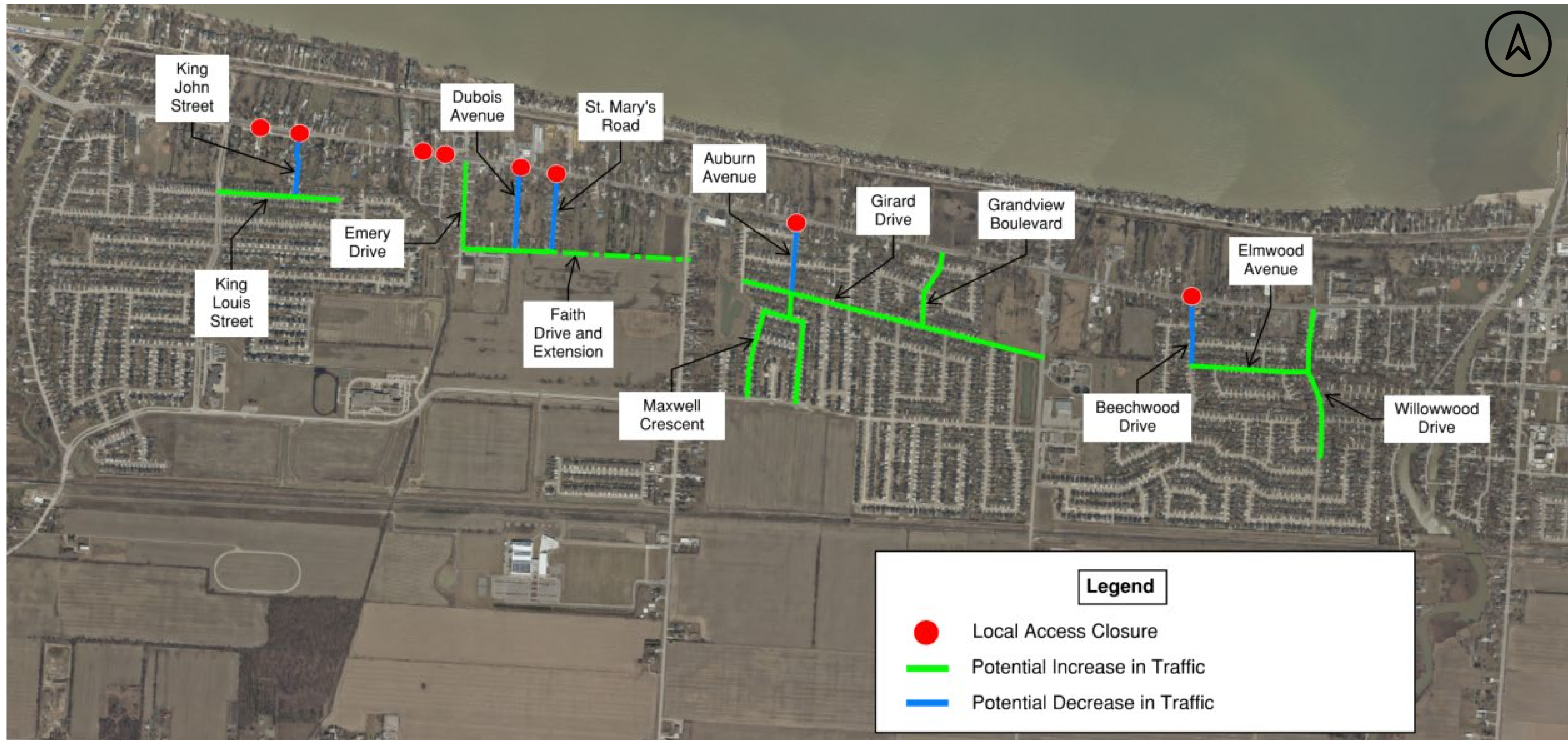
- 67% of the respondents think positively of the preferred alternative with respect to **safety for all road users**
- 62% of the respondents think positively of the preferred alternative with respect to **vehicle movement and traffic flow**
- 60% of the respondents think positively of the preferred alternative with respect to **walking and cycling**



Resident Traffic Concerns

- Residents expressed concern that as a result of roadway closures there could be increased traffic and speeding within neighbourhoods.
- Based on the traffic counts that currently utilize CR off of those road closures, it is unlikely that traffic volume increase on these roadways would exceed local roadway volumes.
- The Municipality of Lakeshore will undertake data collection to verify traffic volumes and speeds on roadways where residents expressed concerns.
- A second round of data collection will be carried out to verify traffic volumes and speeds following the completion of road closures.
- If warranted, appropriate traffic calming measures will be installed.

Area of Review - Potential Changes in Traffic on Local Roads



Proposed Implementation Plan

Item	Year
Corridor Detailed Design <ul style="list-style-type: none"> • 30%, 60%, 90%, and 100% design reviews • Utility conflict and relocation design reviews 	2022
Signals at Emery Drive, access consolidation and cul-de-sacs	2022-2023
Property acquisition, existing dry utility relocation, underground wet utilities – storm, sanitary sewer and watermain, environmental approvals	2023-2024
Phase 1 construction from I.C. Roy Drive to Renaud Line Road including Faith Drive extension	2025
Phase 2 construction from Renaud Line Road to Rourke Line Road	2026
Phase 3 construction from Rourke Line Road to Belle River Road	2027

Next Steps

The report is posted on the following website:

- <https://www.placespeak.com/en/topic/6454-county-road-22-design-alternatives-strategies-study/#/overview>

The report will be available for viewing during a 30-day period ending on April 15, 2022

Following the **30-day period**, we will review the input and finalize the report

County will issue RFP for detail design

Jerry Behl

Manager, Transportation Planning &
Development
County of Essex

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Municipality of Lakeshore – Report to Council

Growth & Sustainability

Community Planning



To: Mayor & Members of Council

From: Aaron Hair, Division Leader – Community Planning

Date: March 7, 2022

Subject: Shoreline Management Plan Final Report

Recommendation

Adopt the Shoreline Management Plan, as presented at the March 15, 2022 Council Meeting; and

Direct Administration to forward the final report to the Essex Region Conservation Authority and the Lower Thames Conservation Authority for their formal review and adoption.

Background

Responding to high water levels in Lake St. Clair, environmental changes brought about by climate change, and Council's declaration of a climate emergency, Council had identified a strategic priority of completing a Shoreline Management Plan within its Strategic Plan for the 2018 to 2022 term of office identified a Shoreline Management Plan as a priority.

Accordingly, Lakeshore retained Stantec Consulting Ltd. along with Zuzek Inc. in 2019 to develop a Shoreline Management Plan for the entire Lake St. Clair Shoreline located within the boundary of the municipality. This Plan investigated the shoreline flooding and erosion hazards. The Shoreline Management Plan (SMP), included as Attachment 1 to this report, provides updated shoreline Flood Hazard Mapping, while acknowledging the increased shoreline risks that may be caused by climate change and provides recommendations for the long-term management, maintenance of shoreline infrastructure and provides direction on managing growth along the shoreline.

The Conservation Authorities with jurisdiction to regulate development along the Lakeshore shoreline, through O. Reg. 158/06, have been using flood lines produced in 1976 since their involvement in regulating development in 1984. The SMP therefore provides the technical investigation to generate updated coastal hazard mapping using oblique drone photography, a near shore water depth survey, and a review of the built history of the shoreline, among other sources. The updated Flood Hazard Mapping provided in the SMP is aligned with the technical guidance provided by the Province to

map such hazards.

The 2020 Provincial Policy Statement now mandates municipalities to have regard to the impacts of a changing climate when planning for the risks associated with natural hazards. At the time of preparing the SMP, there was no technical guidance from the Province on how to integrate the impacts of a changing climate for erosion, flooding, and dynamic beach hazard mapping.

Comments

The draft Shoreline Management Plan was presented to the public on February 22, 2022 and was made available on the Municipality's consultation website (PlaceSpeak). The public feedback has been summarized in What We Heard Report (Attachment 2) and incorporated into the draft report where it was appropriate to do so.

The Essex Region Conservation Authority and the Lower Thames Valley Conservation Authority have been involved in the review of the Plan as members of the Technical Advisory Committee. Following Lakeshore Council's endorsement of the Plan, the Conservation Authorities will present the Shoreline Management Plan to their respective Boards, with a recommendation to adopt the technical analysis contained in the Plan.

Following adoption, the Municipality will work with the Conservation Authorities to implement the recommendations. Land use recommendations of the Plan will be implemented through future amendments to the Official Plan and Zoning By-law. These changes will be initiated by Lakeshore, with input from the Conservation Authorities and further public engagement and notice that is required under the Planning Act. Other recommendations, such as those related to emergency access, will be considered by Lakeshore, with the appropriate agencies and members of the public involved in implementing solutions.

Others Consulted

Three Public Information Centres were hosted to obtain feedback from the public, and interested stakeholders were circulated for comments, including ViaRail.

Financial Impacts

The Shoreline Management Plan is funded through the Community Planning Capital Project Budget. Council approved \$113,000 in 2020 and a carryforward of \$40,000 was transferred from 2019 for a total project budget of \$153,000. At this time no additional budgets funds are expected to complete the works.

Attachments

Attachment 1 – Draft Shoreline Management Plan, dated March 4, 2022.

Attachment 2 – What We Heard Report, dated February 22, 2022.

Report Approval Details

Document Title:	Shoreline Management Plan Draft Report.docx
Attachments:	- Attachment 1 – Draft Shoreline Management Plan, dated March 4, 2022.pdf - Attachment 2 – What We Heard Report, dated February 22, 2022.pdf
Final Approval Date:	Mar 10, 2022

This report and all of its attachments were approved and signed as outlined below:

Tammie Ryall

Justin Rousseau

Kristen Newman

Truper McBride

Brianna Coughlin

**Municipality of Lakeshore
Shoreline Management Plan**

Council Draft Report

Prepared for:
Municipality of Lakeshore

Prepared by:
Stantec Consulting Ltd.
in partnership with
Zuzek Inc. and SJL
Engineering



March 4, 2022

Revision	Description	Author	Quality Check	Independent Review
0	DRAFT 1.0/2.0	AS	SB	PH
1	DRAFT 3.0/4.0	PZ	MD	PH
2	DRAFT 5.0	PZ/SO	AS	PH
3	Entirety		MD/AS/PZ	

DRAFT

Sign-off Sheet

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Prepared by _____

(signature)

Amelia Sloan, RPP, MCIP

Senior Planner, Stantec Consulting Ltd.

Prepared by _____

(signature)

Peter Zuzek, MES, CFM, P. Geo.

President, Zuzek Inc.

MUNICIPALITY OF LAKESHORE SHORELINE MANAGEMENT PLAN

COUNCIL DRAFT REPORT

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Executive Summary

Stantec Consulting Limited in partnership with Zuzek Inc. and SJL Engineering Inc. were retained by the Municipality of Lakeshore to prepare a Shoreline Management Plan for the Lake St. Clair shoreline within their jurisdiction. This report summarizes relevant government legislation, the technical investigation to generate updated coastal hazard mapping, areas of high vulnerability due to coastal flooding, and management recommendations to re-risk the community and increase resilience to future coastal flooding events.

There is a strong provincial and municipal policy and regulatory regime in Ontario to ensure new development is located away from hazardous lands adjacent to the Great Lakes and Connection Channels. Following mapping standards, the erosion, flooding, and dynamic beach hazard mapping for the Municipality of Lakeshore was updated with this study based on historical extremes. Unfortunately, a significant portion of the Lakeshore waterfront and development along the local rivers has occurred on floodprone lands.

The Provincial Policy Statement now mandates Municipalities to have regard to the impacts of a changing climate when planning for the risks associated with natural hazards. Based on the best available science on the impacts of climate change for future lake levels, the 100-year lake level is projected to increase by approximately 0.3 m for Lake St. Clair with global warming of 1.5 to 2.0°C. Based on projections from the Intergovernmental Panel on Climate Change (IPCC), this amount of warming will occur over the next couple of decades.

At the time of this report preparation, there was no technical guidance from the Province of Ontario on how to integrate the impacts of a changing climate for erosion, flooding, and dynamic beach hazard mapping. In the absence of defensible technical methods, a sensitivity analysis was completed at three locations (Pike Creek, Puce River, and Belle River) based on best available data (refer to Section 4.4) to highlight the extent of flood risk and road inundation with the historical 100-year lake level and the 100-year climate change lake level. Refer to the results for Pike Creek below. The extent of building flooding and road inundation is extensive for the 100-year lake level, and it gets incrementally worse with Climate Change (right image below).



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100-year Lake Level (176.39 m, IGLD'85)
at Pike Creek



100-year Climate Change Lake Level
(176.77 m, IGLD'85) at Pike Creek



The results of the technical analysis and review of land use management approaches indicate a clear direction that the extent of the lands susceptible to the flooding hazard along the Lake St. Clair shoreline should be updated in municipal and conservation authority implementation mapping, in particular the lands identified as the Lake St. Clair Floodprone Area.

There is a significant risk that additional areas will be rendered inaccessible during times of flood hazard events and the inability to access private and commercial property by first responders (fire, ambulance, police) during a coastal flooding event is a key challenge.

As depicted above, the flood risk is further augmented with the introduction of the 100 year climate change lake level, presenting a significant risk to infrastructure, buildings, and threats to human safety. This risk therefore should be integrated into Lakeshore's strategic policy direction and opportunities for increasing climate resiliency can be integrated into all significant municipal decisions.

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Glossary

Italicized terms throughout this Report are intended to mean the definitions contained herein.

Access standards:

Methods or procedures to ensure safe vehicular and pedestrian movement, and access for the maintenance and repair of protection works, during times of flooding hazards, erosion hazards and/or other water-related hazards.

Defined portions of the flooding hazard along connecting channels:

Those areas which are critical to the conveyance of the flows associated with the one hundred year flood level along the St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers, where development or site alteration will create flooding hazards, cause updrift and/or downdrift impacts and/or cause adverse environmental impacts.

Development:

The creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the Planning Act.

Dynamic beach hazards:

Areas of inherently unstable accumulations of shoreline sediments along the *Great Lakes – St. Lawrence River System* ..., as identified by provincial standards, as amended from time to time. The *dynamic beach hazard* limit consists of the *flooding hazard* limit plus a dynamic beach allowance.

Great Lakes – St. Lawrence River System:

The major water system consisting of Lakes Superior, Huron, St. Clair, Erie and Ontario and their connecting channels, and the St. Lawrence River within the boundaries of the Province of Ontario.

Hazardous lands:

Property or lands that could be unsafe for development due to naturally occurring processes. Along the shorelines of the *Great Lakes – St. Lawrence River System*, this means land, including that covered by water, between the international boundary, where applicable, and the furthest landward limit of the *flooding hazard*, *erosion hazard*, or *dynamic beach hazard* limits.



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Erosion hazards:

The loss of land due to human or natural processes, that poses a threat to life and property.

Flood proofing standards:

The combination of measures incorporated into the basic design and/or construction of buildings, structures, or properties to reduce or eliminate flooding hazards, wave uprush and other water related hazards along the shorelines of the Great Lakes - St. Lawrence River System and large inland lakes, and flooding hazards along river, stream and small inland lake systems.

Flooding hazards:

The inundation, under the conditions specified below, of areas adjacent to a shoreline... and not ordinarily covered by water: a) along the shorelines of the *Great Lakes – St. Lawrence River System* ... the *flooding hazard* limit is based on the *one hundred year flood level* plus an allowance for *wave uprush* and *other water-related hazards*.

Natural heritage features and areas:

Features and areas, including significant wetlands, significant coastal wetlands, other coastal wetlands in Ecoregions 5E, 6E and 7E, fish habitat, significant woodlands and significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River), habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area.

Natural heritage system:

A system made up of natural heritage features and areas and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions, and working landscapes that enable ecological functions to continue. The Province has a recommended approach for identifying natural heritage systems, but municipal approaches that achieve or exceed the same objective may also be used.

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One hundred year flood level:

For the shorelines of the Great Lakes, the peak instantaneous level resulting from combinations of mean monthly lake levels and wind setups, which has a 1% chance of being equalled or exceeded in any given year.

Other water-related hazards:

Water associated phenomena other than flooding and wave uprush which act on shorelines. This includes, but is not limited to ice, ice piling, ice jamming, as well as the impacts of wakes from passing boats.

Protection works standards:

The combination of non-structural or structural works and allowances for slope stability and flooding/erosion to reduce the damage caused by flooding hazards, erosion hazards and other water-related hazards, and to allow access for their maintenance and repair.

Redevelopment: means the creation of new units, uses or lots on previously developed land in existing communities, including *brownfield sites*.

Site alteration:

Activities, such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a site. Placing fill and altering local drainage is a site alteration.

Wave Uprush:

The rush of water up onto a shoreline or structure following the breaking of a wave; the limit of wave uprush is the point of further landward rush of water onto the shoreline.



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1.0 Introduction

The Municipality of Lakeshore has embarked on a new project to develop a Shoreline Management Plan for the Lake St. Clair shoreline, map flooding, erosion, and dynamic beach hazards, and develop management and policy recommendations to increase resilience. Lake St. Clair water levels were recently at an all-time high, and extreme weather events are anticipated to increase in severity. The Municipality of Lakeshore feels that this is an opportune time to begin discussions with stakeholders to create a long-term management plan to address existing and future risks to public health and property and to conform with applicable Provincial Policy direction. Additionally, this plan will investigate how similar shorelines manage the risks associated with coastal hazards and provide high-level recommendations for proactive land use planning with the Municipality.

In 2019, the Province of Ontario released its Independent Review of Flood Events in Ontario (McNeil Consulting Inc. and MNRF, November 2019). One of the recommendations of the review included a call for all levels of government to:

work with the Essex Region Conservation Authority and the Lower Thames Valley Conservation Authority to undertake a coordinated short- and long-term strategy to address the existing and expected impacts [in the area] as a result of current and future water levels, flood and erosion hazards, and climate change on Lake Erie, Lake St. Clair, and the Detroit River (MacNeil Consulting Inc., November 2019).

In response to the Independent Review, the Ontario Government released: Protecting People and Property: Ontario's Flooding Strategy (MNRF, 2020). The Strategy identifies a number of priorities and a range of actions to be initiated over the next several years, including:

- Creating enhanced floodplain mapping;
- Increasing public awareness and education of coastal risks;
- Regulatory and policy reviews;
- Updating current technical guidance for hazard delineation;
- Enhancing response and recovery; and,
- Investing in flood risk reduction.

The Shoreline Management Plan (SMP) supports the recommendations of the Flood Events in Ontario Report (McNeil and MNRF, 2019) and the objectives of Ontario's Flooding Strategy (MNRF, 2020), and acknowledges that the current policy and



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regulatory framework is changing. A proactive approach to mapping coastal hazards and identifying management strategies to reduce risks is necessary to better position the Municipality of Lakeshore to update planning regulations and implement infrastructure projects to mitigate the impacts of future flooding events.

1.1 Purpose and Background

The entire northern extent of the Municipality of Lakeshore consists of the Lake St. Clair shoreline and includes both serviced and unserved development areas. Each reach of the shoreline is exposed to shoreline hazards, such as flooding and erosion.

Currently, the Municipality of Lakeshore does not have a shoreline management plan for the entire reach of shoreline within the boundary of the municipality. The Essex Region Conservation Authority (CA) has been using flood line and erosion data produced in 1976 to regulate development activities along the Lake St. Clair shoreline, through O. Reg. 158/06. The Lower Thames Valley Conservation Authority (LTVCA) also regulates a portion of the shoreline within the study area, including the Lighthouse Cove community, through O. Reg. 152/06 which came into force in 2006. Lighthouse Cove is also regulated for Thames River flooding through R.R. O. 1990, Reg. 155.

Due to these old regulations and hazard mapping, the establishment of a new record high lake level in 2019, lack of climate change considerations, and continued development on hazardous lands, the Municipality of Lakeshore is in need of updated land use policies, strategies to de-risk existing developments, and a long-term management plan to increase the resilience of the Lake St. Clair shoreline into the future.

1.2 Study Limits & Approach

The SMP includes technical analysis of erosion and flooding hazards associated with the Lake St. Clair shoreline within the Municipality of Lakeshore limits and the identification of land use policies, strategies, and engineering solutions to better protect the shoreline areas from coastal risks. It should be noted that the SMP is limited to assessing shoreline hazards. There are areas within the Municipality that are also subject to inland and riverine flood hazards, and while these hazard areas may overlap in cases, the SMP is solely focused on the identification of shoreline hazards along Lake St. Clair. These shoreline hazards consist of the 100-year flood level, plus allowances for wave uprush, 100 years of shoreline erosion, and dynamic beach hazards.

The SMP has regard for the following concepts and management strategies:

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1. Adopt a balanced approach for all coastal management decisions that strikes a balance between new shoreline uses and site alterations, socio-economic considerations (e.g., public access to the lake), and protection and enhancement of shoreline habitats and environmental assets.
2. Provide recommendations to minimize danger to life and property damage from flooding, erosion, and associated hazards along the shoreline.
3. Ensure that future shoreline development is directed away from hazardous lands.
4. Reflect current provincial policy direction as it applies to shoreline development and shoreline management. The Provincial Policy Statement directs land use planning authorities to ensure that no new hazards are created with new development; existing hazards are not aggravated; and adverse environmental impacts do not result.
5. Provide management recommendations on a reach by reach basis to address existing coastal risks such as flooding and erosion, emergency response challenges during road and building flooding, and upgrades to existing shoreline protection structures.

1.4 Area Characterization

The shoreline within the boundaries of the Municipality of Lakeshore is highly developed, with a number of predominantly residential settlement areas (from east to west): Lighthouse Cove, Stoney Point/ Pointe aux Roches, Rochester Place/Deerbrook, Belle River, Maidstone/Emeryville, and Russel Woods. Development along the shoreline is predominantly residential, but also includes some recreational areas, including marinas, community parks, commercial areas, a historic lighthouse in Lighthouse Cove, and several natural areas including wetlands. There are currently a range of shoreline protection measures in place, which include steel sheet pile walls, concrete seawalls, pre-cast concrete blocks, and armoustone revetments.

There are a number of significant natural heritage features along the shoreline and within tributaries and human-made canals, including coastal wetland complexes, spawning, nursery and foraging habitats for a diversity of warmwater fish species, and habitat for a variety of fish and mussel species at risk (Municipality of Lakeshore Official Plan, March 2021). A large number of significant terrestrial wildlife habitats are also present throughout the shoreline and surrounding areas.

As noted in the objectives, protecting these natural heritage features along the shoreline is an important component of the SMP, as is increasing the resilience of the built

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environment to coastal hazards. These objectives are discussed further in Section 5.0 (shoreline management) for the seven reaches delineated for the study. Refer to Section 5.1 for additional details on the reach boundaries and delineation approach. Recommendations for upgrades to existing shoreline protection are provided, along the reach specific approaches to decrease coastal risk.

1.4.1 Mapping & Data Collection

Data collection, including images of the shoreline collected from a drone and water depth surveys were completed by Zuzek Inc. in Phase 1 of the study. This information was used to prepare a database of shoreline protection measures along the shoreline. Also, it was used as the basis for technical assessment and modelling completed during Phases 2 and 3 of this study.

2.0 Planning Policy & Legislative Authority

2.1 Provincial Policy Statement

The Provincial Policy Statement (PPS), 2020 released by the Ministry of Municipal Affairs and Housing (MMAH) came into force and effect on May 1, 2020, and provides key policy direction associated with land use and development throughout the province. The PPS sets the policy foundation for regulating the use of lands and supports the provincial goal to enhance the quality of life for all Ontarians. The intent is to provide for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment.

It should be noted that the local Official Plans represent the most important vehicle for implementing the policy direction within the PPS. Since the SMP is intended to support the Municipality's Official Plan Review and Update, it provides the opportune time to incorporate the updated policy direction from the 2020 PPS. The sections below provide a summary of the provincial policy direction within the PPS 2020. Notes have been provided when these policies differ from the previous 2014 PPS.

2.1.1 Building Strong Healthy Communities (PPS 1.0)

Section 1.0 of the PPS outlines that efficient land use and development patterns support sustainability by promoting strong, liveable, healthy, and resilient communities. Accordingly, healthy, liveable and safe communities are sustained by avoiding development and land use patterns which may cause environmental or public health



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and safety concerns; promoting cost-effective development patterns and standards to minimize land consumption and servicing costs; and promoting development and land use patterns that conserve biodiversity and consider the impacts of a changing climate.

Furthermore, the PPS recognizes that the vitality of settlement areas is critical to the long-term economic prosperity of our communities. In the interest of all communities, land and resources should be used wisely, efficient development patterns should be promoted, resources and green spaces should be protected, and infrastructure and public service facilities should be effectively used. These principles should be incorporated into the land use patterns of all settlement areas to minimize unnecessary public expenditures related to poor planning (e.g., new development located on a coastal floodplain).

Rural areas are also important to the economic success of the Province and contribute to quality of life. They play an integral role with their surrounding settlement areas in the creation of interdependent markets, resources, and amenities. Leveraging these rural assets and amenities is important, as is protecting the environment as a foundation for a sustainable economy. Therefore, integrated and viable rural areas should be supported by conserving biodiversity and considering the ecological benefits provided by nature, as well as providing opportunities for sustainable and diversified tourism, including those that leverage cultural and natural assets. In rural areas, the PPS notes that “rural settlements areas shall be the focus of growth and development and their vitality and regeneration shall be promoted” (PPS 2020, 1.1.4.2). When directing development in these areas, consideration should be given to “rural characteristics, the scale of development and the provision of appropriate service levels” (PPS 2020, 1.1.4.3). Most of the rural areas along the shoreline feature agricultural lands and are highly floodprone. Further conversion of these agricultural lands should be avoided to preserve the agricultural economy.

Coordination when dealing with planning matters is also a requirement of the PPS. According to PPS 2020, 1.2.1 e) and f), for matters relating to the ecosystem, shoreline, watershed, and the Great Lakes, and matters related to natural and human-made hazards, a coordinated, integrated and comprehensive approach should be utilized. These matters should be integrated across municipalities, with other levels of government, and the applicable agencies and boards.

Shoreline management relates to other policies of the PPS, including its integration with recreation, parks and open spaces. PPS 2020 1.5.1 recognizes that healthy, active communities should be promoted by “planning and providing for a full range and equitable distribution of publicly accessible built and natural settings for recreation, including, ... where practical, water-based resources”, as well as “providing

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opportunities for public access to shorelines”. Unfortunately, much of the Lakeshore shoreline has been converted to private residential land and public access to the lake is limited. The few remaining natural areas and conservation lands are highly floodprone and often feature an eroding shoreline. Investing in these publicly available natural assets would be consistent with the PPS.

Other provincial policy addresses the planning for sewage and water services, requiring that growth is directed and accommodated in a manner that promotes the efficient use and optimization of existing services, can be sustained by the water resources upon which such services rely, is feasible and financially viable, and protects human health and the natural environment. Municipal water and municipal sewage services are the preferred form of servicing for settlement areas (PPS 2020, 1.6.6.2). It is a requirement under provincial policy that planning for servicing be integrated with land use considerations at all stages of the planning process (PPS 2020, 1.6.6.1). The use of on-site sewage services (e.g., private septic systems) for individual lots is addressed in Section 1.6.6.4, including use only when site conditions are appropriate and there are no negative impacts. The potential threat to the safe operation of sewage services during coastal flooding is discussed in Section 5.0. This integration of considerations is therefore part of shoreline management planning.

Updates within the 2020 PPS also mandate that infrastructure systems be provided in a manner that “prepares for the impacts of a changing climate” (PPS 2020, 1.6.6.1. b). The change in wording within the 2020 PPS focuses on requiring municipalities to prepare for “the *impacts of a changing climate*” through land use and development patterns and infrastructure systems. These impacts would be defined as “the present and future consequences and opportunities from changes in weather patterns at local and regional levels including extreme weather events and increased climate variability” (PPS 2020, 6.0). Historical lake level extremes were summarized in Section 3.2.3 and projected climate change impacts were discussed in Section 3.2.5. The flood hazard limit was mapped throughout the Municipality of Lakeshore using the historical 100-year lake level and sensitivity analysis was completed in three locations where the 100-year climate change lake level was also mapping. Refer to Sections 4.2 to 4.4 for additional details on the flood hazard mapping.

2.1.2 Wise Use and Management of Resources (PPS 2.0)

Section 2.1 of the PPS speaks to Natural Heritage and requires natural heritage systems to be identified in various Ecoregions. Development and site alteration is not permitted in the following designated features (within Ecoregion 7E applicable to the Municipality of Lakeshore): significant wetlands and significant coastal wetlands (PPS 2020, 2.1.4).



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Development and site alteration is not permitted in the following features, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions: significant woodlands, significant valleylands, significant wildlife habitat, significant areas of natural and scientific interest, or coastal wetlands that are not subject to policy 2.1.4 above (PPS 2020, 2.1.5).

Development and site alteration shall not be permitted in the following features, except in accordance with provincial and federal requirements: habitat of endangered or threatened species, and fish habitat (PPS 2020 2.1.6 and 2.1.7).

The flood and erosion threats to the few remaining coastal wetlands, such as those found at Ruscom Shores Conservation Area and Tremblay Beach Conservation Area, are discussed further in the Reach summarizes in Appendix F.

2.1.3 Protecting Public Health and Safety (PPS 3.0)

The provincial direction on natural hazards focuses on reducing the potential for public cost or risk to Ontario's residents, and thereby directing development away from areas of natural or human-made hazards. As such, "development shall generally be directed, in accordance with guidance developed by the Province (as amended from time to time), to area outside of *hazardous lands* adjacent to the shoreline of the Great Lakes and other large inland lakes that are impacted by *flooding hazards*, *erosion hazards* and/or *dynamic beach hazards*" (PPS 2020, 3.1.1). It should be noted that the reference to guidance developed by the Province was not included in the 2014 PPS, and likely refers to the existing technical guidance documents.¹

The intent of Section 3.0 of the PPS is to locate new development away from areas where there is an unacceptable risk to public health or public safety or risk of property damage. Development shall also not occur in areas where there is risk of creating or aggravating existing hazards.

More explicitly, the PPS does not permit development, which is defined as the creation of new lots, a change in the use of land, or any construction that requires approval under the Planning Act (e.g., a minor variance, draft plan of subdivision, part lot control, etc.) on lands within the following types of natural hazards:

- *Dynamic beach hazards*;
- *Defined portions of the flooding hazard along connecting channels* (the Detroit River included);

¹ E.g., Technical Guide: Great Lakes-St. Lawrence River System Tech Guide, 2001, MNRF.

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- Areas that would be rendered inaccessible to people and vehicles during times of *flooding hazards, erosion hazards* and/or *dynamic beach hazards*, unless it has been demonstrated that the site has safe access appropriate for the nature of the use in question and the natural hazard; and,
- A *floodway* regardless of whether the area of inundation contains high points of land not subject to flooding.

As discussed in Section 4.3 and 5.3, plus the Reach summarized in Appendix F, a significant portion of the shoreline development in Lakeshore is located on hazardous lands and features road flooding depths greater than 0.3 m, raising serious concerns about ingress and egress during a the 100-year lake level. Furthermore, in accordance with the PPS, the following uses are not permitted on *hazardous lands*:

- Institutional uses including hospitals, long-term care homes, retirement homes, pre-schools, school nurseries, day cares and schools;
- Essential emergency services such as those provided by fire, police and ambulance stations and electrical substations; or,
- Uses associated with the disposal, manufacture, treatment or storage of hazardous substances.

Notwithstanding the above, development may be accommodated within portions of hazardous lands where the effects and risk to public health and safety are minor, can be mitigated in accordance with Provincial standards, and where all the following criteria are demonstrated and achieved:

- The *development* and *site alteration* (e.g., the change in use as well as the construction process) is carried out in accordance with *flood proofing standards, protection works standards, and access standards*;
- Vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;
- New hazards are not created, and existing hazards are not aggravated; and
- No adverse environmental impacts will result (PPS 2020, 3.1.7).

Based on the spatial extent of the flooding for the 100-year lake level and the additional risks posed by a changing climate, it is not clear the policy mechanisms that have permitted newer developments in Lakeshore's hazard areas. When the above criteria can be satisfied, this type of development is carried out through additional guidance



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outlined in municipal policy, specifically the policies contained within the Municipality of Lakeshore Official Plan described in Section 2.3 below.

2.2 County Official Plan

The Municipality of Lakeshore falls under the upper-tier municipality of the County of Essex. The purpose of the County Official Plan (COP) is to establish a policy framework for managing growth, protecting resources and providing direction on land use decisions during the planning period up to and including 2031. The intent is to implement the PPS at the County level and provide guidance and direction to the seven local municipalities, including the Municipality of Lakeshore, in their preparation and future implementation of Official Plans (OP), OP amendments and Zoning By-laws. Some of the Plan's key goals for a healthy County are to "protect life and property by directing development away from natural and human-made hazards" and to ensure that Lake St. Clair is noted as a significant area "for fishing and hunting and that future land use decisions are made with regard to maintaining access to these resources".

Section 2.4 of the COP outlines the policies related to flood and erosion (natural hazards). It is a policy of the COP to identify the Lake St. Clair floodprone areas as being susceptible to *flooding* and *erosion hazards* and sets the regulatory flood standard for flood plains. From this, the local municipalities must identify areas susceptible to flood and/or erosion along areas of Lake St. Clair, as well as the other major waterways, in consultation with local Conservation Authorities. The COP dictates that local Municipalities, including the Municipality of Lakeshore, establish policies in their local Official Plans that direct *development* outside of areas susceptible to flooding and/or erosion and further identify these areas in local Zoning By-laws. Also, for development and site alteration that may be permitted within the areas identified as being susceptible to flooding and/or erosion, the County sets out specific criteria. The COP requires that dynamic beaches are identified in local OPs, in consultation with the applicable CA, to conserve and safeguard the natural ecosystem, tourism potential, adjacent land uses and related public safety.

For development fronting on the Lake St. Clair shoreline, the County requires that the Municipality of Lakeshore establish policies and regulations that provide development setbacks, elevations and shoreline protection measures. Setbacks are the preferred method for protecting new development as opposed to relying on structural or non-structural protection measures that require maintenance and upgrading over time. At the County level, the OP policies commit Essex to exploring opportunities for longer term solutions to recurring flooding where existing development exists within shoreline

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floodprone areas. The County will support the preparation of detailed studies, such as the Municipality of Lakeshore Shoreline Management Plan, to identify and define natural hazard areas for streams, rivers, lakefronts and connecting channels. These studies will be undertaken to conserve *natural heritage features* and the *natural heritage system*, capitalize on tourism potential, protect adjacent land uses, and enhance public safety (Section 2.4.1 h)).

It is the intent of the Shoreline Management Plan to recommend land use planning controls, including recommendations for land use and zoning updates, that may result in updates to the Section 2.4 policies of the COP.

2.3 Municipal Official Plan

In accordance with the Planning Act, and implementing provincial policy, the Municipality of Lakeshore Official Plan (OP) establishes the goals, objectives, and policies to support the creation of strong communities, the wise use and management of resources, and the protection of public health and safety. It identifies the Municipality's strategic direction within the applicable requirements set out in provincial policy and County-wide policy, as expressed in the Essex County Official Plan. The local OP manages and directs physical change and is designed to promote the vital link between the community, the economy, and the natural environment.

It should be noted that the Municipality is currently undertaking a five-year review of the OP. It is intended that the SMP will provide guidance with respect to revised shoreline hazard mapping and any needed changes to the Official Plan policies.

A key planning objective of the OP is to foster growth and development that is naturally inviting and environmentally aware. The Municipality accommodates a variety of significant natural features and environments that provide ecological, cultural and recreational benefits. It is the desire of the Municipality to protect and expand these natural systems to promote the creation of a linked system of features, and their ecological functions. Additionally, the OP identifies a strategic direction to “direct development away from natural and human-made hazards and flood and erosion hazards” (2.3.6 d).

A key component of the OP is managing where and how to grow in a manner that accommodates the Municipality's projected population and employment growth, while protecting the County's agricultural, rural and natural resources. The fundamental community structure and guidance for long-term growth is guided by Schedule “A” –



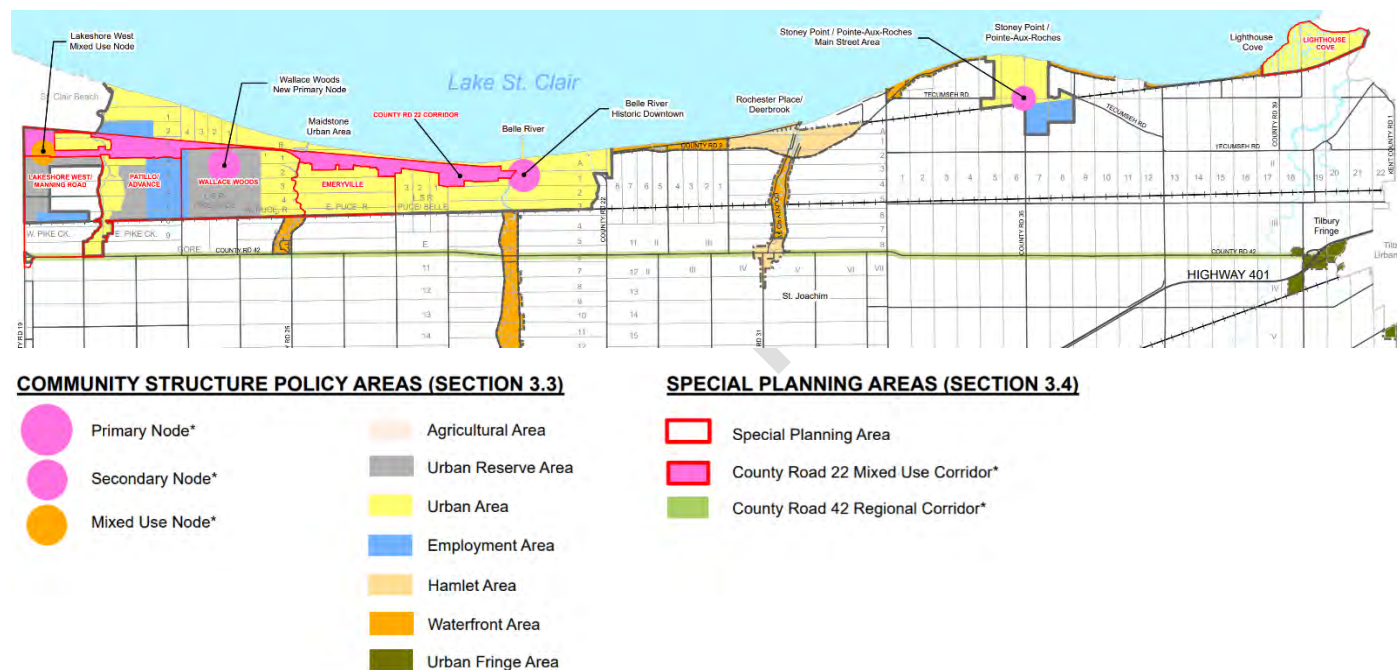
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Community Structure. **Figure 2.1** shows the Municipality of Lakeshore Shoreline Management Plan Study Area as it related to the community structure policies areas of Schedule “A” (see Appendix C).

Figure 2.1 Schedule “A” Community Structure



Along this stretch of the southern coast of Lake St. Clair, there are multiple land use types present. Much of the shoreline is designated as a Waterfront Area, which is to accommodate predominately existing residential, commercial, recreational and open space and related uses. Limited growth may be accommodated through infill and development of vacant lands in accordance with all applicable policies for servicing, natural heritage and hazard lands. The Municipality will also promote opportunities for public access to the waterfront and the development of a waterfront trail system.

Urban Areas are also seen along the shoreline, extending inland – in some cases, as far south as the existing rail line. These designations are some of the largest urban areas in the Municipality of Lakeshore and function as the Municipality’s focal point for growth, development and urban activities.

Other land use designations include Hamlet Areas, which are small rural settlements that provide limited services to the surrounding agricultural community, and which are expected to experience only minor infill and development of vacant lands, as appropriate.

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The County Road 22 Mixed Used Corridor is envisioned as a higher intensity mixed use corridor extending across the Maidstone and Belle River Urban Areas. The corridor is anticipated to accommodate a combination of commercial, retail and residential uses through infilling, intensification and redevelopment, and the development of vacant and underutilized lands.

There are areas of extensive development along the shoreline, in some cases where natural hazards are present. In these areas, the policy notes that a reasonable compromise will be made between the extent of the hazard and the continued use and future development of the area (Section 5.4.1). The situation is particularly applicable to the Urban Areas, Hamlet Areas and Waterfront Residential Areas. The Zoning By-law may establish specific zones to address existing development locations within this area.

2.3.1 Special Planning Areas

Six (6) Special Planning Areas have been identified in the Municipality's OP, based on the desired growth management framework. It is generally intended that secondary plans may be prepared for these areas to comprehensively address future land use patterns for new development areas or to implement a specific planning initiative. If a Special Planning Area falls within the Shoreline Management Study Area, any future secondary planning for the area should consider the recommendations and updated mapping resulting from this study and other applicable hazard investigations (e.g., riverine floodplain mapping). The Special Planning Areas include the following locations:

- Emeryville
- Patillo/Advance
- County Road 22 Corridor
- Wallace Woods
- Lakeshore West/Manning Road
- Lighthouse Cove

2.3.2 Official Plan Hazard Policies

It is a priority of the Municipality to ensure the sustainable use of resource assets, to protect and enhance significant natural features and functions, and to reduce the risk to public safety and property from hazards, such as flooding, unstable slopes and human-made hazards. Section 5.4.1 of the Municipality's OP outlines the intent of the Municipality to protect life and property by respecting natural and human-made hazards, which may represent constraints to development.



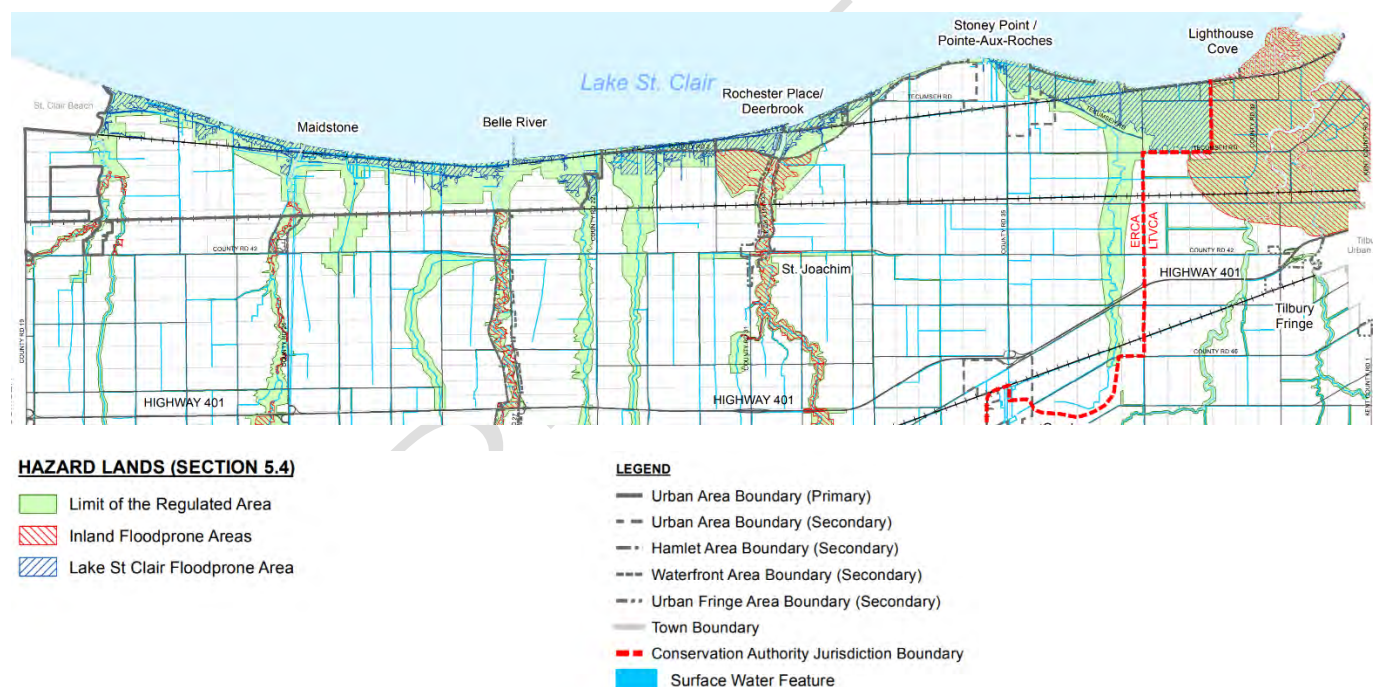
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The policies regarding natural hazards are to be applied when determining uses permitted on lands identified as Hazard Lands and illustrated as: the Limit of the Regulated Area; Lake St. Clair Floodprone Areas; and, Inland Floodplain Control Areas, as shown on Schedule “B.4” of the Municipality’s OP. **Figure 2.2** shows the extent of the Municipality’s shoreline outlining its old Natural Hazards and Floodprone Areas. This mapping should be updated with the technical findings of this study.

Figure 2.2 Schedule “B.4” Natural Hazards and Floodprone Areas



Section 5.4.1.1 of the Municipal OP outlines the applicable policies for the Limit of the Regulated Area (LORA), which requires that appropriate arrangements be made with the appropriate conservation authority prior to permitting development. Within the LORA lands, policies for “Inland Floodprone Area” or “Lake St. Clair Floodprone Area” may also apply.

It should be noted that these areas are referred to differently between the OP Schedules and Text, which may cause confusion. The OP Schedules refer to “Inland Floodprone Areas” and “Lake St. Clair Floodprone Area”, while the text of the OP policies refer to “Inland *Floodplain Development Control Area*” and “Lake St. Clair

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Floodplain Development Control Area.” The current Official Plan Review process, along with this SMP provide the opportunity to revise these policies to ensure consistency.

Inland Floodprone Area/Inland Floodplain Development Control Area policies (Section 5.4.1.2) require that development on these lands, other than lands in the floodway, may only be permitted if the existing or potential hazards can be overcome by accepted engineering techniques and resource management practices, such as those set out by Provincial technical manuals. Additionally, the Municipality must consider the economic, social and ecological costs and benefits of any engineering works or resource management practices needed to overcome the impacts. Furthermore, any new development must meet minimum flood protection standards, and appropriate vehicular access routes are to be maintained. Lastly, as required by provincial policy, certain uses are prohibited in Hazard Lands which include: any uses involving hazardous substances or sewage; institutional uses (schools, nursing homes, etc.); emergency services or electrical substations.

Lake St. Clair Shoreline Floodprone Area/Floodplain Development Control Area policies, as outlined in Section 5.4.1.3 of the OP, note that buildings are required to be floodproofed to protect them from lake-related flooding. An appropriate setback from the defined shoreline of the Lake may also be required to protect the building from wave uprush and other water related hazards. Generally, the policies state that development should be directed outside of the furthest landward limit of the dynamic beach hazard limit, the flood hazard limit, and the erosion hazard limit. Similar to the inland floodprone areas, development would not be permitted in areas that would be rendered inaccessible to people and/or vehicles during a time of hazard events unless it is demonstrated that the site has safe access. Any development in the dynamic beach hazard would also not be permitted. The following uses are also prohibited: any uses involving hazardous substances or sewage; institutional uses (schools, nursing homes, etc.); emergency services or electrical substations.

Despite these restrictions, development in the Lake St. Clair Shoreline Floodprone Area may be permitted in some circumstances. In consultation with the CA, and where the risks can be absorbed, managed or mitigated in accordance with the Municipality's standards, development may be permitted. The Municipality's standards include:

- Safely addressing the hazards, and ensuring that development is completed in accordance with floodproofing standards, protection works standards, and access standards;
- Existing hazards are not aggravated or new hazards are not created;



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- No adverse environmental impacts will result, and no negative impacts on Natural Heritage Features will result;
- Vehicles and people have a way of safe ingress and egress during times of flooding, erosion or other emergencies; and,
- Development is carried out in accordance with established standards and procedures.

Existing development and land uses are also addressed in the Lake St. Clair Shoreline Floodprone Area policies of the OP. The Municipality commits to undertaking studies in cases of severe water and erosion damage to the Municipal roads or other public property (Section 5.4.1.3. e). These studies aim to compare the costs of erosion abatement with structure relocation, road closing and/or relocation, or the acquisition of new properties. Alternatives will be considered prior to any erosion abatement scheme or other course of action being taken. Repairs and minor additions may be permitted to existing non-conforming development, subject to applicable regulations (Section 5.4.1.3. f). Replacements to existing buildings or structures may be permitted provided it does not result in an increase in the original usable floor area or alter the original use or affect shoreline processes (Section 5.4.1.3. g).

There may be areas where the hazard needs to be addressed on a more comprehensive basis, rather than on an individual lot by lot basis (Section 5.4.1.3. h). This is discussed further in Section 5.0. Therefore, a more comprehensive review of the particular hazard may need to be evaluated prior to replacing a building or structure. Nothing in the policies for the Lake St. Clair Shoreline Floodprone Area should be interpreted to prohibit the relocation of an existing building or structure presently located within the erosion hazard limit further from the hazard (e.g., the top of bank) even if it is still in the erosion hazard limit.

In accordance with the Zoning By-law, the applicable Conservation Authority has jurisdiction for hazard issues within the Limit of the Regulated Area (LORA). The permitting authority of a CA is outlined in Section 28 of the Conservation Authorities Act (CAA), R.S.O 1990, C.C.27, as amended. As the Municipality's shoreline covers two conservation authority boundaries, specific regulations of the CAA apply to Lakeshore's two watersheds.

2.4 Conservation Authorities Act

All lands within the Limit of the Regulated Area are regulated by the "Development, Interference with Wetlands and Alteration to Shoreline and Watercourses Regulations" under the Conservation Authorities Act. As such, the relevant Conservation Authority

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should be contacted when proposing development within or near the lands identified on Schedule “D.4” as the Limit of the Regulated Area, which encompasses three principal hazards: riverine hazards, shoreline hazards and other hazards (i.e., ice jams).

2.4.1 Ontario Regulation 97/04 and 158/06, and 152/06

Ontario Regulation 97/04 under the Conservation Authorities Act (CAA) is more commonly known as the “Development, Interference with Wetlands and Alteration to Shoreline and Watercourses Regulations” which generally outlines a Conservation Authorities’ (CA) ability to regulate hazards under Section 28 of the CAA. Ontario Regulation 158/06 (Essex Region CA) and 152/06 (Lower Thames Valley CA) provide more detail on each applicable conservation authorities ability to regulate hazards within the study area. At any given location in the Municipality of Lakeshore, two of the CAA regulations apply to a specific geography: a. the general O. Reg 97/04; b. either O. Reg 158/06 or O. Reg 152/06, depending on the watershed that the site falls within.

It should be noted that there have been recent changes to the Conservation Authorities Act (CAA) through both Bill 139 – Building Better Communities and Conserving Watersheds Act (2017), and Bill 108 – More Homes, More Choice Act (2019).

The general content and authority of Ontario Regulation 97/04 prohibits development in or on: hazard lands, wetlands, areas adjacent or close to the shoreline of Lake St. Clair, including the area from the furthest offshore extent of the authority’s boundary to the furthest landward extent of the boundary, based on distances that are outlined in the regulation. These distances, and therefore the “regulated area”, can change based on the presence of certain hazards that can exist along the shoreline (e.g., dynamic beaches). The Regulated Area under the CAA is defined by the hazard mapping standards outlined in the Technical Guide (MNR, 2001) and the Guidelines for Developing Schedules in Regulating Areas (CO and MNR, 2005) documents used in implementing the policies of the PPS.

O. Reg 158/06 applies to lands within the watershed boundary of the Essex Region CA.

O. Reg 152/06 applies to lands which fall within the watershed boundary of the Lower Thames Valley CA.

While the CAA and the accompanying Regulations represent a regulatory and permit process separate from the land use planning process, they have an important relationship – the land use planning system, governed by the *Planning Act*, PPS, and implemented through local Official Plans and Zoning Bylaws, should adequately consider and plan for these hazard areas such that a Section 28 Permit can be granted at the time of building.



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2.5 Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health

The Great Lakes, along with its inland waterways are seen as the foundation of Ontario's economic prosperity and well-being, as they supply water, support the Province's economy and provide healthy ecosystems for recreation and tourism. As such, the Province undertakes continued negotiations and partnership with the federal government under agreements such as the Canada-Ontario Great Lakes Agreement, to continue to support the health of the Great Lakes.

The agreement supports the ongoing restoration of the water quality and ecosystem health in designated areas of the Great Lakes. As outlined in the Preamble to the Provincial Policy Statement, there may be circumstances where planning authorities should consider agreements related to the protection or restoration of the *Great Lakes – St. Lawrence Basin*, such as those between Ontario and Canada.

This Shoreline Management Plan will have regard for the Canada-Ontario Great Lakes Agreement, and recommendations should ultimately contribute to the overall goal of supporting the ecosystems and water supply provided by Lake St. Clair.

2.6 Policy Summary

There is strong provincial and municipal policy support and mandate to assess and delineate shoreline hazards and their impact on existing and future development in Ontario. The recent changes in the PPS, including the requirement for municipalities to “prepare for the impacts of a changing climate” recognizes that existing hazards, such as flooding, will get worse in the future. It will continue to present significant challenges to all communities, including the Municipality of Lakeshore, where a significant portion of the population and developed area are already located on floodprone lands based on historical extremes. The amount of vulnerable infrastructure and potential economic damages associated with future flooding will increase due to climate change.

Unfortunately, at the time of this report preparation, there was no technical guidance from the Province of Ontario for integrating the impacts of a changing climate into coastal hazard mapping. Therefore, the hazard mapping prepared for this report was based on historical flood levels and erosion rates. A sensitivity analysis of future flooding potential due to climate change was completed at three locations and is summarized in Section 4.4 and Appendix E.

The mapping, technical assessment, modeling, and policy recommendations that result from this SMP must be coordinated and fully integrated with ongoing considerations for

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land use, development and future economic growth, recreational and cultural heritage assets, and municipal infrastructure systems. It must also be well integrated with the legislation and directives of the two Conservation Authorities having jurisdiction.

The SMP will make policy recommendations for the Lakeshore Official Plan to achieve greater consistency with the Municipality's existing Natural Hazard Policies and will make new recommendations for land use policies and adaptation strategies to increase resilience to coastal hazards. Furthermore, specific and targeted policy recommendations for re-development along the shoreline will be provided in Section 5.4.

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3.0 Analysis

Section 3.1 and 3.2 summarizes the data collection and technical analysis completed for the SMP by Zuzek Inc. Section 3.3 provides an analysis of land use planning approaches from various municipalities in Ontario, as well as other Provinces, completed by Stantec Consulting Ltd. to inform the recommendations of this SMP.

3.1 Data Collection

The oblique drone photography, nearshore water depths, and building footprints collected for the study are described.

3.1.1 Oblique Photographs from a Drone

Oblique photos were collected with a drone for the entire 33-kilometre (km) project shoreline in September 2019. The purpose of capturing the aerial photography was to develop a current, georeferenced, photographic library of the entire shoreline. This library was the primary source of information for the development of a high-resolution shoreline protection database (refer to Section 3.2.1). It also provided the project team with the ability to view and assess portions of the shoreline that would have been logistically difficult to reach by land.

The drone featured a built-in camera with a 12.7-megapixel sensor, three-axis image stabilization and geotagging capabilities. Photographs were generally taken from an elevation of approximately 35 metres (m), a horizontal distance of approximately 60 m offshore, and with shore-parallel spacing of individual images on the order of 20 – 30 m. This allowed for complete shoreline coverage with sufficient overlap in adjacent photos while producing images with high enough resolution to assess the condition of shoreline structures at the individual private property scale. Where appropriate, images were captured from a higher elevation and further offshore to provide an increased range of view. Sample photographs captured using the drone are provided in Figure 3.1.

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Figure 3.1 Lakeshore Oblique Drone Photography



3.1.2 Nearshore Water Depth Survey

The SOLIX is a single-beam depth sounder and sonar system with built-in recording and navigation tools. The transducer was mounted at the back of a boat with a dedicated GPS antenna located directly above the unit. The unit auto-corrects for the depth of the transducer below the lake surface. Depths were recorded every second. A picture of the navigation screen is provided in Figure 3.2. The extent of the data coverage is presented in Figure 3.3.



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Figure 3.2 SOLIX Navigation Screen

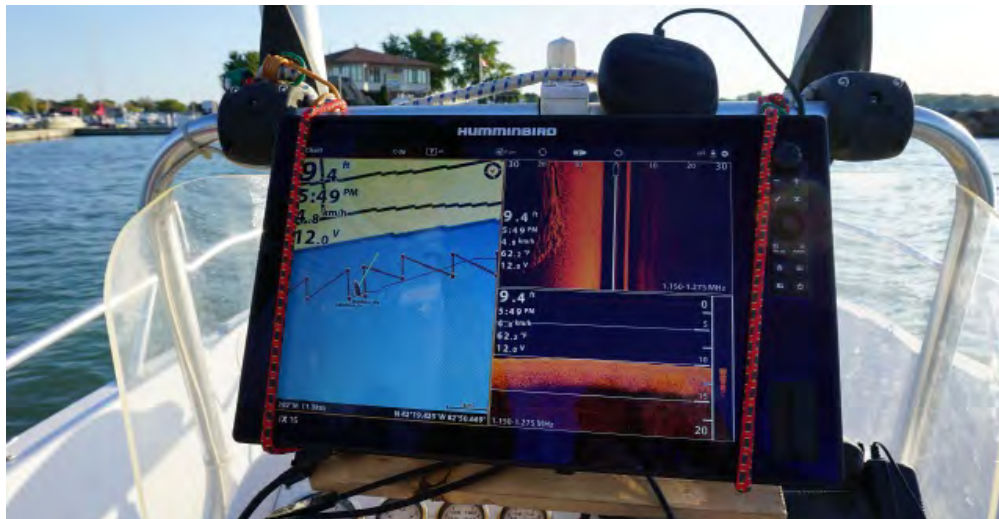
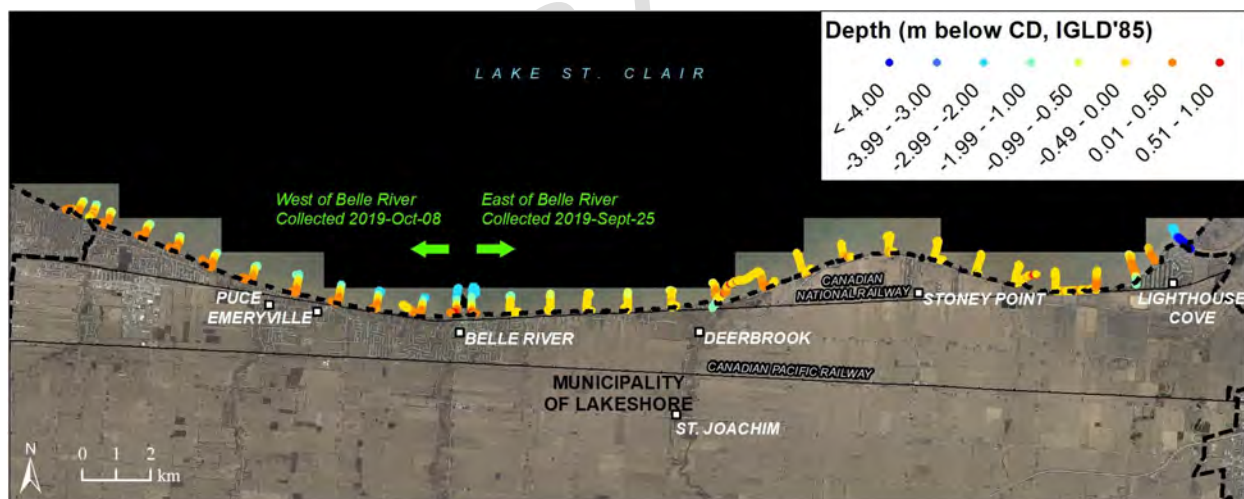


Figure 3.3 Extent of Data Collection with the SOLIX (Sept. 25 and Oct. 8, 2019)



The depth readings were corrected using real-time hydrometric data acquired from the Government of Canada water level website. This real-time data features water level readings taken at hourly intervals. The SOLIX also collects 2D sonar imaging in cross-section and bottom image formats. Figure 3.4 provides an example of the output at the Belle River Marina. The panel on the left displays the track of the boat (the boat symbol depicts the location of the SOLIX relative to the track). The middle panel provides a cross-sectional view of the sonar output, which is recording the sandy lake bottom

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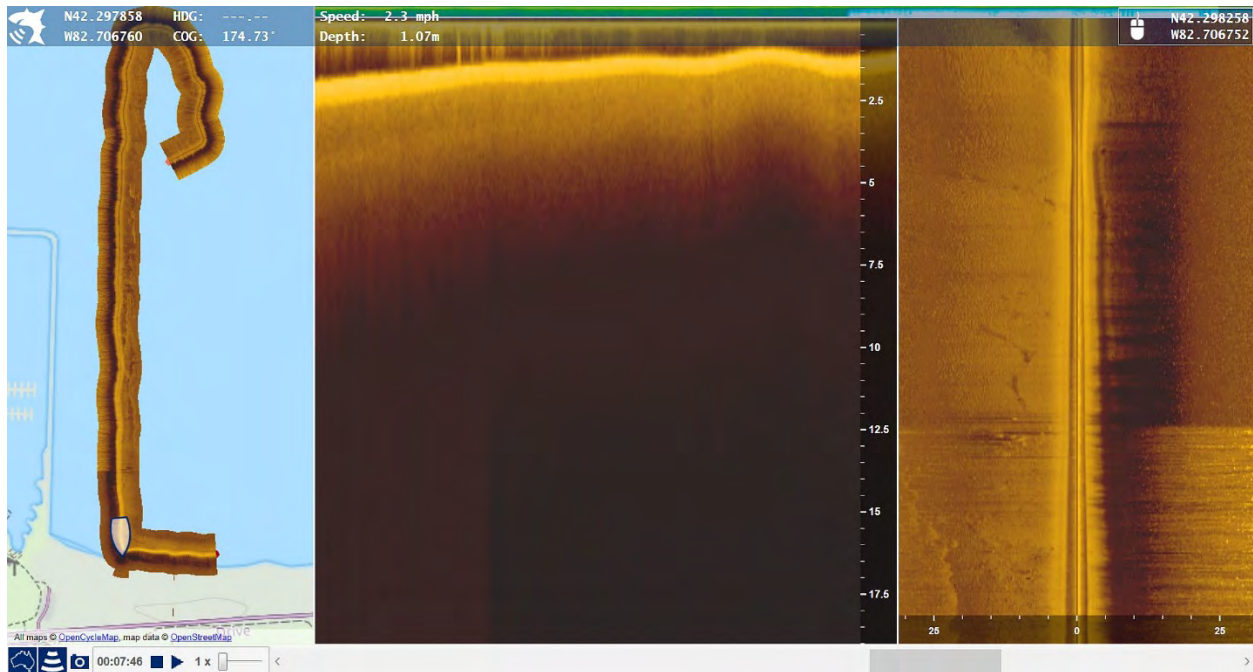
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conditions adjacent to the marina. The image on the right shows the downward looking sonar output (the lake bottom).

Figure 3.4 Bottom Imaging at Belle River Marina



A sample of the bottom imaging collected with the SOLIX at the mouth of the Thames River is provided in Figure 3.5. The boat is traveling onshore, as seen in the left panel. The middle pane provides a cross-sectional image of the lake bottom, which features an irregular bottom and possibly exposures of glacial till. The image on the right shows the glacial sediment ridges and tree limbs that have accumulated on the lake bottom.

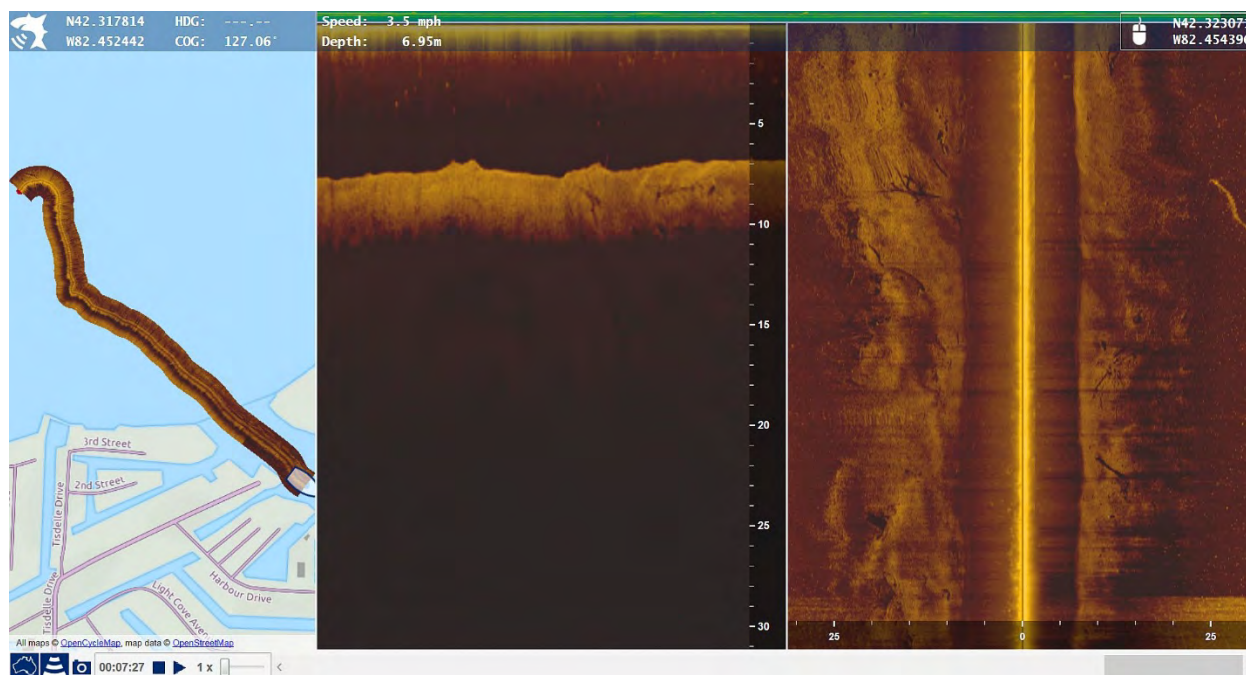


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Figure 3.5 Bottom Imaging at Thames River Mouth



3.1.3 Update Buildings Layer

The Municipality of Lakeshore provided an existing buildings layer to be used in the study. It was acknowledged that this dataset was older and does not include some recent buildings and housing developments. The main purpose of this layer was for use in 3D renderings of flooding hazards.

The buildings layer was reviewed for the areas included in the 3D renderings discussed in Section 4.4. The following changes were made by Zuzek Inc. for the buildings within proximity of the flood hazard setbacks:

- Missing buildings were added when visible in the 2020 orthophoto.
- Buildings were removed that were not seen in the 2020 orthophoto.
- Some building classes (e.g., Residential, Industrial) were revised to reflect the 2020 orthophoto conditions.
- The shape of some building footprints was reshaped and modified to better align with buildings seen in the 2020 orthophoto.

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- A field named *source* was added to the layer's attribute table. All new buildings were attributed as 'Zuzek Inc' in the *source* field.
- A field named *AerialDate* was added to the layer's attribute table. All new buildings were attributed as '2020' in the *AerialDate* field since they were derived from the 2020 orthophoto.

An example of the revised buildings layer is illustrated in Figure 3.6. The noted changes to the attribute table will allow the Municipality of Lakeshore to update the buildings layer for the entire municipality if desired.

Figure 3.6 Revised Buildings Layer at Belle River (new buildings added are colour shaded)



3.2 Technical

The technical analysis completed for the shoreline management plan is described in the following report sections.

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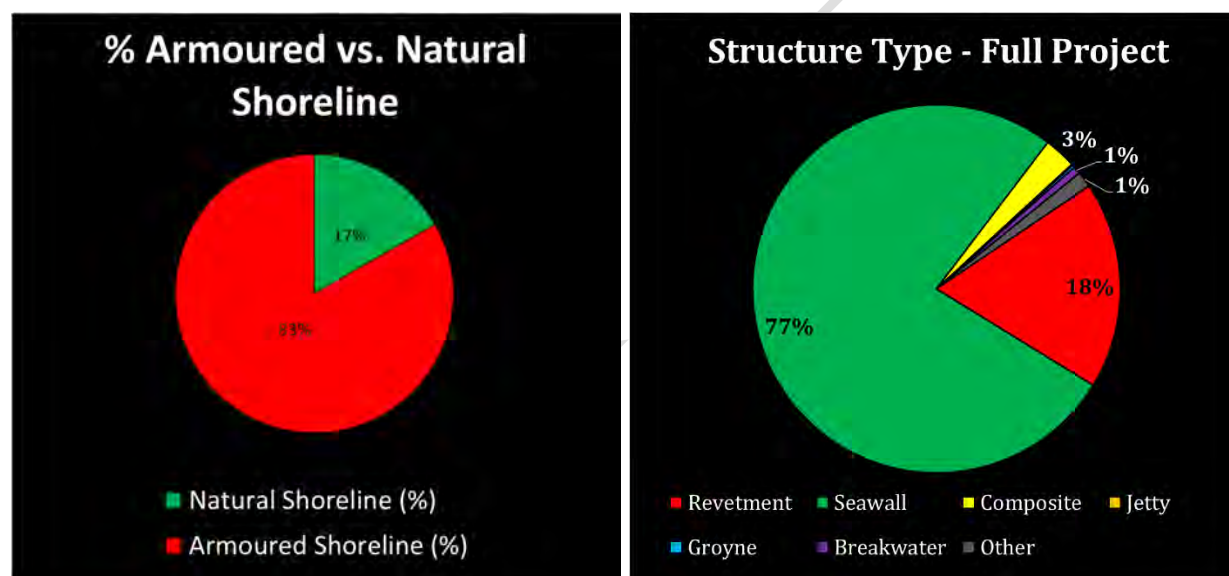
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3.2.1 Shoreline Protection Database

A detailed shoreline protection database was developed as a component of the study to document the state of the built-up shoreline as of September/October 2019. The database was developed primarily from the oblique aerial photography inventory discussed in Section 3.1.1 and supplemented with ground observations. We learned 83% of the shoreline is armoured and seawalls make up 77% of the structure types, as seen in Figure 3.7.

Figure 3.7 Sample of Shore Protection Database Statistics



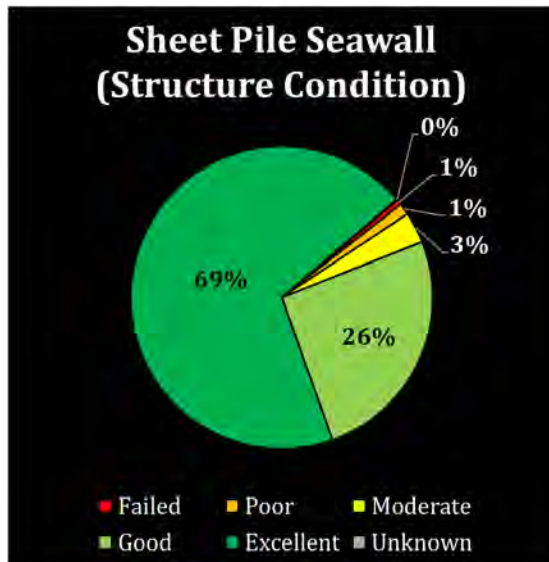
The information on the overall condition of the different structure types also provided valuable data for the study. For example, as seen in Figure 3.8, 95% of the structures are in good to excellent condition from a structural perspective. However, we subsequently learned during the flooding assessment that the crest elevation of many of the seawalls are too low and don't provide adequate protection from wave overtopping, leading to the propagation of floodwaters inland. In some cases, these structures were not designed to limit overtopping but rather protect lots from shoreline erosion. Other measures, such as raising first floor elevations, were implemented to protect buildings from flooding.

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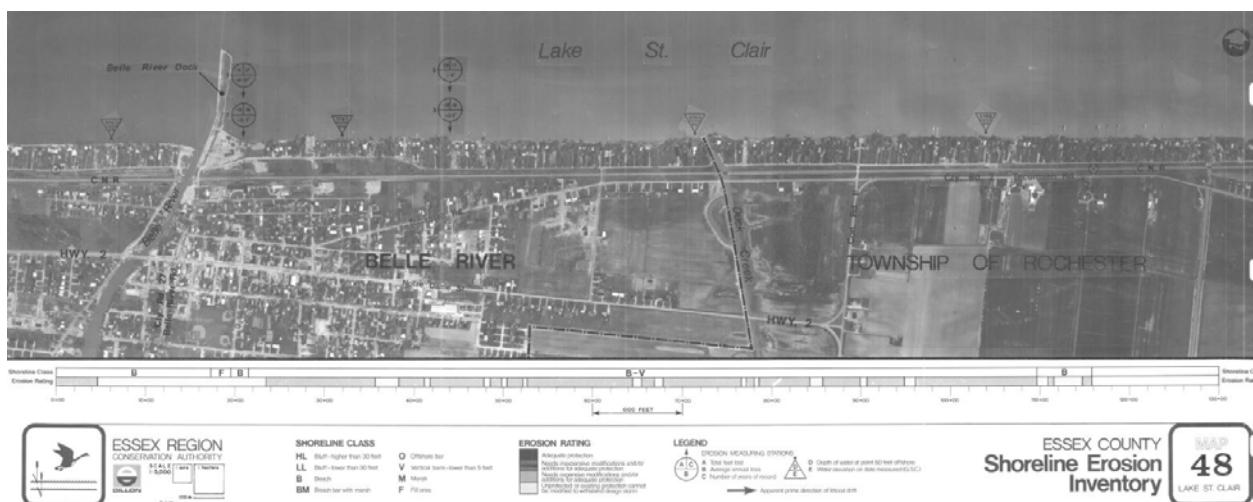
Figure 3.8 Condition Assessment of Steel Sheet Pile Seawalls



3.2.2 Historical Shoreline Change Rates

The previous Essex County Shoreline Report completed by Dillon (1976) included shoreline erosion inventory maps for sections of the Municipality of Lakeshore shoreline. An example is provided in Figure 3.9.

Figure 3.9 Shoreline Erosion Inventory Maps (Dillon, 1976)



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The long-term erosion rates for the unprotected shorelines derived from these maps are still used by ERCA and can be summarized as follows:

- West of Belle River erosion rate = 0.3 m/yr.
- Belle River to a location just west of Comber Sideroad erosion rate = 0.4 m/yr.
- West of Comber Sideroad and to Thames River Mouth erosion rate = 0.5 m/yr.

The County of Essex provided aerial photos covering 1975 to 2020 (Table 3.1). Note that the 2020 photo was provided after the study commenced and the shoreline change analysis was already complete.

Table 3.1 Summary of Aerial Photos Provided

YEAR	FORMAT	SCALE	NOTE
1975	Scanned aerial print	5,000	8 tiles were registered by Zuzek Inc.
1988	Scanned aerial print	8,000	1 tile was registered by Zuzek Inc.
2004	Orthophoto mosaic	N/A	10 cm resolution
2019	Orthophoto mosaic	N/A	10 cm resolution
2020	Orthophoto mosaic	N/A	10 cm resolution

To visualize the shoreline change, a shoreline (waterline) was digitized from the 1975 and 2019 aerials. The monthly mean water levels on Lake St. Clair at the time of these aerial photos is as follows:

- 1975 monthly mean = 175.58 m IGLD'85
- 2019 monthly mean = 175.63 m IGLD'85

The difference between the two water levels is only 5 cm. Therefore, a water level correction of the digitized shorelines was not performed, as the correction amount would be indistinguishable from the non-corrected linework. For example, a beach slope of 1:10 would result in only a 0.5 m horizontal line correction.

The waterlines were then overlayed on the aerials. For the properties with shore protection, the difference in waterlines is minimal. Figure 3.10 presents a comparison of the 1975 and 2019 waterlines on the 1975 and 2019 aerial photos at Belle River. There has been significant growth in the east and west fillet beaches at Belle River since 1975, as seen in the comparisons.

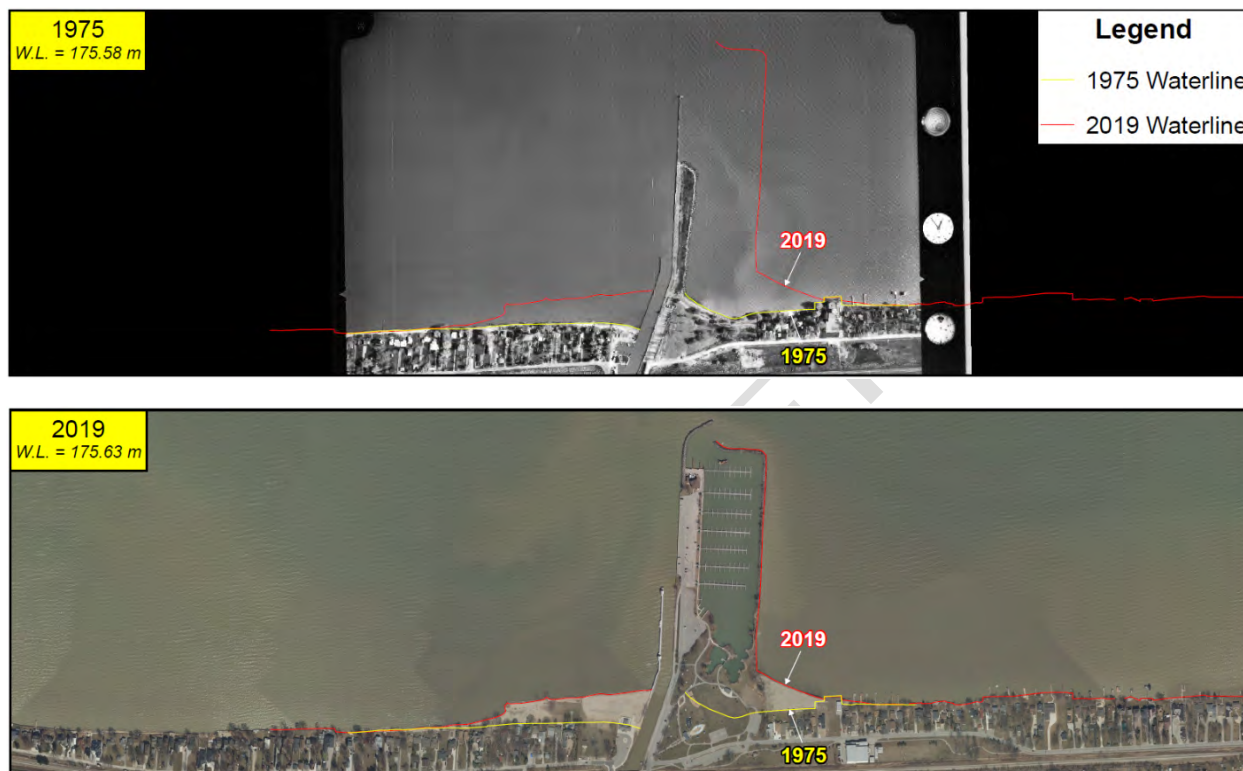
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Figure 3.10 Waterline Comparison at Belle River



Additional shoreline change comparisons are presented in Appendix D.

3.2.3 Water Level Analysis

Shoreline hazards are defined using the 100-year lake level. This flood level is derived from a combination of static water levels and storm surge having a joint probability of occurrence of 1% in any given year. The lake level presently used in the regulation of the Lakeshore shoreline is derived from previous work by the MNRF (Great Lakes System Flood Levels and Hazards, 1989) and Dillon Consulting (Essex County Shoreline Report, 1976). These reports estimated the 100-year lake level at Belle River to be 176.33 m and 176.36 m IGLD85', respectively, based on a combination of statistical analyses of historical water level data and theoretical computations. The current regulatory lake level used by the Essex Region Conservation Authority vary spatially along the shoreline and are summarized in Table 3.2.



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Table 3.2 Existing 100-year Lake Level from ERCA

Reach	Thames River to Stoney Point	Stoney Point to Belle River	Belle River to Pike Creek
100-year lake level (m, IGLD'85)	176.57	176.33	176.39

Since the previous estimates by Dillon (1976) and MNRF (1989), several decades of higher resolution water level data have been logged at gauges around Lake St. Clair. To provide an up-to-date and more accurate estimate of the combined flood level along the south shore of Lake St. Clair, an updated joint probability analysis of static water levels and storm surge at the Belle River Gauge was performed and is presented in the following sections.

3.2.3.1 Updated Static Lake Levels

Measured historical static water level data is archived by the Department of Fisheries and Oceans (DFO) for various gauging stations across the Great Lakes, including Lake St. Clair. Monthly mean water levels for Lake St. Clair, based on averages from a network of gauging stations, were obtained from these archives for 1918 through 2020 (103 years). The obtained water level data was divided into 12 monthly datasets, ranked and subjected to several statistical models for extreme value analysis. Normalcy testing was performed using the Chi-Squared test statistic, indicating most months could be described by a normal distribution with a reasonably high level of confidence ($\alpha=0.05$). The datasets were also fitted to a number of extreme value distributions including: (1) Weibull, (2) Fisher-Tippett, (3) Generalized Extreme Value (GEV) and (4) Generalized Pareto.

The Weibull and GEV distributions generally provided the best fit to the monthly static lake level data (Figure 3.11), with minimum correlation coefficients across all datasets of 0.996. The other extreme value distributions provided considerably lower correlation coefficients and thus were not utilized for further analyses. There was some variation in 100-year static WL estimates between the Weibull and GEV distributions, up to 5 cm depending on the month. To ensure conservatism in the analysis, the higher of the two estimates was generally taken, provided the correlation coefficients were similar.

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**Figure 3.11 Left: Weibull distribution for June static WL data (Corr. Coeff. = 0.998)
Right: GEV (Method of Moments) distribution for April static WL data (Corr. Coeff. = 0.998)**

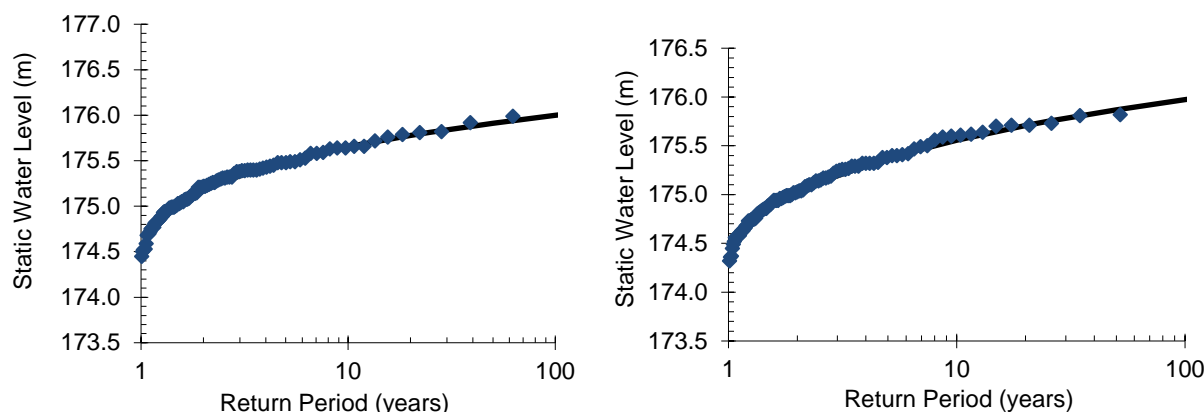


Table 3.3 provides a summary of results from the monthly extreme value analysis of static water levels described above. The governing predicted 100-year static WL is 176.04 m IGLD85', occurring in July. The last published static WL estimate for this area was 175.95 m, based on data recorded between 1900 and 1987 (MNR, 1989). The findings from this analysis exhibit a 9 cm increase over the findings of the MNR – to be expected given the inclusion of the high static lake levels experienced in recent years (e.g., 2019 and 2020).

Table 3.3 Maximum observed and predicted 100-year monthly static lake levels for Lake St. Clair (based on data from 1918-2020)

Monthly Lake Level in m IGLD85' (1918 - 2020)		
Month	Max Observed WL	Predicted 100-year WL
January	175.80	175.85
February	175.80	175.86
March	175.83	175.91
April	175.91	175.97
May	175.98	175.97
June	176.02	176.00
July	176.04	176.04
August	175.97	175.97
September	175.88	175.91
October	175.96	175.83
November	175.82	175.78
December	175.80	175.79
Max =	176.04	176.04



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3.2.3.2 Storm Surge

Storm surge occurs when there is a temporary water level rise during a storm, resulting from the combined effects of barometric pressure gradients and wind setup across a water body. On large inland lakes, wind setup is typically the most substantial contributor to storm surge, as the effects of pressure variations are relatively small. Wind setup occurs when wind-induced shear stress at the water-air interface pushes water in the same direction as the prevailing wind, causing a temporary rise in water levels at the downwind shore. The amplitude of a storm surge event is dependent on the local wind speed, wind direction, fetch (lake distance over which the wind is blowing), shoreline orientation, and lakebed bathymetry.

Storm surge events can be interpreted from measured water level data as long as the temporal resolution is sufficiently high to capture surge events, which typically last several hours. The Belle River water level gauge (Station ID: 11965) on Lake St. Clair is within the study area and has sufficient data resolution for a storm surge analysis. Data from the Belle River Station was sourced from the Department of Fisheries and Oceans (DFO) for the period of 1961 to 2020 (60 years). Archived data was available in varying resolution, with hourly data available between 1961 and 1988, 15-minute data available between 1989 and 2002, and 3-minute data available post-2002. Storm surge analysis was completed using hourly data; however, selected surge events were compared to higher resolution data to ensure maximum surge levels had been captured by the hourly data.

To isolate and quantify surge events from the water level dataset, each individual data entry was compared to background static lake levels to highlight temporary positive residuals at the gauge location (surge events). To determine the background static lake level, a 72-hour average was calculated for every data point, excluding the central 24 hours (12 hours before and after the point of interest). The 72-hour average lake levels were then subtracted from instantaneous water levels, with resultant high-magnitude, positive residuals representing potential surge events. The data was then separated into 12 monthly datasets, each including data from the month preceding and following (i.e., the January data set included December, January, and February events) in order to remove any bias associated with surge events occurring at the boundaries between months. This adds an additional layer of conservatism to the surge analysis. The Peak Over Threshold (POT) method was then applied to obtain the n-largest independent surge events from each monthly dataset such that the number of events was equivalent to the number of years of data (n=60 for this analysis). A minimum duration of 36-hours between events was applied to ensure independence of the selected storm events.

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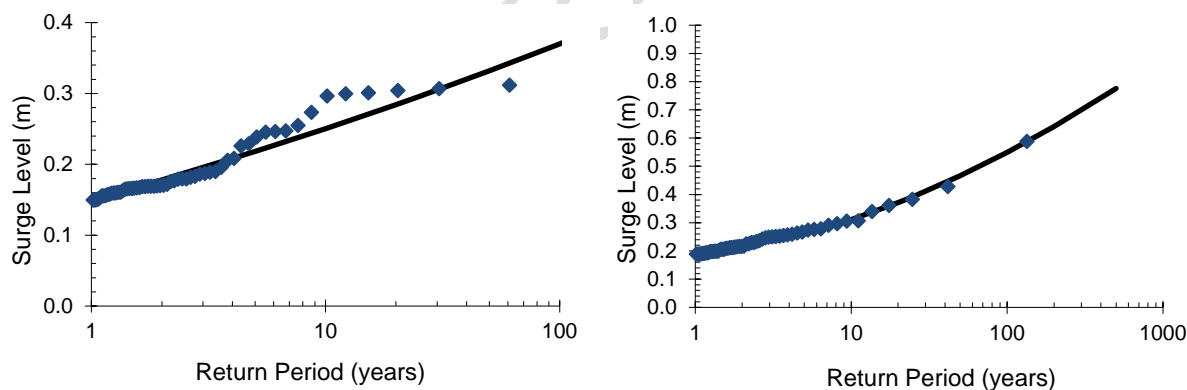
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Surge datasets were fitted to various cumulative probability distributions for extreme value analysis. Normalcy testing (Chi-squared) indicated that the data could not be described using a normal distribution. The extreme value distributions described above were therefore applied. The Weibull and GEV distributions generally provided consistently good fits for the surge data, with higher correlation coefficients for winter months (minimum correlation coefficient from Dec-Mar was 0.99) and lower correlation coefficients for summer months (minimum correlation coefficient from Apr-Nov was 0.94). The Pareto and Fisher-Tippett II (Frechet) distributions also provided an excellent fit for some months, with similar seasonal fit-disparity. This disparity is particularly severe in the September dataset where the highest ranked events were all of similar magnitude and the tail-end data exhibited a plateau as a result (Figure 3.12). This is potentially a result of physical limitations of Lake St. Clair combined with seasonal wind variation. The best fitting distributions were selected for each month, with the predicted seasonal 100-year surge estimates presented in Table 3.4.

Figure 3.12 Left: Pareto (Method of Moments) distribution for September surge events (Corr. Coeff. = 0.974) Right: Weibull distribution for December surge events (Corr. Coeff. = 0.994)



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Table 3.4 Seasonal, predicted 100-year storm surge magnitude at the Belle River water level gauge

Month	Belle River Surge (1961 - 2020)	
	Max. Observed Surge (m)	Predicted 100-year Surge (m)
January	0.43	0.53
February	0.54	0.53
March	0.36	0.52
April	0.40	0.43
May	0.26	0.42
June	0.36	0.32
July	0.26	0.34
August	0.24	0.33
September	0.31	0.37
October	0.31	0.48
November	0.59	0.51
December	0.38	0.55
Maximum =	0.58	0.55

Based on the analysis described above, the governing 100-year surge is 0.55 m, occurring in the winter months. This estimate is considerably lower than the previous estimate of 0.81 m published by the MNRF (1989), which was based on historical data recorded between 1957 and 1986. It is likely that the 1989 estimate provided by the MNRF extrapolated too far beyond the limited 30-year dataset. The new estimate, although lower, is expected to be more accurate with 60+ years of contributing data and improved extreme value analysis techniques.

3.2.3.3 Joint Probability (Static WL + Surge)

A joint probability analysis (JPA) was completed for each of the 12 monthly static water level and storm surge datasets, to determine combined lake levels for each month of the year. Monthly (seasonal) static water level and storm surge distributions used in the JPA were based on visual fitting and achieved correlation coefficients (as discussed in the sections above).

In the joint probability analysis, static lake level and storm surge are treated as independent variables X and Y, respectively. Once extreme value distribution is fit to each dataset, as discussed above, multi-variate discretization is performed, and the convolution formula is used to assess the joint probability of combined water levels, Z (where $Z = X + Y$). The resulting joint probability equation can be expressed as:

$$P(Z) = \sum_{Rx} P(X) \cdot P(Z - X)$$

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Figure 3.13 presents a sample cumulative distribution plot resulting from the joint probability analysis of combined water levels, for the month of June at the Belle River gauge. The combined flood level, Z (static water level + storm surge), can be obtained from the figure for any return period based on the respective cumulative probability. For example, a return period of 100 years indicates a cumulative probability of 0.99 for any given year ($1-1/100$). The corresponding z -value (combined water level) can be read from the X-axis and is +176.21 m IGLD85' for the month of June.

Figure 3.13 Cumulative joint probability distribution plot of combined lake levels (static water level + storm surge) at Belle River for the month of June

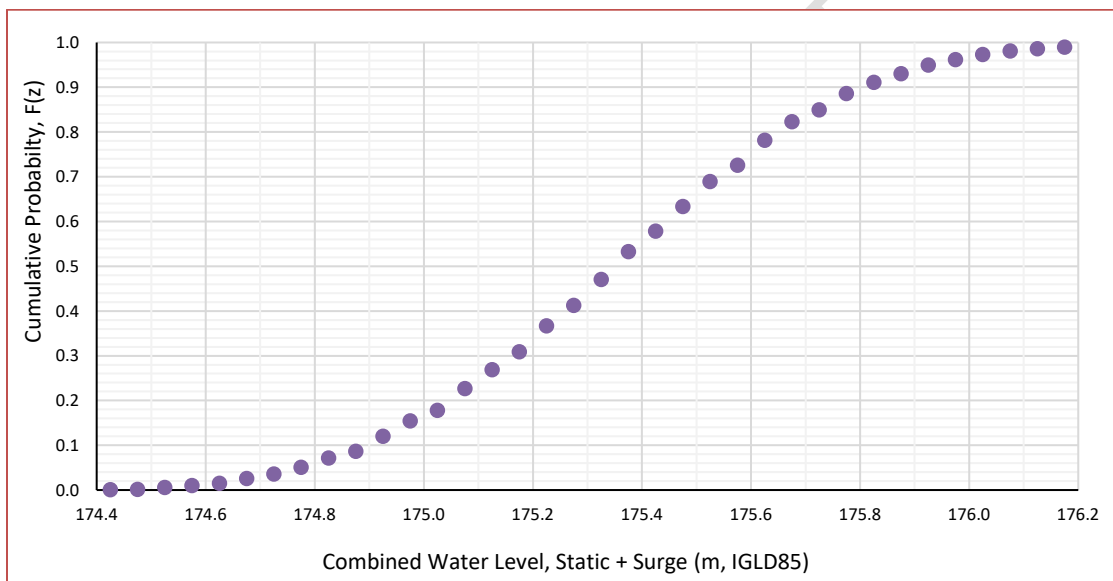


Table 3.5 provides summary results for the joint probability analysis of combined lake levels (static WL and storm surge) for all months at the Belle River gauge.



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Table 3.5 Summary of predicted combined lake levels at Belle River based on the joint probability analysis of static water level and storm surge

100-year Combined Flood Level (m IGLD85')	
Month	Belle River
January	176.10
February	176.11
March	176.19
April	176.24
May	176.22
June	176.21
July	176.23
August	176.18
September	176.13
October	176.11
November	176.07
December	176.08
Maximum =	176.24

Based on the results of the joint probability analysis, the governing 100-year combined flood level at Belle River is estimated to be +176.24 m IGLD85'. This value was predicted for the month of April; however, the months of April, May, June and July are very similar, suggesting the 100-year combined flood level could be realized during any of these months. The estimated 100-year level is 12 cm and 9 cm lower than values previously published by the MNRF in 1989 (+176.36 m IGLD85') and Dillon in 1976 (+176.33 m IGLD85'), respectively. The slightly lower values are primarily due to the difference in extreme surge estimates. More confidence can be placed in the surge estimate presented herein, as the analysis is backed by 60+ years of historical data and improved surge estimation and extreme value analysis techniques. For reference, the highest recorded hourly water level throughout the entire 60+ year operation of the Belle River water level gauge is +176.19 m IGLD85'.

Despite the confidence in the presented results, it is not recommended that the current regulatory flood levels be reduced to the 100-year estimate derived from this analysis, particularly due to the increased frequency of high lake levels across Lake St. Clair in recent years and future projections for climate change impacts. Therefore, 100-year lake levels summarized in Table 3.2 will be used to map the flood hazards in Lakeshore.

3.2.4 Nearshore Waves and Runup

Wave action has the potential to contribute to shoreline flooding hazards beyond the limits delineated by the 100-year combined flood level. Wave action contributes to shoreline hazards primarily through two mechanisms: wave runup (or wave uprush) and

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wave overtopping of structures. Wave runup is defined as the vertical height above the still water level that a wave will reach as it rushes up a natural shoreline or structure. Wave overtopping occurs when wave action exceeds the vertical limits of shoreline banks or structures, causing a flow of water to backshore areas. This flow of water, although occurring intermittently in reality, is often quantified as a mean discharge measured in litres/second per metre of shoreline.

To provide an estimate of wave action contributions to flooding hazards along the Lake St. Clair shoreline, an analysis of shallow water wave conditions (near the shoreline) was performed, including predicting offshore wave conditions from historical wind data, predicting changes to the wave conditions as they move into shallow water, and reach the shoreline leading to wave overtopping and runup on the shoreline. Methodologies and results from these analyses are presented in the following sections.

3.2.4.1 Nearshore Wave Climate

Wave growth is related to the magnitude, direction, and duration of winds blowing over a waterbody. It is possible to hindcast historical wave conditions using available wind data. Using parametric hindcasting techniques, various return period wind events can be translated to the respective return period (RP) wave height and wave period. Parametric hindcasting was used to establish wave conditions on Lake St. Clair correlating to the 1-year event up to the 500-year event for the region based on the following methodology.

3.2.4.2 Extreme Value Analysis – Wind Events

Hourly wind data was obtained from the Government of Canada's historical climate station database. The station closest to Belle River Marina with adequate data (minimum 30 years) was Windsor Airport. Monthly datasets of hourly wind data (wind speed and direction) were obtained for the period between January 1953 and September 2014 (62 years). Wind speeds in this dataset were measured 10 m above the ground for a 1-, 2- or 10-minute period ending at the time of observation. The hourly wind speed was recorded as the average over the measured interval.

Due to the geometry and spatial orientation of Lake St. Clair, northerly winds (blowing from the north) will generate the largest waves on the south shore of Lake St. Clair. Consequently, an extreme value analysis was performed for northerly wind events only. Northerly winds were identified as any wind direction ranging from northwest to northeast, or between 270 and 90 degrees. Northerly wind events were ranked by wind speed, and the top 62 events were selected for the extreme value analysis such that the number of events was equivalent to the number of years of data ($n = 62$). For selection



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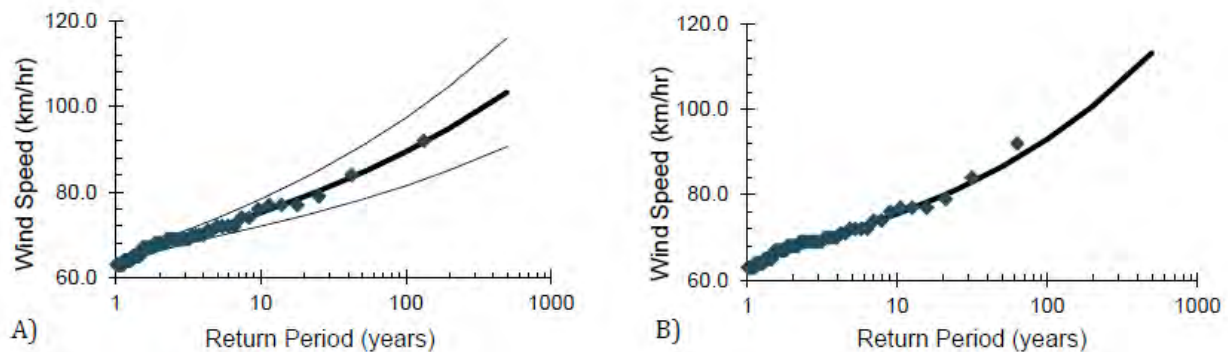
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of the top-ranked events, a minimum duration of 36 hours between events was applied to ensure independence. Wind speeds also had to exceed 35 km/hr for at least 4 consecutive hours to qualify as a significant wind event.

The ranked dataset of wind events was fitted to various cumulative probability distributions for extreme value analysis. Normality testing (Chi-squared) indicated that the data could not be described using a normal distribution. The Fisher Tippet II (Frechet) and Generalized Extreme Value (fitting via Method of L-moments, MLM) distributions generally provided the best fit, with a minimum correlation coefficient of 0.992 (Figure 3.14). Table 3.6 provides a summary of results from the wind EVA, including an average from the two distributions that exhibited the best fit.

Figure 3.14 Historical wind data modeled with A) the Fisher Tippet II (Frechet) distribution and B) the Generalized Extreme Value distribution (MLM fitting)



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Table 3.6 Summary of EVA Results for Sustained Wind Speeds (NW to NE directionality) – Windsor Airport

RP (years)	Peak Sustained Wind Speeds (km/hr)		
	1. FT II (Frechet)	2. GEV MLM	Average (1/2)
1.5	65.92	66.23	66.07
2	67.44	67.62	67.53
5	71.78	71.86	71.82
10	75.18	75.48	75.33
20	78.91	79.71	79.31
25	80.20	81.23	80.72
50	84.53	86.56	85.54
100	89.41	92.95	91.18
200	94.92	100.64	97.78
500	103.35	113.26	108.30
Corr. Coeff.	0.9936	0.9915	

3.2.4.3 Wave Hindcasting

The extreme value analysis results presented in Table 3.6 (column three) were used for parametric wave hindcasting (predicting wave heights based on wind speed). Methods from the US Army Corps of Engineers' Shore Protection Manual (1977) were applied. Inputs included fetch length (open water distance on the lake), storm duration and average water depth over the area of wave generation. The fetch length was taken to be the entire length of Lake St. Clair across its north-south axis: 43 km. A storm duration of 12 hours was assumed for all hindcasted events, and a conservative lake depth of 6 m was assumed based on lake depths obtained from NOAA. Wave height and wave period estimates were developed for deep and shallow water conditions. Due to the shallow nature of Lake St. Clair, wave generation will be depth limited. Consequently, shallow water outputs from the analysis were used for the remainder of wave analyses (Table 3.7).



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Table 3.7 Summary of results from parametric wave hindcasting – Lake St. Clair

RP (years)	Wind Speed (km/hr)	1977 SPM – Shallow Water	
		Wave Height (m)	Wave Period (s)
1.5	66.07	1.30	4.7
2	67.53	1.32	4.7
5	71.82	1.37	4.8
10	75.33	1.42	4.9
20	79.31	1.46	5.0
25	80.72	1.48	5.0
50	85.54	1.53	5.2
100	91.18	1.59	5.3
200	97.78	1.65	5.4
500	108.30	1.75	5.7

The results from wave hindcasting were validated against wave data archived by the Department of Fisheries and Oceans (DFO) for Lake St. Clair (buoy C45147). Wave data for Lake St. Clair was available between 2000 and 2019. The limited dataset provided minimal comparison for extreme wind events, however, the magnitude and relative frequency of wave events recorded at the Lake St. Clair buoy throughout the 20-year period were in general agreement with the predicted wave heights.

3.2.4.4 Nearshore Wave Transformations

The wave characteristics determined from parametric hindcasting are representative of offshore wave conditions. Nearshore wave transformations such as wave shoaling and wave breaking must be taken into consideration to determine wave conditions along the shoreline. Shuto's Non-Linear Shoaling (1974) and Goda's formulation for wave breaking (1985) were applied to transform the offshore waves to depth-limited nearshore waves for decreasing water depths.

To accurately estimate nearshore lakebed slopes for the project shoreline, bathymetric data for Lake St. Clair, collected in Fall 2019, was consulted. The bathymetric profiles (31 in total) were grouped into four representative beach profiles, shown in Figure 3.15. Each of the four profiles were utilized in nearshore wave transformation calculations to determine the relationship between water depth and significant wave height. Water depths were based on a 100-year lake level of +176.4 m G.S.C. Differences in significant breaking wave height between the four profiles were minimal, thus an average from all profiles was determined for use in overtopping and runup analysis. The 100-year outputs from nearshore wave transformation were used in overtopping and runup analysis and are presented in Table 3.8.

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Figure 3.15 Representative shoreline profiles for Lake St. Clair within the project area

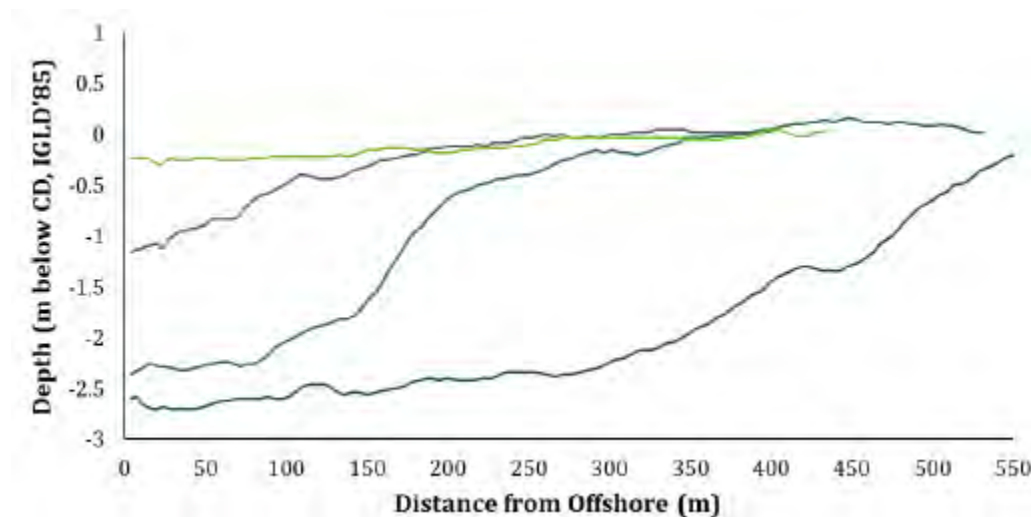


Table 3.8 Results from nearshore wave transformations for 100-year wave conditions

Water Depth (m)	Significant Wave Height, H_b (m)	Maximum Wave Height, H_{max} (m)	Deepwater Wave Height, H_o (m)	Wave Period, T_p (seconds)	Wave Length, L (m)
2.2	1.33	1.72	1.74	5.3	23.71
2.0	1.23	1.59	1.74	5.3	22.72
1.8	1.11	1.45	1.74	5.3	21.65
1.6	1.00	1.32	1.74	5.3	20.50
1.4	0.90	1.19	1.74	5.3	19.26
1.2	0.79	1.08	1.74	5.3	17.90
1.0	0.69	0.95	1.74	5.3	16.40

3.2.4.5 Wave Overtopping and Beach Runup

Flood contributions from wave overtopping and runup were considered for a range of beach slopes and shoreline structures. Toe and crest elevations were selected to cover the range of conditions present on the Lake St. Clair project shoreline. This range was determined from the lake depths and shoreline topographic surveys. Based on these ranges, three toe (base of wall) and three crest elevations (top of wall) were selected and tested in combination to establish matrices of overtopping scenarios for both vertical and sloping structures. The toe and crest elevations used in the analysis, along

3.41



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with the overtopping analysis results, are provided in Table 3.9. Overtopping results were based on an average of two methods: EuroTop (2016) and Goda (2010).

Table 3.9 Summary of results from overtopping analysis

VERTICAL STRUCTURE - Overtopping (l/s*m)				
Elevation (m IGLD85')		Toe		
Crest	176.5	1204	1042	884
	177.0	215	137	76
	177.5	45	22	9
SLOPING STRUCTURE - Overtopping (l/s*m)				
Elevation (m IGLD85')		Toe		
Crest	176.5	192	143	101
	177.0	83	51	27
	177.5	31	15	6

An analysis of beach runup during the 100-year wave event was performed for the pockets of sandy beach shoreline in the project study area. Beach slopes were observed to range from 1:10 to 1:20. The steeper slopes are found on long straight sections of shoreline, while the more gradual slopes occur in fillet beaches on either side of shore perpendicular infrastructure (e.g., jetties). Wave runup was calculated for both slopes, assuming a smooth sandy beach (reduction factor = 1). Various methods were used for these calculations (Hunt, 1959; MNR, 2001; Holman, 1986; Modified Mase, 1989) and an average for both beach slopes is presented in Table 3.10. Runup values were added to the 100-year lake level (e.g., 176.4 m IGLD85' for Belle River to Pike Creek) to establish the regulatory flood hazard limit (100-year water level plus an allowance for wave uprush), which are also provided in Table 3.10 for the two beach slopes. These data were used to map the Flood Hazard Limit discussed in Section 4.0.

Table 3.10 Summary of results from beach runup analysis for Reach 1

Slope	R2% (m)	Flood Elevation (m IGLD85')
1:10	1.21	+177.61
1:20	0.67	+177.07

3.2.5 Climate Change Impacts

The monthly mean water levels on Lake St. Clair from 1918 to 2019 are plotted in Figure 3.16. The lake has fluctuated between periods of highs and lows based on the amount of precipitation delivered to the Great Lakes watershed and losses due to

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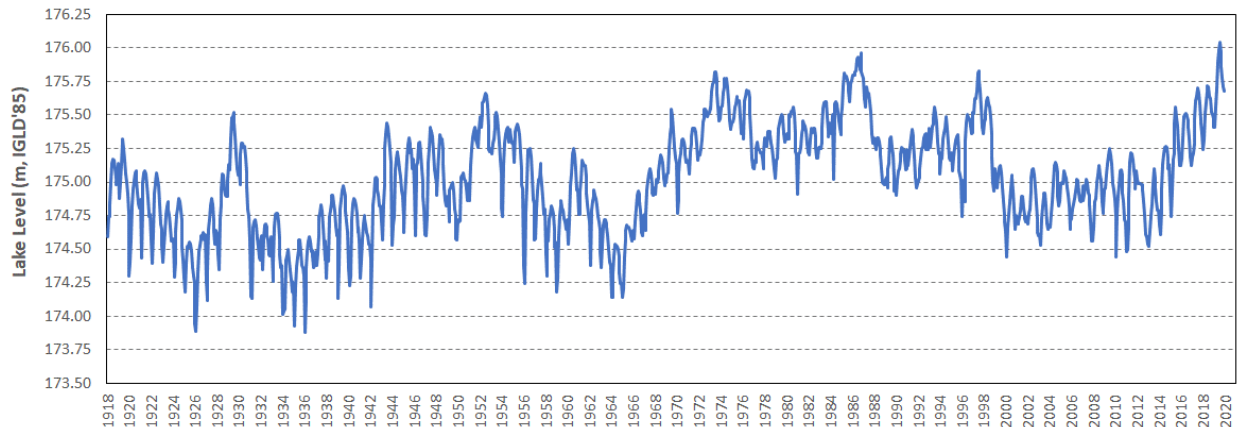
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evaporation, evapotranspiration, and outflow via the Detroit River. In 2019, Lake St. Clair established a new record monthly mean water level.

Figure 3.16 Monthly Mean Water Levels on Lake St. Clair (ECCC)



3.2.5.1 Projected Impacts on Future Lake Levels

In a recent report from Environment and Climate Change Canada (Seglenieks and Temgoua, 2021), projections of future lake levels were summarized for global temperature increases of 1.5 to 3.0 degrees Celsius. Data on precipitation, evaporation, and runoff for the analysis was extracted from 13 pairs of Global and Regional Climate Models from the Coupled Model Intercomparison Project Phase 5 (CMIP5). Based on the modelling results, the historical variability in measured lake levels is projected to continue (i.e., periods of highs and lows). However, due to increases in precipitation with a warming climate, both mean lake levels and extreme highs are projected to increase in the future. Refer to Figure 3.17 from Seglenieks and Temgoua (2021). For some of the modelled scenarios, water levels are 0.5 m to over 1.0 m higher than the measured historical data on Lake St. Clair.

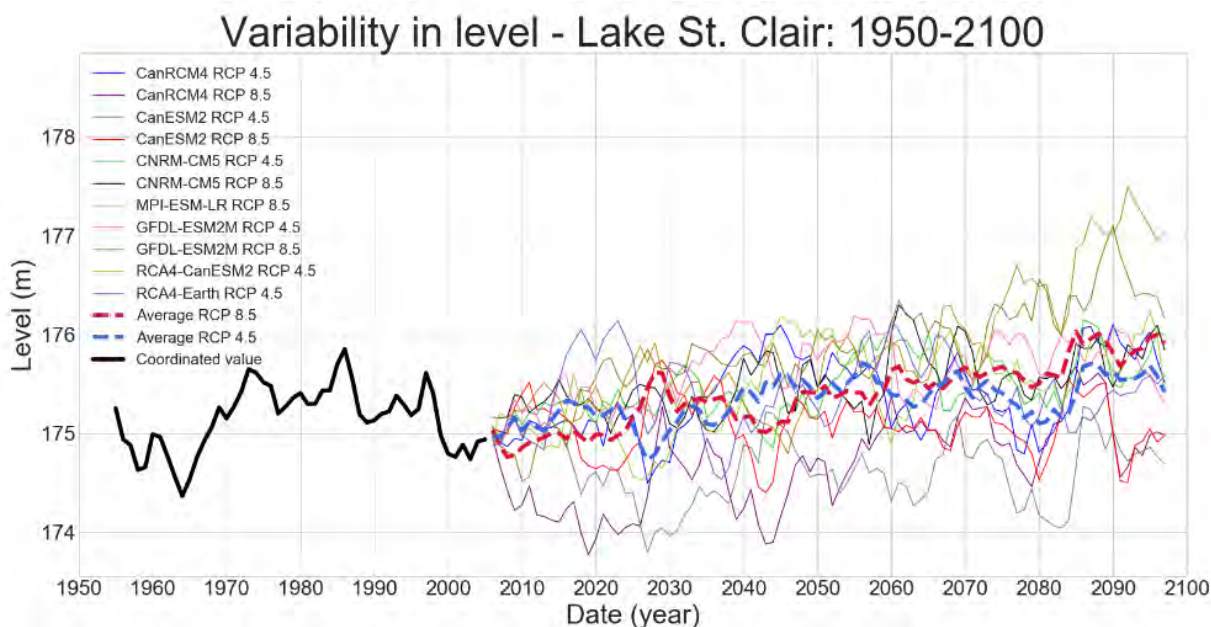


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Figure 3.17 Projected Future Lake St. Clair Water Levels for Different Global Warming Trends and GCM-RCM Simulations (from Seglenieks and Temgoua, 2021)



The ECCC results on future lake levels are also summarized as probability of exceedance relative to the historical baseline condition from 1961 to 2000. The results for the 1% (100-year) and 50% exceedance (average lake levels) for increases in global mean temperatures from 1.5 and 3.0 degrees Celsius are summarized in Table 3.11. These data indicate that as temperatures in the Great Lakes Basin continue to increase in the future, average lake levels will increase slowly over time (refer to the 50% exceedance results in Table 3.11).

More importantly for the hazard mapping and Shoreline Management Plan, there is an increase in the projected high lake levels for the various warming estimates (refer to 1% exceedance levels in Table 3.11, which is similar statistically to a 100-year static lake level). For other risk assessments in the Great Lakes, Zuzek Inc. is using the average increase in the 1% lake levels for 1.5 and 2.0 degrees Celsius of future warming to integrate climate change impacts. If this approach was applied on Lake St. Clair, the 100-year lake level would be approximately 0.38 m higher than the historical limit based on measured data.

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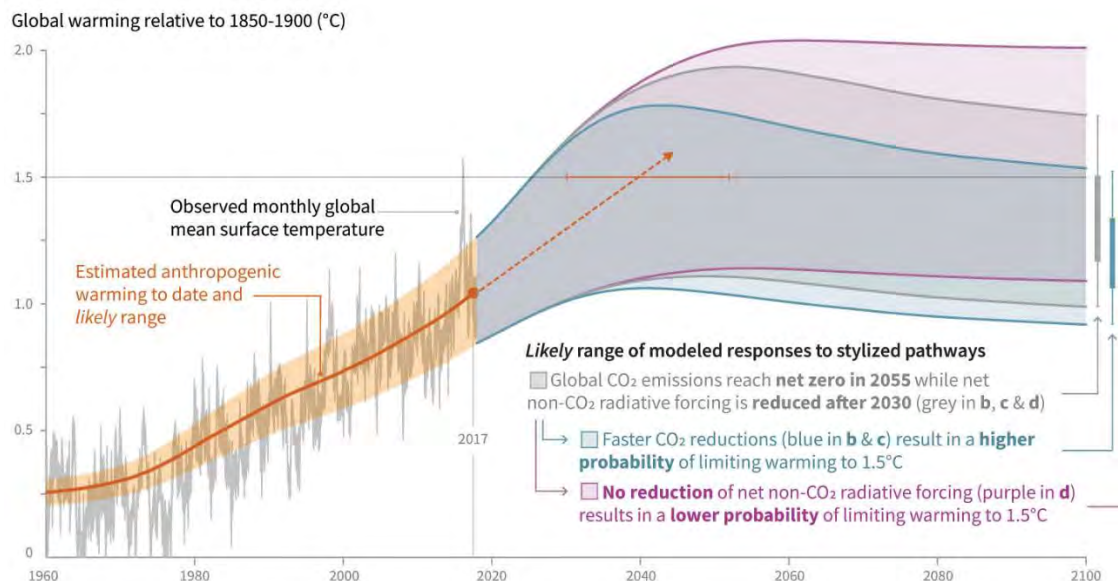
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Table 3.11 Projected Change in Future Lake Level Extremes (from Seglenieks and Temgoua, 2021)

Percent Exceedance	Projected Increase in Lake Level from Historical Baseline				
	1.5 C of Warming	2.0 C of Warming	2.5 C of Warming	3.0 C of Warming	Average of 1.5 and 2.0 C
1%	0.34 m	0.42 m	0.60 m	1.00 m	0.38 m
50%	-0.02 m	0.09 m	0.14 m	0.23 m	n/a

The 2018 report from the Intergovernmental Panel on Climate Change (IPCC) puts these projected increases in global warming in context by presenting a timeline of historical CO₂ emission and future scenarios. There is high confidence that global mean temperatures will surpass 1.5 degrees Celsius between 2030 and 2052 if CO₂ emissions continue to increase at the current rate (refer to Figure 3.18).

Figure 3.18 Observed Global Temperature Change and Projected Increases for Different CO₂ Emission Scenarios (IPCC, 2018)



In Canada's Changing Climate report by Bush and Lemmen (2019), Chapter 4 on temperature and precipitation states that it is virtually certain Canada's climate will continue to warm in the future, with the projected increase in mean temperature in Canada being about twice the global estimate (Zhang, X. et al, 2019). The results presented specifically for Ontario, project an increase in annual mean surface air



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temperature from 1.5 to 2.3 degrees Celsius by 2030-2050 (Zhang, X. et al, 2019) relative to 1986 to 2005.

Lake surface temperatures have been increasing across the Great Lakes for several decades, including Lake St. Clair (Irambona et al, 2017). Consequently, mean annual ice cover across the Great Lakes has been decreasing since 1975 (Wang et al, 2012). With the projected future warming for Canada's climate (Zhang, X. et al, 2019), these trends will continue. Using 1986 to 2005 as a baseline, projected increases in surface temperature across the Great Lakes for mid-century (2040-2059) and late-century (2080-2099) were recently evaluated with data from the Canadian Regional Climate Model Version 5 (CRCM5) with boundary conditions provided by four Global Climate Models, including CanESM2, NCRM-CM5, MPI-ESM-LR and GFDL-ESM2M (Seglenieks and Temgoua, 2021). The results for the CRCM5/CanESM2 simulation are presented in Figure 3.19. It is difficult to interpret the impacts to Lake St. Clair due to the size of the graphic, but if the southern portion of Lake Huron or the Western Basin of Lake Erie are reviewed, lake surface temperature increases of 0.5 to 3.0 degrees Celsius are projected for the mid- and late century.

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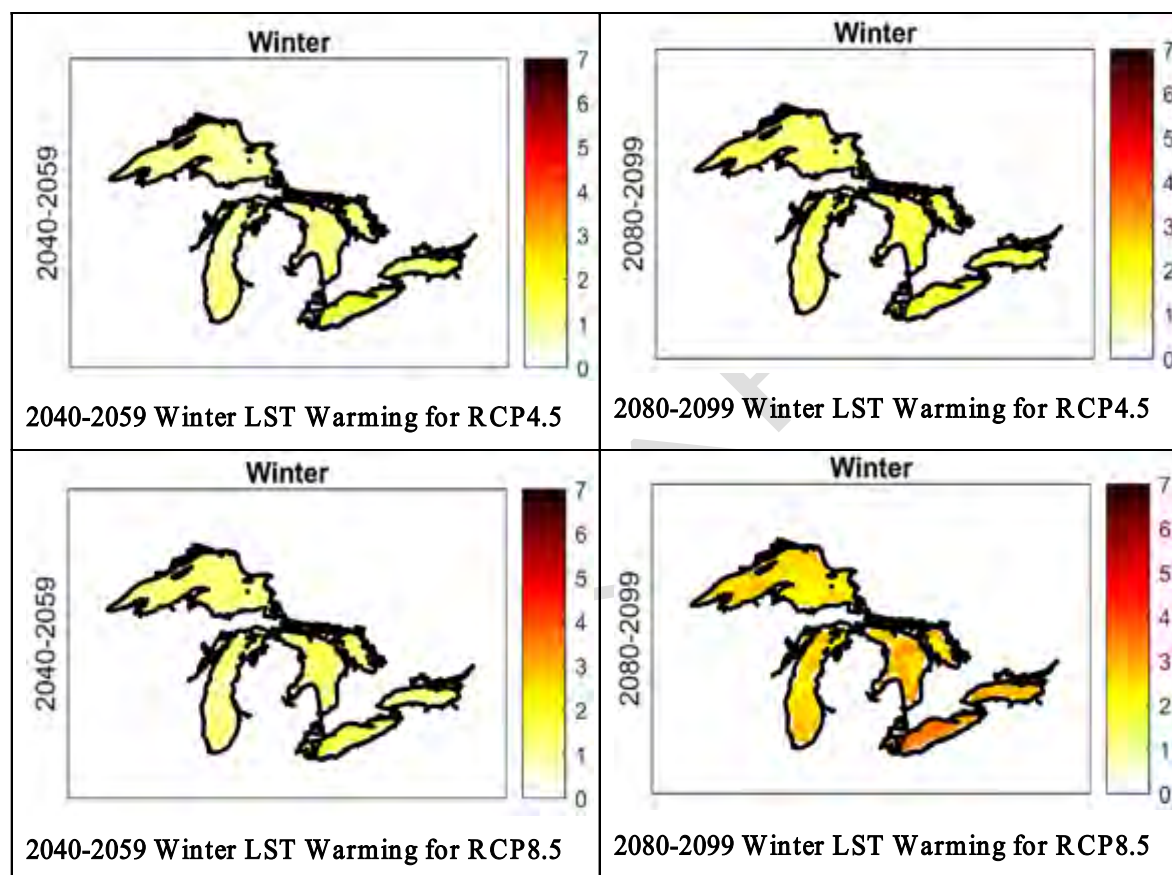
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Figure 3.19 Mid- and Late-Century Lake Surface Temperature Warming for RCP4.5 (top) and RCP8.5 (bottom) Simulations from CRCM5/CanESM2 Relative to 1986-2005 (Seglenieks and Temgoua, 2021)



This amount of warming resulted in significant loss of ice cover in the future CRCM5 simulations, with estimates for neighbouring Lake Huron and Lake Erie ranging from 30% to 60% for mid-century to 60% to 90% by late-century. These reductions in lake ice cover will expose the Lake St. Clair shoreline to more erosive winter storms and flooding events. Refer to the schematic diagram of reduced winter ice cover on Lake St. Clair in Figure 3.20. While a quantitative estimate of the change in exposure for the shoreline at the St. Clair Unit is not available, a recent analysis on Lake Erie showed that the loss of future ice cover would increase the exposure of the north shore to winter wave energy by 70 to 120% (Zuzek Inc., 2019).

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Figure 3.20 Schematic Diagram Showing Potential Loss of Lake Ice Due to Warming on Lake St. Clair



3.3 Analysis of Land Use Approaches to Shoreline Management

The following case studies provide shoreline management approaches and regulatory land use planning tools used for addressing growth along coastlines across Canada. Two specific examples are outlined where conditions are similar to Lakeshore in that much of the shoreline has been developed, and the areas of specific concern are, in large part, low lying.

Village of Port Stanley, Municipality of Central Elgin (Elgin County):

In 2015, the County of Elgin released a Shoreline Management Plan (W. F. Baird & Associates Coastal Engineers Ltd.) that incorporated updated technical mapping for the 100 year flood hazard along the north shore of Lake Erie, as determined by the guidance for determining this natural hazard as outlined by the Province of Ontario and Provincial Policy Statement.

Following that, the June 2021 Port Stanley Harbour Secondary Plan for a specific coastal region of the Municipality of Central Elgin contained a Coastal Risk Assessment that updated the development limits and restrictions pertaining to lake levels, flood hazard, erosion hazard and the dynamic beach in a manner that accounted for climate change. The assumed lake level elevation was increased by 0.35m from the 100 year flood hazard identified in 2015 based on update Climate Change Hazard mapping that was developed through the secondary plan process. Any new development that is

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within the 100 year climate change lake level, as determined through the study, will be required to comply with flood-proofing requirements of the Kettle Creek Conservation Authority (Port Stanley Harbour Plan, Dillion Consulting, June 2021).

Halifax Regional Municipality, Province of Nova Scotia:

In Nova Scotia, the Province has designated land use and zoning powers to the municipality through the Municipal Government Act, much like the Planning Act in Ontario. Halifax Regional Municipality and other municipalities develop planning strategies and bylaw to regulate land uses.

With coastal risk impacting a large area of the Halifax Harbour, the 25-year Regional Municipal Planning Strategy for the Halifax region recognized the importance of climate change and the need for a precautionary approach to minimize negative impacts of rising sea levels. In 2009, report was prepared that outlined three (3) possible future scenarios of flooding that may be experienced by the Halifax harbour and prepared a visual extent and depth of flooding for each event. The first scenario was based on the standard provincial practice for assessment of the flood level, the second scenario mapped the upper limit of the 2007 Intergovernmental Panel on Climate Change (IPCC) projections. The third assessed a flood based on more currently anticipated IPCC levels of concern due to an evolving understanding of climate change (Halifax Harbour Extreme Water Levels in the Context of Climate Change, D. L. Forbes, et al., 2009, Geological Survey of Canada).

The climate risks associated with sea level rise and coastal and overland flooding was integrated with an adaptation strategy for the Halifax waterfront area. Interim measures included an update to the Land Use By-law to ensure the minimum ground floor elevation was increased accordingly. The municipality has recognized that adaptation is an incremental process, using development agreements with all landowners within the impacted areas to ensure development is occurring appropriately with respect to the known and anticipated long-term changes (Planning for Sea Level Rise in Halifax Harbour, Natural Resources Canada, 2015).

In both examples, climate change lake levels were a key consideration incorporated into shoreline management planning and/or flood scenario mapping. In these instances, local municipalities exceeded the expectations of their associated Provincial or regional governments provided through technical guidance. The examples outlined above were analyzed and used to inform strategic direction of the recommendation of this Report, as contained in Section 5.0.



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4.0 Hazard Mapping

The steps followed to map shoreline hazards, including erosion, flooding, and dynamic beaches, are described in the following sections and consistent with the guidance in the Technical Guide (MNR, 2001) and Guidelines for Developing Schedules of Regulated Areas (CO & MNR, 2005). Section 4.2 discusses the maps generated to illustrate these shoreline hazards and visualize the climate change risks.

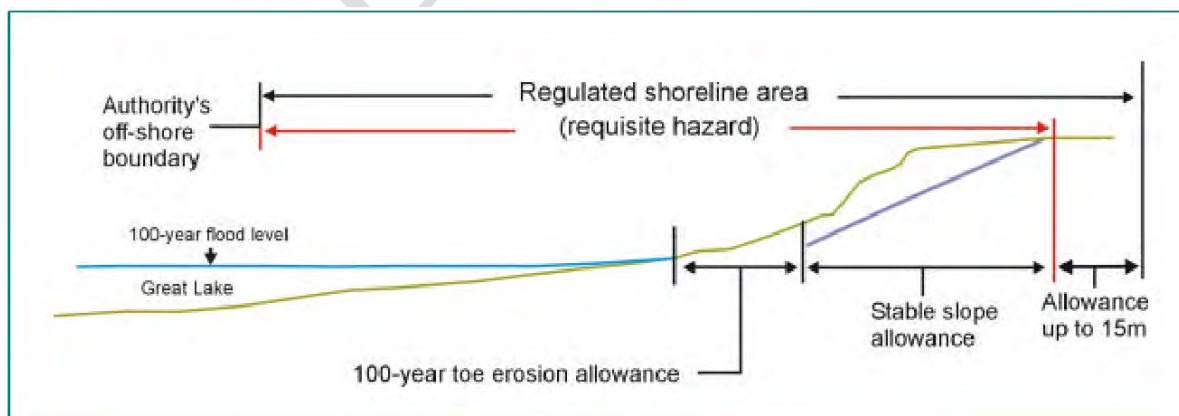
4.1 Hazard Definitions

The hazard definitions and how they are mapped are described below.

4.1.1 Erosion Hazard Limit

The erosion hazard limit setback is defined as a 100-year erosion allowance plus a stable slope allowance measured horizontally from the existing stable toe of slope. When Conservation Authorities identify their regulated area, an additional allowance of up to 15 metres can be added. A schematic of the setback methodology is provided in Figure 4.1. The outputs from this study will only map the 100-year erosion allowance and stable slope.

Figure 4.1 Erosion Hazard Setback Approach



In GIS, a baseline was digitized from the 2019 aerial photo to represent the existing stable toe of slope. Essex Region Conservation Authority (ERCA) provided 100-year erosion rates for three areas within the Municipality of Lakeshore:

- West of Belle River = 0.3 m/yr.

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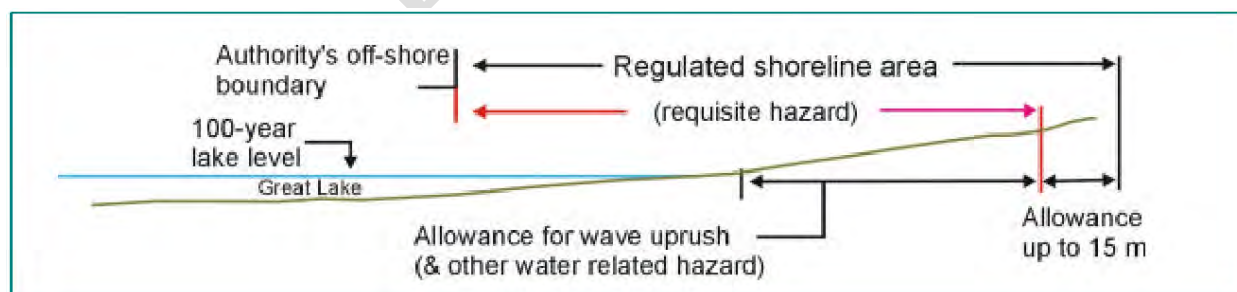
- East of Belle River to Comber side Rd. = 0.4 m/yr.
- Comber Side Rd. to Municipal limit (Thames Rivermouth) = 0.5 m/yr.

For the area west of Belle River, the 100-year erosion allowance is equal to a 30 m (100 years x 0.3 m/yr) setback from the baseline. For the area east of Belle River to Comber Side Road, the setback was determined to be 40 m (100 x 0.4), while east of Comber Side Road, the setback was 50 m (100 x 0.5). Refer to Section 4.2 for maps illustrating the erosion hazard limit.

4.1.2 Flood Hazard Limit

The flood hazard limit is defined as the 100-year lake level plus an allowance for wave uprush or in the absence of a calculation, 15 m measured inland. When the Conservation Authorities map their regulated area, an optional additional allowance of up to 15 metres also can be added. A schematic of the setback methodology is provided in Figure 4.2. The MNR Technical Guide (2001) provides additional information on the 15 m wave uprush component, including the application of wave runup calculations to define the setback based on site specific nearshore and beach slope, substrate, and local wave conditions. The approach followed for this study was summarized in Section 3.2.4.5 and includes site-specific calculation of beach runup for all exposed sections of shoreline. For wave overtopping situations (e.g., vertical seawalls), the standard 15 m allowance was used.

Figure 4.2 Flood Hazard Setback



The flood hazard limit was mapped in GIS and based on the following methodology:

1. Map the extent of the 100-yr lake level (as a flooded surface). Although information on a 100-year climate change lake level was presented in Section 3.2.5, there is currently no technical guidance in how to integrate this higher elevation from the Province of Ontario. Therefore, the flood hazard limit was mapped with the historical 100-year lake level.

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2. Add a 15 m setback from the shoreline for areas with wave overtopping.
3. Add a run-up setback equal to the 100-yr lake level + 70 cm run-up in sandy beach areas. The 100-yr lake level varied by region, as follows:
 - West limit to Belle River = 176.39 m (IGLD'85)
 - Belle River to Comber Side Road = 176.33 m (IGLD'85)
 - Comber Side Road to East Limit = 176.57 m (IGLD'85)

Note the actual transition at Comber Side Road is approximately 650 m west of Comber Road. Refer to Figure 4.3 for the location of the transition.

Figure 4.3 Transition at Stoney Point



A flood surface was created based on the 100-yr lake level for each of the three locations mentioned above. This surface was merged with 15m buffer of the shoreline, which represented the standard 15 m allowance for wave uprush. Based on the wave run-up analysis, it was determined that adding 70 cm to the 100-yr lake levels would account for wave run-up at properties without shore protection (open coast). The

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shoreline for unprotected properties (i.e., a natural beach slope) was buffered using the 100-yr lake level + 70 cm. Where the wave run-up was greater than the standard 15 m allowance, the flood hazard surface was edited to include this wave run-up setback. The result was a flood hazard limit polygon capturing the 100-year lake level elevation plus an allowance for wave affects.

Note the following:

- All flooded areas directly connected to Lake St. Clair, or via flooded riverbanks were included in the flood hazard limit polygon dataset.
- For lake flooding propagating up the rivers, only the riverbanks directly connected to the lake were included. Identifying localized hydraulic connections to the main rivers, such as drainage ditches, is beyond the resolution of the hazard mapping.
- Inland flooding due to riverbank overtopping was considered using the same 100-year lake level as the shoreline. Rainfall affects on river flooding was not part of this analysis.
- The smallest area evaluated for flooding was 0.25 acres. Non-flooded (dry) areas that were greater than 0.25 acres were preserved. Areas smaller than 0.25 and intersecting the flood hazard limit were merged into the flood hazard limit polygon.
- The CPR railway (located south of the CNR railway) is the southern limit of the analysis. No flood polygons were provided south of this limit.

Refer to Section 4.2 for maps illustrating the flood hazard limit.

4.1.3 Dynamic Beach Hazard Limit

The dynamic beach hazard limit is defined as the 100-year flood level, an allowance for wave uprush, plus a 30 m allowance to account for the dynamic nature of the beach and dune system, including periods of erosion and accretion. When the Conservation Authorities map their regulated area, an additional allowance of up to 15 metres can be added to accommodate the dynamic beach hazard limit (refer to Figure 4.4).

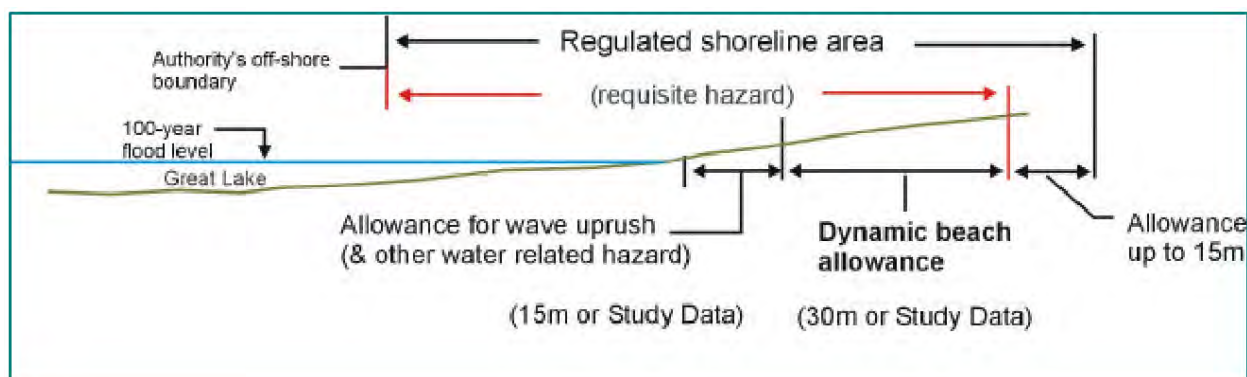


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Figure 4.4 Dynamic Beach Hazard Limit



In GIS, only beaches with a minimum length of 100 m and a minimum width of 10 m were considered as dynamic. They must also be at least 0.3 m thick. The only beaches that met these criteria were the fillet beaches adjacent to Belle River marina.

The fillet beaches at Belle River were completely within the flood hazard limit. As a result, the dynamic beach hazard was limited to the backside of the beaches (the inland limit of sand and beach adjustments).

Refer to Section 4.2 for maps illustrating the dynamic beach hazard limit.

4.2 Mapping and 3D Visualizations

A map template was developed to visualize the hazards on full size 24 by 36-inch maps. Each map includes a summary of the hazards, base mapping, definitions, data sources, a PGO and PEO stamp, a disclaimer, and the tile index. Refer to Figure 4.5 for a sample of the template for Map 2 (of 35).

A tile index (i.e., continuous map panels) was prepared to provide complete coverage of the shoreline in the study area. Figure 4.6 provides an overview of the 35 tiles needed to map the shoreline of the Municipality of Lakeshore. In several location, such as Crystal Beach Road and Lighthouse Cove, the extent of the coastal flooding for the 100-year lake level extends more than 1 km inland. While these areas are not completely covered with the original 35 map tiles, the digital mapping is available for viewing with a GIS software platform and should be consulted for regulatory decisions pertaining to new development proposals.

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Figure 4.5 Example of Map Tile

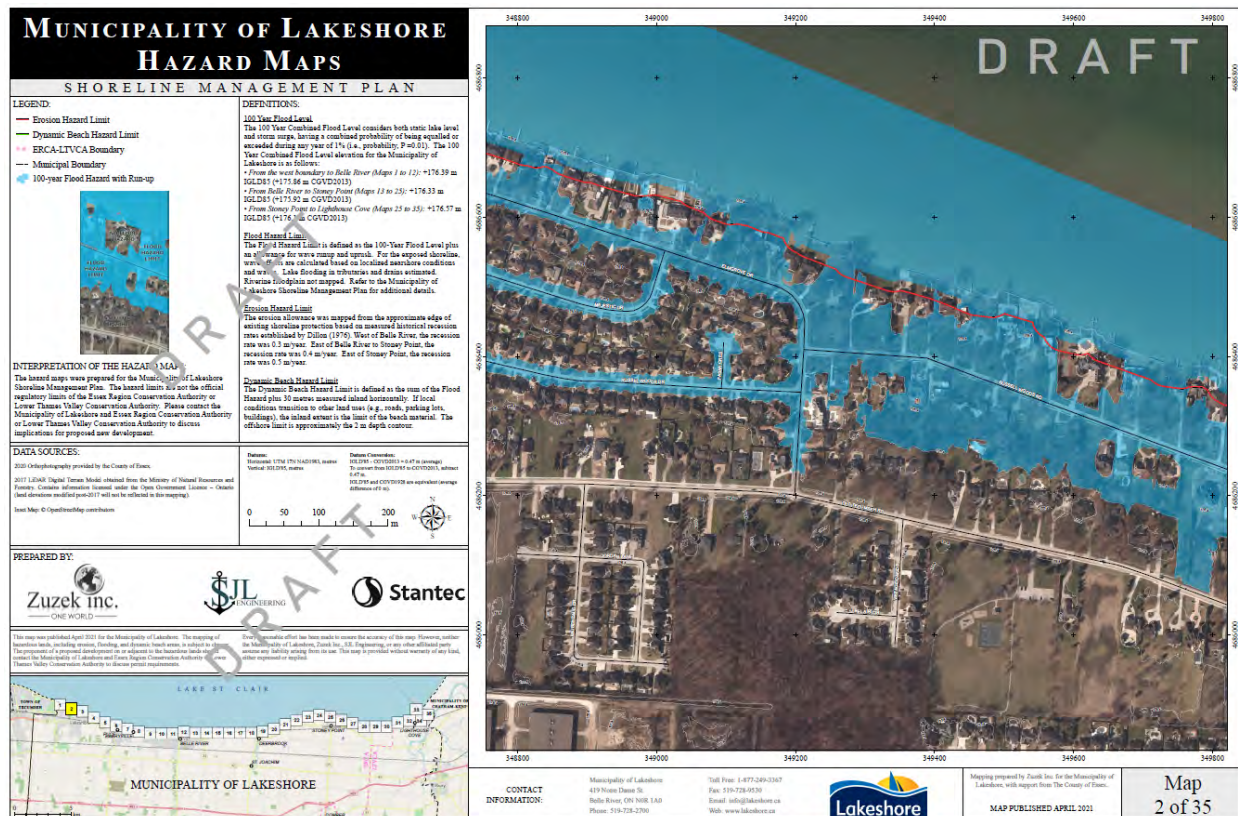


Figure 4.6 Map Tile Index



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4.3 Depth of Coastal Flooding in Lakeshore

The depth of flooding within the flood hazard limit was estimated using the 2017 LiDAR elevation surface and the flood hazard limit for each of the three zones (West limit to Belle River, Belle River to Comber Side Road, and Comber Side Road to East Limit). In GIS, the flood hazard limit polygon was converted to a surface and assigned the value of the 100-year flood level, as this elevation determines the inland extent of flooding. The 2017 land elevation was then subtracted from the flood hazard level, resulting in a depth of flooding surface. This process was completed for the three zones listed above. The spatial extent of the flooding and the depth of flooding surface is presented in Figure 4.7 for the study area, which is bound by the Canadian Pacific Railway in the south (flooding may extend further south and be influenced by riverine processes which were not considered for this investigation). As discussed in Section 4.2, the inland extent of the flood hazard limit extends more than 1 km south of the shoreline in several locations, most notably from Stoney Point to Lighthouse Cove.

Figure 4.7 Depth of Flooding (to southern study limit, CP Railway)



Map 1 of 35 for the depth of flooding series is presented in Figure 4.8 for the western study limit adjacent to Pike Creek. The flood depths are visualized in increments of 0.3 m. Depths greater than 0.3 m can impede emergency ingress and egress for vehicles. As seen on the map, some of the roads feature water depths in the range of 0.61 to 0.9 m. Further analysis of this mapping product by the Lakeshore first responders is required to identify inaccessible roads and communities based on their vehicle limits for driving in a flood.

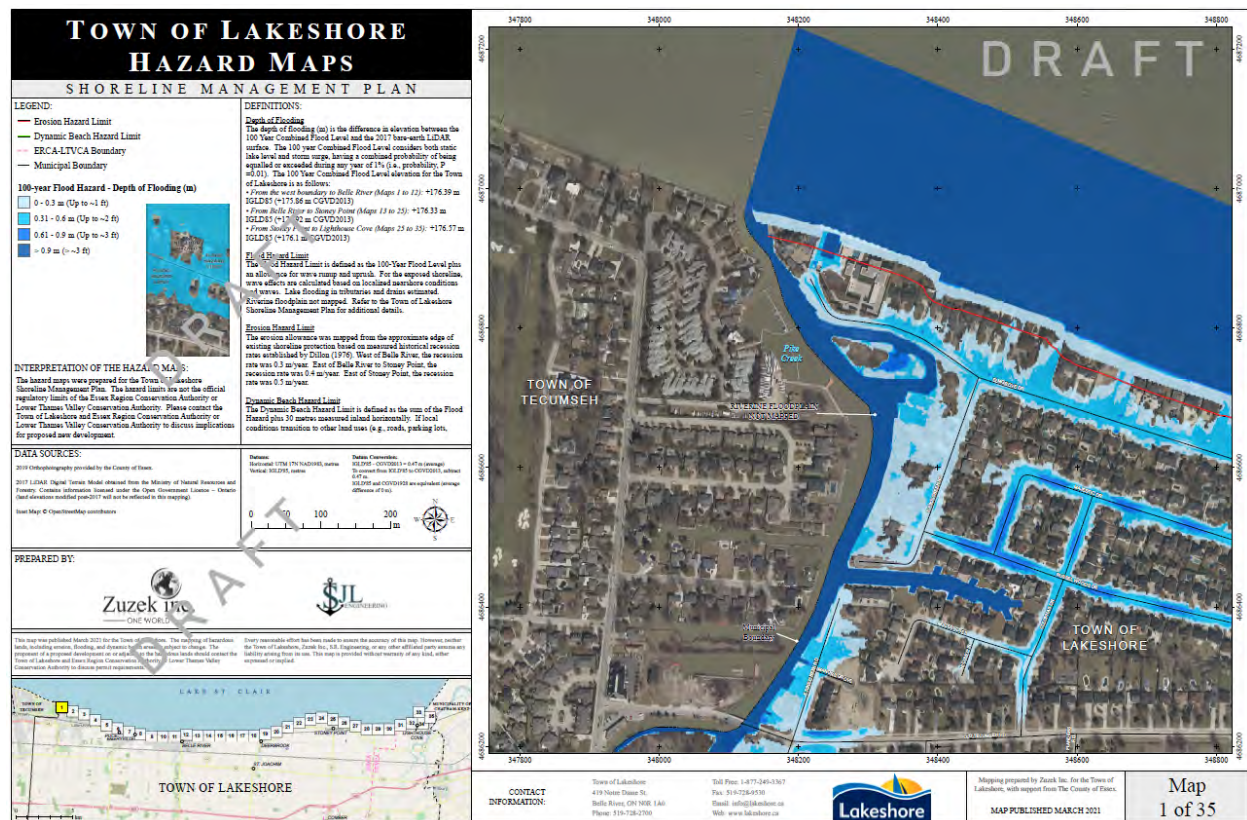
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Figure 4.8 Depth of Flooding Hazard Map



4.4 3D Renderings of Flood Risk

Three dimensional (3D) renderings were generated at three locations to visualize the extent of the flood risk in Lakeshore for the 100-year lake level and the 100-year climate change lake level. The visualizations were produced for three high density areas, including Pike Creek, Puce River and Belle River. A total of three water levels were visualized at each location:

- Average Summer Water Level: 175.2 m
- 100-year Lake Level: 176.39 m
- 100-year Climate Change Lake Level: 176.77 m



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The renderings were generated using sophisticated, technical software that incorporated high-resolution topographic data to represent actual land and water level elevations. Aerial imagery is draped over the land elevations and supplemented with 3D features, such as trees and buildings. The extent and spatial distribution of flooding is commensurate with that which is shown in the flood maps featured in in Section 4.3.

The first sequence of images was generated looking southwest at Pike Creek and is presented in the following figures:

- Figure 4.9 – Pike Creek during non-storm conditions with an average summer water level of 175.2 m IGLD'85.
- Figure 4.10 – Pike Creek during the 100-year lake level of 176.39 m IGLD'85.
- Figure 4.11 – Pike Creek flooding during the 100-year climate change lake level of 176.77 m IGLD'85.

Refer to Appendix F for the renderings at the Puce River and Belle River. The renderings highlight a key finding from the study: 1) the Municipality of Lakeshore has extensive coastal flood exposure based on historical extremes (e.g., 100-year lake level), and 2) climate change will make people, buildings, and infrastructure more vulnerable. For example, emergency access is already limited by road flooding and climate change will make even more communities inaccessible during a flood.

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Figure 4.9 Pike Creek 175.2 m (average summer water level)



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Figure 4.10 Pike Creek at 176.39 m (100-year Lake Level)



Figure 4.11 Pike Creek 176.77 (100-year Climate Change Lake Level)



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5.0 Shoreline Management Recommendations

The shoreline management recommendations are summarized in Section 5.0. The Municipality of Lakeshore has acute flood hazard risks along the shoreline and in the river mouths. Consequently, access for standard emergency vehicles (e.g., fire, ambulance, police) is compromised for many parts of the study area during the 100-year lake level. During times of flooding, vehicles and people have no way of safe ingress and egress. In other words, residents may not be able to evacuate safely, and first responders may not be able to reach people in need.

Another notable trend throughout the study area is the age of the development and relationship to flood risk. In locations where new construction has occurred on regulated lands, the Conservation Authority have been successful at ensuring the new buildings are elevated above the 100-year lake level. Refer to Figure 5.1 (plan view mapping and oblique aerial view, where two new homes are protected from the 100-year lake level (left), while older development is inundated).

Figure 5.1 New Homes Properly Flood Proofed and at-risk Older Development (left mapping of the Flood Hazard Limit and right oblique photo)



5.1 Shoreline Reaches

The study area shoreline has been sub-divided into seven reaches to further evaluate coastal hazards, risks, mitigation alternatives, and recommendations for shoreline management. The reach boundaries were delineated by major physical boundaries, such as the rivermouths in the west, and the distinct coastal communities in the east (e.g., Stoney Point, Crystal Beach, and Lighthouse Cove) and varying flood risk. The reaches include:

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- Reach 1: Pike Creek to Puce River
- Reach 2: Puce River to Belle River
- Reach 3: Belle River to Ruscom River
- Reach 4: Ruscom River to Stoney Point West
- Reach 5: Stoney Point East
- Reach 6: Crystal Beach Road to Couture Beach Road
- Reach 7: Lighthouse Cove

5.2 Hazard Mitigation Approaches

Four general hazard mitigation approaches were considered for the Shoreline Management Plan, including:

- **Avoid:** reduce future exposure by ensuring new development does not occur on hazardous land. The existing development setbacks for erosion and flooding embrace the principles of ‘avoid’ and are based on a 100-year planning horizon, as per provincial policy. Adopting a longer planning horizon would increase the longevity of the “avoid” strategy and the overall resilience of the shoreline. Avoid is an effective strategy for new development but does not address legacy development, where vulnerability to coastal hazards can be significant. This is particularly relevant for Lakeshore, since much of the older development along the lake is flood prone. Another challenge faced by communities across Ontario is the projected increase in the 100-year lake level due to climate change. To build resilient coastal communities requires a long-term perspective and consideration of future extremes when applying the “avoid” strategy.
- **Accommodate:** an adaptive strategy that allows for continued occupation of coastal properties while changes to human activities or infrastructure are made to reduce coastal hazards and vulnerability. For example, raising the foundation of a flood-prone building will reduce vulnerability and future flood risks. Refer to the adjacent example where a home was raised



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onto a new higher foundation. When considering “accommodate strategies”, the potential for negative impacts to adjacent properties must be evaluated, concepts must be consistent with local zoning, and all agency permits are required. Innovation is encouraged with this strategy, provided solutions are safe and consistent with regulations. For example, float homes are currently not permitted in the Municipality of Lakeshore and not appropriate for the energetic wave climate on Lake St. Clair. Furthermore, the consideration of ‘green infrastructure’ to reduce flood risk and the incorporation of flood hazard management measures into the design of these communities (i.e. parks, open space, fire creaks, naturalized areas) may have beneficial results, provided development is consistent with provincial guidance.

- **Retreat/Re-align:** a strategic decision to withdraw or relocate public and private assets exposed to coastal hazards when the costs to accommodate or protect are either not affordable, fail to produce a positive benefit-cost ratio, fail to adequately reduce the risk, or are not permitted due to regulations or legislation. This strategy is viable on a lot-by-lot basis and has been used successfully on the eroding bluff shoreline of Lake Erie (Zuzek Inc., 2000). It is also applicable at the community scale for infrastructure (e.g., roads) and buildings, but will require extensive consultation and possibly land acquisition from willing sellers. The retreat/re-align strategy may also require substantial funding to restore the formerly floodprone lands.
- **Protect:** the traditional approach to protect people, property, and infrastructure. Protect has been used extensively along Lakeshore’s shoreline, with the amount of shoreline armouring ranging from 69% to 94% across the reaches. Examples include grey infrastructure such as armour stone revetments and seawalls, flood berms and levees, and nature-based solutions such as building coastal dunes, planting vegetation, and artificially nourishing beaches. Structures such as seawalls and armour stone revetments should be designed by a qualified engineer and constructed based on the details and specifications included on stamped engineering drawings. The proponent is required to secure all necessary construction permits and environmental approvals for the Protect options.

5.3 Recommendations for Shoreline Reaches

The recommendations for the shoreline have been summarized in reach templates in Appendix G. The template includes the following information:



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- **Local Conditions:** The shoreline is described including important infrastructure and natural features.
- **Depth of Road Flooding and Emergency Access:** The flood hazard mapping, specifically the depth of flooding, was used to assess the potential impacts of road flooding during the 100-year lake level.
- **Summary of Natural Hazards:** The applicable long-term erosion rate and 100-year lake level is provided for each shoreline reach. The flood hazard limit was mapped with the 100-year lake level. To put the current risks in perspective, the projected impact of climate change on the 100-year lake level is also noted in the reach summaries (e.g., higher by 0.38 m).
- **Summary of Flooding and Erosion Threats:** The hazard mapping was used to identify critical flood and erosion vulnerabilities in each shoreline reach.
- **Existing Shoreline Protection Structures:** The shoreline protection database is summarized for each shoreline reach, including the percentage of shoreline armoured versus natural, the type of existing shoreline protection structures, and an assessment of the level of design and structure condition.
- **Recommendations for Shoreline Protection Structures:** Based on the summary statistics, reach specific recommendations are provided including the need for community scale solutions.
- **Shoreline Management Recommendations:** The reach summaries conclude with overall shoreline management recommendations.

5.3.1 Recommendations for Shoreline Protection Structures

The following provides a summary of recommendations by Zuzek Inc. for shoreline protection structures to protect life and property from natural hazards along the shoreline. To understand which recommendations apply to which shoreline reach, please refer to the templates in Appendix G.

- a) Unprotected properties should be protected with engineered shore protection to reduce risk of erosion and flooding hazards, including propagation of coastal flooding inland. Options include berms or levees, beach systems with sufficient crest elevations to mitigate wave overtopping, removable flood barriers, revetments, and seawalls.
- b) Raising the crest of existing shoreline protection structures is an effective mitigation strategy for wave overtopping and interior flooding. Another common

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mitigation approach is the construction of a rock berm at the base of existing vertical walls to dissipate incoming wave energy before it leads to wave overtopping at seawalls. Permits for in-water work will be required.

- c) Natural beach shorelines provide desirable access to the lake but are low lying and contribute significantly to the flood risk in Lakeshore. Berms or dikes should be constructed landward of the sand beaches to reduce flood risk. Beach nourishment may also reduce flood risk during coastal storms.
- d) Other shoreline protection options to reduce wave overtopping and flooding include the addition of a return wall, a new stepped crest, or a secondary wall further inland.
- e) Future studies should establish standard engineering design criteria for shoreline protection structures along the lake and riverbanks to reduce wave overtopping volumes and wave uprush, which contributes to lakeshore and interior flooding. Figure 5.2 and Figure 5.3 provide examples of general guidance on toe and crest elevation for shoreline protection structures to achieve overtopping standards for the 100-year lake level of (176.39 m, IGLD'85 representative of Pike Creek to Belle River).
- f) Failed shore protection should be repaired to provide a continuous barrier to coastal flooding. Repairs can use conventional engineering methods such as seawalls or revetments, or integrate hybrid approaches such as berms, living shoreline, and other nature-based solutions.
- g) All sandbags and temporary geo-bags should be removed from the shoreline when a permanent engineered solution is installed.
- h) Given the severity of the residential and road flooding, a continuous community scale shoreline protection plan should be pursued on a reach-by-reach basis, with uniform design criteria and 100% participation by landowners to increase resilience to coastal flooding and higher lake levels due to climate change.
- i) The shore protection between the terminus of Crystal Beach Road and Couture Beach Road should be monitored, as it is the last line of defence from erosion for the CNR tracks.



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Figure 5.2 Relationship between Toe and Crest Elevation for Sloping Shore Protection (1.5H:1.0V)

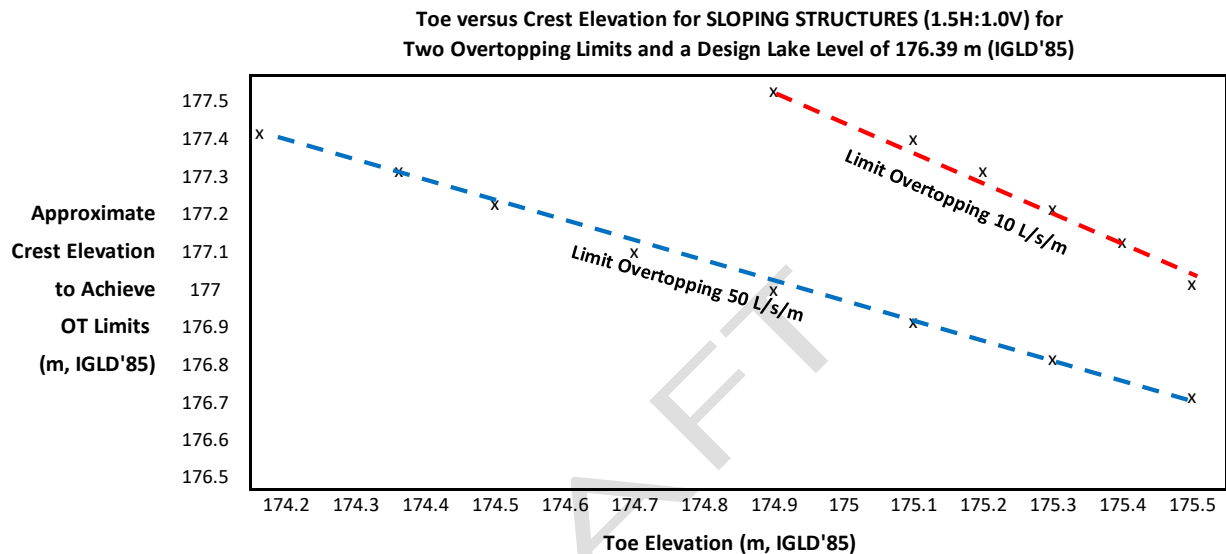
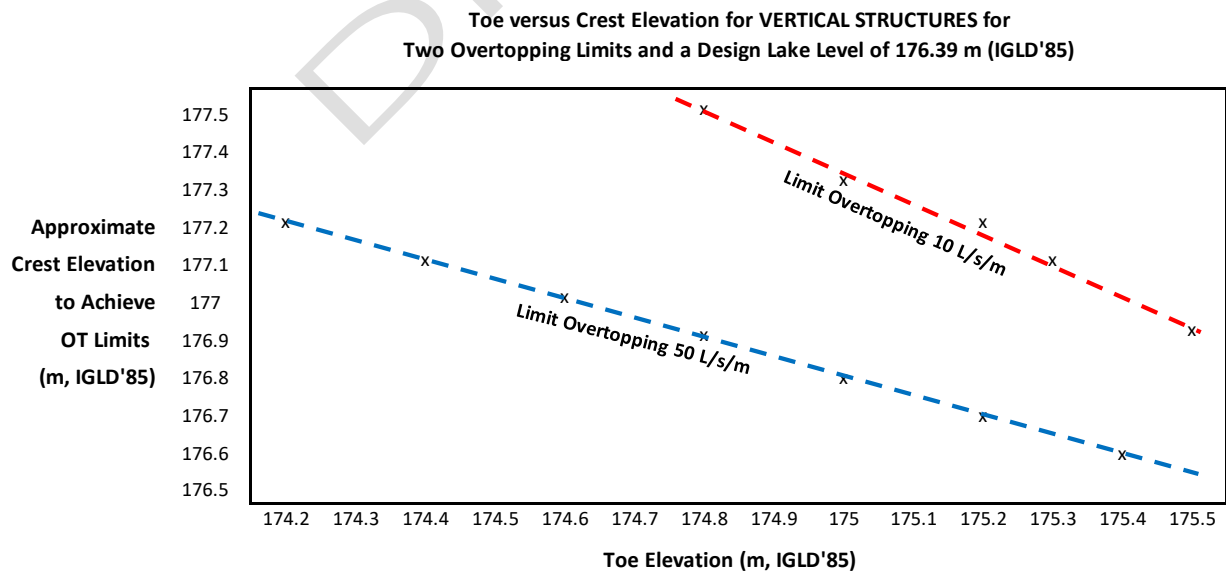


Figure 5.3 Toe and Crest Elevation Relationships for Vertical Structures and a Design Lake Level of 176.39m IGLD'85



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5.3.2 Shoreline Management Recommendations

The following provides a summary of the shoreline management recommendations provided by Zuzek Inc. to protect life and property from natural hazards along the shoreline. To understand which recommendation(s) apply to which shoreline reach, please refer to the reach templates in Appendix G.

- a) The “Avoid” approach is the most effective long-term approach to limit further development on hazardous lands and should be the cornerstone of land use planning on undeveloped lands within the Municipality of Lakeshore.
- b) Adopt standard engineering criteria for shoreline protection structures, including crest elevation, and flood mitigation requirements for lakefront and riverfront properties. Leverage the results from this study to evaluate cost-effective long-term shoreline protection options that also enhance access to the waters edge (if desired by landowners) and improve local habitat. Pursue community scale solutions for the flood prone areas at a reach scale to increase resilience to coastal hazards with continuous shoreline protection and flood mitigation.
- c) A reach- or community-scale program to flood proof existing vulnerable buildings is required. For example, foundations and lot grades can be increased if the proposed changes are consistent with Conservation Authority Regulations.
- d) Further assessment of emergency vehicle access during the 100-year lake level and the 100-year climate change lake level is required, as water depths range from 0.3 m to 0.9 m in the study area. An emergency response plan is needed if vehicle access is not possible in these areas.
- e) Planning for future development should not proceed on hazardous lands unless emergency vehicle access is attainable during the 100-year lake level and during the 100-year climate change lake level, as per Section 3.1.2 of the Provincial Policy Statement 2020.
- f) Failed or low-crested shoreline protection should be upgraded based on new reach-scale standards.
- g) A long-term strategy is needed to protect the shoreline and wetlands of Ruscom Shores Conservation Area with a nature-based approach, such as a headland beach system. An offset exists between the armoured shoreline of Surf Club Drive and the eroding shores of the Conservation Area. Without action, this offset



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will get worse with time, leading to more habitat loss and erosion risk for the adjacent residential development.

- h) Shorelines with natural beaches can be flood proofed with berms/levees, beach nourishment, and dune construction to maintain access to the waters edge, provided it is part of continuous protection in the reach.
- i) The municipality and Conservation Authorities should develop materials and recommendations to help homeowners flood proofing existing residential buildings. This should be done in conjunction with the applicable conservation authority to ensure consistency in requirements and streamlined approach the issuance of permissions under the Conservation Authorities Act and the Ontario Building Code.
- j) Private septic systems that are inundated during the 100-year lake level should be upgraded. If upgrades are not possible, a plan to retreat and re-align the land use should be developed with the community.

Prolonged periods of high lake levels can negatively impact other infrastructure, such as roads, water mains, and sewers.

Long-term Municipal strategies are required to deal with these maintenance challenges.

5.3.3 Long-term Monitoring Recommendations

Moving forward, monitoring of the shoreline and future flooding impacts should be coordinated between the Municipality of Lakeshore and the Essex Region Conservation Authority and Lower Thames Valley Conservation Authority. Based on the technical studies completed and results of the hazard mapping, the following monitoring recommendations are provided:

- Develop a lot-by-lot database of the crest elevation for existing shoreline protection structures to identify locations with high wave overtopping and flooding potential during storms.
- Identify low-lying unprotected lots that represent flooding vectors from the lake and work with landowners to develop community scale flood mitigation approaches.
- Map the spatial extent of future flooding events and compare to the flood hazard mapping generated for this study to verify the results.

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- Monitor erosion hotspots along the shore, such as the eastern end of Crystal Beach Road. Specifically, the stability of the existing shoreline protection should be observed annually or after major storm events by a qualified engineer. The Canadian National Railway should be notified and involved in the annual observations.
- Complete future nearshore monitoring to compare lake bottom elevations collected for this study to future conditions.
- Monitor future shoreline erosion rates and wetland health in protected areas, such as the Ruscom Shores Conservation Area and Tremblay Beach Conservation Area. The monitoring results will inform the design of a long-term shoreline restoration plan for the two natural areas.

5.4 Land Use Planning and Zoning

The analysis conducted for this report and the updated hazard mapping reveals the serious threat to property, structures, and potential for the loss of human life when development occurs on hazardous lands. Proactive planning and zoning, that aligns with the existing Conservation Authority regulatory framework, can identify hazardous lands and assist with locating future development away from the risks, leading to safe and sustainable development. This section aims to provide informed recommendations to begin adapting the community with progressive and incremental changes that can start immediately and support adapting to the impacts of climate change over time.

The SMP recommendations are provided for the seven shoreline reaches in Appendix F. The Municipality of Lakeshore and all stakeholders should prioritize actions and take action at the community scale on the most vulnerable reaches. Establishing priorities may require further risk assessment, such as calculating the economic damages associated for the 100-year lake level flood, social considerations, and potential environmental degradation.

Upon review of other available land use approaches to shoreline management, as outlined in Section 3.3 of this Report, it became clear that to address currently vulnerable communities, where there is an unacceptable risk to public health or safety, a multi-fold approach is necessary.

It is important to note that the concepts identified herein help explore the range of possible alternatives to mitigate natural hazards. Their applicability at a local scale or on



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an individual lot will require further investigation by landowners. For instance, they must be consistent with existing regulatory and zoning by-laws.

The “Avoid” approach to shoreline management in which land use planning controls restrict development in areas of moderate to high risk will be the primary recommended approach for Lakeshore. This section will introduce various planning tools that can be employed in Lakeshore that may result in the creation of ‘no build’ areas, restricting development potential on vacant and/or underutilized lands. An “Avoid” strategy may also include land acquisition or restrictive tools, such as land trusts. As much of the existing coastline of Lake St. Clair has been developed, the “Avoid” tactic alone will not provide enough protection against the increased coastal risk identified in this Report.

Additional approaches to “Protect” and “Accommodate” the increased flooding risks are also recommended to ensure existing development can be more resilient to the anticipated coastal vulnerability of the communities of Lakeshore. Many of these approaches involve engineering solutions that have been outlined in Section 5.3 of this Report, but some relate to the long-term management of land, and should therefore be reflected in, and guided by, local land use planning documents. Some of the typical approaches to “Accommodate” may not be permitted under the current technical guidance of the Province of Ontario; therefore, these approaches should be evaluated at a lot-by-lot basis for consistency with applicable standards and by-laws.

A Managed Retreat or the “Retreat” approach is a long-term vision for a community that plans for the eventual relocation of buildings and infrastructure to areas of lesser (or no) risk. Options for exploring this strategic direction have also been outlined in the recommendations of this section, focusing on areas where sensitive and/or critical uses and infrastructure are located in highly vulnerable areas of Lakeshore’s coastline.

The principal risk during the coastal flooding events are the dangers to infrastructure, buildings, and threats to human safety. For the purposes of simplifying the coastal hazards to the existing community that have been identified in this Report, the following risks in relation to the Lake St. Clair shoreline flood hazard are discussed within this section:

- 1) Shoreline flooding hazard, as determined by the existing 100-year flood level (as defined by the PPS) is referred to as the “100-year flood”;
- 2) Shoreline flooding hazard, as determined by the 100-year climate change flood level (as identified through this Report) is referred to as the “100-year climate change flood”;

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- 3) 100-year erosion rate of the shoreline (as defined by the PPS and identified through this Report) is referred to as a the “erosion hazard”; and,
- 4) Areas rendered inaccessible to people and vehicles during times of the hazard events of 1-3 above are discussed throughout this Report and determined to include areas normally accessed by roadways (directly or indirectly) that are anticipated to be inundated with over 0.3m (~1ft) of water during the 100-year flood. The inability to access private and commercial property by first responders (fire, ambulance, police) during a coastal flooding event is a key challenge. Ingress and egress by residents are also limited for much of the study area.

These coastal threats, as specified by these four risks, are considered throughout Section 5.4. This section provides high level guidance around the type of land uses to be developed and approved through the Official Plan and in the Zoning Bylaw through the implementation of the SMP.

Section 5.4.1 identifies the Official Plan and guiding land use considerations, where the type of appropriate land use and high-level considerations for growth, as well as shoreline management approaches, can be defined in policy and strategic documents. Section 5.4.2, Zoning Considerations, outlines where the necessary regulations, as determined by the municipality’s Zoning By-law, can be determined and implemented, with overarching direction for possible design standards. Section 5.4.3, Mapping Considerations, provides an overview of the applicable maps and schedules to be revised through the outcomes of this study.

It is important to note that the next steps outlined in this report guide future considerations and recommendations for next steps. Upon consultation with the technical advisory committee, conservation authorities with jurisdiction, various stakeholders, the public, and Council, the high-level recommendations contained herein may be implemented to provide immediate action to begin to increase Lakeshore’s coastal resilience.

5.4.1 Official Plan / Land Use Considerations

As the most recent Official Plan Review for the Municipality of Lakeshore was completed in March 2021 and is pending County approval, the scope of the recommendations contained herein provide direction which can be used to inform a subsequent amendment to the OP that specifically addresses shoreline flooding hazard policies for the coastline of Lake St. Clair, as part of the overall policy framework for development within areas determined to be natural hazards lands as identified in Section 5.4.1 of the Municipality of Lakeshore’s Official Plan.



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A significant issue with regards to implementation of the technical analysis prepared through this Report is the lack of clarity in the Provincial Policy Statement (PPS) when determining the Municipality's requirement to prepare for the 'impacts of a changing climate' (PPS 2020, 3.1.3) paired with the definitions of 'flooding hazards' for Great Lakes shorelines, which has not been updated to reflect the expected increases to lake level rises that are anticipated as a result of climate change, as analyzed in Section 3.0 of this Report. As the difference is 0.38m (38cm) between the two possible shoreline flooding hazard base flood levels, it does not represent a vastly significant addition to water inundation during a time of flooding, but it does potentially render additional roadways unpassable during flood events with the introduction of over one foot of water, which is an important consideration for the management of future land uses.

With that said, the 100 year flood level mapping presented in this Report (without climate change being considered) represents a major change in the existing hazard mapping of Schedule "B-4" Natural Hazards and Floodprone Areas, in particular the Lake St. Clair Floodprone Area. Larger regions of the coastline are inundated with water in this modeling, additional roadways will be rendered inaccessible, and the inland impacts on existing development are shown to increase. Therefore, it is imperative that the Municipal Official Plan be updated to reflect this impact in a timely manner. The 100-year Flood Level varies by Reach area, and is summarized as follows:

- From the west boundary/Pike Creek to Belle River: 176.39m
- From Belle River to Stoney Point: 176.33m
- From Stoney Point to Lighthouse Cove/Thames River: 176.57m

The Mapping Considerations of Section 5.4.3 further define the process to provide specific direction for mapping and schedule updates.

The policy recommendations provided seek to achieve two aims. The first being that the natural hazard policies reflect the new 100-year lake level mapping to ensure development and site alteration not be permitted within the flood hazard nor within areas rendered inaccessible during times of 100 year flood events. The second being that the 100 year climate change lake level (and flood event) be identified as a significant coastal risk within Lakeshore and that the vulnerability of the coastline be examined when planning for growth and infrastructure in the long-term.

5.4.1.1 Natural Hazard Policies (Section 5.4)

As outlined in the Official Plan, areas characterized by flat topography, such as much of Lake St. Clair's shoreline, create a shoreline floodplain that is not often clearly

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definable. In low lying inland areas, it is assumed that flood waters tend to be shallow and of low velocity; although that is not necessarily the flood outcome the analysis presented in this Report determines. The flood hazard modeling outlines depths of over 0.9m (>~3ft) along vast areas of the Lakeshore shoreline (e.g., Reach 6 - Crystal Beach Road to Couture Beach Road). Consequently, the assumption of the 5.4.1 Pre-amble that the only major concern for these areas is property damage and impaired access; and that more opportunity for development is possible for inland floodprone areas should be reconsidered given the extent of the shoreline floodprone area determined through this Report. Furthermore, additional analysis may be required to determine if the cumulative impacts of the existing development patterns (e.g., building on higher ground) have led to problems with neighbouring property's ingress/egress by aggravating the flood hazard.

The policies of Section 5.4.1 of the Official Plan note that a reasonable compromise will be made between the extent of the hazard and the continued use and future development of the area, given the extensive residential development along the shoreline. This does not align well with the policies of Section 2.3.6 that state that development should be directed away from flood and erosion hazards. A recommendation of this Report will be to include stronger wording that protects people and property by discouraging any new development from the flood hazard and recognizes that the flood levels analyzed in this Report will form the basis to understand and plan for the extent of the flood hazard.

A clear statement should also be included in the Pre-amble that new development should only take place in areas that are not susceptible to hazards nor rendered inaccessible during times of flooding hazards. The corresponding policies should be clear that new development, even if floodproofed, should not continue to occur. There should be prohibitions to the conversion of agricultural areas to growth lands within the flood hazard.

5.4.1.2 Policies to Increase Coastal Resilience to Climate Change

The floodprone area, if defined as the 100-year climate change flood (with an increased lake level by 38cm), would extend beyond the floodprone/hazard areas determined in the technical mapping provided in Section 3.0 and **Appendix D** of this Report. Although the immediate focus of policy updates would be to implement the newly determined 100 year lake level as a natural hazard, it should be acknowledged through the Municipality's policy framework that the flood and erosion risks and vulnerabilities uncovered through this project would be exacerbated by climate change. An overlay approach within the schedules of the Official Plan would serve as a screening tool to understand which lands may be unsuitable for particular uses within the Municipality,



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such as sensitive uses, hazardous lands, new or expanding infrastructure, and new or expanding settlement areas.

This overlay would be functionally similar to the Floodprone area (Presented as Section 5.4.1.3 of the Official Plan) but analyzed only during major land use and infrastructure decisions. This will provide specific guidelines for unsuitability of land use functions which expand those limited by the hazards. It should be clear that those lands which are developed within this overlay are subject to increased risk, may be subject to personal financial implications, and part of a public education/outreach initiative for landowners and/or prospective developers.

The Official Plan would also benefit from a new definition to provide clarity and transparency on the methodology for determining the overlay extent. Therefore, a new definition of 'one hundred year climate change flood level' is recommended to distinguish this potential risk area separately from the defined 'flooding hazard' of the one hundred year flood level, as defined by the PPS.

A policy framework for increased coastal resilience should be developed that seeks to achieve the aim of implementing Policy 3.1.3 of the PPS that requires planning authorities to "prepare for the impacts of a changing climate that may increase the risk associated with natural hazards". There should be strong language in the Official Plan that the responsibility to implement Policy 3.1.3 should not be taken on solely by land use planning and/or as a reaction to specific development proposals. Rather, the OP should provide clear language that the additional coastal vulnerabilities of climate change will need to be proactively integrated into many municipal decisions, across various departments and sectors.

The specific policies to implement this direction could entail:

- Ensuring any proposed Official Plan Amendment that designates new growth lands (by change of use or settlement area expansion) be screened through the 100 year climate change flood level.
- Ensuring that any new or expanding infrastructure projects be screened through the 100 year climate change flood level to ensure that access could be maintained in this event.
- Review the policy-setting objectives for growth management to clearly communicate that the coastal risk of flooding should be a key consideration in the management of future growth within Lakeshore.

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- Updating the Special Planning Areas section of the OP, Section 8.3, to ensure that any approved Secondary Plans completed for the communities of Lakeshore should incorporate the 100 year lake level identified in the technical mapping of this Report, as well as have regard to the 100 year climate change flood level. Additionally, recommendations for structural/non-structural improvements within the corresponding Reach Summary (Appendix F) could be integrated into the strategic direction of each new Secondary Plan and/or updated Secondary Plan.
- Council reports from various departments that seek to further decisions about lands and resources could include a reference to how the decisions may intersect or be impacted by the 100 year climate change flood level. Much like municipalities are evaluating decisions through a 'climate change lens', Lakeshore could cater this evaluation specifically to this prominent/important coastal risk of shoreline flooding, and its main vulnerability when facing the consequences of a changing climate.
- Discourage/disallow basements and/or additional residential units and secondary dwelling units (detached or attached) within areas susceptible to the 100 year climate change flood level.
- Review hazardous sites, and the Human-Man Hazards, against the 100 year climate change flood level to ensure that long-term storage of hazardous material and any potential sites with contamination would not be subject to increased adverse effects in the event of such a flood.
- Review the location of existing institutional uses against the 100 year climate change flood level to ensure that site-specific emergency management plans and protocols are in place in the event of a flood.
- Review opportunities for targeting the restoration of natural heritage features and areas along the shoreline and refine supporting official plan policies to ensure that these aims can be funded through existing municipal financial tools (e.g., development charges, parkland dedication, community improvement programs targeted to restoration, etc.).
- Update the Lakeshore Official Plan to include the following definition as part of Chapter 8.8 Definitions.

One-hundred year climate change flood level: means, for the shoreline of Lake St. Clair, the peak instantaneous stillwater level, resulting from combinations of mean monthly lake levels anticipated to increase by a particular elevation due to current climate change projections and wind

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setups, which has a minimum of 1% chance of being equalled or exceeded in any given year. The particular elevation varies along the coastline, as follows: +176.77m from the west boundary to Belle River; +176.71m from Belle River to Stoney Point; +176.95m from Stoney Point to Lighthouse Cove (Source: Municipality of Lakeshore: Shoreline Management Plan, 2022, Table 3.2).

- Consider policies that speak to the Municipality and Conservation Authority with jurisdiction expediting the approval process in the event of a flooding or erosion emergency, where existing structures are at imminent risk (where feasible) to prevent damage from shoreline flooding.

A general opportunity for the Official Plan is to provide further guidance to the Transportation System (Section 7.2 of the Official Plan), through increasing the flood resilience of the transportation system. Policies related to Transportation System resilience would ensure that all residents and vulnerable users are able to shelter in place and/or protect property while maintaining access for emergency vehicles, evacuation and defensive deployment of flood mitigation. It is not recommended that the transportation system be upgraded as a precursor to allowing new development to proceed on lands susceptible to natural hazard, but as a reactive effort to ensure that existing residents and people maintain their anticipated emergency access routes in times of flood events. **Appendix F**, the Reach Summaries, also provide more detail on the specific routes and roadways that require priority attention in this matter.

The specific policies to implement this direction could entail:

- Requiring that arterial roads, which are within the shoreline flooding hazard, must be engineered to a standard through which they will not become inundated by the event to enable emergency access through a 100 year climate change flood event.
- All existing private and municipal roads within the shoreline flooding hazard be required to be resilient to a 100 year climate change flood event to a standard that would withstand such an event.
- All transportation infrastructure be designed to minimize the risk of capturing debris during a flooding event, which would prevent access.
- All communities that interact with the 100 year climate change flood mapping, through their respective secondary plans, are to have a minimum of one access route that is above the 100 year climate change lake level.

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5.4.1.3 Municipal Land Acquisition

The municipal acquisition of lands to mitigate the impacts of the 100-year flood hazard would provide additional public lands with access to the lakeshore; however, these lands are very costly and provide a key attractor for seasonal and permanent residents, generate tax revenue and are home to the many lakefront communities that comprise the characteristic landscape of the lakefront. In accordance with Policy 5.4.1 e) there is no requirement or public obligation to purchase any area within hazard lands; however, there may be circumstances where the social, economic, and health and safety risks for continued private use may outweigh the financial costs.

To that end, the purchase of lands due to flood risk should primarily be considered in the following circumstances:

- when a full parcel is completely covered by the flood and/or the erosion risk with a demonstrated instability of existing buildings.
- when the parcel contains a sensitive land use, such as day care centre, group home, senior's residence, etc., and is partially covered by the flood and/or the erosion risk with a demonstrated instability of existing buildings.
- when a critical infrastructure, such as a new dyke/seawall, is required in a specific location to provide structural protection for the health and safety of existing residents.
- when areas of the natural heritage system or other environmentally sensitive lands are vulnerable to the coastal hazard and/or their particular characteristics provide soft shoreline armouring as a means to mitigate the impacts of the flooding hazard.
- when the social benefit associated with the acquisition of private land protects the public interest, such as the creation of new park space.

A recommendation of this Report is to incorporate guiding principles for future land acquisitions into the policies of their Official Plan. No specific parcels have been identified within Lakeshore at this time, as the major areas of concern, as identified in the Reach Summaries of **Appendix F** are largely in public ownership. Parcels that are identified in the future, through more site-specific assessment such as secondary plans, should be used to leverage the public good, providing an appropriate use which serves the community and increases the overall community value.



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Significant areas of erosion were noted, as opposed to some armoured shorelines. For example, see Crystal Beach with the areas in between the shoreline and the train tracks where a significant risk is shown (30-38m loss of land). A 0.3 to 0.5m per year recession of the shoreline was noted, based on information from Dillon (1976) and input from ERCA. The Reach Summaries in Appendix F identify portions of the study area that were emergency vehicle access will be limited by the depth of road flooding. In the future, emergency response planning should leverage the depth of flooding information generated for the study, local road network data, and information on emergency vehicle operation on flooded roads to map inaccessible communities.

5.4.2 Zoning Considerations

The Lakeshore Comprehensive Zoning By-law must comply with the intent of the Official Plan, therefore; the use of the updated 100 year lake level as the new flood hazard should be incorporated into the mapping, upon Conservation Authority review and approval. Therefore, an updated to the "Lake St. Clair Floodprone Areas" as identified on Schedule "A" should be incorporated into the existing Zoning By-law as a first and primary step for implementing this study.

With clear policies that no further future development should continue on hazardous lands, minor lot re-development within the newly determined 100 year lake level should be reviewed with the following considerations:

- There will be safe ingress/egress during the 100-year lake level. Site access should highlight the requirement to provide parking above the flood line, and property access which can both drain and meet the flood resiliency of the connecting road, as established by the Official Plan. Furthermore, there is a need to ensure that attempts to retrofit properties to obtain access do not negatively impact other areas, restrict, or redirect drainage;
- Development, if permitted, should preclude the development of occupied basements, bedrooms, utilities below the ground floor;
- During approved development and redevelopment, second floors should be rebuilt in a manner which is, at a minimum, the same square footage as the primary floor, to enable the storage of goods and material during a flood event without the necessity to evacuate it;
- All floors, through the use of balconies or similar, should be accessible to the outside, should occupants become inundated without opportunity to evacuate, to

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facilitate a base evacuation plan that landowners within the floodprone areas can edit for their use;

- No permanent structure be constructed within the erosion rate extent limit. Any buildings that are currently within the erosion rate limit, including accessory buildings, should be relocated outside of the erosion limit subject to rebuilds that are approved under the Technical Guide.
- Site drainage should be strictly controlled through Site Plan Control, where any improvements to the site cannot increase water retention or the overland flow towards an adjacent parcel.

5.4.3 Mapping Considerations

The policies and bylaws regarding natural hazards are to be applied when determining uses permitted on lands identified as Hazard Lands and illustrated as: the Limit of the Regulated Area; Lake St. Clair Floodprone Areas; and, Inland Floodplain Control Areas, as shown on Schedule “B.4” of the Municipality’s OP. **Figure 2.2** of the Report shows the extent of the Municipality’s shoreline outlining its previously mapped Natural Hazards and Floodprone Areas.

Revisions to the Lake St. Clair Floodprone Areas should be updated, once approved by the Conservation Authorities with jurisdiction, based on the floodplain mapping determined through this study. The 100 year lake level was determined to be the following:

- Shoreline Reach between Pike Creek and Belle River is 176.39m IGLD’85;
- Shoreline Reach between Belle River and Stoney Point is 176.33m IGLD’85;
- Shoreline Reach between Stoney Point and Thames River is 176.57m IGLD’85.

These lake levels should be incorporated into the updated layer for the “Lake St. Clair Floodprone Areas” or the Official Plans, at the County and local Municipality, as well as the Comprehensive Zoning By-law.

As a precursor to this amendment, the Conservation Authority’s regulated areas should be reviewed and updated with these updated lake levels to ensure that the technical components of the future administration of the policy recommendations are integrated into the CA’s regulatory reviews.



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5.5 Grant Funding Recommendations

Previous recommendations made in relation to shoreline management and shoreline protection (Section 5.3.1 and Section 5.3.2) make note of the need for a community scale shoreline protection plan, with uniform design criteria, and the requirement for 100% community participation in order for the recommended measures to be successful. As some measures recommended for shoreline management and shoreline protection can be costly for landowners and there are joint benefits to the Municipality for improving the quality of existing shoreline protection structures, the Municipality may consider creating an incentive program for properties along the lakeshore to assist in protecting shoreline areas from flooding and other hazards. A community improvement plan could be created, and the entire Lakeshore shoreline could be included within the Community Improvement Plan Area (CIPA). Incentive programs could include funding for the construction of shoreline protection structures (e.g., berms), moving of buildings further away from the shoreline, and flood-proofing buildings. Section 4.2.2 b) of the OP recognizes that CIPAs can be established to address “hazard land constraints such as flooding and/or erosion, where measures are designed to reduce the risk from natural hazards”. Therefore, there is existing policy support to implement this initiative.

The primary pathway for interior flooding in Lakeshore is wave overtopping and runup along private lakefront property. This flooding not only inundates waterfront landowners, but municipal assets and interior land owners. As such, the Municipality of Lakeshore may consider development a reach or community-scale application for funding from senior levels of government to increase the height and quality of private shoreline protection structures that would increase the protection to waterfront development and interior areas of the community.

Another option that the Municipality could consider is obtaining funding from the Canadian National Disaster Mitigation Program (NDMP) to create and implement a CIP and associated grant programs. The NDMP provides funding to municipalities to assist in preparing communities for flood disasters. In obtaining NDMP funding, the Municipality would be able to assist residents and landowners (through grants) with mitigation improvements to private property, while also investing in municipal mitigation projects for public owned lands.

Funding tied to the improvement of parks and open spaces in Ontario is also available through the Trillium Foundation, with opportunities such as the Community Building Fund – Capital Stream that provide municipalities with improved infrastructure for communities to thrive, allows for improvements to public spaces for additional

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accessibility, and to facilitate community member's full participation in the life of the community. Access to open space, accessible waterfront trails, and improvements to public areas and buildings could be tied to reclaimable and restoration efforts of the shoreline.

5.6 Recommendations

The following recommendations are provided to take action on the findings in this shoreline management plan and reduce the vulnerability of the Municipality of Lakeshore to coastal flooding and erosion hazards:

- While the flood hazard limit was mapped with the 100-year flood level, the best available science indicates future lake levels will be even higher. Therefore, the Municipality should consider the impacts of a changing climate on future coastal hazard extremes in all planning and development decisions.
- Stop issuing permits for new development on hazardous lands or on lands without safe emergency access in all reaches. Stop approving new urban developments that use streets as temporarily storm water retention systems, as this limited safe ingress and egress during the 100-year flood level and is not consistent with Provincial Policy. Climate change is projected to result in future periods of lake levels even higher than those recorded in 2019/2020. This will make the emergency access problem ever worse in Lakeshore.
- Evaluate emergency ingress and egress on a reach-by-reach basis using the depth of flooding maps and constraints for emergency existing response vehicles (e.g., height of exhaust pipe above road surface). Identify inaccessible communities and develop appropriate adaptation/contingency plans to ensure emergency services can be delivered to the residents of Lakeshore and residents are able to evacuate during a flood. This may require engineered upgrades to the road network, or innovative, adaptation strategies such as updated emergency response vehicles
- Investigating the limitations of the existing emergency vehicle fleet and augmenting emergency response equipment could be completed in the short-term. Investigating the engineering feasibility of upgrading road infrastructure is likely a medium-term activity, with actual modifications occurring in the medium-to long-term (if feasible).



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- The updated hazard mapping has identified vulnerable communities in all the shoreline reaches. The Municipality should consider additional risk assessment studies to quantify the potential social impacts and economic damages associated with future flooding, which will help prioritize actions on a reach-by-reach basis. Understanding the potential magnitude of the social impacts and economic damages will also put the required infrastructure upgrades in perspective (e.g., cost of avoided damages if all the shore protection in a reach is upgraded can be compared to the actual cost of the upgrades to develop a benefit-cost ratio). Additionally, providing template-based community scale 'shelter-in-place' plans for existing development where it is determined that there is no access and any future development is prohibited.
- Based on established priority areas, initiate further community scale studies (e.g., an individual reach) with stakeholders to investigate the feasibility and benefits of standardized shoreline protection criteria and upgrades, flood proofing measures for homes and other infrastructure, and develop appropriate implementation strategies.
- Develop restoration plans for conservation lands in partnership with the Essex Region Conservation Authority to protect and preserve these important public access nodes to Lake St. Clair.
- Monitor high-risk areas and the stability of existing shoreline protection structures that protect critical infrastructure (e.g., CNR rail line in Reach 6).
- Investigate riverine flood risk, including the impacts of climate change, and the joint probability of riverine and coastal flooding for the Municipality of Lakeshore.
- Integrate the findings of the SMP and hazard mapping into the Official Plan and Comprehensive Zoning By-law by updating the Lake St. Clair Floodprone Areas based on the determined 100 year lake levels, once approved by the Conservation Authorities with jurisdiction.
- Incorporate updated strategic policy directions identified in Section 5.4 of this Report, by revising the Municipality of Lakeshore Official Plan language of Section 5.4.1, Natural Hazards, pre-amble to reflect the following:
 - That the shoreline flood prone areas have concluded that water will be inundated much further inland than previous mapping suggests, and at greater depths. Therefore, assuming inland flood prone areas will be "shallow and of low velocity" is misleading.

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- That the cumulative impacts of existing development should be considered when determining if new development has the potential to aggravate the negative impacts to human life and property that the shoreline flooding and erosion hazards present.
 - That language suggesting that a 'reasonable compromise' can be made between the extent of the natural hazard and the continued use and future development' of the shoreline area be amended to clearer identify that development is required to be directed away from the flood hazard (as well as other natural hazards).
 - That additional language be included to clarify that new development (regardless of whether it is itself proposed within a natural hazard), be only permitted to take place in areas not susceptible to hazard nor in areas rendered inaccessible during times of flooding hazards (either through direct or indirect roadway access).
- For proposals under the Planning Act (minor variances, site plans) on existing lots of record, where shoreline flooding hazards are now present and minor changes to a building may be currently permitted, the review of site in relation to not only floodproofing, but any ingress/egress routes, should be completed.
- Review overarching growth management policy framework of the Lakeshore Official Plan and County of Essex Official Plan to ensure that the policy-setting objectives and goals clearly communicate that the coastal risk of flooding should be a key/driving consideration in the management of future growth within Lakeshore.
- Review the identified growth lands as determined through settlement area designations of Schedule A of the Municipality of Lakeshore Official Plan and Schedule A.1 of the County of Essex Official Plan in relation to the flood risk mapping prepared as part of Section 3.0 of this Report to ensure all properties within settlement areas are accessible in the event of a 100-year climate change flood (e.g., have access and egress roadways with less than 0.3m inundation).
- In locations along the coastline where the Natural Heritage System, as identified on Schedule "B2-2" of the Lakeshore Official Plan, intersects with a 100 year climate change flood, as identified by this Report, work to investigate options for restoration opportunities with the goal to secure the long-term implementation of erosion prevention and the protection of the nearby rail line through non-structural adaptation. Additionally, enhanced opportunities for public access could be incorporated into restored coastal landscapes to align with policies for

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increasing public access along shoreline. Note that the priority for such opportunities, based on the costal risk identified in this Report, could be targeted to the following areas:

1. Tremblay Beach Conservation Area and Crystal Beach Road
 2. Ruscom Shores Conservation Area and areas east of the Ruscom River mouth
 3. Area west of Luken Marina and east of Mariners Drive
- Employ screening layer of the 100 year climate change lake level for sensitive screening of coastal resilience into strategic planning documents. This would include any new/updated Secondary Plans, major municipal infrastructure decisions, and any land acquisition and/or restoration programs.
 - Review other relevant and governing master planning documents to ensure their alignment with the recommendations of this Report, including but not limited to the Stormwater Master Plan Phases 1 and 2.
 - Improve the transportation system within the 100 year climate change lake level to ensure residents and vulnerable road uses are able to evacuate and deploy defensive flood mitigation, as necessary, while ensuring emergency vehicle access.
 - Integrate potential land purchasing and/or acquisition policies into the Official Plan, as outlined in Section 5.4.1.3 of the Report.
 - Work with Conservation Authorities (CA) with jurisdiction to update the CA Regulated Area in a manner that reflects the refined 100 year lake level, recognizing that the CAs currently regulate to the 100 year lake level (without climate change). Furthermore, ensure strategic planning documents of each Conservation Authority consider the 100 year climate change lake level.

The successful implementation of the new and updated strategic direction recommended within this Report will depend heavily on public education and a clear consultation process. The Public Information Centre (PIC #3) served to provide an introduction to the recommendations of this Report, but ongoing public outreach with stakeholders and the public will be a key driver of implementation.

Furthermore, it should be noted that the timelines for implementation of the recommendations of this plan require immediate action, without the expectation of immediate results. It will be a resource heavy and timely endeavor to make future steps

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to minimize Lakeshore's coastal risks and vulnerabilities. Cross-municipal partnerships with similarly impacted areas, joint implementation planning, and shared services and resources may be required for effective implementation of short and long-term recommendations.

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Appendix A Consultation Plan

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Communication Plan

Town of Lakeshore

Shoreline Management Plan

September 22, 2020

Prepared for:

Town of Lakeshore

Prepared

by:

Stantec Consulting Ltd.



SHORELINE MANAGEMENT PLAN; TOWN OF LAKESHORE

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Prepared by _____
(signature)

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Approved by _____
(signature)

Stephanie Bergman, MA, ENV SP

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BACKGROUND + CONTEXT

The northern extent of the Town of Lakeshore consists of the Lake St. Clair shoreline and includes both serviced, and unserved development areas. Each reach of the shoreline is subject to shoreline hazards (flooding and erosion). Currently, the Town of Lakeshore does not have a shoreline management plan for the reach of shoreline within the boundary of the municipality. The Essex Region Conservation Authority regulates development activities along the Lake St. Clair shoreline (through O. Reg. 158/06). The northern portion of the Town is also located within the Lower Thames Valley Watershed and is regulated under O.Reg. 152/06

The Town of Lakeshore has retained Zuzek Incorporated ("Zuzek") and Stantec Consulting Ltd. ("Stantec") to prepare the Shoreline Management Plan (SMP) for the Town of Lakeshore. The SMP will have regard for

- **Prevention** of new development from locating within areas subject to loss of life and property damage from natural hazards;
- **Protection** of existing infrastructure and development from natural hazards through the application of structural and non-structural measures (including acquisition);
- **Emergency Response** to prepare for emergency situations through flood forecasting and warning systems and implement appropriate emergency response procedures such as evacuating areas and disaster relief.
- **Public Information** to increase awareness of challenges and risks associated with shoreline hazards;
- **Environmental Conservation** to ensure that no adverse environmental impacts result from actions; and
- **Monitoring** the implementation of the Shoreline Management Plan and the effectiveness of the recommendations.

Engagement for the project plan will consist of three main phases – an initial engagement with stakeholders and the public to make introductions; engagement with stakeholders and the public to review draft objectives; and to present the final recommended options and draft plans to stakeholders and the public prior to Council consideration. A project website will also be created where members of the public will be able to interact with project information throughout the study.

This Communications Plan will create a framework for how the public and stakeholders will be engaged throughout the study, highlights key objectives for the engagement, and communications strategies.

MISSION STATEMENT

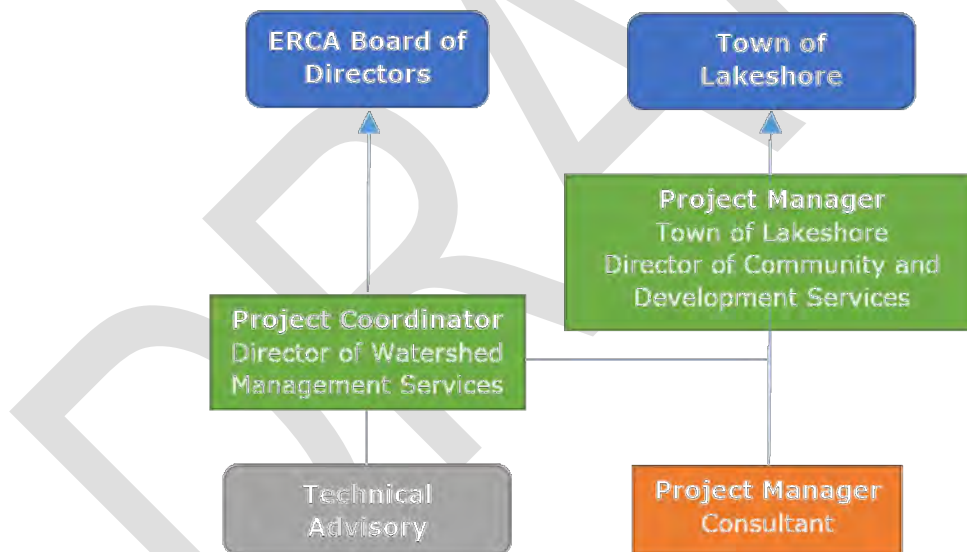
Stakeholder engagement will be open, inclusive, transparent, and dynamic. The project team, including Town of Lakeshore, Zuzek and Stantec staff, will strive to incorporate community priorities into the decision-making process, and articulating the . We acknowledge that achieving consensus is difficult and unlikely due to various stakeholders and interests, however the Communications Plan will provide the framework to encourage feedback that can be integrated into the planning process and communicated the benefits and trade-offs made throughout the project.

ENGAGEMENT FOCUS + GOALS

- To encourage community involvement in the project process through transparent and accessible engagement opportunities.
- To develop an understanding of the existing perceptions of issues and opportunities.
- To identify increase community awareness of challenges and risks associated with shoreline development.
- To document stakeholder input and validate involvement.
- To acknowledge, communicate, and educate stakeholders of the potential impacts of the study on land impediments and potential development barriers; and
- To craft recommendations that are reflective of stakeholder input and broadly supported.

COMMUNICATIONS APPROACH

The success of the Plan will require active input in buy-in from a range of key stakeholders, both internal and external to the project team. It is anticipated that a Technical Advisory Committee (TAC) will be convened and a Project Coordinator will be assigned to chair the TAC meetings and liaise with the ERCA Board of Directors.



Residents and property owners along within the study area, particularly along shoreline areas, will have significant interest in the development of the Plan and it is anticipated that the Plan will face significant interest by property owners due to the potential for perceived/real impacts to future development potential. Education will be a significant component of the communications plan for the study. The International Association of Public Participation recognizes a spectrum of community engagement activities with increasing levels of stakeholder authority in the decision making process:

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Inform – Provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities, and/or solutions.

Consult – Obtain public feedback on analysis, alternatives and/or decisions. For example, this may be done through use of comment forums, focus groups, surveys, or public discussions.

Involve – Work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered. For example, design studios, workshops, and deliberative interviews may be used to directly influence decision-making.

Collaborate – Partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution. This level of involvement may form a stakeholder advisory committee or mediation.

Empower – Place final decision-making in the hands of the public. This level allows the stakeholders to decide, through voting ballots or a delegated committee decision, for example.

This project team will endeavor to Inform, Consult, and to a lesser extent involve stakeholders throughout the process to convey information to landowners, elicit community support, and solicit feedback. We note that while community and stakeholder input is important to the study, the ability to influence decision-making is somewhat limited by the regulatory framework within which we are working. By the very nature of the project, the decisions of the shoreline management plan will be made by Council based on recommendations supported by scientific evidence and guided by regulatory policy.

KEY CONTACTS

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ROLE OF THE TECHNICAL ADVISORY COMMITTEE

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The Technical Advisory Committee (TAC) represents the interests of the municipality, utility and transportation stakeholders, as well as the public as a whole with matters concerning public safety and emergency response, flood protection, environmental quality, conservation, among other aspects. The TAC will consist of subject matter experts, including key representatives from the Town of Lakeshore, the Essex Region Conservation Authority, Lower Thames Valley Conservation Authority, and the County of Essex Planning Division. TAC meetings will provide valuable input to the Project Team:

- to communicate local knowledge, guidance and expertise;
- to identify potential technical issues, constraints or impacts and confirm the work plan;
- to ensure that accurate technical information or resources are available or assembled; and
- to foster a positive working relationship between the Town, County, conservation authorities and external agencies.

ROLE OF THE PROJECT TEAM

The project team, including the consulting team and Town staff, will provide the overall guidance and accountability for the engagement process.

Town staff will be responsible for scheduling events, updating online content to the Town's website, distributing activity notifications, and providing oversight on activities and develop any key messaging, branding, or content deemed necessary.

The Town of Lakeshore Director of Community and Development Services, Tammie Ryall, will be the primary project spokesperson and the contact person in media releases pertaining to the project. Town Mayor, Tom Bain, should be quoted on media releases to lend political support and legitimacy to the project.

Stantec and Zuzek will develop materials for Public Information Centre (PIC) and may be asked to provide Town Council presentations, including presentations and poster board materials. Stantec will also design, deliver, and document the engagement activities. Stantec will be expected to provide event planning, communications, invitations, and logistics for PIC events, including:

- Draft and design invitations/notifications;
- Draft, design and produce poster boards; and
- Provide sharpies, sticky pads, name cards, etc.

ROLE OF THE COMMUNITY

Community engagement is critical as the SMP and recommended policy changes may affect landowners and the implications of any desired future development opportunities. Public engagement for this project is anticipated to be largely at the "Inform" and "Consult" level to convey information, educate the public of the outcomes and desired principles of shoreline management, and to obtain feedback at each phase of the project, while also allowing for some public and key stakeholder involvement in initial phase. Residents will

be acknowledged as “local influencers” that will help identify constraints and areas of concern in their own community.

ROLE OF THE FLOODING TASK FORCE

The Town of Lakeshore Council created the Flood Task Force to develop a plan to prepare for flooding events. The Task Force consists of community members and representatives from Council. As champions for flood preparedness and response planning within the Community, they represent an important stakeholder group for the SMP. They will be consulted during each phase of the study prior to consultation with Council and the Community in order to review and provide feedback on technical analysis and shoreline management approaches within the SMP.

ENGAGEMENT EVENTS + COMMUNICATIONS

Project communications will take on a dynamic and multi-pronged approach that will support the overall goals and objectives outlined in the Engagement Strategy, as well as the phase-specific goals outlined in this plan. The overall strategic approach will leverage a variety of communication channels to provide information and receive feedback including the following.

- **Public Information Centres** will be held in open house format to allow residents and stakeholders to congregate in a relaxed setting, with multiple opportunities for information sharing with other residents, industry professionals, and councilors if available.
- The **Town of Lakeshore website (www.lakeshore.ca)** that will function as a repository for project related information, notices, timelines and final documents.
- The Town has implemented new public engagement online software. **PlaceSpeak** will administer engagement opportunities and document public input automatically, which will be used in reporting.
- **Directed notifications (letters of invitation)** will be distributed to stakeholders prior to key events as a tool to inform and remind of upcoming public engagement activities.
- Advertisements placed the **local newspaper(s)** may be used to inform the broader public.
- **Report to Council** with regular updates.
- **Communicate through Councillors**, businesses and local organizations to spread information as broadly as possible.
- Updates using **social media** to advertise key project updates and engagement opportunities will be promoted by Town of Lakeshore accounts holders.

As the project progresses, communication and engagement will be evaluated at each phase. Any suggestions to improve communications are accepted and may be incorporated as the project continues.

This section outlines in more detail what activities and platforms are planned. Activities are intended to meet those communication and engagement objectives and commitments outlined in our strategy. Each of the three Phases in the process will actively engage stakeholders and the community, present new information and solicit their feedback. Each phase will also summarize what we’ve heard and how we intend to use that information, which may then be available at city hall and uploaded to the Town’s website and/or PlaceSpeak website to ensure a transparent engagement process, or provided to Council for their review, considerations.

PHASE 1: BACKGROUND REVIEW & CONSULTATION

ENGAGEMENT GOALS:

- Assembly of TAC and receive initial feedback from subject matter experts.
- General introductions to project team, subject matter experts and municipal staff.
- Introduction to the project framework, acquisition and review of available technical studies; and finalization of process.
- Seek advice from landowners and areas of concern.

ENGAGEMENT OBJECTIVES:

- To officially commence the project and communications, providing introductions to project team and project purpose/timelines, and planning/project process.
- To establish engagement expectations and “rules of engagement”.
- To encourage project involvement and alternative avenues for providing feedback (e.g. website, survey, future events).
- To host a community Open House and individual meetings (or conference calls) where necessary with key stakeholders.
- To solicit feedback and perceptions of community (SWOT Analysis).
- To initiate an online presence to provide convenient access to information and a line of communication.
- To document all input received.

COMMUNICATION ACTIVITIES:

Technical Advisory Committee (TAC) – Meeting #1: A kick-off meeting will be held with the identified Technical Advisory Committee. Due to the preliminary nature of this meeting, we propose that the meeting may be held as a teleconference. The Scope of Services shall be provided to attendees prior to the meeting for review and comment. The objectives for the meeting will be to ensure key stakeholders are in agreement with the work program and objectives moving forward.

Project Initiation Notice: Notice to be sent to community landowners to officially commence study, provide a web address to the Town’s website and PlaceSpeak, contact information for key team members, and invitation to initial open house (PIC #1) meeting. Notice to be mailed in the form of a letter or postcard.

Flood Task Force Meeting #1 – The project team will attend and present at a Flood Task Force Meeting to introduce the project and solicit initial feedback on priorities and concerns.

Public Information Centre (PIC) – Open House #1: an event will be held to introduce the project and project team and solicit community feedback including perceptions of existing community (facilities and land uses). Initial meetings will introduce the purpose of the Secondary Plan and Community Improvement Plan, identify local constraints and opportunities (SWOT Analysis) and an extract a vision for the long-term community sustainability. A PIC Summary will be created to recap feedback received.

Online Platform: An online presence is ideal for those who are unable to attend the PIC event. Using out-of-the-box online software, such as PlaceSpeak, polls or surveys may be used to solicit information.

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Available reports, information and project progress will be deposited online for review, maintaining transparent and convenient access to information. Links to access the content will be provided on notifications mailed to stakeholders and the Town's website.

Presentation to the Town of Lakeshore Council: To facilitate buy-in from key stakeholders, we have included a presentation to the Town of Lakeshore Council at the conclusion of Phase 1 in order to ensure they are informed throughout the study. A representative from Zuzek Inc. and Stantec will be in attendance to present Phase 1 findings and answer questions from Council.

DELIVERABLES:

- TAC Scope of Services
- Online content (e.g. resources, graphics, text).
- Notification letter to residents/landowners.
- Open House feedback forms
- Flood Task Force Meeting #1
- PIC #1 summary report.
- Council presentation #1

PHASE 2: TECHNICAL ANALYSIS

ENGAGEMENT GOALS:

- Produce new 1:100 Year flood extents and draft Hazard Mapping for review
- Produce preliminary land use policy best practices for review
- Summarize and communicate technical review/findings
- Elicit technical feedback from subject matter experts and TAC
- Gauge response to preliminary technical evaluations and receive feedback to aid in final policy recommendation(s)
- Maintain a transparent project plan

ENGAGEMENT OBJECTIVES:

- To update TAC and stakeholders on the technical analysis and work completed to date.
- To present flood Hazard Mapping and inform landowners and stakeholders of initial results and potential impacts.
- To continue an online presence and provide updated information, timelines, and concepts and receive public input.
- To document all input received.

COMMUNICATION ACTIVITIES:

Technical Advisory Committee (TAC) – Meeting #2: A meeting will be held with the identified Technical Advisory Committee to review the 1:100 year flood mapping and hazard mapping. A discussion of overall impacts and issue/concerns will evaluate next steps, including information to be presented at PIC #2.

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Public Notice: Notices to be sent to community landowners to advertise the second Open House to discuss and provide feedback on draft planning vision/objectives and conceptual options. Notice will also provide a link to the Town's website, engagement survey, and contact information for key team members. The Town's website and/or community engage platform will be updated to present new materials, technical information, draft vision and objectives, and conceptual design solutions.

Flood Task Force Meeting #2 – To present draft results of the hazard mapping and analysis, as well as discussion regarding shoreline management approaches.

Public Information Centre (PIC) – Open House #2: an event will be held to present what we heard at first open house, present conceptual design options, and solicit community feedback. A report will be created to summarize feedback received.

Presentation to the Town of Lakeshore Council: The results of Phase 2 technical analysis and policy recommendations will be presented to Town Council. Staff from Zuzek Inc. and Stantec Consulting Ltd. will be in attendance to answer questions.

DELIVERABLES:

- Updated information for online/website platform
- Notification letter to residents/landowners.
- Open house feedback forms
- Flood Task Force Meeting #2
- PIC #2 summary report.
- Council presentation #2

PHASE 3: SHORELINE MANAGEMENT PLAN

ENGAGEMENT GOALS:

- Develop and present Shoreline Management Concepts and draft SMP to TAC and stakeholders
- Develop and present recommended Zoning By-Law changes
- Gauge response to alternative flood mapping and receive feedback to aid in final recommendation(s).
- Maintain a transparent project plan

ENGAGEMENT OBJECTIVES:

- To update TAC with the draft SMP and regulatory/policy changes and finalize deliverables.
- To update stakeholders on the outcomes of the technical information of Phase 2 and the final revisions made to achieve the preferred mapping and policy recommendations.
- To continue an online presence and provide updated information, timelines, and concepts and receive public input.
- To document all input received and present to Council with the final draft deliverables and recommendations.

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COMMUNICATION ACTIVITIES:

Technical Advisory Committee (TAC) – Meeting #3: Draft reports will be distributed to the Technical Advisory Committee prior to the meeting for review and comment, as well as final revisions needed prior to Council presentation.

Public Notice: Notice to be sent to stakeholders to advertise the third Open House to discuss and provide feedback on draft SMP. The Town's website and PlaceSpeak will be updated to present new draft materials and PIC #3 information.

Flood Task Force Meeting #3 – To provide project update and draft Shoreline Management Plan recommendations for review and discussion.

Public Information Centre (PIC) – Open House #3: PIC #3 will be held to present the findings of phases 1 and 2, and the draft Shoreline Management Plan and Official Plan/Zoning Bylaw Amendments. This will be a crucial step in the process and will provide stakeholders with an opportunity to discuss the implementation of the Shoreline Management Plan through policy/development regulations. A report will be created to summarize feedback received. This report may be used to update Council with the feedback

Presentation to the Town of Lakeshore Council: The final draft SMP and OPA/ZBA policy recommendations will be presented to Town Council. Staff from Zuzek Inc. and Stantec Consulting Ltd. will be in attendance to answer questions.

Post-Engagement Objectives:

DELIVERABLES:

- Updated information for online/website platform
- Notification letter to residents/landowners.
- Flood Task Force Meeting #3
- Open house feedback forms
- PIC #3 summary report.
- Council presentation #3

PUBLIC INFORMATION CENTRES (OPEN HOUSE) RESPONSIBILITIES

Project Team Tasks	Consultant Team	Town of Lakeshore
1. Book Venue		√
2. Catering		√
3. Arrange for Road Signage, if needed		√
4. Update PlaceSpeak project page	√	√
5. Update Town Website		√
6. Draft Notification/Invite	√	

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7. Mailout Notification/Invite	√
8. Draft Social Media Advertisements	√
9. Contact Key Stakeholders	√
10. Contact Businesses	√
11. Contact Councillor	√
12. Sign-In Sheets and Misc. Materials	√
13. Feedback Forms/Comment Cards	√
14. Illustrations/Poster Boards/Presentation	√
15. Additional Information Packages	√
16. Engagement Summary of Events	√

PIC RULES OF ENGAGEMENT

The outcomes of the project at hand are unknown, however have the ability to generate emotional reactions from landowners and the general public. Therefore, the tone of communication will be positive, informative, and will use plain language with an emphasis on envisioning long-term solutions for the Town of Lakeshore as a whole. The communication plan and public engagement approach consists of three components:

- **Informing stakeholders and the public** about the project and its progress.
- **Engaging stakeholders and the public** at various points into help discuss and advise landowners of findings and next steps.
- **Educating stakeholders and the public** about potential outcomes of the project such as development impacts, additional regulations, or barriers to development.

Generally, the following “**PIC Rules of Engagement**” will be communicated to the project team and stakeholders where multiple opinions may be expressed:

1. Be hard on issues, but easy on people.
2. Be present – avoid using phones or being distracted.
3. Actively listen – fully engage in the conversation and do not ignore anyone.
4. Be constructive, solution-oriented and seek mutually beneficial ideas.
5. Respect everyone's time.
6. Provide the opportunity for everyone to speak.
7. Be courteous and do not speak over someone - have one conversation at a time.

PIC DOCUMENTATION

After each round of PIC events in each phase, a PIC Summary will be created to document the process and feedback received. The summary will include the time, location and number of attendees at the public events (feedback and response), the results of the completed evaluation forms (how to improve the next phase of engagement), and correspondence received (e.g. phone calls, letters, emails). The consultation summary will be used to inform the Project Team and to update Council on what was heard and how the

Project Team had responded or resolved issues. The Engagement Summary is an important tool to monitor and ensure that community input is reflected in the project process.

FAQS, ENGAGEMENT RISKS, AND KEY MESSAGING

This communication plan identifies opportunities for landowners and the general public to participate in the process and to receive information that may be highly technical or challenge the status quo. General or specific concerns may arise that will need to be strategically communicated.

Consultation Fatigue - There is a danger of asking residents similar questions to those they have already been asked and therefore appearing to ignore previous feedback that was received in previous consultations.

Response: Shoreline management and floodplain mapping is a popular topic and may seem to be constantly discussed and in politics and elsewhere. Wherever possible, PIC events will be targeted at specific phase of the project and will be used to deliver targeted messages to solicit specific feedback in such a manner that is not too generic or overlap with previous phases.

Stakeholder Apathy - There is concern that the public might not understand how the shoreline management plan directly applies to them or their landholdings and view the process as a “waste of taxpayer money”.

Response: One of the key components of this Communication Plan will be to educate the public on how the shoreline management will be used as a tool to better understand the existing conditions as well as mitigate any future conflicts. To ensure that the new plan reflects public and stakeholder expectations, the engagement strategy considers perspectives from all that are affected by the change. An educational component including messaging will inform the public why the shoreline management plan is necessary, such as explaining the rationale behind the flood modelling and how the intent is to protect public and private infrastructure as well as health and safety.

The policy is fine the way it is (no change is needed) - Another common misconception is that “if it ain’t broke, don’t fix it”.

Response: Preparing the SMP is intended to be a preventative and not a reactive approach to flooding and climate change. The SMP aims to foresee potential issues before larger, more costly, issues arise. Instituting a transparent and educational communication plan aids in mitigating this concern. All aspects need be discussed and inform a balanced conversation to identify the efforts the Town is striving for instead of focusing on only the negative aspects. For instance, increased separation/development buffers are aimed at protecting infrastructure/investment and not reducing development capability.

Mistrust in government/consultants – this concern stems from personal and negative experiences that would have pushed on landowners to lose confidence in their government officials or industry professionals.

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Response: This concern is the most challenging issue to overcome in order to gain community buy-in. Existing mistrust may have stemmed from previous experiences or projects that had not gone too well or had poor engagement plans that “forced” the community to change that were ill-received. Gaining acceptance will be a long-term investment. This project will provide multiple opportunities to be involved as well as reporting on how feedback is used to move the project forward, which improves community ownership of the process and builds trust.

I want to build – There are many landowners that may be frustrated because the perception is that the SMP limits their permission to construct homes/buildings and is targeted toward them personally.

Response: The SMP will be derived from evidence-based scientific methodologies and will provide a set of recommendations that will help the community as a whole. Specific individual landowners or areas are not earmarked for development or non-development. The SMP reviews the entire shoreline and represents an overall scientific representation, based on existing conditions and evidence based assumptions. The SMP itself will not regulate or infringe development rights. The outcome of the SMP will become part of the overall planning framework that is implemented through policy of the Official Plan and/or the regulations of the Zoning By-law.


**MUNICIPALITY OF LAKESHORE
SHORELINE MANAGEMENT PLAN**

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March 4, 2022

**Appendix B Phase 1, Phase 2 Phase 3
“What We Heard” Reports**

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What We Heard

Public Information Centre (PIC)#1

Town of Lakeshore Shoreline Management Plan

Prepared for Town of Lakeshore
Prepared by Stantec

January 3, 2019

1614 13887



600 171 Queens Avenue, London ON N6A 5J7

Town of Lakeshore

Shoreline Management Plan

What We Heard Report

Public Information Centre 1 – November 28, 2019

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Background

The northern extent of the Town of Lakeshore consists of the Lake St. Clair shoreline and includes both serviced and unserviced development areas. Each reach of the shoreline is subject to shoreline flooding and erosion hazards.

The Essex Region Conservation Authority has been regulating development activities along the Lake St. Clair shoreline (through O. Reg. 158/06) since 1984 using flood line and erosion produced in 1976. Ongoing changes to shorelines, climate change, and continued development pressure requires the Town to update land use policies and strategies that are supported by shoreline management technical studies.

The engagement component for the project will consist of three main phases – an initial engagement with stakeholders to make introductions and identify opportunities/constraints; engagement with stakeholders and the public to review technical findings and draft policies and; and finally to present the final recommended Shoreline Management Plan (SMP) document.

Objectives

Understanding how the community interacts with shoreline areas and how they are impacted by shoreline flooding and erosion is vital to the success of the SMP. The community will be faced with issues that cross property, jurisdictional, and legislative boundaries, so we must collaborate to develop more resilient and sustainable solutions. The principles that will guide stakeholder and community engagement through the study include:

- To encourage community involvement in the planning process through transparent and accessible engagement opportunities.
- To understanding how the community perceives existing and future shoreline issues.
- To educate stakeholders on the existing and future risks and challenges, and the benefits/tradeoffs of shoreline management alternatives.
- To undertake a balanced evaluation of alternatives that reflects the priorities of all stakeholders (residents, visitors, the Town, the environment, and Indigenous communities).
- To provide clear and transparent documentation of the planning and decision-making process.

TOWN OF LAKESHORE
Shoreline Management Plan
Public Consultation Event

WHAT'S HAPPENING?
The Town of Lakeshore is embarking on a new project to investigate Lake St. Clair shoreline flooding and erosion hazards. Lake St. Clair water levels are at an all-time high, and extreme weather events are anticipated to increase in severity. The Town of Lakeshore feels that this is an opportune time to begin discussions with stakeholders to create a long-term management plan in order to address existing and future risks to public health and property and to conform with applicable Provincial policy direction. The Shoreline Management Plan will include technical analysis of erosion and flooding hazards associated with the Lake St. Clair shoreline and the identification of land use policies to better protect the shoreline areas from the cumulative impacts of development.

HAVE YOUR SAY!
Date: Thursday November 28th
Time: 4:30pm to 7:30pm
Venue: Atlas Tube Centre,
447 Renaud Rd. Belle River

Project Study Area

CAN'T MAKE THE CONSULTATION EVENT? JOIN THE CONVERSATION ONLINE!
Lakeshore is now on PlaceSpeak, an online location-based engagement platform. This platform will be used to communicate with residents and gain their feedback on a continuous basis throughout the project. We hope that you find this new avenue for interaction to be both informative and easy to use. We encourage you to sign up for free on www.lakeshore.ca/PlaceSpeak, provide feedback, and influence the initiatives that directly affect you and your community!

WWW.LAKESHORE.CA/PLACESPEAK
419 Notre Dame Street, Belle River, ON N0R 1A0
519.728.2700 Toll Free: 1-877-249-3367

What We Did

1. Project Initiation Notice Mailout

An **Advertisement** was created and sent to community landowners to officially commence the study, provide a web address to the Town's website and new engagement software (www.lakeshore.ca/placespeak), provide contact information for key team members, and provide the event details to attend the initial Public Information Centre #1 meeting.

2. Webpage Advertising

The Town of Lakeshore's official webpage was also used to provide project status updates, Public Information Session notice details and promote the PlaceSpeak engagement platform.

3. Social Media Advertising

Several social media accounts were also used to advertise the Public Information Session. The Town of Lakeshore's social media (e.g. Twitter, Facebook) account was actively posting updates to promote the Town's new PlaceSpeak engagement platform.



4. Public Information Session:

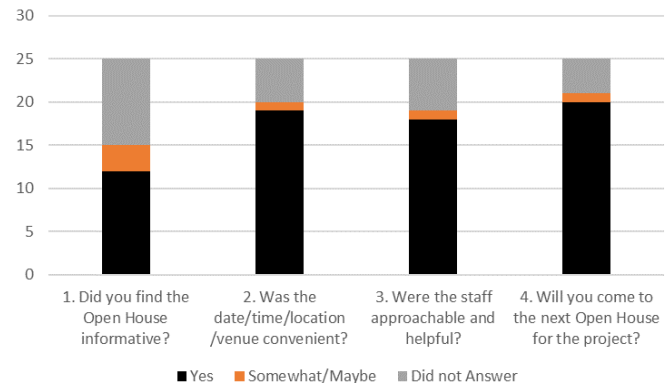
A **public event** was held on November 28, 2019 (4:30 - 7:30 PM) at the Atlas Tube Centre to introduce the project, project team and solicit community feedback. The intent of the initial meeting was to introduce the purpose of the Shoreline Management Plan, and identify local constraints and opportunities. In attendance, there were Town planning and engineering staff, consultants from Stantec and Zuzek Inc., and several members of Council. The Lower Thames Valley and Essex Region Conservation Authorities were also in attendance providing information to residents. There was an attendance of approximately 21 people. With the significant number of experts on-site, each person had the ability to speak with the right person and receive ample information.

What We Heard

Residents and landowners that were able to attend the event generally had a similar interest regarding shoreline protection for their property that backed onto Lake St. Clair. Residents identified the need to repair or improve their (break) walls and hoped that this study would propose to construct more significant upgrades to protect their private property. Residents were informed that the overall approach to Shoreline Management Plan will be to look at the shoreline holistically and introduce policy direction for the Town. The project will look beyond the lot-by-lot approach to develop a more cohesive plan for the shoreline areas.

Feedback

Participants that attended the Public Information Session were provided handouts that asked them to fill out and rate the experience, as well as additional survey questions. There were 25 completed feedback forms returned. The results of their rated experience were positive and illustrate the residents' overall satisfaction with the event and interest to attend another in the future.



PlaceSpeak.com

PlaceSpeak.com has been adopted by the Town of Lakeshore to be used as an online engagement tool to deliver project information and solicit poll/survey information. This is particularly useful for reaching out to residents/stakeholders that are unable to attend the public information meeting, or for those who had attended but were not able to submit feedback. Both a poll and survey were published online and made available for several weeks before and after the Information Session. The following portrays the amount of activity and results thus far.

PlaceSpeak Metrics

Website Traffic (as of January 2, 2020):

- Live for 41 days
- 158 Unique Views
- 15 Completed Polls
- 11 Completed Surveys

Participants

- 93 unique Followers have connected onto PlaceSpeak.
- 83% of the Followers identify as residents of Lakeshore

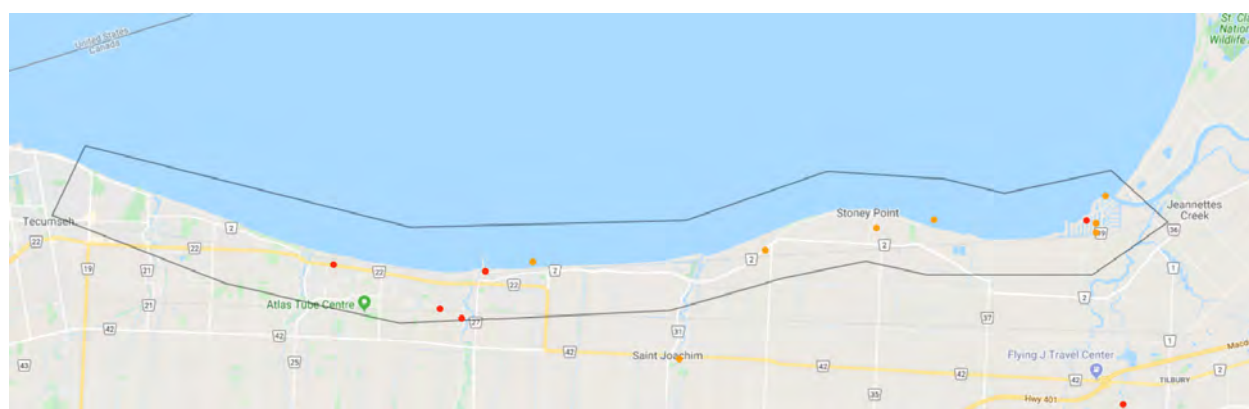
Poll Results

- 15 unique participants submitted poll data:

In the last 5 years, has your home or business been impacted by shoreline flooding?



The majority of participants (53%) responded “Yes”, that they have experienced and were impacted by shoreline flooding. Not surprisingly, poll participants that were impacted by flooding tended to be located nearest to Lake St. Clair. They also tended to be located in Stoney Point or Lighthouse Cove.



Survey Results

A total of 14 surveys were completed, 3 surveys were retrieved at the Public Information Centre and another 11 were filled out online using PlaceSpeak. The survey consisted of 13 open-ended questions that generally sought feedback from residents on what they perceived to be the greatest constraints, issues, concerns or challenges with managing rising lake levels, as well as identifying any opportunities they could see being implemented. The following is a summary of the received responses and comments.

Question: What is the greatest challenge facing shoreline communities in the short/long term?

“Erosion of the shoreline.”

“High water levels.”

“Drainage.”

“Older homes and cottages face flooding risks due to elevated water levels.”

“Water level fluctuation – high winds – erosion”

“Cleanliness”

Question: What is the greatest challenge the municipality is facing with respect to the Lake St. Clair shoreline in the short/long term?

"Climate change."

"Flooding and erosion of shoreline."

"Investments."

"Preserving municipal properties servicing all residents (Marinas, beaches, parks, parkettes, roads)."

"Loss of sand at west beach, flooding of the Lakeview Park"

Question: With respect to flooding and erosion hazards, what are the most vulnerable areas in Lakeshore?

- *"Couture Beach and the west side of Lighthouse Cove (Melody Dr)."*
- *"Caille Ave, Lakeshore Road, all the lakefront homes."*
- *"Puce and Emeryville."*
- *"Lighthouse Cove."*
- *"Little River."*
- *"Waterfront homes and parks, low lands - places with no breakwalls."*
- *"All land on the shoreline and canal systems in Lakeshore."*

Question: What are your priorities when evaluating long term solutions to the coastal hazards in Lakeshore?

Participants were asked to rank 6 priorities when evaluating coastal shoreline recommendations. With 6 points for the highest priority and 1 point for lowest priority, the following ranked priorities were determined from highest to lowest.

Priority	Ranked Points
Implementing mitigation projects to prevent flooding.	47 Points
Ensuring safe access for emergency responders.	46 Points
Protection of private property and municipal infrastructure.	42 Points
Conservation of wildlife habitat and aquatic species.	35 Points
Annual monitoring to measure effectiveness.	31 Points
The total cost to implement recommendations.	30 Points

Question: Are there other priorities or aspects that this project should be considering?

Only few participants responded to this question. The key points taken away from their responses (below) is the desire for a review of zoning and development policies and standards in proximity to shorelines, the need for an Emergency Plan or "Residents Action Plan", and that shoreline management should include discussions and partnerships with adjacent communities including the City of Windsor.

- *"The Municipality has the ability to amend current building standards for waterfront homes to ensure new constructions meets flood proofing criteria. Halting all waterfront development is a short sighted and a fiscally irresponsible approach."*
- *"Implementation of evacuation plan in the event of flooding"*

- “Urge Windsor to work with you.”

Question: What do you think could have aided or protected your home or business from flooding?

Maintenance & Operation of Drainage Channels:

“Clean drainage flow.”

“Lower water levels, better drainage.”

Emergency Preparedness Plans:

“Sand bagging was the only option and it worked.”

“Having pumps operational.”

Improved or Enhanced Breakwalls:

“Adding more rocks to our breakwall or to have the rocks moved from out of the water into a wider wall of stone.”

Question: Are there any final comments?

“Waterfront living comes with inherent risks. Caveat Emptor [buyer beware] principles need to be applied when issuing building permits. Homeowners could be required to review documents listing the risks associated with waterfront living and sign off on these risks . It is not the Municipalities responsibility to foresee and prevent every potential risk such as flooding.”

“Spending money on docks and recreational issues should come after flooding and erosion issues are handled.”

“Will the water go back down? Isn't it a cycle of high water and then low water years? “

Next Steps

A second PIC is scheduled for Phase 2, in the summer of 2020, once a technical review is completed and draft options and policies can be shared. The information and input from Phase I will be:

- Used to inform and shape recommendations for land use policies and potentially make recommendations for infrastructure improvements, where needed.
- Results from Phase 1 and Phase 2 public engagement will be used to the draft Shoreline Management Plan, which will be presented to Council in the fall of 2020.





What We Heard

Lakeshore Shoreline Management Plan Phase 2 Consultation Summary

Date: May 11, 2021



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Background

The northern extent of the Municipality of Lakeshore consists of the Lake St. Clair shoreline and includes both serviced and unserviced development areas. Each reach of the shoreline is subject to shoreline flooding and erosion hazards.

The Essex Region Conservation Authority has been regulating development activities along the Lake St. Clair shoreline (through O. Reg. 158/06) since 1984 using flood line and erosion produced in 1976. Ongoing changes to shorelines, climate change, and continued development pressure requires the Municipality to update land use policies and strategies that are supported by shoreline management technical studies.

The engagement component for the project will consist of three main phases – an initial engagement with stakeholders to make introductions and identify opportunities/constraints; engagement with stakeholders and the public to review technical findings and; finally, to present the final recommended Shoreline Management Plan (SMP) document which is expected in the summer of 2021.

Objectives

Understanding how the community interacts with shoreline areas and how they are impacted by shoreline flooding and erosion is vital to the success of the SMP. The community will be faced with issues that cross property, jurisdictional, and legislative boundaries, so we must collaborate to develop more resilient and sustainable solutions. The principles that will guide stakeholder and community engagement through the study include:

- To encourage community involvement in the planning process through transparent and accessible engagement opportunities.
- To understanding how the community perceives existing and future shoreline issues.
- To educate stakeholders on the existing and future risks and challenges, and the benefits/tradeoffs of shoreline management alternatives.
- To undertake a balanced evaluation of alternatives that reflects the priorities of all stakeholders (residents, visitors, the Municipality, the environment, and Indigenous communities).
- To provide clear and transparent documentation of the planning and decision-making process.



What We Did

1. Project Initiation Notice Mailout

An **Advertisement** was created in the first phase of this project and sent to community landowners to officially commence the study, provide a web address to the Town's website and new engagement software (www.lakeshore.ca/placespeak), provide contact information for key team members.

2. Webpage Advertising

The Municipality of Lakeshore's official webpage was also used to provide project status updates and calendar information regarding the second Public Information Session that was held virtually on April 22, 2021, including the Zoom login details. Details and links to the PlaceSpeak engagement platform were also accessible from the Municipality of Lakeshore's main page.

3. Social Media Advertising

Several social media accounts were also used to advertise the Phase 2 Public Information Session. The Municipality of Lakeshore's social media (e.g. Twitter, Facebook) account was actively posting updates to promote Lakeshore's PlaceSpeak engagement platform, which was concurrently being updated with information.



The image shows a Facebook post from the Municipality of Lakeshore. The post features a banner for the 'Shoreline Management Plan' with the Lakeshore logo and text: 'Virtual Public Information Centre', 'www.lakeshore.ca/shoreline', and 'for details and to register'. Below the banner is a photograph of a white house with a red roof situated on a lake. The post text, dated 15 April at 15:09, states that Lakeshore has embarked on a new project to investigate Lake St. Clair shoreline flooding and erosion hazards. It explains that the Shoreline Management Plan will allow the Municipality to create a long-term management plan to address existing and future risks to public health and property, conforming with applicable Provincial Policy direction. The post announces a virtual Public Information Centre on April 22 from 4-6 pm, open to all. It details the purpose of the centre: to provide the public and stakeholders with an opportunity to review findings of a technical analysis of erosion and flooding hazards, provide an overview of hazard areas, and identify management practices to better protect shoreline areas from cumulative impacts of development. The post concludes by stating that Lakeshore will also be looking for public input and provides a link to <https://www.lakeshore.ca/shoreline> and the Twitter handle @TweetLakeshore. At the bottom of the post are icons for 'Like', 'Comment', and 'Share'.

4. Public Information Session

A virtual public event was held on April 22, 2021 (4 to 6pm) over a Zoom online platform, which has been the typical alternative to public meetings over the course of the Covid-19 pandemic. The event provided an overview of the technical findings of the project, provided updated to the project team and solicited community feedback on directions for the Plan. The intent of this second PIC meeting was to outline the findings to date and discuss potential recommendations for the Plan's drafting which is to take place in Phase 3 of the project.

In attendance, there were Lakeshore's planning and engineering staff, consultants from Stantec and Zuzek Inc., and several members of Council and members of the community. There was an attendance of approximately 22 people. With the significant number of experts on the call, each person had the ability to ask questions about the technical review and resulting data and information.

5. Technical Findings Webpage

A summary of the technical findings to date have been consolidated in a virtual platform available at:

<https://sway.office.com/YjN7QSkKOFbmPwTh>

The webpage was developed using an app from Microsoft Office called "Sway" that allows for the easy creation and sharing of interactive reports, presentations and more – combining media and text to create a presentable and shareable website. This was created in lieu of a typical in-person poster presentation that would have been set-up if the event were to take place as initially planned at the outset of this project.

To date, the website has had 58 views. These views were comprised of 35 glances, 9 quick reads, 14 deep reads, according to the Microsoft monitoring tool. The webpage contains the following information and material:

- Easily scrollable Hazard Maps of the Lakeshore Shoreline, organized from 1 to 35, including the depths of the flooding hazard;
- The April 22, 2021, presentation slides presented as a 5 ½ minute video;
- Descriptions of the types of shoreline hazards that are presented on the technical mapping ("Hazard Maps");
- An explanation of how the risks and considerations of climate change were incorporate into the delineation of the Hazard Maps for the shoreline;
- Visual renderings of three (3) sites along the shoreline showing average summer levels with increases flood risks due to the lake level rise anticipated due to climate change. The sites selected were: Pike Creek, Puce, and Belle River;
- The land use policy framework for planning development along shorelines and within areas of natural hazard concern;
- The objectives of the Shoreline Management Plan and typical adaptation responses to consider;
- Descriptions of other related projects of the Municipality of Lakeshore;

- A link to provide feedback on the discussion questions that were presented in the PIC #2 and summarized in the following Section.

What We Heard

Residents and landowners that were able to attend the event generally had a similar interest regarding shoreline protection for their property that backed onto Lake St. Clair. Residents identified the need to repair or improve their (break) walls and hoped that this study would propose to construct more significant upgrades to protect their private property. Residents were informed that the overall approach to Shoreline Management Plan will be to look at the shoreline holistically and introduce policy direction for the Municipality. The project will look beyond the lot-by-lot approach to develop a more cohesive plan for the shoreline areas.

Feedback

Participants that attended the Public Information Session were provided a link to a survey which would allow them to provide longform answers to questions and rate the experience. No feedback forms were completed/submitted. The results are therefore inconclusive.

General Questions & Answers

Residents and landowners who attended this PIC were given the opportunity to ask specific questions during General Question and Answer breaks during the meeting. Questions below are from the participants and answers were provided by either Stantec Consulting representatives, Zuzek Consulting representatives, or municipal staff.

Questions and Answers:

- ?** Q: *Water levels have been high in previous decades. How is this work different from what was used then? How were the levels in this Management Plan determined and how was the climate change amount determined?*

 - A: *Water levels have been generally higher the last couple years and climate change is expected to make things worse. We need to consider how we can plan better to keep the health of the community and maintain access. Environment Canada had a very comprehensive study completed using a range of climate experts to come up with their results. – Zuzek Consulting Representative*
- ?** Q: *Are the simulations shown in the presentation available for all areas of Lakeshore or only the 3 locations shown?*

 - A: *The locations were selected in coordination within the municipality where risks were high. Resources were available to produce these three locations but other locations have not been done. – Zuzek Consulting Representative*
- ?** Q: *The conceptual maps illustrating the extent of flooding indicates that there is are potential impacts not only to residential property and the Town's infrastructure, but also a threat of*

structural floor damage to railway infrastructure. Has the rail company participated in any of the discussions to date?

- *A: Via Rail hasn't been consulted yet but will likely be made aware now that we have the information available to share. – Stantec Consulting Representative & Municipal Staff*

? *Q: The Sanitary/Stormwater system has been overwhelmed when lake levels are high. What will be done to avoid this in future?*

- *A: Yes, the high lake levels are expected to impact these systems as well as road access. A range of recommendations for storm system improvements are provided in the Stormwater Master Plan which can help address these vulnerabilities. – Stantec Consulting Representative*

? *Q: Can you share your recommendations with us?*

- *A: Recommendations will be part of Phase 3 of the work and will be presented at the 3rd PIC. – Stantec Consulting Representative*

? *Q: Your planned schedule looks pretty aggressive. Do you feel confident you can meet these deadlines?*

- *A: We plan to get this project to council in a timely fashion in order to meet the deadlines. – Stantec Consulting Representative*

? *Q: What is going to be in the scope in terms of recommendations for individual property solutions to this issue? Can you elaborate on solutions being considered within the study for effective action? – Zuzek Consulting Representative*

- *A: There will likely be recommendations for things you can do on your property, for example upgrading sea wall. Solutions presented may be more general in nature. Recommendations won't include specific solutions with detailed drawings, etc. – Zuzek Consulting Representative*

? *Q: Is there a plan to address the conversion of residential septic tanks to septic sewers?*

- *A: That could be a consideration, for example, in Lighthouse Cove where the Municipality is looking at putting in a municipal sanitary system. We will take the mapping information that has been prepared and incorporate it into the planning bylaw. We would, however, still require an engineer to look at how this impacts new development. – Municipal Staff*

? *Q: There are probably a lot of things homeowners in the area could do to our homes to protect them better. Would it be possible for someone from the Town to consult with waterfront/flood risk landowners on what they can do better? Is it possible to provide a list of recommended partners or companies that landowners could work with?*

- *A: The SWMP has some recommendations which could be helpful. The height of sea walls has been previously mentioned as someone homeowners can improve to protect their property. We're unsure at this time if a recommended list of companies to address impacts would be available. – Stantec Consulting Representative, Zuzek Consulting Representative, Municipal Staff*

Discussion: Questions & Answers

Adaptation Strategies:

What option do you feel is the most appropriate long-term mitigation strategy to reduce flood risk and increase resilience?

Did any of the strategies presented introduce a concept that you strongly disagree with? If so, why?

- *"Should do portions of all four options"*
- *"Full Retreat option not feasible"*
- *"Are there interim solutions other than Sandbags?"*

Past Experience:

What is your experience with flooding in the past? (e.g. loss of land, basement floods, insurance impacts, etc.). How severe has your experiences with flooding been? (e.g. minor nuisance vs. major damage to property)

- No response – Participants encouraged to fill out response on the provided form.

Scale of Solutions:

Would you be interested in participating in a community scale flood mitigation concept (versus every landowner doing something different)?

What scale do you think is most appropriate to address these challenges?

Would you support management approaches that rely on financial contributions from private landowners and other sources?

- *"Watershed approach would be best"*
- *"Everybody has to do the same thing"*
- *"Neighbourhood has to be on the same page"*
- *"Solutions are potentially very expensive"*
- *A: The intent is to prepare a plan for when funds become available (ie. Federal funding opportunities) to help mitigate costs. – Stantec Representative*
- *A: Traditionally, private owners have had responsibility for their own seawalls. It will need to be determined if there are incentives/funding to support solutions implemented by the municipality. We're hopeful the study will help with pursuing funding options. – Municipal Staff*

Climate Change Risk:

Should the community be taking steps now to adapt to future flood risks associated with climate change?

- *"Yes, steps we can take are limitless if there is a lot of provincial and federal funding"*
- *"Yes, Municipality will need to advocate for funding"*

- *“Yes, but concerned about the financial burden for homeowners”*
- *“Yes, but don’t want the Municipality to get into the business of lending money to private owners”*
- *“Yes, and prefer use of hard and soft engineering practices”*
- *“Yes, we should be building in resiliency and minimizing peak flows”*



Q: *“Could we explore the option of putting barriers offshore to help break waves before the wall?”*

- *A: Offshore barriers is a strategy being used in Canada and internationally. The concept is worth looking into, but will have to consider how this impacts recreational boating as a hazard. The most likely solution will be close to seawalls themselves using a sloping face so that the waves don’t crash as high as they would along a vertical wall. – Zuzek Consulting Representative*



Q: *Are natural approaches applicable? Does this include rocks?*

- *A: Traditional approaches include the use of rocks, concrete, and steel. Hybrid solutions that incorporate natural elements are becoming more popular. Other ideas would be to slope beaches to deflect wave energy, and incorporating vegetation. A White Paper about how we can do more with natural solutions has been created. Options that improve ecosystems and natural environments will help when pursuing funding. Hybrid Solutions may be well suited for this project. – Zuzek Consulting Representative*



Q: *Any thoughts about restoring our wetlands and floodplains?*

- *A: These are the types of projects that can be included when taking steps to reduce flood risks etc. Federal funding would likely go to solutions that also benefit habitats. – Zuzek Consulting Representative*

Next Steps

A third PIC is scheduled for Phase 3, in the summer of 2021, once a draft shoreline management plan and its associated recommendations are completed and the final suggested options and policies can be shared. The information and input from Phase 2 will be:

- Used to inform and shape recommendations for land use policies and potentially make recommendations for infrastructure improvements, where needed.
- Results from Phase 1 and Phase 2 public engagement will be used to the draft Shoreline Management Plan, which will be presented to Council after the public has had an opportunity to review and comment on the draft recommendations.



Town of Lakeshore

Shoreline Management Plan

What We Heard Report

Public Information Centre 3 (Virtual)

February 22, 2022



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Background

The northern extent of the Municipality of Lakeshore consists of the Lake St. Clair shoreline and includes both serviced and unserviced development areas. Each reach of the shoreline is subject to shoreline flooding and erosion hazards.

The Essex Region Conservation Authority and the Lower Thames Conservation Authority have been regulating development activities along the Lake St. Clair shoreline (through O. Reg. 158/06) since 1984 using flood line produced in 1976. Ongoing changes to shorelines, climate change, and continued development pressure requires the Municipality to update land use policies and strategies that are supported by shoreline management technical studies and updates mapping.

The engagement component for the project consisted of three main phases – an initial engagement with stakeholders to make introductions and identify opportunities/constraints; engagement with stakeholders and the public to review technical findings and; finally, to present the final recommended Shoreline Management Plan (SMP) document which is expected in March of 2022.

Objectives

Understanding how the community interacts with shoreline areas and how they are impacted by shoreline flooding and erosion is vital to the success of the SMP. The community will be faced with issues that cross property, jurisdictional, and legislative boundaries, so we must collaborate to develop more resilient and sustainable solutions. The approach that guided stakeholder and community engagement through the study include:

- To encourage community involvement in the planning process through transparent and accessible engagement opportunities.
- To understanding how the community perceives existing and future shoreline issues.
- To educate stakeholders on the existing and future risks and challenges, and the benefits/tradeoffs of shoreline management alternatives.
- To undertake a balanced evaluation of alternatives that reflects the priorities of all stakeholders (residents, visitors, the Municipality, the environment, and Indigenous communities).
- To provide clear and transparent documentation of the planning and decision-making process.



What We Did

1. PIC #3 Notice

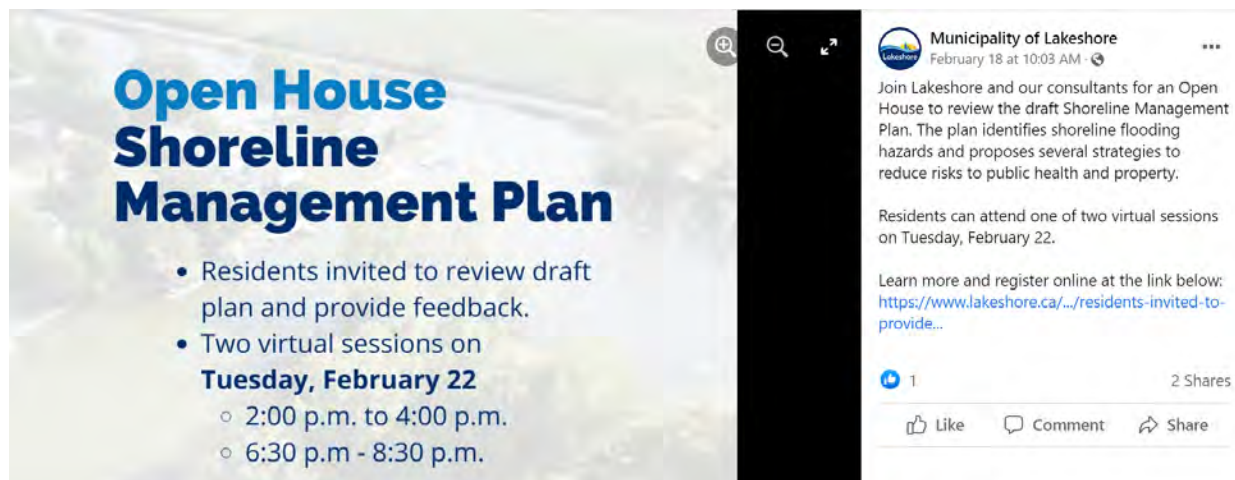
A **Notice** was created in the third phase of this project and sent to community landowners to make landowners aware of the planned, final PIC event. The Notice included background information about the project, log-in details for the event, as well as contact information for the project team. The Notice was sent out to the project stakeholder list via email and was also posted to the project PlaceSpeak page.

2. Webpage Advertising

The Municipality of Lakeshore's official webpage was also used to provide project status updates and calendar information regarding the third and final Public Information Session that was held virtually on February 22, 2022, including a sign-up form to request to receive the Microsoft Teams login details. Details and links to the PlaceSpeak engagement platform were also accessible from the Municipality of Lakeshore's main page.

3. Social Media Advertising

Several social media accounts were also used to advertise the Phase 3 Public Information Session. The Municipality of Lakeshore's social media (e.g. Twitter, Facebook) account was actively posting updates to promote Lakeshore's PlaceSpeak engagement platform, which was concurrently being updated with information.



4. Public Information Session

Two virtual public events were held on February 22, 2022 (2 to 4pm and 6:30 to 8:30pm) over the Microsoft Teams online platform, which has been the typical alternative to public meetings over the course of the Covid-19 pandemic. The purpose of the third and final Public Information Centre was to provide the public and stakeholders with an opportunity to review and provide input on the draft, complete

shoreline management plan, which contains shoreline improvement recommendations for the short and long term.

In attendance, there were Lakeshore's planning staff, consultants from Stantec and Zuzek Inc., several members of Council and members of the community. In total, attendance at the events was as follows:

- Afternoon session: 11 attendees (15 pre-registrations)
- Evening session: 5 attendees (5 pre-registrations)

With the significant number of experts on the call, each person had the ability to ask questions about the technical review and resulting data and information.

5. Technical Findings Webpage

A summary of the technical findings to date have been consolidated in a virtual platform available at:

<https://sway.office.com/YjN7QSkKOFbmPwTh>

The webpage was developed using an app from Microsoft Office called "Sway" that allows for the easy creation and sharing of interactive reports, presentations and more – combining media and text to create a presentable and shareable website. This was created in lieu of a typical in-person poster presentation that would have been set-up if the event were to take place as initially planned at the outset of this project.

To date, the website has had 244 views. These views were comprised of 174 glances, 38 quick reads, and 32 deep reads, according to the Microsoft monitoring tool. The webpage contains the following information and material:

- A fly-over video of the Municipality of Lakeshore, illustrating the 1:100 year flood hazard limit for the shoreline;
- The February 22, 2022, presentation slides presented as a 3 ½ minute video;
- A summary of the Shoreline Management Plan Recommendations, by Reach Area;
- A Summary of what a Shoreline Management Plan does and can achieve;
- Descriptions of the types of shoreline hazards that are presented on the technical mapping ("Hazard Maps");
- An explanation of how the risks and considerations of climate change were incorporate into the technical analysis and findings of the report;
- Visual renderings of three (3) sites along the shoreline showing average summer level, the 100-year lake level, and the 100-year climate change lake level. The sites selected were: Pike Creek, Puce, and Belle River;
- The land use policy framework for planning development along shorelines and within areas of natural hazard concern;

- The objectives of the Shoreline Management Plan and typical adaptation responses to consider;
- Descriptions of other related projects of the Municipality of Lakeshore;
- A link to provide feedback on the discussion questions that were presented in the PIC #2 and summarized in the following Section.

What We Heard

Residents were informed that the overall approach to Shoreline Management Plan is to look at the shoreline holistically and introduce policy direction for the entire Municipality. The project looks beyond the lot-by-lot approach to develop a more cohesive plan for the shoreline areas.

Feedback

Polls were posed within each PIC session to obtain live feedback from attendees. Participants that attended the Public Information Session were also provided a link to a survey which allowed them to provide longform answers to questions and rate the experience. This survey was also shared with the project stakeholders list. The results are provided in the following subsections.

Poll Responses

Polls, the Microsoft Teams Tool, was utilized during each PIC session. The poll responses were posted throughout each PIC session to obtain live feedback from attendees and to keep attendees engaged during each virtual event. Six (6) polls were asked in total for each session and the responses overall are as follows:

- Almost 40% of attendees at the PIC sessions have had their home or business impacted by shoreline flooding in the last 5 years.
- 19 % of attendees are very concerned about emergency vehicle access in Lakeshore during a coastal flood. 37% are somewhat concerned, and 26% are not very concerned.
- 40% of attendees were surprised by the extent of flooding shown on any of the visualizations and/or mapping shown as part of the presentation. 41% were not.
- 88% of attendees believe that the Municipality of Lakeshore should complete further local-scale studies to evaluate limitations with their emergency vehicle fleet (fire, ambulance, police) during a coastal flood and develop appropriate adaptation/contingency plans to improve emergency access.
- 82% of attendees advised that they would support stronger development controls in Lakeshore so future buildings and infrastructure are located away from areas impacted by natural hazards.
- 88% of attendees believe that the Municipality and landowners should collaborate on future reach-specific studies to develop guidelines for shoreline protection upgrades and implement a minimum standard of protection for every property along the lake and rivers.

Survey Responses

Two survey responses were received in total following the third PIC. The responses received were very contrasting and therefore lead to inconclusive results. The general questions and answers, as well as the poll results were more conclusive. Feedback received from the surveys included the following:

What are your initial thoughts about the recommendations of the report?

- I hope to get a copy of the report. I was late to the meeting.
- I have owned property in Lighthouse Shores since the canal development was completed in 1969. My property is on Quenneville. Both Quenneville & Duplessis have never had roads but have formal lot plans submitted and are considered development vs infill on the other 6 roads in this canal community. A secondary plan to consider this area was not discussed. As a result, your recommendations provide limited creative solutions to capturing the value to the community that developing this area can provide. Practical flood mitigation alternatives were given limited discussion. The crisis approach to panic owners, community or municipality does not provide an inclusive, participative approach to addressing each of these lake shore impacted areas.

Are there any recommendations missing, or anything you feel should be more thoroughly considered as the municipality finalizes the report's recommendations?

- Yes, include properties on the adjacent side of road from the lakefront properties.
- Your recommendations are short sighted and do not provide sufficient consideration for building in this area and does not consider that substantial investment in the area has already been made and tax revenue from this area could be substantial if developed. More substantial mitigation steps should be established to recognize the value of the existing and potential community enhancement.

Are there any recommendations that you feel should be deleted?

- Not that I can see.
- Freezing development should be a very last option or be eliminated. It does not appear as though we are close to that.

Did any of the strategies presented introduce a concept that you strongly disagree with? If so, why?

- I missed the first portion of the meeting but I hope that all of Lakeshore development is under the same microscope as their waters are diverted to the shoreline via concrete and asphalt.
- Freezing development should be a very last option. It has been presented as a close term priority and without considering the impact to growth, increased density or responsible development. Emphasis absolutely needs to be RESPONSIBLE DEVELOPMENT moving forward.

What is your past experience with flooding? (e.g. loss of land, basement flooding, insurance impacts, etc.)

- Storm water surges have caused issues and we are concerned. Rain causes many sleepless nights between monitoring pumps, drainage, sandbagging and shore wall.
- I have owned property on Quenneville Drive since 1969 and have seen water levels change as much as 3 feet this year alone. Yes, water levels have breeched older break walls but have since receded. Lake surge is also an issue. New enhancements & additional mitigation need more emphasis in this proposal. I haven't had my lots on Quenneville resurveyed to determine the impact to my waterline but my property has remained above water.

Would you be interested in participating in a community-scale flood mitigation concept (versus every landowner doing something different)?

- I don't believe this will happen. We have been asking for this for a while and we have spent money to secure our area already while others have done nothing.
- I am interested in considering all mitigation strategies.

Would you support management approaches that rely on financial contributions from you and a collection of neighbours? For instance, through a local improvement charge associated with your municipal taxes.

- If that is the way to get this resolved. It should be investigated that the development of new properties with excessive amounts of concrete and asphalt are not responsibly maintaining their own water. These new property developments are also the ones that have basements.
- I would consider it if I am also granted the opportunity to have building permits. Infrastructure in Lighthouse Shores must be brought to standard in advance including roads for Duplessis & Quenneville before I would be in support of contributing to such a fund.

Should the community be taking steps now to adapt to future flood risks associated with climate change?

- Yes as the storm water is not being adequately controlled. It feels like long term residents are the ones saddled with the responsibility. It appears to me that the "turn over" of ownership in the new property developments has been very high.
- The community should be involved in establishing near and long term strategies to adapt to flood risks so that short term funding does not become redundant, wasted resource as longer term strategies are implemented

General Questions & Answers

Residents and landowners who attended this PIC were given the opportunity to ask specific questions during General Question and Answer session during the meetings. Questions below are from the participants and answers were provided by either Stantec Consulting representatives, Zuzek Inc. representatives, or municipal staff.

Questions and Answers:



Q: Do you also utilize data from the US Marine Army Corp. regarding ice coverage of the great lakes?

A: Ice cover data from the Great Lakes Environmental Research Laboratory, part of the USA Federal Government, is used regularly.



Q: Does the climate model include rainfall of the Great Lakes Basin? And, has Canadian Pacific Rail (CPR) been consulted, as it is clear the CPR Line is not holding the water that it was thought to.

A: Yes, CPR and members of their consultant team have been consulted. Additionally, Environmental and Climate Canada simulates the processes that impact lake levels (rainfall, snow, snow melt, evaporation over the lakes, and evapotranspiration over the land). Science is not suggesting the lakes will only be high – is saying that there will still be high and low periods but the extremes will be more extreme.



Q: Can you confirm if the video shown of the shoreline is the joint 1:100 year urban rainfall based flood and coastal flood at the same time?

A: No, the analysis and flood mapping is just the combined impact of the high lake levels and storm surges, it is not assuming rain. The analysis did not include rainfall inputs.



Q: Will this policy address floating homes or structures being built on docks out into the lake?

A: Not sure about floating homes along the lakeshore, as they typically work where they are sheltered from wind and waves, etc. This idea was also brought up by the Conservation Authority in their comments, so we will be addressing it in the updated report. It could be a possible alternative in some instances in very sheltered areas (e.g., creeks and canals, not open lakes), where a proponent comes forward with a design that is innovative and structurally sound, and properly engineered. Consideration for ingress and egress for vehicles and emergency management during a time of flooding, would still need to be evaluated.

Municipal staff also advised that Lakeshore recently approved a zoning by-law that bans floating homes in all locations of Lakeshore (river or shoreline). If someone proposed one, they would need to apply for a zoning amendment, and it would be reviewed on a case-by-case basis.



Q: What is the timeline beyond comments being due February 24th?

A: March 15th is the council meeting date. The draft report will be provided early March to Council and posted to the website for public download on March 11th.



Q: From information received to date, will any part of the plan change drastically?

A: Nothing materially will be changed but will need to clarify 'redevelopment' so as to not confuse it with 're-building'. Certain recommendations have been requested to be expanded on, as well. Also, there is a need to be clearer to the implementation of the shoreline management plan through permitting with conservation authorities and agencies.



Q: Flood task force will get copy of the plan? Is there a problem with me sharing it with the task force?

A: No. not an issue with sharing this information, both the slides from tonight and the draft report.



Q: What are the controls to lake level and who has control?

A: There are no human controls on water levels in Lake St. Clair – only natural systems. There are no dams or other methods of control. There are only a few places in the Great Lakes (St Lawrence River and Lake Ontario) that have human controls, but these locations do not impact Lake St. Clair. It is important to work together with municipalities like Lakeshore to help communities learn to live with flooding. In summary, there is nothing we can do to change anticipated lake flooding levels



Q: Does wave activity include surge?

A: Yes.



Q: I have two old cottages on two adjoining lots in Stoney Point East (Reach 5). Both are approximately 80 years and not amenable to any modification to their current structure in order to flood-proof them. Specifically, architects have already told me that it is not feasible or economically sensible to try to raise the foundation, given their age and condition. One lot has a new ERCA approved break wall. The other is partially protected and a protective berm could be added to the existing sand beach. The only sensible solution to have a flood-proof home is to raze both cottages and build one new larger house over both lots, and build that house on a new higher foundation. Is there any part of your proposal (i.e., against "new development") that would prevent me from doing this?

A: Access to and from (emergency access) is important. This is a lot specific question and is something that would need to be discussed with the ERCA and Municipality. Access into and out of individual properties is increasingly important, as regulated by the Province, but is something that the Municipality and ERCA would have to look at in more detail.



Q: Zone 7 appears that the rail tracks are still below 100 year flood lake level. What are the alternatives there?

A: While some area is above the 100 year flood, some are not and there are also culverts and low-lying roads that go under the tracks and allow flood waters to move further inland.



Q: What about the properties on the opposite side of the road from the lake? Their plans should also be collaboratively shared with concerned properties. They have added fill to their properties

and these are pushing water to homes on the waterside of the road. There are no detention ponds or any controls developed into their plans.

A: All properties on hazardous lands go through conservation authority review to confirm compliance. Any property within the flood hazard of the specific reach, regardless of the side of the road they are on, would be subject to the recommendations of the SMP.

? *Q: There should be more creative solutions, not just prohibiting development.*

A: Working together as a community is an innovative solution, understanding the impact that this will have on the community and coming together to create a solution is not happening in other places across the province. Not developing is really the only solution. This will also need to be combined with other approaches to help mitigate the existing flood risk.

? *Q: Does the Plan differentiate infill vs development activities?*

A: Generally, both are being addressed at the high-level, however, no matter greenfield or infill, both are not encouraged on hazardous lands. Development in the plan refers to anything that changes the density or use of property (both existing built-up area and new).

? *Q: I had involvement in Detroit River Development in early 2000 and they thought the river was going to dry-up. What has changed?*

A: Simulating the climate in the future is challenging. Older models of climate impact did not have a good way to model evaporation and linked evaporation losses to temperature. Older models were over-predicting the loss of water from the lakes and land. New research from Environmental and Climate Change Canada has more robust way to model evaporation losses. We are not suggesting, however, that lake levels will not continue to go through peaks and lows. New highs are going to be higher, new lows are going to be lower.

? *Q: It appears that the entire community of Lighthouse Cove is coloured blue. This area is currently having sewage problems. The municipality should not even consider constructing a new sewage system. It would be throwing good money after bad. Shouldn't Lighthouse Cove go under a retreat protocol instead of accommodate?*

A: Both retreat and accommodate are viable strategies. The easiest part is to lay out the option. The challenging part is to implement the options as to be determined and implemented and approved by the local Lighthouse Cove community, staff, council, and the Conservation Authority.

Next Steps

This third PIC was the final PIC scheduled for the Shoreline Management Plan Project. Stantec Consulting Ltd. and Zuzek Inc. will now take the comments received to date from the public, as well as the comments received from staff, agencies, and the TAC committee, and incorporate said comments into the final Shoreline Management Plan. It is the intent of the project team to post the final document to the project website on March 11th and bring the Plan before Council for adoption on March 15th.

**MUNICIPALITY OF LAKESHORE
SHORELINE MANAGEMENT PLAN**

COUNCIL DRAFT REPORT

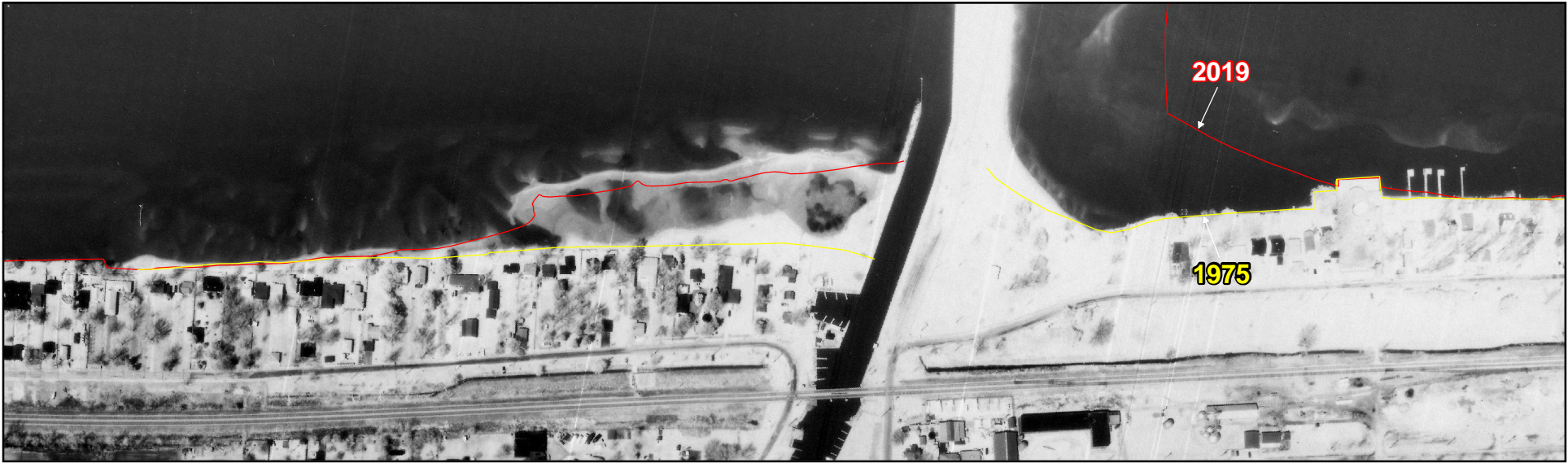
References

March 4, 2022

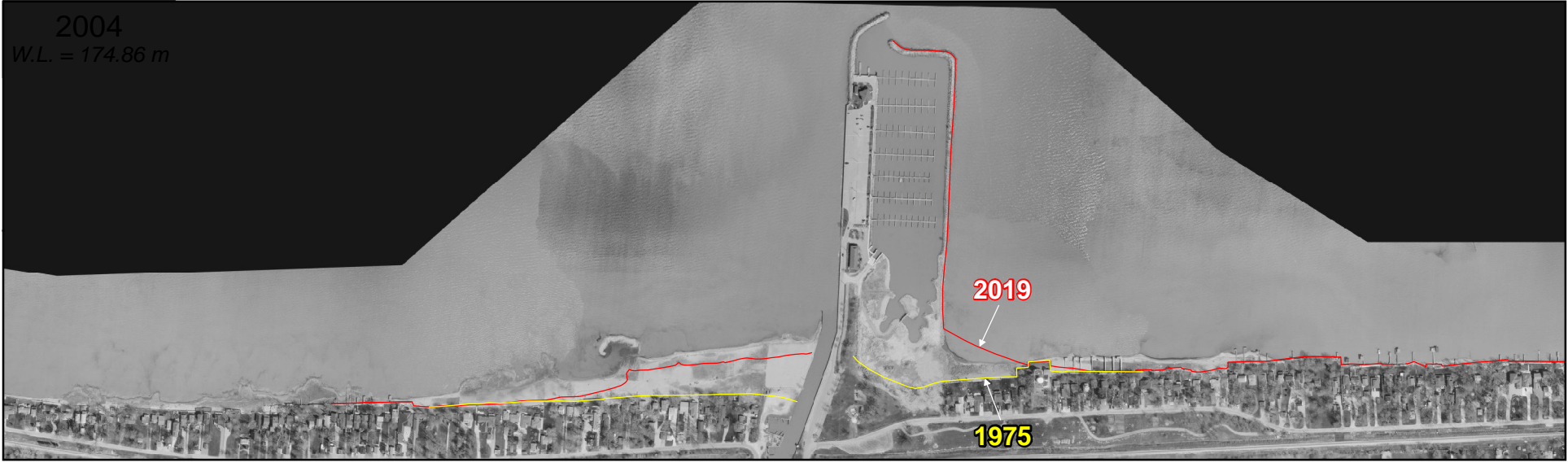
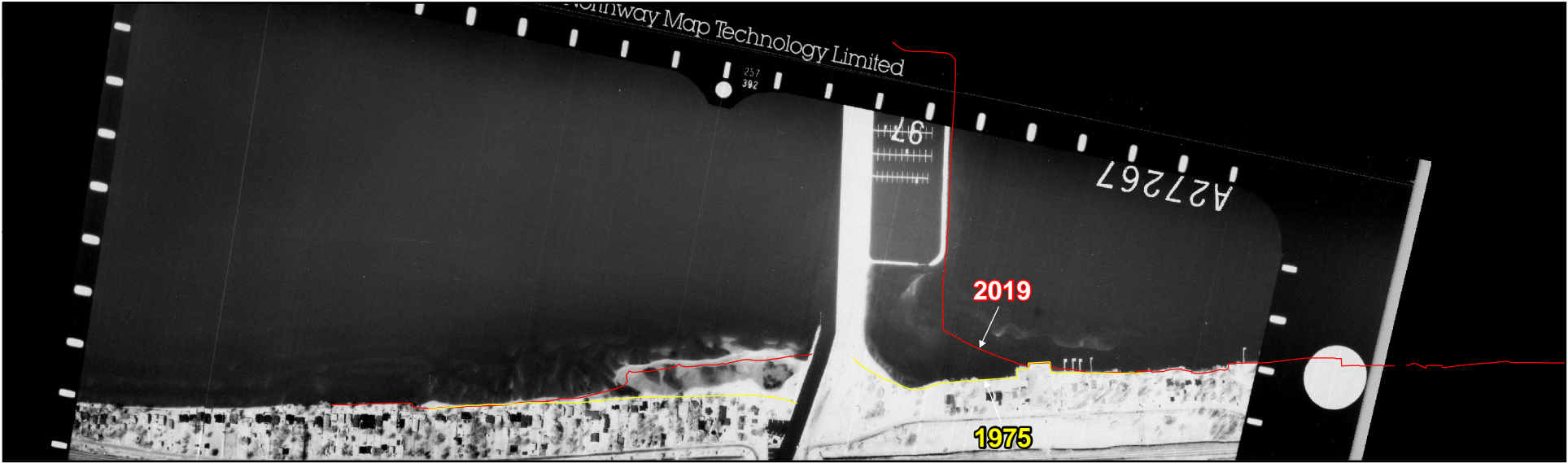
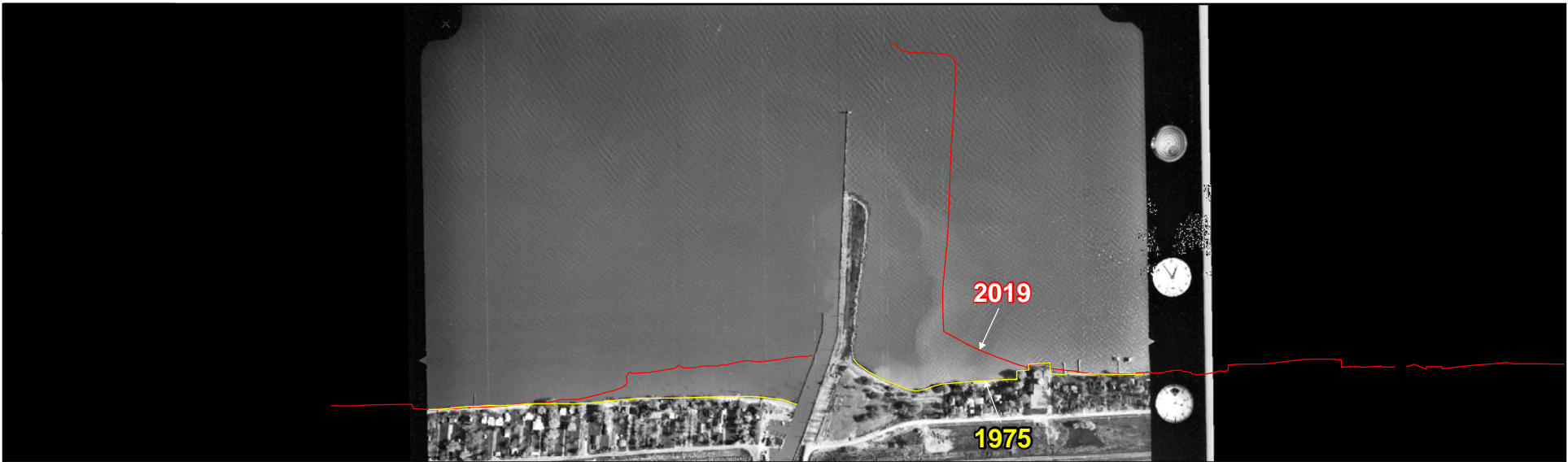
Appendix C Shoreline Change Maps

DRAFT

















2004
W.L. = 174.86 m



2015
W.L. = 175.20 m



2019
W.L. = 175.63 m



**MUNICIPALITY OF LAKESHORE
SHORELINE MANAGEMENT PLAN**

COUNCIL DRAFT REPORT

References
March 4, 2022

Appendix D Mapping of Shoreline Flood Hazards

DRAFT

MUNICIPALITY OF LAKESHORE

HAZARD MAPS


SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

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- > 0.9 m (> ~3 ft)



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- From the west boundary to Belle River (Maps 1 to 12): +176.39 m IGLD85 (+175.86 m CGVD2013)
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- From Stoney Point to Lighthouse Cove (Maps 25 to 35): 176.57 m IGLD85 (+176.1 m CGVD2013)

Flood Hazard Limit
The Flood Hazard Limit is defined as the 100-Year Flood Level plus an allowance for wave runup and uprush. For the exposed shoreline, wave effects are calculated based on localized nearshore conditions and waves. Lake flooding in tributaries and drains estimated. Riverine floodplain not mapped. Refer to the Municipality of Lakeshore Shoreline Management Plan for additional details.

Erosion Hazard Limit
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Dynamic Beach Hazard Limit
The Dynamic Beach Hazard Limit is defined as the sum of the Flood Hazard plus 30 metres measured inland horizontally. If local conditions transition to other land uses (e.g., roads, parking lots, buildings), the inland extent is the limit of the beach material. The offshore limit is approximately the 2 m depth contour.

INTERPRETATION OF THE HAZARD MAPS:

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DATA SOURCES:

2020 Orthophotography provided by the County of Essex.

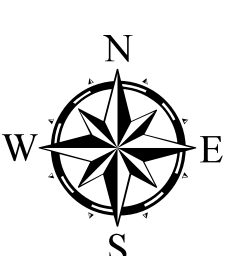
2017 LiDAR Digital Terrain Model obtained from the Ministry of Natural Resources and Forestry. Contains information licensed under the Open Government Licence – Ontario (land elevations modified post-2017 will not be reflected in this mapping).

Inset Map: © OpenStreetMap contributors



Datums:
Horizontal: UTM 17N NAD1983, metres
Vertical: IGLD85, metres

Datum Conversion:
IGLD85 - CGVD2013 = 0.47 m (average)
To convert from IGLD85 to CGVD2013, subtract 0.47 m.
IGLD85 and CGVD1928 are equivalent (average difference of 0 m).

0 50 100 200 m



PREPARED BY:



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Map
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MUNICIPALITY OF LAKESHORE

HAZARD MAPS

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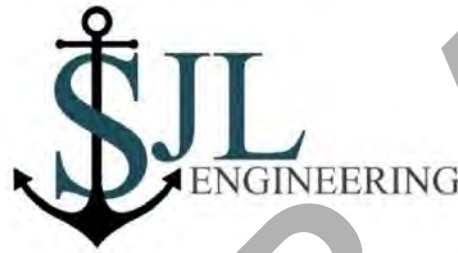
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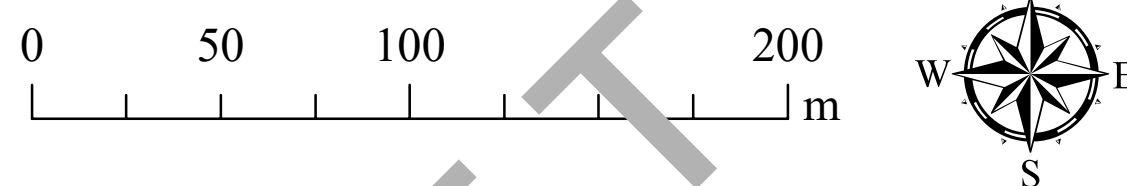
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Municipality of Lakeshore Hazard Maps

SHORELINE MANAGEMENT PLAN

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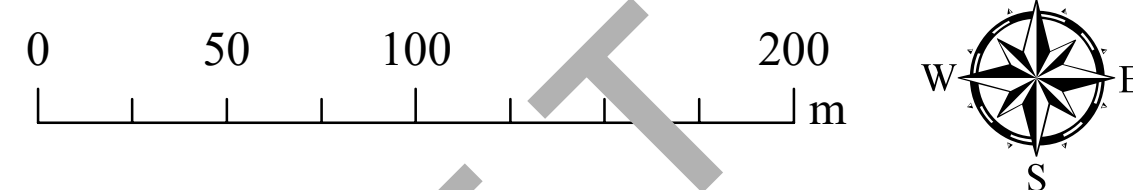
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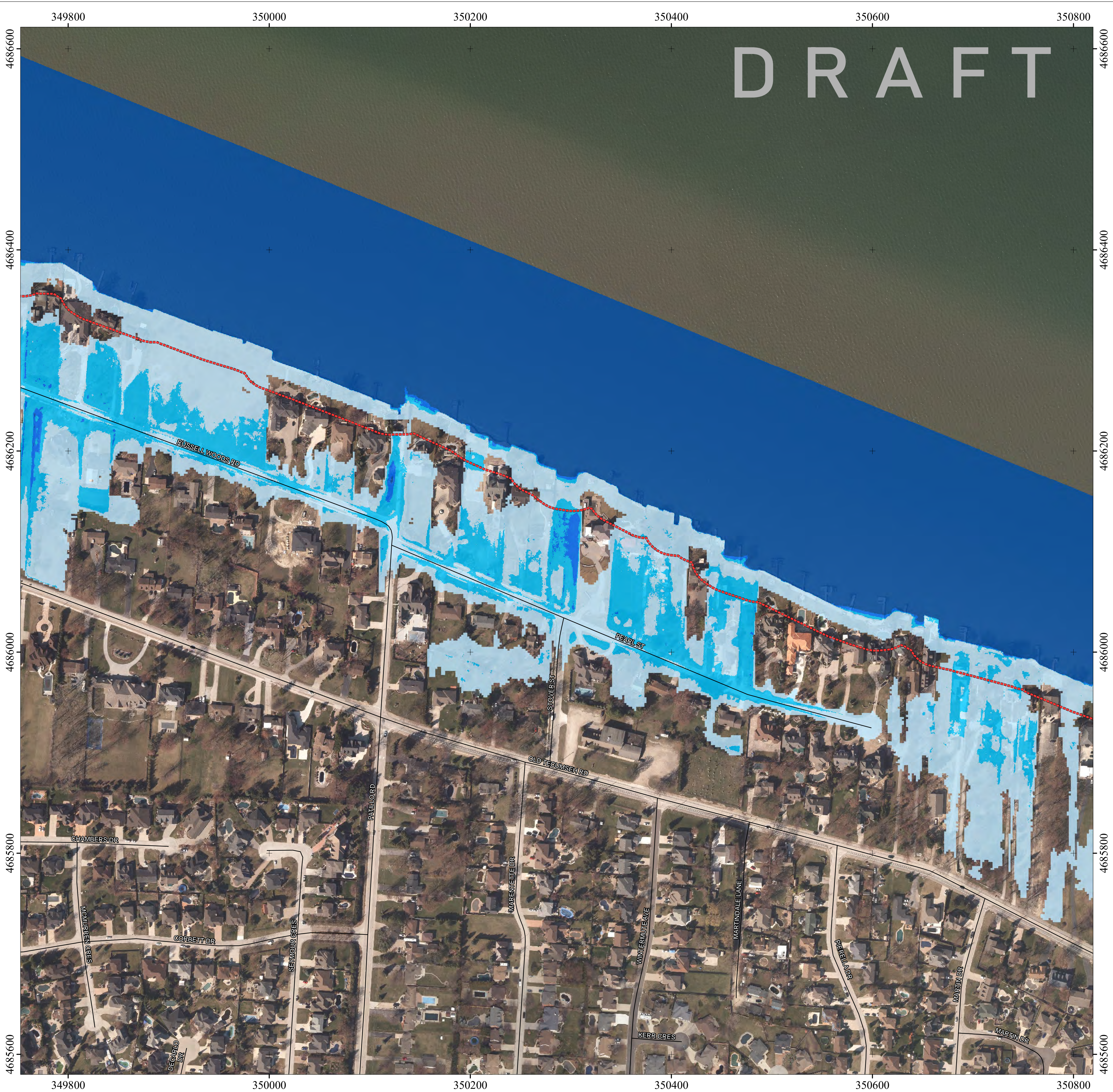


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MAP PUBLISHED APRIL 2021

Map
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Inset Map: © OpenStreetMap contributors

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Flood Hazard Limit

The Flood Hazard Limit is defined as the 100-Year Flood Level plus an allowance for wave runoff and uprush. For the exposed shoreline, wave effects are calculated based on localized nearshore conditions and waves. Lake flooding in tributaries and drains estimated. Riverine floodplain not mapped. Refer to the Municipality of Lakeshore Shoreline Management Plan for additional details.

Erosion Hazard Limit

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Dynamic Beach Hazard Limit

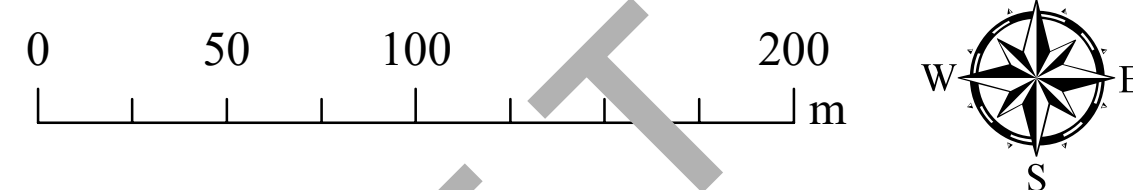
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Datums:

Horizontal: UTM 17N NAD1983, metres
Vertical: IGLD85, metres

Datum Conversion:

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PREPARED BY:



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Mapping prepared by Zuzek Inc. for the Municipality of Lakeshore, with support from The County of Essex.

MAP PUBLISHED APRIL 2021

Map
4 of 35

Municipality of Lakeshore Hazard Maps

SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

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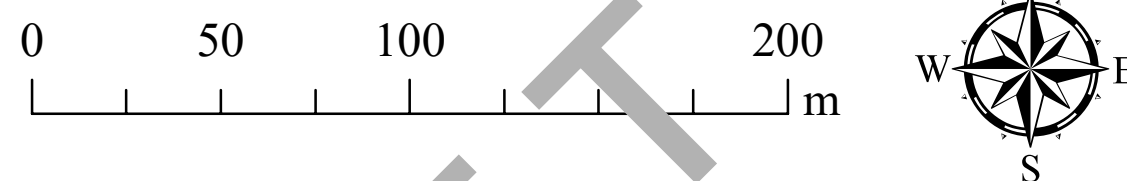
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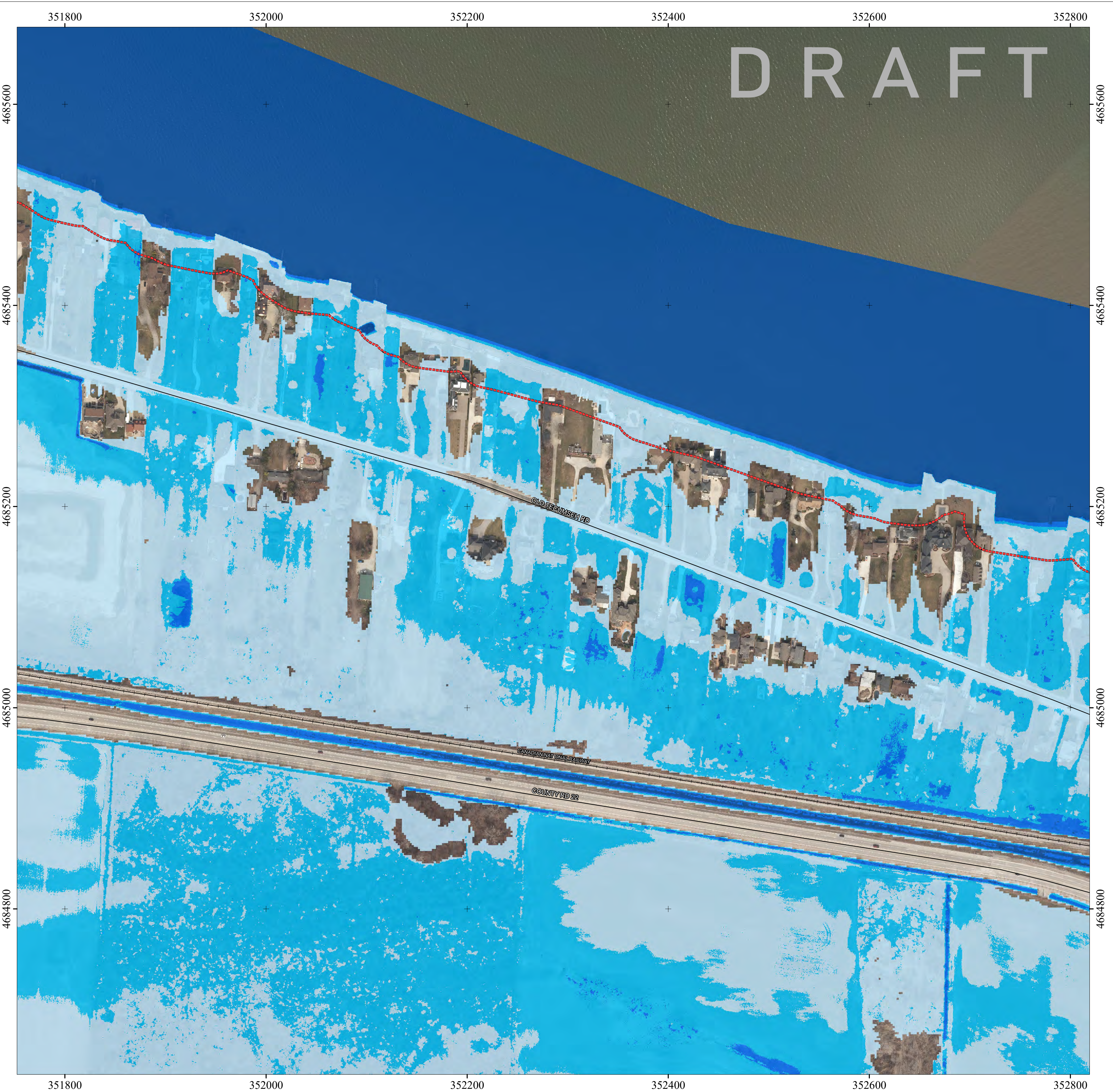
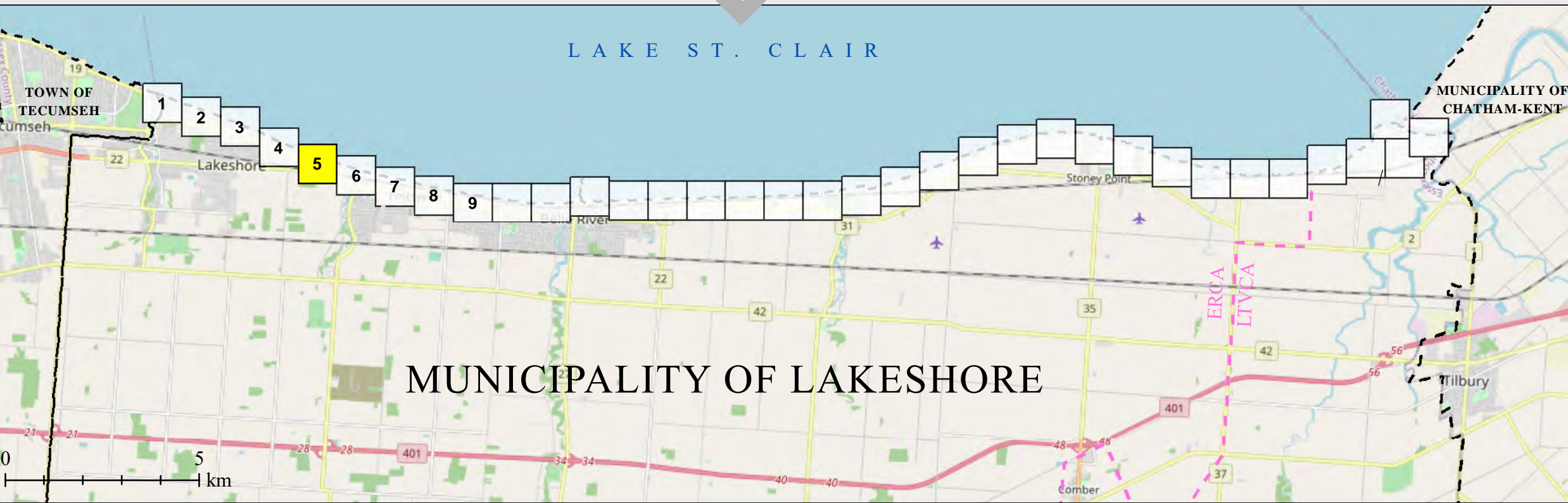


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MAP PUBLISHED APRIL 2021

Map
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MUNICIPALITY OF LAKESHORE

HAZARD MAPS

SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

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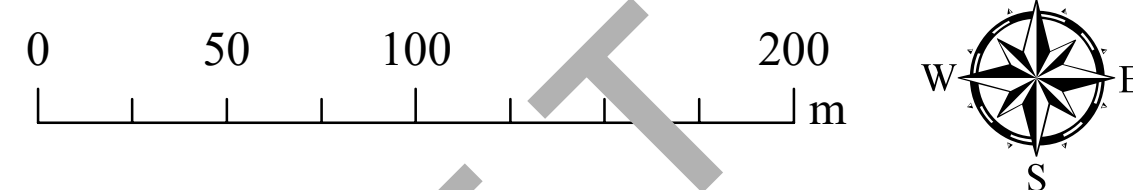
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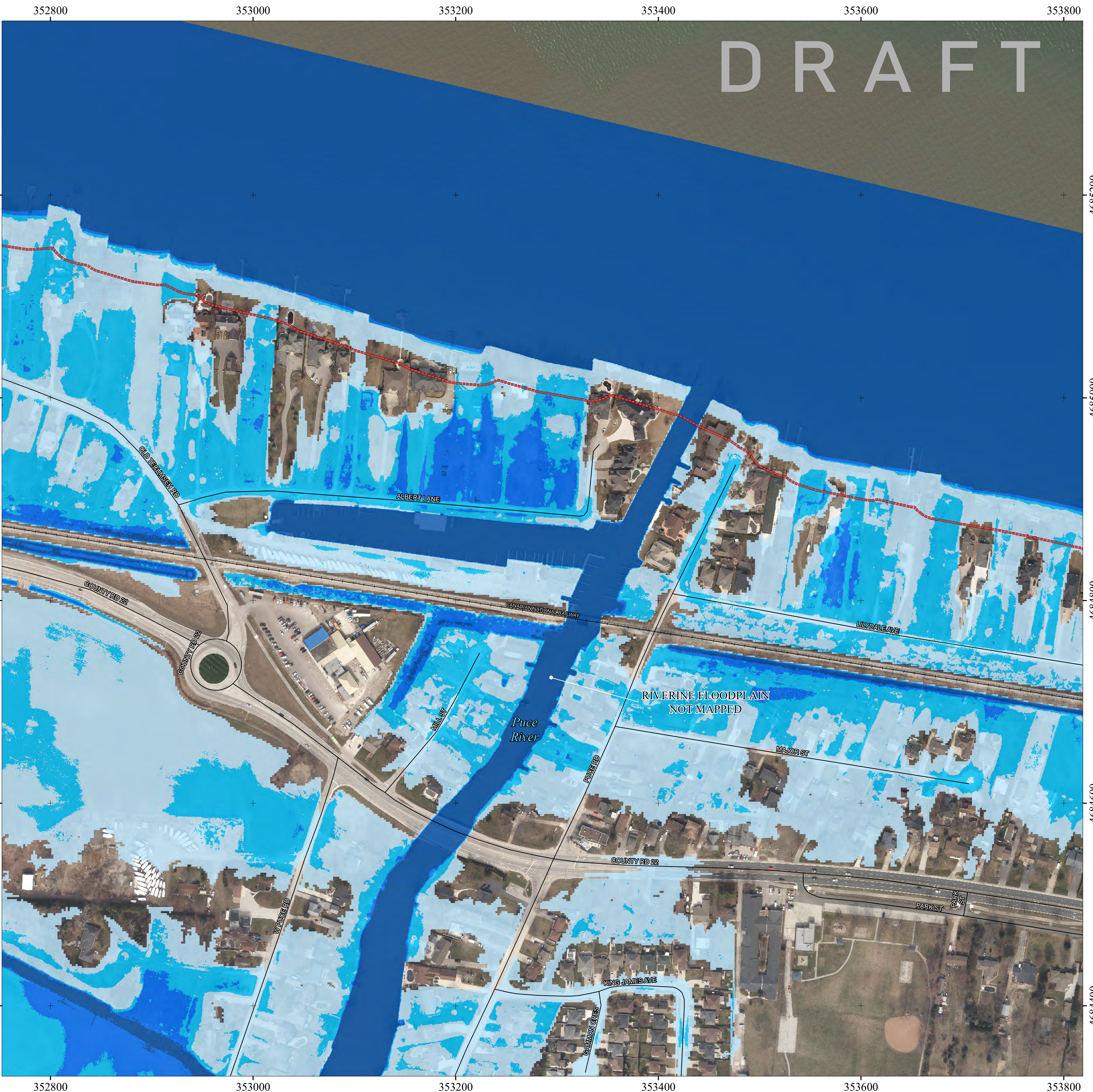


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Map
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Municipality of Lakeshore Hazard Maps

SHORELINE MANAGEMENT PLAN

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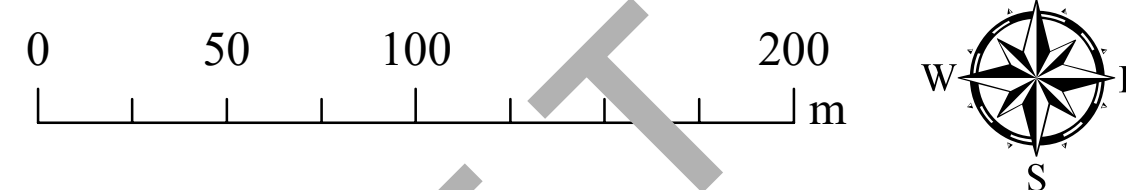
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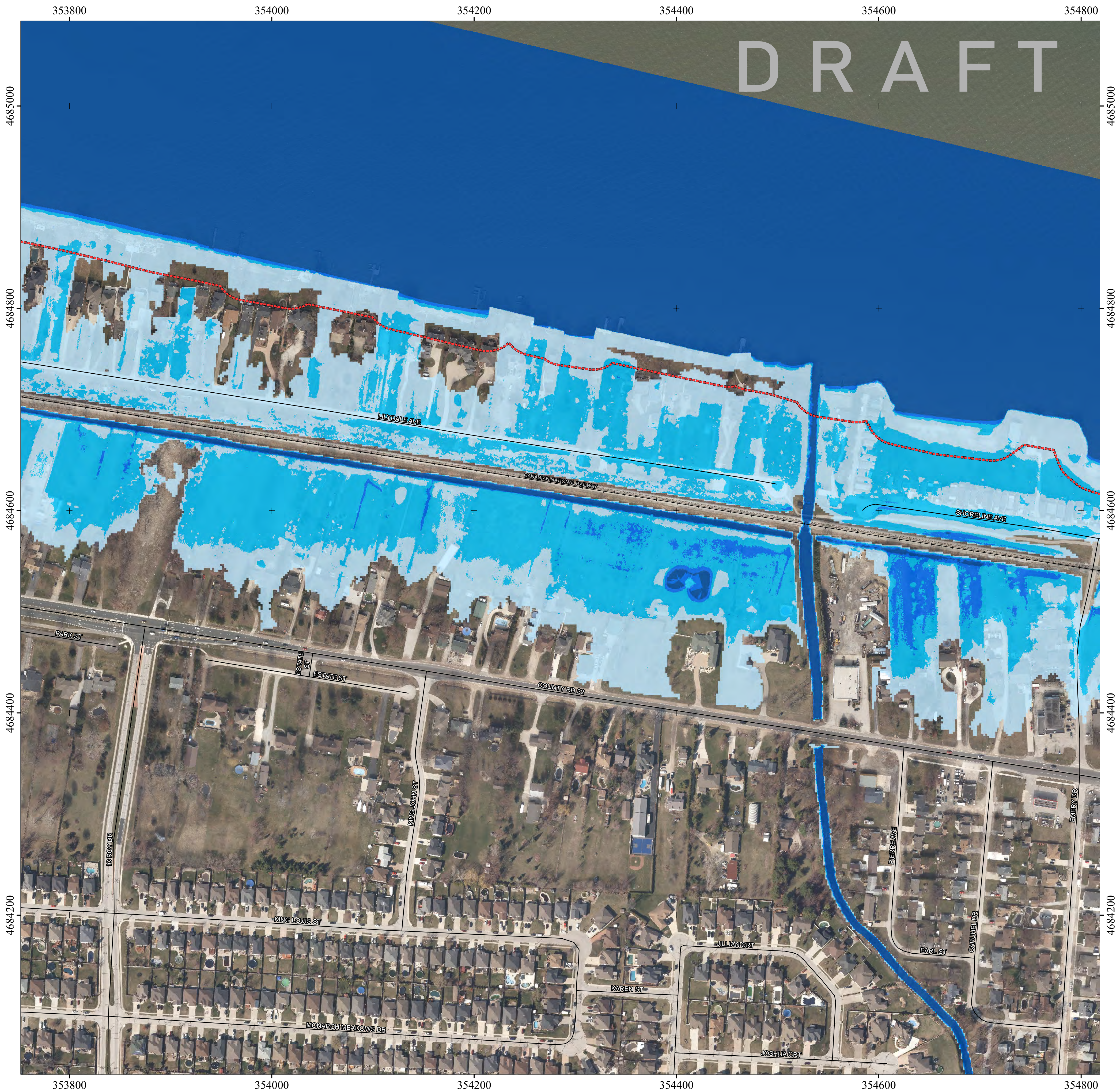


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MAP PUBLISHED APRIL 2021

Map
7 of 35

MUNICIPALITY OF LAKESHORE

HAZARD MAPS

LEGEND:

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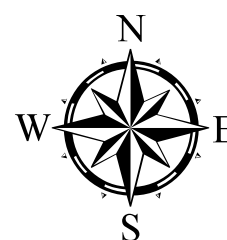
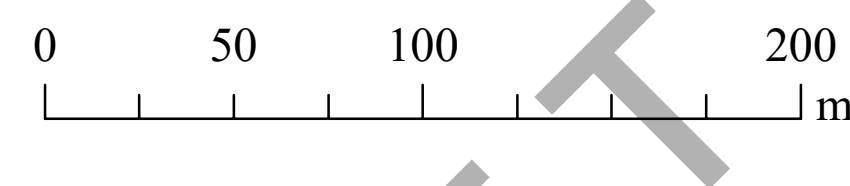
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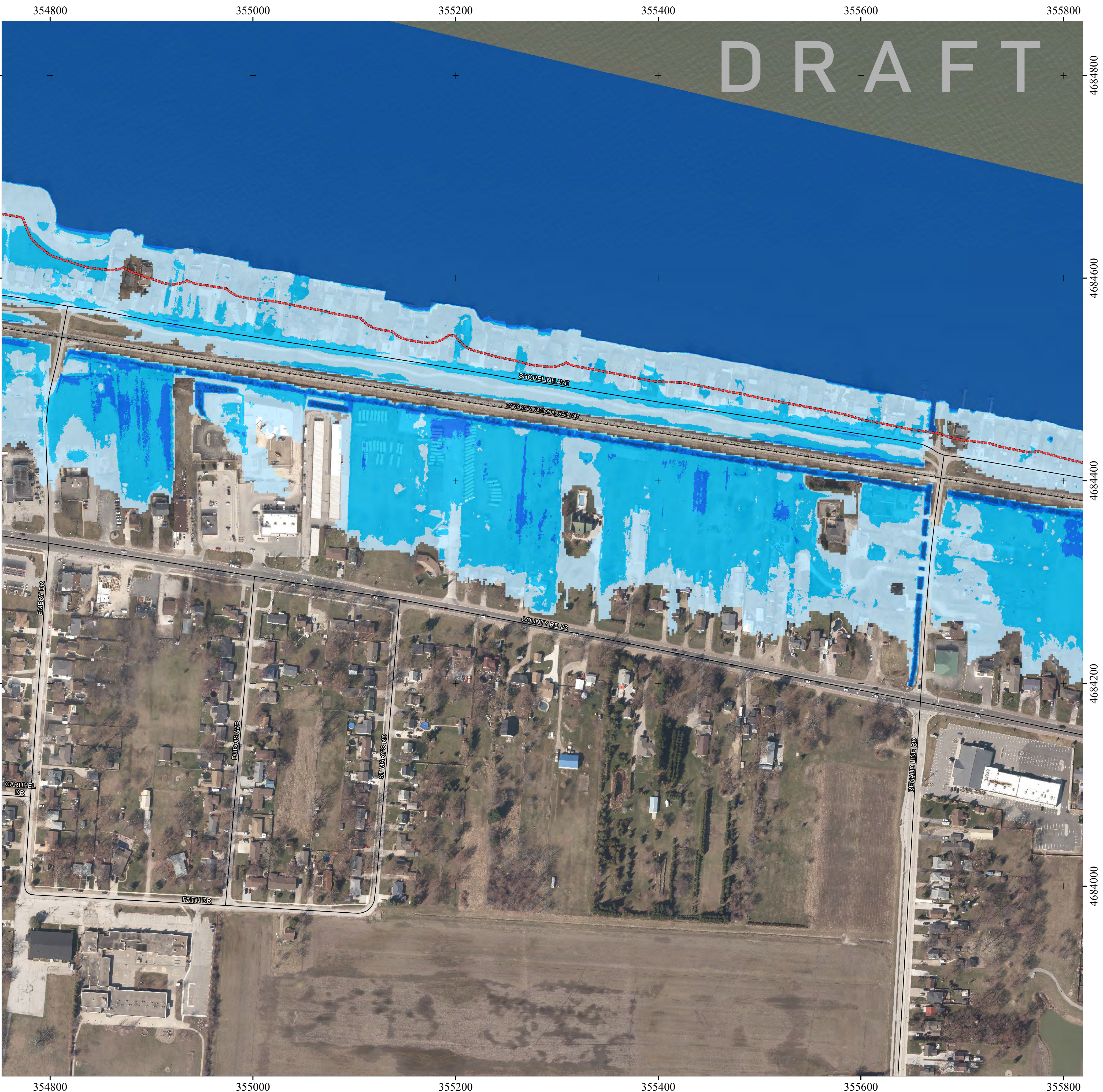
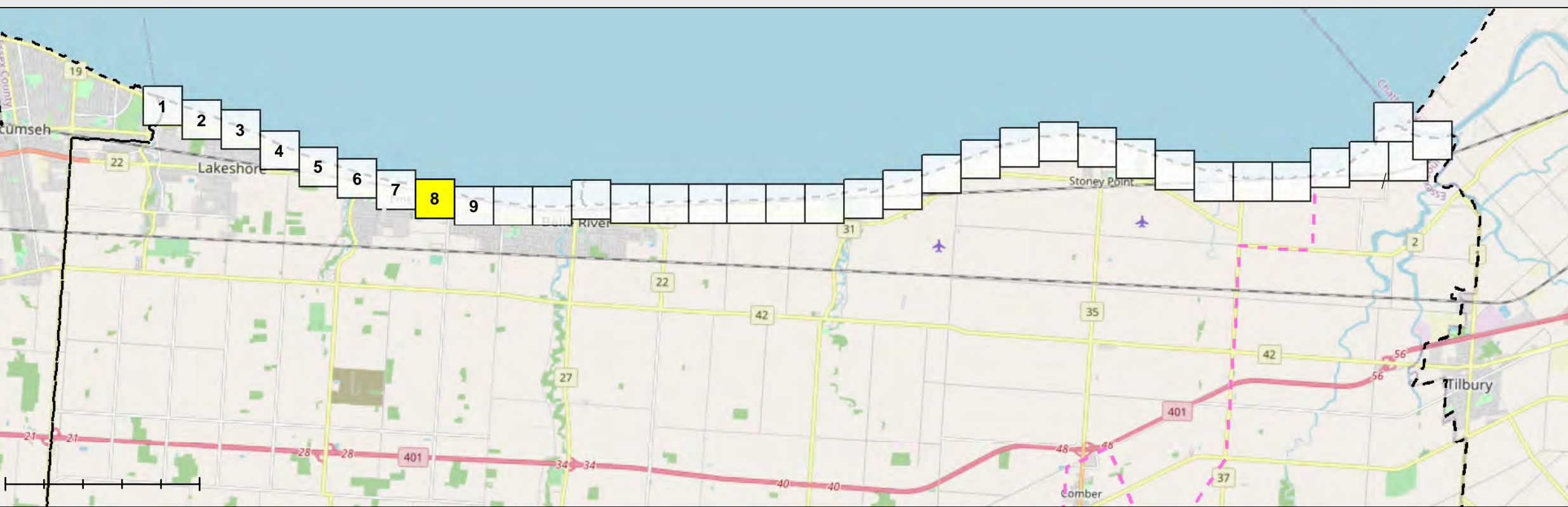


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MUNICIPALITY OF LAKESHORE HAZARD MAPS

SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
----- Dynamic Beach Hazard Limit
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100-year Flood Hazard - Depth of Flooding (m)

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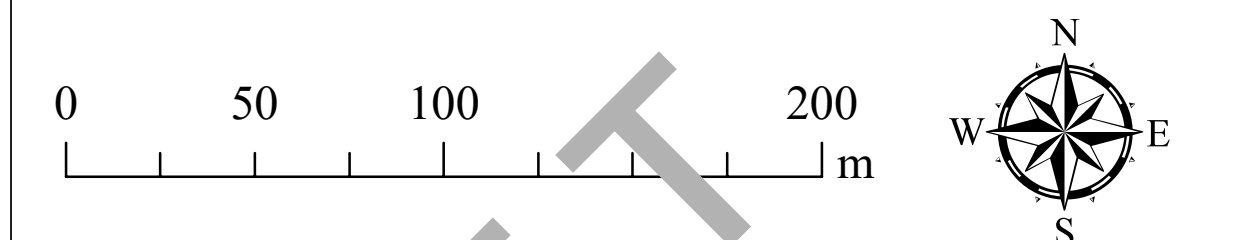
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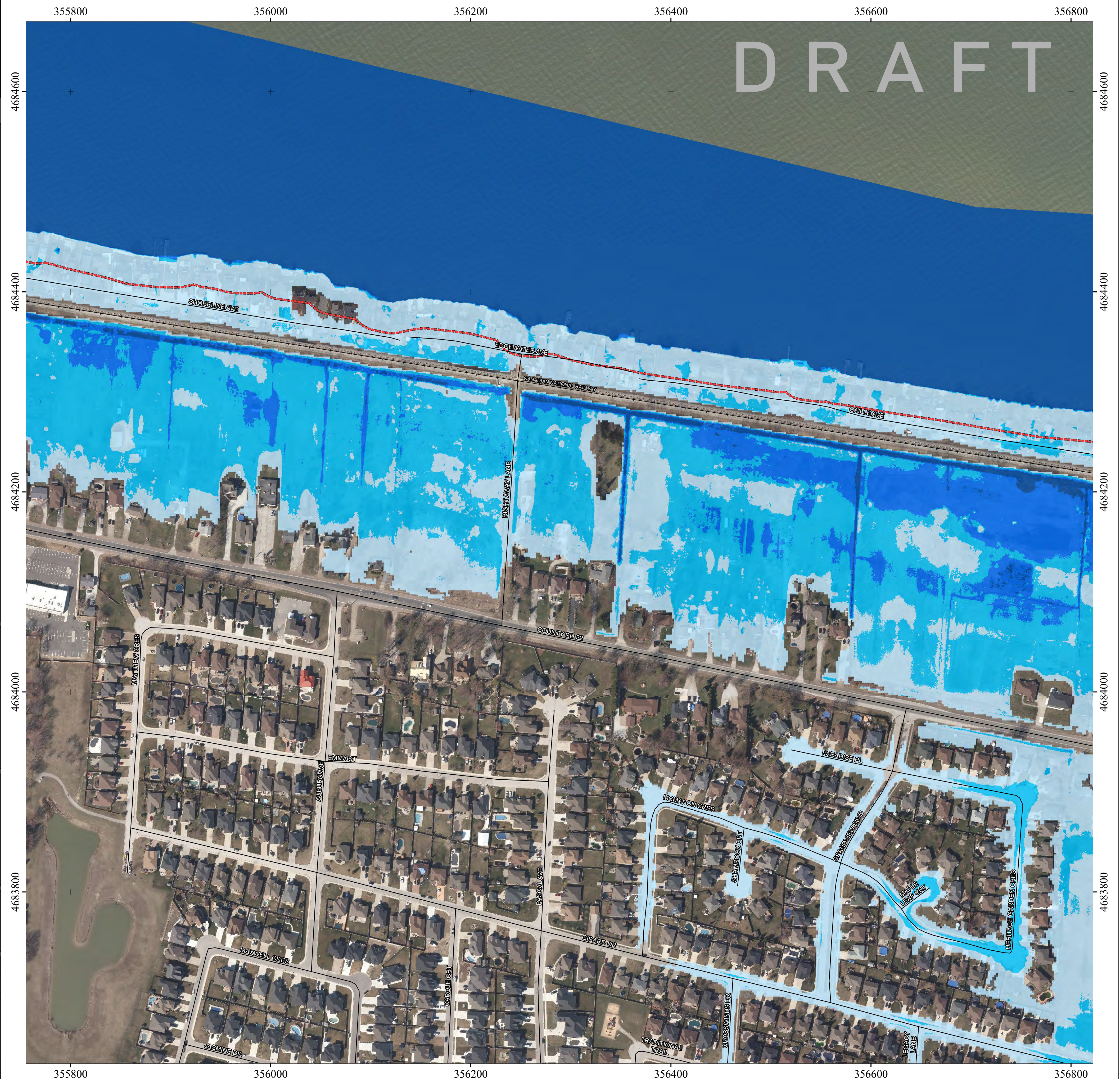


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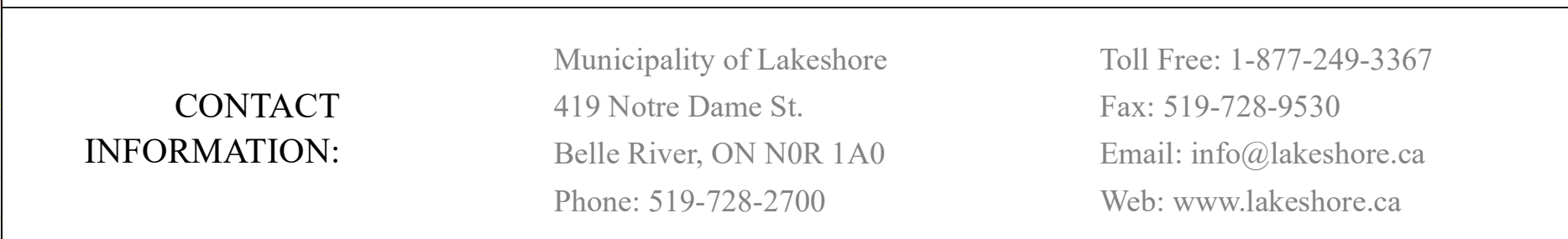
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MUNICIPALITY OF LAKESHORE

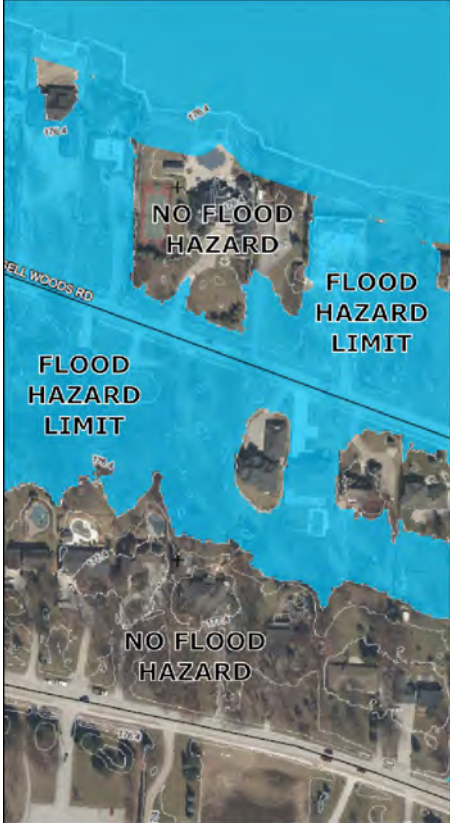
HAZARD MAPS

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

- 0 - 0.3 m (Up to ~1 ft)
- 0.31 - 0.6 m (Up to ~2 ft)
- 0.61 - 0.9 m (Up to ~3 ft)
- > 0.9 m (> ~3 ft)



INTERPRETATION OF THE HAZARD MAPS:

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DATA SOURCES:

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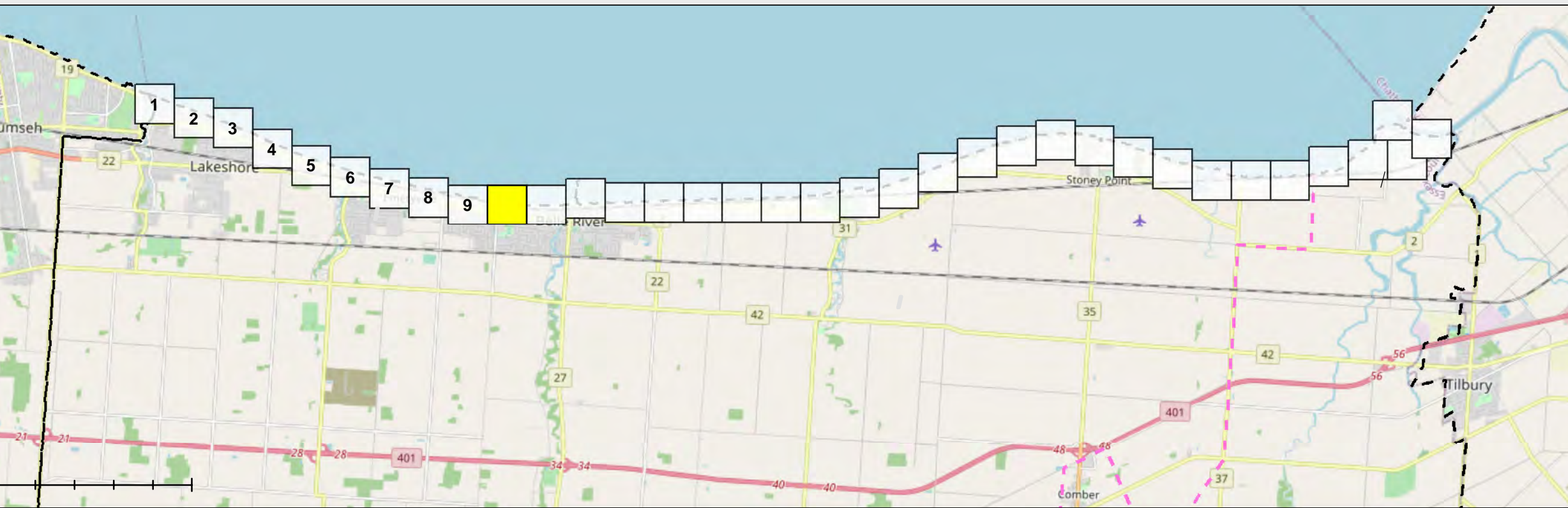
Inset Map: © OpenStreetMap contributors

PREPARED BY:



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Dynamic Beach Hazard Limit

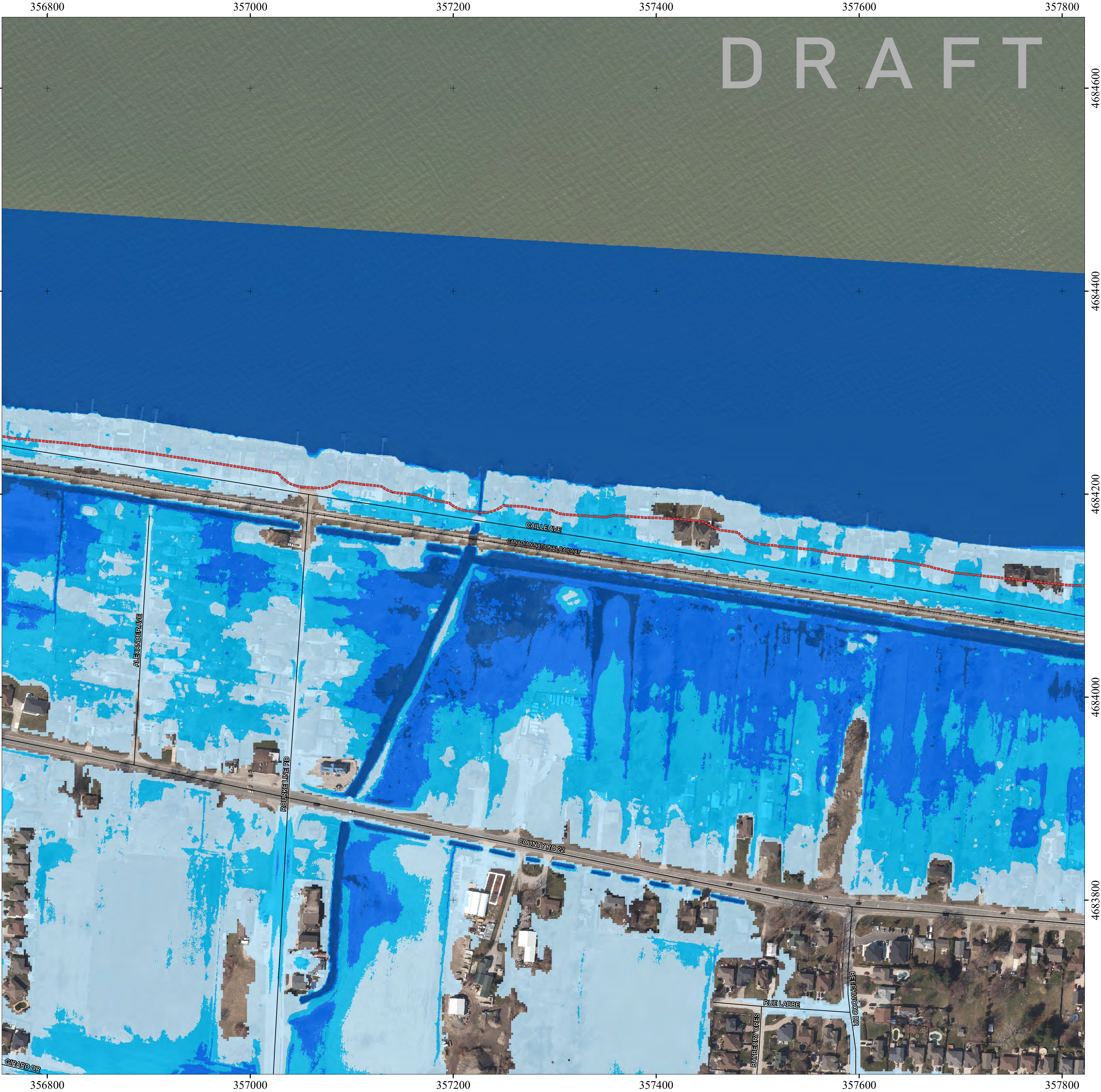
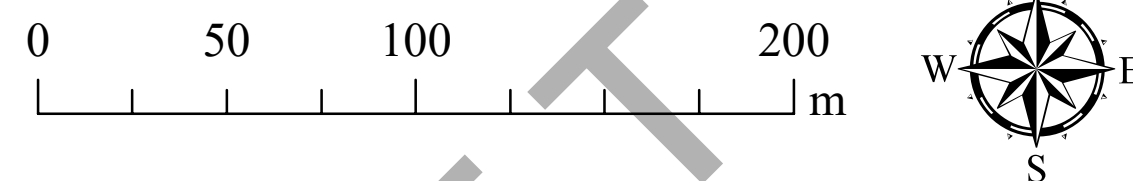
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Datums:

Horizontal: UTM 17N NAD1983, metres
Vertical: IGLD85, metres

Datum Conversion:

IGLD85 - CGVD2013 = 0.47 m (average)
To convert from IGLD85 to CGVD2013, subtract 0.47 m.
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Mapping prepared by Zuzek Inc. for the Municipality of Lakeshore, with support from The County of Essex.

MAP PUBLISHED APRIL 2021

Municipality of Lakeshore Hazard Maps

SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
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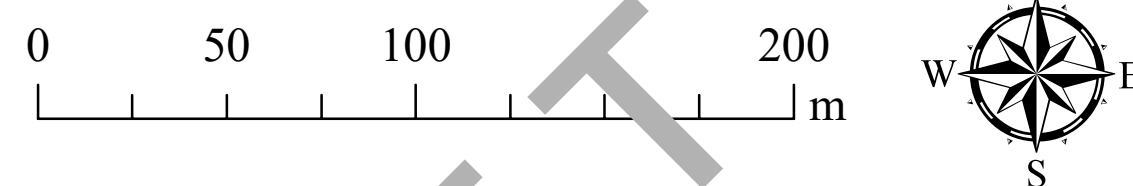
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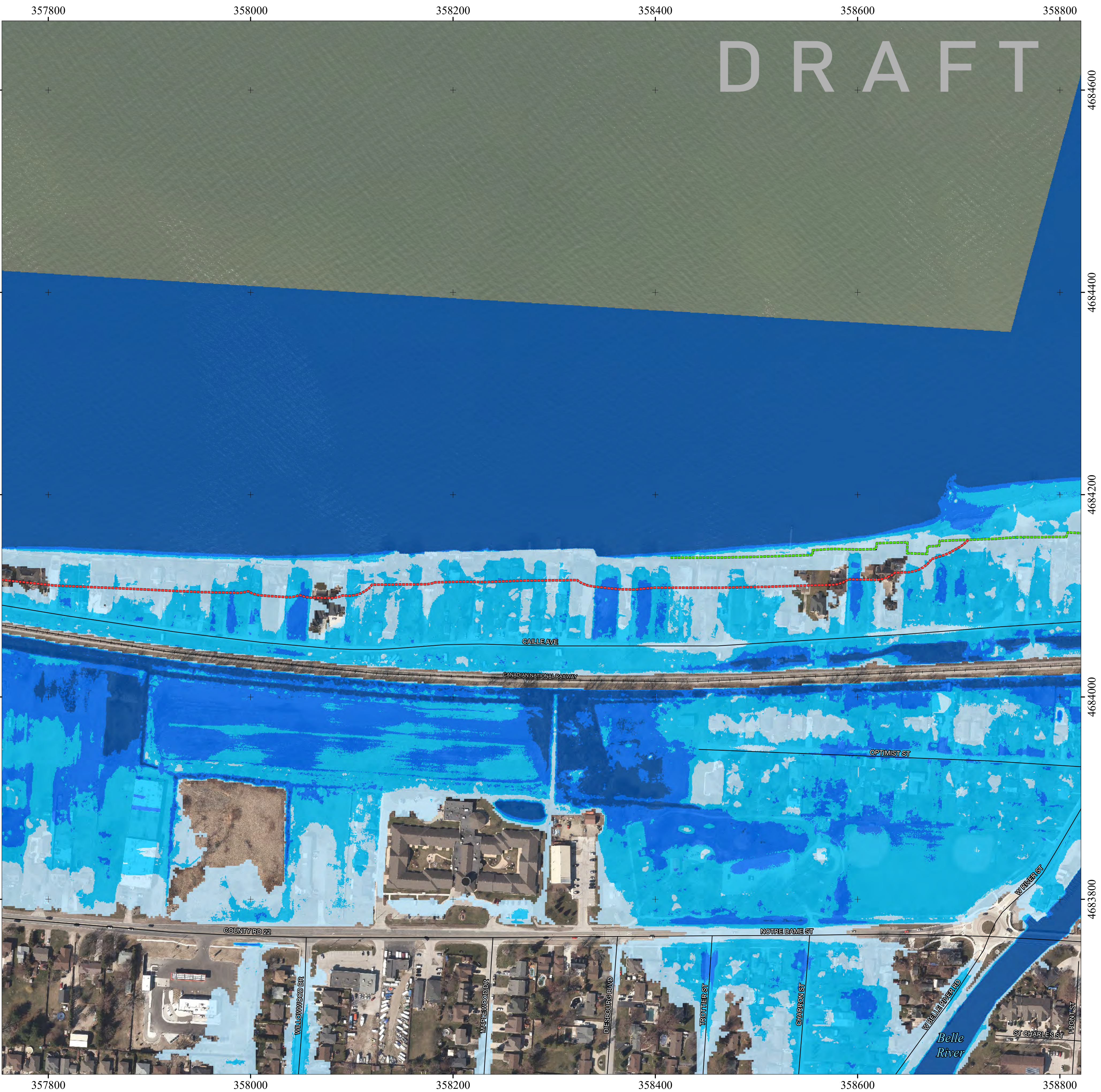
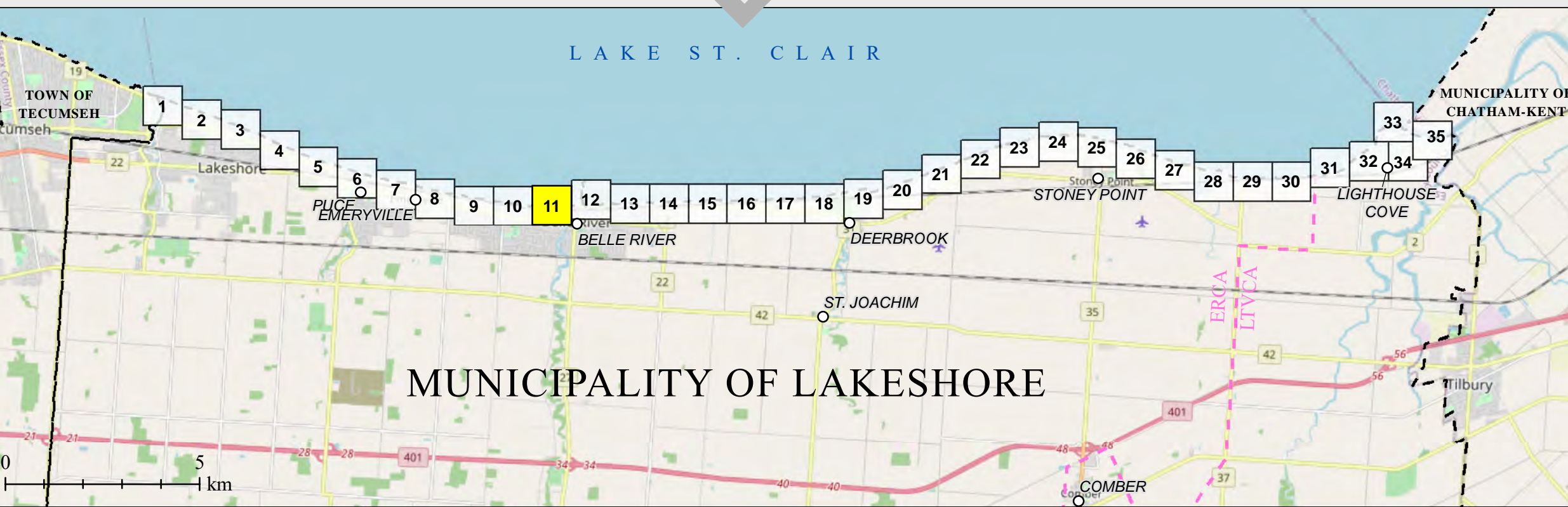


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MAP PUBLISHED APRIL 2021

Map
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MUNICIPALITY OF LAKESHORE HAZARD MAPS

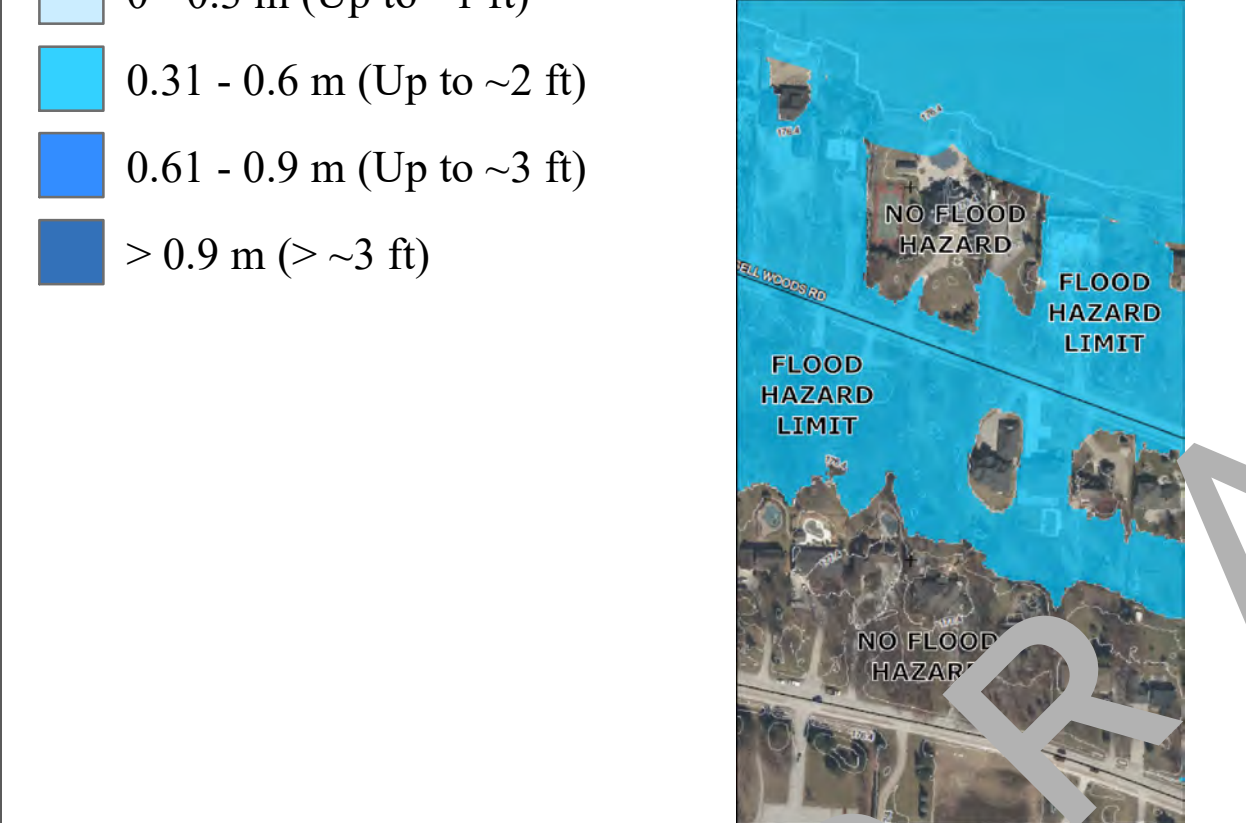
SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
----- Dynamic Beach Hazard Limit
- - - ERCA-LTVCA Boundary
---- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

-



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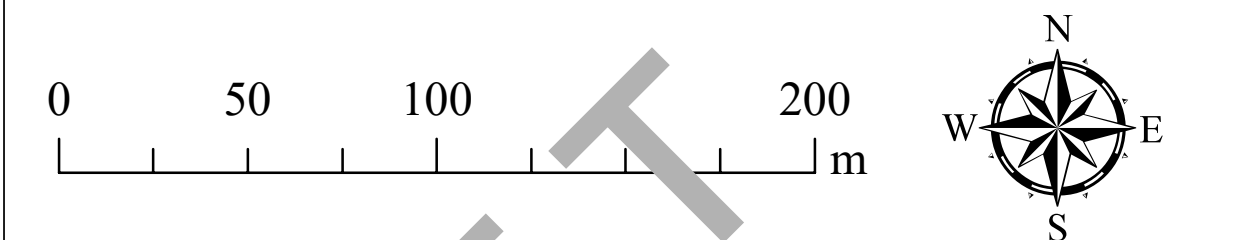
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Datums:	Datum Conversion:
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Horizontal: UTM 17N NAD1983, metres	IGLD'85 - CGVD2013 = 0.47 m (average)
Vertical: IGLD'85, metres	To convert from IGLD'85 to CGVD2013, subtract

Datum Conversion:

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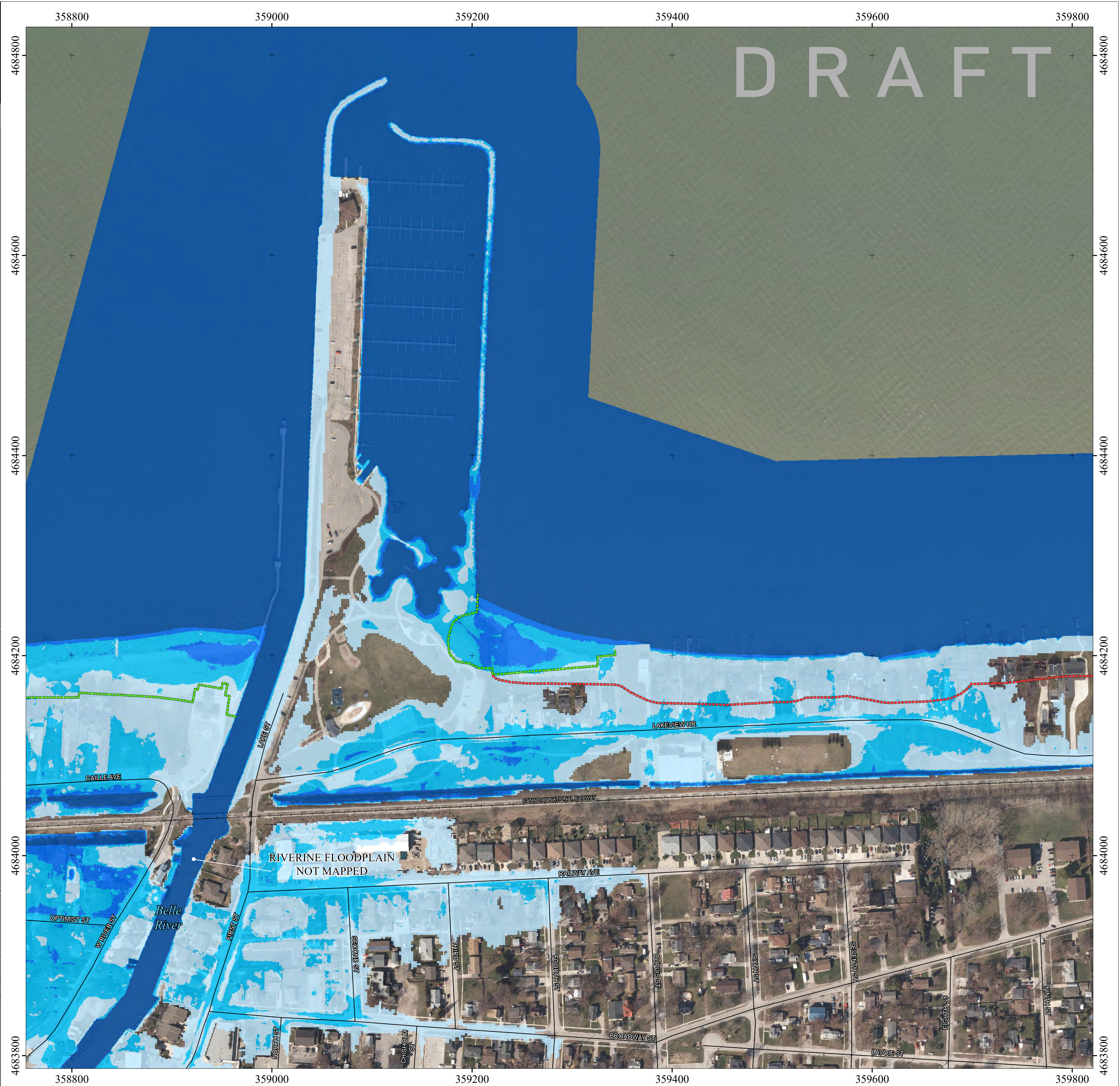


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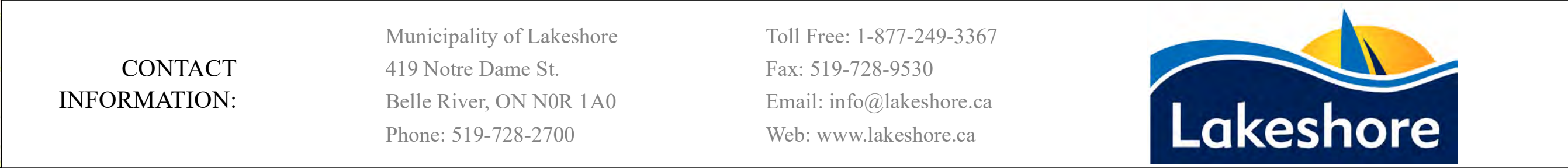


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CONTACT	Municipality of Lakeshore 410 Water Dome St.	Toll Free: 1-877-249-3367 Fax: 519-738-9530		Mapping prepared by Zuzek Inc. for the Municipality of Lakeshore, with support from The County of Essex.	
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Lake Shore
 12 of 35

<p>CONTACT INFORMATION:</p>	<p>Municipality of Lakeshore 419 Notre Dame St. Belle River, ON N0R 1A0 Phone: 519-728-2700</p>	<p>Toll Free: 1-877-249-3367 Fax: 519-728-9530 Email: info@lakeshore.ca Web: www.lakeshore.ca</p>		<p>Mapping prepared by Zuzek Inc. for the Municipality of Lakeshore, with support from The County of Essex.</p> <p>MAP PUBLISHED APRIL 2021</p>	<p>Map 12 of 35</p>
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Municipality of Lakeshore Hazard Maps


SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
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100-year Flood Hazard - Depth of Flooding (m)

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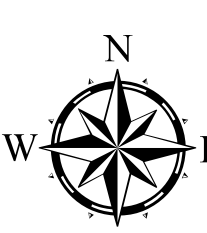
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0 50 100 200 m



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MAP PUBLISHED APRIL 2021

Map
13 of 35

Municipality of Lakeshore

Hazard Maps

LEGEND:

- Erosion Hazard Limit
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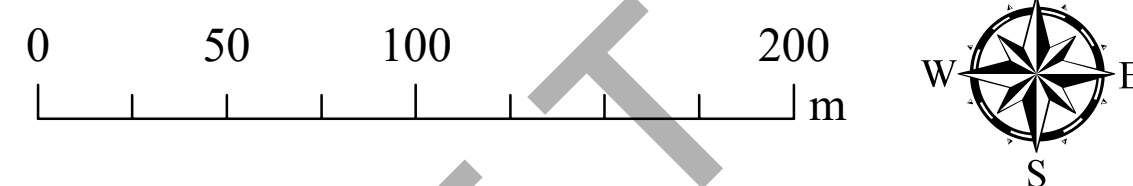
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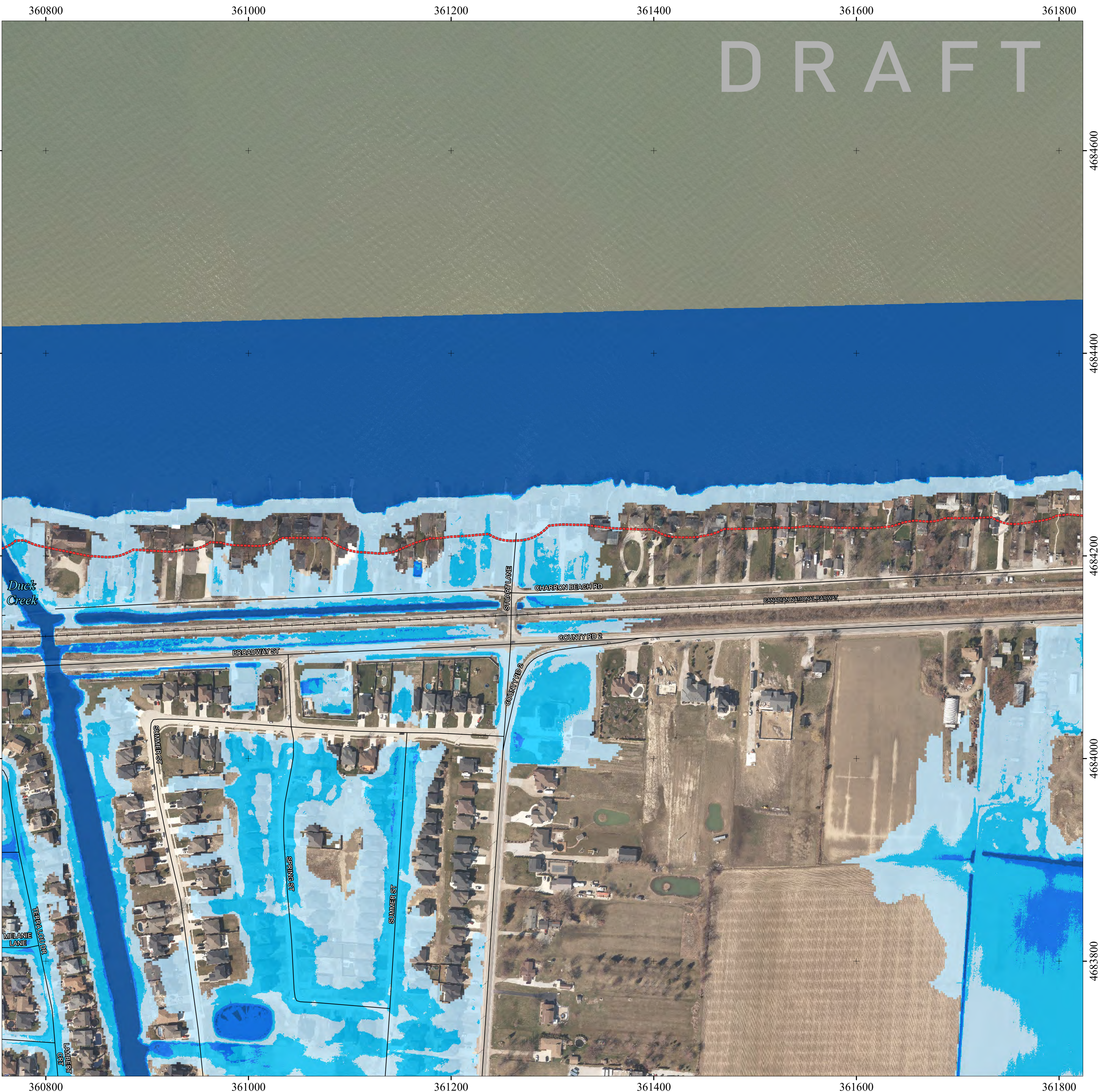
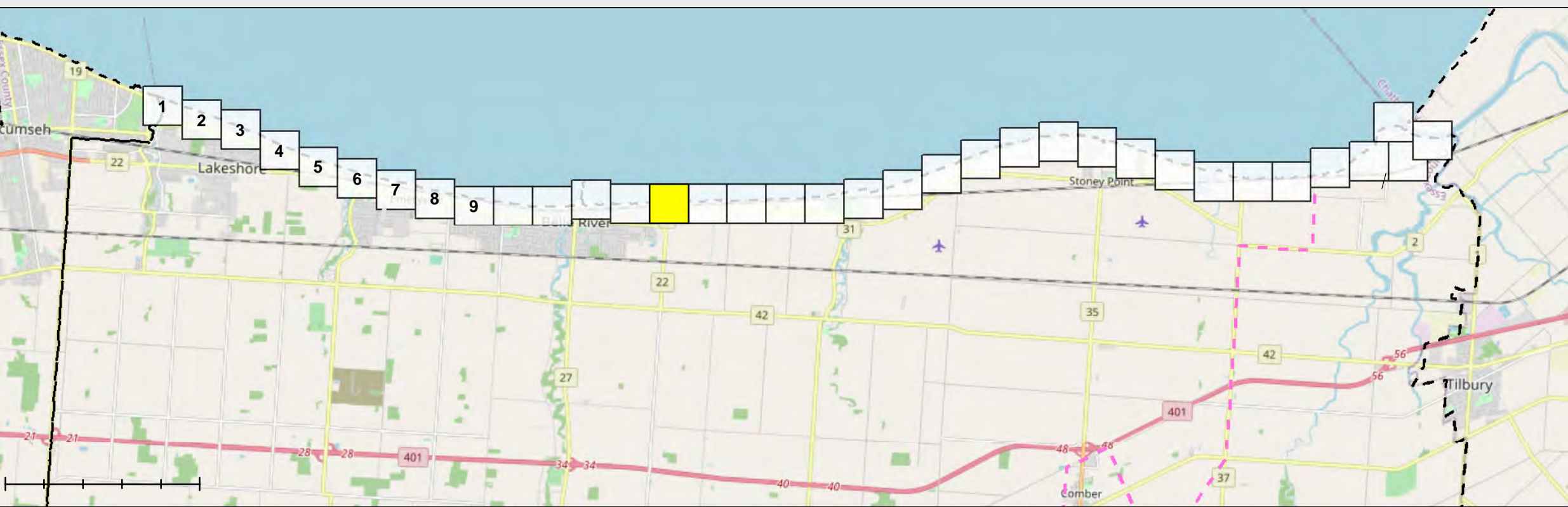


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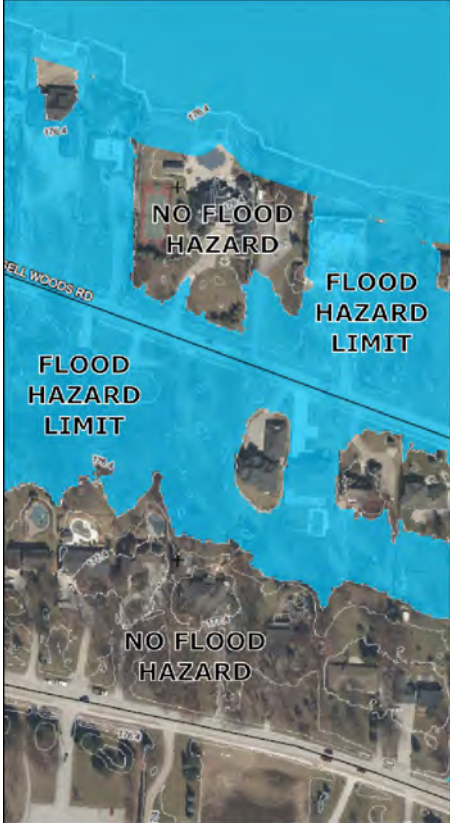
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Dynamic Beach Hazard Limit

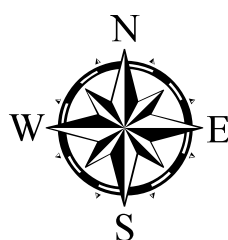
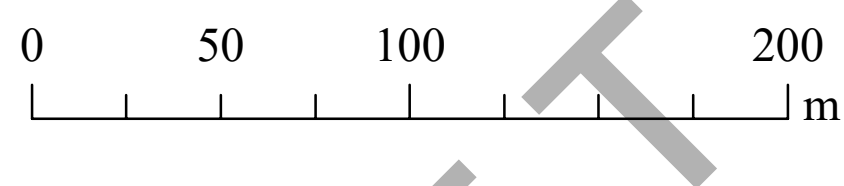
The Dynamic Beach Hazard Limit is defined as the sum of the Flood Hazard plus 30 metres measured inland horizontally. If local conditions transition to other land uses (e.g., roads, parking lots, buildings), the inland extent is the limit of the beach material. The offshore limit is approximately the 2 m depth contour.

Datums:

Horizontal: UTM 17N NAD1983, metres
Vertical: IGLD85, metres

Datum Conversion:

IGLD85 - CGVD2013 = 0.47 m (average)
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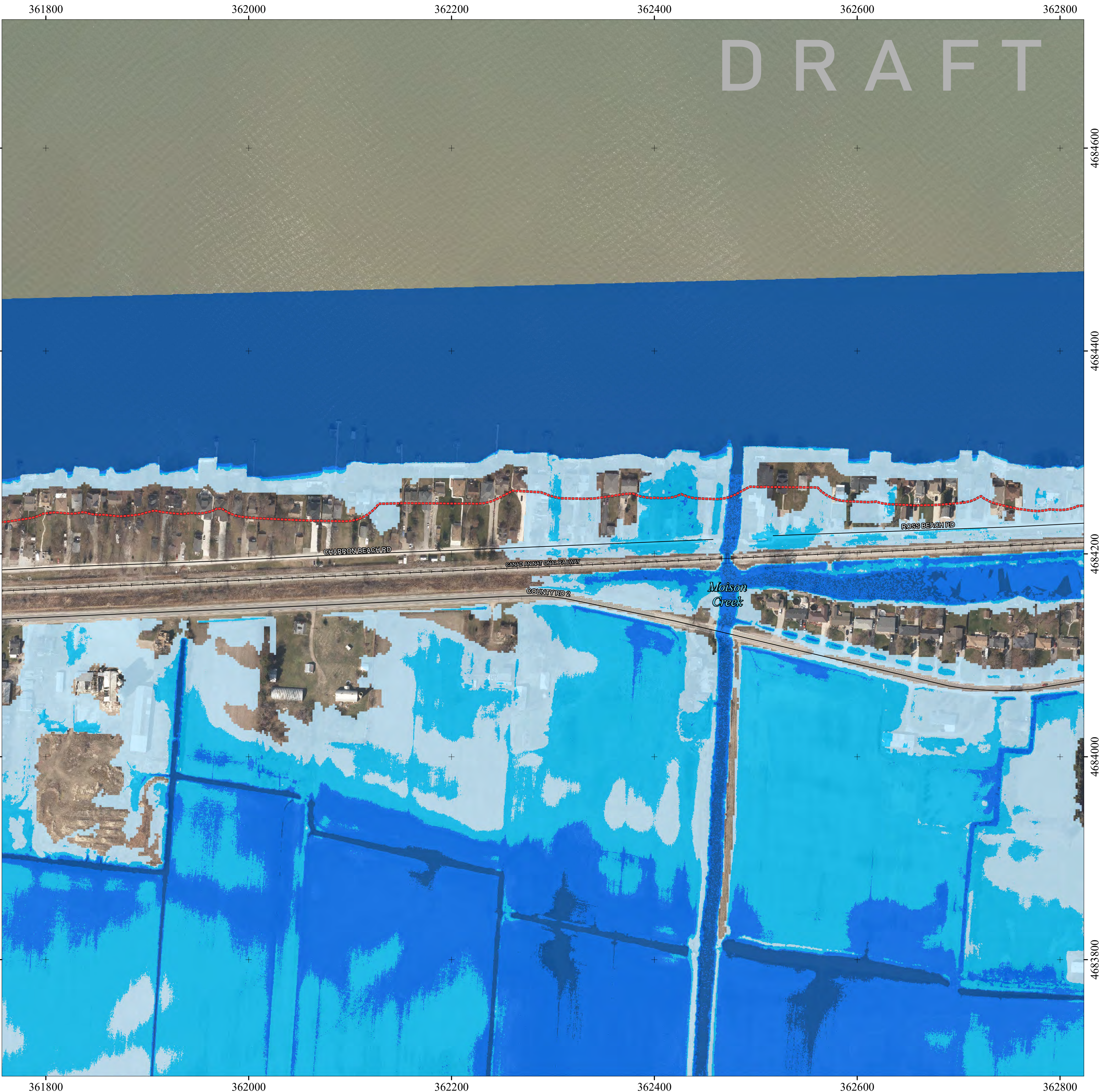
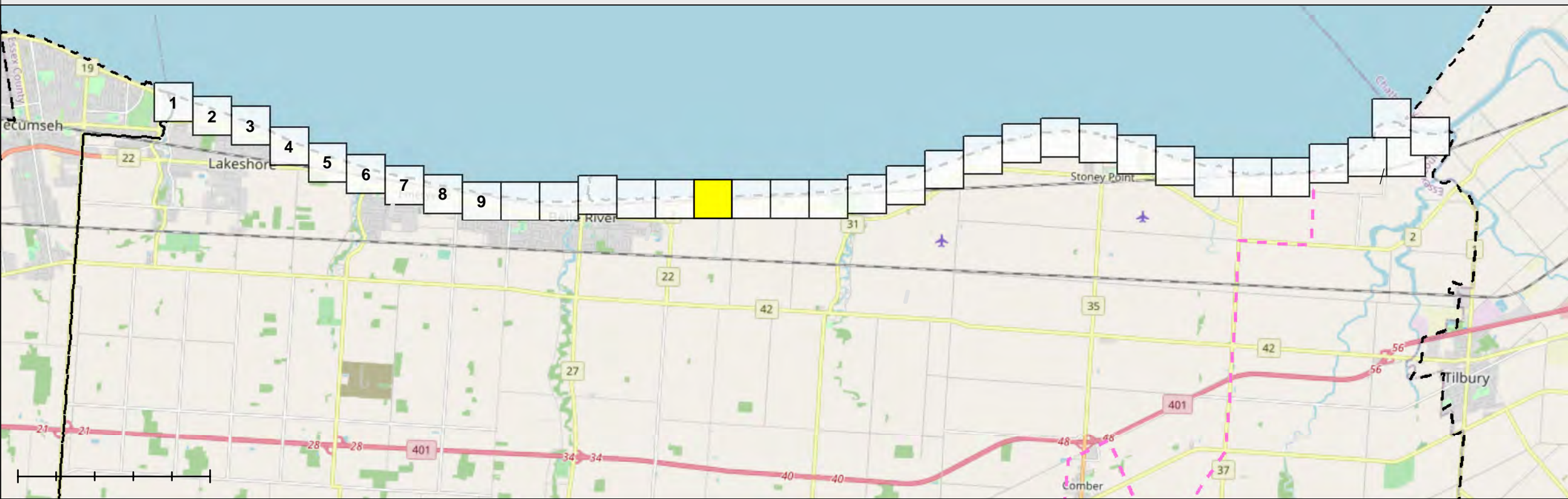


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MAP PUBLISHED APRIL 2021

Municipality of Lakeshore Hazard Maps

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

- 0 - 0.3 m (Up to ~1 ft)
- 0.31 - 0.6 m (Up to ~2 ft)
- 0.61 - 0.9 m (Up to ~3 ft)
- > 0.9 m (> ~3 ft)



INTERPRETATION OF THE HAZARD MAPS:

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Inset Map: © OpenStreetMap contributors

DEFINITIONS:

Depth of Flooding

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Erosion Hazard Limit

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Dynamic Beach Hazard Limit

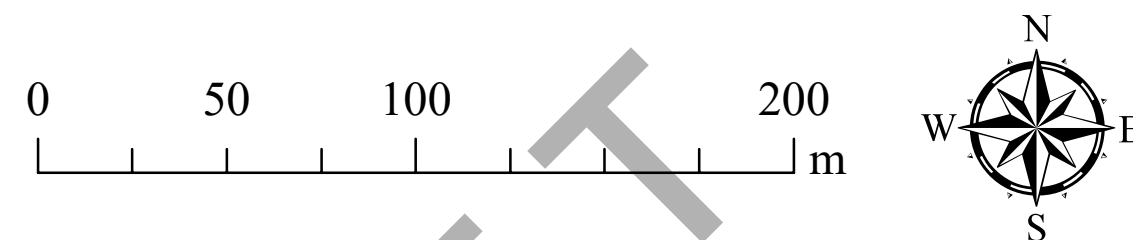
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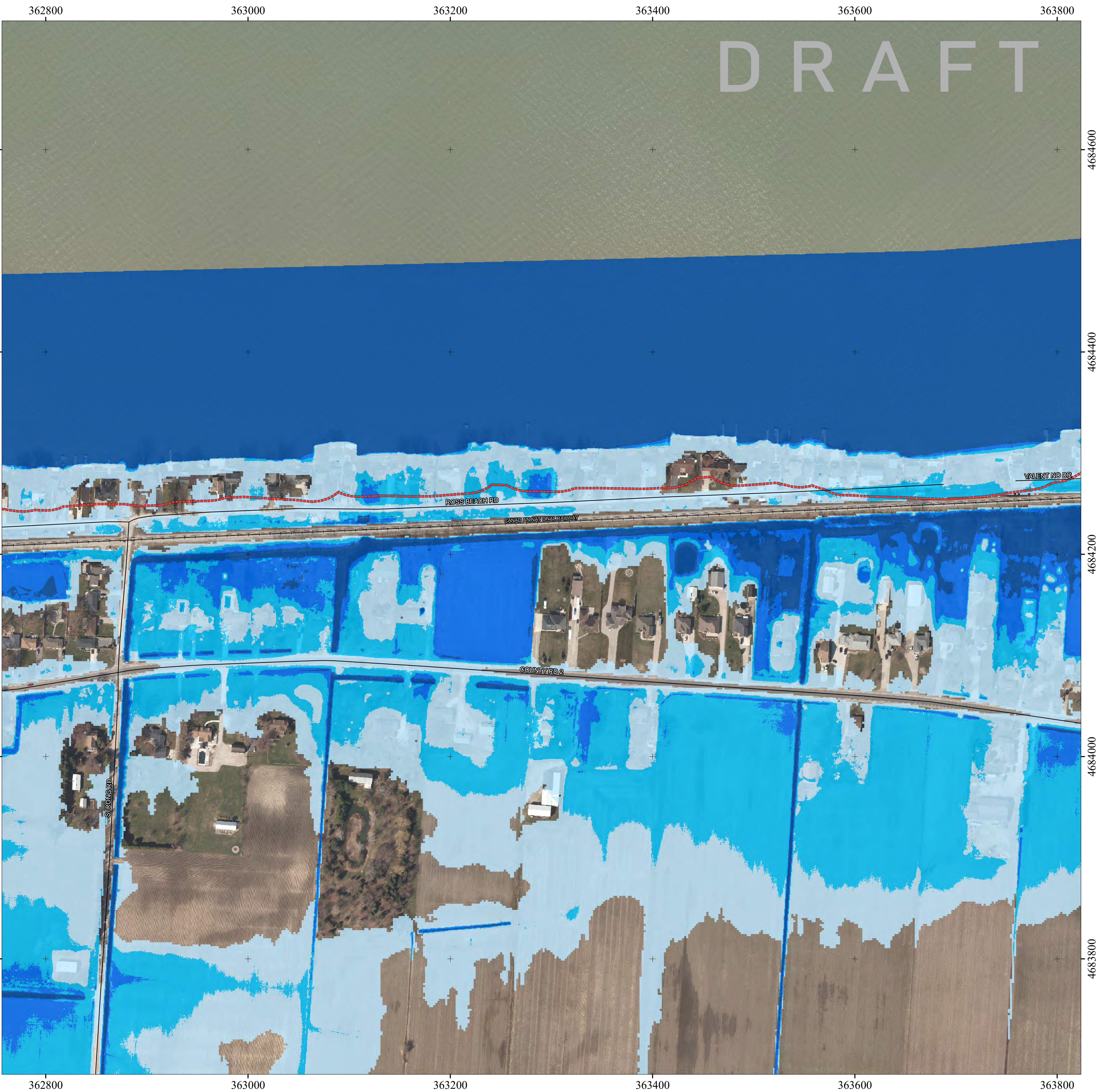
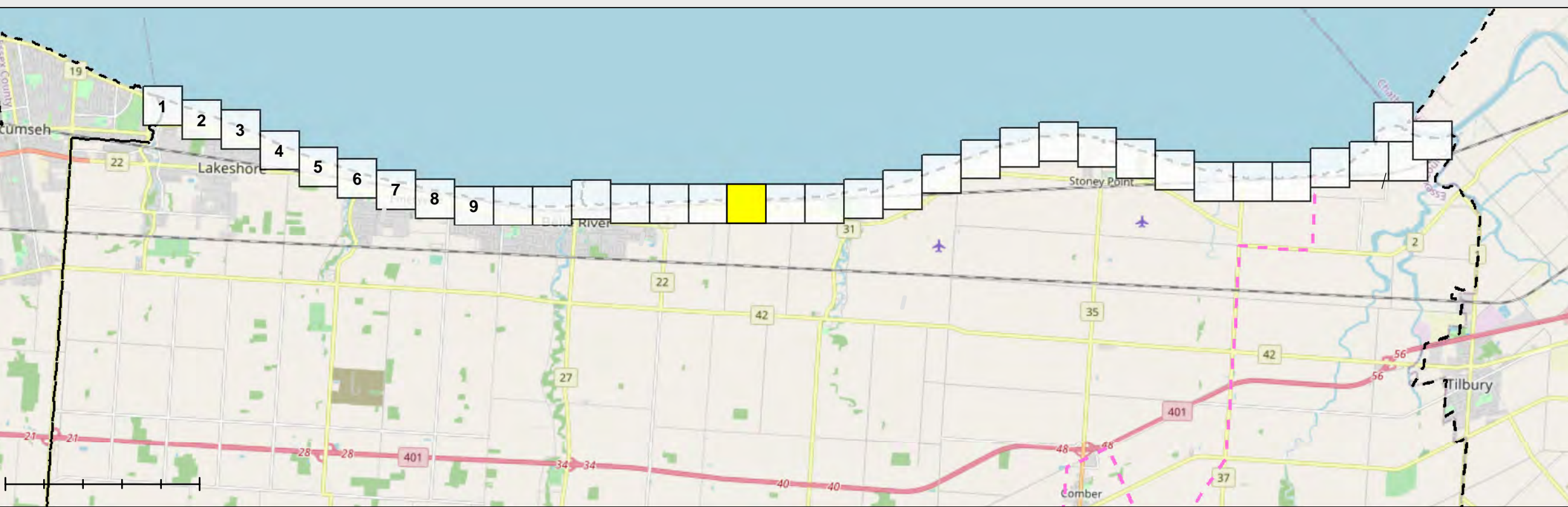


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MAP PUBLISHED APRIL 2021

Municipality of Lakeshore

Hazard Maps

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

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Dynamic Beach Hazard Limit

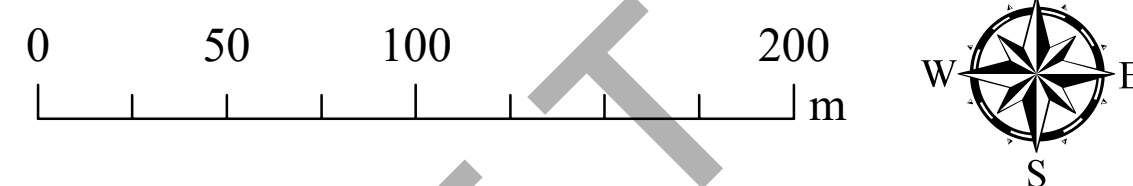
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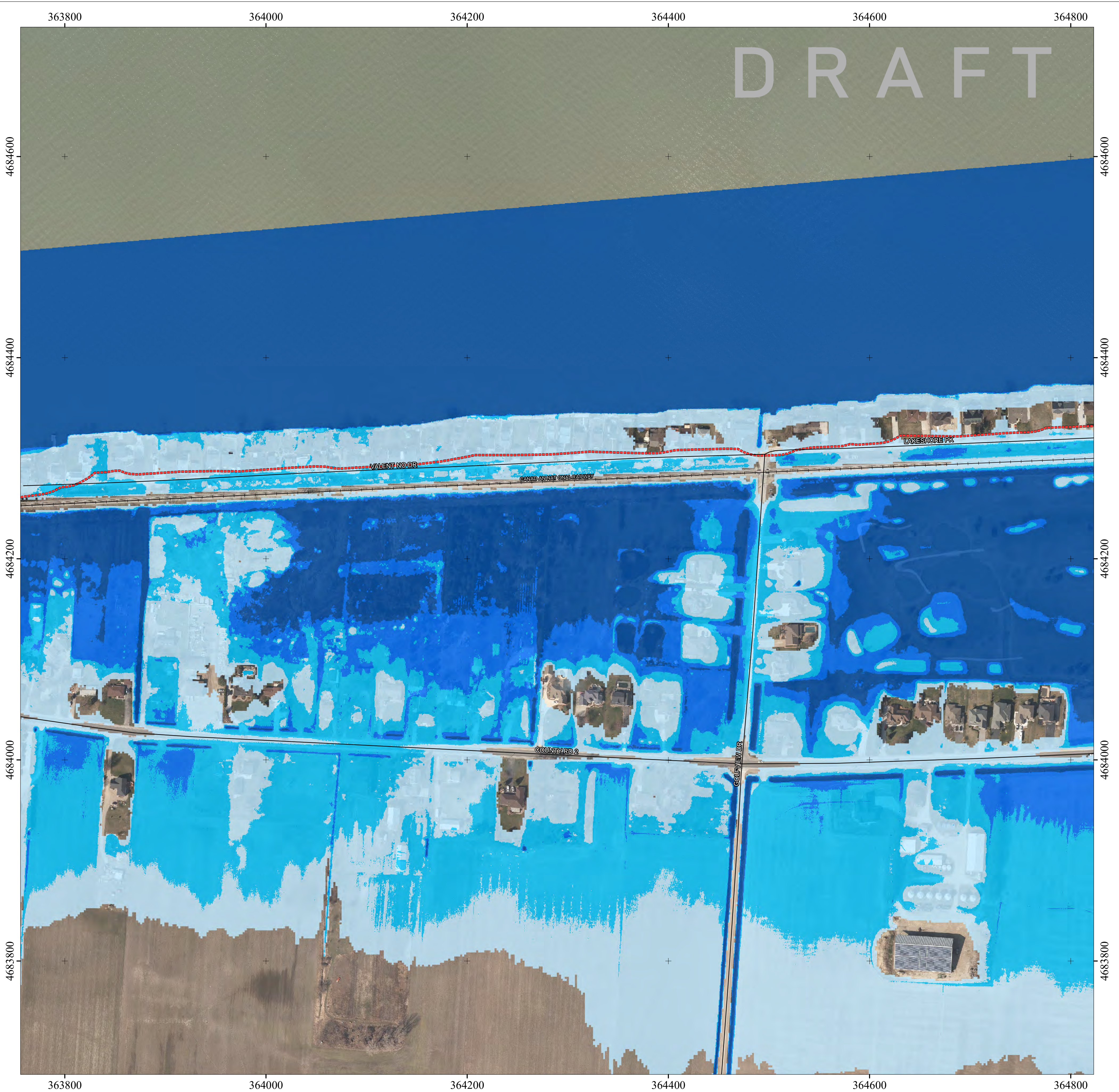
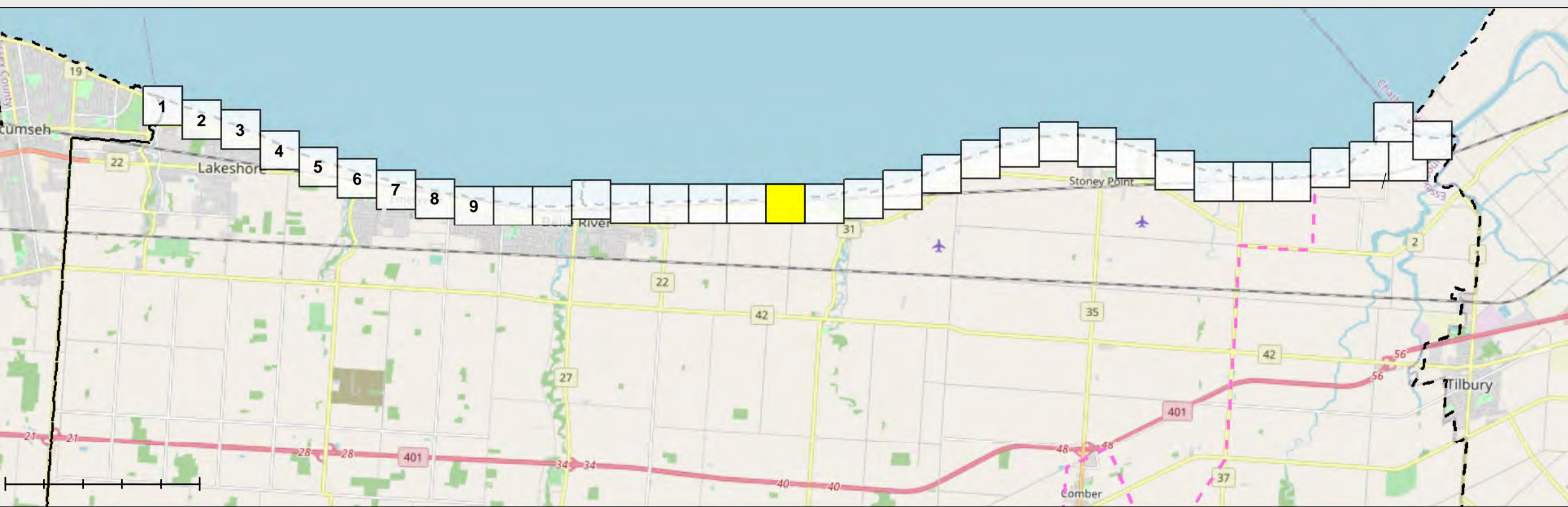


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Municipality of Lakeshore Hazard Maps

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

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Dynamic Beach Hazard Limit

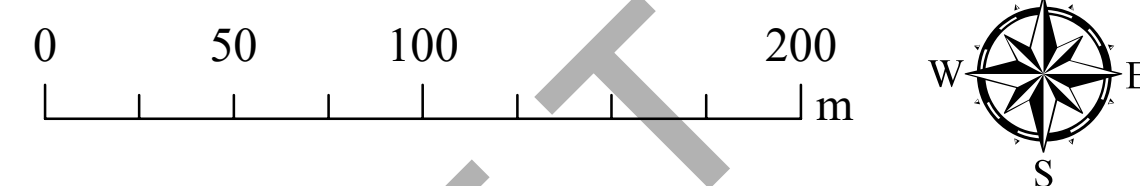
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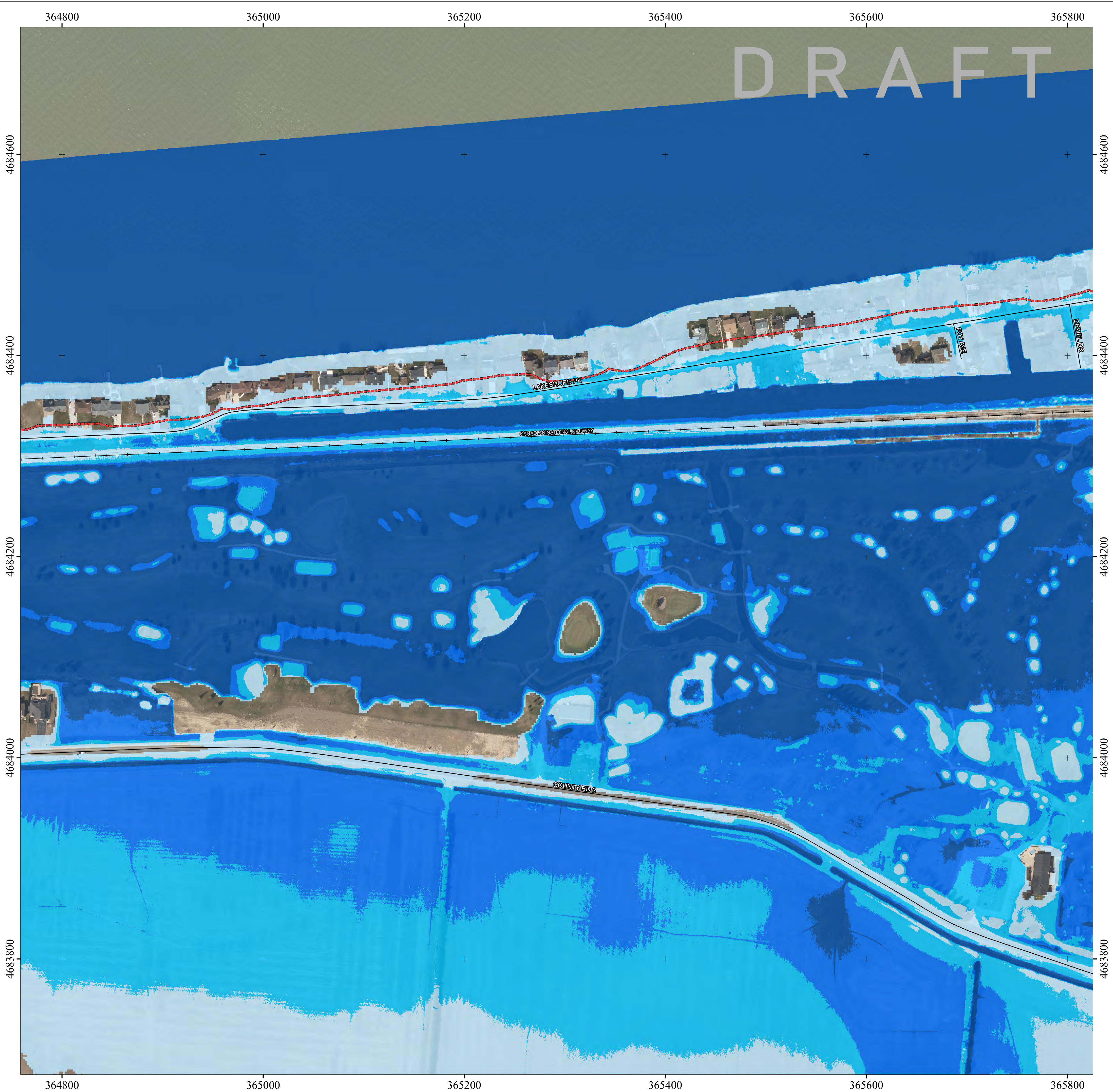
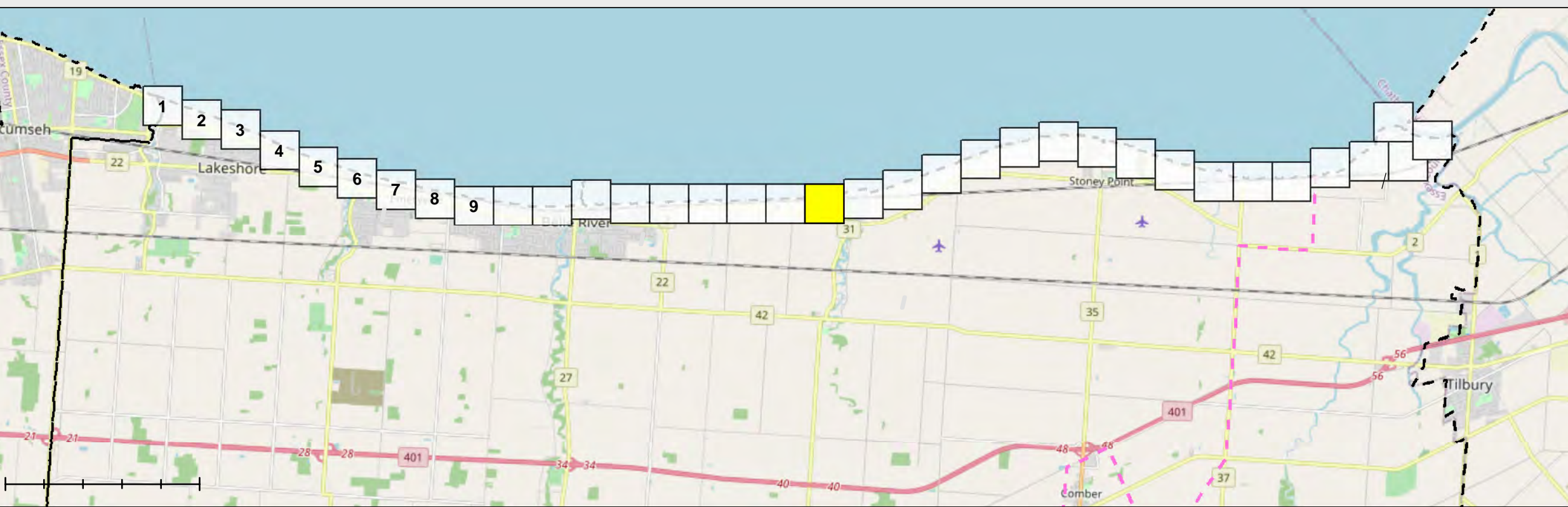


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MAP PUBLISHED APRIL 2021

MUNICIPALITY OF LAKESHORE

HAZARD MAPS

SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

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Dynamic Beach Hazard Limit

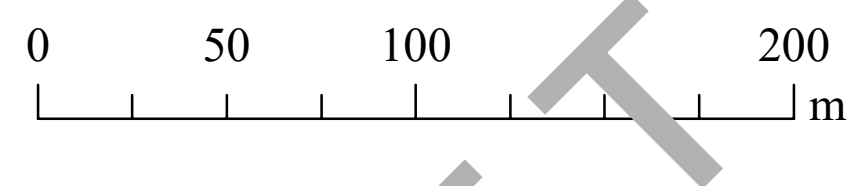
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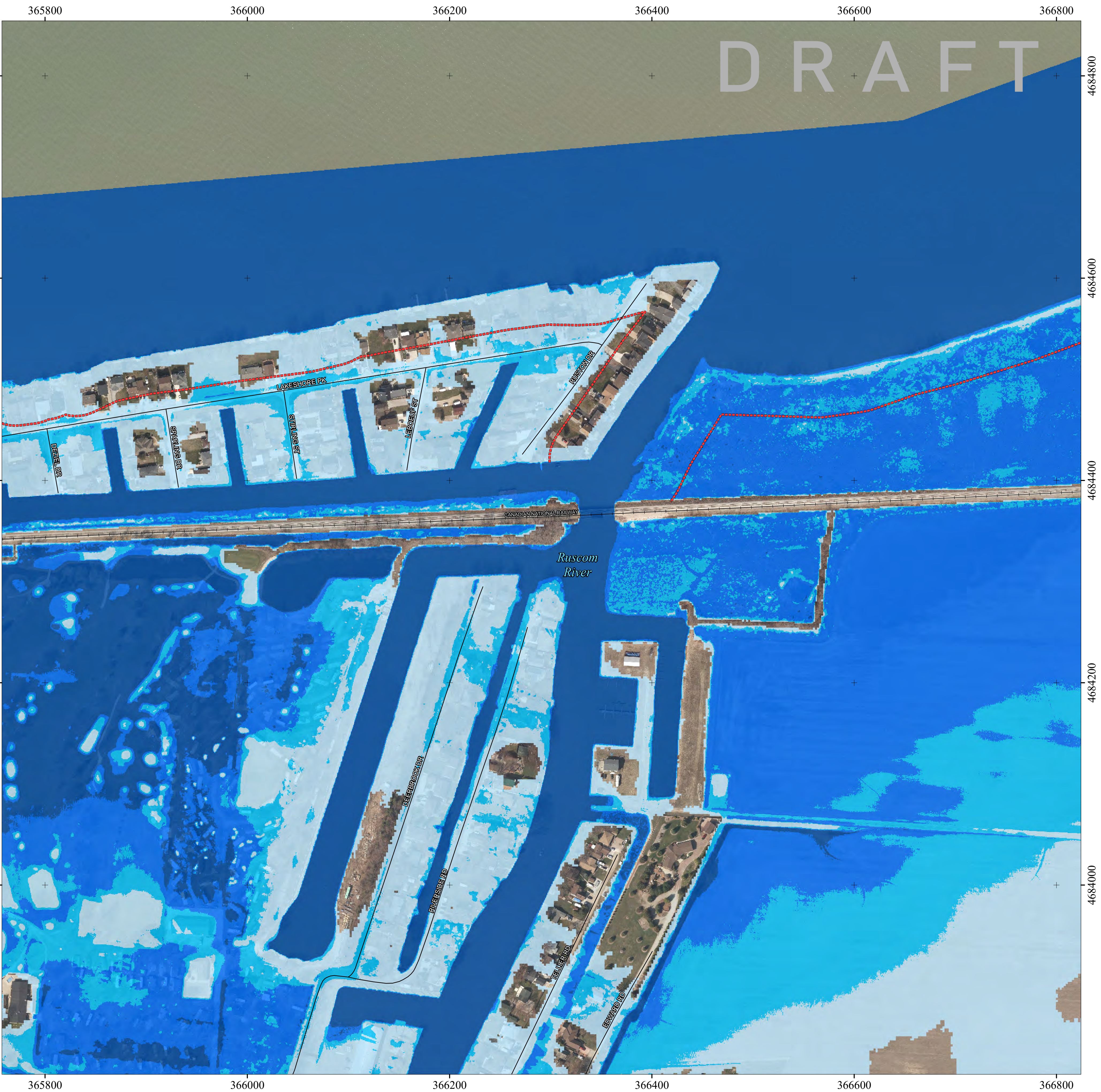
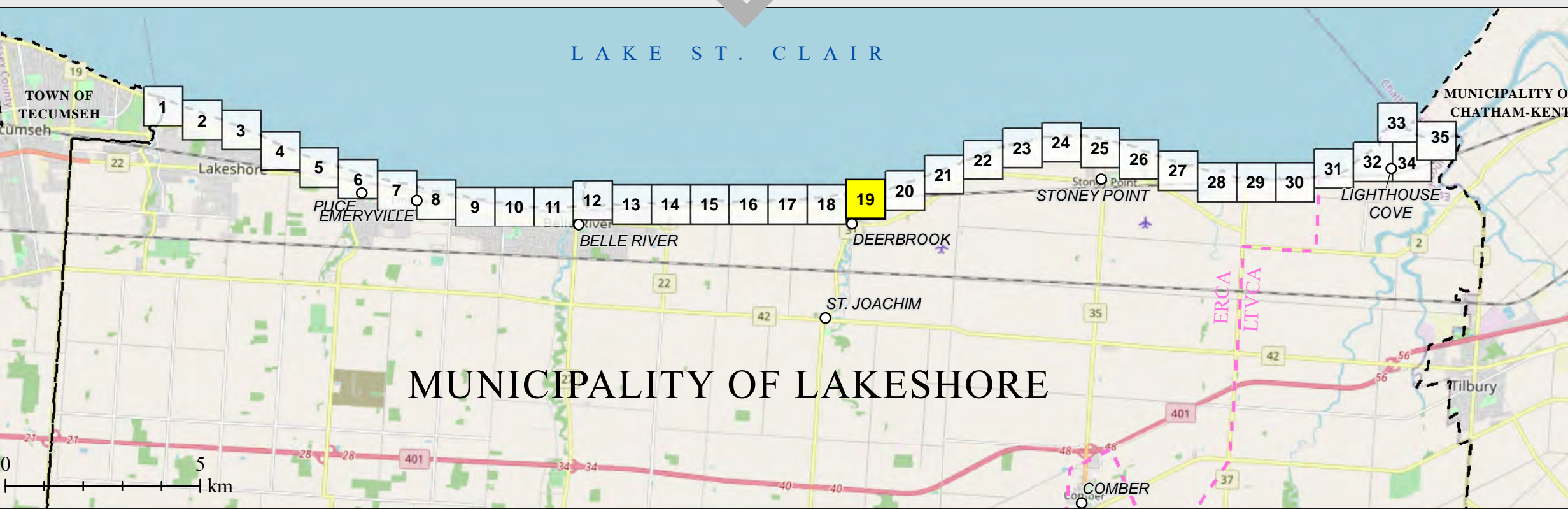


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Map
19 of 35

Municipality of Lakeshore Hazard Maps

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

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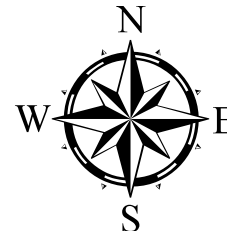
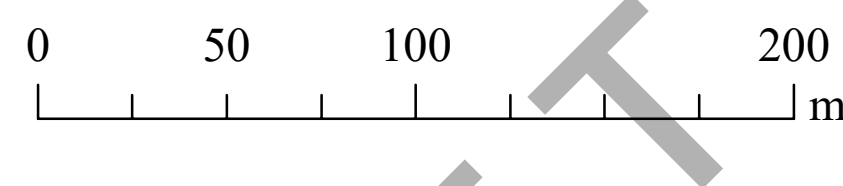
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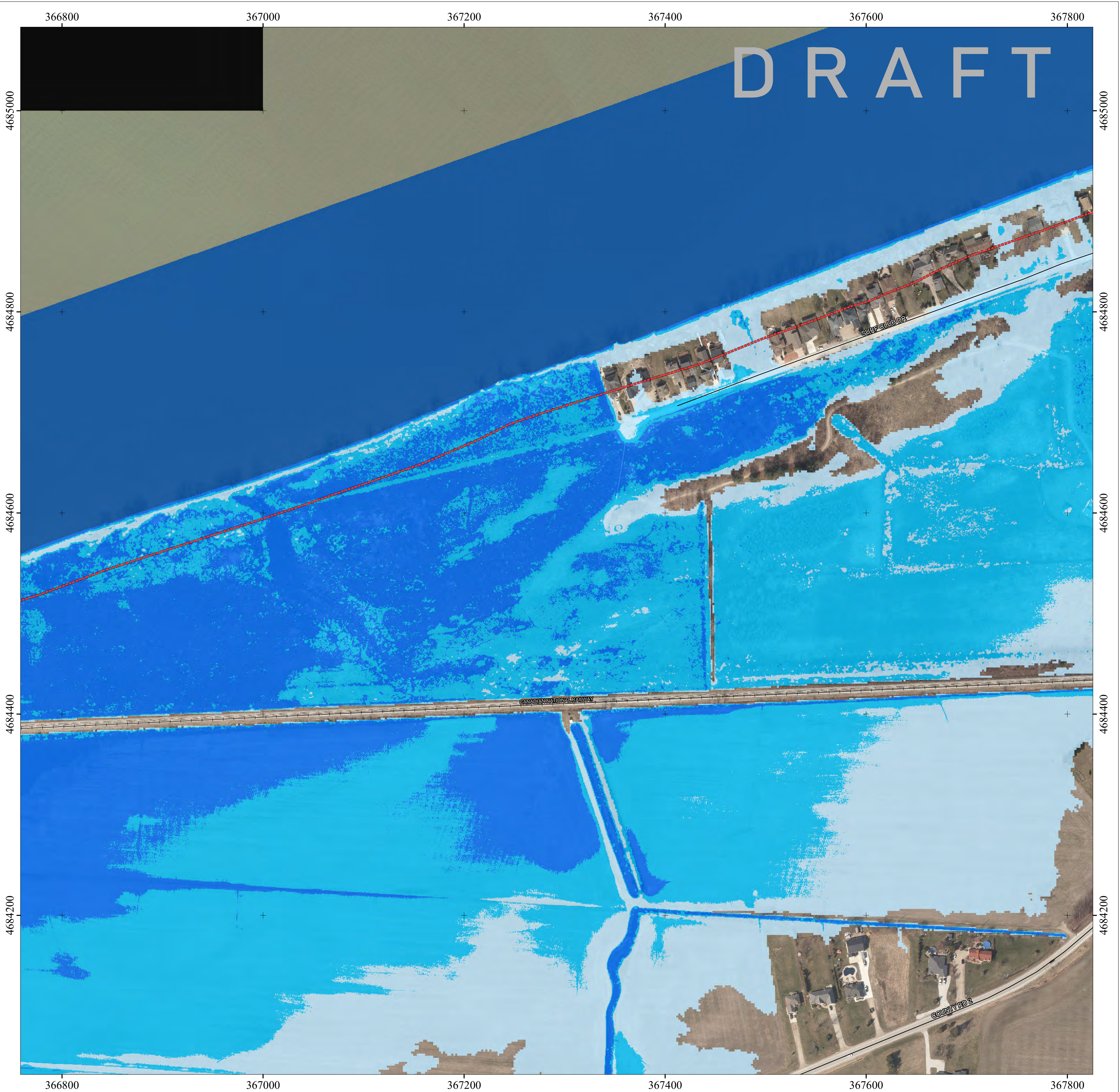
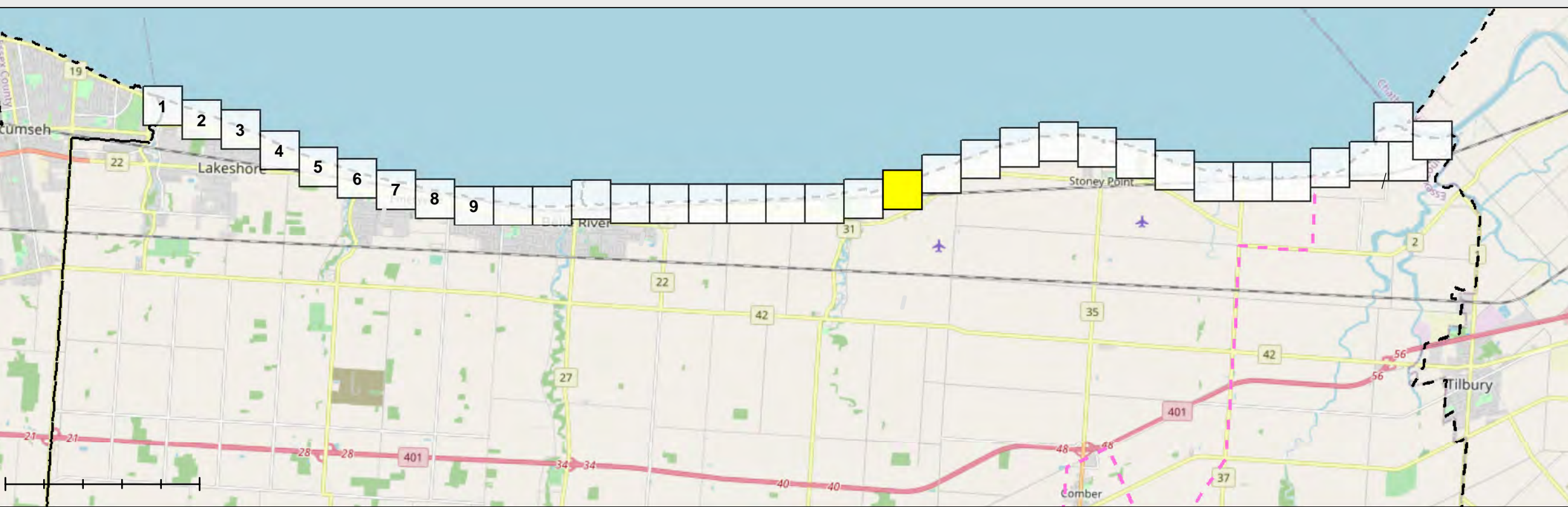


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MUNICIPALITY OF LAKESHORE

HAZARD MAPS

LEGEND:

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Flood Hazard Limit

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Erosion Hazard Limit

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Dynamic Beach Hazard Limit

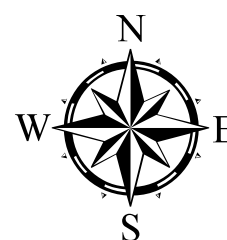
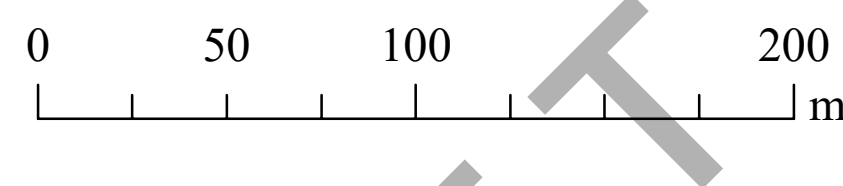
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Datums:

Horizontal: UTM 17N NAD1983, metres
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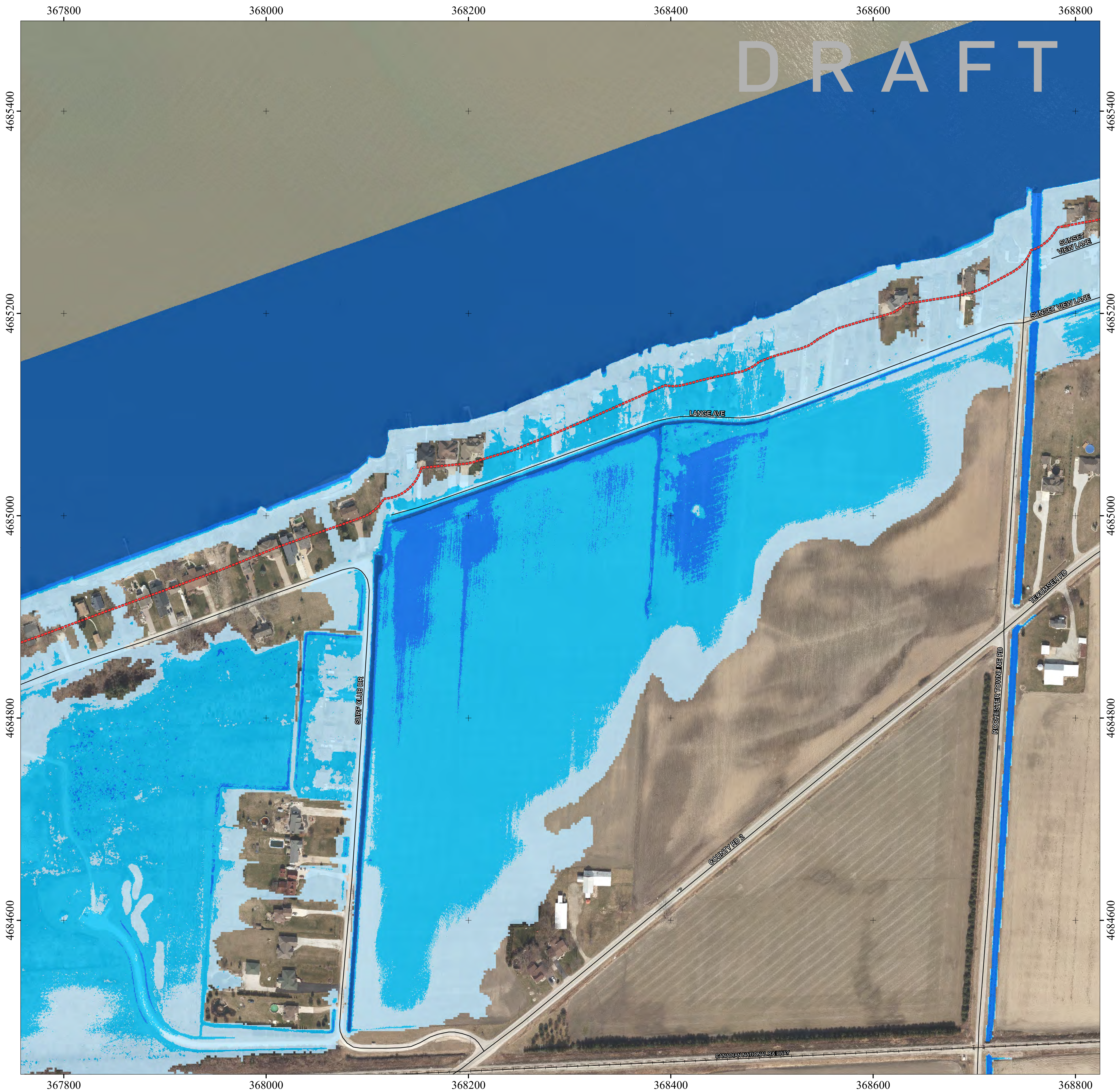
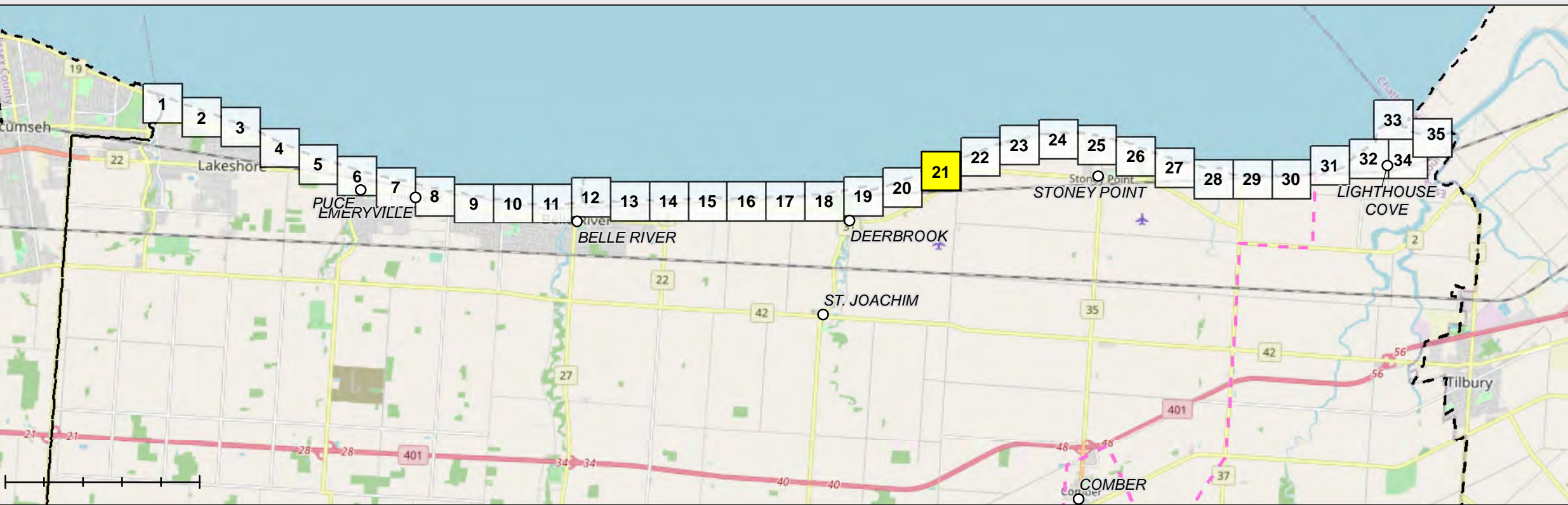


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MAP PUBLISHED APRIL 2021

MUNICIPALITY OF LAKESHORE

HAZARD MAPS

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

- 0 - 0.3 m (Up to ~1 ft)
- 0.31 - 0.6 m (Up to ~2 ft)
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Dynamic Beach Hazard Limit

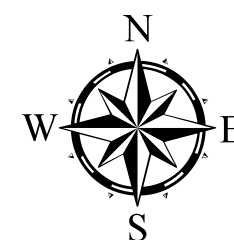
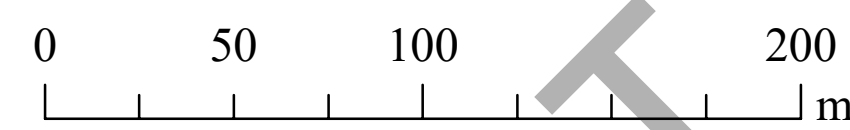
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Datums:

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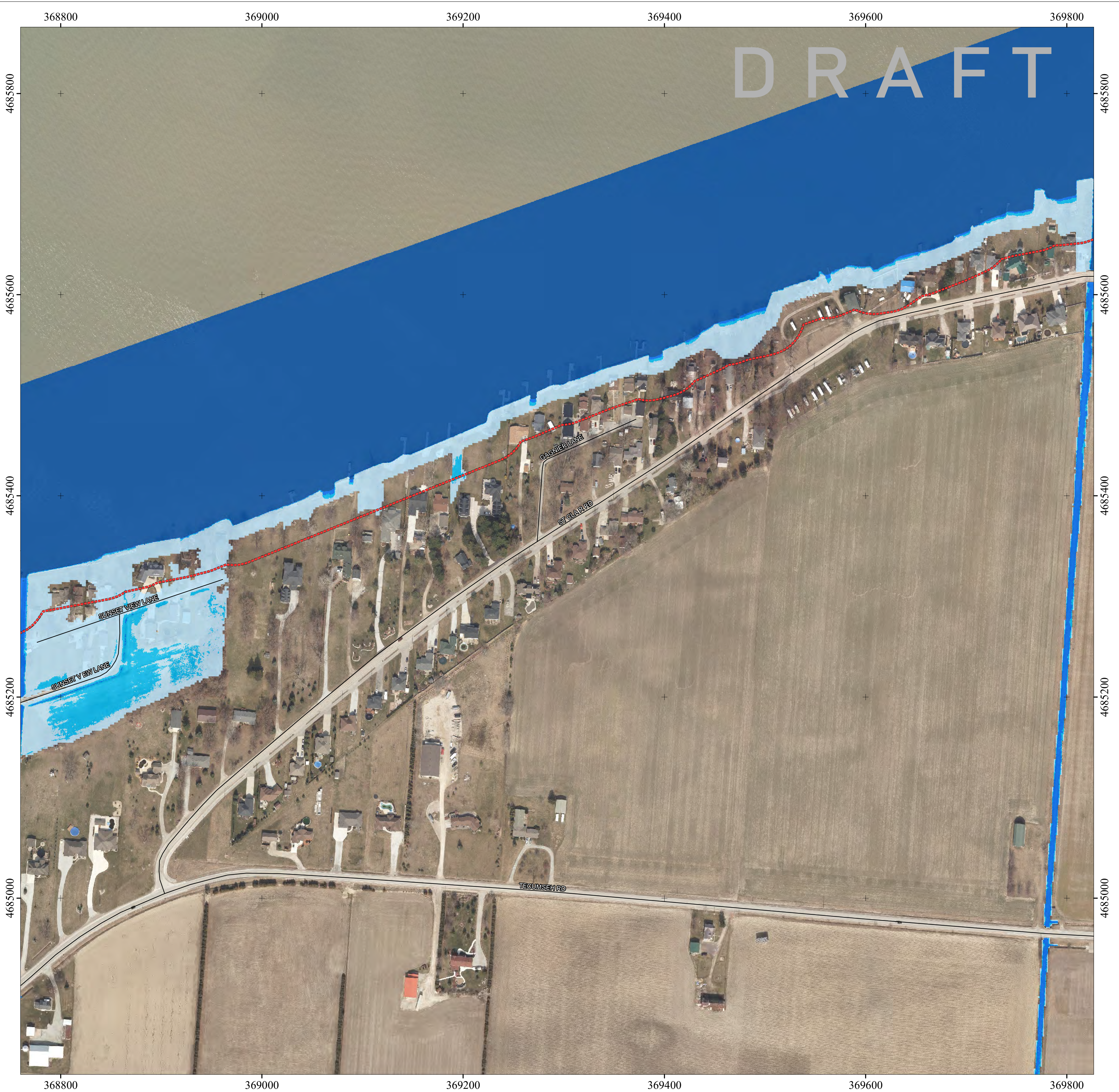
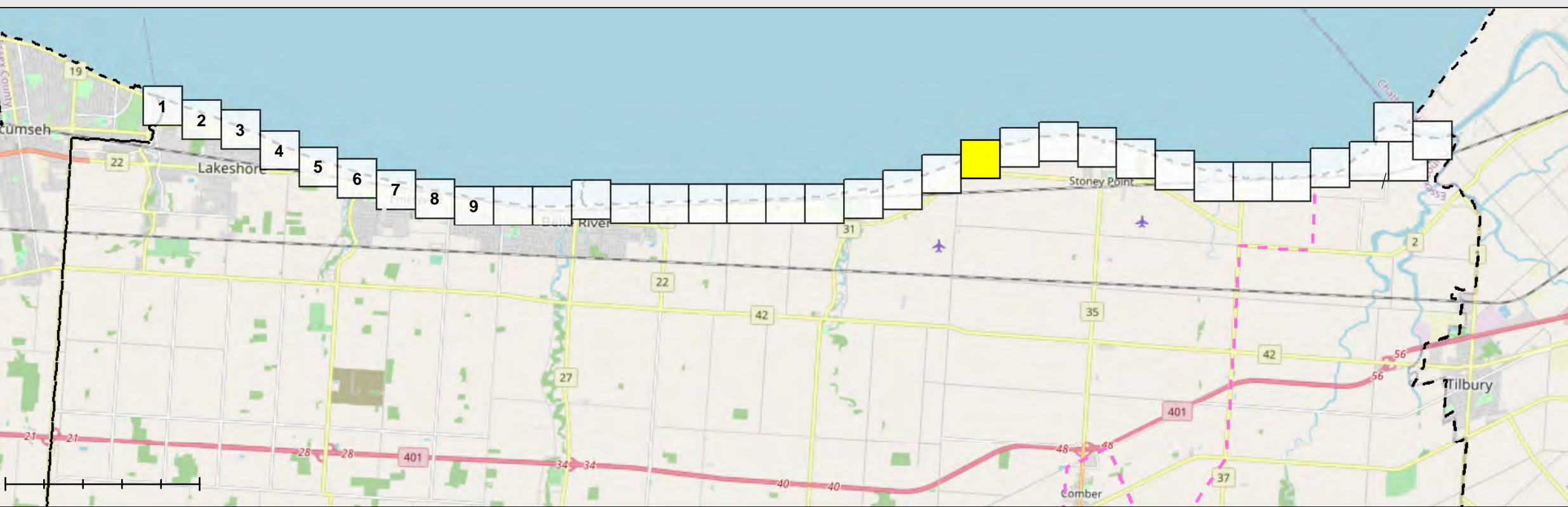


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MAP PUBLISHED APRIL 2021

Municipality of Lakeshore Hazard Maps

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

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Dynamic Beach Hazard Limit

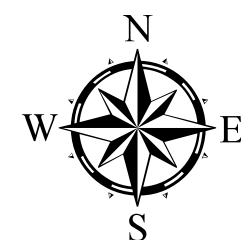
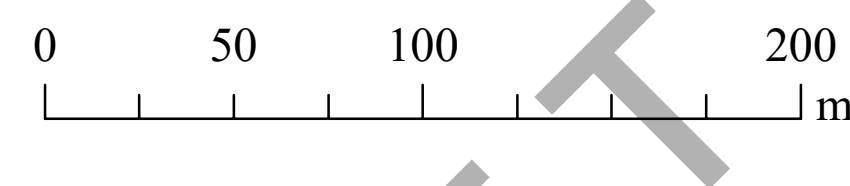
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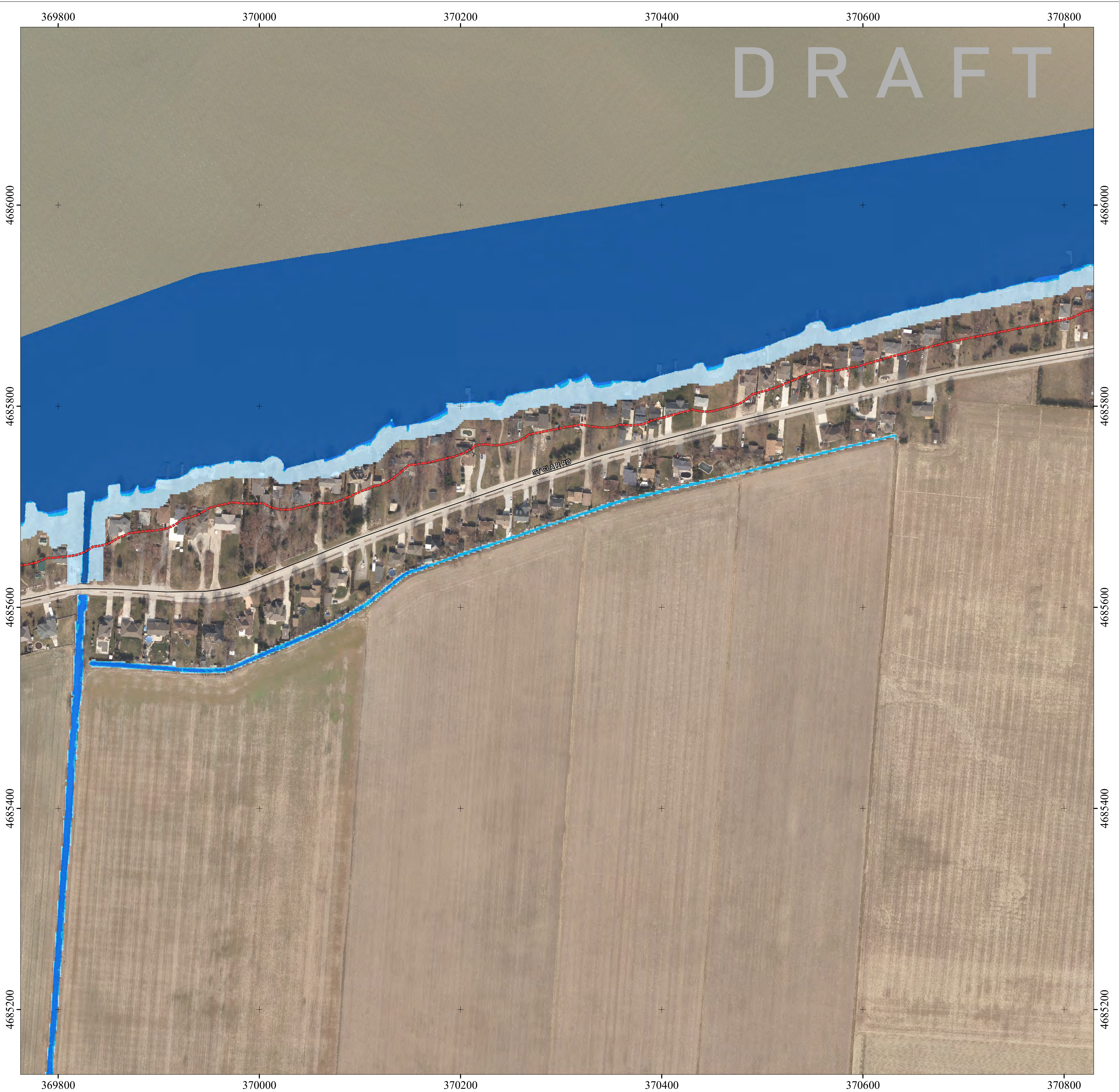
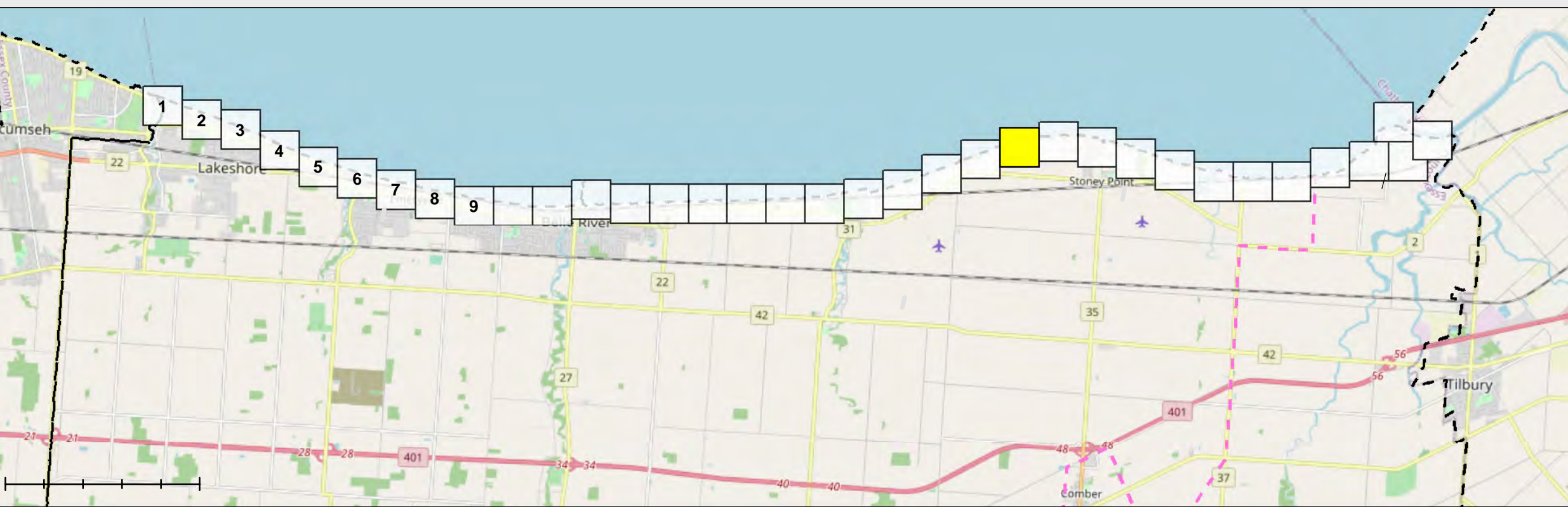


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MUNICIPALITY OF LAKESHORE

HAZARD MAPS

SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

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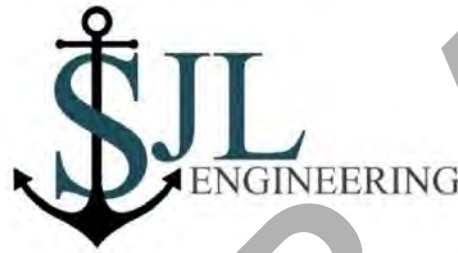
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Dynamic Beach Hazard Limit

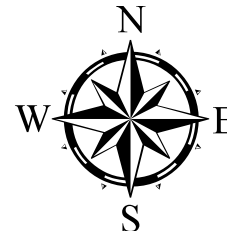
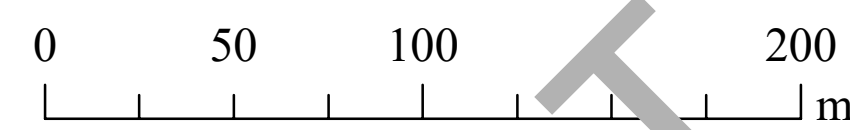
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Map
24 of 35

MUNICIPALITY OF LAKESHORE

HAZARD MAPS

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

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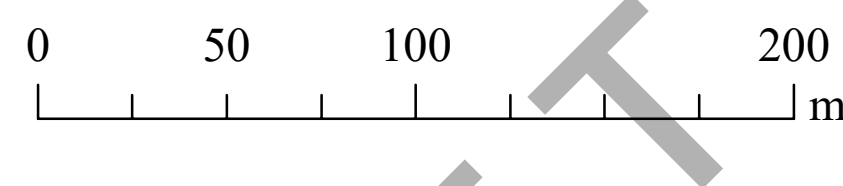
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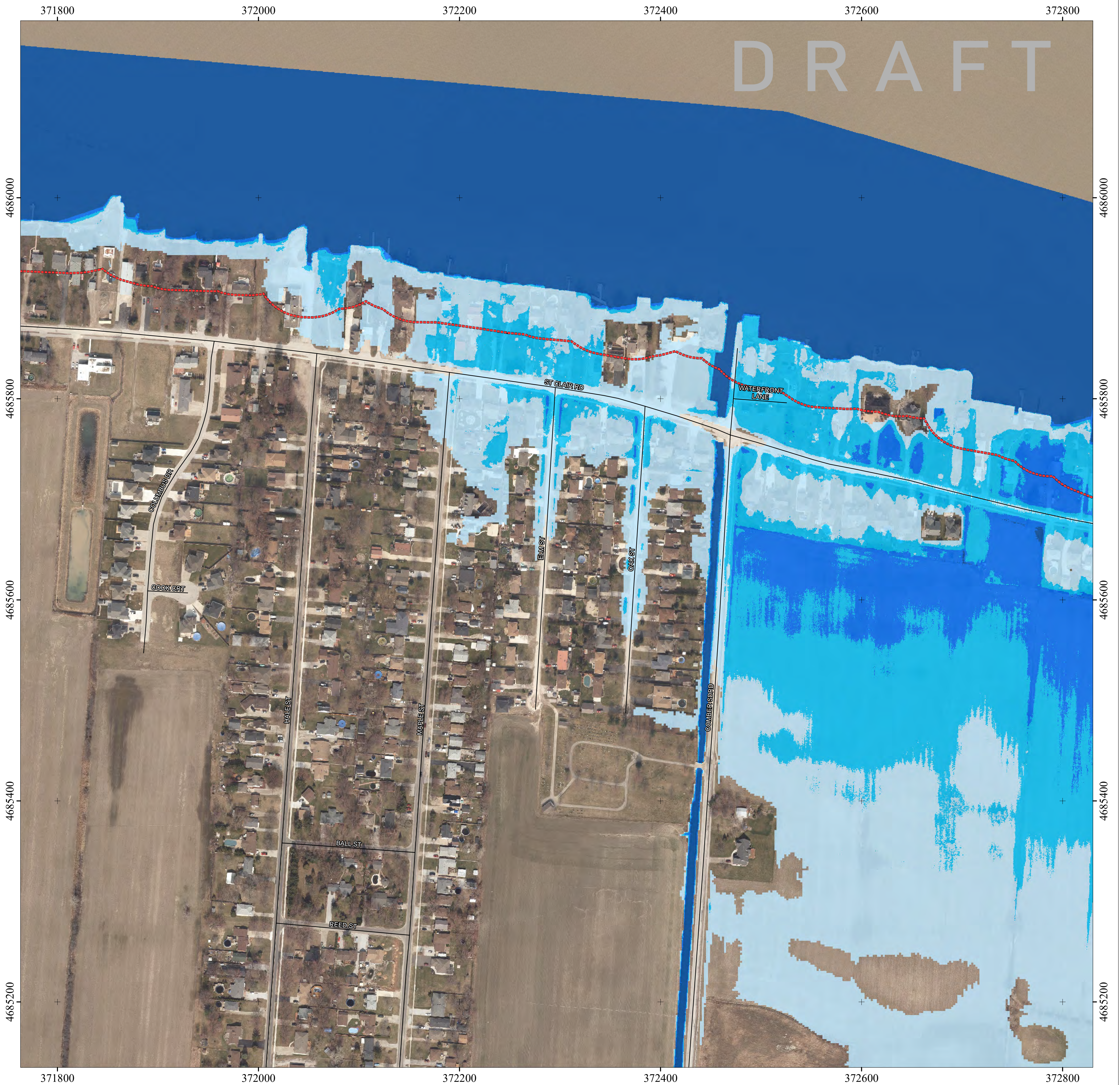
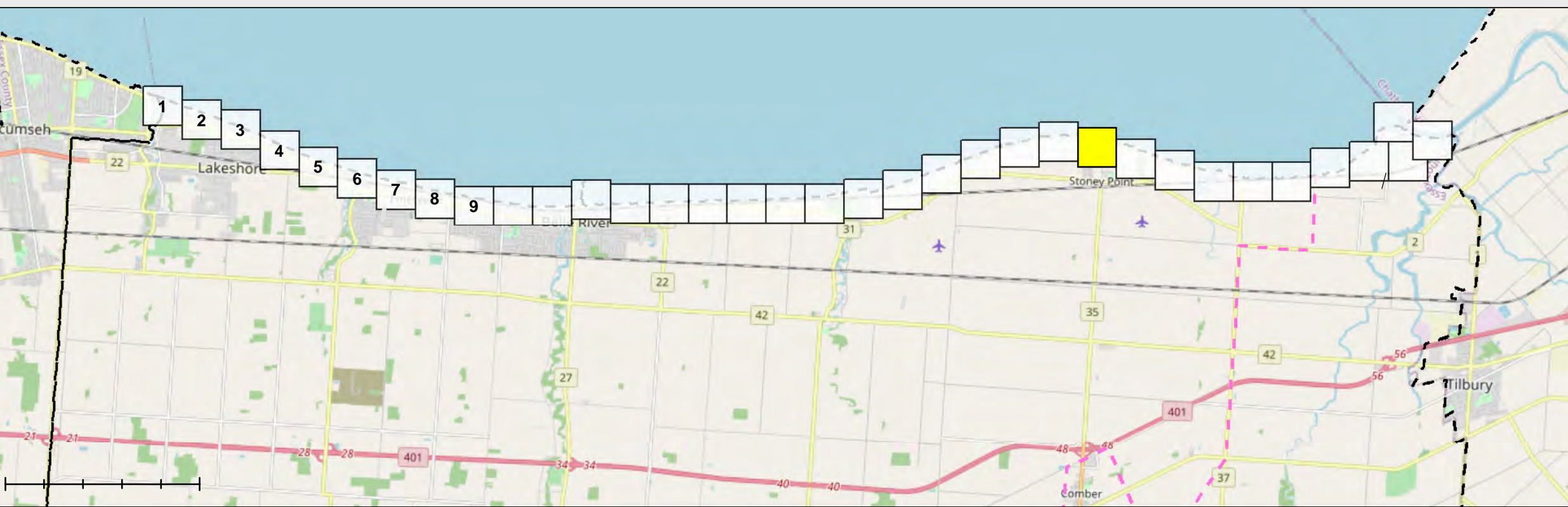


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MUNICIPALITY OF LAKESHORE

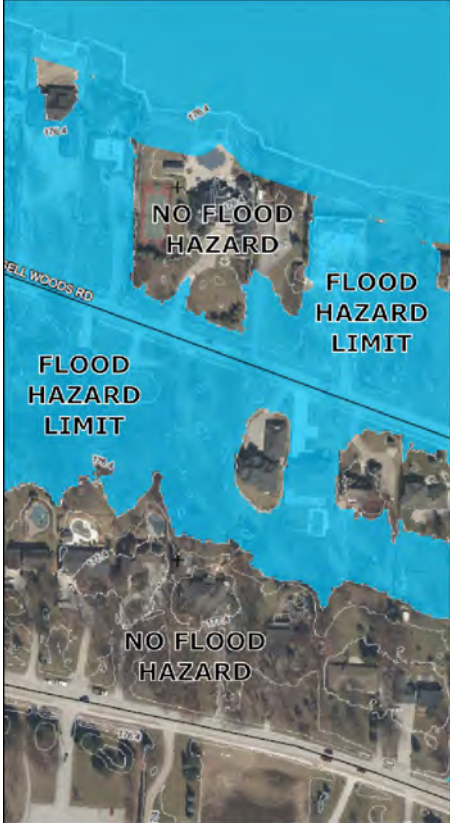
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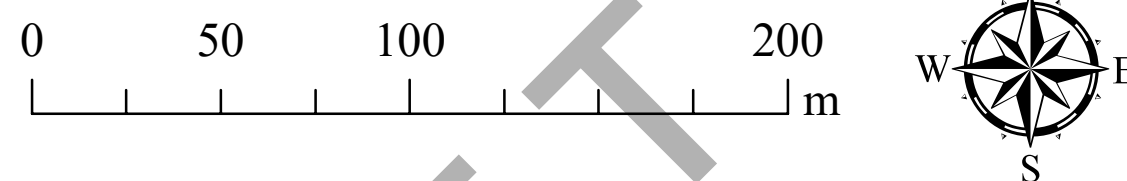
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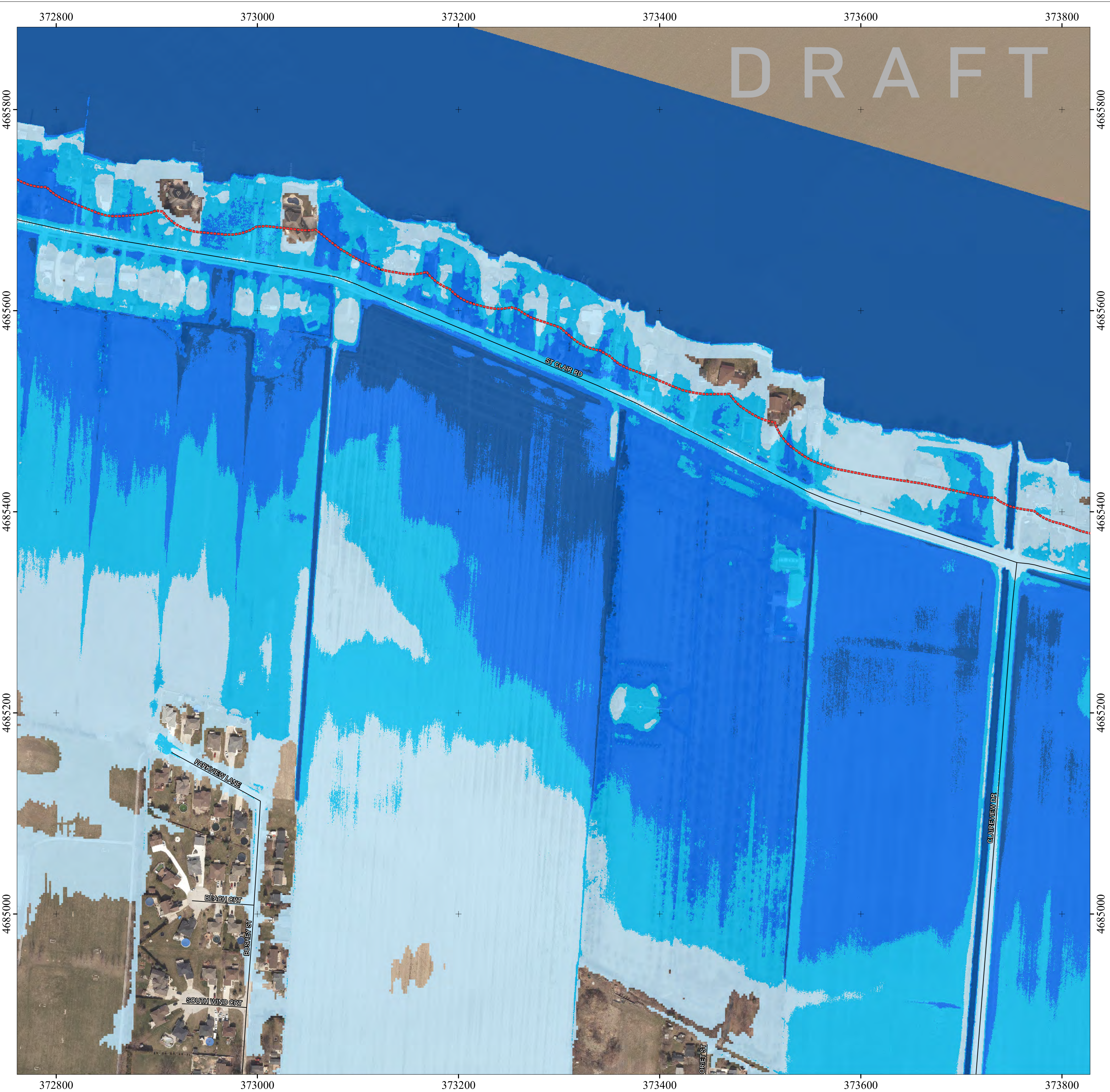
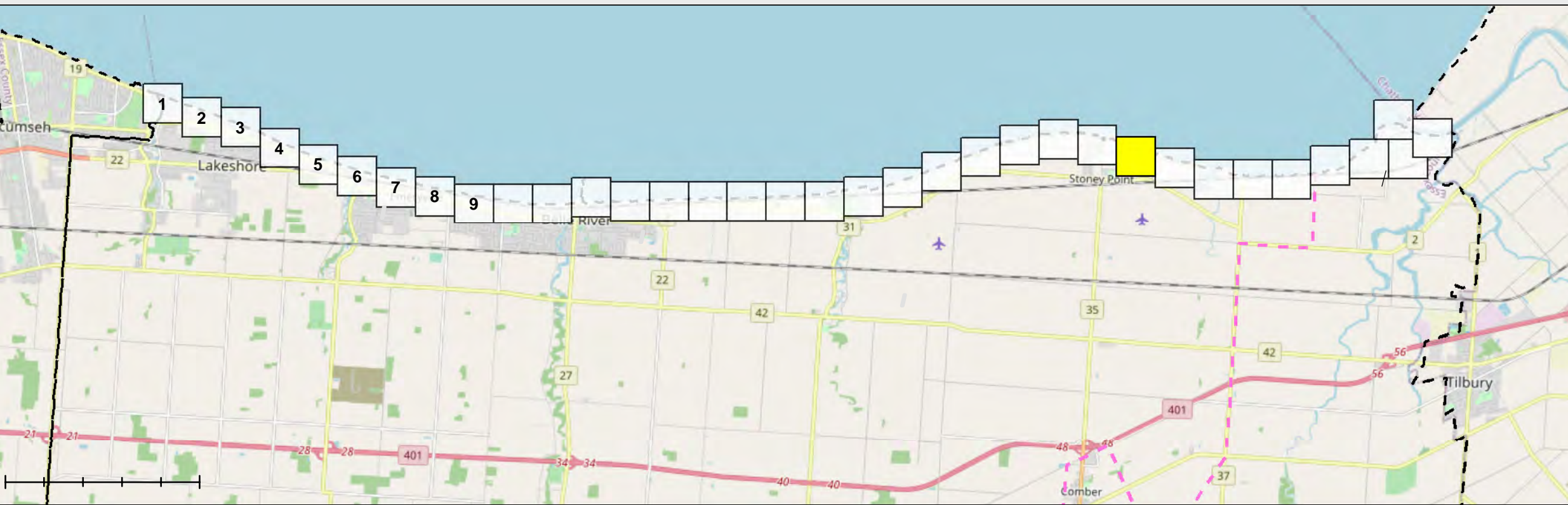


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MAP PUBLISHED APRIL 2021

Municipality of Lakeshore Hazard Maps

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

- 0 - 0.3 m (Up to ~1 ft)
- 0.31 - 0.6 m (Up to ~2 ft)
- 0.61 - 0.9 m (Up to ~3 ft)
- > 0.9 m (> ~3 ft)



INTERPRETATION OF THE HAZARD MAPS:

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Dynamic Beach Hazard Limit

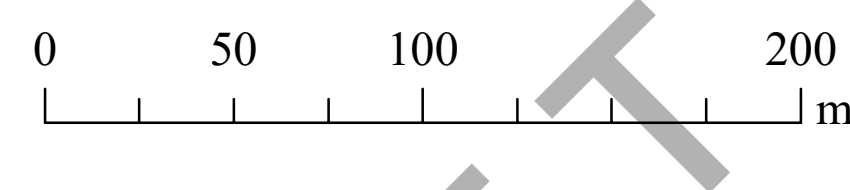
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Datums:

Horizontal: UTM 17N NAD1983, metres
Vertical: IGLD85, metres

Datum Conversion:

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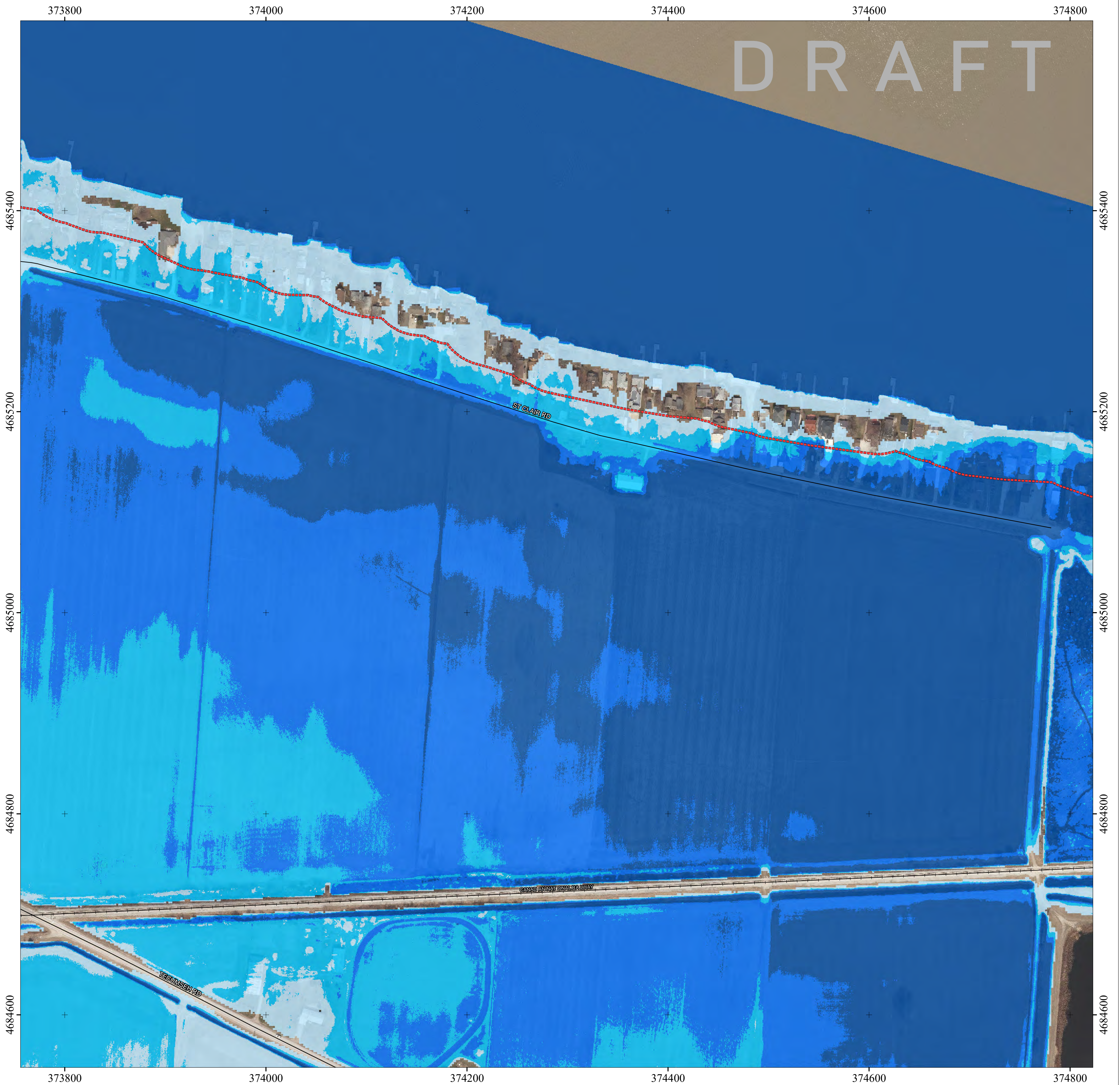
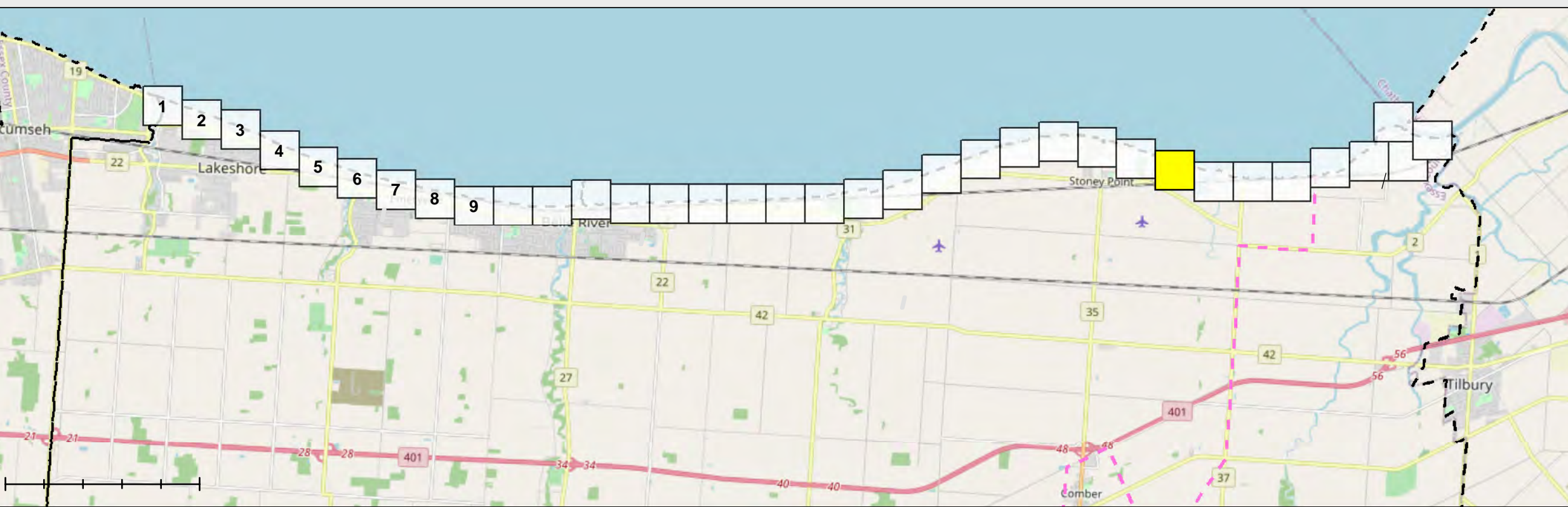


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MUNICIPALITY OF LAKESHORE

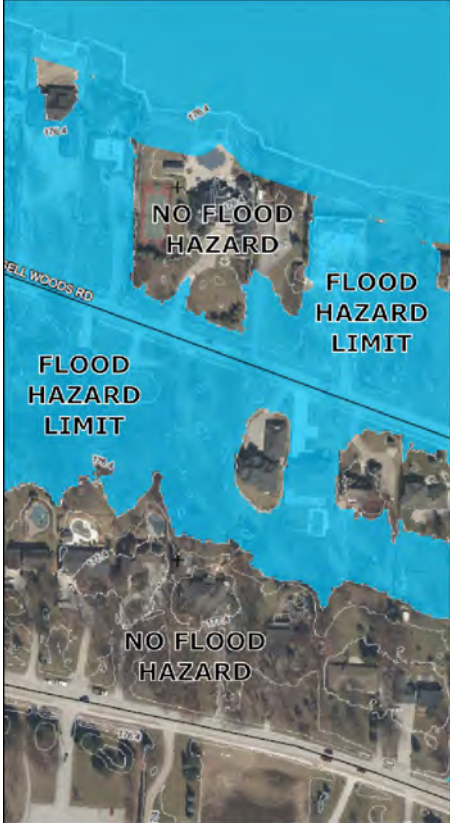
HAZARD MAPS

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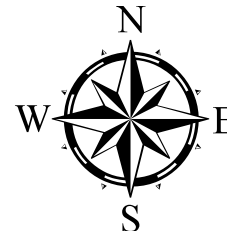
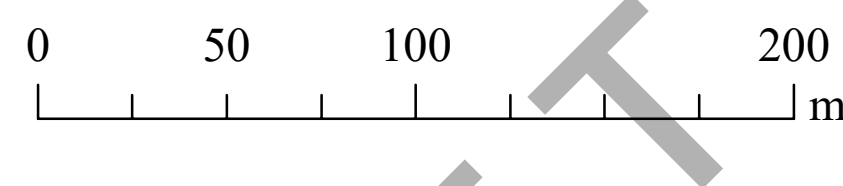
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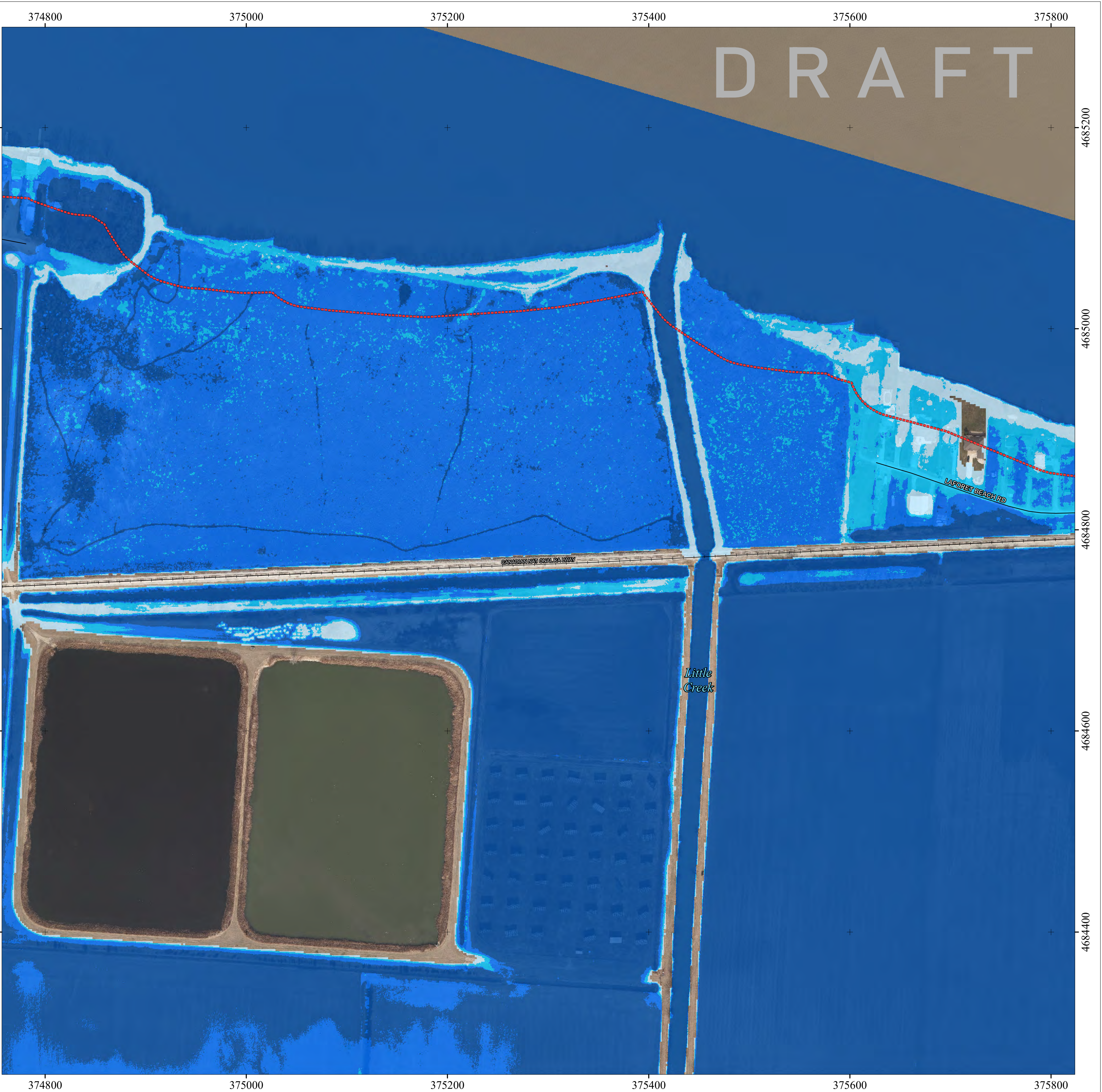
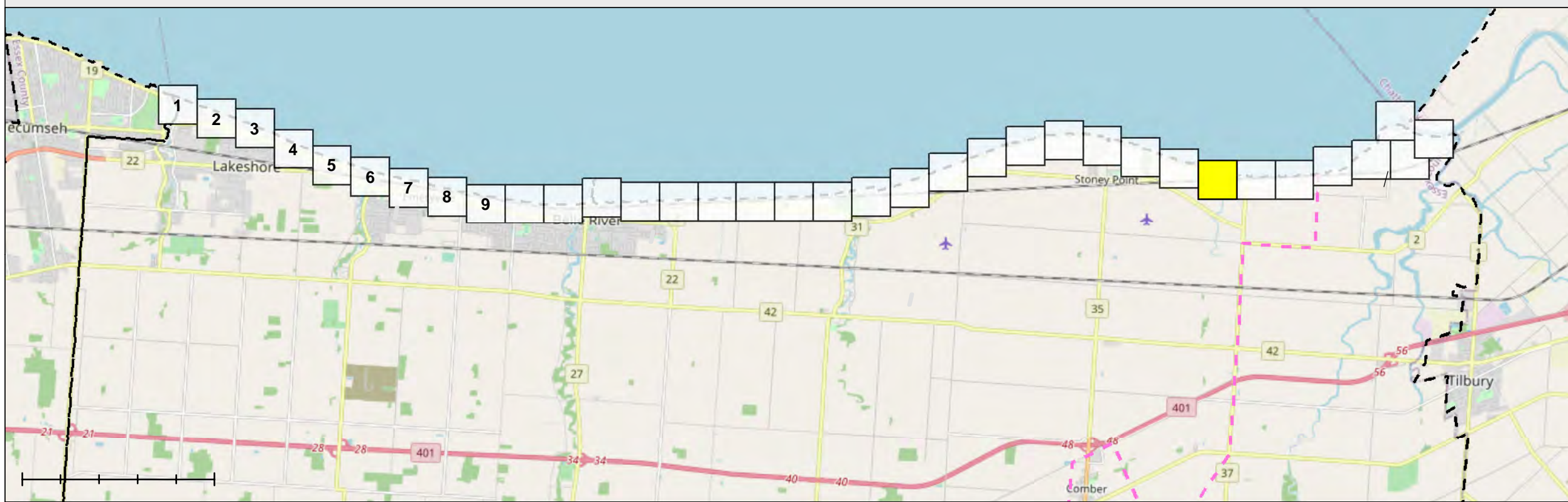


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Municipality of Lakeshore Hazard Maps

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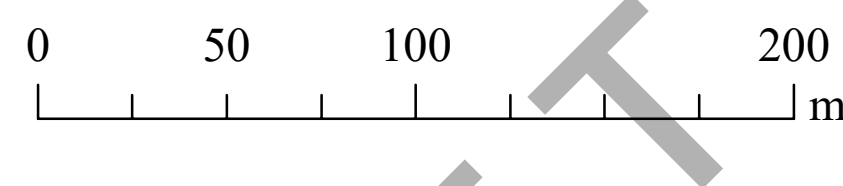
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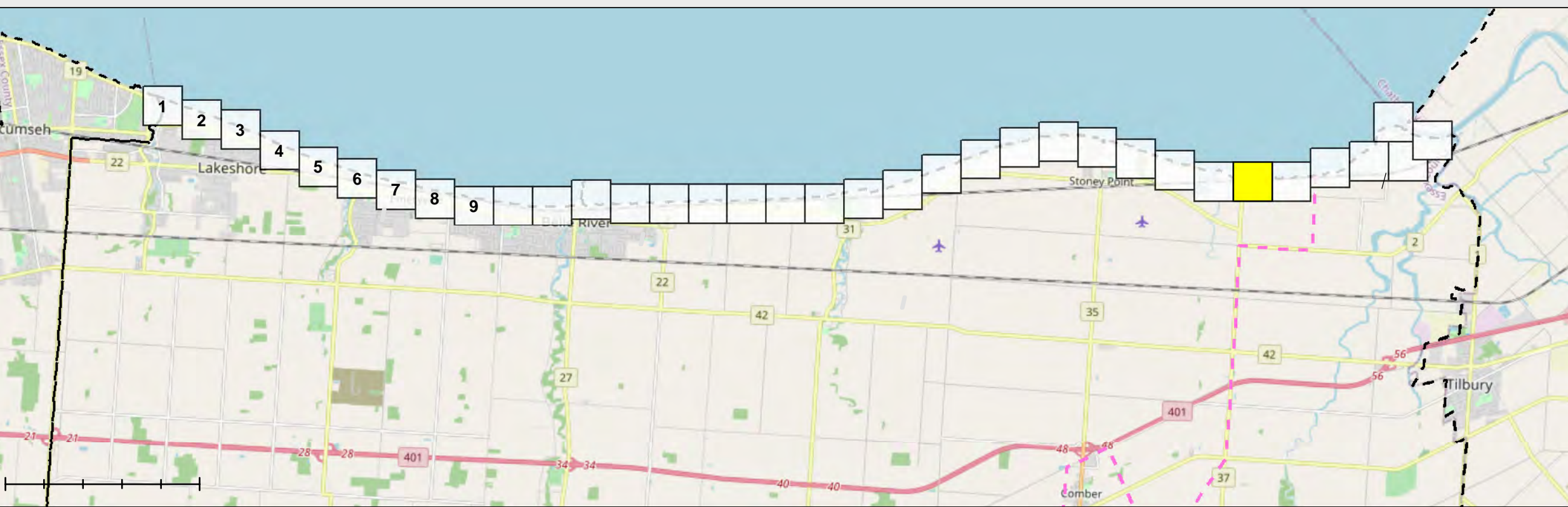


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Municipality of Lakeshore Hazard Maps

SHORELINE MANAGEMENT PLAN

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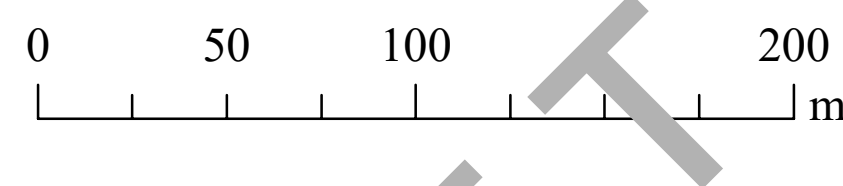
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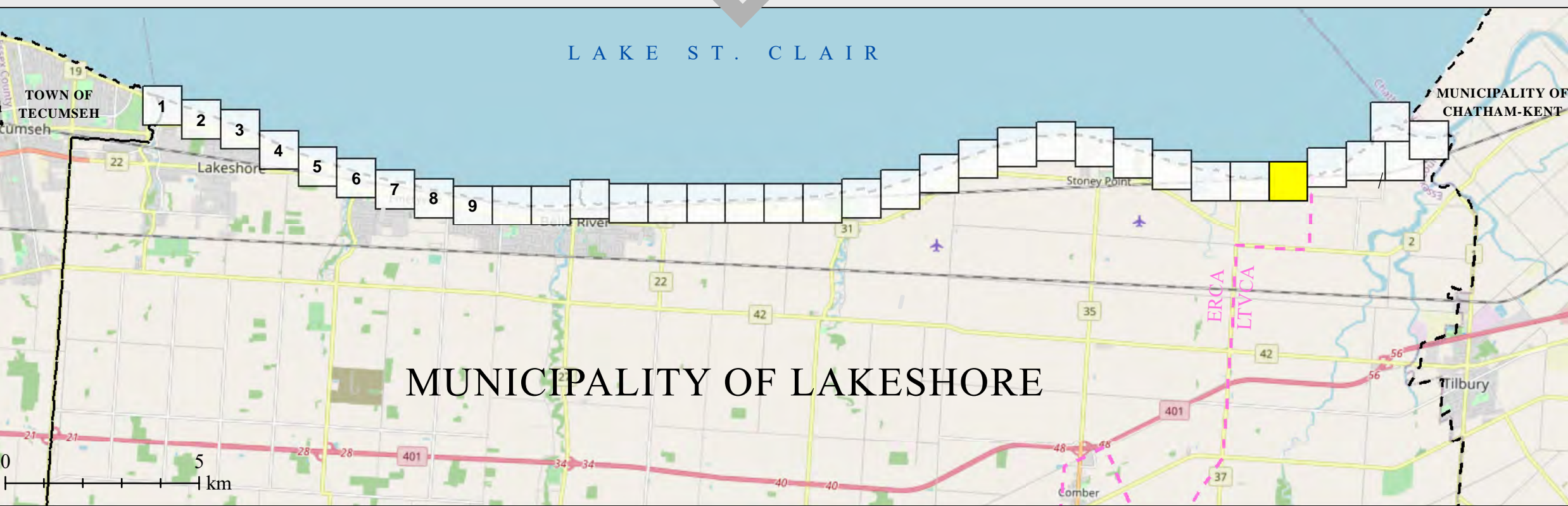


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Map
30 of 35

Municipality of Lakeshore

Hazard Maps

LEGEND:

- Erosion Hazard Limit
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- ERCA-LTVCA Boundary
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100-year Flood Hazard - Depth of Flooding (m)

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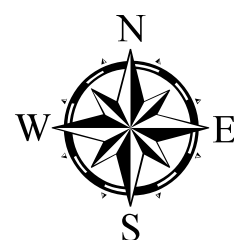
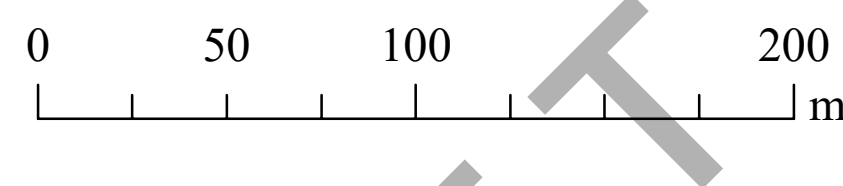
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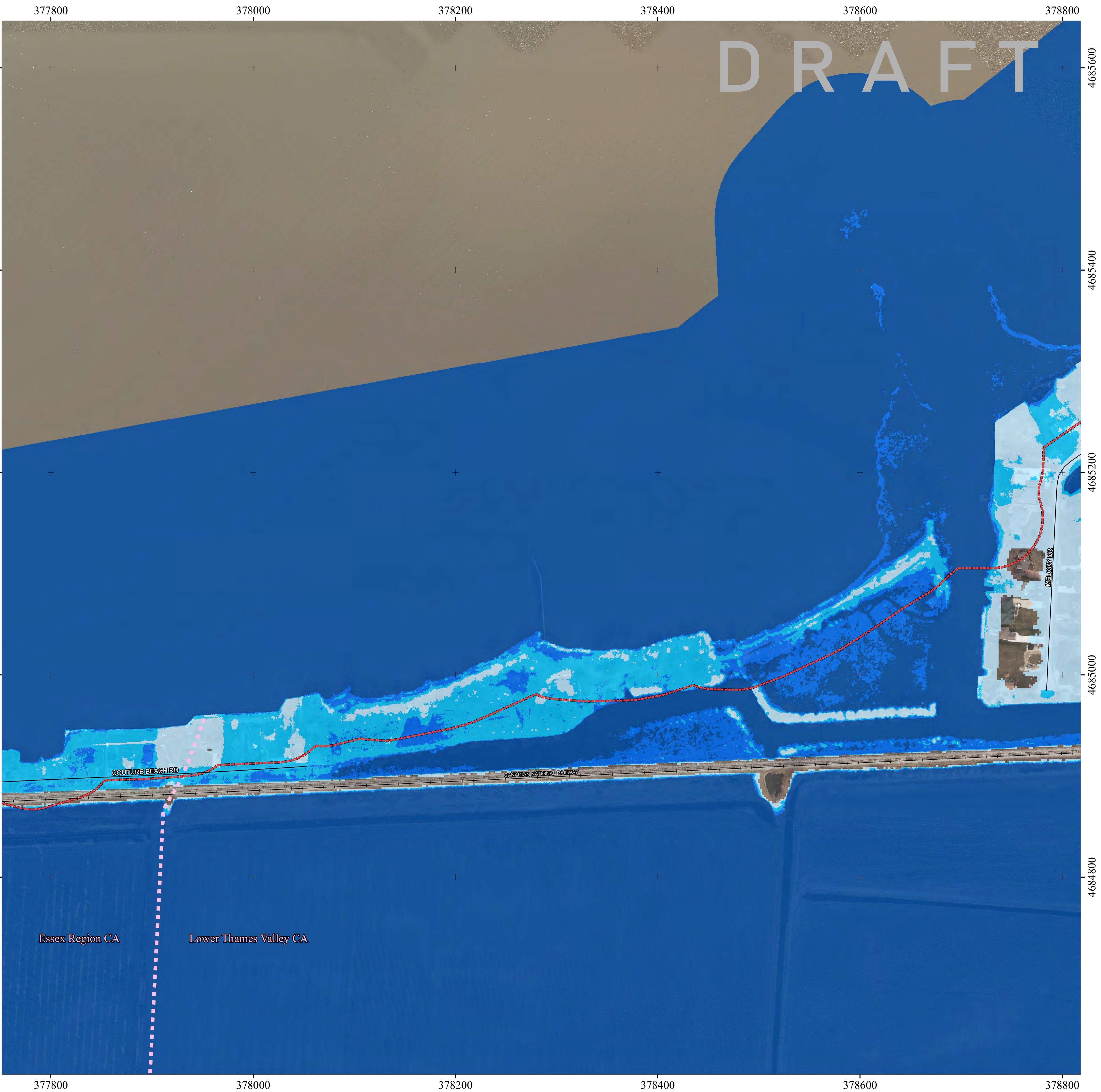
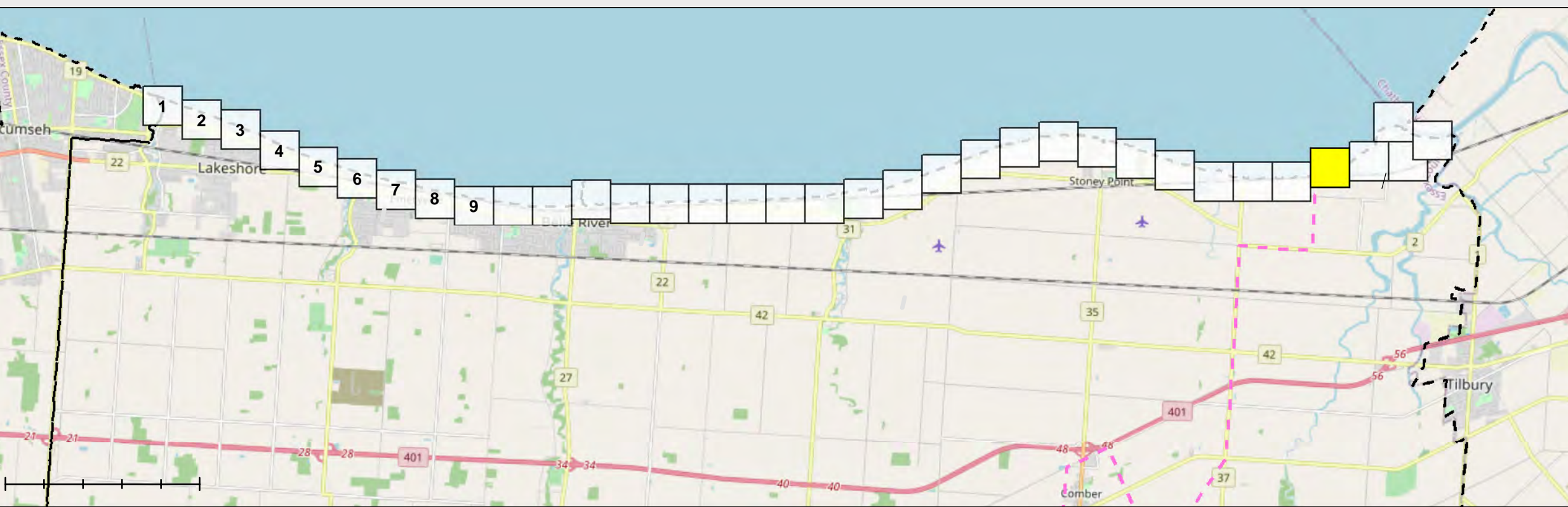


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MUNICIPALITY OF LAKESHORE

HAZARD MAPS

SHORELINE MANAGEMENT PLAN

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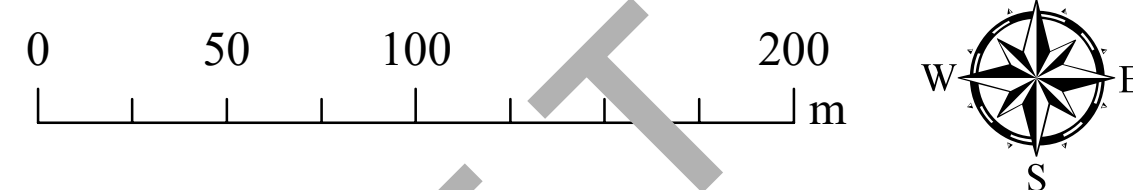
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IGLD85 and CGVD1928 are equivalent (average difference of 0 m).

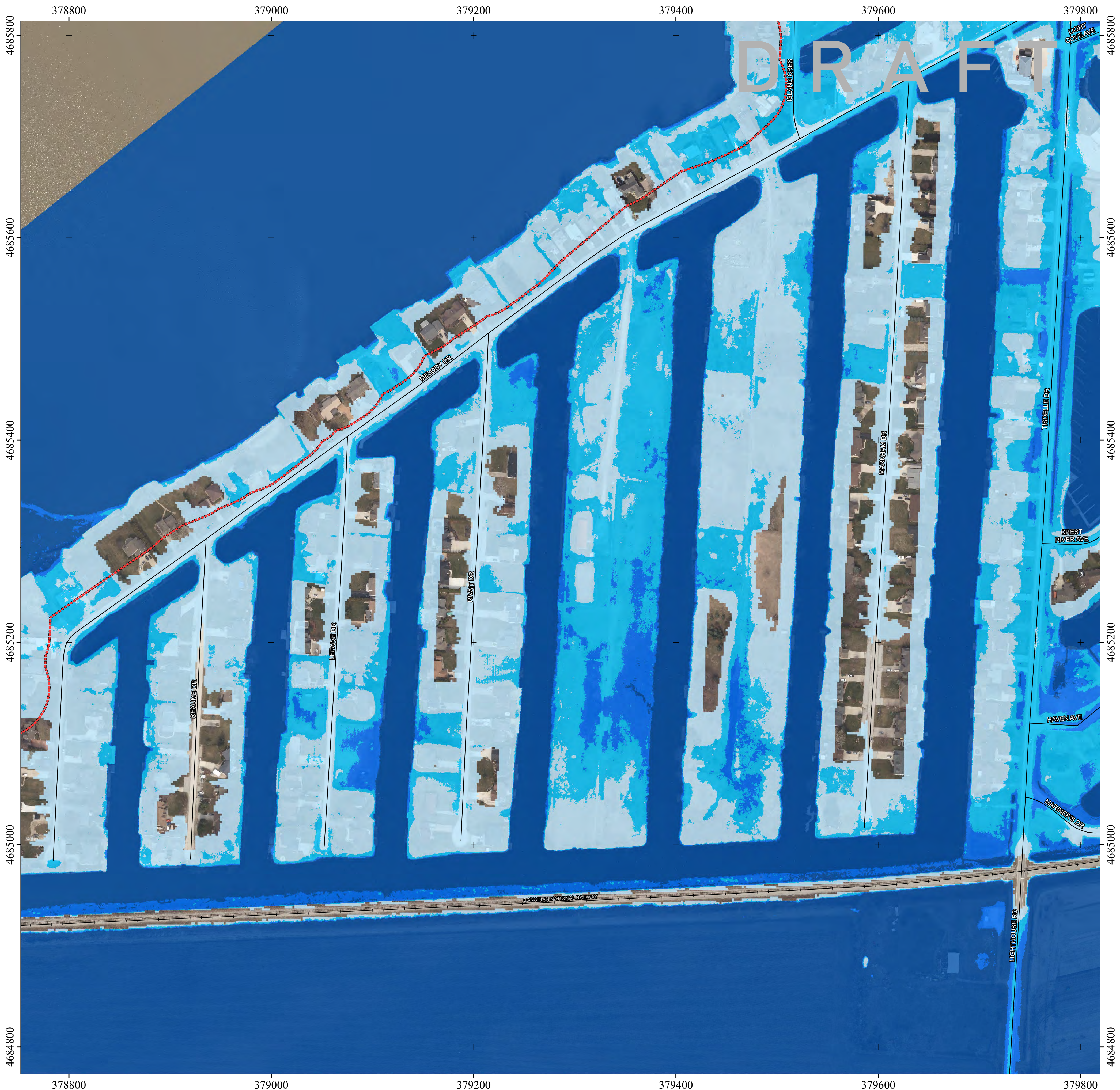


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MUNICIPALITY OF LAKESHORE

HAZARD MAPS

SHORELINE MANAGEMENT PLAN

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

- 0 - 0.3 m (Up to ~1 ft)
- 0.31 - 0.6 m (Up to ~2 ft)
- 0.61 - 0.9 m (Up to ~3 ft)
- > 0.9 m (> ~3 ft)



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DEFINITIONS:

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Flood Hazard Limit

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Erosion Hazard Limit

The erosion allowance was mapped from the approximate edge of existing shoreline protection based on measured historical recession rates established by Dillon (1976). West of Belle River, the recession rate was 0.3 m/year. East of Belle River to Stoney Point, the recession rate was 0.4 m/year. East of Stoney Point, the recession rate was 0.5 m/year.

Dynamic Beach Hazard Limit

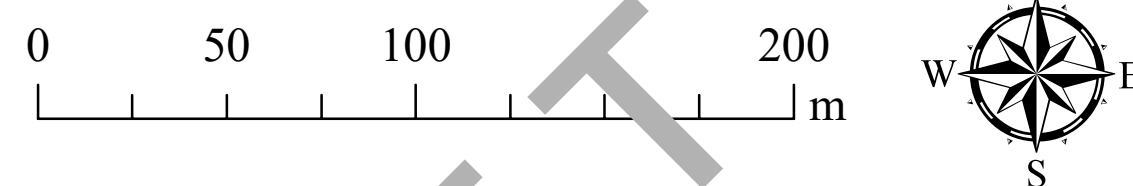
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Datums:

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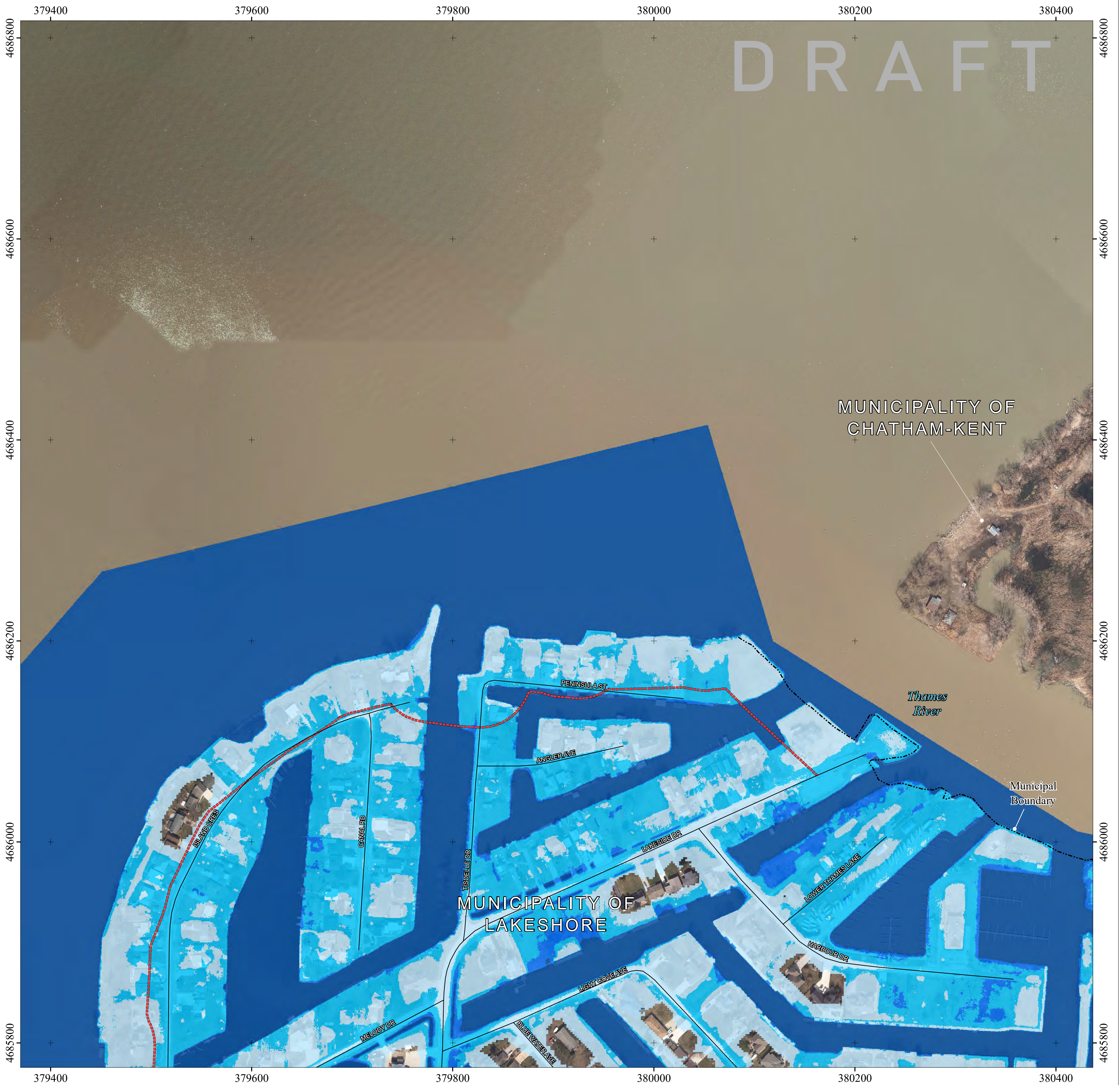


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Municipality of Lakeshore

Hazard Maps

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Dynamic Beach Hazard Limit

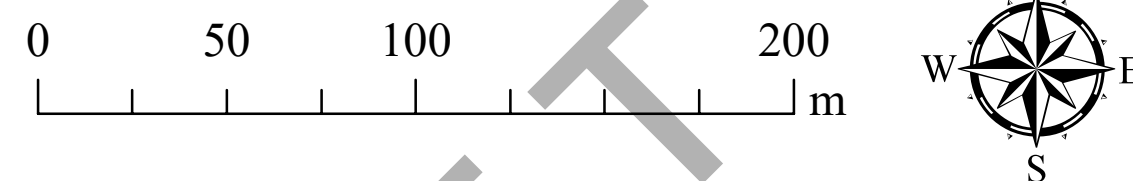
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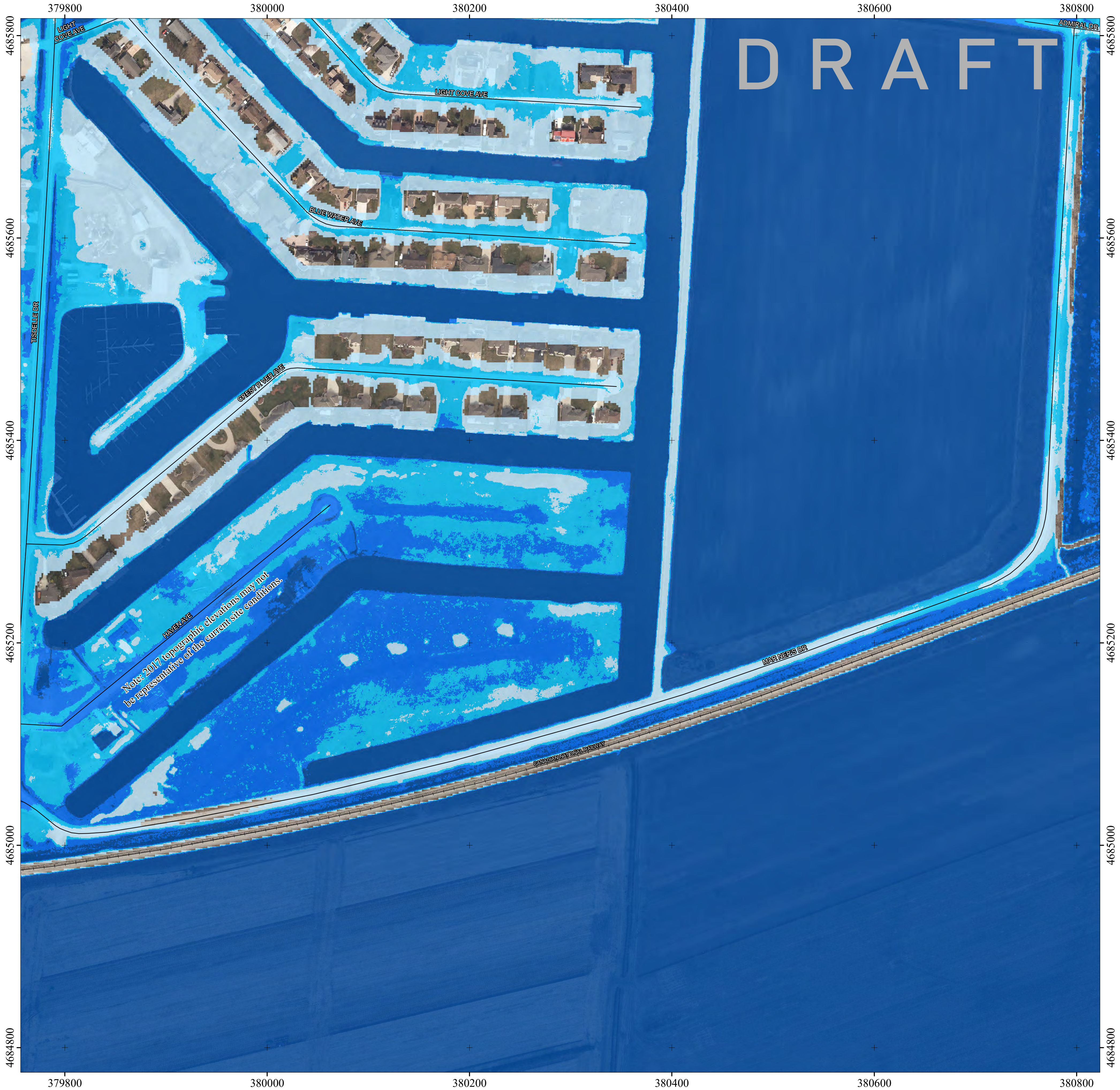
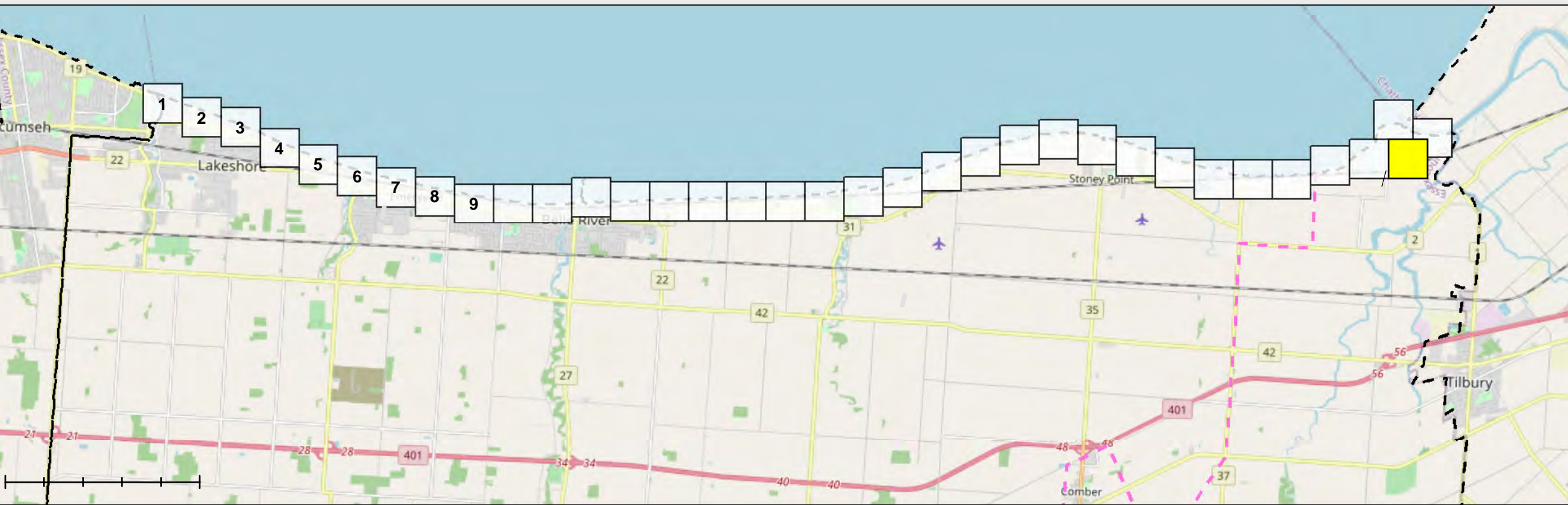


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Municipality of Lakeshore Hazard Maps

SHORELINE MANAGEMENT PLAN

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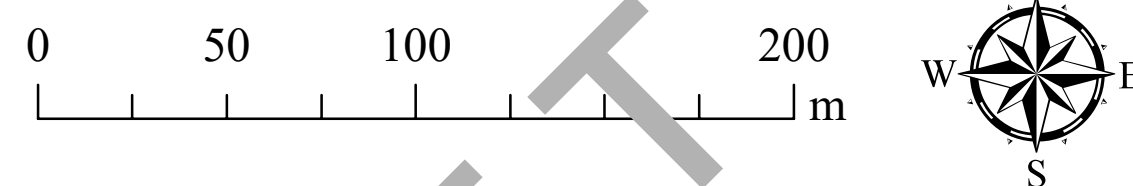
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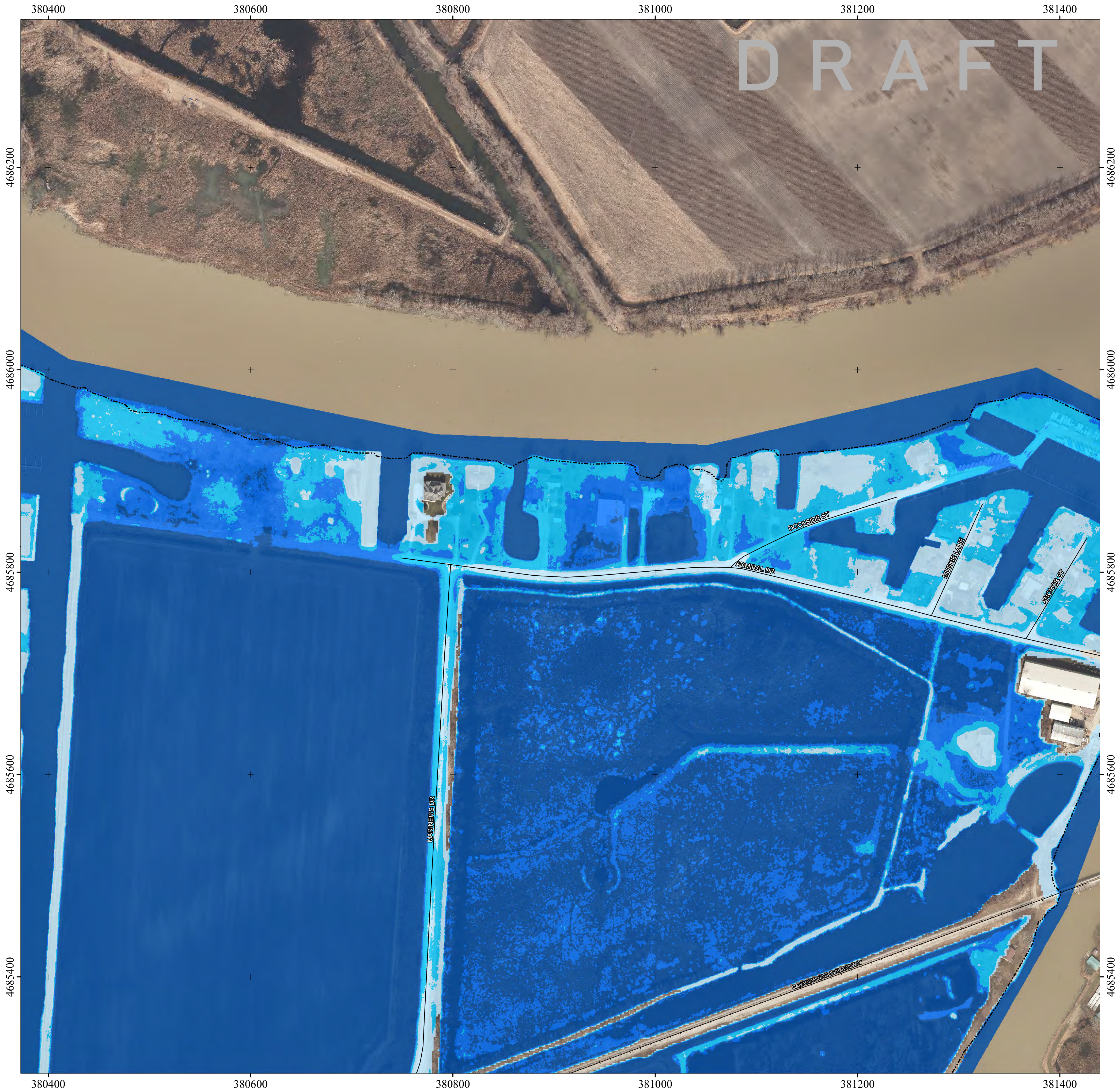


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Map
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Appendix E 3D Renderings of Flood Risk

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MUNICIPALITY OF LAKESHORE SHORELINE MANAGEMENT PLAN

COUNCIL DRAFT REPORT

References

March 4, 2022

Puce River, 175.2 m



Puce River, 176.39 m



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References

March 4, 2022

Puce River, 176.77 m



Belle River, 175.2 m



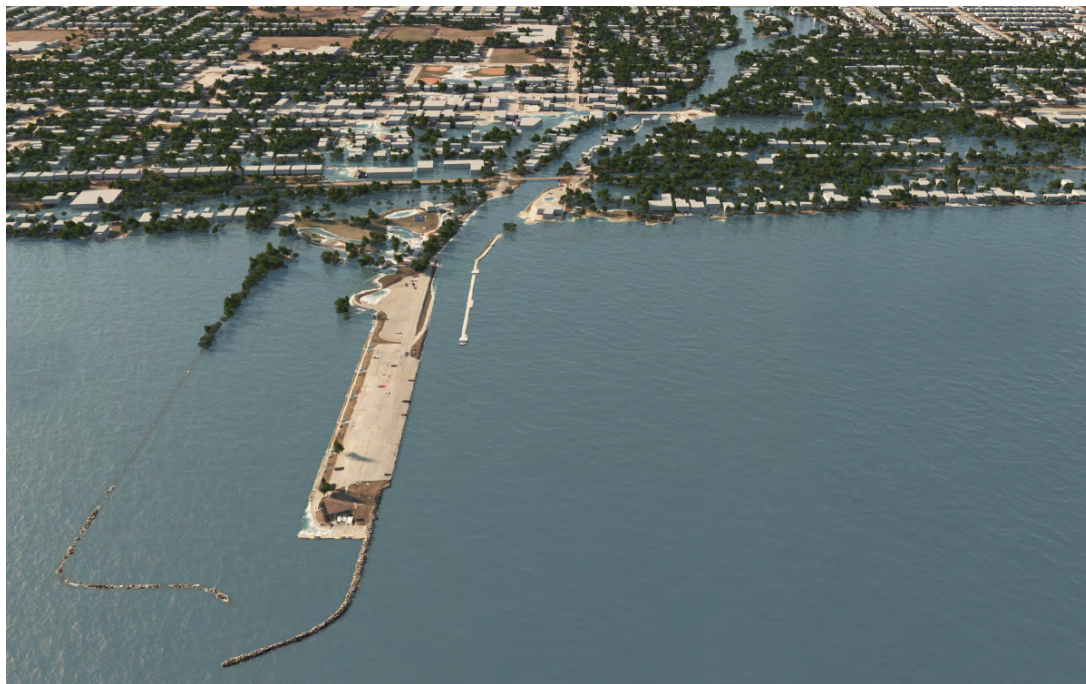
MUNICIPALITY OF LAKESHORE SHORELINE MANAGEMENT PLAN

COUNCIL DRAFT REPORT

References

March 4, 2022

Belle River, 176.39 m



Belle River, 176.77 m



**MUNICIPALITY OF LAKESHORE
SHORELINE MANAGEMENT PLAN**

COUNCIL DRAFT REPORT

0 Appendix F Shoreline Reach Summaries
March 4, 2022

Appendix F Shoreline Reach Summaries

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0 Appendix F Shoreline Reach Summaries
March 4, 2022

Reach 1 – Pike Creek to Puce River



Local Conditions

- Reach Length = approximately 5.7 km.
- The reach extends from Pike Creek at the Tecumseh – Lakeshore boundary in the west to the Puce River.
- The low-lying shoreline properties are vulnerable to flooding, along with the development on the riverbanks.
- The roads in the western portion of the reach were designed to collect excess stormwater during heavy rainfall, which is evident in the flood maps.

Entrance to Pike Creek, Looking South



Flooded Keywall, Channel of Puce River Looking East



**MUNICIPALITY OF LAKESHORE
SHORELINE MANAGEMENT PLAN**

COUNCIL DRAFT REPORT

0 Appendix F Shoreline Reach Summaries
March 4, 2022

Depth of Road Flooding and Emergency Access
<ul style="list-style-type: none">• Reach 1 features extensive road flooding, especially in the western portion of the reach near Pike Creek (depths of 0.6 to 0.9 m). Refer to Map 1 of 35 below.• Depths will limit access for emergency vehicles during the 100-year flood.

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0 Appendix F Shoreline Reach Summaries
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0 Appendix F Shoreline Reach Summaries
March 4, 2022

348268, 4687445	353601, 4685470	0.3	ERCA
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- 100-year Lake Level:

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Lake Level (m IGLD85')	100-year CC Lake Level (m IGLD85')
348268, 4687445	353601, 4685470	+176.39	+176.77

- Dynamic Beach(es):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Dynamic Beach Name
n/a	n/a	n/a	n/a

- Nearshore Wave Climate for 100-year Wave Height:

Water Depth (m)	Significant Wave Height, H_b (m)	Maximum Wave Height, H_{max} (m)	Deepwater Wave Height, H_o (m)	Wave Period, T_p (seconds)	Wave Length, L (m)
2.0	1.23	1.59	1.74	5.3	22.72
1.8	1.11	1.45	1.74	5.3	21.65
1.6	1.00	1.32	1.74	5.3	20.50
1.4	0.90	1.19	1.74	5.3	19.26
1.2	0.79	1.08	1.74	5.3	17.90
1.0	0.69	0.95	1.74	5.3	16.40

Flooding and Erosion Threats

- Flooding along the lakeshore due to low-crested shore protection structures and low-lying interior land.
- The development in Pike Creek and the Puce River is also vulnerable to lake flooding during the 100-year lake level.
- Roads are extensive flooded adjacent to Pike Creek during the 100-year flood level which will limit ingress and egress for residents and emergency service vehicles.
- Adjacent to the Puce River, lake flooding over seawalls and the banks of the river will propagate inland and south of the Canadian National Railway. The lake flood extends south over large areas of agricultural land.
- This analysis does not consider riverine flooding from rainfall events, only coastal flooding.

Existing Shoreline Protection Structures

- The lake shoreline and riverbanks of Reach #1 are 92% armoured with shoreline protection.

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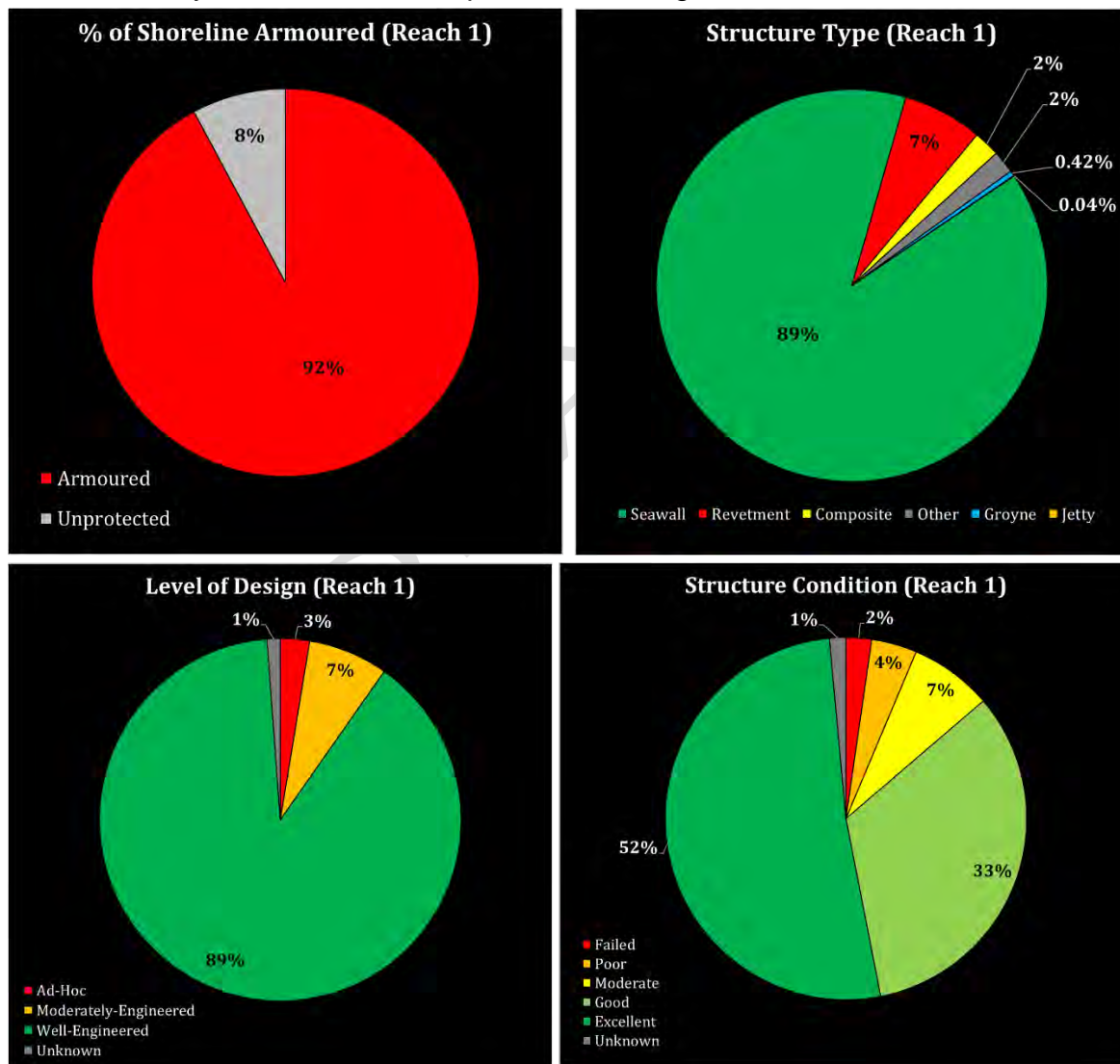


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0 Appendix F Shoreline Reach Summaries
March 4, 2022

- Majority of the structures are vertical steel and concrete seawalls (89%). Armour stone revetments are also present (7%).
- Most of the structures are well-engineered (89%) but many feature a low crest (top) elevation which results in wave overtopping and coastal flooding.
- Structurally, 85% of the shore protection is in good to excellent condition.



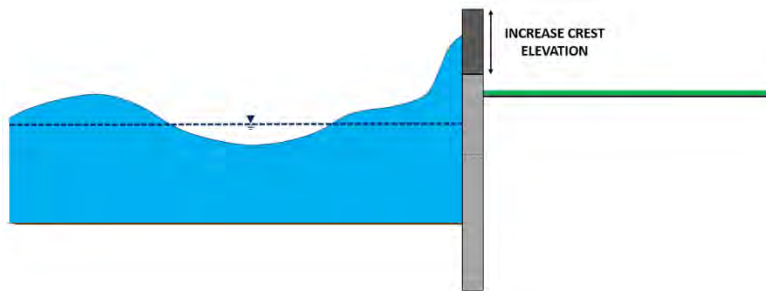
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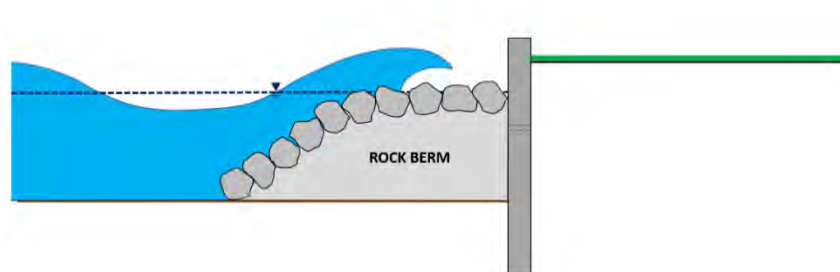
0 Appendix F Shoreline Reach Summaries
March 4, 2022

Recommendations for Shoreline Protection Structures

- Future studies should establish standard engineering design criteria for shoreline protection structures along the lake and riverbanks to reduce flood risk.
- Raising the crest of existing shoreline protection structures is an effective mitigation strategy for wave overtopping and interior flooding. Refer to the schematic diagram below.



- Another common mitigation approach is the construction of a rock berm at the base of existing vertical walls to dissipate incoming wave energy before it leads to wave overtopping at seawalls. Refer to the schematic diagram below.



- Unprotected properties should be upgraded with engineered berms, natural vegetation buffers, and/or engineered shore protection to mitigate wave runup and interior flooding. See example of unprotected property in the adjacent image.



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MUNICIPALITY OF LAKESHORE SHORELINE MANAGEMENT PLAN

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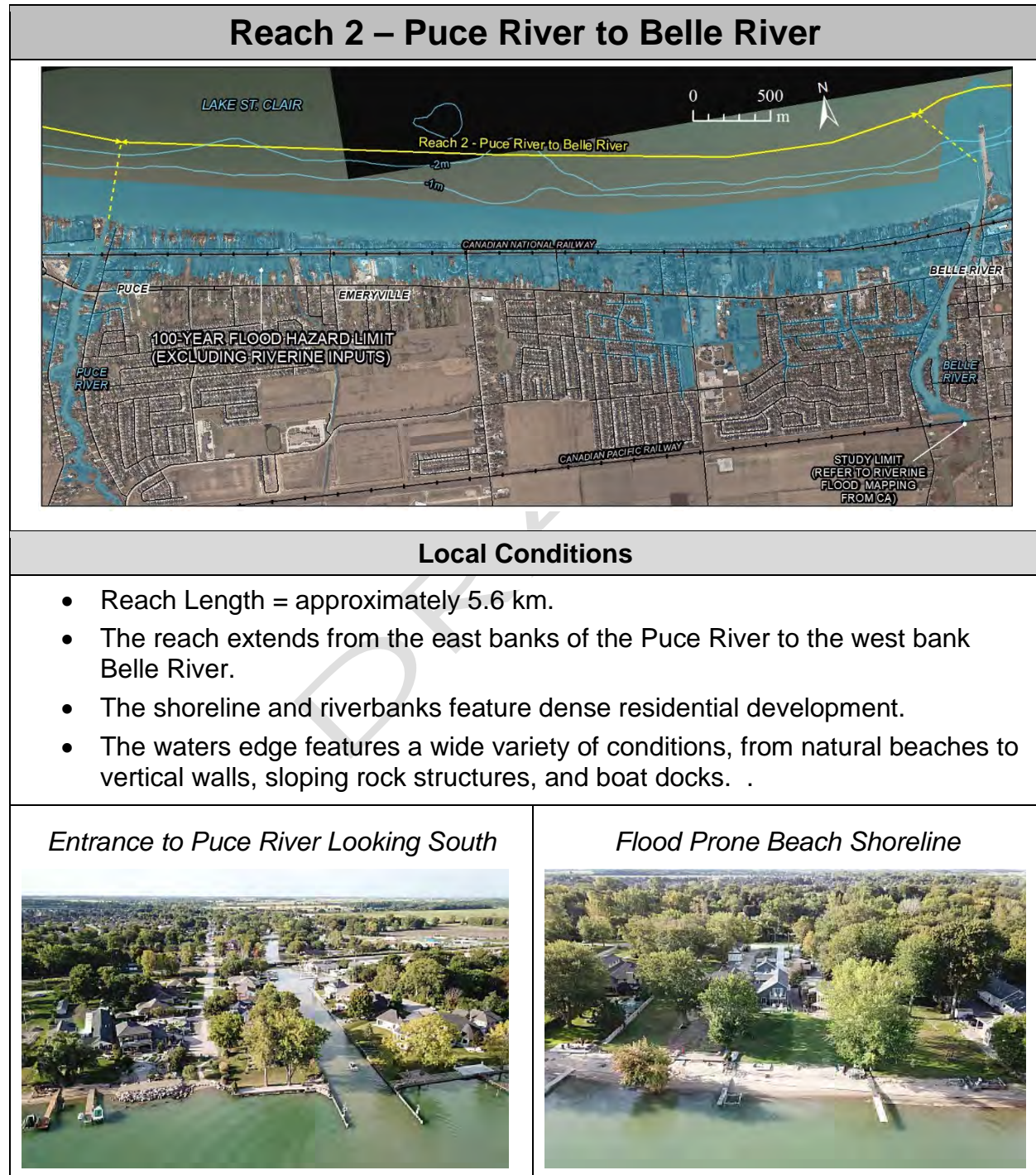
0 Appendix F Shoreline Reach Summaries
March 4, 2022

Shoreline Management Recommendations
<ul style="list-style-type: none">• Adopt standard engineering criteria for shoreline protection structures and flood mitigation. Increasing flood resilience will require a continuous mitigation strategy for the entire reach.• A reach-scale program to flood proof existing buildings is required.• Further assessment of emergency vehicle access during the 100-year flood and the 100-year climate change flood is required, as water depths are significant in some areas of Reach 1 (e.g., 0.6 to 0.9 m). An emergency response plan is needed if vehicle access is not possible in these areas.• Future residential or commercial development should not proceed in Reach 1 unless emergency vehicle access is attainable during the 100-year flood and ideally during the 100-year climate change flood.
Use Disclaimer
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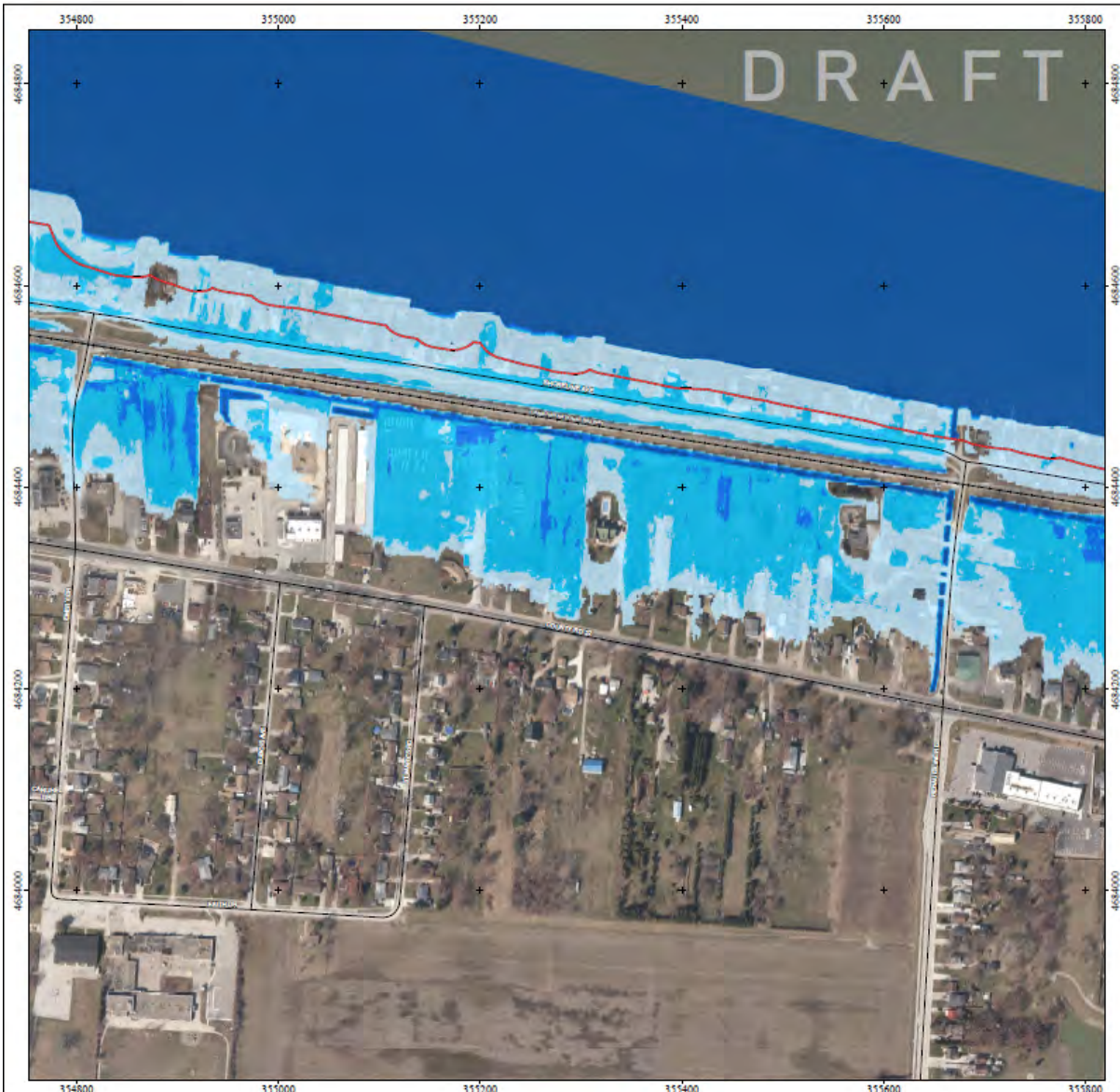
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0 Appendix F Shoreline Reach Summaries
March 4, 2022

Depth of Road Flooding and Emergency Access

- Entire neighbourhoods north of Canadian National Railway would be under water during the 100-year flood, as seen in Map 8 of 35 below.
- Depth of road flooding is 0.3 to 0.6 m in some parts of Reach 2.



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MUNICIPALITY OF LAKESHORE SHORELINE MANAGEMENT PLAN

COUNCIL DRAFT REPORT

0 Appendix F Shoreline Reach Summaries
March 4, 2022

Summary of Natural Hazards

100-year Erosion Rate (Stable Slope not included):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Source
353601, 4685470	358964, 4684139	0.3	ERCA

100-year Lake Level:

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Lake Level (m IGLD85')	100-year CC Lake Level (m IGLD85')
353601, 4685470	358964, 4684139	176.39	176.77

Dynamic Beach(es):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Dynamic Beach Name
358418, 4684143	358964, 4684139	n/a	Lakeview Park West

Nearshore Wave Climate for 100-year Wave Height:

Water Depth (m)	Significant Wave Height, H _b (m)	Maximum Wave Height, H _{max} (m)	Deepwater Wave Height, H _o (m)	Wave Period, T _p (seconds)	Wave Length, L (m)
2.0	1.23	1.59	1.74	5.3	22.72
1.8	1.11	1.45	1.74	5.3	21.65
1.6	1.00	1.32	1.74	5.3	20.50
1.4	0.90	1.19	1.74	5.3	19.26
1.2	0.79	1.08	1.74	5.3	17.90
1.0	0.69	0.95	1.74	5.3	16.40

Summary of Flooding and Erosion Threats

Extensive lake flooding in Reach 2, between the shoreline and CNR tracks for the 100-year lake level. South of the CNR tracks, there is limited flood risk to buildings, as their foundations are generally raised.

Flooding along the lake is due to low-crested shore protection structures, sandy beach areas without shore protection, and low-lying interior land that acts as a flood pathway.

Unprotected properties or lots with ad-hoc shore protection are vulnerable to shoreline erosion.

Road flooding is extensive during the 100-year lake level, which will inhibit emergency ingress and egress for residents and emergency vehicles.

There is extensive riverbank flooding in the Puce River and Belle River during the 100-year lake level due to low lying land and low crested shore protection.

This flood summary does not consider riverine flooding from rainfall events.

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MUNICIPALITY OF LAKESHORE SHORELINE MANAGEMENT PLAN

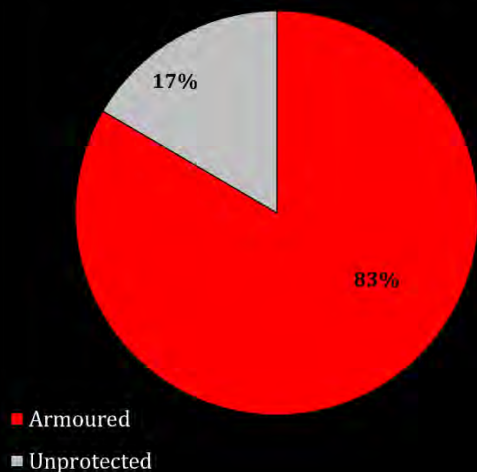
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0 Appendix F Shoreline Reach Summaries
March 4, 2022

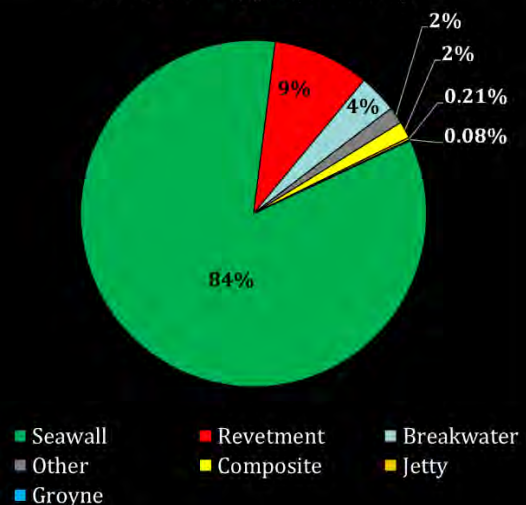
Existing Shoreline Protection Structures

- The lake shoreline and riverbanks of Reach #2 are 83% armoured with shoreline protection.
- The majority of the structures are vertical steel and concrete seawalls (84%). Armour stone revetments are also present (9%).
- Most of the structures are well-engineered (86%) structurally but many feature a low crest (top) elevation which leads to wave overtopping and flooding.
- 83% of the protection is in good to excellent structural condition.

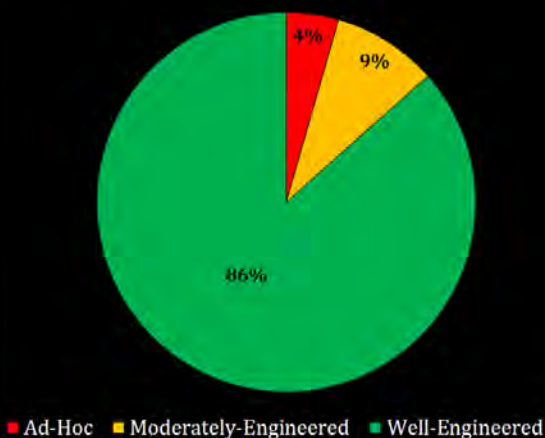
% of Shoreline Armoured (Reach 2)



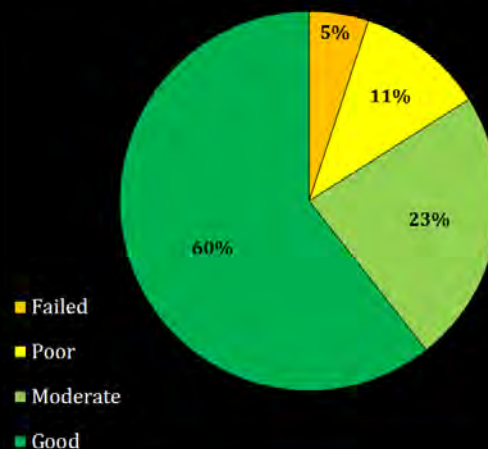
Structure Type (Reach 2)



Level of Design (Reach 2)



Structure Condition (Reach 2)



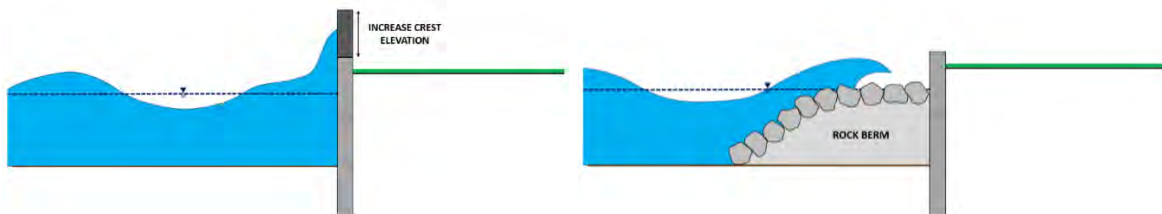
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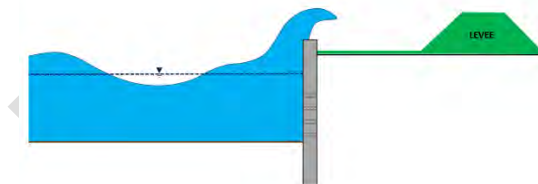
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Recommendations for Shoreline Protection Structures

- Future studies should establish standard engineering design criteria for shoreline protection structures along the lake and riverbanks to reduce flood risk.
- Raising the crest elevation of existing vertical structures is an effective mitigation strategy for wave overtopping and interior flooding. Refer to the schematic diagram below. Construction of rock berms in front of vertical walls is another strategy to reduce wave overtopping.



- Natural beach shorelines provide desirable access to the lake but are low lying and contribute significantly to the flood risk in Lakeshore. Berms, dikes, or levees could be constructed landward of the sand beaches to reduce flood risk.



- Unprotected properties should be protected with engineered shore protection to reduce risk erosion and flooding hazards, including propagation of coastal flooding inland. Options include berms or levees, removable flood barriers, revetments, and seawalls.



E.13



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Shoreline Management Recommendations
<ul style="list-style-type: none">• Adopt standard engineering criteria for shoreline protection structures and flood mitigation in Reach 2. Increasing flood resilience will require continuous mitigation across Reach 2 with a community scale project.• Further assessment of emergency vehicle access during the 100-year flood and the 100-year climate change flood is required, as the depth of water over roads is 0.3 to 0.6 m in many locations. Safe ingress and egress are a requirement of the 2020 Provincial Policy Statement (Section 3.1.2 c) for new development.• Future residential development should not proceed on hazardous lands in Reach 2 unless flood risk is mitigated and emergency vehicle access is attainable during the 100-year flood and the 100-year climate change flood, as per Section 3.1.2 of the Provincial Policy Statement 2020.
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Reach 3 – Belle River to Ruscom River



Local Conditions

- Reach Length = approximately 7.5 km.
- The reach extends from east bank of Belle River and Marina to the west bank of the Ruscom River.
- The shoreline features extensive residential development with limited undeveloped or vacant lots.
- The majority of the shoreline is armoured and features numerous private boat docks.

Belle River Marina Looking South



Ruscom Rivermouth Looking South



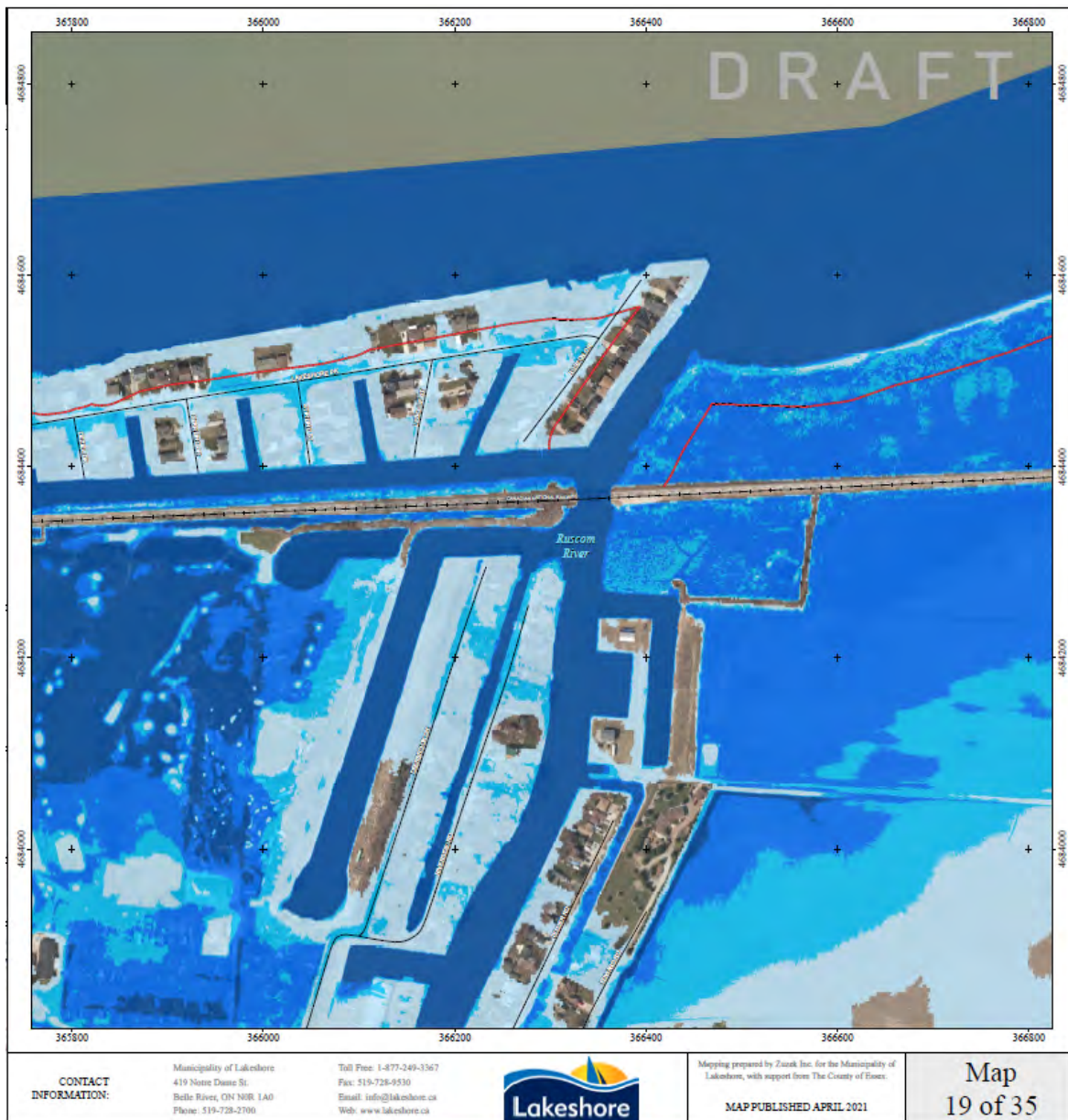
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Depth of Road Flooding and Emergency Access

- The majority of the road network north of the CNR tracks would be flooded during the 100-year lake level, especially between Belle River and Duck Creek and east of Moison Creek to the Ruscom River in Reach 3.
- The depth of road flooding is generally between 0.01 and 0.3 m, with depths in the 0.31 to 0.6 m near the Ruscom River. See Map 19 below.



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Summary of Natural Hazards

100-year Erosion Rate (Stable Slope not included):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Source
359221, 4684182	366405, 4685105	0.4	ERCA

100-year Lake Level:

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Lake Level (m IGLD85')	100-year CC Lake Level (m IGLD85')
359221, 4684182	366405, 4685105	176.33	176.71

Dynamic Beach(es):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Dynamic Beach Name
358689, 4684813	359345, 4684204	n/a	Belle River East Fillet

Nearshore Wave Climate for 100-year Wave Height:

Water Depth (m)	Significant Wave Height, H _b (m)	Maximum Wave Height, H _{max} (m)	Deepwater Wave Height, H _o (m)	Wave Period, T _p (seconds)	Wave Length, L (m)
2.0	1.23	1.59	1.74	5.3	22.72
1.8	1.11	1.45	1.74	5.3	21.65
1.6	1.00	1.32	1.74	5.3	20.50
1.4	0.90	1.19	1.74	5.3	19.26
1.2	0.79	1.08	1.74	5.3	17.90
1.0	0.69	0.95	1.74	5.3	16.40

Summary of Flooding and Erosion Threats

For the first 1 km east of Belle River, the flood hazard is primarily limited to road flooding, with minimal wet building foundations.

West of Duck Creek, there is significant road flooding south of the CNR tracks for the 100-year lake level. East of Duck Creek, there would be road and building flooding for the 100-year lake level.

From the Moison River to Ruscom River, there is extensive lakeshore and interior flooding south of the CNR tracks for the 100-year lake level. Buildings, roadways, and agricultural fields would be inundated.

The majority of the Rochester Place Golf Course would be under water for the 100-year lake level, with the exception of the Club House.

This analysis does not consider riverine flooding from rainfall events, only coastal flooding.

E.17



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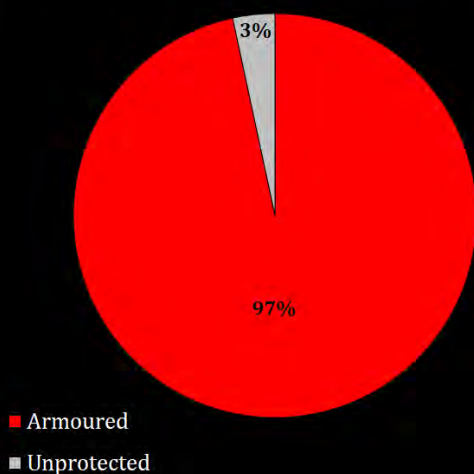
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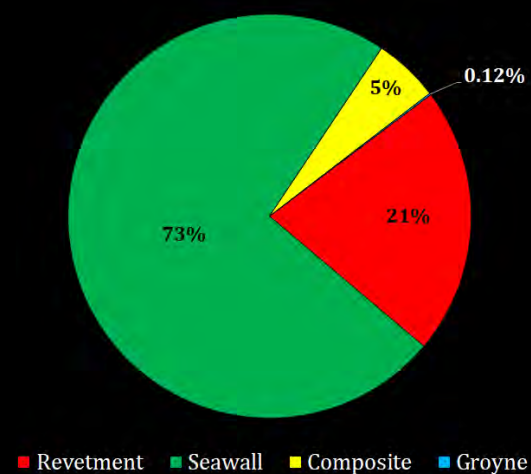
Existing Shoreline Protection Structures

- The lake shoreline and riverbanks of Reach #3 are 97% armoured with shoreline protection, which is the highest percentage of any Lakeshore reach.
- Majority of the structures are vertical steel and concrete seawalls (73%), but armour stone revetments are also present (21%).
- A large percentage of the structures are well-engineered (79%), but many feature a low crest (top) elevation which contributes to coastal flooding.
- 84% of the shore protection is in good to excellent condition structurally but many should have been constructed with a higher crest elevation.

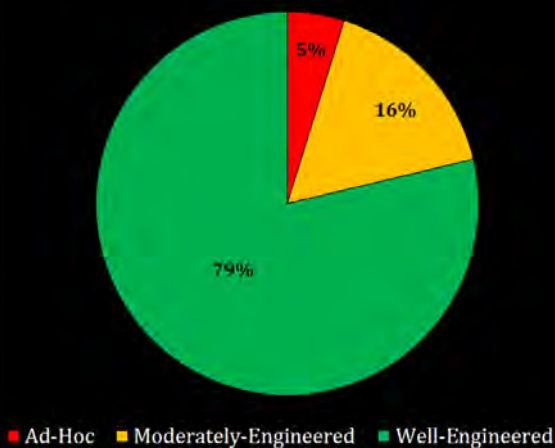
% of Shoreline Armoured (Reach 3)



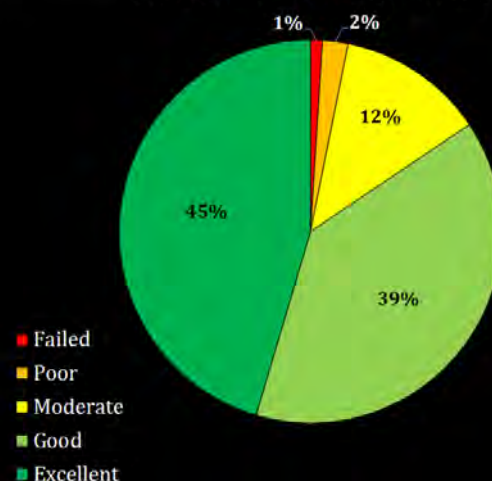
Structure Type (Reach 3)



Level of Design (Reach 3)



Structure Condition (Reach 3)



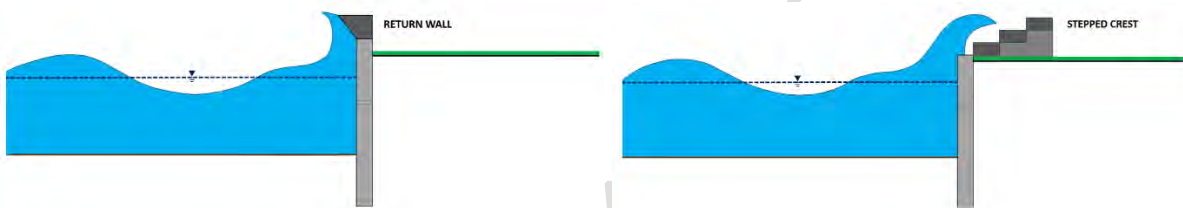
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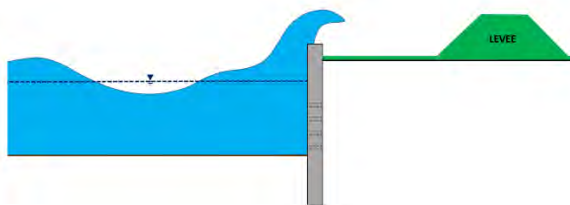
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Recommendations for Shoreline Protection Structures

- Future studies should establish standard engineering design criteria for shoreline protection structures along the lake and riverbanks to reduce wave overtopping volumes and wave uprush, which contributes to lakeshore and interior flooding.
- Raising the crest of existing shoreline protection structures is an effective mitigation strategy to reduce wave overtopping and interior flooding. Other options include the addition of a return wall or new stepped crest, as seen in the diagrams below.



- Another approaches to reduce wave overtopping is the construction of a berm or levee landwards of the shore protection to prohibit the flood from propagating inland. Schematic diagram and an example of an existing berm from Reach 3 are provided below.



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- Failed shore protection (see adjacent picture) should be repaired to provide a continuous barrier to coastal flooding in Reach 3. Repairs can use conventional engineering methods such as seawalls or revetments, or integrate hybrid approaches such as berms, living shoreline, and other nature-based solutions.



Shoreline Management Recommendations

- Adopt standard engineering criteria for shoreline protection structures and flood mitigation. Pursue a community scale solution for Reach 3 to increase resilience to coastal flooding with continuous shoreline protection/mitigation.
- Evaluate options for a community-scale flood proofing plan for buildings.
- Further assessment of emergency vehicle access during the 100-year flood and the 100-year climate change flood is required, as the depth of flooding over roads is up to 0.3 to 0.6 m in some locations. Safe ingress and egress are a requirement of the 2020 Provincial Policy Statement (Section 3.1.2 c) for all new development applications.
- Future development should not proceed on hazardous lands in Reach 3 unless the flood risk is mitigated and emergency vehicle access is attainable during the 100-year flood, as per Section 3.1.2 of the Provincial Policy Statement 2020.

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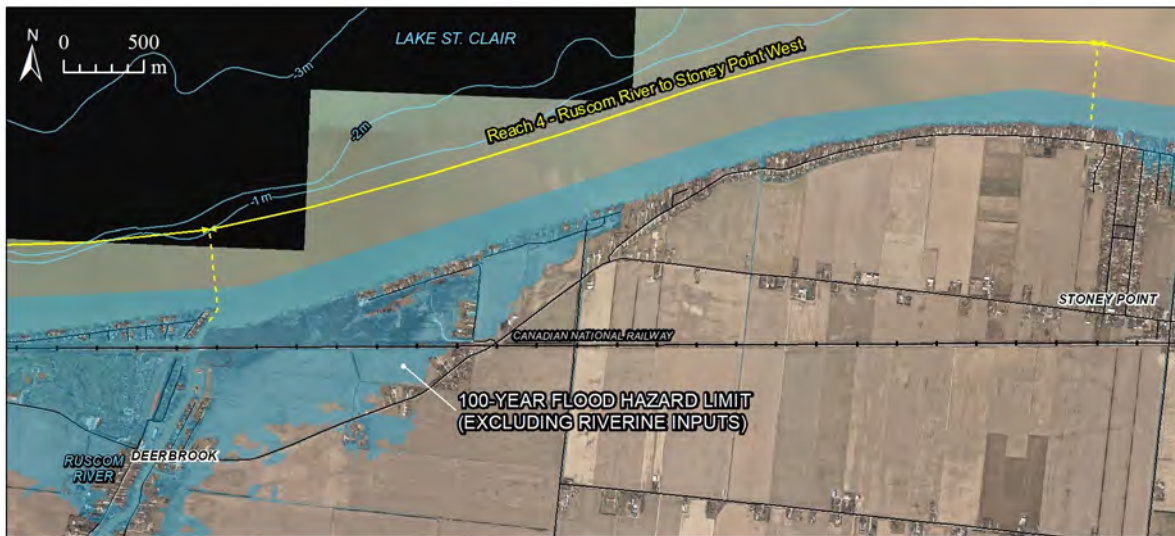
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Reach 4 – Ruscom River to Stoney Point West



Local Conditions

- Reach Length = approximately 5.6 km.
- The reach includes the eastern shore of the Ruscom River to the intersection of St. Clair Road and Columbus Drive.
- The land elevations are generally higher in Reach 4 than surrounding reaches and consequently there is less flood risk compared to other reaches.
- A large natural area, Ruscom Shores Conservation Area, is located at the western limit of the reach adjacent to the Ruscom Rivermouth. The shoreline has been eroding since 1975 and the marsh has filled in with dense emergent vegetation (potentially the invasive reed Phragmites).

Eastern Bank of Ruscom River Mouth



Beach Shoreline with Sand Bags



E.21



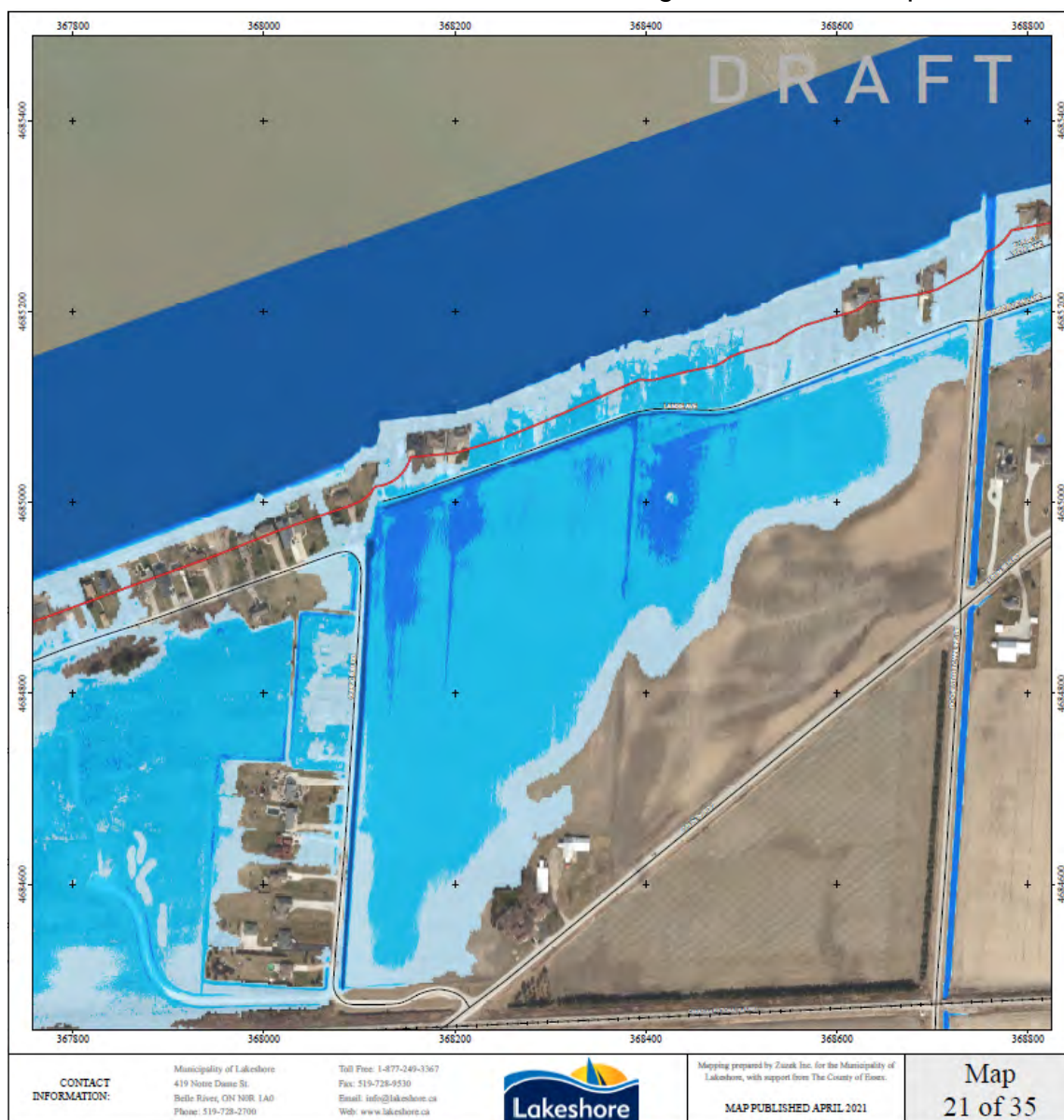
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Depth of Road Flooding and Emergency Access

- Lange Avenue and Surf Club Drive in Reach 4 is inundated during the 100-year lake level with water depths ranging from 0.01 to 0.3 m, with localized areas where the flood depth exceeds 0.3 m (such as the west end of Surf Club Drive). See Map 21 of 35 below.
- The remainder of the roads in Reach 4 are higher and not flood prone.



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Summary of Natural Hazards

- 100-year Erosion Rate (Stable Slope not included):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Source
366414, 4684380	371883, 4686480	0.4	ERCA

- 100-year Lake Level:

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Lake Level (m IGLD85')	100-year CC Lake Level (m IGLD85')
366414, 4684380	371883, 4686480	+176.33	+176.71

- Dynamic Beach(es):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Dynamic Beach Name
n/a	n/a	n/a	n/a

- Nearshore Wave Climate for 100-year Wave Height:

Water Depth (m)	Significant Wave Height, H_b (m)	Maximum Wave Height, H_{max} (m)	Deepwater Wave Height, H_o (m)	Wave Period, T_p (seconds)	Wave Length, L (m)
2.0	1.23	1.59	1.74	5.3	22.72
1.8	1.11	1.45	1.74	5.3	21.65
1.6	1.00	1.32	1.74	5.3	20.50
1.4	0.90	1.19	1.74	5.3	19.26
1.2	0.79	1.08	1.74	5.3	17.90
1.0	0.69	0.95	1.74	5.3	16.40

Flooding and Erosion Threats

- The lakefront development is relatively free of flood risk for the 100-year lake level, with the exception of Lange Avenue and Surf Club Drive.
- The Fall 2019 oblique photography captured some areas of beach shoreline in Reach 4 that were sand bagged to protect from flooding.
- At the western end of the reach, the 100-year lake level will inundate the wetlands at Ruscom Shores Conservation Area and the agricultural land south of the CNR tracks. There is a sediment deficit for the beach shoreline at this Conservation Area due to shoreline armoring (see adjacent oblique photograph).
- This analysis does not consider riverine flooding from rainfall events, only coastal flooding.



E.23



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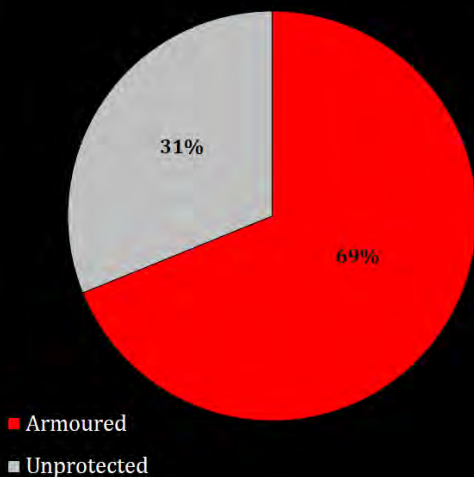
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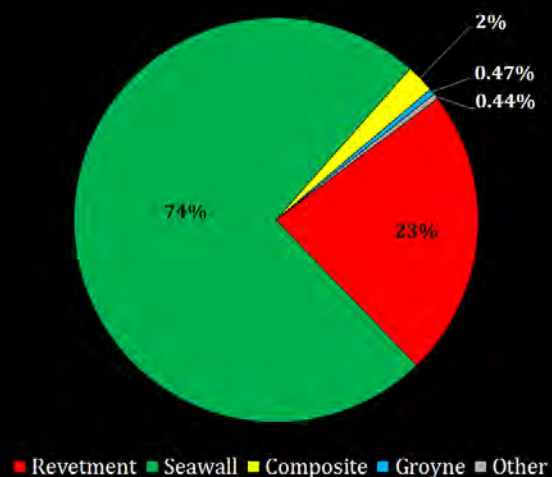
Existing Shoreline Protection Structures

- The lake shoreline and riverbanks of Reach #4 are 69% armoured.
- The majority of the structures are vertical steel and concrete seawalls (74%), but armour stone revetments are also present (23%).
- A large percentage of the structures are well-engineered (79%), but many feature a low crest (top) elevation which contributes to coastal flooding.
- 81% of the shore protection is in good to excellent condition structurally but many should have been constructed with a higher crest elevation.

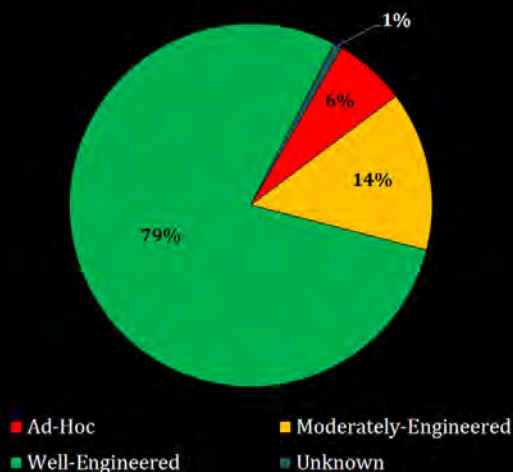
% of Shoreline Armoured (Reach 4)



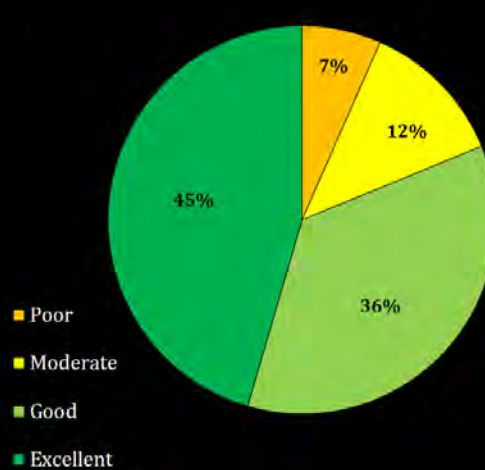
Structure Type (Reach 4)



Level of Design (Reach 4)



Structure Condition (Reach 4)



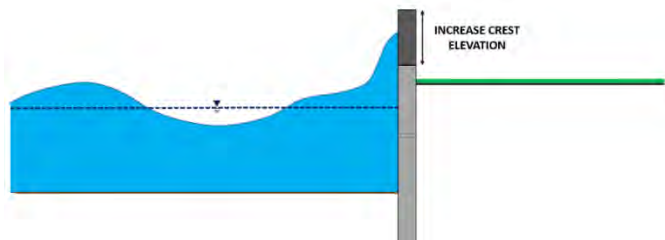
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Recommendations for Shoreline Protection Structures

- Future studies should establish standard engineering design criteria for shoreline protection structures along the lake and riverbanks to reduce wave overtopping volumes and wave uprush, which contributes to lakeshore and interior flooding.
- Low lying beach shorelines will ultimately require some form of flood protection, such as a berm (refer to the Reach 3 recommendations) and sand nourishment to maintain the beach position. Refer to the eroded beach and exposed tree roots in the adjacent photograph.
- Eroding shorelines and ad hoc shore protection structures should be upgraded with an engineered solution. Examples include a headland beach system, a hybrid grey-green solution such as shore protection at the waters edge and a vegetated berm, or a traditional seawall or rock revetment.
- Raising the crest of existing shoreline protection structures is an effective mitigation strategy to wave overtopping and interior flooding. Refer to the adjacent schematic diagram.
- All sand bags and temporary geo-bags should be removed from the shoreline when a permanent engineered solution is installed. Refer to the temporary installment of geo-bags in the adjacent photograph.



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Shoreline Management Recommendations

- Adopt standard engineering criteria for shoreline protection structures, including crest elevation, and flood mitigation requirements for lakefront and riverfront properties. Pursue a community scale solution for the flood prone portions of Reach 4 to increase resilience to coastal hazards with continuous shoreline protection and flood mitigation.
- Failed or low-crested shoreline protection should be upgraded based on new reach-scale standards.
- A long-term strategy is needed to protect the shoreline and wetlands of Ruscom Shores Conservation Area with a nature-based solution, such as a headland beach system. An offset between the armoured shoreline of Surf Club Drive and the eroding shores of the Conservation Area is seen in the oblique photograph below. Without action, this offset will get worse with time, leading to more habitat loss and erosion risk for the adjacent residential development.



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Reach 5 – Stoney Point East



Local Conditions

- Reach Length = approximately 3.9 km.
- The reach extends from the intersection of St. Clair Road and Columbus Drive in the geographic centre of Stoney Point to the east boundary of Tremblay Beach Conservation Area.
- Dense shoreline development and agricultural land south of St. Clair Road.
- Tremblay Beach Conservation Authority is one of the few natural areas along the shore and features extensive coastal wetlands.

Stoney Point Sportsman Club near West Boundary



Flooded Shoreline at Tremblay Beach Conservation Area



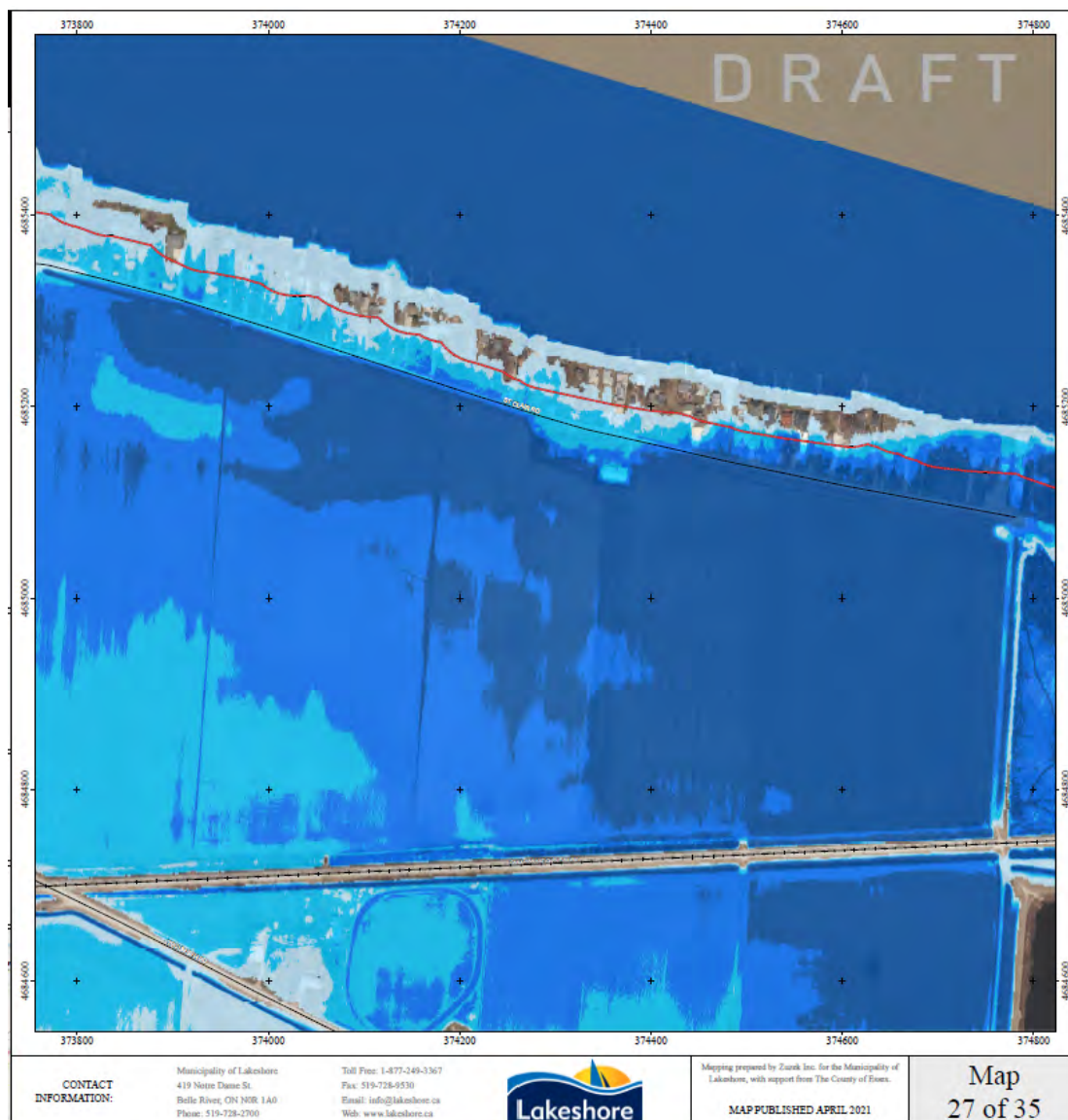
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Depth of Road Flooding and Emergency Access

- At the western limits of Reach 5, there is no flooding on St. Clair Road for the 100-year lake level.
- East of Comber Side Road, lake flooding could propagate through the residential areas for the 100-year lake level, over the road and into the agricultural fields. Flood depths range of 0.31 to 0.9 m. This depth of flooding would limit emergency vehicle access in Reach 5.



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Summary of Natural Hazards

100-year Erosion Rate (Stable Slope not included):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Source
371883, 4686480	375726, 4685483	0.5	ERCA

100-year Lake Level:

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Lake Level (m IGLD85')	100-year CC Lake Level (m IGLD85')
371883, 4686480	375726, 4685483	176.57	176.95

Dynamic Beach(es):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Dynamic Beach Name
n/a	n/a	n/a	n/a

Nearshore Wave Climate for 100-year Wave Height:

Water Depth (m)	Significant Wave Height, H _b (m)	Maximum Wave Height, H _{max} (m)	Deepwater Wave Height, H _o (m)	Wave Period, T _p (seconds)	Wave Length, L (m)
2.0	1.23	1.59	1.74	5.3	22.72
1.8	1.11	1.45	1.74	5.3	21.65
1.6	1.00	1.32	1.74	5.3	20.50
1.4	0.90	1.19	1.74	5.3	19.26
1.2	0.79	1.08	1.74	5.3	17.90
1.0	0.69	0.95	1.74	5.3	16.40

Flooding and Erosion Threats

Flooding along the lakeshore due to low-crested shore protection structures, unprotected beach properties, and low-lying land.

Approximately half the lakefront properties are vulnerable to flooding for the 100-year lake level. New builds approved by the Conservation Authority are raised and the building foundations are above the 100-year lake level. However, many of the older developments are on low-lying land and vulnerable to flooding.

Much of St. Clair Road is inundated by the 100-year lake level in Reach 5. Flood depths increase towards Tremblay Beach Conservation Area and are in the range of 0.61 to 0.9 m near the east reach boundary.

Emergency ingress and egress would not be possible on St. Clair Road with vehicles along the central and eastern half in Reach 5.



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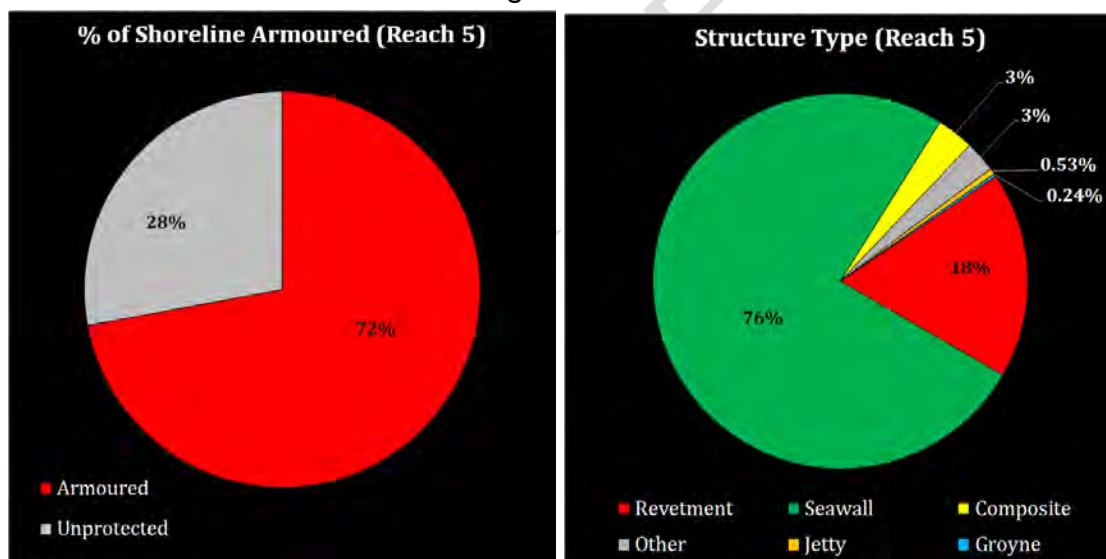
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- This analysis does not consider riverine flooding from rainfall events, only coastal flooding.

Existing Shoreline Protection Structures

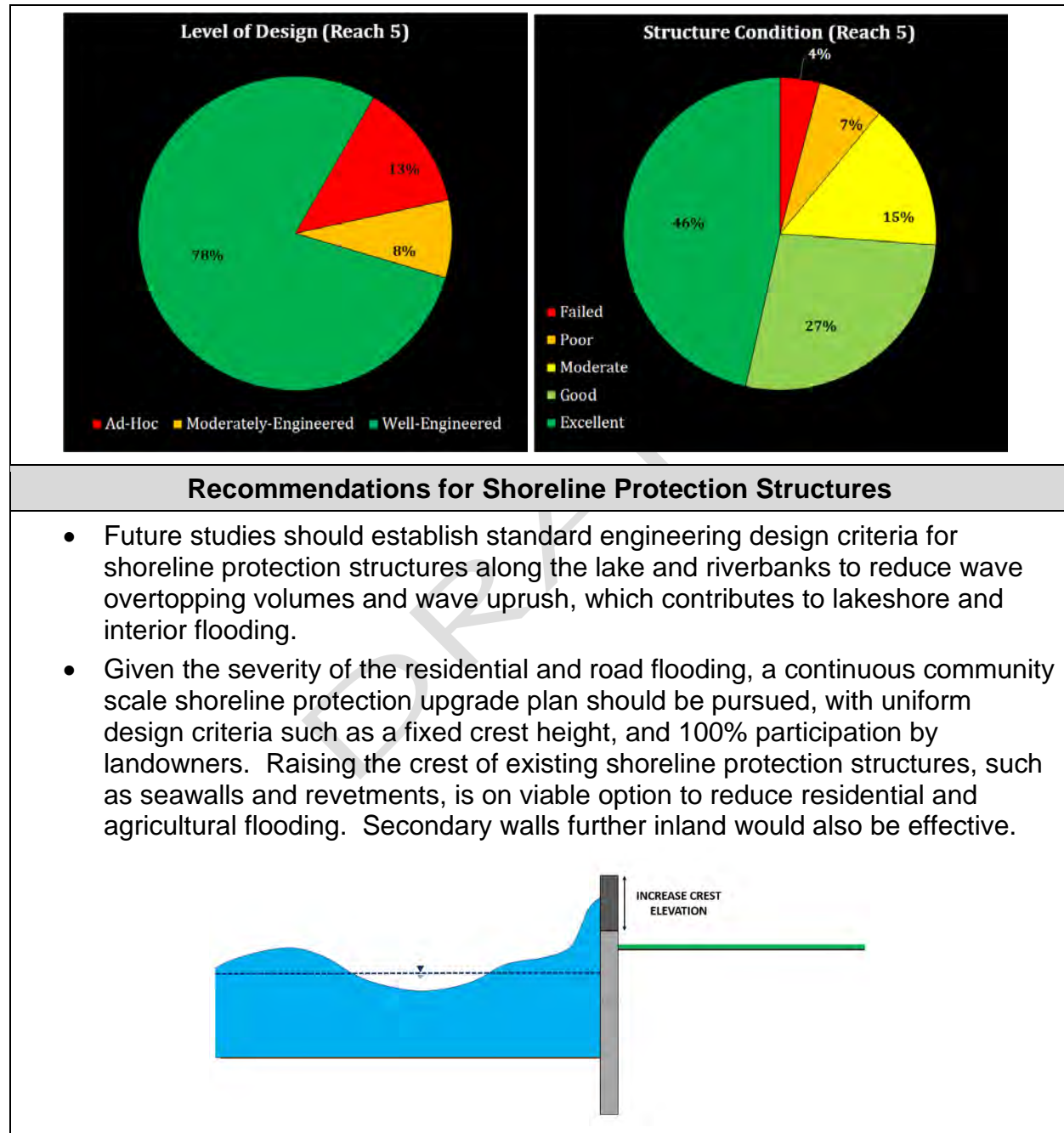
- The lake shoreline and riverbanks of Reach #5 are 72% armoured with shoreline protection.
- Majority of the structures are vertical steel and concrete seawalls (76%). Armour stone revetments are also present (18%).
- Most of the structures are well-engineered (78%) but many feature a low crest (top) elevation which contributes to coastal flooding.
- 73% of the structures are in good to excellent condition structurally but should have been constructed with a higher crest elevation.



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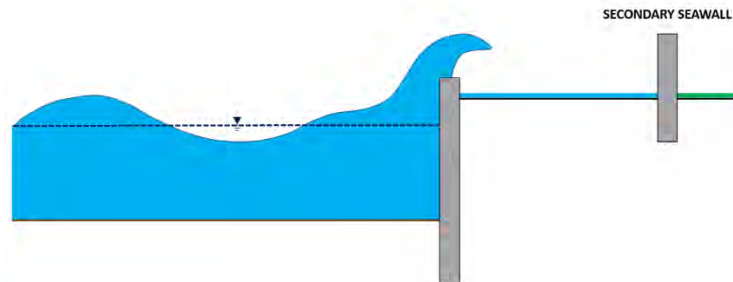
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- Unprotected properties represent flood pathways during the 100-year lake level and should be protected to reduce inland flooding threats. Berms or levees may be effective if located away from eroding shorelines.



Shoreline Management Recommendations

- Adopt standard engineering criteria for shoreline protection structures, including crest elevation, and flood mitigation requirements for lakefront and riverfront properties. Pursue a community scale solution for the flood risk in Reach 5 to increase resilience to coastal hazards with continuous shoreline protection and flood mitigation.
- Individual buildings can be flood proofed by raising foundations, for example.
- Shorelines with natural beaches can be flood proofed with berms and levees to maintain access to the waters edge, provided it is part of continuous protection in the reach.
- Failed or low-crested shoreline protection should be upgraded based on new Reach 5 standards.
- Further assessment of emergency vehicle access during the 100-year flood is required, as the depth of flooding will limit access for the majority of St. Clair Road in Reach 5.

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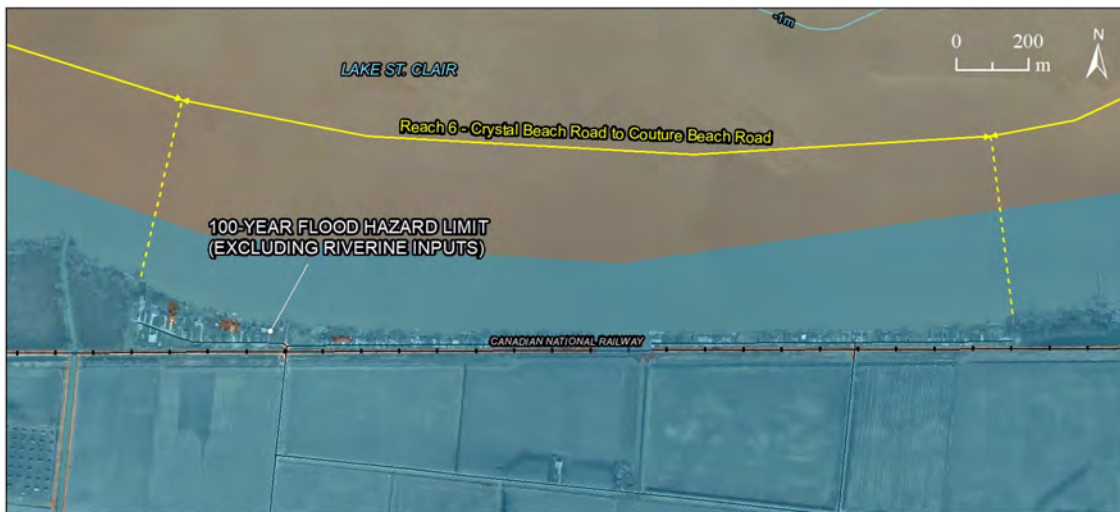


MUNICIPALITY OF LAKESHORE SHORELINE MANAGEMENT PLAN

COUNCIL DRAFT REPORT

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Reach 6 – Crystal Beach Road to Couture Beach Road



Local Conditions

- Reach Length = approximately 2.4 km.
- Reach 6 includes Laforet Beach, Crystal Beach Road, and Couture Beach Road. The roads are low lying and access is threatened during flooding events.
- The development along Crystal Beach and Couture Beach Road features shallow lots bounded by the lake on the north side and the roads/railway embankment on the south. Locating and operating functional private septic systems will be a significant challenge on many lots.

Western Limit of Reach 6



Eastern Limit of Reach 6



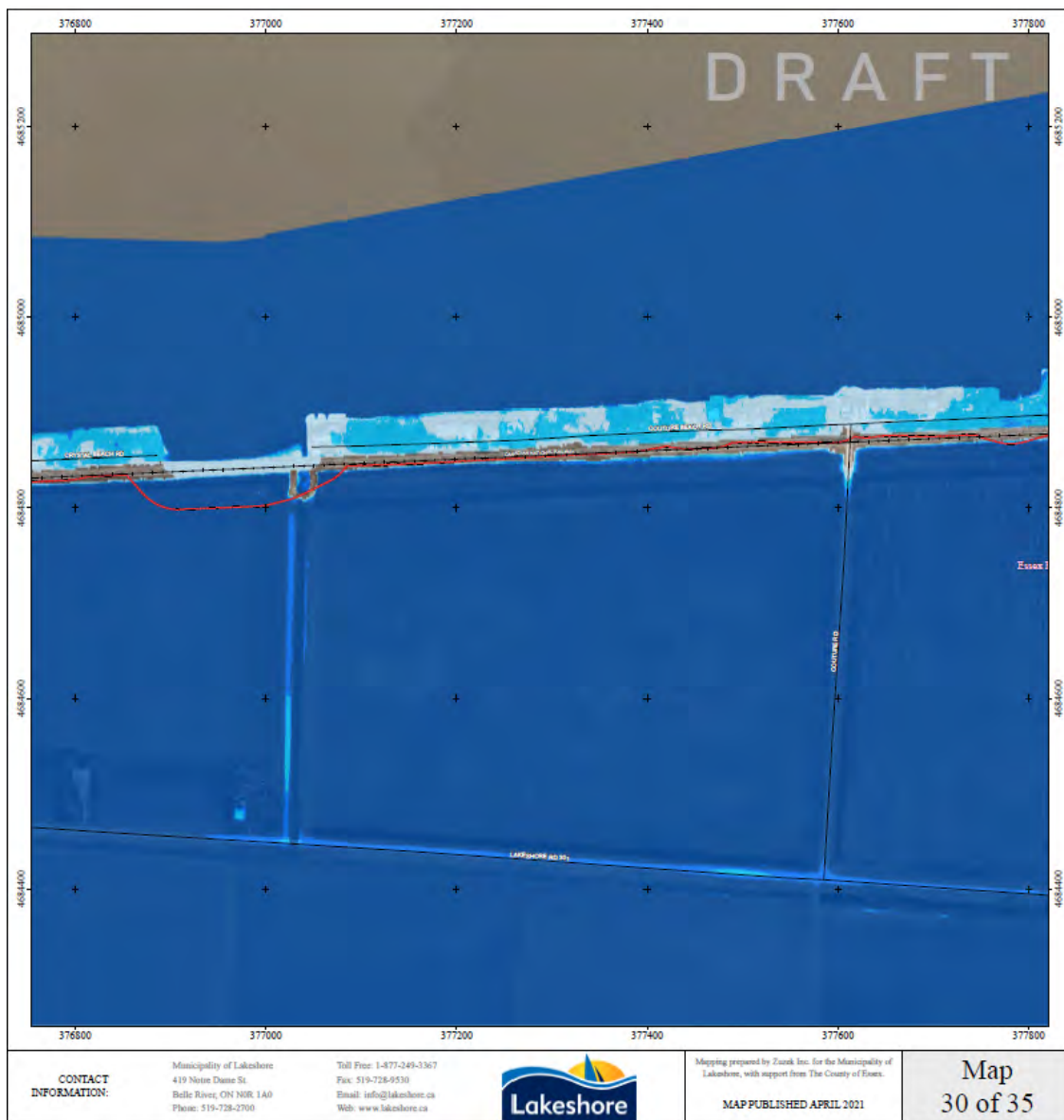
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Depth of Road Flooding and Emergency Access

- All three of the roads in Reach 6 are inundated by coastal flooding during the 100-year lake level. Significant portions of all three roads are flooded by 0.3 to 0.6 m of water.
- With ingress and egress to the lakeshore limited to Gracey Side Road, which is flooded by 0.61 to 0.9 m of water and Couture Road (>0.9 m of flooding) during the 100-year lake level, emergency access is a serious safety concern.



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Summary of Natural Hazards					
<ul style="list-style-type: none">100-year Erosion Rate (Stable Slope not included):					
Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Source		
375726, 4685483	377965, 4685471	0.5	ERCA		
<ul style="list-style-type: none">100-year Lake Level:					
Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Lake Level (m IGLD85')	100-year CC Lake Level (m IGLD85')		
375726, 4685483	377965, 4685471	176.57	176.95		
<ul style="list-style-type: none">Dynamic Beach(es):					
Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Dynamic Beach Name		
n/a	n/a	n/a	n/a		
<ul style="list-style-type: none">Nearshore Wave Climate for 100-year Wave Height:					
Water Depth (m)	Significant Wave Height, H_b (m)	Maximum Wave Height, H_{max} (m)	Deepwater Wave Height, H_o (m)	Wave Period, T_p (seconds)	Wave Length, L (m)
2.0	1.23	1.59	1.74	5.3	22.72
1.8	1.11	1.45	1.74	5.3	21.65
1.6	1.00	1.32	1.74	5.3	20.50
1.4	0.90	1.19	1.74	5.3	19.26
1.2	0.79	1.08	1.74	5.3	17.90
1.0	0.69	0.95	1.74	5.3	16.40

Flooding and Erosion Threats
<ul style="list-style-type: none">With the exception of ~10 homes, every residential property would be flooded in Reach 6 during the 100-year lake level. This could be limited to wet exterior foundation walls or more severe basement and first floor flooding.Most private septic systems would be in failure during the 100-year coastal flood, as they'd be under water.Ingress and egress to Reach 6 is a serious concern, with the only two north-south access roads flooded by at least 0.6 m of water and greater than 0.9 m in some locations.The three lakeshore roads in Reach 3 are all under water during the 100-year lake level.Emergency evacuations or delivery of emergency services to Reach 6 would be almost impossible during the 100-year coastal flood with conventional vehicles.

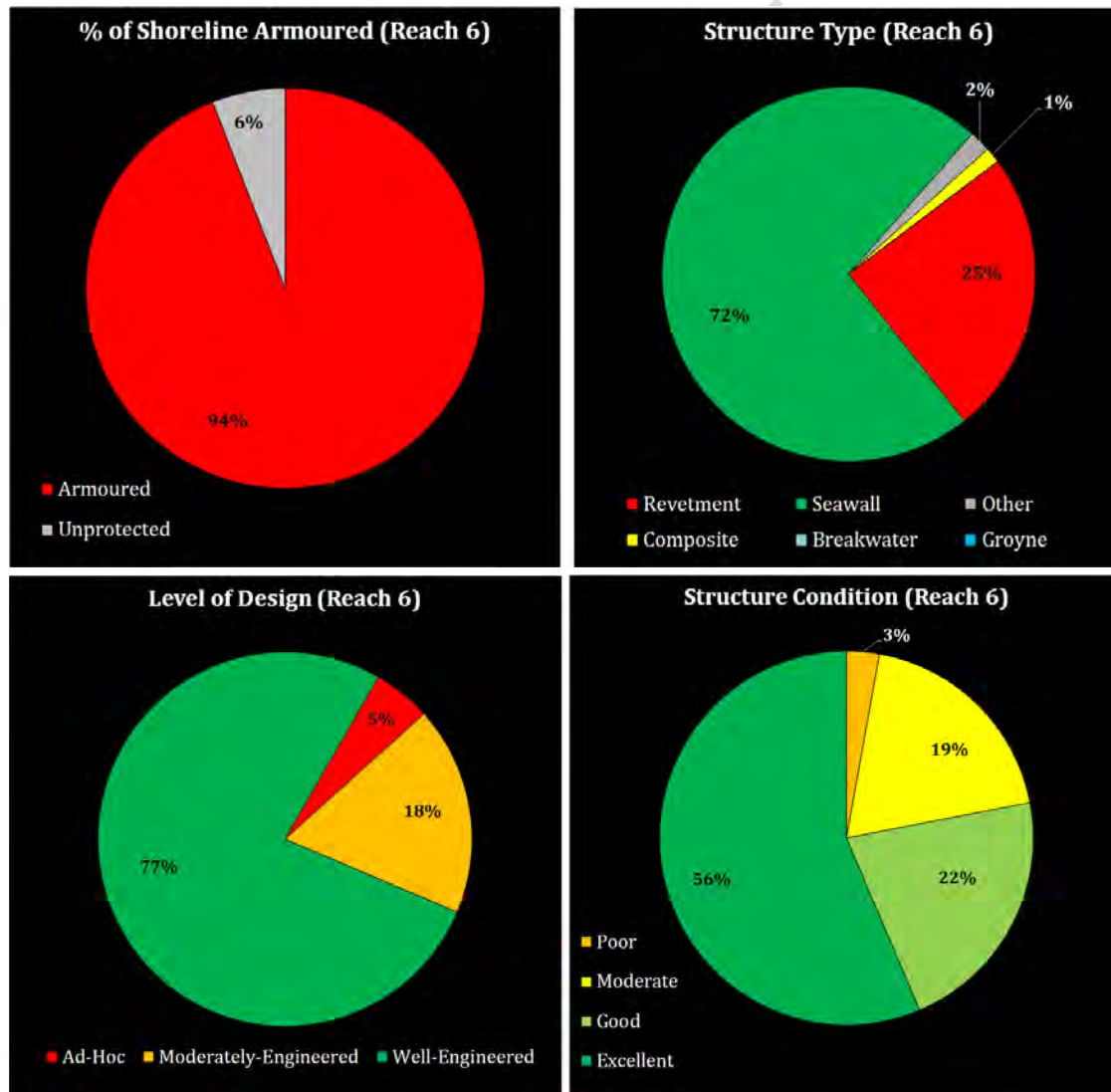
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Existing Shoreline Protection Structures

- The lake shoreline and riverbanks of Reach #6 are 94% armoured with shoreline protection.
- Majority of the structures are vertical steel and concrete seawalls (~72%). Armour stone revetments are also present (25%).
- Most of the structures are well-engineered (77%) but many feature a low crest (top) elevation which contributes to coastal flooding.
- 78% of the structures are in good to excellent condition (structurally).



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Recommendations for Shoreline Protection Structures

- Future studies should establish standard engineering design criteria for shoreline protection structures along the lake to reduce wave overtopping volumes and wave uprush, which contributes to flooding along the lakeshore and interior flooding.
- Given the severity of the residential and road flooding in Reach 6, a continuous community scale shoreline protection plan should be pursued, with uniform design criteria and 100% participation by landowners. Raising the crest of existing shoreline protection structures and/or reducing overtopping with a rock berm at the base of existing walls are potential options (refer to the examples below).



- Unprotected properties and ad-hoc structures should be upgraded as part of a community scale shoreline protection scheme for Reach 6 to reduce flood risk and support emergency vehicle access during the 100-year lake level.
- The shore protection between the terminus of Crystal Beach Road and Couture Beach Road should be monitored, as it is the last line of defence from erosion for the CNR tracks. Oblique photographs below.



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Shoreline Management Recommendations
<ul style="list-style-type: none">• Adopt standard engineering criteria for shoreline protection structures, including crest elevation and overall flood mitigation requirements for the lakefront properties. Pursue a community scale flood mitigation solution for Reach 6 to increase resilience to coastal hazards with a continuous flood mitigation strategy.• Develop materials and recommendations for flood proofing of residential buildings.• Emergency ingress and egress to Reach 6 and along the lakeshore should be restored with a large-scale mitigation strategy to protect people and property. Safe ingress and egress are a requirement of the 2020 Provincial Policy Statement (Section 3.1.2 c) for all new development applications.• Future development should not proceed on hazardous lands in Reach 6 unless the flood risk is mitigated and emergency vehicle access is attainable during the 100-year flood, as per Section 3.1.2 of the Provincial Policy Statement 2020.• If community scale shoreline protection upgrades are not attainable and emergency vehicle access can not be restored to Reach 6, a property acquisition program from willing sellers should be developed. Appropriate controls (bylaws) on further development or redevelopment in Reach 6 would be implemented by the Municipality of Lakeshore.• Private septic systems that are inundated during the 100-year lake level should be upgraded.
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Reach 7 – Lighthouse Cove



Local Conditions

- Reach Length (on Lake St. Clair) = approximately 2.7 km.
- The reach extends from Couture Beach Road in the west to the mouth of the Thames River.
- An extensive network of canals provides water access to most properties in Lighthouse Cove, but it also increases flood risk (canals convey flood water).
- The older development in Lighthouse Cove is vulnerable to coastal flooding and ice-jam flooding from the Thames River.

Western Limit of Lighthouse Cove



Eastern Limit of Lighthouse Cove



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Summary of Natural Hazards

100-year Erosion Rate (Stable Slope not included):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Source
377965, 4685471	379943, 4686602	0.3	ERCA

100-year Lake Level:

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Lake Level (m IGLD85')	100-year CC Lake Level (m IGLD85')
377965, 4685471	379943, 4686602	+176.39	+176.77

Dynamic Beach(es):

Start (UTM, Zone 17)	End (UTM, Zone 17)	100-year Erosion Rate (m/year)	Dynamic Beach Name
n/a	n/a	n/a	n/a

Nearshore Wave Climate for 100-year Wave Height:

Water Depth (m)	Significant Wave Height, H_b (m)	Maximum Wave Height, H_{max} (m)	Deepwater Wave Height, H_o (m)	Wave Period, T_p (seconds)	Wave Length, L (m)
2.0	1.23	1.59	1.74	5.3	22.72
1.8	1.11	1.45	1.74	5.3	21.65
1.6	1.00	1.32	1.74	5.3	20.50
1.4	0.90	1.19	1.74	5.3	19.26
1.2	0.79	1.08	1.74	5.3	17.90
1.0	0.69	0.95	1.74	5.3	16.40

Flooding and Erosion Threats

The older lakefront development is vulnerable to flooding during the 100-year lake level.

The newer interior development of Lighthouse Cove is generally safe from flooding during the 100-year flood due to enforcement of the Conservation Authority regulations for new development. Potential additional flood risks, associated with ice jamming of the Thames River, have not been analyzed for this study.

Many of the roadways are flooded in Lighthouse Cove during the 100-year lake level, which will create challenges for emergency evacuation and delivery of emergency services.

This analysis does not consider riverine flooding from rainfall events, only coastal flooding.

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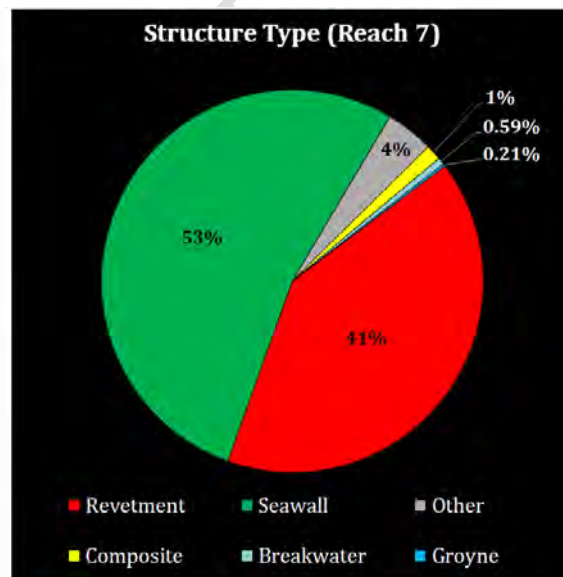
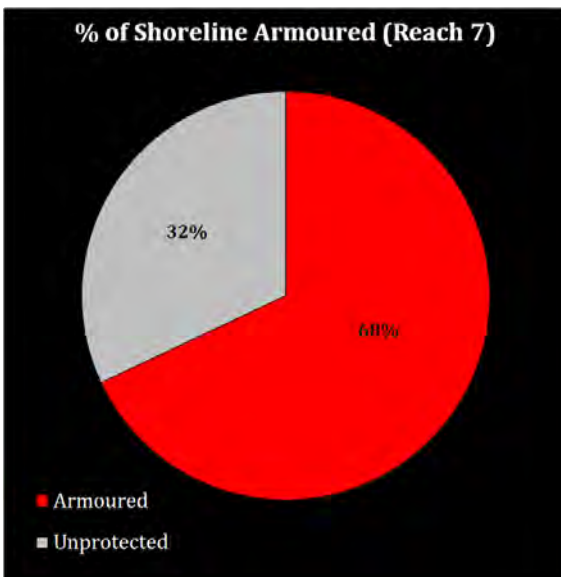
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Existing Shoreline Protection Structures

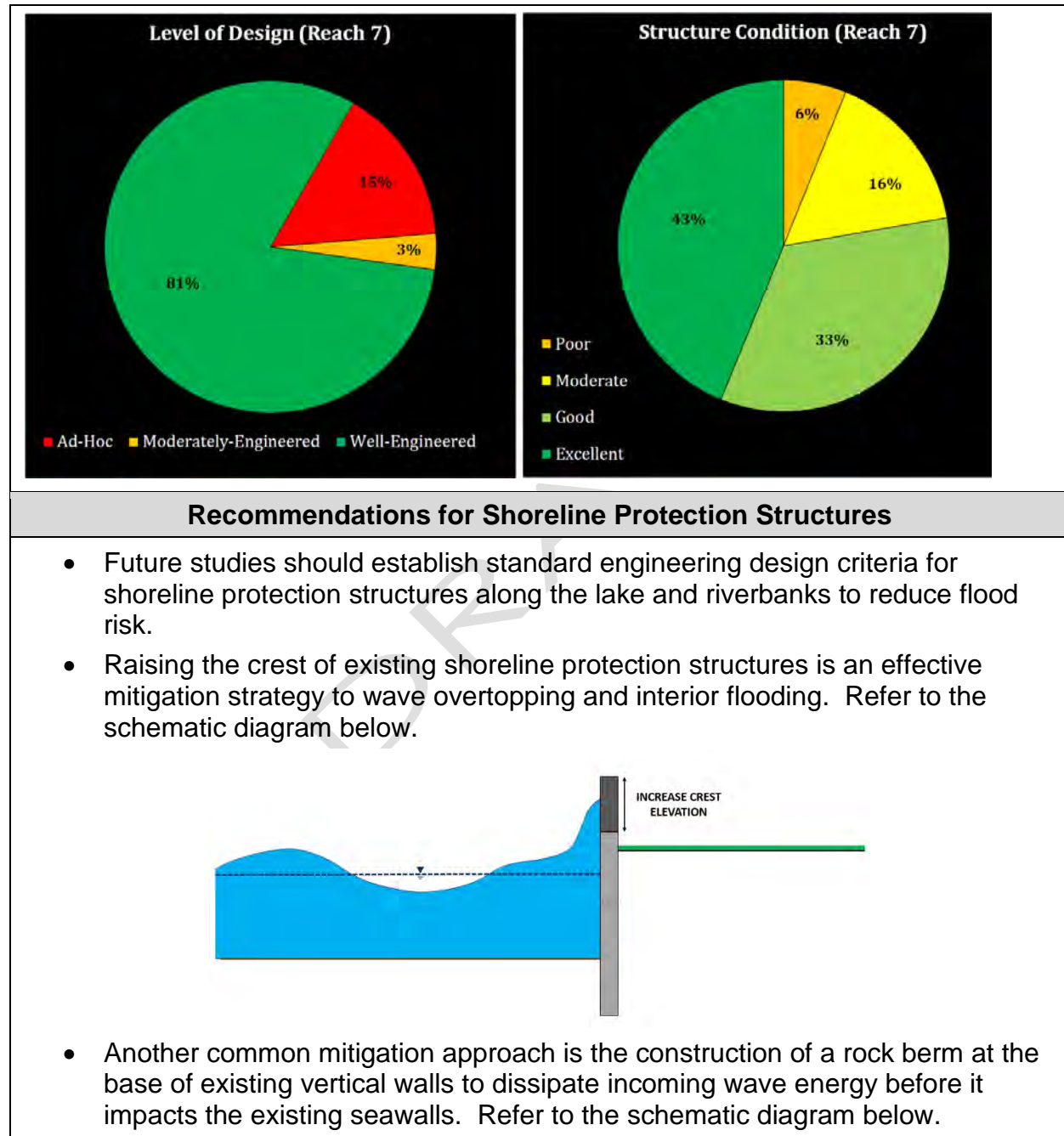
- The lake shoreline and riverbanks of Reach #7 are 68% armoured with shoreline protection.
- Approximately half of the structures are vertical steel and concrete seawalls (53%). Armour stone revetments are also present (41%).
- Most of the structures are well-engineered (81%) but many feature a low crest (top) elevation which contributes to coastal flooding.
- 76% of the structures are in good to excellent condition, structurally, but low crested.



MUNICIPALITY OF LAKESHORE SHORELINE MANAGEMENT PLAN

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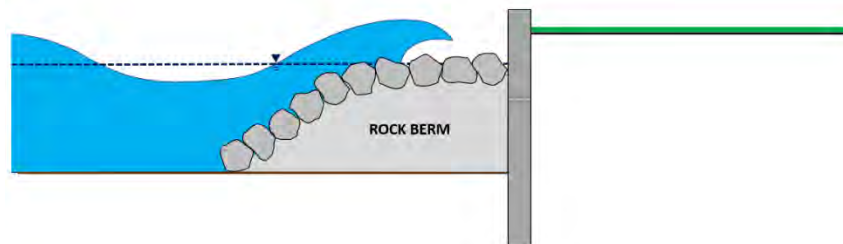
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- Unprotected properties should be upgraded with engineered berms, natural vegetation buffers, and/or engineered shore protection to mitigate wave runup and interior flooding.



Shoreline Management Recommendations

- Adopt standard engineering criteria for shoreline protection structures and flood mitigation. Increasing flood resilience will require continuous mitigation.
- Further assessment of emergency vehicle access during the 100-year flood and the 100-year climate change flood is required, as the depth of flooding is significant in some areas of Reach 7.
- Future residential development in Reach 7 should not continue until safe ingress and egress is possible for first responders on the local road network. If safe access is secured, further development must be appropriately flood proofed as per guidance from the Conservation Authority.

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Town of Lakeshore

Shoreline Management Plan

What We Heard Report

Public Information Centre 3 (Virtual)

February 22, 2022



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Background

The northern extent of the Municipality of Lakeshore consists of the Lake St. Clair shoreline and includes both serviced and unserviced development areas. Each reach of the shoreline is subject to shoreline flooding and erosion hazards.

The Essex Region Conservation Authority and the Lower Thames Conservation Authority have been regulating development activities along the Lake St. Clair shoreline (through O. Reg. 158/06) since 1984 using flood line produced in 1976. Ongoing changes to shorelines, climate change, and continued development pressure requires the Municipality to update land use policies and strategies that are supported by shoreline management technical studies and updates mapping.

The engagement component for the project consisted of three main phases – an initial engagement with stakeholders to make introductions and identify opportunities/constraints; engagement with stakeholders and the public to review technical findings and; finally, to present the final recommended Shoreline Management Plan (SMP) document which is expected in March of 2022.

Objectives

Understanding how the community interacts with shoreline areas and how they are impacted by shoreline flooding and erosion is vital to the success of the SMP. The community will be faced with issues that cross property, jurisdictional, and legislative boundaries, so we must collaborate to develop more resilient and sustainable solutions. The approach that guided stakeholder and community engagement through the study include:

- To encourage community involvement in the planning process through transparent and accessible engagement opportunities.
- To understanding how the community perceives existing and future shoreline issues.
- To educate stakeholders on the existing and future risks and challenges, and the benefits/tradeoffs of shoreline management alternatives.
- To undertake a balanced evaluation of alternatives that reflects the priorities of all stakeholders (residents, visitors, the Municipality, the environment, and Indigenous communities).
- To provide clear and transparent documentation of the planning and decision-making process.

MUNICIPALITY OF LAKESHORE
Shoreline Management Plan
Public Consultation Event

WHAT'S HAPPENING?
The Municipality of Lakeshore has been undertaking a project to investigate and update the Lake St. Clair shoreline flooding and erosion hazards. Over the last few years, Lake St. Clair water levels have been at an all-time high, and extreme weather events are anticipated to increase in severity. Additionally, the impacts of a changing climate may cause increased lake levels for Lake St. Clair.
The Shoreline Management Plan proposes a long-term management policy framework that will allow the Municipality to address existing and future risks to public health and property and to conform with applicable Provincial policy direction.
The purpose of this third and final Public Information Centre is to provide the public and stakeholders with an opportunity to review and provide input on the draft, complete shoreline management plan, which contains shoreline improvement recommendations for the short and long term. A sample of the three-dimensional flood maps for Pike Creek are provided below.

HAVE YOUR SAY!
Date: Tuesday February 22nd
Time: 2:00-4:00pm & 6:30-8:30pm
Platform: Zoom Meeting*
To pre-register for the Public Consultation Event, click the following link or use the QR Code below:
<https://forms.office.com/r/2P2x3467>

*The zoom meeting link will be provided on the Project PlaceSpeak site closer to the meeting date.

PROJECT STUDY AREA

CAN'T MAKE THE VIRTUAL EVENT? JOIN THE CONVERSATION ONLINE!
We encourage you to sign up for free on www.lakeshore.ca/shoreline, provide feedback on the Lakeshore Shoreline Management Plan, and influence the initiatives that directly affect you and your community!

WWW.LAKESHORE.CA/SHORELINE

419 Notre Dame Street, Belle River, ON N0R 1A0
519.728.2700 Toll Free: 1-877-249-3367

What We Did

1. PIC #3 Notice

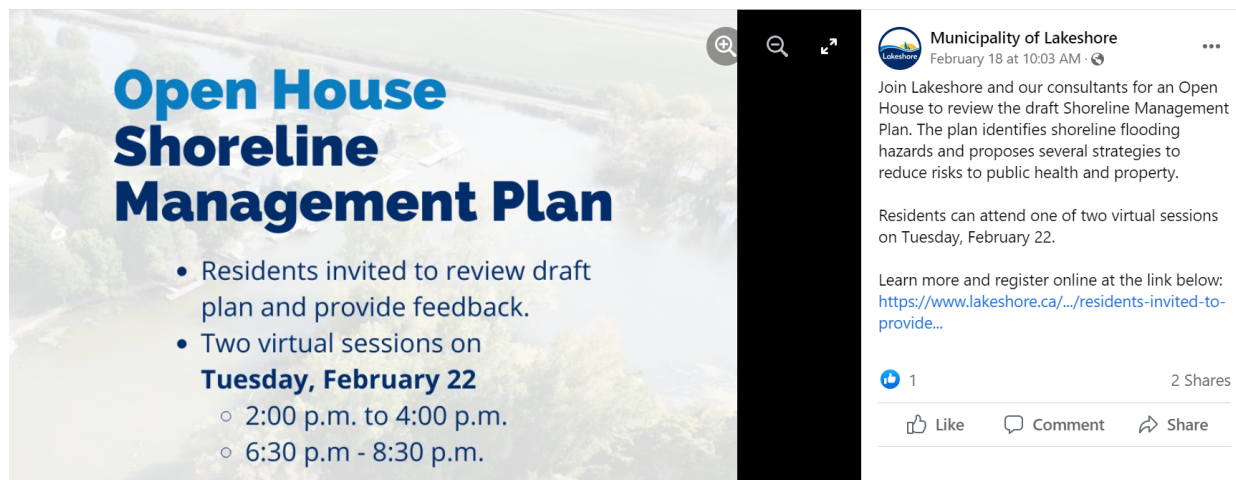
A **Notice** was created in the third phase of this project and sent to community landowners to make landowners aware of the planned, final PIC event. The Notice included background information about the project, log-in details for the event, as well as contact information for the project team. The Notice was sent out to the project stakeholder list via email and was also posted to the project PlaceSpeak page.

2. Webpage Advertising

The Municipality of Lakeshore's official webpage was also used to provide project status updates and calendar information regarding the third and final Public Information Session that was held virtually on February 22, 2022, including a sign-up form to request to receive the Microsoft Teams login details. Details and links to the PlaceSpeak engagement platform were also accessible from the Municipality of Lakeshore's main page.

3. Social Media Advertising

Several social media accounts were also used to advertise the Phase 3 Public Information Session. The Municipality of Lakeshore's social media (e.g. Twitter, Facebook) account was actively posting updates to promote Lakeshore's PlaceSpeak engagement platform, which was concurrently being updated with information.



4. Public Information Session

Two virtual public events were held on February 22, 2022 (2 to 4pm and 6:30 to 8:30pm) over the Microsoft Teams online platform, which has been the typical alternative to public meetings over the course of the Covid-19 pandemic. The purpose of the third and final Public Information Centre was to provide the public and stakeholders with an opportunity to review and provide input on the draft, complete

shoreline management plan, which contains shoreline improvement recommendations for the short and long term.

In attendance, there were Lakeshore's planning staff, consultants from Stantec and Zuzek Inc., several members of Council and members of the community. In total, attendance at the events was as follows:

- Afternoon session: 11 attendees (15 pre-registrations)
- Evening session: 5 attendees (5 pre-registrations)

With the significant number of experts on the call, each person had the ability to ask questions about the technical review and resulting data and information.

5. Technical Findings Webpage

A summary of the technical findings to date have been consolidated in a virtual platform available at:

<https://sway.office.com/YjN7QSkKOFbmPwTh>

The webpage was developed using an app from Microsoft Office called "Sway" that allows for the easy creation and sharing of interactive reports, presentations and more – combining media and text to create a presentable and shareable website. This was created in lieu of a typical in-person poster presentation that would have been set-up if the event were to take place as initially planned at the outset of this project.

To date, the website has had 244 views. These views were comprised of 174 glances, 38 quick reads, and 32 deep reads, according to the Microsoft monitoring tool. The webpage contains the following information and material:

- A fly-over video of the Municipality of Lakeshore, illustrating the 1:100 year flood hazard limit for the shoreline;
- The February 22, 2022, presentation slides presented as a 3 ½ minute video;
- A summary of the Shoreline Management Plan Recommendations, by Reach Area;
- A Summary of what a Shoreline Management Plan does and can achieve;
- Descriptions of the types of shoreline hazards that are presented on the technical mapping ("Hazard Maps");
- An explanation of how the risks and considerations of climate change were incorporate into the technical analysis and findings of the report;
- Visual renderings of three (3) sites along the shoreline showing average summer level, the 100-year lake level, and the 100-year climate change lake level. The sites selected were: Pike Creek, Puce, and Belle River;
- The land use policy framework for planning development along shorelines and within areas of natural hazard concern;

- The objectives of the Shoreline Management Plan and typical adaptation responses to consider;
- Descriptions of other related projects of the Municipality of Lakeshore;
- A link to provide feedback on the discussion questions that were presented in the PIC #2 and summarized in the following Section.

What We Heard

Residents were informed that the overall approach to Shoreline Management Plan is to look at the shoreline holistically and introduce policy direction for the entire Municipality. The project looks beyond the lot-by-lot approach to develop a more cohesive plan for the shoreline areas.

Feedback

Polls were posed within each PIC session to obtain live feedback from attendees. Participants that attended the Public Information Session were also provided a link to a survey which allowed them to provide longform answers to questions and rate the experience. This survey was also shared with the project stakeholders list. The results are provided in the following subsections.

Poll Responses

Polls, the Microsoft Teams Tool, was utilized during each PIC session. The poll responses were posted throughout each PIC session to obtain live feedback from attendees and to keep attendees engaged during each virtual event. Six (6) polls were asked in total for each session and the responses overall are as follows:

- Almost 40% of attendees at the PIC sessions have had their home or business impacted by shoreline flooding in the last 5 years.
- 19 % of attendees are very concerned about emergency vehicle access in Lakeshore during a coastal flood. 37% are somewhat concerned, and 26% are not very concerned.
- 40% of attendees were surprised by the extent of flooding shown on any of the visualizations and/or mapping shown as part of the presentation. 41% were not.
- 88% of attendees believe that the Municipality of Lakeshore should complete further local-scale studies to evaluate limitations with their emergency vehicle fleet (fire, ambulance, police) during a coastal flood and develop appropriate adaptation/contingency plans to improve emergency access.
- 82% of attendees advised that they would support stronger development controls in Lakeshore so future buildings and infrastructure are located away from areas impacted by natural hazards.
- 88% of attendees believe that the Municipality and landowners should collaborate on future reach-specific studies to develop guidelines for shoreline protection upgrades and implement a minimum standard of protection for every property along the lake and rivers.

Survey Responses

Two survey responses were received in total following the third PIC. The responses received were very contrasting and therefore lead to inconclusive results. The general questions and answers, as well as the poll results were more conclusive. Feedback received from the surveys included the following:

What are your initial thoughts about the recommendations of the report?

- I hope to get a copy of the report. I was late to the meeting.
- I have owned property in Lighthouse Shores since the canal development was completed in 1969. My property is on Quenneville. Both Quenneville & Duplessis have never had roads but have formal lot plans submitted and are considered development vs infill on the other 6 roads in this canal community. A secondary plan to consider this area was not discussed. As a result, your recommendations provide limited creative solutions to capturing the value to the community that developing this area can provide. Practical flood mitigation alternatives were given limited discussion. The crisis approach to panic owners, community or municipality does not provide an inclusive, participative approach to addressing each of these lake shore impacted areas.

Are there any recommendations missing, or anything you feel should be more thoroughly considered as the municipality finalizes the report's recommendations?

- Yes, include properties on the adjacent side of road from the lakefront properties.
- Your recommendations are short sighted and do not provide sufficient consideration for building in this area and does not consider that substantial investment in the area has already been made and tax revenue from this area could be substantial if developed. More substantial mitigation steps should be established to recognize the value of the existing and potential community enhancement.

Are there any recommendations that you feel should be deleted?

- Not that I can see.
- Freezing development should be a very last option or be eliminated. It does not appear as though we are close to that.

Did any of the strategies presented introduce a concept that you strongly disagree with? If so, why?

- I missed the first portion of the meeting but I hope that all of Lakeshore development is under the same microscope as their waters are diverted to the shoreline via concrete and asphalt.
- Freezing development should be a very last option. It has been presented as a close term priority and without considering the impact to growth, increased density or responsible development. Emphasis absolutely needs to be RESPONSIBLE DEVELOPMENT moving forward.

What is your past experience with flooding? (e.g. loss of land, basement flooding, insurance impacts, etc.)

- Storm water surges have caused issues and we are concerned. Rain causes many sleepless nights between monitoring pumps, drainage, sandbagging and shore wall.
- I have owned property on Quenneville Drive since 1969 and have seen water levels change as much as 3 feet this year alone. Yes, water levels have breeched older break walls but have since receded. Lake surge is also an issue. New enhancements & additional mitigation need more emphasis in this proposal. I haven't had my lots on Quenneville resurveyed to determine the impact to my waterline but my property has remained above water.

Would you be interested in participating in a community-scale flood mitigation concept (versus every landowner doing something different)?

- I don't believe this will happen. We have been asking for this for a while and we have spent money to secure our area already while others have done nothing.
- I am interested in considering all mitigation strategies.

Would you support management approaches that rely on financial contributions from you and a collection of neighbours? For instance, through a local improvement charge associated with your municipal taxes.

- If that is the way to get this resolved. It should be investigated that the development of new properties with excessive amounts of concrete and asphalt are not responsibly maintaining their own water. These new property developments are also the ones that have basements.
- I would consider it if I am also granted the opportunity to have building permits. Infrastructure in Lighthouse Shores must be brought to standard in advance including roads for Duplessis & Quenneville before I would be in support of contributing to such a fund.

Should the community be taking steps now to adapt to future flood risks associated with climate change?

- Yes as the storm water is not being adequately controlled. It feels like long term residents are the ones saddled with the responsibility. It appears to me that the "turn over" of ownership in the new property developments has been very high.
- The community should be involved in establishing near and long term strategies to adapt to flood risks so that short term funding does not become redundant, wasted resource as longer term strategies are implemented

General Questions & Answers

Residents and landowners who attended this PIC were given the opportunity to ask specific questions during General Question and Answer session during the meetings. Questions below are from the participants and answers were provided by either Stantec Consulting representatives, Zuzek Inc. representatives, or municipal staff.

Questions and Answers:



Q: Do you also utilize data from the US Marine Army Corp. regarding ice coverage of the great lakes?

A: Ice cover data from the Great Lakes Environmental Research Laboratory, part of the USA Federal Government, is used regularly.



Q: Does the climate model include rainfall of the Great Lakes Basin? And, has Canadian Pacific Rail (CPR) been consulted, as it is clear the CPR Line is not holding the water that it was thought to.

A: Yes, CPR and members of their consultant team have been consulted. Additionally, Environmental and Climate Canada simulates the processes that impact lake levels (rainfall, snow, snow melt, evaporation over the lakes, and evapotranspiration over the land). Science is not suggesting the lakes will only be high – is saying that there will still be high and low periods but the extremes will be more extreme.



Q: Can you confirm if the video shown of the shoreline is the joint 1:100 year urban rainfall based flood and coastal flood at the same time?

A: No, the analysis and flood mapping is just the combined impact of the high lake levels and storm surges, it is not assuming rain. The analysis did not include rainfall inputs.



Q: Will this policy address floating homes or structures being built on docks out into the lake?

A: Not sure about floating homes along the lakeshore, as they typically work where they are sheltered from wind and waves, etc. This idea was also brought up by the Conservation Authority in their comments, so we will be addressing it in the updated report. It could be a possible alternative in some instances in very sheltered areas (e.g., creeks and canals, not open lakes), where a proponent comes forward with a design that is innovative and structurally sound, and properly engineered. Consideration for ingress and egress for vehicles and emergency management during a time of flooding, would still need to be evaluated.

Municipal staff also advised that Lakeshore recently approved a zoning by-law that bans floating homes in all locations of Lakeshore (river or shoreline). If someone proposed one, they would need to apply for a zoning amendment, and it would be reviewed on a case-by-case basis.



Q: What is the timeline beyond comments being due February 24th?

A: March 15th is the council meeting date. The draft report will be provided early March to Council and posted to the website for public download on March 11th.



Q: From information received to date, will any part of the plan change drastically?

A: Nothing materially will be changed but will need to clarify 'redevelopment' so as to not confuse it with 're-building'. Certain recommendations have been requested to be expanded on, as well. Also, there is a need to be clearer to the implementation of the shoreline management plan through permitting with conservation authorities and agencies.



Q: Flood task force will get copy of the plan? Is there a problem with me sharing it with the task force?

A: No. not an issue with sharing this information, both the slides from tonight and the draft report.



Q: What are the controls to lake level and who has control?

A: There are no human controls on water levels in Lake St. Clair – only natural systems. There are no dams or other methods of control. There are only a few places in the Great Lakes (St Lawrence River and Lake Ontario) that have human controls, but these locations do not impact Lake St. Clair. It is important to work together with municipalities like Lakeshore to help communities learn to live with flooding. In summary, there is nothing we can do to change anticipated lake flooding levels



Q: Does wave activity include surge?

A: Yes.



Q: I have two old cottages on two adjoining lots in Stoney Point East (Reach 5). Both are approximately 80 years and not amenable to any modification to their current structure in order to flood-proof them. Specifically, architects have already told me that it is not feasible or economically sensible to try to raise the foundation, given their age and condition. One lot has a new ERCA approved break wall. The other is partially protected and a protective berm could be added to the existing sand beach. The only sensible solution to have a flood-proof home is to raze both cottages and build one new larger house over both lots, and build that house on a new higher foundation. Is there any part of your proposal (i.e., against "new development") that would prevent me from doing this?

A: Access to and from (emergency access) is important. This is a lot specific question and is something that would need to be discussed with the ERCA and Municipality. Access into and out of individual properties is increasingly important, as regulated by the Province, but is something that the Municipality and ERCA would have to look at in more detail.



Q: Zone 7 appears that the rail tracks are still below 100 year flood lake level. What are the alternatives there?

A: While some area is above the 100 year flood, some are not and there are also culverts and low-lying roads that go under the tracks and allow flood waters to move further inland.



Q: What about the properties on the opposite side of the road from the lake? Their plans should also be collaboratively shared with concerned properties. They have added fill to their properties

and these are pushing water to homes on the waterside of the road. There are no detention ponds or any controls developed into their plans.

A: All properties on hazardous lands go through conservation authority review to confirm compliance. Any property within the flood hazard of the specific reach, regardless of the side of the road they are on, would be subject to the recommendations of the SMP.

? *Q: There should be more creative solutions, not just prohibiting development.*

A: Working together as a community is an innovative solution, understanding the impact that this will have on the community and coming together to create a solution is not happening in other places across the province. Not developing is really the only solution. This will also need to be combined with other approaches to help mitigate the existing flood risk.

? *Q: Does the Plan differentiate infill vs development activities?*

A: Generally, both are being addressed at the high-level, however, no matter greenfield or infill, both are not encouraged on hazardous lands. Development in the plan refers to anything that changes the density or use of property (both existing built-up area and new).

? *Q: I had involvement in Detroit River Development in early 2000 and they thought the river was going to dry-up. What has changed?*

A: Simulating the climate in the future is challenging. Older models of climate impact did not have a good way to model evaporation and linked evaporation losses to temperature. Older models were over-predicting the loss of water from the lakes and land. New research from Environmental and Climate Change Canada has more robust way to model evaporation losses. We are not suggesting, however, that lake levels will not continue to go through peaks and lows. New highs are going to be higher, new lows are going to be lower.

? *Q: It appears that the entire community of Lighthouse Cove is coloured blue. This area is currently having sewage problems. The municipality should not even consider constructing a new sewage system. It would be throwing good money after bad. Shouldn't Lighthouse Cove go under a retreat protocol instead of accommodate?*

A: Both retreat and accommodate are viable strategies. The easiest part is to lay out the option. The challenging part is to implement the options as to be determined and implemented and approved by the local Lighthouse Cove community, staff, council, and the Conservation Authority.

Next Steps

This third PIC was the final PIC scheduled for the Shoreline Management Plan Project. Stantec Consulting Ltd. and Zuzek Inc. will now take the comments received to date from the public, as well as the comments received from staff, agencies, and the TAC committee, and incorporate said comments into the final Shoreline Management Plan. It is the intent of the project team to post the final document to the project website on March 11th and bring the Plan before Council for adoption on March 15th.

WELCOME

Municipality of Lakeshore Shoreline Management Plan

Virtual Council Presentation

March 15, 2022



Project Team Introduction



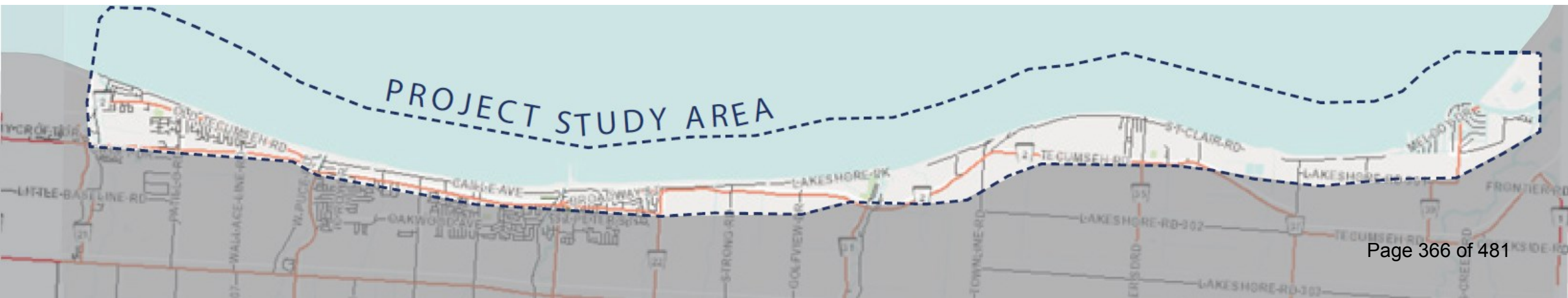
Amelia Sloan,
RPP, MCIP



Peter Zuzek,
MES, CFM, P.Geo.



Tammie Ryall
RPP, MCIP



Objectives of the Shoreline Management Plan



Prevention

of existing development from natural hazards through the application of structural and non-structural measures (including acquisition)



Protection

of new development from locating within areas subject to loss of life and property damage from natural hazards



Emergency Response

to prepare for emergency situations through flood forecasting and warning systems and implement appropriate emergency response procedures such as evacuating areas and disaster relief.



Public Education

to increase awareness of challenges and risks associated with shoreline hazards



Environment

to ensure that no adverse environmental impacts result from actions

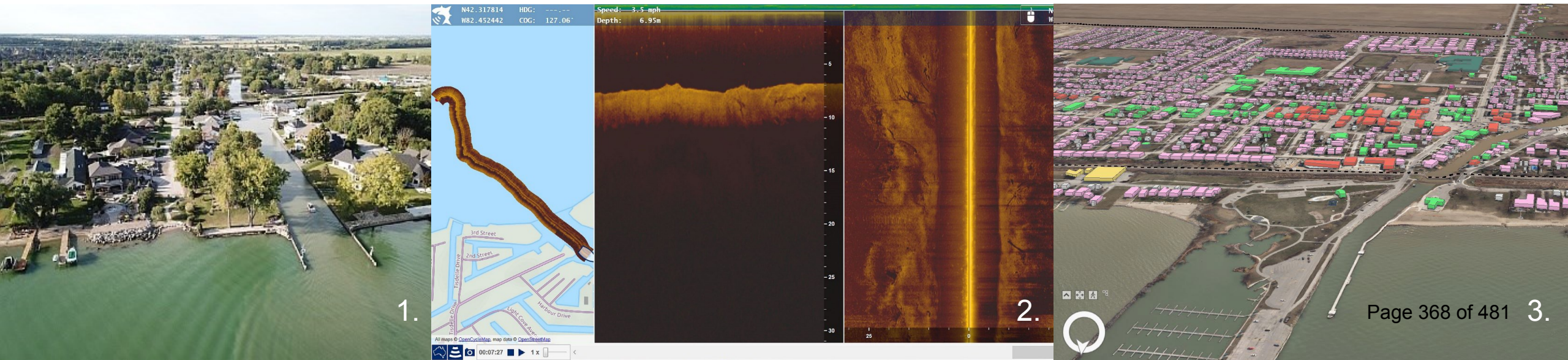


Monitoring

the implementation of the Shoreline Management Plan and the effectiveness of the recommendations

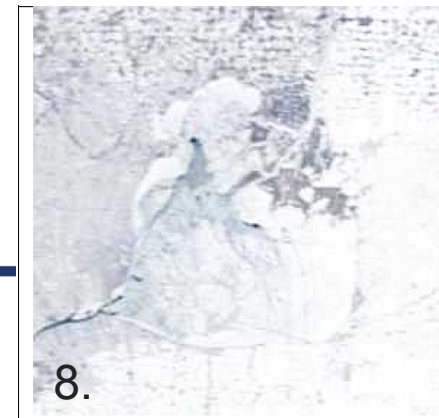
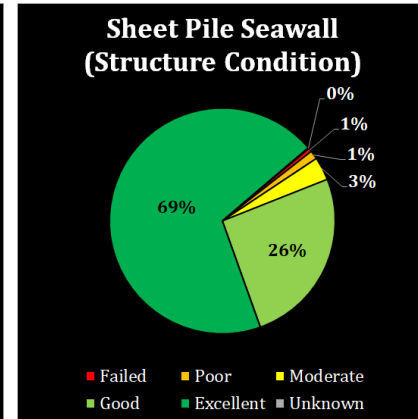
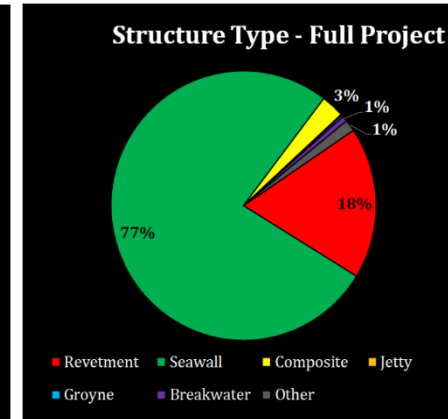
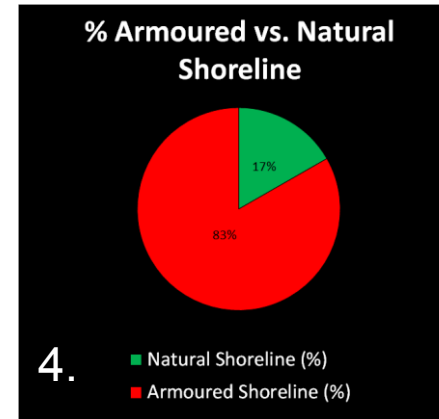
Analysis – Data Collection

1. Oblique photographs with a Drone over the lake
2. Nearshore Water Depth Survey (Thames River Mouth shown)
3. Update to Buildings Layer (revised Buildings Layer at Belle River shown)



Analysis – Technical

4. Shoreline Protection Data Base
5. Historical Shoreline Change Rates
6. Water Level Statistical Analysis
7. Nearshore Waves and Runup
8. Climate Change Impacts (i.e. reduced lake ice coverage projected for the future)



Hazard Mapping

Flood Hazard Limit

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary
- 100-year Flood Hazard with Run-up



Video: Fly-Over Showing Flood Risk

Hazard Mapping

Depth of Flooding

LEGEND:

- Erosion Hazard Limit
- Dynamic Beach Hazard Limit
- ERCA-LTVCA Boundary
- Municipal Boundary

100-year Flood Hazard - Depth of Flooding (m)

- 0 - 0.3 m (Up to ~1 ft)
- 0.31 - 0.6 m (Up to ~2 ft)
- 0.61 - 0.9 m (Up to ~3 ft)
- > 0.9 m (> ~3 ft)



Pike Creek Average Summer Water Level Visualization



Pike Creek 100-year Flood Visualization



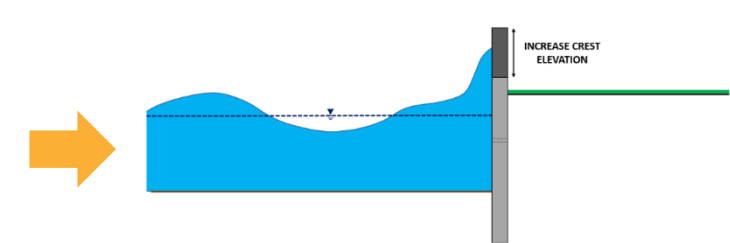
Pike Creek 100-year Climate Change Flood Visualization

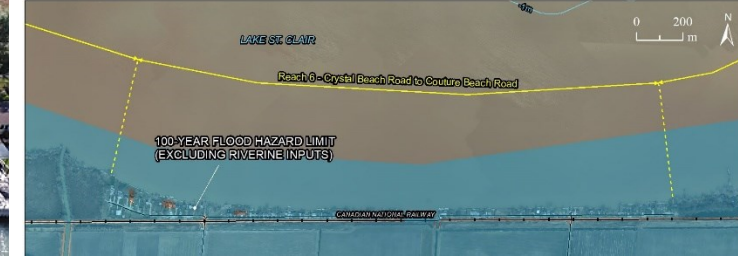


Pike Creek to Puce River



- Adopt standard engineering criteria for shoreline protection structures and flood mitigation
- A reach-scale program to flood proof existing buildings is required.
- Further assessment of emergency vehicle access is required, as water depths are significant in some areas of Reach 1 (e.g., 0.6 to 0.9 m). An emergency response plan is needed if vehicle access is not possible in these areas.
- Future residential or commercial development should not proceed in Reach 1 unless emergency vehicle access is attainable during the 100-year flood.





Crystal Beach Road to Couture Beach Road

- Adopt standard engineering criteria for shoreline protection structures and flood mitigation requirements for lakefront properties. Pursue a community scale flood mitigation solution for Reach 6
- Development materials and recommendations for flood proofing of residential buildings.
- Emergency ingress and egress to Reach 6 and along the lakeshore should be restored with a large-scale mitigation strategy to protect people and property.
- Future development should not proceed on hazardous lands in Reach 6 unless the flood risk is mitigated and emergency vehicle access is attainable
- If community scale shoreline protection upgrades are not attainable and emergency vehicle access can not be restored to Reach 6, a property acquisition program from willing sellers should be developed.
- Private septic systems that are flooded during the 100-year static lake level should be upgraded (i.e., flooded during non-storm conditions).

Land Use Recommendations

- The following land use recommendations can be considered to accompany the shoreline protection and management recommendations
- Focus of recommended updates to ensure that the **long-term** land management practices do not create similar issues to what is being experienced along the shoreline today
- Examines policies related to growth management, natural hazard management, and residential intensification



Strategic Direction on Growth Management

- Prohibit the conversion of agricultural lands within the hazard areas to growth lands (e.g. settlement expansions and/or growth nodes)
- Recognize the 100-year climate change flood as a strategic screening tool for all growth-related decisions (infrastructure, settlement expansions, secondary planning area, transportation)
- Focus on increasing coastal resilience and 'preparing for the impacts of a changing climate' as required by the 2020 PPS
- Transportation system policies should recognize potential inundation during flood events; working to update key roadway infrastructure that recognizes the 100-year climate change flood

Natural Hazard Policies

- Two types of ‘natural hazards’ were addressed – **flooding** and **erosion**
- Two other important coastal risks/vulnerabilities were also identified through the study, which require action:
 - shoreline flooding associated with the anticipated impacts of a changing climate
 - emergency access challenges when areas are rendered inaccessible to people and vehicles during floods

Recommendations for Section 5.4 of Official Plan:

- To update the mapping for the “Lake St. Clair Floodprone Area”
- To recognize that development and site alteration should not be permitted where there are coastal risks/vulnerabilities – access restricted during hazard events
- To allow for the identification of mapping overlays that have an ‘enhanced’ Floodprone Area that considered the risk of climate change (+38cm).

Residential Intensification

- It is recommended that the policies supporting development on hazardous lands be reviewed in order to provide guiding policies that:
 - Strengthen site planning requirements to allow for elevations of not only buildings, but emergency access roads to be assessed based on the flood hazard limit;
 - Discourage conversion of basement to habitable spaces (e.g. additional residential units)
 - Require accessibility to the outside from second storeys to provide evacuation opportunities
 - Assess policies for additional residential units (both detached and within existing residences) to discourage these uses within hazard areas.
- Section 4.3.1 of the Official Plan is recommended to be reviewed, based on the final recommendations

Concluding Remarks



- The coastal vulnerabilities within Lakeshore for people and property are significant; a **multi-fold approach** to shoreline management is necessary – it will take engineering/structural mitigation, long-term management planning, re-naturalization/restoration efforts, and land use planning for the future
- In the short-term, **emergency access** will need to be investigated, including ingress and egress on a reach-by-reach basis
- **Community-scale** studies, and standardized shoreline protection, should be investigated on a reach basis
- Development should not be permitted in the hazard areas and/or where development is inaccessible during a hazard event
- The Municipality of Lakeshore should work with the Conservation Authorities (CAs) to update the regulated areas in a manner that reflects the refined hazard mapping

Project Next Steps – Phase 3 Wrap-Up

- This meeting to Lakeshore Council
- The report will be taken to the two Conservation Authority Boards (ERCA and LTVCA)
- Municipality starts work on short- and medium-term projects to reduce coastal risks and increase community resilience to storms



Thank you!

Municipality of Lakeshore

Minutes of the Regular Council Meeting

Tuesday, February 15, 2022, 5:00 PM

Electronically hosted from Town Hall, 419 Notre Dame Street, Belle River



Members Present: Mayor Tom Bain, Deputy Mayor Tracey Bailey, Councillor Steven Wilder, Councillor Len Janisse, Councillor Kelsey Santarossa, Councillor John Kerr, Councillor Kirk Walstedt, Councillor Linda McKinlay

Staff Present: Chief Administrative Officer Truper McBride, Corporate Leader – Chief Financial Officer Justin Rousseau, Corporate Leader - Growth & Sustainability Tammie Ryall, Corporate Leader - Operations Krystal Kalbol, Corporate Leader - Strategic & Legal Affairs Kristen Newman, Division Leader - Bylaw Robert Sassine, Division Leader - Civic Affairs Brianna Coughlin, Division Leader - Community Planning Aaron Hair, Division Leader - Economic Development & Mobility Ryan Donally, Division Leader - Roads, Parks & Facilities Jeff Wilson, Division Leader - Water Management Albert Dionne, Division Leader - Workplace Development Lisa Granger, Team Leader - Civic Engagement Alex Denonville, IT Technologist Mark Donlon

1. Call to Order

Mayor Bain called the meeting to order at 5:04 PM in Council Chambers. All other members of Council participated in the meeting through video conferencing technology from remote locations.

2. Closed Session

63-02-2022

Moved By Councillor Santarossa

Seconded By Councillor Wilder

Council move into closed session in Council Chambers at 5:00 PM in accordance with:

1. Paragraph 239(2)(b) of the *Municipal Act, 2001* to discuss personal matters about an identifiable individual, including municipal or local board employees, relating to the Chief Administrative Officer performance evaluation.

2. Paragraph 239(2)(b), (e) and (f) of the *Municipal Act, 2001* to discuss personal matters about an identifiable individual, including municipal or local board employees, litigation affecting the municipality and advice that is subject to solicitor-client privilege relating to employees of the Municipality.
3. Paragraph 239(2)(b), (e) and (f) of the *Municipal Act, 2001* to discuss personal matters about an identifiable individual, including municipal or local board employees, litigation affecting the municipality and advice that is subject to solicitor-client privilege relating to employees of the Municipality.
4. Paragraph 239(2)(e) and (f) of the *Municipal Act, 2001* to discuss litigation affecting the municipality and advice that is subject to solicitor-client privilege regarding an appeal of a decision of the Property Standards Committee.

Carried Unanimously

3. Return to Open Session

Council returned to open session at 6:05 PM.

4. Land Acknowledgement

Mayor Bain read the following land acknowledgement statement for the first time on behalf of Council:

The Municipality of Lakeshore is located on the traditional territory of the Three Fires Confederacy (comprised of the Ojibway, the Odawa, and the Potawatomi Peoples) and of the Huron-Wendat Peoples and is steeped in a deep and rich Indigenous history. Today we acknowledge the people of these nations whose traditional territory we are meeting on as well as our responsibility to continue the stewardship of the land with them.

Chief Mary Ducksworth was present electronically and provided greetings on behalf of Caldwell First Nation.

Councillor Ron Soney was present electronically and provided greetings on behalf of Walpole Island First Nation.

5. Moment of Reflection

6. Disclosures of Pecuniary Interest

7. Recognitions

8. Public Meetings under the *Planning Act*

9. Public Presentations

10. Delegations

1. Greenhouse Development Interim Control By-Law Extension

Consultant Tom Storey provided a PowerPoint presentation as update on the progress of the study regarding greenhouse development.

64-02-2022

Moved By Councillor Walstedt

Seconded By Councillor McKinlay

Approve an amendment to By-law 13-2021 being a By-law to Establish an Interim Control By-law respecting Greenhouses in the Municipality of Lakeshore, to extend the period of time during which it will be in effect to March 9, 2023, to continue studying the effects of greenhouse development in Lakeshore; and

Direct Administration to advise Council should an application for greenhouse development be submitted during the extended interim control period; and

Direct the Clerk to read the By-law during the Consideration of By-laws at the at the February 15, 2022 Council meeting.

Carried Unanimously

2. Notice of Motion submitted by Councillor McKinlay - Community Hub in Stoney Point

Residents Alissa LaPorte, Wayne Zimney and Paul Crack were present electronically and spoke in support of the Notice of Motion submitted by Councillor McKinlay - Community Hub in Stoney Point.

18. Notices of Motion

2. Councillor McKinlay - Community Hub in Stoney Point

65-02-2022

Moved By Councillor McKinlay

Seconded By Councillor Kerr

Whereas Council has directed the purchase of a temporary accessible dwelling to be located in the Stoney Point Community Park;

Whereas Council has directed that the accessible dwelling host community services including library services;

Whereas Council has directed that Stoney Point Community Park visioning exercises commence on or before April 1, 2022;

Whereas the hamlet of Stoney Point is in the queue for their CIP;

Whereas Council desires a permanent Community/ Hub Centre in Stoney Point;

Therefore be it resolved that the Municipality of Lakeshore place \$2M in reserves to be used towards a Community/Hub to be built in the Community of Stoney Point.

And be it further resolved that a detailed design begin no later than 2023 with a target build commenced in 2025.

In Favour (4): Deputy Mayor Bailey, Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Opposed (4): Mayor Bain, Councillor Wilder, Councillor Janisse, and Councillor Santarossa

Lost

Mayor Bain called a recess at 8:03 PM and reconvened the meeting at 8:18 PM.

11. Completion of Unfinished Business

12. Consent Agenda

- 1. February 1, 2022 Regular Council Meeting Minutes**
- 2. City of Brantford - Addressing the Revolving Door of Justice - Accountability for Sureties**

Councillor Wilder declared a conflict of interest in relation to this item.

66-02-2022

Moved By Councillor McKinlay

Seconded By Councillor Walstedt

Support the resolution of the City of Brantford regarding Addressing the Revolving Door of Justice - Accountability for Sureties.

In Favour (7): Mayor Bain, Deputy Mayor Bailey, Councillor Janisse, Councillor Santarossa, Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Carried

3. Multi-Municipality Wind Turbine Working Group Invitation for New Membership

67-02-2022

Moved By Councillor McKinlay

Seconded By Councillor Walstedt

Direct Administration to prepare a report regarding membership in the Multi-Municipal Wind Turbine Working Group; and

Send Councillor Linda McKinlay to attend an upcoming meeting to explore membership.

Carried Unanimously

68-02-2022

Moved By Councillor Santarossa

Seconded By Councillor McKinlay

Approve minutes of the previous meeting and receive correspondence as listed on the Consent Agenda.

Carried Unanimously

13. Reports for Information

1. Drainage Board Meeting-January 10, 2022

2. Police Services Board Meeting Minutes of January 31, 2022

3. Dedication of Cash-in-lieu of Parkland By-law Review

69-02-2022

Moved By Councillor Wilder

Seconded By Councillor Janisse

Direct Administration to prepare a report for the next Council meeting regarding the quickest process to amend and increase the payment-in-lieu of parkland rates while remaining in compliance with the notice requirements in the *Planning Act*.

In Favour (2): Councillor Wilder, and Councillor Janisse

Opposed (6): Mayor Bain, Deputy Mayor Bailey, Councillor Santarossa, Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Lost

70-02-2022

Moved By Councillor McKinlay

Seconded By Councillor Walstedt

Receive the Reports for Information as listed on the agenda.

Carried Unanimously

14. Reports for Direction

1. Appointment to Lower Thames Valley Conservation Authority

71-02-2022

Moved By Councillor Walstedt

Seconded By Councillor Janisse

Confirm the appointment of Councillor Linda McKinlay to the Lower Thames Valley Conservation Authority until the end of the current Council term, as presented at the February 15, 2022 Council meeting.

Carried Unanimously

2. Half Load Designation for Class B Roads – Addition of Gravel Roads

72-02-2022

Moved By Councillor Wilder

Seconded By Councillor McKinlay

Direct Administration to include gravel roads to By-Law 2-2002 being a By-Law to Regulate Traffic on Highways under the jurisdiction of the Municipality of Lakeshore, to include year round load restrictions on Municipal Class B Roads pursuant to section 122 of the *Highway Traffic Act* from January 1st to December 31st of each year; and

Approve the cost of \$8,500.00 (including applicable HST) to purchase and install signage for the additional gravel roads, as required, and as described in the report presented at the February 15, 2022 Council meeting.

Carried Unanimously

3. Changes to Regulation of Water Supply By-Law 97-2004

73-02-2022

Moved By Councillor McKinlay

Seconded By Councillor Wilder

Direct the Clerk to read By-Law 5-2022, which amends Section 3.10 of By-Law 97-2004 being the Regulation of Water Supply in the Town of Lakeshore By-law; and

Repeal By-Law 37-2005, as presented in the February 15, 2022 Council report.

Carried Unanimously

15. Announcements by Mayor

16. Reports from County Council Representatives

17. Report from Closed Session

18. Notices of Motion

1. Councillor Kerr - Bulk Water Hose at Fire Station #5

Councillor Kerr withdrew his notice of motion.

3. Councillor Wilder - Ontario Land Tribunal

74-02-2022

Moved By Councillor Wilder

Seconded By Councillor Santarossa

Whereas Municipalities across this province collectively spend millions of dollars of taxpayer money and municipal resources developing Official Plans that meet current Provincial Planning Policy; and

Whereas an Official Plan is developed through months of public consultation to ensure, “that future planning and development will meet the specific needs of our community”; and

Whereas our Official Plan includes provisions that encourage development of the “missing middle” or “gentle density” to meet the need for attainable housing in our community; and

Whereas our Official Plan is ultimately approved by the province; and

Whereas it is within the legislative purview of Municipal Council to approve Official Plan amendments or Zoning By-law changes that better the

community or fit within the vision of the Municipality of Lakeshore Official Plan; and

Whereas it is also within the legislative purview of Municipal Council to deny Official Plan amendments or Zoning By-law changes that do not better the community or do not fit within the vision of the Municipality of Lakeshore Official Plan; and

Whereas municipal planning decisions may be appealed to the Ontario Land Tribunal (OLT; formerly the Ontario Municipal Board or “OMB”), an unelected, appointed body that is not accountable to the residents of the Municipality of Lakeshore; and

Whereas the OLT has the authority to make a final decision on planning matters based on a “best planning outcome” and not whether the proposed development is in compliance with municipal Official Plans; and

Whereas all decisions—save planning decisions—made by Municipal Council are only subject to appeal by judicial review and such appeals are limited to questions of law and or process; and

Whereas Ontario is the only province in Canada that empowers a separate adjudicative tribunal to review and overrule local decisions applying provincially approved plans; and

Whereas towns and cities across this Province are repeatedly forced to spend millions of dollars defending Official Plans that have already been approved by the province in expensive, time consuming and ultimately futile OLT hearings; and

Whereas lengthy, costly OLT hearings add years to the development approval process and act as a barrier to the development of attainable housing;

1. Now Therefore Be It Hereby Resolved That the Municipality of Lakeshore requests the Government of Ontario to dissolve the OLT immediately thereby eliminating one of the most significant sources of red tape delaying the development of more attainable housing in Ontario; and
2. Be It Further Resolved That a copy of this Motion be sent to the Honourable Doug Ford, Premier of Ontario, the Minister of Municipal Affairs and Housing, the Leader of the Opposition, the Leaders of the Liberal and Green Party, all MPPs in the Province of Ontario; the

Large Urban Mayors' Caucus of Ontario, the Small Urban GTHA Mayors and Regional Chairs of Ontario; and

3. Be It Further Resolved That a copy of this Motion be sent to the Association of Municipalities of Ontario (AMO) and all Ontario municipalities for their consideration.

In Favour (3): Mayor Bain, Councillor Wilder, and Councillor Santarossa

Opposed (5): Deputy Mayor Bailey, Councillor Janisse, Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Lost

21. Consideration of By-laws

75-02-2022

Moved By Deputy Mayor Bailey

Seconded By Councillor McKinlay

By-laws 5-2022 and 17-2022 be read and passed in open session on February 15, 2022.

Carried Unanimously

76-02-2022

Moved By Councillor Santarossa

Seconded By Councillor Walstedt

By-law 18-2022 be read and passed in open session on February 15, 2022.

In Favour (7): Mayor Bain, Deputy Mayor Bailey, Councillor Janisse, Councillor Santarossa, Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Opposed (1): Councillor Wilder

Carried

77-02-2022

Moved By Councillor Walstedt

Seconded By Councillor McKinlay

By-law 20-2022 be read and passed in open session on February 15, 2022.

In Favour (7): Mayor Bain, Deputy Mayor Bailey, Councillor Janisse, Councillor Santarossa, Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Opposed (1): Councillor Wilder

Carried

1. **By-law 5-2022, Being a By-law to Amend By-Law 97-2004, Being A By-Law to Provide for the Regulation of the Water Supply in the Municipality of Lakeshore**
 2. **By-law 17-2022, Being a By-law to Confirm Proceedings of Council for February 1, 2022**
 3. **By-law 18-2022, Being a By-law to Extend the Time for an Interim Control By-law, respecting the study of the effects of Greenhouses in the Municipality of Lakeshore**
 4. **By-law 20-2022, Being a By-law to Adopt an Employee COVID-19 Vaccination Policy for the Municipality of Lakeshore**
19. **Question Period**
 20. **Non-Agenda Business**
 22. **Adjournment**

78-02-2022

Moved By Councillor McKinlay

Seconded By Councillor Walstedt

Council adjourn its meeting at 9:30 PM.

Carried Unanimously

Tom Bain
Mayor

Kristen Newman
Clerk

Municipality of Lakeshore

Minutes of the Special Council Meeting

Monday, March 7, 2022, 6:00 PM

Electronically hosted from Town Hall, 419 Notre Dame Street, Belle River



Members Present: Mayor Tom Bain, Deputy Mayor Tracey Bailey, Councillor Steven Wilder, Councillor Len Janisse, Councillor Kelsey Santarossa, Councillor John Kerr, Councillor Kirk Walstedt, Councillor Linda McKinlay

Staff Present: Chief Administrative Officer Truper McBride, Corporate Leader – Chief Financial Officer Justin Rousseau, Corporate Leader - Growth & Sustainability Tammie Ryall, Corporate Leader - Operations Krystal Kalbol, Corporate Leader - Strategic & Legal Affairs Kristen Newman, Division Leader - Civic Affairs Brianna Coughlin, Division Leader - Community Services Frank Jeney, Division Leader - Roads, Parks & Facilities Jeff Wilson, Division Leader - Water Management Albert Dionne, Division Leader - Workplace Development Lisa Granger, Fire Chief Don Williamson, IT Technologist Mark Donlon

1. Call to Order

Mayor Bain called the meeting to order at 6:04 PM in Council Chambers. All other members of Council participated in the meeting through video conferencing technology from remote locations.

2. Land Acknowledgement

3. Moment of Reflection

4. Disclosures of Pecuniary Interest

5. Delegations

1. St. Clair Shores Neighbourhood Park Plan

Jeffery Lee, resident, was present electronically and requested that safety lighting be considered in the final design.

Kamaljit Singh Dhillon, resident, was present electronically and requested that a washroom facility be added to the final design.

6. Reports for Information

79-03-2022

Moved By Councillor McKinlay

Seconded By Councillor Wilder

Receive the Reports for Information as listed on the agenda.

Carried Unanimously

1. **2021 Drinking Water Annual Summary Reports**

2. **DWQMS Management Review Meeting**

7. Reports for Direction

1. **Transition of Integrity Commissioner Services**

80-03-2022

Moved By Councillor Walstedt

Seconded By Deputy Mayor Bailey

Direct the Clerk to read By-law 24-2022 appointing Principles Integrity as the Municipality's integrity commissioner commencing July 1st and transitional integrity commissioner for the period of March 8, 2022 through to and including June 30, 2022; and

Authorizing the Mayor and Clerk to execute the necessary instruments to retain Principles Integrity as the integrity commissioner, all as described in the March 7, 2022 Council meeting.

In Favor (7): Mayor Bain, Deputy Mayor Bailey, Councillor Janisse, Councillor Santarossa, Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Opposed (1): Councillor Wilder

Carried

3. **St. Clair Shores Neighbourhood Park Plan**

81-03-2022

Moved By Councillor Wilder

Seconded By Councillor Janisse

Defer consideration of the St. Clair Shores Neighbourhood Park Plan pending a report at the June 2022 Council meeting or earlier, in order for Administration to provide information regarding the addition of lighting, particulars regarding the pavilion and dry pond and a washroom facility.

In Favor (5): Mayor Bain, Deputy Mayor Bailey, Councillor Wilder, Councillor Janisse, and Councillor Santarossa

Opposed (3): Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Carried

2. **2022 Fire Department Vehicle Replacement**

82-03-2022

Moved By Councillor Wilder

Seconded By Deputy Mayor Bailey

Award the purchase of two – 2022 Ford Police Utility Explorers (1 hybrid and 1 gasoline) to Lally Ford for the sum of \$96,959.98, including non-refundable HST; and approve \$52,040.03 for the installation of emergency lighting, communication equipment, required upfitting, and reflective identification markings for the vehicles, as further described in the March 7, 2022 Council report.

Carried Unanimously

8. **Consideration of By-laws**

83-03-2022

Moved By Councillor Janisse

Seconded By Deputy Mayor Bailey

Defer the reading of By-law 19-2022 until Administration has an opportunity to meet with the Heavy Construction Association of Windsor.

In Favor (6): Mayor Bain, Deputy Mayor Bailey, Councillor Wilder, Councillor Janisse, Councillor Santarossa, and Councillor McKinlay

Opposed (2): Councillor Kerr, and Councillor Walstedt

Carried

84-03-2022**Moved By** Councillor Santarossa**Seconded By** Councillor McKinlay

By-laws 23-2022 and 24-2022 be read and passed in open session on March 7, 2022.

In Favor (7): Mayor Bain, Deputy Mayor Bailey, Councillor Janisse, Councillor Santarossa, Councillor Kerr, Councillor Walstedt, and Councillor McKinlay

Opposed (1): Councillor Wilder

Carried

1. **By-law 19-2022, Being a By-law to Amend By-law 2-2002, Being a By-law to Regulate Traffic on Highways under the Jurisdiction of the Municipality of Lakeshore**
 2. **By-law 23-2022, Being a By-law to Adopt the Tax Rates and to Provide for Penalty and Interest in Default of Payment for the year 2022**
 3. **By-law 24-2022, Being a By-law to Appoint an Integrity Commissioner and Execute Agreements Related Thereto**
9. **Closed Session**

85-03-2022**Moved By** Councillor McKinlay**Seconded By** Councillor Wilder

Council move into closed session in Council Chambers at 7:15 PM in accordance with:

- a. Paragraph 239(2)(b) of the *Municipal Act, 2001* to discuss personal matters about an identifiable individual, including municipal or local board employees, relating to the Chief Administrative Officer performance evaluation.

Carried Unanimously

10. Adjournment

The meeting was adjourned in closed session at 7:55 PM.

Tom Bain
Mayor

Kristen Newman
Clerk



The Corporation of the Town of Tecumseh

February 2, 2022

chrystia.freeland@fin.gc.ca

The Honourable Chrystia Freeland
Deputy Prime Minister and Minister of Finance
House of Commons
Ottawa, ON K1A 0A6

Dear Minister Freeland:

Re: Consideration of Support for Windsor-Essex Workers

The Council of The Corporation of the Town of Tecumseh, at its regular meeting held Tuesday, January 25, 2022, gave consideration to a letter received from The Corporation of the County of Essex, dated January 6, 2022 requesting support for Windsor-Essex workers.

At their meeting, Tecumseh Council passed the following resolution:

That the Town of Tecumseh **support** the January 6, 2022 County of Essex letter to the Deputy Prime Minister and Minister of Finance requesting support for Windsor-Essex workers.

Please consider this letter as confirmation of the Town of Tecumseh's support of the County of Essex' letter of January 6, 2022. A copy of the January 6, 2022 letter from the County of Essex is attached for your ease of reference.

Yours very truly,

Laura Moy, Dipl.M.M.
Director Legislative Services & Clerk

LM/sw

Attachments

1. County of Essex dated January 6, 2022
- cc: Warden Gary McNamara (gmcnamara@countyofessex.ca)
Chris Lewis, MP – Essex (chris.lewis@parl.gc.ca)
Dave Epp, MP Chatham-Kent-Leamington (dave.epp@parl.gc.ca)
Irek Kusmierczyk, MP – Windsor-Tecumseh (irek.kusmierczyk@parl.gc.ca)
Brian Masse, MP – Windsor West (brian.masse@parl.gc.ca)
Taras Natyshak, MPP – Essex (tnatyshak-gp@ndp.on.ca)
Rick Nicholls, MPP – Chatham-Kent-Essex (rnicholls-co@ola.org)

Percy Hatfield, MPP – Windsor-Tecumseh (phatfield-gp@ndp.on.ca)
Lisa Gretzky, MPP – Windsor West (lgretzky-gp@ndp.on.ca)
Mike Galloway, CAO, County of Essex (mgalloway@countyofessex.ca)
Valerie Critchley, Interim Director of Legislative Services & Clerk, Town of Amherstburg (vcritchley@amherstburg.ca)
Robert Auger, Clerk, Town Solicitor, Legal and Legislative Services/Clerk, Town of Essex (rauger@essex.ca)
Paula Parker, Clerk, Town of Kingsville (pparker@kingsville.ca)
Kristen Newman, Director of Legislative and Legal Services/Clerk, Municipality of Lakeshore (knewman@lakeshore.ca)
Jennifer Astrologo, Director of Council Services/Clerk, Town of LaSalle (jastrologo@lasalle.ca)
Brenda Percy, Municipal Clerk/Manager of Legislative Services, Municipality of Leamington (bpercy@leamington.ca)
Steve Vlachodimos, Clerk, City of Windsor (svlachodimos@citywindsor.ca)
(clerks@citywindsor.ca)
Mary Birch, Director of Council Services & Community Services/Clerk, County of Essex (mbirch@countyofessex.ca)
Mr. David Cassidy, President, Unifor Local 444 (dcassidy@uni444.ca)

January 6, 2022

The Honourable Chrystia Freeland
Deputy Prime Minister and Minister of Finance
House of Commons
Ottawa, ON K1A 0A6

Re: Consideration for support for Windsor-Essex Workers

Dear Minister,

I would like to begin by thanking you for everything you and your government have done and are doing in response to the COVID-19 pandemic. These are challenging, unprecedented times. I know you have had to make difficult decisions based on ever-changing circumstances and I know you have made them in the best interests of the people you were elected to serve.

As you know, decisions that have rightly been made in the best interest of public health can have negative economic consequences, particularly in regions like Windsor-Essex that are heavily reliant on cross-border commerce and the tourism and hospitality sector. Your government has addressed these issues with now-expired support programs for individuals and small business, but the need for additional assistance in our hard-hit region is urgent and growing.

In particular, pandemic-related disruptions and restrictions are severely impacting the thousands of residents who work for two of the region's largest employers: Caesars Windsor and the Stellantis Windsor Assembly Plant. The economic hardships endured by these workers are felt by their spouses and their children and the community at large. The diminishment of so much collective spending power has a cascading impact on our local economy, negatively affecting retail shops and the service industry.

The 1,400 employees at Caesars Windsor have essentially been off work since the beginning of this pandemic and have relied on programs like the Canada Recovery Benefit to feed their families and pay their mortgages. That program has ended but the pandemic has not and now the casino has been closed again.

It is absolutely essential these workers are not left behind as new restrictions are implemented in response to the Omicron variant. I implore your government to ensure the gaming industry is included in the new Tourism and Hospitality Recovery Program and that it covers workers who are on furlough. I would encourage you to provide other supports as well to ensure the wellbeing of these workers and their families and to ensure they are available to work when our economy fully reopens.

Workers at Windsor Assembly Plant have likewise been severely impacted by the pandemic and its associated supply-chain issues, with the plant frequently idled for weeks at a time. This plant and its feeder plants have lost an entire shift, affecting thousands of workers. Even at two shifts, pandemic-related disruptions mean the plants have actually been down three times more than they've been operating.

There were 600 auto workers on layoff in the autumn and that number will explode to 2,400 when another shift is cancelled in April. Those numbers are sobering and a clear indicator that the auto-industry in Windsor-Essex should qualify under your government's Hardest-Hit Business Recovery Program.

Your government's Canada Emergency Wage Subsidy Program helped these workers through difficult times, but these hard times persist and the new HHBR program offers a significantly lower wage subsidy. Failing to include the auto industry and failing to boost the subsidy to the same 75 per cent level as the CEWS program will have a devastating impact on these workers and our local economy.

In closing, I would again like to thank you for everything your government has done to protect Canadians and support our economy in the face of this generational health crisis. The workers of Windsor-Essex are committed to winning the fight against COVID-19 and in need of additional supports from your government to see them safely through this storm.

Sincerely yours,



Gary McNamara
Warden, County of Essex

Consideration for support for Windsor-Essex Workers
January 6, 2022

CC:

Mike Galloway, CAO, County of Essex
Chris Lewis, MP, Essex (chris.lewis@parl.gc.ca)
David Epp, MP, Chatham-Kent-Leamington (dave.epp@parl.gc.ca)
Irek Kusmierczyk, MP (irek.kusmierczyk@parl.gc.ca)
Brian Masse, MP, Windsor-Essex (brian.masse@parl.gc.ca)
Taras Natyshak, MPP, Essex (tnatyshak-gp@ndp.on.ca)
Rick Nicholls, MPP, Chatham-Kent-Essex (rick.nicholls@pc.ola.org)
Percy Hatfield, MPP, Windsor-Tecumseh (Phatfield-gp@ndp.on.ca)
All Essex County Municipalities
City of Windsor
David Cassidy, President, Unifor Local 444 (dcassidy@uni444.ca)

 519-776-6441 ext. 1327
TTY 1-877-624-4832

 360 Fairview Ave. W.
Suite # 314 Essex, ON N8M 1Y6

 countyofessex.ca



The Corporation of the Town of Tecumseh

February 2, 2022

premier@ontario.ca

Honourable Doug Ford
Premier of Ontario
Legislative Building
Queen's Park
Toronto, ON M7A 1A1

Dear Premier Ford:

Re: Small Business Support in Essex-Windsor

The Council of The Corporation of the Town of Tecumseh, at its regular meeting held Tuesday, January 25, 2022, gave consideration to a letter received from The Corporation of the County of Essex, dated January 7, 2022 requesting support for small businesses in Essex-Windsor.

At their meeting, Tecumseh Council passed the following resolution:

That the Town of Tecumseh **support** the January 7, 2022 County of Essex letter to the Premier of Ontario regarding support for Small Business in Windsor-Essex.

Please consider this letter as confirmation of the Town of Tecumseh's support of the County of Essex' letter of January 7, 2022. A copy of the January 7, 2022 letter from the County of Essex is attached for your ease of reference.

Yours very truly,

Laura Moy, Dipl.M.M.
Director Legislative Services & Clerk

LM/sw

Attachments

1. County of Essex letter of January 7, 2022

cc: The Hon. Vic Fedeli, Minister of Economic Development, Job Creation and Trade
(MEDJCT.Minister@ontario.ca)
The Hon. Nina Tangri, Associate Minister of Small Business and Red Tape Reduction
(nina.tangri@pc.old.org)
The Hon. Peter Bethlenfalvy, Minister of Finance (minister.fin@ontario.ca)
Michelle E. DiEmanuele, Secretary of the Cabinet (M.DiEmanuele@ontario.ca)
Greg Orencsak, Deputy Minister of Finance (greg.orencsak@ontario.ca)
Taras Natyshak, MPP – Essex (tnatyshak-gp@ndp.on.ca)

Rick Nicholls, MPP – Chatham-Kent-Essex (rmicholls-co@ola.org)
Percy Hatfield, MPP – Windsor-Tecumseh (phatfield-gp@ndp.on.ca)
Lisa Gretzky, MPP – Windsor West (lgretzky-gp@ndp.on.ca)
Warden Gary McNamara, County of Essex (gmcnamara@countyofessex.ca)
Mike Galloway, Chief Administrative Officer, County of Essex (mgalloway@countyofessex.ca)
Valerie Critchley, Interim Director of Legislative Services & Clerk, Town of Amherstburg (vcritchley@amherstburg.ca)
Robert Auger, Clerk, Town Solicitor, Legal and Legislative Services/Clerk, Town of Essex (rauger@essex.ca)
Paula Parker, Clerk, Town of Kingsville (pparker@kingsville.ca)
Kristen Newman, Director of Legislative and Legal Services/Clerk, Municipality of Lakeshore (knewman@lakeshore.ca)
Jennifer Astrologo, Director of Council Services/Clerk, Town of LaSalle (jastrologo@lasalle.ca)
Brenda Percy, Municipal Clerk/Manager of Legislative Services, Municipality of Leamington (bpercy@leamington.ca)
Steve Vlachodimos, Clerk, City of Windsor (svlachodimos@citywindsor.ca)
(clerks@citywindsor.ca)
Mary Birch, Director of Council Services & Community Services/Clerk, County of Essex (mbirch@countyofessex.ca)
Rakesh Naidu, CEO, Windsor-Essex Chamber of Commerce (rnaidu@windsoressexchamber.org)
Gordon Orr, CEO, Tourism Windsor-Essex (gorr@tourismwindsoressex.com)

January 7, 2022

Premier Doug Ford
Premier of Ontario
Legislative Building
Queen's Park
Toronto ON M7A 1A1

Dear Premier,

Re: Small Business Support in Essex-Windsor

We are writing to you on behalf of the small businesses in the Essex-Windsor region struggling to keep their doors open in the face of further public health restrictions that continue to increase costs while drastically diminishing the ability to generate revenue. There is a very real risk of widespread closures in a region like ours that is so heavily reliant on cross-border commerce and the tourism and hospitality sector.

We were heartened by your government's announcement Friday that it will provide a \$10,000 grant for eligible businesses subject to closures under the modified Step Two of the Roadmap to Reopen, as well as your commitment to providing electricity-rate relief for businesses and workers and families spending more time at home.

We agree with Vic Fedeli, Minister of Economic Development, Job Creation and Trade that "small businesses, job creators and the entrepreneurial spirit are the backbone of Ontario's economy" and encourage you to consider providing additional supports to struggling businesses in Essex-Windsor.

The rise of the Omicron variant has had a devastating impact on local businesses, who were already struggling two years into this pandemic. Not only must these businesses deal with closures, capacity restrictions and the cost of implementing vaccine certificate protocols, but also with members of the public who are reluctant to shop local as they perceive it safer and more convenient to shop online.

Even before Omicron, nearly two-thirds of small businesses across Canada had not seen sales return to normal levels. And, of this group, nearly a quarter report their business may fail within the next six months. The need for significant and immediate financial help is critical.

Small Business Support in Essex-Windsor

January 7, 2022

We urge your government to:

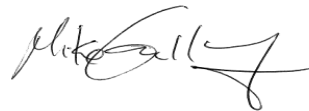
1. Expedite the rollout of the just-announced Ontario Small Business Support Grant and make it easy for small businesses to access.
2. Consider boosting the supports available under that program as well as implementing additional support programs for small business.
3. Provide small businesses immediate access to the government portal for grants and subsidies.
4. Urge the Federal Government to work with the Province to reinstate the commercial rent assistance program
5. Provide financial assistance to businesses to implement new vaccine certificate protocols (implementing new QR code reader, staffing people to check vaccine passports, etc.)

Rapid action and significant support is needed to avoid a wave of small business closures in Essex-Windsor and we urge you to push both privately and publicly for these measures.

Sincerely,



Gary McNamara
Warden



Chief Administrative Officer

Cc; The Hon. Doug Ford, Premier of Ontario (doug.fordco@pc.ola.org)
The Hon. Vic Fedeli, Minister of Economic Development, Job Creation and Trade (vic.fedeli@pc.ola.org)
The Hon. Nina Tangri, Associate Minister of Small Business and Red Tape Reduction (nina.tangri@pc.ola.org)
The Hon. Peter Bethlenfalvy, Minister of Finance (peter.bethlenfalvy@pc.ola.org)
Taras Natyshak, MPP, Essex (tnatyshak-q@ndp.on.ca)
Rick Nicholls, MPP, Chatham-Kent-Essex (rick.nicholls@pc.ola.org)
Percy Hatfield, MPP, Windsor-Tecumseh (Phatfield-q@ndp.on.ca)
Essex County Local Municipalities (Clerks by email)

519-776-6441 ext. 1327
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360 Fairview Ave. W.
Suite # 314 Essex, ON N8M 1Y6

 countyofessex.ca

Small Business Support in Essex-Windsor

January 7, 2022

City of Windsor (Clerks Office by email)

Rakesh Naidu, CEO, Windsor-Essex Chamber of Commerce

(rnaidu@windsoressexchamber.org)

Gordon Orr, CEO, Tourism Windsor-Essex (gorr@tourismwindsoressex.com)

Michelle E. DiEmanuele, Secretary of the Cabinet (M.DiEmanuele@ontario.ca)

Greg Orencsak, Deputy Minister of Finance (greg.orencsak@ontario.ca)

 519-776-6441 ext. 1327
TTY 1-877-624-4832

 360 Fairview Ave. W.
Suite # 314 Essex, ON N8M 1Y6

 countyofessex.ca



CLEARVIEW

February 9, 2022

C00.2022

The Honourable Doug Ford
Premier of Ontario
Legislative Building, Queen's Park
Toronto, ON M7A 1A1

Sent by Email: premier@ontario.ca

Re: Funding Support for Infrastructure Projects – Bridge/Culvert Replacements in Rural Municipalities

Please be advised that Council of the Township of Clearview, at its meeting held on February 7, 2022, passed the following resolution regarding funding support for infrastructure projects:

Resolution:

Moved by Deputy Mayor Burton, Seconded by Councillor Broderick, Be It Resolved that Council of the Township of Clearview supports the requests from the Township of Adjala-Tosorontio, the Township of Adelaide-Metcalfe, the Township of Lake of Bays, the Township of Amaranth, and Northumberland County for the Federal and Provincial Governments to provide more funding to rural municipalities to support infrastructure projects related to major bridge and culvert replacements; and,

That this resolution be forwarded to the Premier of Ontario, Provincial Minister of Finance, Federal Finance Minister, AMO, ROMA, and all Ontario municipalities.
Motion Carried.

If you have any questions regarding the above, please do not hesitate to contact the undersigned.

Regards,

Sasha Helmky, B.A., Dipl. M.A., AOMC
Clerk/Director of Legislative Services

cc: Hon. Peter Bethenfalvy, Ontario Minister of Finance minister.fin@ontario.ca
Hon. Chrystia Freeland, Federal Minister of Finance chrystia.freeland@fin.gc.ca
AMO amo@amo.on.ca
ROMA roma@roma.on.ca
All Ontario Municipalities

February 24, 2022

Re: Item for Discussion – Hospital Capital Funding

At its meeting of February 23, 2022, the Council of the Corporation of the Town of Bracebridge ratified motions 22-PD-014, regarding the Item for Discussion – Hospital Capital Funding, as follows:

“WHEREAS healthcare funding is a provincial and federal responsibility;

AND WHEREAS from 2009 to 2020 a total of \$415.4 million has been transferred from municipal operations to fund and build provincial hospitals:

AND WHEREAS remaining long-term commitments to hospitals stand at \$117.5 million (as of 2020), which will also be financed from municipal operations;

AND WHEREAS a hospital is one of many public services that contributes to healthy communities;

AND WHEREAS municipal contributions to provincial hospitals takes away from the resources available for other municipal services that contribute to the health and well-being of residents;

AND WHEREAS a community’s total contribution to local hospitals also includes the donations made by benevolent individuals, groups, and businesses along with municipal contributions;

AND WHEREAS a community’s required local share is to pay 10% of capital construction costs and 100% of the cost of equipment, furniture, and fixtures, which includes medical equipment with big ticket prices: MRI machines, CT scanners, and x-ray machines;

AND WHEREAS this translates to a 70% provincial share and 30% local share (individuals, groups, businesses, and municipalities) of the overall cost of provincial hospital operations and capital projects;

AND WHEREAS the adoption of the “design-build-finance” hospital construction model (also known as alternative financing and procurement or P3 projects), has increased local share amounts because they now include the costs of long-term financing;

AND WHEREAS equipment replacement needs are increasingly frequent and increasingly expensive with average equipment lifespan of just ten years;

AND WHEREAS the Association of Municipalities of Ontario has highlighted the “local share” of hospital capital contributions as a major issue in its 2022 Pre-Budget Submission to the Standing Committee on Finance and Economic Affairs;

1000 Taylor Court
Bracebridge, ON
P1L 1R6 Canada

NOW THEREFORE BE IT RESOLVED THAT the Council of The Corporation of the Town of Bracebridge calls for a provincial re-examination of the "local share" hospital capital calculation methodology, to better reflect the limited fiscal capacity of municipalities, and the contributions to health care services they already provide to a community;

AND FURTHER THAT a copy of this resolution be forwarded to the Premier of Ontario, the Minister of Finance, the Minister of Health, the Minister of Municipal Affairs and Housing, the Local Member of Provincial Parliament, the Association of Municipalities of Ontario, and all Ontario municipalities."

In accordance with Council's direction I am forwarding you a copy of the resolution for you reference.

Please do not hesitate to contact me if I can provide any additional clarification in this regard.

Yours truly,

A handwritten signature in black ink, appearing to read 'L McDonald', written in a cursive style.

Lori McDonald
Director of Corporate Services/Clerk

RE: Ontario's Energy Plan and Wind Turbines

Dear Mayor and Council:

I am following up on our letter of December 14 as I thought it was important to ensure that your municipality is aware of the Ontario government's recently announced plans that have potential to lead to new wind turbine installations in rural Ontario. This plan is included among the energy program that was announced at the Rural Ontario Municipal Association meeting and in a speech that Todd Smith, as Minister of Energy, gave to the Empire Club. The program includes a pilot SMR pilot nuclear facility at Darlington, expanded hydroelectric generation capacity, new RFPs for medium term and long term generation capacity and a program to certify renewable energy generation capacity.

We are specifically concerned about the certification program. While details on the program are limited, we are concerned that wind turbines are included among the renewable energy generation facilities that can be certified under the program. The wind companies are certainly listening as leasing activity in support of a project has already been reported in southwestern Ontario.

While changes introduced by the government allow municipalities to regulate the creation of new wind turbine facilities within their communities through zoning by-laws, other regulatory changes by the government exempts existing wind projects from these municipal by-laws, even when the project operator is replacing the existing wind turbines with larger, more powerful equipment. On this basis, the project repowering included in the recent Ministerial Directive would not require any municipal input or approval due to this regulation.

Many municipalities that have started the process of drafting by-laws relative to wind turbines find that they need direction on appropriate setbacks that would be included in a municipal zoning by-law. They know that the existing setbacks in Regulation 359/09 are not sufficient to protect residents and they are looking to the provincial government for revised setbacks reflecting the learning from the existing projects and the lived experiences in other jurisdictions. If the province is reviving wind power development, it needs to take a leadership role by updating these regulations immediately.

We are also concerned about the government's failure to address the problems created by the existing wind turbine projects. These projects operate under Renewable Energy Approvals or REAs that set out very strict operating requirements. First, project operators are required to prove that the project is operating within the 40 dBA audible noise limit by filing noise audit reports prove compliance. Many projects were provided with specific deadlines for the submission of these reports. The attached appendix shows the status of these audits based on public information. Only 45% of projects have reached some form of closure with the other continuing to operate (three continuing even though they have been found to be non-compliant) despite concrete timelines for action in their REAs.

The failure of the government to enforce the requirements of the REAs for wind turbine project operators to investigate and resolve complaints about project operations is another concern. More than 5,800 Incident Reports have been created as a result of complaints about noise emissions from wind

turbine projects and based on feedback from the residents in our communities there has been little or no action by the project operators on these matters. Frankly, the government has shown no interest in working on behalf of rural residents. This is an additional concern as 39% of the Incident Reports, prepared and signed by Provincial Officers, include references to adverse health effects.

If you have not already made adjustments to your zoning by-laws, I hope that your Council will take advantage of this reminder to review their contents in the context of the government's apparent plans to start construction of more wind turbines despite the past failings of this technology.

Our view is that the provincial government needs to:

- **Update the direction provided in terms of setbacks** between wind turbines and other activities,
- The government needs to **take more aggressive action in enforcing the terms of the approvals** for existing wind turbines before authorizing the construction of any new turbines, and,
- Bar operators of projects with these compliance failures from participating in any of the contract extensions or opportunities to bid on capacity expansions that are envisioned in the recent Ministerial Directive.

If you agree, we ask that you communicate your concern to Minister David Piccini, Ontario Minister of Environment, Conservation and Parks as well as your local MPP(s).

If your municipality is interested in joining the Multi-Municipal Wind Turbine Group to receive updates on these matters please contact the Deputy-Clerk for information on the fee structure. The group meets every second month and Zoom facilitates the participation of members beyond easy driving distance of the normal meeting site in Chesley.

Yours truly,

Tom Allwood,

Chair, Multi-Municipal Wind Turbine Working Group

Councillor, Municipality of Grey Highlands

c. Honourable David Piccini, Minister of Environment, Conservation and Parks,
minister.mecp@ontario.ca

Taras Natyshak, Essex, tnatyshak-co@ndp.on.ca

Appendix 1: Status of Compliance Noise Audits

This table is based on information originally released in August 2019 by the MECP in response to a Freedom of Information request. It has been updated with information on more recent compliance testing from project websites. As the Protocol requires that project operators post these audit reports on their websites within 10 business days of their submission to the MECP, this should be an accurate source of status information.

	Project Name	Commercial Operation Date ¹	I-Audit Submitted to MECP ²	Updates to February 1, 2022 ³	MECP Review Completed ⁴	Time Since Start of Operation ⁵
	Demonstrated Compliance	Share – 43% - Average time under review – 3.8 years				
1.	Adelaide (Suncor) Wind	January 28, 2015	October 29, 2015		March 9, 2020	5.1 years
2.	Armow Wind Project	December 7, 2015	February 24, 2017		November 6, 2020	4.8 years
3.	Belle River Wind	September 1, 2017	August 6, 2020		August 20, 2020	2.6 years
4.	Bluewater Wind	July 19, 2014	June 12, 2015		June 25, 2019	4.9 years
5.	Bow Lake	August 10, 2015	August 9, 2017		March 21, 2019	3.6 years
6.	Dufferin Wind	December 1, 2014	September 1, 2015		September 26, 2018	3.8 years
7.	East Lake St Clair	May 22, 2013	April 20, 2016 ⁶		April 20, 2016	2.9 years
8.	Ernestown Wind	September 30, 2014	June 29, 2015		April 30, 2018	3.6 years
9.	Grand Bend Wind	April 19, 2016	March 21, 2017		December 4, 2018	2.6 years
10.	Grand Renewable Energy	December 9, 2014	December 21, 2015		November 4, 2019	4.9 years
11.	HAF Wind	June 14, 2014	March 14, 2015		December 17, 2018	4.5 years
12.	Grey Highland Clean Energy	September 21, 2016	July 11, 2017		August 30, 2019	2.9 years
13.	Grey Highlands ZEP	February 26, 2016	July 31, 2018		August 30, 2019	3.6 years
14.	MacLean's Mountain Wind	May 1, 2014	February 27, 2015		March 20, 2019	4.9 years
15.	Moorefield Wind	May 16, 2017	December 17, 2018		March 25, 2019	1.9 years
16.	Oxley Wind	February 8, 2014	September 27, 2017		April 25, 2019	5.2 years
17.	Napier Wind	December 3, 2015	March 3, 2017		January 22, 2021	5.1 years
18.	Quixote One	August 14, 2015	September 1, 2017		April 15, 2019	3.7 years
19.	St Columban Wind	July 16, 2015	June 22, 2016		October 2, 2018	3.2 years
20.	Settler's Landing	April 5, 2017	August 22, 2018		May 10, 2019 ⁷	2.1 years

	Demonstrated Non-Compliance- REA Amended		Share – 2%			
1.	North Kent 1 Wind	February 22, 2018	June 30, 2019	November 1, 2021	November 1, 2021 ⁸	3.7 years

	Demonstrated Non-Compliance – No Resolution		Share – 7% - Average time under review - 6.8 years			
1.	K2 Wind ⁹	May 29, 2015	November 25, 2016	December 12, 2019		6.8 years
2.	Unifor/CAW ¹⁰	October 24, 2013	June 28, 2018	No Updates	Not Provided	8.3 years
3.	Niagara Region Wind	November 2, 2016	July 20, 2018	February 3, 2021		5.3 years

	Deemed Incomplete	Share - 17% - Average time under review – 7.1 years				
1.	Cedar Point Wind	October 7, 2015	September 21, 2016	June 24, 2019		6.3 years
2.	East Durham Wind	August 15, 2015	August 17, 2016	July 2, 2019		6.5 years
3.	Goshen Wind	January 28, 2015	January 28, 2016	November 7, 2017		7.1 years
4.	Grand Valley Wind Phase 3	December 3, 2015	November 30, 2016	March 1, 2021		6.2 years
5.	Pt. Dover/Nanticoke Wind	November 8, 2013	August 6, 2014	December 16, 2020		8.3 years
6.	South Branch Wind	March 4, 2014	May 28, 2015	March 3, 2016		7.9 years
7.	Springwood Wind	November 21, 2014	May 31, 2016	No Updates ¹¹		7.2 years
8.	Whittington Wind	November 21, 2014	April 1, 2016	No Updates ¹¹		7.2 years

	Under Review	Share – 30% - Average time under review – 6.0 years				
1.	Adelaide (NextEra) Wind	August 22, 2014	August 10, 2015	June 26, 2020		7.3 years
2.	Amherst Island Wind	June 15, 2018	June 14, 2019	May 14, 2020		3.6 years
3.	Bornish Wind	August 15, 2014	August 7, 2015	July 2, 2020		7.3 years
4.	Conestogo Wind	December 20, 2012	December 20, 2013	April 5, 2019		9.1 years
5.	Gunn's Hill Wind	November 14, 2016	October 16, 2018	No Information		5.1 years
6.	Port Ryerse Wind	December 9, 2016	July 17, 2018	No Updates		5.1 years
7.	Romney Wind	December 31, 2019	Not Yet Due	June 29, 2021		1.8 year
8.	Snowy Ridge	October 5, 2016	September 20, 2017	No Updates ¹¹		5.3 years
9.	South Kent Wind	March 28, 2014	January 30, 2015	August 14, 2020		7.9 years
10.	Sumac Ridge Wind	November 17, 2017	September 27, 2018	No Information		4.1 years
11.	Summerhaven Wind	August 6, 2013	February 10, 2014	May 1, 2020		8.5 years
12.	Underwood ¹²	February 9, 2009	Not Provided	No Updates		13.0 years

13.	Wainfleet Wind	September 17, 2014	May 15, 2015	No Information		6.4 years
14.	ZEP Ganaraska Wind	May 6, 2016	September 14, 2018	No Information		4.7 years

	Submission Due					
1.	Henvey Inlet	October 19, 2019	Due – October 2020	No Information		2.3 years

	Not Yet Due					
1.	Nation Rise	June 17,2021	Due - June 2022			0.6 years

¹ IESO Active Contract List as at September 30, 2021

² Data Provided by MECP as at July 30, 2019

³ Based on a review of project websites – “No Updates” = No change in information; “No information” = audit no information posted on website

⁴ Dates provided by MECP.

⁵ Elapsed time calculated either to the date compliance was confirmed or to the current date.

⁶ Identical dates for submission and review completion provided by MECP

⁷ Approval date posted by operator conflicts with status provided by MECP 2 months after “approval”

⁸ REA amended to reduce night time noise levels at 2 wind turbines to bring noise levels within noise guidelines.

⁹ In May 2019, the Ministry found the K2 project was out of compliance and ordered the operator to develop and implement a Noise Abatement Action Plan.

¹⁰ Turbine determined to be non-compliant on March 8, 2018, Noise Abatement Action Plan implemented. Problem not resolved.

¹¹ Capstone Renewable Project, limited project documentation posted on project websites.

¹² I-Audit report submitted in January 30, 2018 accepted and then rejected by MECP. More noise testing is currently underway.

Appendix 2: Complaints by Project

The following table summarizes the information on the complaint records provided in response to a series of four Freedom of Information requests. In total, the information released indicates that more than 5,800 complaints have been made about the operations of wind turbine projects between 2006 and 2018. (The requests for information covering 2019 and 2020 are outstanding. The fact the government does not have rapid access to these records to fulfill FOI requests is proof that citizen complaints are going nowhere, and are not subject to any high level scrutiny.)

Communications from residents indicate that when there is no follow-up action on complaints, people just give up and stop complaining. This does not mean that the problems have been resolved. Actual follow-up on high profile situations could encourage many residents to start documenting their concerns and reports of poor health again.

Site Name	Start Year	2006 - 2014	2015 - 2016	2017	2018	Total
Melancthon Wind (All Phases)	2008	873	62	0	26	961
K2 Wind	2015	1	413	178	149	741
Unifor (CAW)	2013	236	92	174	147	649
Enbridge Underwood	2009	442	73	14	27	556
Talbot Wind Farm	2010	388	7	2	6	403
East Durham	2015		293	6	27	326
Thames Valley Phase 1&2	2010	239	16		0	255
Capstone - Grey Highlands	2014		3	121	79	203
Comber Wind	2010	127		2	9	138
Frogmore-Cultus-Clear Creek	2008	131	4		0	135
HAF Wind	2014	71	57	2	0	130
Niagara Wind	2016	0	24	20	83	127
Harrow Wind	2010	117	6		0	123
Plateau Wind	2012	119	1		0	120
Ripley Wind	2007	99			0	99
Conestogo Wind	2010	69	10		0	79
Grand Valley Wind	2012	24	38		8	70
Kent Breeze Wind	2011	55	2		0	57
Snowy Ridge	2016		7	46	1	54
Dufferin Wind	2014	3	50		0	53
Grand Bend Wind	2016		13	37	2	52
St. Columban Wind	2017	1	30	11	5	47
South Kent Wind	2014	35	5		0	40
Settler's Landing	2017			35	2	37
Adelaide Wind	2014		34	2	0	36

McLean's Mtn. Wind	2010	27	6	3	0	36
Ernestown Wind Park	2014	1	33		0	34
Summerhaven Wind	2010	19	8	3	1	31
Wolfe Island Wind	2009	22		1		23
Proof Line Wind	2009	20				20
Grand Renewable	2014		19		1	20
Bluewater Wind	2011	8	8	2		18
Jericho Wind	2014	3	15			18
Armow	2011		15			15
Amherst Island	2018				15	15
Cedar Point	2011		10	4		14
Goshen Wind	2015		8	2		10
Port Alma Wind	2008	9				9
Erieau-Blenheim Wind	2013	8				8
Erie Shores (Port Burwell)	2006	5			2	7
Raleigh Wind Energy	2011	6				6
Kruger-Chatham Wind	2011	5				5
Port Ryerse Wind	2016		5			5
Marsh Line	2010			4	1	5
North Kent Wind	2018		3		2	5
Bornish Wind	2011	1	3			4
Ganaraska Wind	2016		4			4
Zephyr Wind Farm	2012	4				4
Port Dover/Nanticoke	2013	3				3
South Branch Wind	2014	3				3
Springwood Wind	2014		3			3
Sumac Ridge	2013			3		3
Bow Lake	2010			1	2	3
Gesner Wind	2013	2				2
Oxley Wind Farm	2014	2				2
Prince I & II Wind	2006	2				2
Napier Wind	2015		1			1
Wainfleet Wind	2014		1			1
Otter Creek	-			1		1
Total		3,180	1,382	674	595	5,831



COUNCIL RESOLUTION

Resolution No.: 44-22

Date: Feb 8, 2022

Moved By: DONNA BLUNT

Seconded By: DON SMITH

THAT Council hereby supports the resolution from Northwestern Ontario Municipal Association (NOMA) regarding supporting the expansion of Northern Ontario School of Medicine (NOSM) to address the urgent need for physicians in Northern Ontario; and

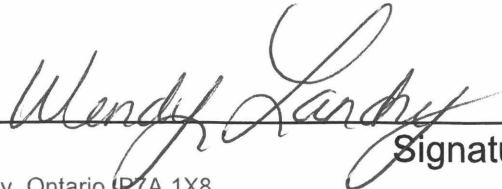
BE IT RESOLVED that a copy of this resolution be forwarded Premier Doug Ford, Minister of Colleges and Universities Jill Dunlop, Minister of Health Christine Elliot, Minister of Economic Development, Job Creation & Trade Victor Fedeli, local MP's and MPP's, Ontario Medical Association, Northern School of Medicine, Northern Ontario Academic Medicine Association, Association of Municipalities of Ontario (AMO), the Federation of Northern Ontario Municipalities (FONOM), all Ontario Municipalities.

☒ Carried

☐ Defeated

☐ Amended

☐ Deferred


Signature

Municipality of Shuniah, 420 Leslie Avenue, Thunder Bay, Ontario, P7A 1X8

Municipality of Lakeshore – Report to Council

Operations

Capital Projects



To: Mayor & Members of Council
From: Jill Fiorito, Drainage Superintendent
Date: March 8, 2022
Subject: Drainage Board Meeting February 7, 2022

Recommendation

This report is for information only.

Background

The draft minutes from the February 7, 2022, Drainage Board Meeting are attached.

Comments

Mr. Gerard Rood, P. Eng. was in attendance to give a brief summary of his drainage reports dated November 19th, 2021 (Gagnier Drain – Fauteux Bridge Enclosure) and January 13, 2022 (West Townline Drain – Nehme Bridge).

The Drainage Board recommended that By-law No. 014-2022 be recommended for first and second reading and By-law No. 12-2021 be recommended for third reading.

Others Consulted

Essex Regional Conservation Authority has been consulted on these projects.

Financial Impacts

All costs associated with these works will be assessed out according to the proportions outlined in the engineer's report

Attachments

Draft Drainage Board Minutes dated February 7, 2022

Report Approval Details

Document Title:	Drainage board minutes February 7, 2022.docx
Attachments:	- 2 - February 7 2022 Drainage Board Minutes.docx
Final Approval Date:	Mar 10, 2022

This report and all of its attachments were approved and signed as outlined below:

Krystal Kalbol

Justin Rousseau

Kristen Newman

Truper McBride

Brianna Coughlin

MUNICIPALITY OF LAKESHORE

MINUTES OF THE DRAINAGE BOARD

PRESENT:	Chairman	-	Dave Armstrong
	Board members	-	Horst Schmidt
		-	Maurice Janisse
		-	Norbert Poggio
	Engineer	-	Gerard Rood
	Drainage Superintendent	-	Jill Fiorito
	Asst. Drainage Superintendent	-	Kyle Emery

1. CALL TO ORDER AT 5:00 PM

The Chair called the meeting to order at 5:00 p.m.

2. DISCLOSURES OF CONFLICT OF INTEREST AND THE GENERAL NATURE THEREOF

There were no disclosures of conflicts of interest.

3. APPROVING THE MINUTES OF PREVIOUS DRAINAGE BOARD MEETING

Drainage Board Meeting Minutes of January 10th, 2022.

Board Member Poggio moved, and Board Member Janisse seconded

That:

The Board approve the minutes of the Drainage Board Meeting dated January 10th, 2022

Motion Carried

4 ENGINEERING AND INFRASTRUCTURE SERVICES

COURT OF REVISION

Opening of the Court of Revision.

Board Member Schmidt and Board Member Poggio seconded:

It is recommended that:

The Drainage Board move into Court of Revision to consider appeals respecting By-law No.112-2021 in the Municipality of Lakeshore, in the County of Essex.

Motion Carried

Gagnier Drain (1238464 Ontario Ltd. (Fauteux) Bridge Enclosure)

Mr. Gerard Rood, P.Eng was in attendance and briefly outlined the key points of the schedule of assessment in his report dated November 19th, 2021.

Mr. Rood explained that he had not received any concerns from landowner's regarding this new drain enclosure. The Drainage board has not received any questions or appeals for this assessment.

The Chairman opened the floor for questions.

There were no concerns.

Board Member Schmidt moved, and Board Member Poggio seconded:

That:

The Schedule of Assessment to provide for the Gagnier Drain (1298464 Ontario Ltd. (Fauteux) Bridge Enclosure) in the Municipality of Lakeshore, in the County of Essex as prepared by Rood Engineering Inc., dated November 19th, 2021, be approved and By-Law No. 112-2021 be recommended for third reading.

Motion Carried

Closing of the Court of Revision

Board Member Janisse moved, and Board Member Schmidt seconded:

That:

The Drainage Board moves to close the Court of Revision.

Motion Carried

READING OF THE REPORT

West Townline Drain (Nehme Bridge)

Mr. Gerard Rood, P.Eng was in attendance and briefly outlined the key points of the report dated January 13th, 2022.

Mr. Rood explained that he had not received any questions or concerns from landowners regarding the new access bridge.

The Drainage Board had not received any questions or concerns.

The Chairman opened the floor for questions.

There were no concerns.

Board Member Poggio moved, and Board Member Janisse seconded:

That:

The Engineer's considered report prepared by Rood Engineering Inc., dated January 13th, 2022, for the West Townline Drain in the Municipality of Lakeshore, in the County of Essex be adopted and By-Law No. 014-2022 be recommended for the first and second reading.

Motion Carried

5. ADJOURNMENT

Board Member Schmidt moved, and Board Member Poggio seconded:

That:

The Drainage Board adjourn its meeting at 6:00 p.m.

Motion Carried

**DAVID ARMSTRONG
CHAIRMAN**

**JILL FIORITO
DRAINAGE SUPERINTENDENT**

NEXT SCHEDULED MEETING

The next Drainage Board Meeting is schedule for 5:00pm on March 7th, 2022, in the Municipality of Lakeshore.

Municipality of Lakeshore – Report to Council

Operations

Roads, Parks & Facilities



To: Mayor & Members of Council
From: Jeff Wilson Division Leader – Roads, Parks & Facilities
Date: February 24, 2022
Subject: Access to Lake St. Clair for Winter Recreation

Recommendation

This report is for information only.

Background

A report to Council dated December 2, 2014 (Attachment 1) explains historical information regarding the closure of the boat launch located at the Belle River Marina. At the Council meeting of December 9, 2014, the following resolution was passed:

Council secure the Lakeview boat ramp gates effective December 1st of each year or at the earliest appearance of ice to prevent unauthorized access by snowmobiles, ATVs, etc., during winter months.

At the Regular Council meeting of February 16, 2021, the following resolution was passed:

66-02-2021
Direct Administration to prepare a report regarding access to Lake St. Clair for winter recreation.

Comments

Administration has reviewed the previous reports and the above noted resolutions. The following outlines Administration's concerns related to allowing access to Lakes St. Clair for winter recreation:

Adequate Parking

There is no trail network for snowmobiles in Lakeshore, therefore access to Lake St. Clair for recreational uses (including skating, ice fishing and snowmobiling) requires adequate staging areas for parking vehicles with trailers. There are currently two potential access points in Lakeshore that could satisfy the parking needs, Belle River

Boat launch area (potentially ample parking) and Lighthouse Cove boat launch area (limited parking).

No other areas could potentially accommodate adequate parking (vehicle and trailer parking) within the Municipality.

This would require monitoring based on the volume of users.

In other jurisdictions, the Ontario Federation of Snowmobiling Clubs establishes, monitors, and grooms trail networks to accommodate snowmobiling. The local Club does not do so in Essex County. Without an organized trail network, there is a strong likelihood that snowmobilers will attempt to access the launch by crossing over private property and roads or other municipal property without authorization to do so and, as such, there will be an increase in safety and enforcement challenges.

Property Damage

To secure and protect the Belle River Marina, it has been established that the gates at the boat launch are to be closed and locked once the marina basin water freezes for the winter months. This practice helps to protect the concrete base of the boat launch from potential damage and avoids potential collisions with boat docks if snowmobile access were to be allowed.

There is nothing currently in place to secure and protect the Lighthouse Cove boat launch. Gates would be recommended if access through this launch is encouraged.

Noting the Council's 2014 resolution and now that the Municipality owns the Lighthouse Cove launch, best practice suggest that this launch should be closed during the winter to be consistent with the Belle River Marina boat launch.

Monitoring and Safety

Currently residents access the waterfront through private lands and/or unencouraged access points, by doing so they assume liability for entering onto a frozen surface that is not monitored or evaluated for risks associated with on ice activities.

Lake St. Clair is not municipal property. The Municipality does not undertake ice monitoring to ensure the stability and safety of the ice conditions of the lake during winter months. If access is encouraged, daily checks for ice/air temperature and ice thickness would be required. Specialized and/or trained staff and specialized equipment would be required.

Further, the limits of the monitored areas that are deemed to be sufficient for access would need to be confirmed and/or marked.

Enhanced in water rescue (in ice conditions) and accident response (specialized training and equipment) service levels would need to be established. Currently, the Fire Service training is limited to 300 feet from shore if conditions are appropriate to do so. Primary rescue services by helicopter are delivered by the Coast Guard or other available emergency services and are subject to visibility and weather conditions.

Controls and Management

Designated routes and speed control and/or limits into and out of the marina/boat launch basin would require planning and additional signage to be posted in winter months. No enforcement measures or staff for this are currently in place.

Security and posted hours (curfew) would be required. Gating would be recommended for Lighthouse Cove and hours of operation posted at both sites. Seasonal staff resources (with unpredictable conditions) to monitor and maintain the access would be required.

Bylaws would require updating (and enforcement) for the control of snowmobile access to the surrounding areas (i.e., adjacent parkland, beach area and trail system) to eliminate noise and damage during winter months (wet weather conditions increase damage to parks and grass areas).

Snowmobiles activities along the waterfront would make access available and easily found through other Municipal properties (i.e., beach area and parkettes) or potentially other private properties (unwanted).

Based on the above noted challenges, Administration continues to support the practice to close the gate at the boat launch at Belle River Marina on or before December 1st, and not encourage winter access at both the above noted locations. Administration also plans to include gates for the Lighthouse Cove boat launch in the 2023 draft budget.

Financial Impacts

There are no financial impacts to this report as this report is for information purposes only.

Attachments

Attachment 1 - Council Report dated December 2, 2014, Council Question – Marina – Winter Closure

Report Approval Details

Document Title:	Access to Lake St. Clair for Winter Recreation.docx
Attachments:	- Attachment 1 Council Report December 2 2014 Council Question Marina Winter Closure.pdf
Final Approval Date:	Mar 10, 2022

This report and all of its attachments were approved and signed as outlined below:

Krystal Kalbol

Justin Rousseau

Kristen Newman

Truper McBride

TOWN OF LAKESHORE
COMMUNITY AND DEVELOPMENT SERVICES

TO: Mayor and Members of Council

FROM: Steve Salmons, Director

DATE: December 2, 2014

SUBJECT: Council Question- Marina- winter closure

RECOMMENDATION:

It is recommended that Council secure the Lakeview boat ramp gates at the close of the fishing season each December to prevent unauthorized access by snowmobiles, ATV's, etc, during winter months.

BACKGROUND:

In Question Period of the November 25, 2014, meeting of Council, Councillor Janisse asked if administration would be keeping gates to the marina boat launch ramp open to the public to allow mobile access to the ice during winter months. The Councillor was informed that the gates were to be closed (in error).

At its meeting of November 13, 2012, Council unanimously adopted the following resolution put forward by Councillor Bezaire and Deputy Mayor Fazio: *"Administration be directed to report to Council on the ramp access at the marina and that the ramp access continue to be left open and no longer gated."*

Council has asked on November 25, 2014, for a report to keep the gates open out of consideration for tourism potential.

COMMENTS:

Council has had delegations in previous years requesting to keep marina access open to snowmobiles and ATV's for access to the lake for ice fishing.

In 2014, Lakeshore received a claim for loss and costs for a snowmobile that broke through the ice and sunk inside the mouth of the marina. Administration has previously expressed its concern for the maintenance and risk of damage to marina facilities in unlit/unstaffed winter conditions.

The Town's insurance provider, DPM Insurance Group, has recommended against keeping the gates open during winter months:

While recreational vehicles are ridden on many different surfaces, marine use is generally excluded on most policies. In the event of an incident involving a severe

injury or fatality, if we do not close the ramp, we may be viewed as promoting or encouraging their use for what they are not intended.

Our position would remain that it would be in the best interest of the Municipality to close the ramp off. (Underscore added for emphasis) If there is a means to seal the ramp off (i.e. a gate), that too would demonstrate our due diligence to protect visitors to the area from entering a potentially dangerous area. The ramp was built and intended to be a boat ramp and provide access to the lake for Marina customers. Technically, the marina facilities are closed during the off season, which does include the ramp. We believe that the area is potentially a high risk area for incidents in which people may fall through the ice. The obstructions in the water may prohibit a consistent formation of ice which may present a known hazard to those who enter and exit the lake from the marina ramp. It is my understanding that there was an incident that took place last year in which a snow mobile went through the ice.

We also have concerns that by leaving the gate open we would be providing an access for people to drive motor vehicles out on the lake or allow vandals an opportunity to do damage to the docks with a quick and easy entrance and exit point.

In keeping with this advice, it would be Administration's recommendation for Council to close gate access at the end of each fishing season.

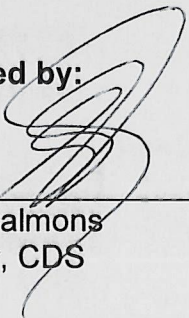
OTHERS CONSULTED:

- Les Garrod, RIBO, CAIB, Commercial Account Executive, DPM Insurance Group
- Mary Masse, Town Clerk (Insurance lead)

BUDGET IMPACTS:


There are no budget impacts resulting from the recommendations.

Prepared by:



Steve Salmons
Director, CDS

Submitted by:



Kirk Foran
CAO

Municipality of Lakeshore – Report to Council

Growth & Sustainability

Community Services



To: Mayor & Members of Council

From: Frank Jeney, Division Leader Community Services

Date: March 1, 2022

Subject: ATRC Splash Pad – Exterior Shade Screens and Re-Opening

Recommendation

Direct Administration to proceed with acquiring retractable screens to cover the 22 windows located adjacent to the ATRC Splash Pad and shaded seating in accordance with the Municipal Procurement By-law; and

When Retractable Screens are in place, reopen the ATRC Splash Pad, all as described in the ATRC Splash Pad – Exterior Shade Screens and Re-Opening report to Council report presented at the March 15, 2022 Council meeting.

Background

At the November 9th, 2021, Regular Council meeting, Council directed Administration to bring a report regarding the use of awnings for shade protection at the ATRC as follows.

Atlas Tube Recreation Centre WFCU Pools Replacement of 22 Windows

Motion 379-11-2021

Direct Engineering to review whether a flat awning would deflect the heat from the Atlas Tube Recreation Centre windows.

Carried

At the September 16, 2021, Council meeting, Council directed Administration to prepare a report on the cost to decommission the splash pad at the ATRC, as follows:

ATRC Splash Pad – Use, Operations, Lifecycle, Infrastructure

Motion 296-09-2021

Bring back a report on the cost to decommission (not remove) the splash pad at the ATRC.

Carried

At the June 8th, 2021, Regular Council meeting, Council directed Administration to bring a report regarding the splash pad at the Atlas Tube Recreation Centre including the use, cost of operation, lifecycle and other anticipated costs and include information regarding the possibility of moving the infrastructure to another location.

Comments

The Atlas Tube Recreation Centre Splash Pad was opened in July 2016. Details about the ATRC Splash Pad can be found in the attached “Report – ATRC Splash Pad – Use, Operations, Lifecycle, Infrastructure”

Decommissioning

There would not be a cost to decommission the ATRC Splash Pad. Currently, the lines have been winterized, as is completed annually for offseason protection. This is completed by ATRC staff.

External Awnings

As per the motion above, Administration investigated using awnings to shade the windows. It is not recommended as a solution, as the overhang of the building makes it difficult to hang awnings, and the angle of the sun at certain times of day makes awnings less effective than external blinds, which are detailed below.

External Blinds

In 2019, Council approved a budget of \$100,000 for shade structures in an attempt to remedy the safety of visitors due to the high temperatures noted on the glass at the Splash Pad/East windows of the WFCU Pools.

During the Regular Council meeting of March 10th, 2020, a report was brought to Council (attachment). In that report, under Other Options and Conclusion, it was mentioned that:

Administration has undertaken preliminary research into the use of external blinds which can be pulled down to shield the glass from the sun. This could possibly be an effective solution to shield the glass on hot days, which can be retracted on cloudy days and during the off-seasons, to allow an unobstructed view in the indoor pool area. As well, a different type of window film may be a solution to reduce the heat on the glass. Solutions could be paired with the development of one of the shade structure options.

Examples of Retractable Screens



Installing retractable screens would eliminate the heat from the East facing windows during the hot summer months. These manually operated retractable screens would be down, covering the windows in the hot summer months, and cleaned/retracted back up under the soffits in the fall, winter months.

Reduce

window surface.

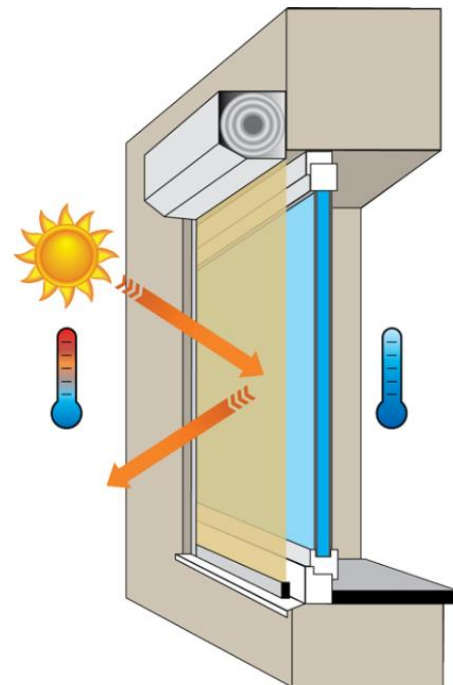
heat gain by
blocking the sun
before it reaches the

Conserve

energy and lower
your carbon
footprint without the need for mechanical
cooling.

Save

on heating and
cooling costs.



Operations

The Atlas Tube Recreation Centre's Splash Pad is used by many residents and visitors of the building, as well as the soccer fields, and trails. The Community Services Leadership Team has identified dual use of the WFCU Pools, and the Splash Pad through the adjacent doors access to be problematic for safety reasons, and therefore do not entertain dual use programming. The doors are locked at all times and those

using the pool cannot get direct access to the splash pad, and those using the splash pad, cannot get direct access to the pools.

Financial Impacts

The estimated cost to install manual retractable screens across the entire set of windows adjacent the ATRC Splash Pad would be \$60,000, which could be taken from the \$100,000 set aside to remedy to heat on the surface of the glass at the ATRC during 2019 budget.

To address other operational concerns expressed by residents Administration recommends the addition of shaded seating to the area which would increase sun protection and heighten the enjoyment of the ATRC Splash Pad for visitors. The shaded seating items could be taken from the remaining \$40,000.



The cost of external blinds will be confirmed through the request for proposal/tendering process as outlined in the procurement by-law. If the tender amount is greater than \$75,000, it will need to be approved by Council. Administration will issue a request for tender for the shaded seats after the cost of the blinds has been finalized, in order to keep the total costs within the budgeted amount. Should any funds remain from the original budget the surplus funds will be returned to the facilities reserve, upon completion of the project.

Attachments

Council Report – March 10th, 2020 – Report - Sun Protection at the Atlas Tube Centre Splash Pad

Council Report – September 14th 2021 – Report - ATRC Splash Pad – Use, Operations, Lifecycle, Infrastructure

Council Report – November 9th 2021 – Report - Atlas Tube Recreation Centre WFCU Pools Replacement of 22 Windows

Report Approval Details

Document Title:	ATRC Splash Pad – Exterior Shade Screens and Re-Opening.docx
Attachments:	<ul style="list-style-type: none">- Report - Sun Protection at the Atlas Tube Centre Splash Pad.pdf- Report - Atlas Tube Recreation Centre Splash Pad - Use, Operations, Lifecycle, Infrastructure.pdf- Report - Atlas Tube Recreation Centre - WFCU Pools - Replacement of 22 Windows.pdf
Final Approval Date:	Mar 10, 2022

This report and all of its attachments were approved and signed as outlined below:

Justin Rousseau

Kristen Newman

Truper McBride

The Corporation of the Town of Lakeshore

Report to Council

Community & Development Services

Recreation Services



To: Mayor & Members of Council

From: Tammie Ryall, Director of Community and Development Services

Date: February 28, 2020

Subject: Sun Protection at the Atlas Tube Centre Splash Pad

Recommendation

Report is provided for information only

Background

This report has been prepared to consolidate the information on sun protection at the Atlas Tube Centre (ATC) splash pad.

At the November 25, 2019 Council Meeting, Council discussed the amount proposed in the 2020 Budget to develop sun protection structures at the ATC splash pad. The following motions took place.

Motion 526-11-2019

Direct administration to close the Atlas Tube Centre splash pad temporarily and to install a temporary barrier to prevent persons from touching the glass; and that Administration be directed to bring back a report regarding barriers.

Motion Lost

Motion 527-11-2019

Direct Administration to remove the proposed \$170,000 for the sun protection for Splash Pad at the Atlas Tube Centre.

Carried

Motion 528-11-2019

Direct Administration to bring back the previous report regarding sun protection for the Atlas Tube Centre splash pad for Council's consideration.

Carried

It is noted that review of this matter was under the 2019 and 2020 Budget discussions. No report was prepared.

Splash Pad Structure

The splash pad was constructed at the same time as the Aquatic wing of the ATC in 2016. It is a cement structure immediately adjacent to the south east side of the building. It is used in the summer for interactive water play. It is approximately 600 square metres in area (6,460 square feet). Attachment 1 shows air photos of the existing splash pad.

Administration is unable to find any design drawings that indicate a permanent shade solution was originally proposed for the splash pad. Two renderings show umbrellas attached to tables (Attachments 2 and 3).

It is noted that the investment to build the splash pad at the time the aquatic centre was constructed was approximately \$664,000. The splash pad was included in the ATC grant application and funding was received for this structure. If the Town decided to decommission the splash pad, it would trigger a repayment of some of the grant funding, and therefore it is not recommended.

Complaints Regarding Sun and Heat

There are no operational issues reported with the water system/usability of the splash pad. However, the Town has received significant feedback from the public on the usability of the splash pad due to the lack of shade during the hot summer days when the sun reflects off of the cement pad. Town staff have also become aware that the glass on the wall separating the pool and the splash pad can also warm to the point of posing a burn risk should users touch it or lean against it. Town staff were aware of this risk and were vigilant in telling children (for example, at the day camp) to not touch the glass. However, it is difficult to effectively warn users when staff are not present.

Comments

The Town has made a significant financial investment to construct the splash pad and it provides an interactive play space which compliments other ATC activities. A cost effective permanent solution to provide sun protection is important to ensure that it is an inviting and safe space that can be used to its full potential. There is also an increased awareness of the importance of providing shade to protect adults and children from sunburn.

The ATC Park Plan program is underway, with proposals for the use of the ATC property to be considered by Council later in 2020. However, it is unlikely that the Park Plan would recommend that the Splash Pad be relocated or removed, as it is an existing structure. Therefore, Administration will proceed to obtain solutions for sun protection in advance of the ATC Park Plan being finalized.

Previous Sun Shade Proposals

Umbrellas:

The operational costs of daily set up and take down, and potential damage due to storm events, is a consideration if the Town were to install tables and umbrellas as was the solution shown in the original renderings (Attachments 2 and 3).

The proposals included in the 2019 and 2020 budgets are set out below.

Option 1 - Hard Roofed Structures (Attachment 4)

This proposal includes the installation of two permanent structures with metal roofs. The dimensions are 16 x 60 feet and 6 x 26 feet. It is noted that the structures in the illustration would be appropriately designed to complement the architectural features of the ATC. This option would be oriented to provide a high degree of shade relief for the public and provide a permanent solution with minimal operational costs. The option is priced at \$135,600 with HST and installation included.

Option 2 – Cantilever Umbrellas over the Splash Pad (Attachments 5 and 6)

This proposal includes the installation of five cantilever umbrella structures with glide rails. Each umbrella is 20 feet x 20 feet by 10 feet high. This option is priced at \$83,500 with HST and installation included.

Both Options 1 and 2, as well as umbrellas attached to tables, may not provide a solution to prevent the glass from heating up in the sunlight.

Option 3 – Pole and Sail Shading and a hard barrier along the glass (Attachments 7 and 8 for illustrative purposes). This option includes of Sails held up by 6 posts, 2 on the pad area and 4 on the perimeter and a metal barrier to shield people from touching the glass. The sails and poles were estimated at \$210,000 and the barrier was estimated at \$60,000 (installation included but no HST). The total was \$270,000. This estimate was provided by JP Thompson Architects Limited. A total of \$100,000 was included in the 2019 budget therefore \$170,000 was included in the 2020 budget to bring the total to \$270,000. As mentioned above, the increase of \$170,000 was not approved by Council in the 2020 budget.

Other Options and Conclusion

Administration has undertaken preliminary research into the use of external blinds which can be pulled down to shield the glass from the sun. This could possibly be an effective solution to shield the glass on hot days, which can be retracted on cloudy days and during the off-seasons, to allow an unobstructed view in the indoor pool area. As well, a different type of window film may be a solution to reduce the heat on the glass. Solutions could be paired with the development of one of the shade structure options.

To reduce the costs, the use of one of the two permanent structures (Option 1) or fewer cantilevered umbrellas (Option 2) could be explored. Administration recommends seeking professional advice on the ideal orientation of (a) structure(s) to provide maximum sun protection, and to shield the glass so that it does not heat up in the sunlight. If there is no effective way to shield the glass, a physical barrier to prevent contact with the glass would need to be proposed.

Administration will proceed to issue a request for proposal to provide options for sun protection. Administration will provide a report to Council if the estimated costs provided through the request for proposal process exceeds the budgeted amount of \$100,000.

Financial Impacts

\$100,000 was included in the 2019 budget for this project.

Attachments:

Attachment 1 – Air photos of the existing splash pad

Attachments 2 and 3 – Renderings of the Atlas Tube Centre showing umbrellas

Attachment 4 – Hard Roofed Structures

Attachments 5 and 6 – Cantilever Umbrellas

Attachment 7 – Example of Pole and Sail Shading

Attachment 8 – Example of a Picket barrier

Report Approval Details

Document Title:	Sun Protection at the Atlas Tube Centre Splash Pad.docx
Attachments:	<ul style="list-style-type: none">- Attachment 1 Air photos of the existing splash pad.pdf- Attachment 2 Rendering of the splash pad showing umbrellas.pdf- Attachment 3 Rendering from indoors showing umbrellas outdoors.pdf- Attachment 4, two hard roofed structures.pdf- Attachment 5 Umbrella Shade Structure.pdf- Attachment 6 Cantilever umbrellas.jpg- Attachment 7 Sail Shading.jpg- Attachment 8 Picket Railing System.pdf
Final Approval Date:	Mar 5, 2020

This report and all of its attachments were approved and signed as outlined below:

Rosanna Pellerito

Kristen Newman

Truper McBride

Municipality of Lakeshore - Report to Council

Growth & Sustainability

Community Services



To: Mayor & Members of Council

From: Frank Jeney, Division Leader – Community Services

Date: September 3, 2021

Subject: ATRC Splash Pad – Use, Operations, Lifecycle, Infrastructure

Recommendation

Confirm the continued use of the ATRC Splash Pad;

Approve in principle the replacement of the existing black tinted windows on the east wall of the WFCU Pools with clear glass windows for the cost of approximately \$101,500, plus HST;

Approve in principle the addition of shaded seating units on the periphery of the splash pad for the cost of approximately \$50,000;

The \$100,000 approved in the 2019 budget for remediation of the heat issue at the ATRC splash pad be used for the glass replacement project; and

The glass replacement amount above \$100,000 and the cost of shaded seating units be considered through the 2022 budget process, as presented at the September 14, 2021 Council meeting.

Background

At the June 8th 2021 Regular Council meeting, Council directed Administration to bring a report regarding the splash pad at the Atlas Tube Recreation Centre including the use, cost of operation, lifecycle and other anticipated costs and include information regarding the possibility of moving the infrastructure to another location.

During the Regular Council meeting of March 10th 2020, an information report was brought to council (attachment). In that report, under Other Options and Conclusion, it was mentioned that:

Administration has undertaken preliminary research into the use of external blinds which can be pulled down to shield the glass from the sun. This could possibly be an effective solution to shield the glass on hot days, which can be

retracted on cloudy days and during the off-seasons, to allow an unobstructed view in the indoor pool area. As well, a different type of window film may be a solution to reduce the heat on the glass. Solutions could be paired with the development of one of the shade structure options.

Comments

The Atlas Tube Recreation Centre (ATRC) Splash Pad was opened in July 2016. The splash pad is designed as a Programmable Splash Pad System with 12 water features. The splash pad is a fully automated aquatic play environment designed for use in recreational areas. The automated components of the splash pad are the Activator, the Controller, and the distribution manifold. Located in the splash pad play area, the Activator allows splash pad users to initiate the water features with a touch of a hand or foot.

The system operates on a dedicated electrical system as well as a valve chamber/controller system that operates the features of the splash pad. The required electrical system is a WDS system, 120vac, 15 amp service, which operates the entire splash pad. The control system is located underground adjacent to the Splash Pad. The control system allow staff to program the water features that, at last operation in 2019, ran on 4 minute cycles. The system does not record historical use data.

In 2021, the French drainage ditch for the ATRC Splash Pad was filled in and replaced with a ditch, buried pipe, grassway drainage system; that collects the splash pad water as well as area surface water. The ATRC splash pad is “dump and fill” (no recirculating water) which does not require any chemicals while in operation.

In 2019, which was the last normal operating season, staff noted the ATRC splash pad as being used by an estimated 40 users per week. With an average operating season of 15 weeks, that would be an estimated total of 600 patron uses annually.

Warranty and Cost

The Atlas Tube Recreation Centre splash pad is a Vortex Aquatic System. The warranty on the aquatic play products has three levels.

- 25 years on stainless steel structures, stainless steel anchoring systems and aluminum spheres.
- 5 years on brass components including; spray nozzles, spray caps and spray heads, high density polyethylene components. Polyurethane components and ultra-high molecular weight polyethylene components.
- 2 years on colour coating, all moving parts, stainless steel hardware, fiberglass products, SEEflow™ polymer products, and the Toeguard™, made of soft-touch elastomers.

The only parts that could be salvaged for relocation would be the controller, manifolds, and two actuator towers (Push button controls).

It is noted that the investment to build the splash pad at the time the Atlas Tube Recreation Centre's WFCU Pools were constructed was approximately \$664,000. The splash pad was included in the ATRC grant application and funding was received for this structure. If the Municipality decided to decommission the splash pad, it would trigger a repayment of some of the grant funding, and therefore it is not recommended.

ATRC Splash Pad Shade Structure Project Update

In 2019, Council approved a budget of \$100,000 for shade structures in an attempt to remedy the safety of visitors due to the high temperatures noted on the glass at the Splash Pad/East windows of the WFCU Pools.

Note. The glass installed at the WFCU Pools is Greylite 11.

Gryphon Glass was brought in and asked to create a glass temperature testing apparatus to test the daily temperatures of different shades of glass facing the East. Other locations of current eastern facing windows were also tested.

On June 9th 2021, the following temperatures were recorded.

June 9th 2021 Testing – Outside temperature reached 85 degrees Fahrenheit		
171.9	Fahrenheit	1 – 6mm Greylite 11 (Current East Pool Windows)
140.2	Fahrenheit	2 – 6mm Super Grey (Test)
136	Fahrenheit	3 – 6mm Solar Grey (Test)
132	Fahrenheit	4 – 6mm Opti Grey (Test)
115.3	Fahrenheit	5 – 6mm Clear Energy Select (Test-Recommended)
111	Fahrenheit	6 – 6mm Clear Energy Select (Program Hallway)
109	Fahrenheit	7 – 6mm Clear Energy Select (Gymnasium)
103	Fahrenheit	8 – 6mm Clear Energy Select (Pool Hallway)

Heat Chart		
118	Fahrenheit	At 118 degrees, human skin can sustain first degree burns
131	Fahrenheit	At 131 degrees, human skin can sustain second degree burns
162	Fahrenheit	At 162 degrees, human skin can be destroyed



The results indicate that the Clear Energy Select windows can significantly reduce the amount of surface heat that is created on the eastern facing windows. The ATRC WFCU Pool lifeguards on deck, window replacement removes loss of view due to window glare. In addition to the window tint remedy, additional barricades can be installed to separate users from the glass. The barricades should be made of non-heat generating products such as plastic or wood. Although the appearance of the building will be changed, this will increase the safety and the usability of the ATRC splash pad.

It is recommended that Council direct Administration to add shaded seating to the area which would increase sun protection and heighten the enjoyment of the ATRC Splash Pad for visitors. These items could be added through the 2022 budget process.

Others Consulted

Hollandia Pools and Spas Owner's Manual

Gryphon Glass - Windsor

Financial Impacts

Water charges are \$1.54/m³ for water and \$1.60/m³ for sewer. (1 cubic meter = 264 gallons)

The Atlas Tube Recreation Centre WFCU Aquatics Centre has one single water meter, which covers the splash pad, 3 bodies of water (Lap, Leisure, Hot Tub), showers, toilets, sinks, and boilers. The splash pad uses an estimated 10 gallons per minute while in a cycle.

It is reasonable to estimate the operation of the Atlas Tube Recreation Centre splash pad costs are between \$1,500 and \$3,000 annually for utilities. The ATRC Facility Attendants oversee the safe operation and yearly opening and closing maintenance.

The estimated cost to replace the twenty two (22) Greylite 11 black tinted windows with clear energy select windows is \$101,500, plus HST, which could be taken from the \$100,000 set aside to remedy the heat on the surface of the splash pad and glass at the ATRC which was approved during the 2019 budget. The amount above \$100,000 could be considered through the 2022 budget process.

As mentioned above, adding shaded seating to the area would increase sun protection and heighten the enjoyment of the ATRC Splash Pad for visitors. The stand- alone seating with shade in the image below is estimated to be between \$6,500 to \$8,000 per unit plus installation. It is recommended that the amount of \$50,000 be brought forward for consideration in the 2022 budget process for these units.



Attachments

Attachment 1 - Council Report, March 10th 2020, Sun Protection at the Atlas Tube Centre Splash Pad

Report Approval Details

Document Title:	Atlas Tube Recreation Centre Splash Pad - Use, Operations, Lifecycle, Infrastructure.docx
Attachments:	- Sun Protection at the Atlas Tube Centre Splash Pad.pdf
Final Approval Date:	Sep 9, 2021

This report and all of its attachments were approved and signed as outlined below:

Tammie Ryall

Jessica Gaspard

Kristen Newman

Truper McBride

Municipality of Lakeshore – Report to Council

Growth & Sustainability

Community Services



To: Mayor & Members of Council

From: Frank Jeney, Division Leader Community Services

Date: October 22, 2021

Subject: Atlas Tube Recreation Centre WFCU Pools Replacement of 22 Windows

Recommendation

Approve the replacement of the existing 22 black tinted windows on the East wall of the WFCU Pools with clear glass windows, as presented at the November 9, 2021 Council meeting.

Background

At the September 16, 2021, Special Council meeting, a report was brought to Council titled ATRC Splash Pad – Use, Operations, Lifecycle, Infrastructure. The report included information regarding the dangerously high heat levels noted during an internal experiment conducted on June 9th, 2021, on the East facing black tinted windows at the WFCU Pools within the Atlas Tube Recreation Centre. The findings are below.

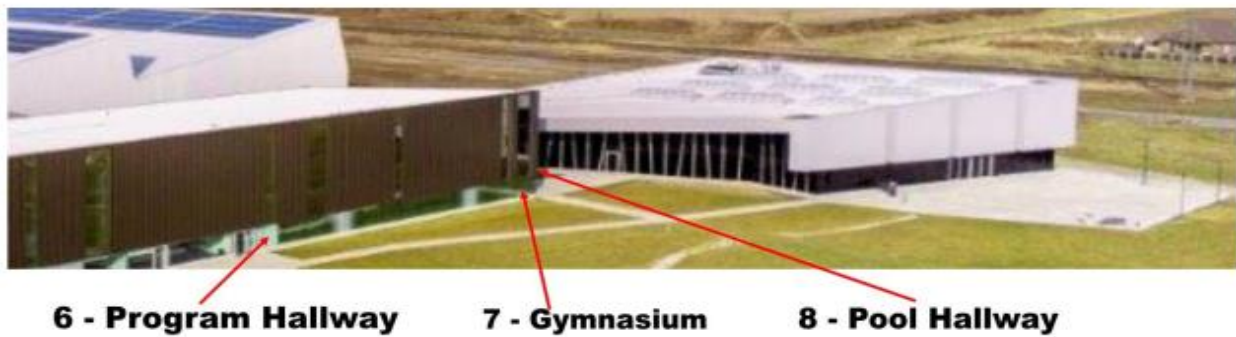
Comments

In 2019, Council approved a budget of \$100,000 for shade structures in an attempt to remedy the safety of visitors due to the high temperatures noted on the glass at the Splash Pad/East windows of the WFCU Pools.

Note. The glass installed at the WFCU Pools is Greylite 11.

Gryphon Glass was brought in and asked to create a glass temperature testing apparatus to test the daily temperatures of different shades of glass facing the East. Other locations of current eastern facing windows were also tested.

On June 9th 2021, the following temperatures were recorded.



The results indicate that the Clear Energy Select windows can significantly reduce the amount of surface heat that is created on the eastern facing windows. The ATRC WFCU Pool lifeguards on deck, window replacement removes loss of view due to window glare.

Replacement of the windows would make for a safer environment for the many visitors to the Atlas Tube Recreation Centre, the Bell River Soccer organization, and the users of the Earth Walk Trail that connect to the ATRC sidewalks near this location.

At the September 16th Special Council meeting, the following motion was passed.

296-09-2021

Bring back a report on the cost to decommission (not remove) the splash pad at the ATRC.

Result: Carried

A report will be brought to Council for the decommissioning of the splash pad. The splash pad was winterized in the fall of 2019, and has not re-opened due to closures of the ATRC during the COVID-19 pandemic.

Others Consulted

Gryphon Glass - Windsor

Financial Impacts

The estimated cost to replace the twenty two (22) Greylite 11 black tinted windows with clear energy select windows is \$101,500, plus HST, which could be taken from the \$100,000 set aside to remedy the heat on the surface of the splash pad and glass at the ATRC which was approved during the 2019 budget. The amount above \$100,000 would be taken from the General Maintenance account. If approved by Council, this matter will proceed to a tender process.

Report Approval Details

Document Title:	Atlas Tube Recreation Centre - WFCU Pools - Replacement of 22 Windows.docx
Attachments:	
Final Approval Date:	Nov 4, 2021

This report and all of its attachments were approved and signed as outlined below:

Justin Rousseau

Kristen Newman

Truper McBride

Municipality of Lakeshore – Report to Council

Chief Administrative Officer

Digital Transformation & Cloud Services



To: Mayor & Members of Council

From: Michael Martin, Division Leader – Digital Transformation & Cloud Services

Date: March 9, 2022

Subject: Digital Modernization RFP Award

Recommendation

Award the RFP for the Digital Modernization Project to Optimus Tech Solutions as the respondent with the highest total score, as presented at the March 9, 2022 Council meeting.

Background

The Municipality of Lakeshore completed an organizational review of its Information Technology systems and services which identified significant operational risks and opportunities related to dated and vulnerable software and hardware that requires additional action. In addition, services that can be developed and improved with the right investments, human and capital, to modernize our service delivery processes through digital transformation.

Administration has applied and received approval under the Municipal Modernization Program to advance the recommendations received during the Organizational Review and the IT Service Review.

The Municipality's internal systems will be brought up to date and create significant efficiencies and savings to staff time through automation, remote data entry and migration to cloud infrastructure. This program will improve resident experience and developer experience through enabling access to desired online services. The Program will also create further needed information security measures and protect the Municipality from data theft, ransomware, and disasters.

Council directed Administration to proceed with the Project on February 1st, 2022 passing the following resolution:

Direct Administration to proceed with the Digital Modernization Strategy and direct the Corporate Leader-Chief Financial Officer to transfer the Municipality's 35% share of the cost amounting to \$80,445 from the IT Lifecycle Reserve, as presented at the February 1, 2022 Council meeting.

Administration issued a Request for Proposals on February 14th, 2022 which has now closed.

Comments

A total of two (2) proposals were received prior to closing on Friday, March 4th, 2022. Respondents included Optimus Tech Solutions and Transpire Technologies Inc.

Administration placed the highest level of importance on the following dimensions of the proposals:

1. Completeness of Functional Requirement Understanding by the respondents
2. Appreciation of the challenges facing the project and Municipality
3. Appropriate work plan for each project deliverable
4. Value-add benefits and previous completed public sector projects of this scale
5. Transparent and detailed pricing for each project deliverable

The evaluation of each proponent was undertaken in three stages. Stage one was a review of the detailed proposals and a scoring of 0 to 10 was given to each of the various functions required in the RFP. Only those proponents that met a minimum score in this stage, moved on to stage two. Stage two included references and previous work completed. The final stage was an evaluation of the pricing of the three proponents. The scores of each stage were then added according to the evaluation matrix in the RFP. The successful proponent, Optimus Tech Solutions, was the proponent with the highest score, and the proponent being recommended to Council.

Financial Impacts

Between the two proponents there was a pricing difference of 16% which was directly linked to a better understanding and detailed plan by the recommended proponent.

Both proponents were within budget, as presented to and approved by Council at the February 1st, 2022 Council meeting.

Funding for this project will be split between grant funding provided by the Province of Ontario and the IT Reserve fund.

Funding Source	Amount	Percentage
Municipal Modernization Program	\$ 157,555.00	65%
IT Lifecycling Reserve.	\$ 80,445.00	35%
Total	\$ 238,000.00	

Report Approval Details

Document Title:	Digital Modernization RFP Award.docx
Attachments:	
Final Approval Date:	Mar 10, 2022

This report and all of its attachments were approved and signed as outlined below:

Truper McBride

Justin Rousseau

Kristen Newman

Truper McBride

Municipality of Lakeshore – Report to Council

Operations

Water Management



To: Mayor & Members of Council

From: Albert Dionne, C.E.T.
Division Leader – Water Management

Date: February 18, 2022

Subject: Bulk Water Fill Station - Comber Survey

Recommendation

Approve the relocation of the bulk water fill station to the Public Works Rochester yard on County Road 31, including decommission of the existing bulk water fill station at the Municipality's Comber Fire Station, to be included in the 2023 draft budget, all as presented at the March 15, 2022 Council meeting.

Background

A report was presented to Council on January 19, 2021 (report attached) to provide information related to the relocation of the water fill station located at 6400 Main Street located on the Municipality's Comber Fire Station as identified in the attached report, with mapping.

Based on the information presented, the below notice of motion was passed at that time:

21-01-2021

Prepare a survey for users of the Comber bulk water station regarding the proposal to move the bulk water fill station to the Rochester Public Works Yard.

Comments

On August 20, 2021, Administration sent out letters to 338 owners in the surrounding area of the existing fill station in Comber. Included in the letters was a survey requesting feedback from the residents with two options (a hard copy of the survey with a return envelope was included as well as an online link included in the letter). The survey identified the below options:

1. Yes, I/we will use the water fill station to the Municipality's Rochester Public Works Yard located on County Road 31.

2. No, I/we will not use the water fill station and it can be eliminated.

The survey results were received as follows with YES representing Option 1 and NO representing Option 2 noted above:

Mail Response YES	Mail Response NO	Web Response YES	Web Response NO	Letter responses	TOTAL RESPONSES	TOTAL YES	TOTAL NO
17	25	11	1	2	56	28	26

Two (2) handwritten responses were also received requesting the fill station remain at its current location.

Conclusion

Out of 338 owners that received the letter in the area, a total of 56 responses were received for a total of 16.5% of the contacted residents.

Of the response level, 50% were in favor of relocating the fill station to the Municipality's Rochester Public Works Yard on County Rd 31 and 46% indicated they do not use the fill station. 4% do not want it relocated and use it at the current location.

As identified in the January 19, 2021 report, if the bulk water system is relocated, it would be upgraded to the same water fill station that was recently installed on Rourke Line.

Financial Impacts

The approximate cost for a new water fill station (at the Rochester Public Works yard on County Road 31) is \$60,000 plus applicable HST. This item was not budgeted for in 2022 and will be brought forward in the 2023 budget for consideration.

Attachments: Bulk Water Fill Station Report to Council January 19, 2021

Report Approval Details

Document Title:	Bulk Water Station Comber Fire Hall Survey_01.docx
Attachments:	- Jan 192021 Bulk water fill station.pdf
Final Approval Date:	Mar 9, 2022

This report and all of its attachments were approved and signed as outlined below:

Krystal Kalbol

Justin Rousseau

Kristen Newman

Truper McBride

Municipality of Lakeshore - Report to Council

Engineering & Infrastructure Services

Environmental Services



To: Mayor & Members of Council

From: Albert Dionne, C.E.T.
Manager, Environmental Services

Date: November 16, 2020

Subject: Bulk Water Fill Station.docx

Recommendations

This report is for information only.

Background

The Municipality currently operates 3 bulk water fill stations at the below locations as per the attached Water Fill Station Locations Map:

1. 6400 Main Street located on the Municipality's Comber Fire Station, Location #1
2. 1538 Lakeshore Road 203 located on the Municipality's Maidstone Fill Station, Location #2
3. 276 Rourke Line Road located on the Municipality's Denis St. Pierre Wastewater Treatment Plant Site, Location #3

These stations have been in operation since before amalgamation. The station on Rourke Line (Location #3) was recently replaced and is scheduled to be in service by the end of 2020.

The older two stations (Locations #1 and 2) continue to use a coin operated water dispensing system which accepts one dollar (loonie) and two dollar (toonie) coins. The coin operated system was installed at the Comber Station in 2010. The Maidstone Fill system dates from before amalgamation.

The use of this system has a number of operational consequences:

- Because both systems were installed before 2010, the mechanisms will not accept the new lighter loonie coins which have been in issue since 2012. This issue has been the source of customer complaints and visits by staff to rectify failures to dispense water.

- The stations must be visited regularly to collect the coins from the mechanism based on volume of holding capacity of the collected coins.
- There have been incidences of vandalism in an attempt to steal the coins.

These sites have not seen any major upgrades in the last 10 to 15 years however, they do require periodic repairs in order to maintain operation. Minor repairs are carried out by Municipality staff while more complex repairs are carried out by an outside contractor.

The upgraded fill station on Rourke Line will be operated using a four (4) digit pin number assigned by the Municipality using a prepaid account. This system works as a pay as you go account. As the user takes water the account will deplete and will have to be replenished by the user through services provided at Municipality Hall.

Based on resolution 208 06 2020, it was identified that the Bulk Water Fill Station in Comber located on the Municipality's Comber Fire Department site (Location #1) obstructs fire fighters service delivery while a water tanker is filling.

An investigation was completed by Environmental Services, along with the Fire Chief, to determine if relocating the water station to the side of the building would resolve this issue. Based on a site review of the area, it was determined that there is insufficient room at this location to accommodate the water station and maintain clear access for the fire trucks. Based on this, an alternative location would be required to accommodate the water fill station to resolve the issue.

The following municipally-owned sites were investigated within the surrounding area:

- The first site considered is located on Taylor Street at the Municipality's Comber Water Pumping Station. This station does not have adequate access and would require modifications and fence removal, which would be costly. In addition, the disruption around the station would have been problematic trying to navigate equipment in and out using the water fill station and possibly causing damage to the Pumping Station, so this location was eliminated as an option.
- The second site that was considered is located on County Road 31 at the Municipality's Rochester Public Works Yard. This site is equipped with an existing two (2) inch water service with a shut off valve. Furthermore, it has adequate access and would not disrupt the public works department operations and access.

Comments

Based on the site investigations, the bulk water fill station at the Municipality's Comber Station Site would need to be relocated (and upgraded) to the Municipality's Rochester Public Works Yard located on County Road 31 as shown on the attached map to resolve the issue brought forward by Council through resolution 208-06-2020.

This location is approximately seven (7) minutes and/or 10.5 km's from the existing Comber Station Site however, most of the residents using the water fill station are coming from the rural areas so may be closer to this location.

If relocated, the system would be upgraded to the same water fill station that was recently installed on Rourke Line. Schedule A shows the new standalone Water Fill Station, which is manufactured by Flowpoint Environmental Systems LP. As earlier noted, this station is operated with a four (4) digit pin number using a pre-paid account.

Schedule A



Financial Impacts

Currently there is no financial impact to continue to operate the existing station. If the station were to be relocated and upgraded similar to the unit that was installed on Rourke Line, the approximate cost would be \$50,000 plus applicable HST. This cost includes the station, concrete slab and the electrical and water hook up to put into operation.

As this project is currently not included in the 2021 budget, should Council wish to proceed with this project, approval would be needed to fund this project from the water reserve fund.

Report Approval Details

Document Title:	Bulk Water Fill Station.docx
Attachments:	- Bulk Water Station Location Map.pdf
Final Approval Date:	Jan 4, 2021

This report and all of its attachments were approved and signed as outlined below:

Krystal Kalbol

Rosanna Pellerito

Kristen Newman

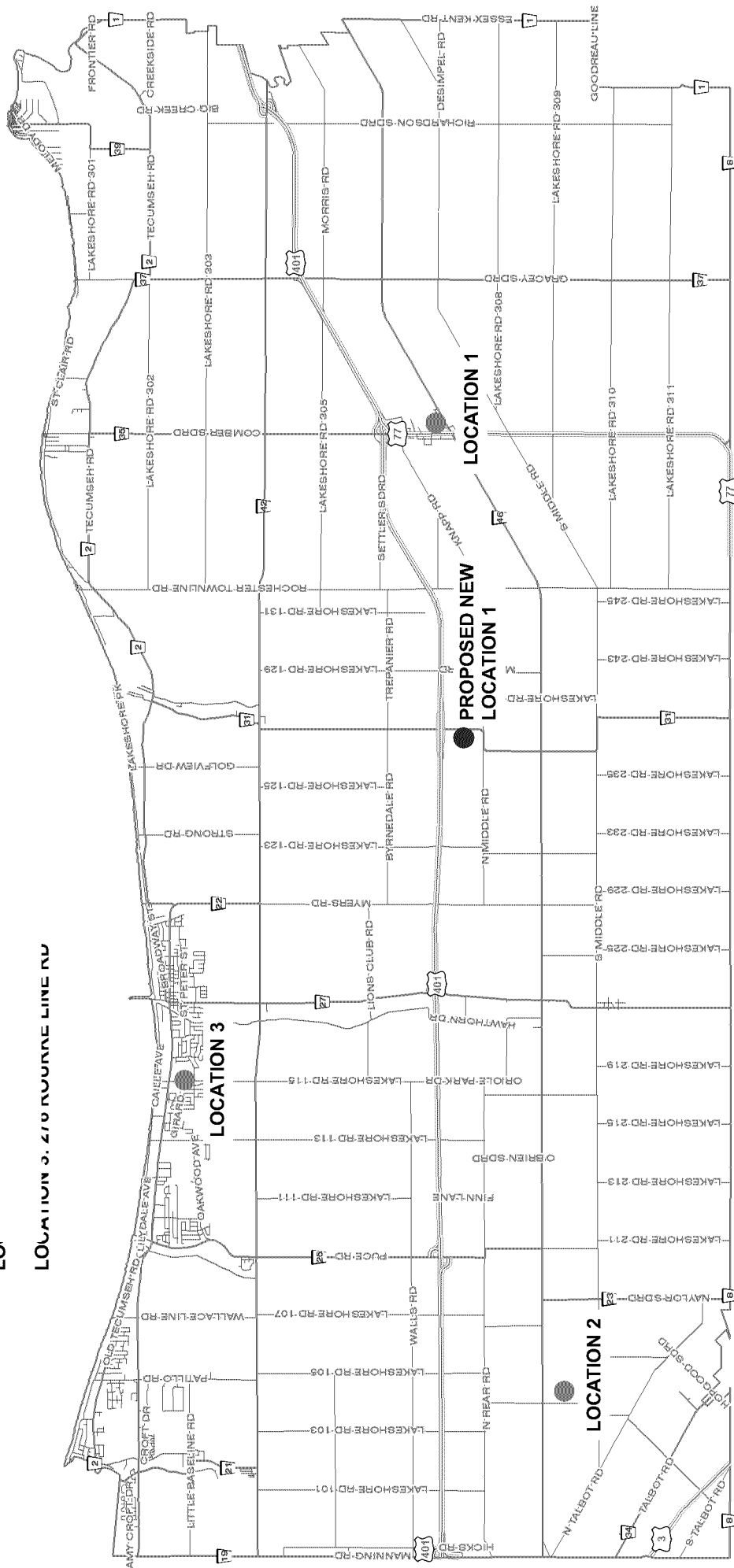
Truper McBride

LOCATION 1: 6400 MAIN ST

PROPOSED NEW LOCATION 1: 2065 COUNTY RD 31

LOI

LOCATION 3: 210 KOURNE LINE RD



Municipality of Lakeshore – Report to Council

Strategic & Legal Affairs

Civic Affairs



To: Mayor & Members of Council
From: Brianna Coughlin, Division Leader – Civic Affairs
Date: March 8, 2022
Subject: Use of Municipal Resources during Election Policy

Recommendation

Approve the Use of Municipal Resources during Election Policy, as presented at the March 15, 2022 Council meeting; and

Direct the Clerk to prepare the necessary by-law for adoption.

Background

Section 88.18 of the *Municipal Elections Act, 1996* requires municipalities and local boards to establish rules and procedures regarding the use of municipal and/or board resources during the election campaign period.

The deadline to establish this policy for the 2022 Municipal Election is April 30, 2022.

Comments

The Use of Municipal Resources during Election Policy (attached as Appendix A) has been drafted in compliance with the *Municipal Elections Act, 1996* and with a goal to provide clear guidelines for candidates and members of the public.

The policy also recognizes the ongoing duties of Members of Council during an election period and supports the fulfilment of these responsibilities.

Financial Impacts

There are no financial impacts as a result of the approval of this policy.

Attachments

Appendix A – Use of Municipal Resources during Election Policy

Report Approval Details

Document Title:	Use of Municipal Resources during Election Policy.docx
Attachments:	- Use of Municipal Resources during Election policy.pdf
Final Approval Date:	Mar 9, 2022

This report and all of its attachments were approved and signed as outlined below:

Kristen Newman

Justin Rousseau

Truper McBride



Use of Municipal Resources during Election Policy

Policy # [C or A] - [DI] - 00000

Date Last Reviewed:

1.0 Purpose and Scope

- 1.1 The purpose of this policy is to set out provisions for the use of Municipality of Lakeshore Resources during an election period.
- 1.2 The provisions for the use of Resources are intended to preserve the public trust and integrity in the election process and to comply with the *Municipal Elections Act, 1996*.
- 1.3 The purpose of this policy is to manage the use of Resources by Candidates while respecting the right to freedom of expression and association while ensuring that that no Candidate, Third Party Advertiser or Political Party is provided with an unfair advantage.
- 1.4 This policy applies to municipal (including school board), provincial or federal elections, including by-elections, and to questions on the ballot.

2.0 Interpretation

- 2.1 The Municipality recognizes that Council Members hold their office until the end of the term and supports them in continuing to fulfill their responsibilities as Council Members. Nothing in this policy shall preclude a Council Member from performing their duty as an elected official nor inhibit them from representing the interests of their constituents.

3.0 Definitions

- 3.1 In this Policy:
- 3.2 “Campaign Period” means:
 - 3.2.1 In the case of a regular election pursuant to the *Municipal Elections Act, 1996*, the period between the first available day on which a nomination may be filed with the Clerk and Voting Day in the year of a municipal election;



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Date Last Reviewed:

- 3.2.2 In the case of a by-election pursuant to the *Municipal Elections Act, 1996*, the period between the first available day on which a nomination may be filed with the Clerk and Voting Day;
- 3.2.3 In the case of an election pursuant to the *Canada Elections Act*, the period between the issue of a writ and Voting Day; and
- 3.2.4 In the case of an election pursuant to the *Election Act*, the period between the issue of a writ and Voting Day.
- 3.3 “Campaign Activity” means an activity, event, or pursuit that promotes or opposes, whether directly or indirectly, a Candidate or a response to a question on a ballot and includes but is not limited to the display, posting or distribution of Campaign Material.
- 3.4 “Campaign Material” means material, physical or digital and regardless of format, that promotes or opposes a Candidate, or a response to a question on a ballot and includes, but is not limited to, printed literature, social media posts, banners, posters, pictures, buttons, clothing, signs, magnets and vehicle decals.
- 3.5 “Candidate” means an individual who has filed nomination papers with the Clerk in accordance with the *Municipal Elections Act, 1996* or with a returning officer in accordance with the *Election Act* or the *Canada Elections Act*.
- 3.6 “Clerk” means the Clerk of the Municipality of Lakeshore, appointed pursuant to the *Municipal Act, 2001*, or their designate.
- 3.7 “Contractor” means an individual, company, or individual employed by a company, contracted to provide goods or services to the Municipality.
- 3.8 “Council” means the municipal council of the Municipality of Lakeshore.



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- 3.9** “Council Member” means an individual elected or appointed to Council and holding public office during a Campaign Period.
- 3.10** “Election” means a municipal, provincial or federal election, or by-election, held in accordance with the *Municipal Elections Act, 1996*, the *Election Act* or the *Canada Elections Act*.
- 3.11** “Election Activities” means an election-related session, event or activity hosted by or at the direction of the Clerk, or a returning officer appointed pursuant to the *Election Act*, or the *Canada Elections Act*.
- 3.12** “Election Sign” means a sign or other advertising device which by the use of words, pictures or graphics or any combination thereof is intended to influence persons to do one or more of the following:
- a) to give or to refrain from giving their votes to a Candidate;
 - b) to give or to refrain from giving their votes to an individual and/or a Political Party at an Election, or
 - c) to vote in favour of or against any question submitted under the *Municipal Act, 2001* or any other law, to a vote of the electors.
- 3.13** “Employee” means an employee of the Municipality.
- 3.14** “Facilities” means land, buildings or other structures owned, leased, occupied, operated or otherwise controlled by the Municipality, including but not limited to all administrative and operational buildings, libraries, community and recreation centres.
- 3.15** “Infrastructure” means any physical asset owned, leased, occupied, operated or otherwise controlled by the Municipality including roads, parks, trails, sports fields and open space.



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- 3.16** “Municipality” means the Municipality of Lakeshore and includes its agencies, boards and committees.
- 3.17** “Municipal Event” means an activity, occasion or experience for the public which is organized or supported by the Municipality, either through financial or in-kind support.
- 3.18** “Political Party” means a Political Party registered in accordance with the *Elections Act* or the *Canada Elections Act*.
- 3.19** “Resource” means a physical, electronic, intellectual or other asset owned, leased or otherwise controlled by the Municipality and includes email addresses, domains, websites, social media pages, vehicles, equipment, supplies, services and Employees.
- 3.20** “Third Party Advertiser” means an individual, corporation or trade union registered in accordance with the *Municipal Elections Act, 1996*, the *Election Finance Act* or the *Canada Elections Act*.
- 3.21** “Volunteer” means a volunteer of the Municipality, including volunteer firefighters and members of boards and committees of the Municipality.
- 3.22** “Voting Day” means:
- 3.22.1 in the case of a municipal Election, Voting Day as determined in accordance with the *Municipal Elections Act, 1996*;
- 3.22.2 in the case of a federal Election, polling day as determined in accordance with the *Canada Elections Act*;
- 3.22.3 In the case of a provincial Election, polling day as determined in accordance with the *Election Act*.



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Date Last Reviewed:

4.0 Policy

General

- 4.1 No person shall use a Resource for any election-related purpose.
- 4.2 Section 3.1 does not apply to:
 - 4.2.1 an Employee of the Municipality (or in the case of a federal or provincial Election, an employee of one of those) using a Resource in the conduct of an Election; and
 - 4.2.2 use of Facilities or Infrastructure for general purposes in common with electors, such as driving on a municipal road.
- 4.3 No permits, licenses, leases or other agreement for the use of Facilities will be issued to promote, support or oppose a particular Candidate, Third Party Advertiser or Political Party.
- 4.4 A Candidate, Third Party Advertiser or Political Party may not distribute Campaign Materials on or in Facilities, Infrastructure or at a Municipality Event.
- 4.5 The erection and display of signs or Campaign Materials must be in conformity with any applicable sign by-laws.

Access to Resources during an Election Period

- 4.6 The Municipality's logo, crest, slogans, or any other branding materials may not be printed, posted or distributed on election-related Campaign Materials or included on election-related website, except to link to the Municipality's website to obtain information about the municipal election.
- 4.7 Candidates may not post photographs of themselves with Employees or Volunteers in Campaign Materials.



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Date Last Reviewed:

- 4.8** Photographic, digital or video materials which were created by, prepare for, or paid for by the Municipality may not be used for an Election purpose.

Access to Information during an Election Period

- 4.9** A Candidate, Third Party Advertiser or Political Party shall not be entitled to access to information in the custody of the Municipality other than to information which is generally available to the public and in the same manner as it is available to the public.
- 4.10** Access to voter information shall only be permitted by the Clerk and as expressly authorized by the *Municipal Elections Act, 1996*.

Attending Municipal Events during an Election Period

- 4.11** A Candidate, Third Party Advertiser or Political Party is permitted to attend a Municipal Event, or events held at Municipality facilities, in either their capacity as elected representatives, where applicable, or as private citizens, but may not campaign while in attendance. No Election Sign may be posted at a Municipal Event and no Campaign Materials may be disseminated at a Municipal Event.

5.0 Responsibilities

- 5.1** The Clerk is responsible for the administration of the policy and, in the case of a municipal Election, for providing each registered Candidate and Third Party Advertiser with a copy of the policy.
- 5.2** Each Candidate and Third Party Advertiser is responsible for following the provisions outlined in this policy.

6.0 Reference Documents

- 6.1** *Municipal Election Act, 1996, S.O. 1996, c.32*



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- 6.2** *Election Act*, R.S.O. 1990, c.E.6
- 6.3** *Canada Elections Act*, SC 2000, c.9
- 6.4** *Election Finances Act*, R.S.O. 1990, c.E.7
- 6.5** *Municipal Act, 2001*, R.S.O. 2001, c.25
- 6.6** Code of Conduct for Council, Local Board & Committee Members

7.0 Communication and Training

- 7.1** This policy will be provided to each registered Candidate and Third Party Advertiser pursuant to the *Municipal Elections Act, 1996*.
- 7.2** This policy will be posted on the Municipality of Lakeshore website and provided to Candidates and Third Party Advertisers upon registration.

8.0 Review/Revisions

- 8.1** This policy will be reviewed every four years.

#	Date Revised	Author	Section	Details of Change
1				
2				
3				
4				

Refer policy questions to the Clerk.

Notice of Motion submitted by Deputy Mayor Bailey regarding Hydro One Chatham to Lakeshore

Whereas Hydro One's Chatham to Lakeshore preferred line cuts through 220 acres of prime employment land situated on the 401 interchange, restricting the use of this land and strongly interfering with the Community of Comber;

Whereas this engagement done by Hydro One in selecting their preferred route was insufficient;

Whereas hydro lines in close proximity to residential districts lowers property value and creates health concerns;

Whereas hydro lines seriously impede farm machinery from operating their GPS equipment;

Whereas the proposed 2A line chosen by Hydro One affects far more commercial and residential stakeholders than the existing line north of the 401;

Whereas Council of the Municipality of Lakeshore resolved November 9, 2021 by motion #381-11-2021 that they will only accept an alignment travelling west along the existing Hydro One corridor North of the 401 to the West side of the Rochester Townline Road. From here, travel south to the Substation

Therefore, be it resolved now that the Council of the Municipality of Lakeshore formally share Motion #381-11-2021 and request the support from the Municipality of Chatham-Kent.

Notice of Motion submitted by Councillor Walstedt regarding Accessible Swings

Administration review the accessible swing costs and potential use in Lakeshore Parks.

Notice of Motion submitted by Councillor Kerr regarding Lakeview Park

Whereas, The Lakeshore Parks Master Plan, the Lakeview Park/West Beach Master Plan recommend a multi-year strategic plan for funding the Regional Park;

And Whereas, The Waterfront Park Report to Council in September 2020 for \$1.5 mil to be put into reserves each year for the next 6 to 8 years;

And Whereas, Lakeshore Council has not given specific direction to Administration to make a multi-year savings plan;

Be it resolved that, Council direct Administration to develop a funding model to deliver Lakeshore's Waterfront Park, to be presented to Council in the draft 2023 Budget with a goal of Constructing first phase in 2023.

**MUNICIPALITY OF LAKESHORE
BY-LAW 112 - 2021**

**BEING A BY-LAW FOR THE GAGNIER DRAIN (1298464 ONTARIO LTD
(FAUTEUX) BRIDGE ENCLOSURE)
IN THE MUNICIPALITY OF LAKESHORE - IN THE COUNTY OF
ESSEX.**

WHEREAS, the Council of the Municipality of Lakeshore in the County of Essex in accordance with the provisions of the Drainage Act, R.S.O. 1990 C.D. 17 deems it expedient that the following drain be created in accordance with Section 4 of the said Act.

**GAGNIER DRAIN (1298464 ONTARIO LTD (FAUTEUX) BRIDGE ENCLOSURE)
IN THE MUNICIPALITY OF LAKESHORE –
IN THE COUNTY OF ESSEX.**

AND WHEREAS, the estimate cost of repairing and improving the drainage works is \$64,500.00.

THEREFORE the Council of the Municipality of Lakeshore pursuant to the Drainage Act, 1990 enacts as follows:

1. The considered report dated November 19th, 2021 and attached hereto is hereby adopted and the drainage works as therein indicated and set forth is hereby authorized and shall be completed in accordance therewith.
2. The Municipality of Lakeshore may borrow on the credit of the Municipality the amount of \$64,500.00 being the amount necessary for construction of the drainage works.
3. The Municipality may issue debentures for the amount borrowed less the total amount of,
 - (a) Grants received under Section 85 of the Act;
 - (b) Commuted payments made in respect of the lands and roads assessed within the municipality;
 - (c) Monies paid under subsection 61 (3) of the Act, and;
 - (d) Monies assessed in and payable by another municipality.
4. Such debentures shall be made payable within five (5) years from the date of the debentures. If greater than \$10,000 and upon request for a ten (10) year debenture term, such debentures shall be made payable within a ten (10) year period from the date of the debentures. Debentures shall bear interest at a rate established at the date of issuance of such debentures.
5. A special equal annual rate sufficient to redeem the principal and interest on the debentures, shall be levied upon the lands and roads identified in the engineers report and will be collected in the same manner and at the same time as other taxes are collected in each year for five (5) and/or ten (10) years after the passing of this By-law.
6. All assessments of \$750.00 or less are payable in the year in which the assessment is imposed.
7. This By-law comes into force on the passing thereof and may be cited as Gagnier Drain (1298464 Ontario Ltd (Fauteux) Bridge Enclosure).


First Reading: December 14th, 2021

Second Reading: December 14th, 2021

Provisionally adopted this 14th day of December, 2021



Tom Bain,
Mayor



Kristen Newman,
Director of Legislative and Legal
Services

Third Reading this 15th day of March, 2022
Enacted this 15th day of March, 2022

Tom Bain,
Mayor

Kristen Newman,
Director of Legislative and Legal
Services

**MUNICIPALITY OF LAKESHORE
BY-LAW 14-2022**

**BEING A BY-LAW FOR THE WEST TOWNLINE DRAIN (NEHME BRIDGE)
IN THE MUNICIPALITY OF LAKESHORE - IN THE COUNTY OF
ESSEX.**

WHEREAS, the Council of the Municipality of Lakeshore in the County of Essex in accordance with the provisions of the Drainage Act, R.S.O. 1990 C.D. 17 deems it expedient that the following drain be repaired and improved in accordance with Section 78 of the said Act.

**WEST TOWNLINE DRAIN (NEHME BRIDGE)
IN THE MUNICIPALITY OF LAKESHORE –
IN THE COUNTY OF ESSEX.**

AND WHEREAS, the estimate cost of repairing and improving the drainage works is \$54,850.00.

THEREFORE the Council of the Municipality of Lakeshore pursuant to the Drainage Act, 1990 enacts as follows:

1. The considered report dated January 13th, 2022 and attached hereto is hereby adopted and the drainage works as therein indicated and set forth is hereby authorized and shall be completed in accordance therewith.
2. The Municipality of Lakeshore may borrow on the credit of the Municipality the amount of \$54,850.00 being the amount necessary for construction of the drainage works.
3. The Municipality may issue debentures for the amount borrowed less the total amount of,
 - (a) Grants received under Section 85 of the Act;
 - (b) Commuted payments made in respect of the lands and roads assessed within the municipality;
 - (c) Monies paid under subsection 61 (3) of the Act, and;
 - (d) Monies assessed in and payable by another municipality.
4. Such debentures shall be made payable within five (5) years from the date of the debentures. If greater than \$10,000 and upon request for a ten (10) year debenture term, such debentures shall be made payable within a ten (10) year period from the date of the debentures. Debentures shall bear interest at a rate established at the date of issuance of such debentures.
5. A special equal annual rate sufficient to redeem the principal and interest on the debentures, shall be levied upon the lands and roads identified in the engineers report and will be collected in the same manner and at the same time as other taxes are collected in each year for five (5) and/or ten (10) years after the passing of this By-law.
6. All assessments of \$750.00 or less are payable in the year in which the assessment is imposed.
7. This By-law comes into force on the passing thereof and may be cited as West Townline Drain (Nehme Bridge).

First Reading: March 15th, 2022

Second Reading: March 15th, 2022

Provisionally adopted this 15th day of March, 2022

Tom Bain,
Mayor

Kristen Newman,
Clerk

Third Reading this day of
Enacted this day of

Tom Bain,
Mayor

Kristen Newman,
Clerk

Municipality of Lakeshore

By-law 22-2022

**Being a By-law to Confirm the Proceedings of the
Council of the Municipality of Lakeshore**

Whereas, in accordance with the *Municipal Act 2001*, S.O. 2001, c. 25, municipalities are given powers and duties in accordance with this Act and many other Acts for purposes which include providing the services and other things that a municipality considers are necessary or desirable for the municipality;

And Whereas, in accordance with said Act, the powers of a municipality shall be exercised by its Council;

And Whereas, municipal powers, including a municipality’s capacity, rights, powers and privileges shall be exercised by by-law unless the municipality is specifically authorized to do otherwise;

And Whereas it is deemed expedient that the proceedings of the Council of the Municipality of Lakeshore at these sessions be confirmed and adopted by By-law.

Now therefore the Council of the Municipality of Lakeshore enacts as follows:

1. The actions of the Council of the Municipality of Lakeshore in respect of all recommendations in reports of Committees, all motions and resolutions and all other actions passed and taken by the Council of the Municipality of Lakeshore, documents and transactions entered into during the February 15th and March 7th 2022 sessions of Council be adopted and confirmed as if the same were expressly embodied in this By-law.
2. The Mayor or the Deputy Mayor together with the Clerk are authorized and directed to execute all documents necessary to the action taken by this Council as described in paragraph 1 of this By-law and to affix the Seal of the Municipality of Lakeshore to all documents referred to in said paragraph 1 above.

Read and passed in an open session on March 15th, 2022.

**Mayor
Tom Bain**

**Kristen Newman
Clerk**

/cl

Municipality of Lakeshore

By-law 25-2022

Being a By-law to amend By-law 2-2012, Zoning By-law for the Municipality of Lakeshore (ZBA-1-2022)

Whereas By-law 2-2012 is the Municipality's comprehensive zoning by-law regulating the use of lands and the character, location and use of buildings and structures within the Municipality of Lakeshore;

And whereas the Council of the Municipality of Lakeshore deems it expedient and in the best interest of proper planning to further amend By-law 2-2012;

And whereas this amendment is in conformity with the Lakeshore Official Plan;

Now therefore the Council of the Municipality of Lakeshore enacts as follows:

1. Schedule "A", Map 90 of By-law 2-2012, is amended as follows:
 - a. the zoning classification of 21575 Lakeshore Road 303, legally described as Part Lot 21, Concession 3, Tilbury which is shown for reference only in Schedule "A" to this by-law, is changed from "Agricultural Zone Exception 31 (A-31)" to "Agricultural (A)".
2. This by-law shall come into force with sections 34 of the *Planning Act*, R.S.O. 1990, c. P. 13.

Read and passed in open session on March 15, 2022.

**Mayor
Tom Bain**

**Clerk
Kristen Newman**

Schedule "A" to By-law 25-2022

Part Lot 21, Concession 3, Tilbury
In the Municipality of Lakeshore

