

The Corporation of the Town of Lakeshore

Regular Council Meeting Addendum

Tuesday, April 28, 2020, 6:00 PM

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

Pages

10. Reports for Information

*d. High Water and Flood Mitigation Program

2

Recommendation:

This report is for information only.

The Corporation of the Town of Lakeshore

Report to Council

Engineering & Infrastructure Services

Engineering Services



To: Mayor & Members of Council

From: Nelson Cavacas, Director, Engineering & Infrastructure Services

Date: April 20, 2020

Subject: High Water and Flood Mitigation Program

Recommendation

This report is for information only.

Background

Council adopted the following resolution at its January 14, 2020 meeting:

That a report be provided on steps to take to immediately action to address the flooding situation, including diversion and strengthening enforcement options regarding infiltration and inflow.

Flooding in Lakeshore is a systemic issue that is not able to be addressed through infrastructure projects alone. Current lake conditions are rapidly changing and are expected to become increasingly variable in the future as a result of climate change. The Town has adopted a multi-pronged approach to mitigating the impact of high water levels and reducing the impacts of flooding. The following are the Town's three focus areas:

- Stormwater Management
- Wastewater Management
- Land Use and Shoreline Management

This report will first discuss existing programs and initiatives the Town has underway (Part A) and then discuss future potential projects (Part B). For all projects, there is a capital project cost and cost for staff time. It is important to note, that increasing the level of service on the High-Water and Flood Mitigation Program will need to also consider increasing staff resources to undertake the additional work.

Comments

Part A - Current programs and Initiatives

Homeowner Retrofit Subsidies

Following the two significant rainfall events of September, 29, 2016 and August 28, 2017, the Town implemented subsidy programs to assist homeowners installing sanitary backwater valves, sump pump by-pass, roof downspout disconnections, along with completing a storm water master plan and increasing funding towards the investigations and repairs of the sanitary sewer collection system. The Town supports this program with an annual base budget of \$15,000, excluding staff time.

Stormwater Maintenance Program

Effective and efficient stormwater systems are crucial to managing snowmelt and rainfall events. The Town has completed stormwater capital and maintenance projects totaling in excess of \$2.3 million which include:

- Cleaning and flushing of the Leffler Drain;
- Cleaning/Excavation of the Amy Croft Stormwater Management (SWM) pond;
- Improvements to drainage systems servicing urban residential areas;
- Quenneville Pump Station Upgrade;
- St. Peter Street Reconstruction / replacement of storm sewers / incorporation of overland routing of flows to the Belle River

Inflow and Infiltration Program (I&I)

The Town has been experiencing the systemic issue of storm water infiltrating all four of the municipal sanitary systems for close to 20 years (Denis St. Pierre, Stoney Point Lagoons, Comber Lagoons, and the Woodslee Plant). Some progress has been made in the three smaller collection systems and to some extent as well, with the largest collection system that services more than 70% of the Town's population by the Denis St. Pierre WPCP.

Since implementing the I&I program, the Town has been successful at significantly reducing bypass events at the treatment plants. Bypass events occur during rainfall events whereby storm water enters the sanitary sewer. These events can also lead to surcharging, affecting private property and basements, with the latest event occurring in January 2020.

Although the bypass events have diminished to an average of six events per year and four recorded for 2019, half of these events (2 to 3) result to the level of impacting residential basements. The Town's investment into public education and subsidies for owners to install backwater valves to prevent basement backups has been beneficial. To date, the Town has also installed 770 rain cap units, which prevent water from entering the sanitary system through maintenance holes.

The current I & I program following the camera inspections and investigations completed in 2018 on the Town's main line sewers has shifted direction, with the focus on individual sanitary service connections from residential, commercial and industrial properties. In the last two years more than 400 service connections have been identified with serious leaks with surface and ground water. Of these connections, 42 were prioritized and repaired in 2019 which had the largest leaks. These repairs have typically been detected at the property line with the sanitary cleanout riser pipes having been broken. A majority are located on private driveways which make repairs costly with the added complication of obtaining authorization from homeowners to undertake the work. The Town is currently in the process of sending out notices to another 50 properties to continue completion of private connection repairs.

In addition to the private connection repairs, the Town will be completing some testing of the sanitary sewers in areas along frontage of properties with deep residential lots to identify potential broken caps on clean outs on private property and to check for any cross connections.

The I&I program is supported with a base budget of \$300,000, excluding staff time. This funding was also increased with an additional one time budget approval of \$300,000 in 2018, \$200,000 in 2019 and an additional \$300,000 in 2020 for a total 2020 budget of \$600,000. The total I & I program funding has been applied to targeting the problematic areas of high flows in the Denis St. Pierre Plant sewer catchment.

Stormwater Master Plan

The first phase of the Storm Water Master Plan (SWMP) is being finalized and speaks to the urban areas north of County Road 42 and west of Duck Creek. It is anticipated to be presented to Council in May 2020. The Town approved \$450,000 in the 2019 Budget which is carried forward and to be combined with the additional \$300,000 approved in the 2020 Budget, for a total funding of \$750,000 to complete SWMP projects this year. Pending Council's consideration and adoption, the Plan has a number of recommendations that can be commenced this year with the current funding available in the amount of \$750,000 in 2020, excluding staff time (see **Appendix B**). These include the following:

- 1) Amy Croft SWM Pond Outlet Upgrades (Design & Construction)
- 2) Countrywalk Subdivision SWM Pond Expansion (Design & Approvals only)
- 3) River Ridge Subdivision SWM Pond Pump Station Improvements (Pumps)
- 4) Croft Drive overland flow route Inlet Improvements (Design & Construction)
- 5) Terra Lou Storm Outlet Upgrades (Design & Construction)
- 6) Seasons at the Creek Storm Pump Station & Outlet Upgrades (Design & Construction)

In addition to the SWMP Phase 1 study, there are currently seven storm drainage improvement projects that are underway at various stages of design and regulatory approvals. The 7 projects (see **Appendix C**) are as follows:

- 1) Wallace Line Drain and Outlet Upgrades
- 2) Mill Street Drainage System Upgrade Replacement
- 3) Puce Road (CR22 to Lillydale) Drainage System Upgrade Replacement
- 4) Major Street Drainage System Upgrade Replacement
- 5) Lillydale Avenue Drainage System Upgrade Replacement
- 6) Leffler Drain & Pump Station Outlet Upgrades (Tied to Patillo Rd Project)
- 7) Caille Avenue Drainage System Upgrade Replacement

To fund these projects, the Town is continually exploring opportunities for grants as they arise. A recent example of success in this regard is the Patillo Road project which has been approved by the Province for \$4 million. The Town is waiting to hear back still on a second related grant application under the Disaster Mitigation and Adaptation Fund (DMAF) which will provide upgrades to the Leffler Drain and Pump Station Outlet and road works, totaling approximately \$23 million.

The combined total road and drainage improvement costs for the project numbers listed above for #2, #3, #4 and #5 is estimated at \$9,000,000 to complete these four projects.

High Lake Levels

Current environmental conditions in the Great Lake Basin have seen water levels rise over recent years. Lake St. Clair is currently seeing levels several inches higher than the highest historical level seen in 1986. Currently, lake levels are reported by the Conservation Authorities to be trending approximately 13" higher by comparison to the lake levels at this time last year. Projections suggest that lake levels will be 3" higher than the levels reached last year. As such, the Town has been actively identifying areas of concerns that pose risks to municipal infrastructure and assets.

The Town continues to deliver the sand bag program for private home owners to protect their homes and assets. Sand bags are intended to be used on higher ground and protect lower entry points that are at risk of flood waters entering into the house such as all doorways, low window openings, etc. In 2019 the Town provided residents a total of 136,000 sand bags and sand for a combined cost of \$120,000, excluding staff time. This year the Town has provided 57,000 sand bags to date and anticipates the total number and cost for 2020 to potentially exceed 2019. These costs are being absorbed within the current Public Works operating budget.

The Town continues to explore opportunities to share sand bag filling equipment with regional neighbouring municipalities or purchasing a similar unit at an estimated cost of \$15,500. In addition to the capital cost to purchase a unit, additional staff and training would be required to operate the machines.

As an alternative to purchasing sandbagging machines, the Town is reviewing the feasibility of modifying existing salting units to fill sandbags. This would also have a resourcing component that is still being reviewed.

Shoreline Management Plan

The Town is working to complete the Shoreline Management Plan which is studying the expected impacts of wave action, high water level, climate change, and erosion. A long term-management plan for the shoreline will be developed with a number of recommendations which will be considered for implementation in future Town budgets. Outcomes from this work are likely to be land use focused. This project has a total budget of \$153,000, excluding staff time.

Future Potential Drainage Projects

The Town has been receiving concerns from residents regarding additional drainage concerns in areas where either no drainage currently exist, such as along Valentino Drive or existing drainage systems require upgrading. These areas are along Valentine Drive, the easterly portion of Ross Beach Road and sections along Caille Avenue. These combined are estimated at a cost of \$5 million for drainage works only.

Community Energy Plan

The Community Energy Plan is ERCA led with the support of the County and Lower Tier municipalities in the region. The Plan endeavours to create a long term strategy for the region as it relates to the impacts of higher rainfalls, higher lake levels, warmer temperatures and other impacts of climate change. The Town has contributed \$15,000 towards this initiative, excluding staff time.

Regional and Provincial Collaboration

The Town actively participates in regional roundtables, workshops, and information sharing sessions with other municipal governments and ministerial staff from the Provincial and Federal Governments.

Costs of Existing High water and Flood Mitigation Program for 2020

Homeowner Backwater Valve Subsidy - \$15,000
Infiltration and Inflow Program - \$600,000
Stormwater Master Plan Recommended Initiatives - \$ \$750,000
Sandbag Program - \$120,000
Shoreline Management Plan - \$153,000
Community Energy Plan - \$15,000
Total Project Costs - \$1,653,000

Resourcing Support Costs for Existing High water and Flood Mitigation Program

Town staff across Engineering, Public Works, Parks, Planning, Buildings, Finance, Drainage and Senior Management support the high water and flood mitigation program. While no current staffing positions are allocated to support high water and flooding on a

full time basis, Administration estimates that the culmination of 5 FTE are required to support existing initiatives and levels of service.

Part B - Future Potential Projects

As evidenced in the above section 'Current Programs and Initiatives', there are a number of projects underway spawning new initiatives for the Town that will be brought forward in the future for Council's consideration. To fully address issues with high water levels and climate change in the future, coordinated support from the Provincial and Federal Government will be requirement due to the sheer scale of the problem.

Resourcing an Expanded High water and Flooding Program

If the Town was to take on further work at this time it would require additional resourcing support. Staff currently struggle to keep up with internal expectations as well as from the public with regard to current initiatives listed above. Should Council wish to increase the level of service in the Town's response to high water levels and flooding, Administration recommends establishing a new Water Resources business unit which could be studied further through the Organizational Review that will be conducted later this year. A Water Resources unit would provide the Town dedicated leadership and project support as it relates to the numerous projects outlined above and capacity to undertake more.

Future potential projects for the Town of Lakeshore are listed below:

Potential Future Diversion of high I&I Flows Project

The Town is investigating the feasibility of a potential diversion of high I & I flows within the sanitary sewer collection system. This would entail an overflow point being established that would redirect events of high flows to a new sanitary pump station at CR22 and W. Puce Road. These overflows would then be pumped by forcemain to the Oakwood sanitary trunk sewer as shown in **Appendix A**. If the analysis confirms this approach to be feasible, Administration will return to Council with a report to pursue funding and the Ministerial Approval required to proceed. This work is estimated to cost \$3.4 million and may be a candidate for a future initiative.

Potential High water and Flood Mitigation Infrastructure Projects

The Town has identified a number of flood mitigation infrastructure projects consisting of earth berm works, rock erosion protection, sealing of drainage systems. A list of these potential projects may be found below and locations depicted in Appendix D:

- 1) Earth berm along Albert Street along canal
- 2) Earth berm on Mariners Drive at Tisdelle
- 3) Earth berm on Island Crescent north of Melody Drive at Canal
- 4) Earth berm on Melody Drive at Tisdelle
- 5) Strong Road Parkette Erosion Protection
- 6) Lakeshore Park Drive Sealing Up Storm Sewer System
- 7) Golfview Road Parkette Erosion Protection

- 8) Belle River Marina Breakwall Erosion Protection
- 9) Caille Avenue Drainage System Overflow Bypass at Rourke Line

Future Shoreline Management Plan Recommendations

While still under development, the Shoreline Management Plan will produce a new body of work for the Town to undertake. The Town will consider funding of this new work in future budgets.

Summary / Conclusion

As demonstrated in this report, the Town is undertaking significant flood mitigation work. The Town will continue to build on the successes realized to date in the I&I program and will use the existing Sewer Use Bylaw to support enforcement and mandate inspections of private internal plumbing as needed.

If levels of service are desired to increase, Administration recommends Council providing direction to investigate the addition of a new Water Resources role through the Organizational Review planned for this year.

Others Consulted

Stantec Consulting Ltd.

Financial Impacts

Although the recommendation does not have any budget implications, as described above there is potential for a variance in the Public Works budget centre as result of flood mitigation measures being deployed with sand bags, earth berms, erosion protection, etc.

Any variances incurred will be reported to Council through the quarterly variance reports. Where possible, the Public Works department will attempt to mitigate the impacts of any variance by mitigating spending in other line items where possible.

Should Council wish to increase any levels of service pertaining to high water levels and flooding, Administration will return to Council with a funding strategy and will address resourcing requirements to support as part of the Organizational Review later this year.

Attachment(s): Appendix A - Plan of Sanitary PS and Forcemain Diversion
Appendix B - Stormwater Master Plan Projects
Appendix C - Storm Drainage Improvement Projects
Appendix D – High Lake Levels Mitigation Measures

Report Approval Details

Document Title:	Mitigation Measures to address Flooding Situation.docx
Attachments:	<ul style="list-style-type: none">- Appendix A - Plan of Sanitary PS and Forcemain Diversion - Figure-1.pdf- Appendix B - StormwaterMasterPlanProjects.pdf- Appendix C - StormDrainageImprovementProjects.pdf- Appendix D - HighLakeLevelsMitigationMeasures.pdf
Final Approval Date:	Apr 24, 2020

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

Rosanna Pellerito

Kristen Newman

Truper McBride

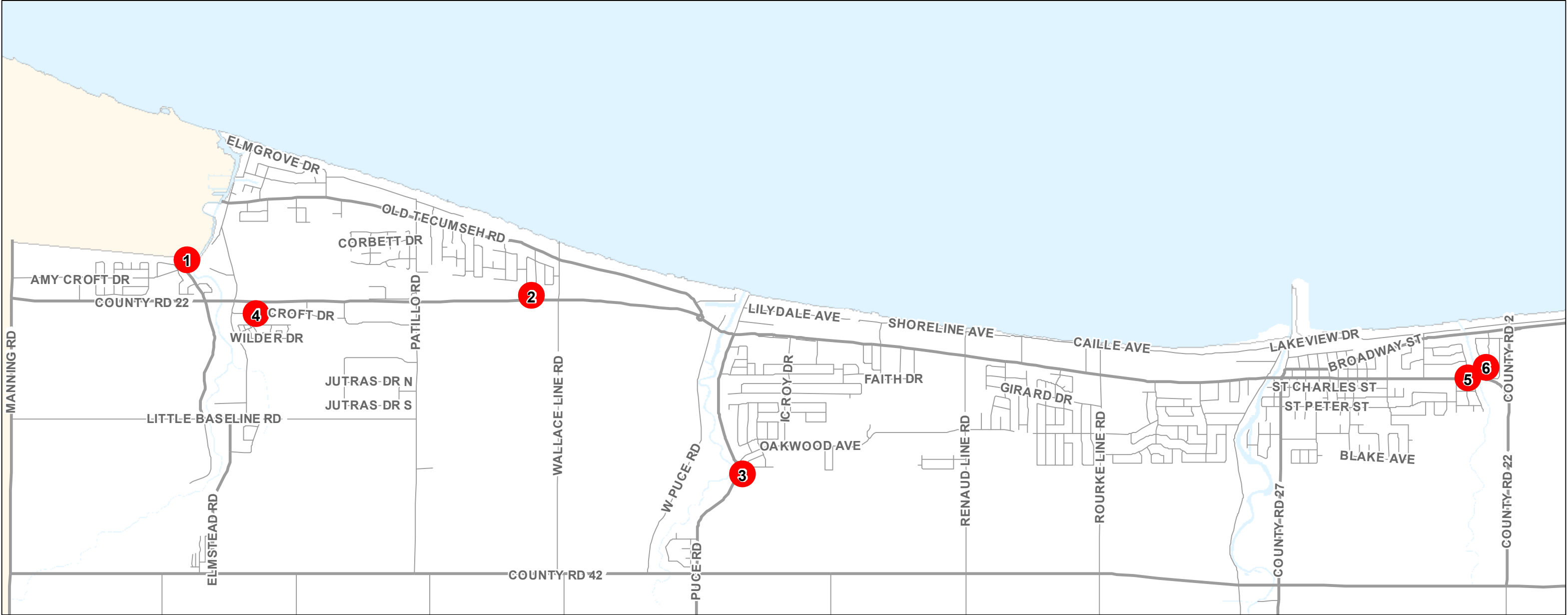


APPENDIX A



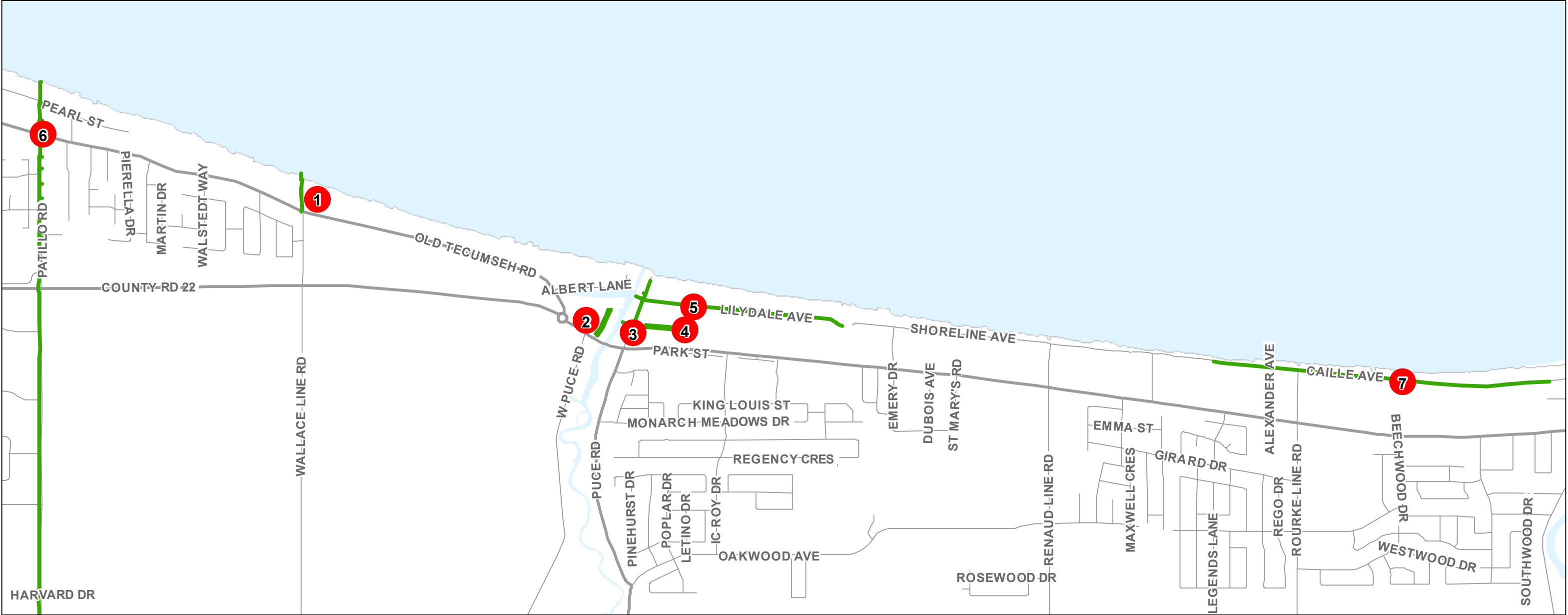
TOWN OF LAKESHORE
POSSIBLE FUTURE SANITARY SEWER
FORCEMAIN ON WEST PUCE RIVER ROAD

Appendix B: Stormwater Master Plan - Phase 1 Projects



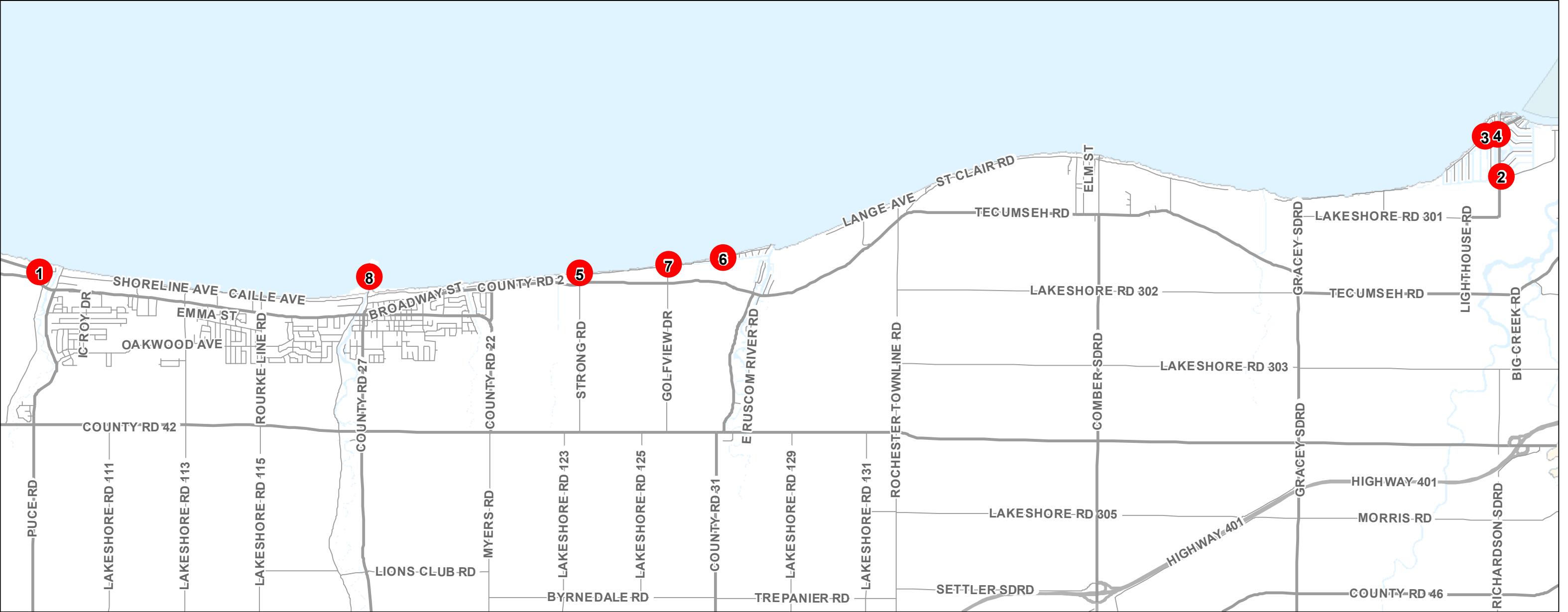
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Appendix C: Storm / Drainage System Improvement Projects



- 1. Wallace Line Drain and Outlet Upgrades
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Appendix D: Lake Levels Mitigation Measures



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