

Appendix A-3

Public Information Centre #1

This is an example of the PIC cover letter sent to Agencies and First Nations on the project contact list.

July 12, 2018

Chippewas of the Thames First Nation
320 Chippewa Road
Muncey, Ontario
N0L 1Y0

Attention: Chief Leslee White-eye

***Town of Tecumseh
Tecumseh Storm Drainage Master Plan
Public Information Centre No. 1***

Dear Chief White-eye:

As outlined in the enclosed notice, the Town of Tecumseh has retained Dillon Consulting Limited to complete a Storm Drainage Master Plan to address the impacts of surface flooding on the community. This Master Plan will confirm the factors contributing to surface flooding resulting from significant storm events, identify and evaluate alternative solutions to reduce the risk and impacts of surface flooding, and outline a recommended long-term implementation strategy.

A Public Information Centre (PIC) is planned for Wednesday, July 25, 2018, as outlined in the enclosed Notice. Visit the Town of Tecumseh website for updated information and resources related to this study: www.tecumseh.ca/townhall/departamental-services/Engineering_Services/studies/storm_drainage_master_plan

A second PIC meeting will be held in late 2018 to present a more detailed analysis of the recommended solutions for public and agency input.

If you are unable to attend the PIC and would like information on the study, please contact one of the Study Team members listed in the attached notice to make arrangements.

Yours sincerely,

DILLON CONSULTING LIMITED



Flavio R. Forest, P.Eng.
Project Manager

FRF:rrk
Enclosure

cc: Mr. Phil Bartnik, P.Eng., PMP, Town of Tecumseh

Our file: 16-4880



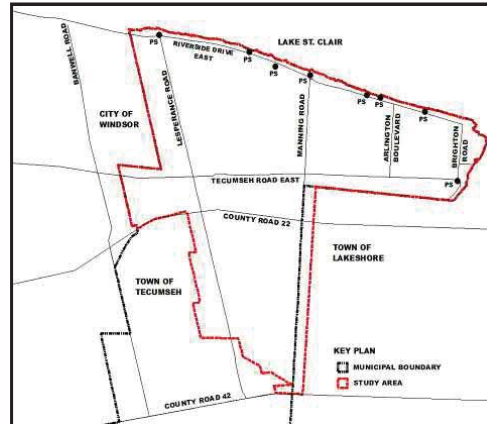
3200 Deziel Drive
Suite 608
Windsor, Ontario
Canada
N8W 5K8
Telephone
519.948.5000
Fax
519.948.5054

Dillon Consulting
Limited

The Town of Tecumseh is completing a Storm Drainage Master Plan to address the impacts of surface flooding on the community. This Master Plan will confirm the factors contributing to surface flooding resulting from significant storm events, identify and evaluate alternative solutions to reduce the risk and impacts of surface flooding, and outline a recommended long-term implementation strategy.

This Master Plan does not directly address basement flooding resulting from sanitary sewer surcharging. The Town of Tecumseh has been addressing basement flooding risks separately through other studies, initiatives, and subsidy programs since 2010.

Your participation in this Tecumseh Storm Drainage Master Plan process will contribute to the results and help to develop suitable solutions that can be implemented in partnership with the community. Consultation is an integral part of this process and members of the public, agencies, Indigenous communities and other interested persons are encouraged to participate.



This **first** Public Information Centre (PIC) meeting has been scheduled to present the following:

- Learn more about the causes and factors being considered to address surface flooding;
- Preliminary results identifying the problem areas in the storm sewer and overland drainage systems;
- Identification and evaluation of alternative storm drainage solutions, including preferred regional solutions; and
- Next steps

The **first** PIC meeting is being held as follows:

Public Information Centre #1	
Date:	Wednesday, July 25 th , 2018
Time:	3:00pm to 5:00pm and 6:00pm to 8:00pm
Location:	Royal Canadian Legion Branch 261 12326 Lanoue St, Tecumseh, ON N8N 1N3

A second PIC meeting will be held in late 2018 to present a more detailed analysis of the recommended solutions for public and agency input. Visit the Town of Tecumseh website for updated information and resources related to this study and to provide additional input to the study team.

www.tecumseh.ca/townhall/departmental-services/Engineering_Services/studies/storm_drainage_master_plan

This study is being carried out in accordance with the Master Plan Approach No. 2 of the Municipal Class Environmental Assessment (EA) (Municipal Engineers Association, 2015) process. This study will fulfill EA requirements for Schedule B projects and satisfy Phases 1 and 2 of the process for Schedule C projects.

If you have any questions, please contact either of the project representatives:

Phil Bartnik, P.Eng.
Director, Public Works & Environmental Services
Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario, N8N 1W9
Ph: (519) 735-2184 ext. 148
Email: TecumsehDrainageMP@dillon.ca

Flavio Forest, P.Eng.
Project Manager
Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, Ontario, N8W 5K8
Ph: (519) 948-4243 ext. 3233
Email: TecumsehDrainageMP@dillon.ca

All comments and information received from individuals, stakeholder groups and agencies regarding this study are being collected to assist the Town of Tecumseh in completing the Storm Drainage Master Plan. Information will be collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act and with the exception of personal information, all information provided will become part of the public record. This notice is also available on the Town's website and social media accounts.

TECUMSEH STORM DRAINAGE MASTER PLAN



Welcome to Public Information Centre #1

Town of Tecumseh
Royal Canadian Legion Branch 261
12326 Lanoue Street, Tecumseh, ON



Welcome



Today's PIC Objectives

- ✓ **OUTLINE** why the study is being completed
- ✓ **PROVIDE** background information and define the study area
- ✓ **HIGHLIGHT** what the Town is currently doing to reduce flooding
- ✓ **PRESENT** alternatives developed for the study and the decision making process
- ✓ **SUMMARIZE** the next steps in the study

Project Overview



The Town of Tecumseh is completing a Storm Drainage Master Plan to:

- Identify and address the impacts of surface flooding on the community.
- Identify and evaluate a range of solutions to reduce and minimize the risk of surface flooding.
- Recommend a phased approach to implementation that requires action by the Town and property owners.
- Develop recommendations to ensure no adverse impacts from future development on existing neighbourhoods.

This study does not directly focus on basement flooding resulting from sanitary sewer surcharging, which the Town of Tecumseh has been addressing separately through other studies, initiatives, and subsidy programs since 2010.

Surface flooding due to high Lake Levels will not be reviewed, but is to be addressed in a future study outlined within the Town Flood Mitigation Strategy.

Tonight's PIC

This is the first of two planned Public Information Centres for the project. We encourage you to visit the stations outlined below:

Station 1: Project Overview

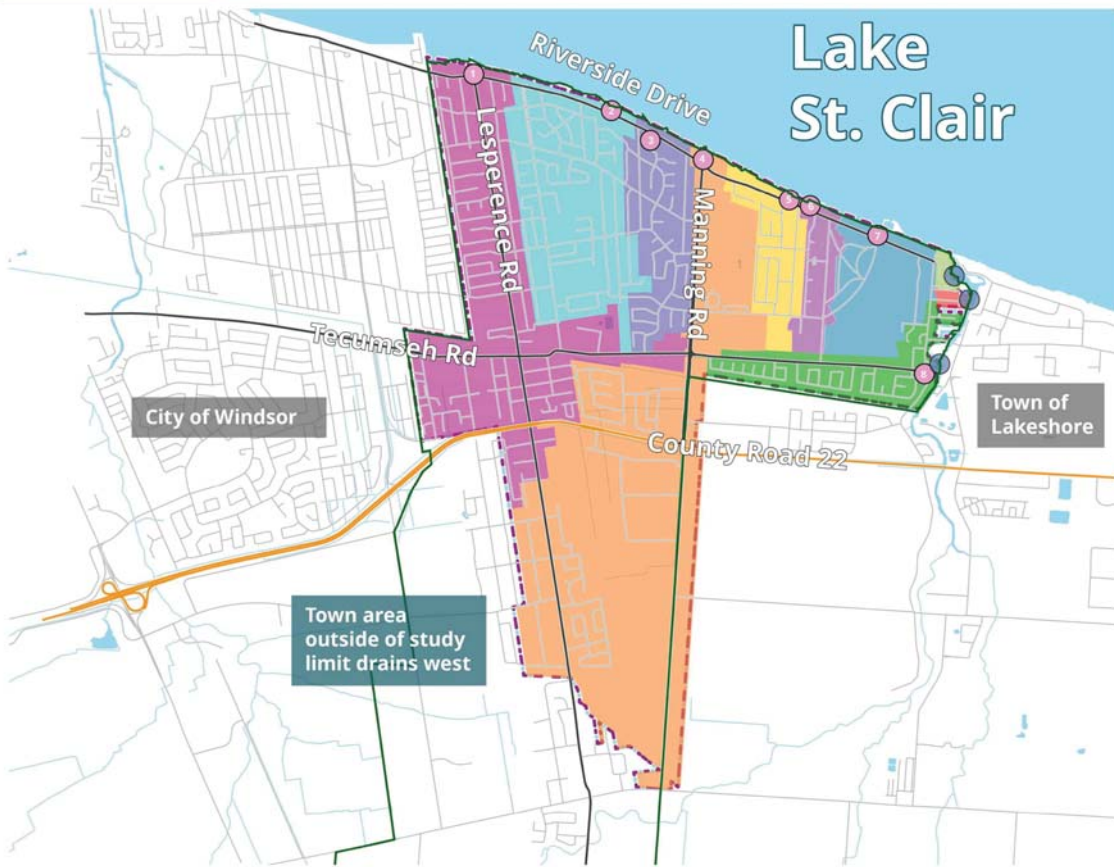
Station 2: Learn about Flooding

Station 3: Identification of Surface Flooding Problem Areas

Station 4: Alternative Flooding Solutions

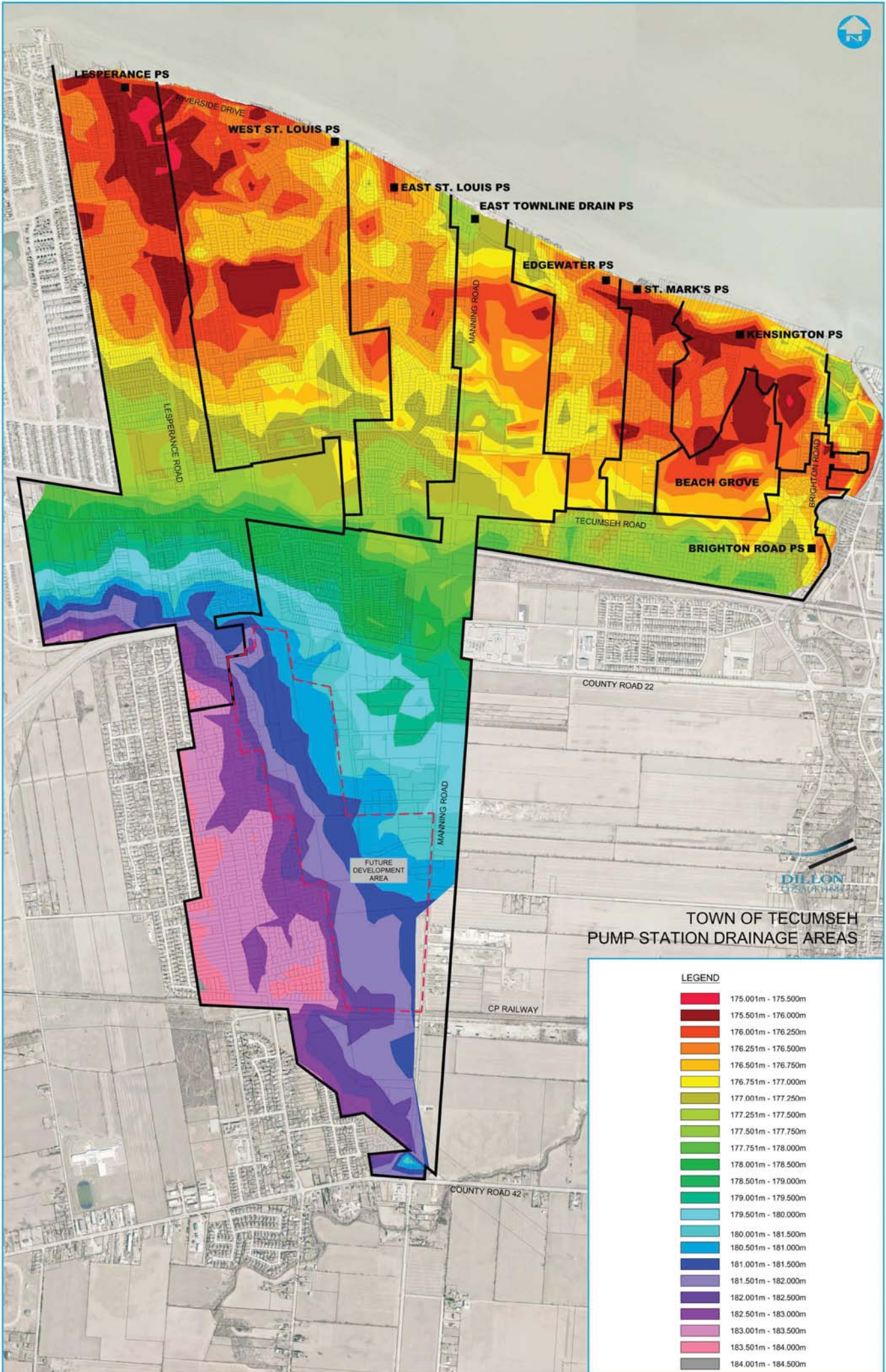
Ask questions and provide the team with your input

STUDY STORM OUTLETS AND SERVICE AREAS



Legend

- Highway
 - Major Street
 - Minor Street
 - Watercourse
 - Study Boundary
 - Municipal Boundary
 - Sewer Outfalls
 - Pump Stations
-
- 1. Lesperance PS
 - 2. West St. Louis PS
 - 3. East St. Louis PS
 - 4. ETLD/Manning PS
 - 5. Scully (Edgewater) PS
 - 6. St. Mark's PS
 - 7. Peter Cecile (Kensington) PS
 - 8. Brighton PS
 - 9. Pilots Cove Outfall
 - 10. Southwind/ Starwood Outfall
 - 11. Mei-Lin Outfall
- ▲
N



**TOWN OF TECUMSEH
PUMP STATION DRAINAGE AREAS**

LEGEND

- 175.001m - 175.500m
- 175.501m - 176.000m
- 176.001m - 176.250m
- 176.251m - 176.500m
- 176.501m - 176.750m
- 176.751m - 177.000m
- 177.001m - 177.250m
- 177.251m - 177.500m
- 177.501m - 177.750m
- 177.751m - 178.000m
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DILLON
CORPORATION

Problem and Opportunity Statement



The Town of Tecumseh is completing a Storm Drainage Master Plan to address the impacts of surface flooding on the communities that currently discharge storm water to Lake St. Clair and Pike Creek. This Master Plan will:

- Confirm the factors contributing to surface flooding depths that exceed the desired design of 0.30m resulting from significant storm events.
- Identify and evaluate alternative solutions to reduce the risk and impacts of surface flooding.
- Outline a recommended long-term implementation strategy.

The Master Plan does not directly address basement flooding resulting from sanitary sewer surcharging. The Town of Tecumseh has been addressing basement flooding risks separately through other studies, initiatives, and subsidy programs since 2010



Study Process and Schedule



The Master Plan is following the requirements of the Municipal Class Environmental Assessment (EA) (2000, as amended).

The Master Plan will fulfill the requirements of Phases 1 and 2 of the Class EA.

Class Environmental Assessment

The Class EA Process ensures:

- All relevant social, environmental and engineering factors are considered in the planning and design process.
- Public and agency input is integrated into the decision making process.



Key Engagement Activities



PUBLIC NOTIFICATION AND INTERACTION

Public interaction through the project email, tecumseh@drainage@dillon.ca and posting notices on the Town's website



PUBLIC INFORMATION CENTRES

PIC #1: Display of Existing Condition Surface Flooding and Alternative Flooding Solutions

PIC #2: Display of Recommended Solution and Phasing of Implementation

What other methods should we use to inform/involve the community?

Add your ideas below with sticky notes:

Stay Informed and Involved



Stay involved and provide your feedback....

Visit us at

www.tecumseh.ca/townhall/departmental-services/Engineering_Services/studies/storm_drainage_master_plan



Get Involved

Sign-up to our contact list to receive updates on future events

Email us at:

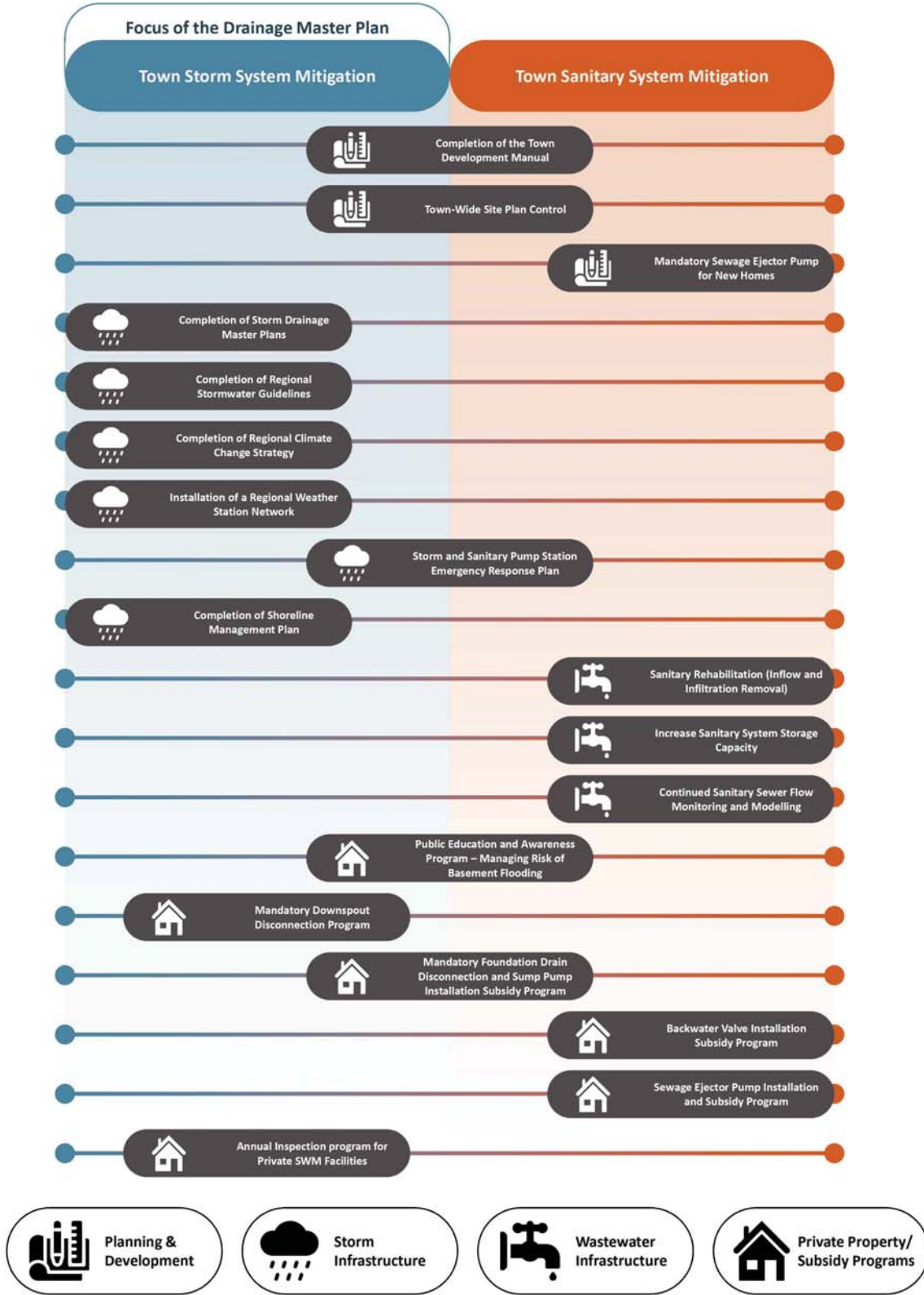
TecumsehDrainageMP@dillon.ca

Or **mail** a letter to the project team:

Phil Bartnik, P.Eng.,
Director Public Works &
Environmental Services
Town of Tecumseh
917 Lesperance Road,
Tecumseh, ON N8N1W9

Flavio R. Forest, P.Eng.,
Project Manager
Dillon Consulting Ltd.
3200 Deziel Drive, Suite 608
Windsor, ON N8W 5K8

Town of Tecumseh 18 Point Mitigation Strategy



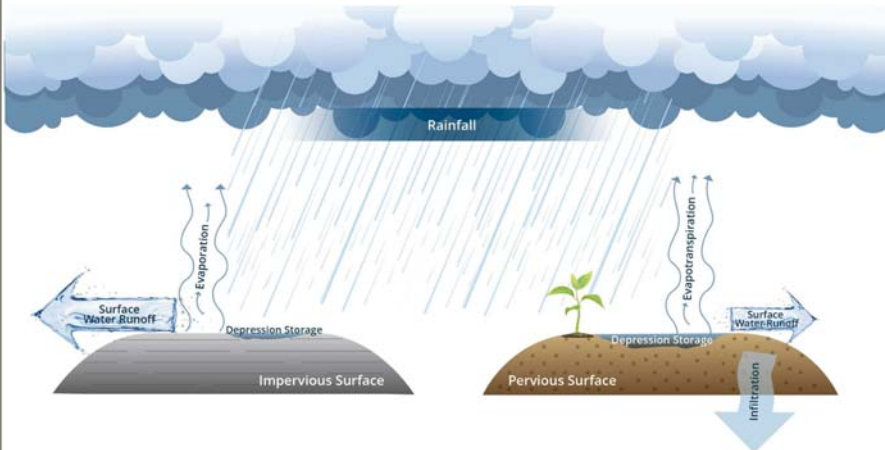
What Causes Surface Flooding?

Conditions that may result in flooding

- High intensity, short duration, or long duration **rainfall events** that produce high runoff and infiltration.
- **Saturated or frozen ground conditions** that result in more runoff.
- **Snowmelt**, including **ice blockage** that may limit drainage.
- **Shoreline flooding** from high lake and river levels.

Where does the rain go? It can:

1. Vaporize into the atmosphere = *Evaporation* and *Evapotranspiration*.
2. Soak into the ground through pervious surfaces like grass or soil = *Infiltration*.
3. Flow overland into creeks and sewers = *Runoff* or *overland drainage*.
4. Stay temporarily in lower-lying areas = *Depression storage* or *overland storage*.



Examples of Pervious Surfaces:



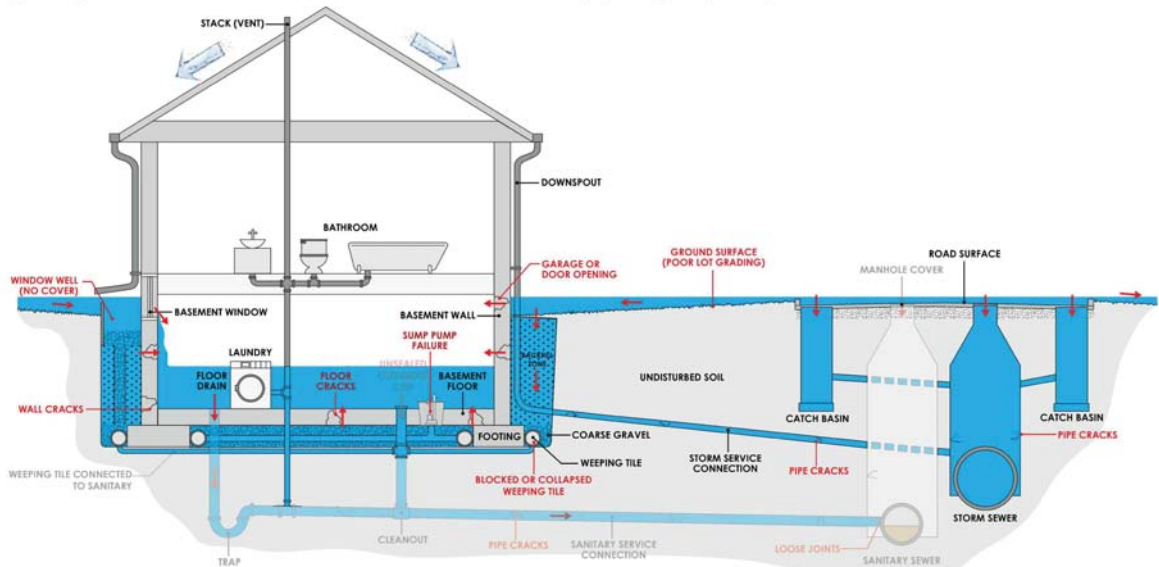
Examples of Impervious Surfaces:



How Does Surface Runoff Cause Basement Flooding?



1. **Overland flooding** caused by a more intense rainfall than the sewer can manage or by improper grading, that results in surface water entering homes through windows, doors, etc.
2. **Groundwater infiltration** caused by groundwater entering the basement through cracks in the basement walls and floor, or by weeping tiles/foundation drain flows that exceed the sump-pump capacity.

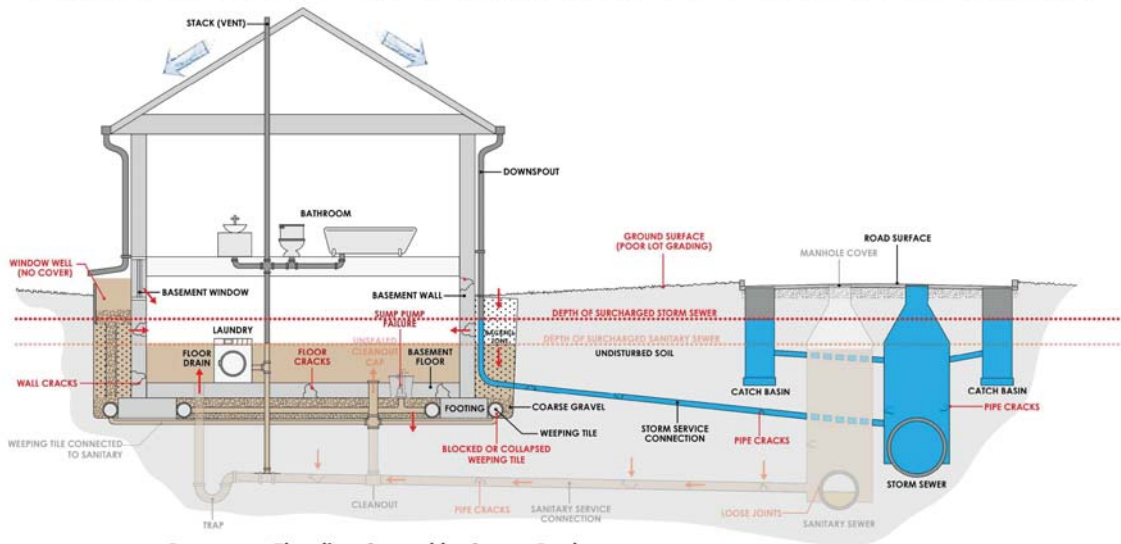


Basement Flooding caused by Overland Flooding and Infiltration Flooding

Image Source: Handbook for Reducing Basement Flooding, Institute for Catastrophic Loss Reduction (ICLR), 2009

How Does Sewer Backup Cause Basement Flooding?

1. **Storm Sewer Surcharging** occurs when the storm sewer cannot manage the volume of water entering the system and the water level in the municipal system is above the level of the basement floor, which under sump pump failure can cause water to back-up through the weeping tile/foundation drain connection and into the basement.
2. **Sanitary Sewer Backup** caused by excess flows, infiltration and improper connections that contribute more flow than the sanitary system is designed for, resulting in water surcharging through the home's sanitary plumbing (floor drain, shower drain, etc.)

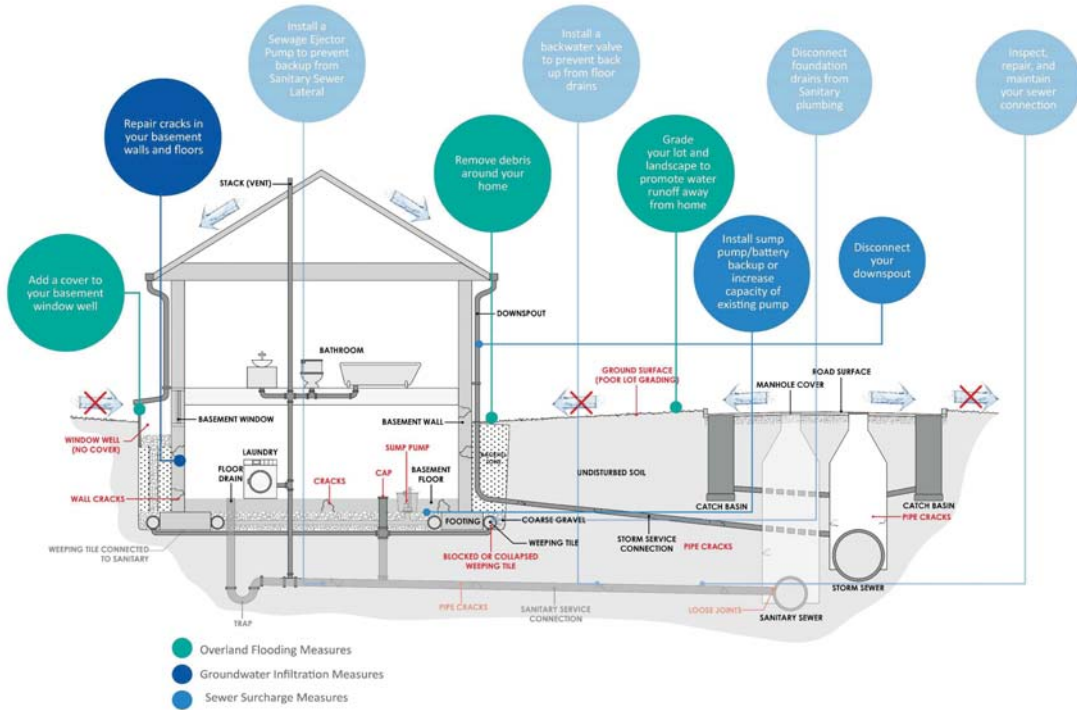


Basement Flooding Caused by Sewer Backup

Image Source: Handbook for Reducing Basement Flooding, Institute for Catastrophic Loss Reduction (ICLR), 2009

Mitigating Basement Flood Risk

There are many ways a homeowner can reduce the risk of basement flooding, including:



Surface Flooding Considerations

Thousands of Tecumseh residents have been impacted by surface flooding during the recent major storm of 2016 and 2017 which were considered well over a 1:100 year event (108mm in 24 hours). The September 28/29 2016 storm dumped 220 millimetres of rain in 24 hours, in which during the most intense period of the storm, 110mm of rainfall fell between 8:00am – 10:00am. The August 28 2017 event dumped 126mm of rainfall in six hours between 6:00pm and 12:00 midnight.

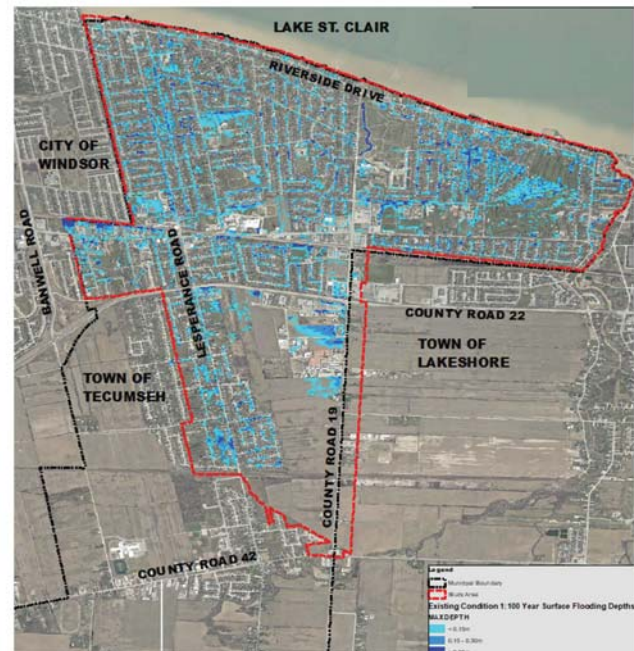
Flooding assessment in Tecumseh is complex.

To address the risk of surface flooding, various factors need to be considered, including:

- Lake and creek water levels at gravity outlets and areas of low elevation.
- Rainfall amount, duration and distribution.
- Ground cover, soil type and soil saturation conditions.
- Affordable and generally accepted storm drainage level of service.
- Climate change.

This current study does not include the analysis of surface flooding due to high Lake Levels, but will be reviewed under a future study outlined within the Town Flood Mitigation Strategy.

The Town has taken all provincially accepted industry measures to mitigate the impacts of surface flooding from reasonable rainfall events.



PCSWMM 2D Model Surface Flooding Results: 1:100 year Event

Surface Flooding Considerations

1. Ground Elevations and Creek/Lake Water Levels

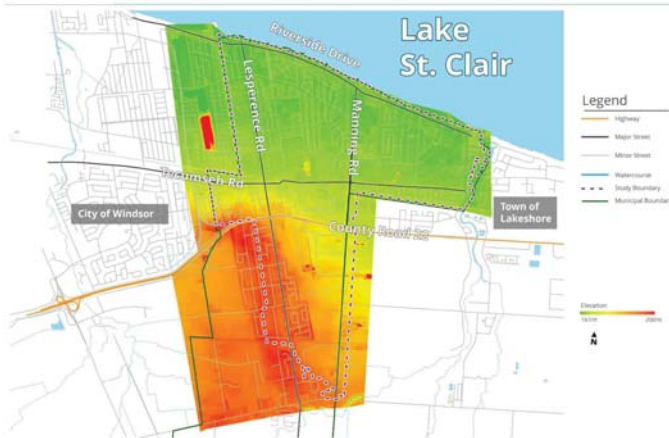
Ground Elevations:

The southwestern portion of the study area is as much as **8.5m (28ft)** higher than lands to the north. Stormwater runoff from higher elevated areas can generally be managed by gravity outlets, if close to a waterbody.

River and Lake Water Levels:

To help drain lower-lying areas, the Town has introduced the following strategies:

- Pump Stations
- Temporary Storage



Surface Flooding Considerations

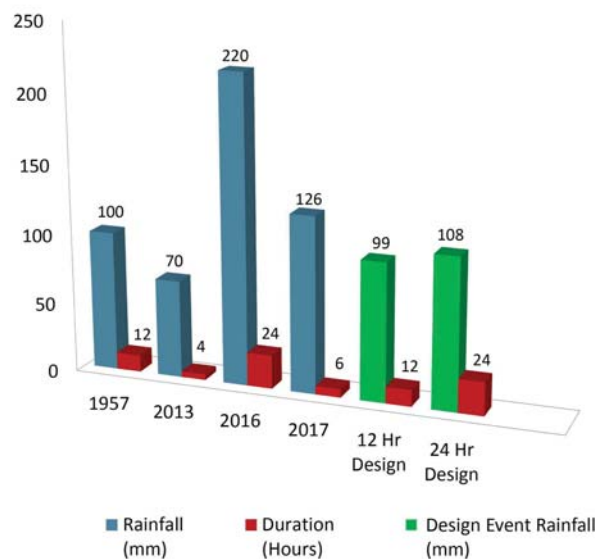
2. Rainfall Amount, Duration and Distribution

What is a 100 Year Storm?

- “1 in 100” year storm means there is **1% risk** that a storm of this size will occur in any year.
- Currently used as a design standard for overland drainage systems.
- Over the last 60 years, 4 storm events in the Town exceeded a 1% risk of occurrence (1:100 year storm) – 1957, 2013, 2016 and 2017.

Storms vary across the Town

- Rainfall event totals can vary across a municipality based on the storm pattern.

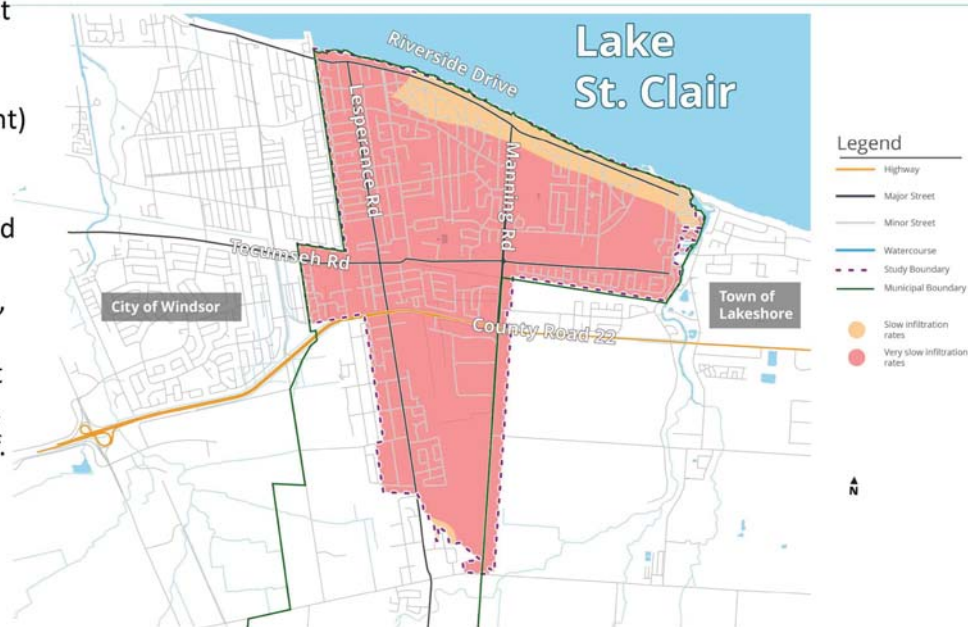


Surface Flooding Considerations

3. Ground Cover, Soil Type and Soil Saturation Conditions

Ground conditions can significantly impact the volume and rate of runoff produced from a rain event.

- Hard, impervious surfaces (ie. Pavement) allow limited infiltration and have less depression storage resulting in more runoff than pervious surfaces (grass and soil).
- Most of Tecumseh consists of clay soils, which have low infiltration rates.
- Soil saturation levels affect the amount of water that can soak into the ground, affecting the volume and rate of runoff.
- Spring runoff, which can fully saturate the soil, and frozen ground conditions can have a direct impact on a soils infiltration rate.



Surface Flooding Considerations

4. Storm Drainage Design Criteria & Level of Service

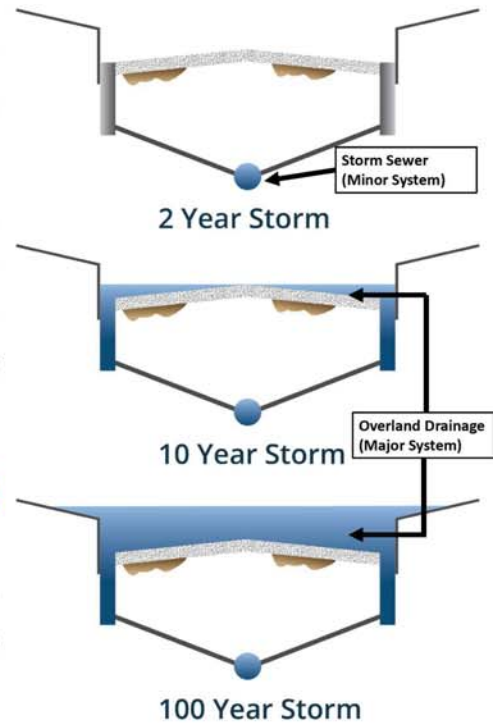
Sewer Drainage Design (Minor System)

Storm Sewer Systems are designed to a provincially accepted and affordable level of service to convey the 1:2 year (50% chance of occurrence) to 1:5 year (20% change of occurrence).

Storm Pump Stations work to handle expected flows from the storm system and discharge to an acceptable outlet to limit sewer surcharging and surface (roadway) ponding during larger 1:100 year (1% chance of occurrence) storm events.

Overland Drainage Design (Major System)

Overland Drainage Systems (roadways, low lying areas) are currently designed to reduce the amount of water from a 1:100 year storm to a surface ponding depth of less than 0.30 m, where practical.



PROPOSED LEVEL OF SERVICE Storm Drainage (Public Right-of-Way)

Existing Developed Areas	New Development
<ul style="list-style-type: none"> 1:2 year storm <u>Goal:</u> Reduce existing surface flooding, where practical 	<ul style="list-style-type: none"> 1:5 year storm <u>Goal:</u> No surface flooding under design conditions
<ul style="list-style-type: none"> 1:100 year storm <u>Goal:</u> Reduce surface flooding to less than 0.30 m, where practical 	<ul style="list-style-type: none"> 1:100 year storm <u>Goal:</u> No more than 0.30 m surface flooding depths under design conditions
<ul style="list-style-type: none"> Climate Change <u>Goal:</u> Enhanced/variable level of service for higher-risk areas 	<ul style="list-style-type: none"> Climate Change <u>Goal:</u> Enhanced/variable level of service for all new development

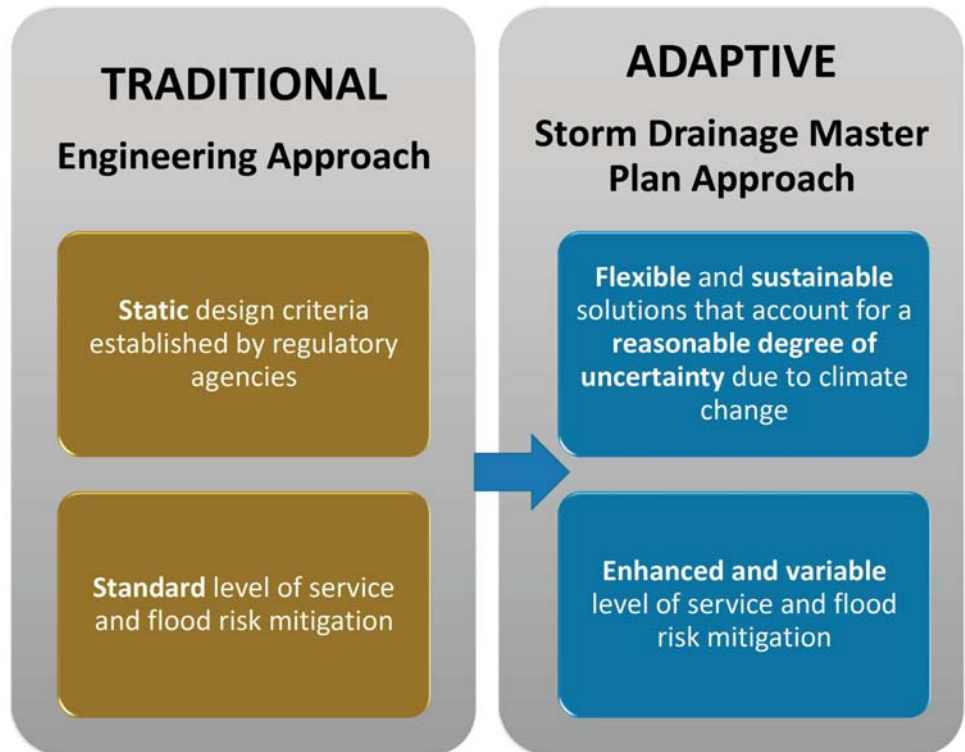


Increasing Level of Service reduces risk, but typically comes at a higher cost

Surface Flooding Considerations

5. Climate Change

- Shift in weather patterns associated with an increase in global average temperatures.
- The Storm Drainage Master Plan will look at ways to make our drainage infrastructure resilient to potential changes in more frequent and significant storms.
- Adaptive approach to Climate Change will be applied to the preferred flooding solutions.



Storm Infrastructure/Flooding Solutions Being Reviewed



Alternative solutions to reduce surface flooding during 1:100 year storm events can include:



Low Impact Development (LID) to promote at-source control



Surface or underground storage



Increased sewer conveyance



New or improved pump stations

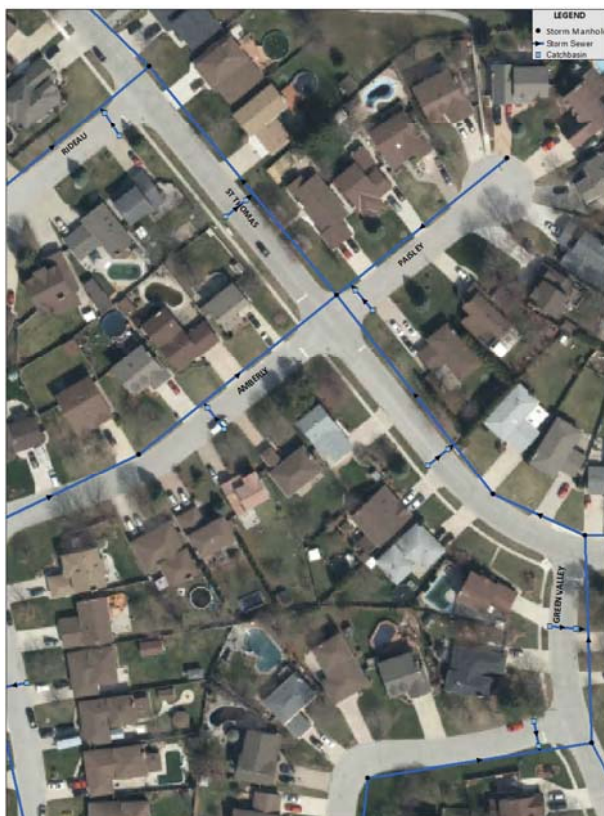
Storm Sewer System and Overland Flow Modelling

Model Development

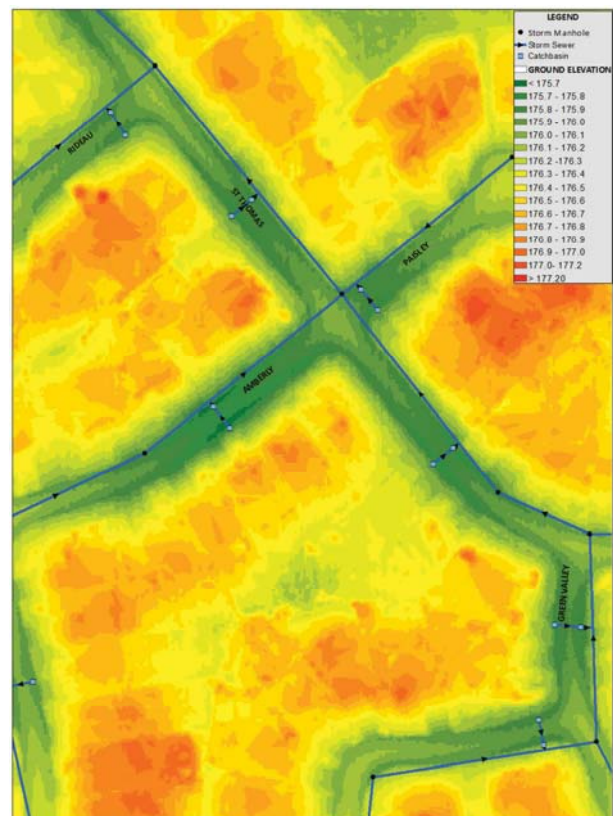
- Incorporation of storm infrastructure (ie. Catchbasins, manholes, sewers > 425mm diameter, pump stations, open drains).
- Ground surface points using digital elevation data through topographic LiDAR.
- Delineation of drainage catchment areas entering the storm sewer system.

2-Dimensional Dynamic Computer Modelling

- Advanced 2-Dimensional modelling was used to integrate the existing ground surface in the storm sewer system model using digital elevation data to analyze the major system network, including surface ponding depths at low points and simulate the movement of overland surface flooding through the study area during the 1:100 year storm event.
- Analysis of the closed pipe system was completed with a direct connection to the digital ground surface to accurately model system surcharging.

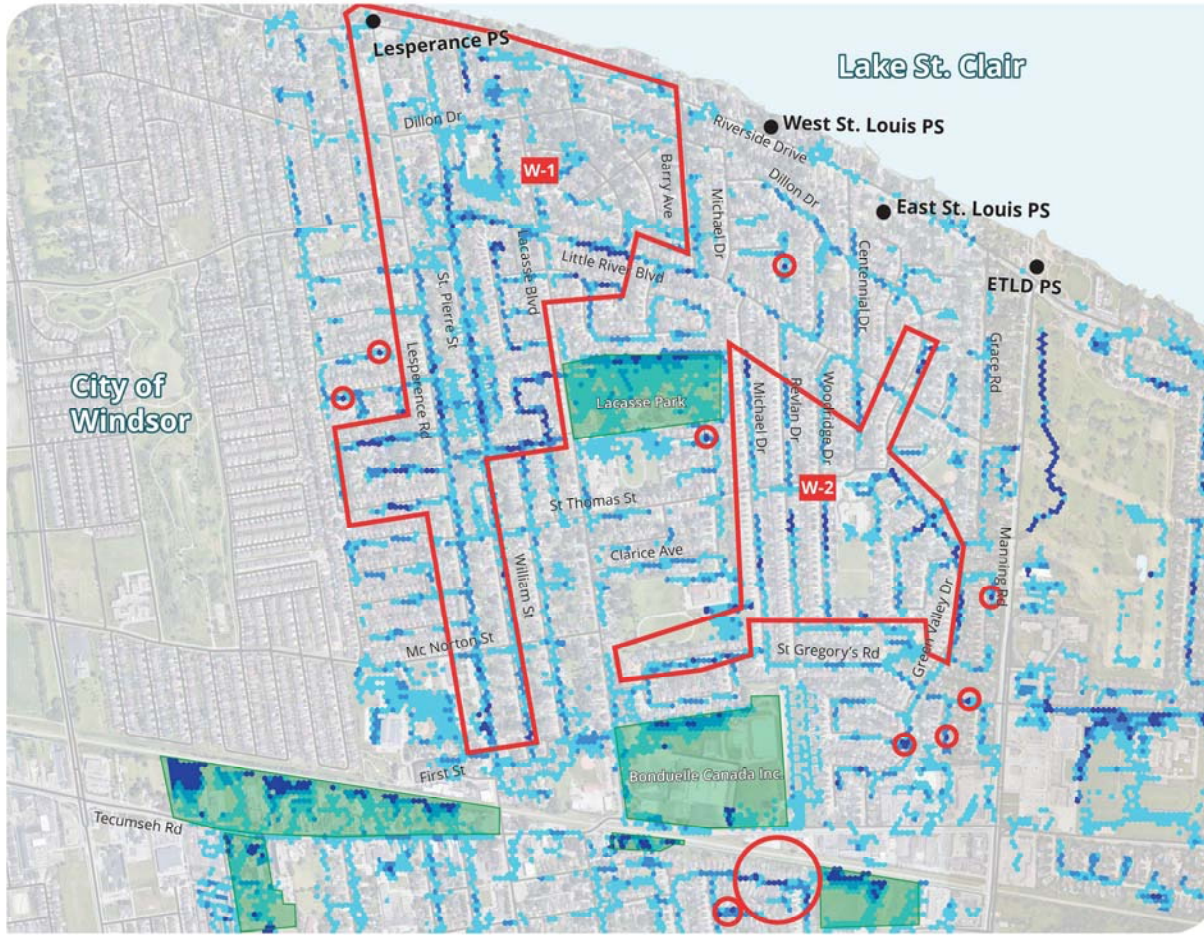


Example Area with Storm Sewer Infrastructure



Example Area with Storm Sewer Infrastructure and Topographic Digital Ground Elevation Mapping (Town of Tecumseh LiDAR 2017)

Existing Condition Surface Flooding Problem Areas - West Of Manning

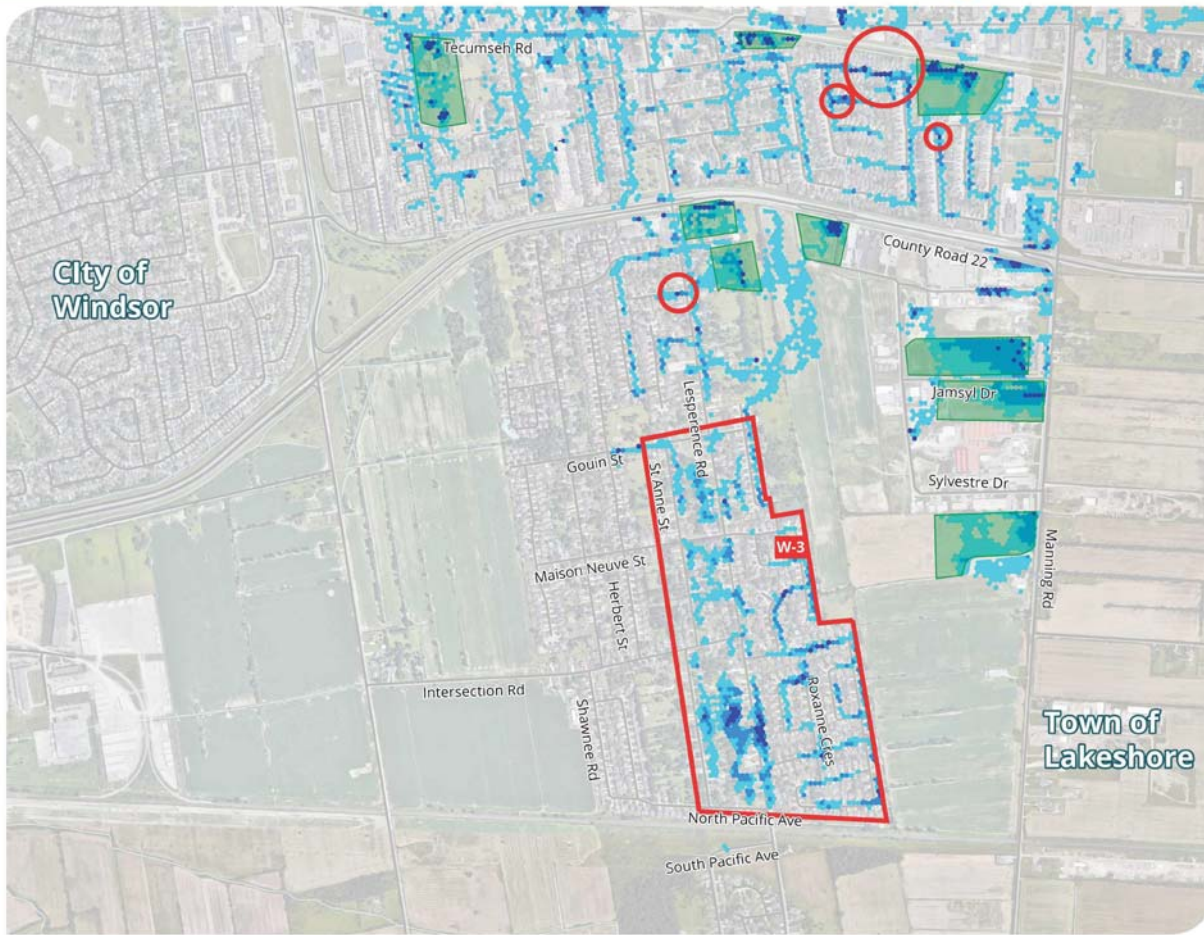


Legend

- Streets
 - Regional Surface Flooding Problem Areas
 - Isolated Surface Flooding Problem Areas
 - Parkland/ Private Property not to be Analyzed
 - Pump Station (PS)
- 1:100 Surface Ponding
- Less than 0.15m depth
 - Between 0.15m - 0.30m depth
 - Over 0.30m depth



Existing Condition Surface Flooding Problem Areas - West Of Manning



Legend

- Streets
- Regional Surface Flooding Problem Areas
- Isolated Surface Flooding Problem Areas
- Parkland/ Private Property not to be Analyzed
- Pump Station (PS)

1:100 Surface Ponding

- Less than 0.15m depth
- Between 0.15m - 0.30m depth
- Over 0.30m depth

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Existing Condition Surface Flooding Problem Areas - East Of Manning



Legend

- Streets
 - Regional Surface Flooding Problem Areas
 - Isolated Surface Flooding Problem Areas
 - Parkland/ Private Property not to be Analyzed
 - Pump Station (PS)
- 1:100 Surface Ponding
- Less than 0.15m depth
 - Between 0.15m - 0.30m depth
 - Over 0.30m depth



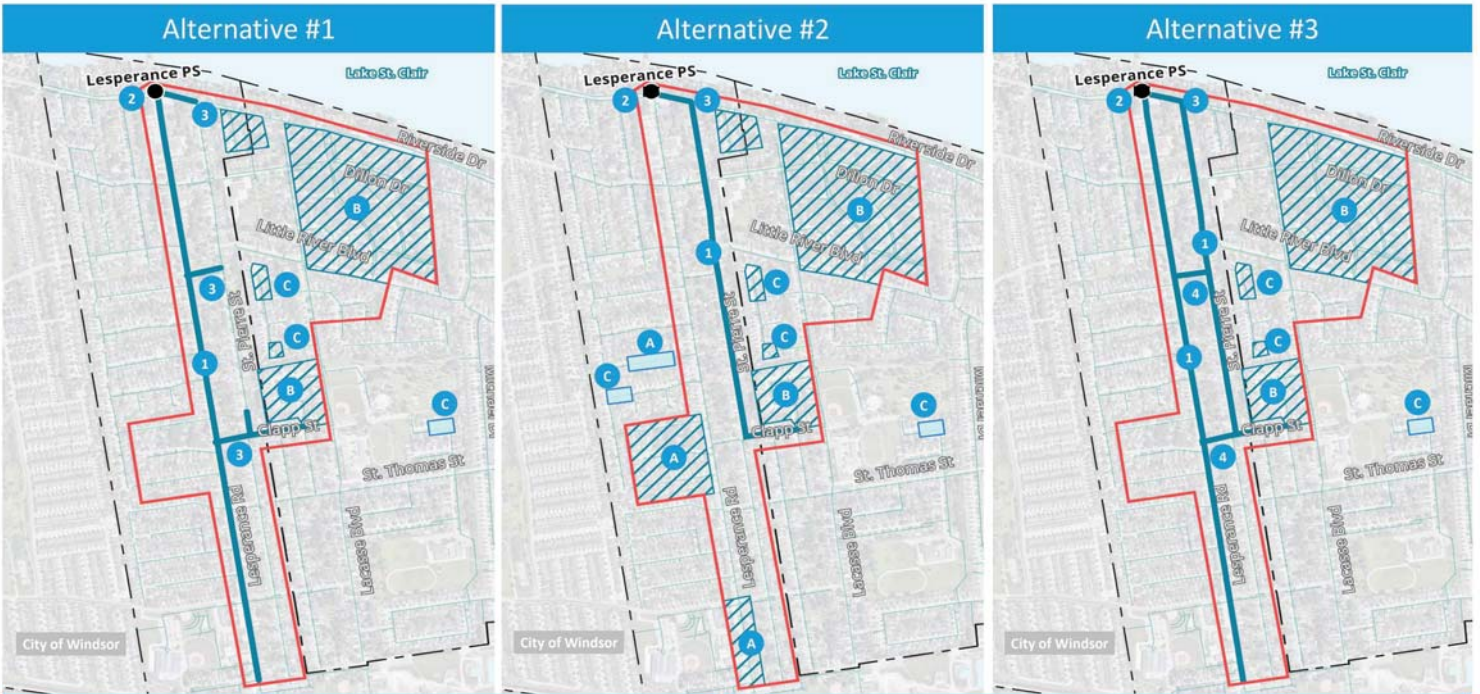
Town of Lakeshore

Alternative Flooding Solutions West Of Manning Road



REGIONAL PROBLEM AREA ID	LOCATION	ALTERNATIVE FLOODING STRATEGIES REVIEWED									
		STORM TRUNK SEWER	LOCAL STORM SEWER	ROADWAY GRADING	RE-DIRECTION OF STORM DRAINAGE	INCORPORATION OF SEWER OVERFLOWS	PUMP STATION	UNDERGROUND STORAGE	SURFACE STORAGE	CATCHBASIN INLET EFFICIENCY	BACKFLOW PREVENTION
W-1	LESPERANCE ROAD NORTH OF COUNTY ROAD 22, GAUTHIER, EVERGREEN, PAPINEAU	●					●	●			
W-1	ST. PIERRE STREET	●			●		●			●	
W-1	MEANDER CRESCENT AND CLAPP STREET	●	●	●	●	●	●			●	●
W-1	LITTLE RIVER DRIVE	●					●	●		●	
W-2	MICHAEL, REVLAND AND WOODRIDGE DRIVE							●		●	
W-2	GREEN VALLEY DRIVE AND AMBERLY CRESCENT	●	●		●	●			●	●	●
W-3	LESPERANCE ROAD SOUTH OF COUNTY ROAD 22			●	●	●		●	●	●	
W-3	BAILLARGEON DRAIN SUBDIVISION		●		●	●		●		●	
W-3	ST. ANNE ST SOUTH OF COUNTY ROAD 22		●	●				●		●	

Alternative Surface Flooding Solutions Problem Area W-1



REGIONAL ALTERNATIVE SOLUTIONS	LOCALIZED SOLUTIONS
<ul style="list-style-type: none"> 1 Storm Trunk Sewer Improvements 2 Pump Station Improvements 3 Storm Sewer Outlet Improvements 4 Storm Overflow Sewer to Lesperance Trunk Storm Sewer 	<ul style="list-style-type: none"> A Underground Storage/Storm Outlet Improvements B Storm Sewer Conveyance/Road Grading Improvements C Catchbasin Inlet Improvements

W-1 Recommended Surface Flooding Solution



ALTERNATIVE #2

REGIONAL SOLUTIONS

- Incorporation of a St. Pierre St. storm trunk sewer from Clapp St. to Riverside Dr.
- Overflow sewers along St. Pierre St. to the Lesperance Rd. storm sewer at Wood St. and Clapp St.
- Lesperance Pump Station Improvements.

LOCALIZED SOLUTIONS

- Roadway and storm sewer improvements along Meander Cres. and Coronado Dish Area.
- Catchbasin inlet, minor roadway grading and underground storage/storm outlet improvements in isolated areas.



Existing 100 Year Surface Ponding



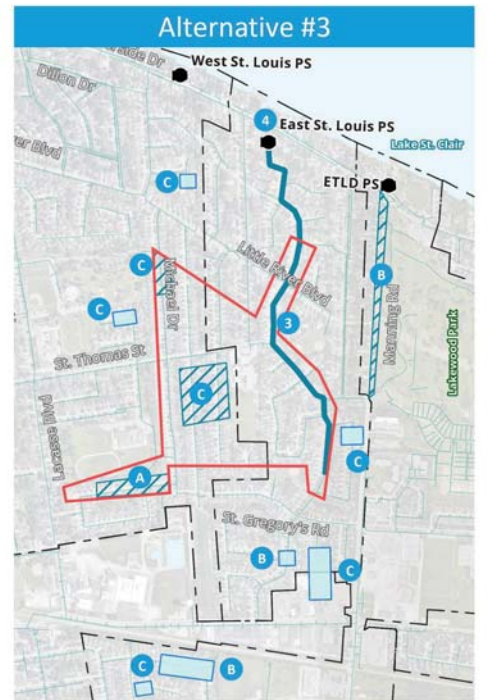
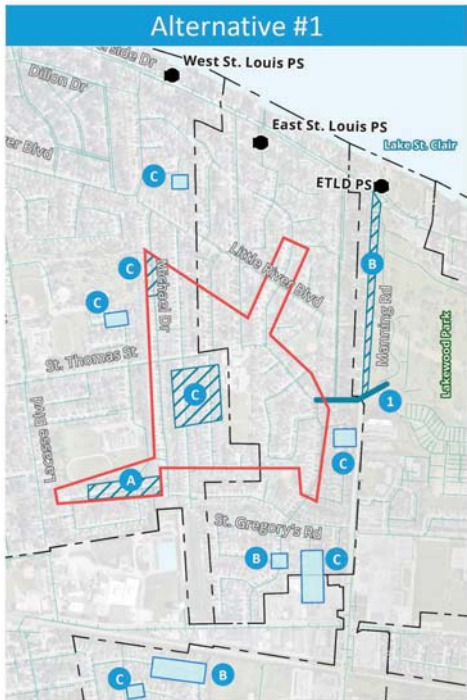
Future 100 Year Surface Ponding

- Existing Storm Sewer Alignment
- - - Pump Station Service Area
- Pump Station (PS)

- Surface Ponding less than 0.15m
- Surface Ponding 0.15m to 0.3m
- Surface Ponding greater than 0.3m

- Regional Surface Flooding Problem Area
- ▨ Localized Future Road and Storm Sewer Improvements

Alternative Surface Flooding Solutions Problem Area W-2



REGIONAL ALTERNATIVE SOLUTIONS	LOCALIZED SOLUTIONS
<ul style="list-style-type: none"> 1 Storm Overflow Sewer to Lakewood Park Channel 2 Storm Overflow Sewer to Local Future Manning Road Sewer 3 Storm Trunk Sewer Improvements 4 Pump Station Improvements 	<ul style="list-style-type: none"> A Underground Storage B Storm Sewer Conveyance/Roadway Grading Improvements C Catchbasin Inlet Improvements

W-2 Recommended Surface Flooding Solution



ALTERNATIVE #1

Regional Solutions

- Overflow storm sewer at Green Valley Dr. and St. Thomas St. to Lakewood Park Channel.

Localized Solutions

- Catchbasin inlet, minor roadway grading and underground storage/storm outlet improvements in isolated areas.



Existing 100 Year Surface Ponding



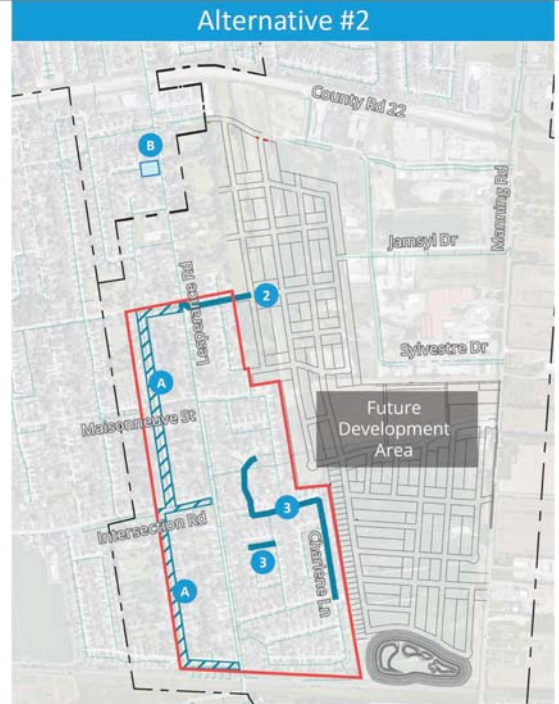
Future 100 Year Surface Ponding

- Existing Storm Sewer Alignment
- - - Pump Station Service Area
- Pump Station (PS)

- Surface Ponding less than 0.15m
- Surface Ponding 0.15m to 0.3m
- Surface Ponding greater than 0.3m

- Regional Surface Flooding Problem Area
- ▨ Localized Future Roadway and Storm Sewer Improvements

Alternative Surface Flooding Solutions Problem Area W-3



REGIONAL ALTERNATIVE SOLUTIONS

- 1 Lesperance Storm Overflow Sewer to Charlene Relief Sewer
- 2 Storm Sewer Outlet to Future Development Area Trunk Sewer
- 3 Underground Storage
- 4 Storm Sewer Conveyance Improvements

LOCALIZED SOLUTIONS

- A Underground Storage/Storm Sewer Conveyance/Road Grading Improvements
- B Catchbasin Inlet Improvements

W-3 Recommended Surface Flooding Solution



ALTERNATIVE #1

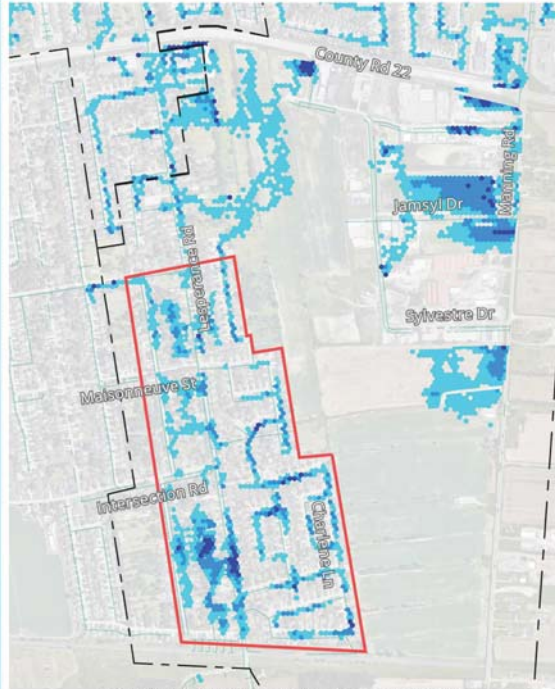
(Subject to ongoing discussion with landowners within the Future Development Area)

Regional Solutions

- Charlene Ln. relief sewer and storm outlet to Future Development Area trunk storm sewer system.
- Storm outlet improvements along Gouin St. to Future Development Area trunk storm sewer system.
- Lesperance St. storm sewer overflow to Charlene Ln. relief sewer.

Localized Solutions

- Roadway and storm sewer improvements along St. Anne St, N Pacific Ave, Intersection Dr, Maisonneuve St and Gouin St
- Catchbasin inlet improvements in isolated areas.



Existing 100 Year Surface Ponding



Future 100 Year Surface Ponding

— Existing Storm Sewer Alignment
 - - - Pump Station Service Area
 ● Pump Station (PS)

● Surface Ponding less than 0.15m
 ● Surface Ponding 0.15m to 0.3m
 ● Surface Ponding greater than 0.3m

— Regional Surface Flooding Problem Area
 Localized Future Roadway and Storm Sewer Improvements

Alternative Flooding Solutions East Of Manning Road

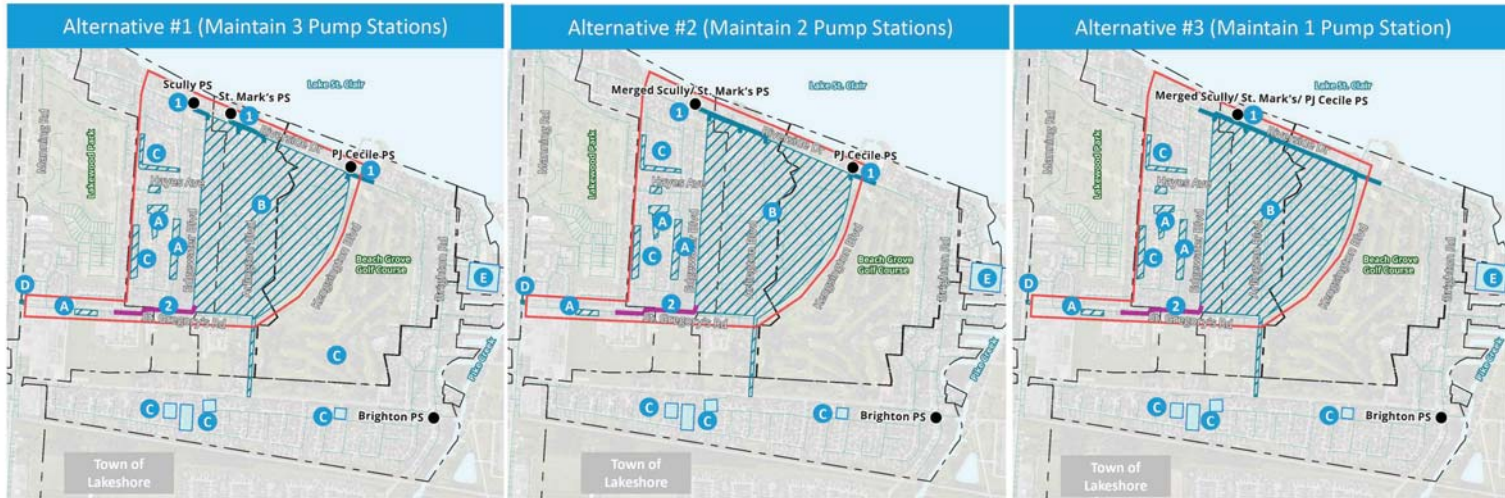


REGIONAL PROBLEM AREA ID	LOCATION	ALTERNATIVE FLOODING STRATEGIES REVIEWED									
		STORM TRUNK SEWER	LOCAL STORM SEWER	ROADWAY GRADING	RE-DIRECTION OF STORM DRAINAGE	INCORPORATION OF SEWER OVERFLOWS	PUMP STATION	UNDERGROUND RELIEF STORAGE	SURFACE STORAGE	CATCHBASIN INLET EFFICIENCY	BACKFLOW PREVENTION
E-1	ST. GREGORY'S ROAD		●		●	●	●	●	●	●	●
E-1	CADA CRES, FAIRWAY CRES AND GRANT AVE		●		●	●	●	●		●	
E-1	EDGEWATER BLVD	●	●	●			●		●	●	
E-1	ST. MARK'S ROAD	●	●	●	●		●		●	●	
E-1	ARLINGTON BLVD	●	●	●	●		●		●	●	
E-1	KENSINGTON DISH AREA	●	●	●	●		●		●	●	

Alternative Surface Flooding Solutions Problem Area E-1

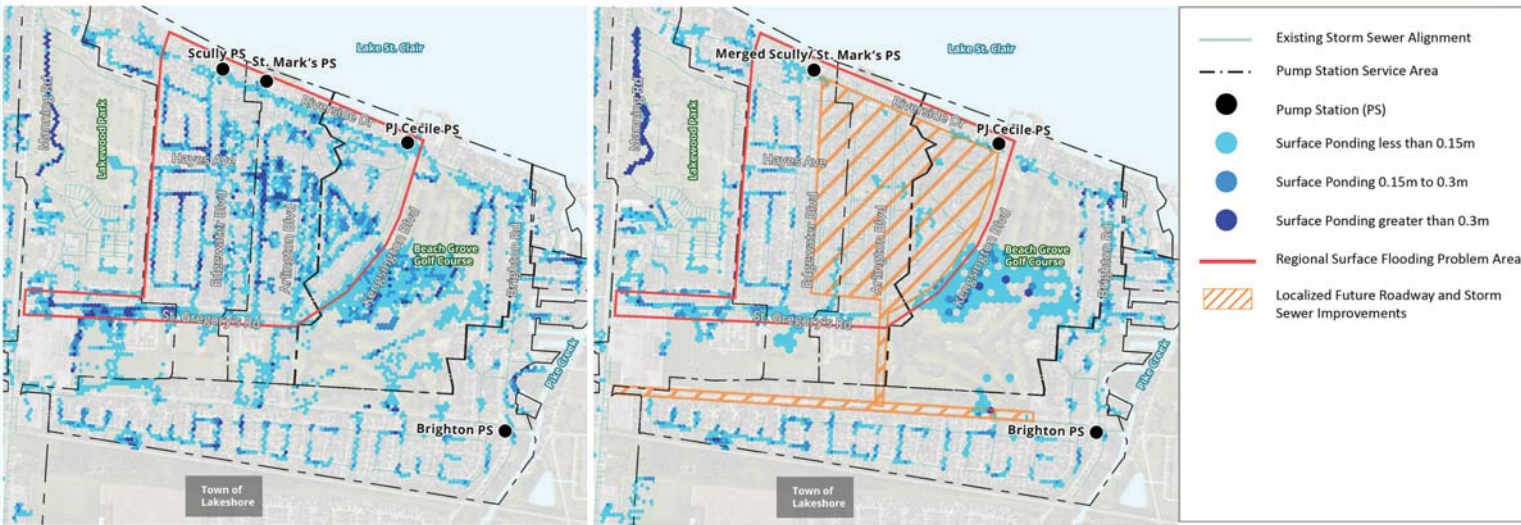


Existing Storm Sewer Alignment	Regional Surface Flooding Solutions	Localized Surface Flooding Solutions
Pump Station Service Area	Supplementary Surface Flooding Solutions	Isolated Local Surface Flooding Solutions
Pump Station (PS)	Regional Surface Flooding Solutions	



REGIONAL/SUPPLEMENTARY ALTERNATIVE SOLUTIONS	LOCALIZED SOLUTIONS
<ul style="list-style-type: none"> 1 Pump Station and Riverside Drive Storm Trunk Sewer Improvements 2 Storm Sewer Redirection to Edgewater Storm Sewer System 	<ul style="list-style-type: none"> A Underground Storage/Road Grading Improvements B Storm Sewer Conveyance/Road Grading Improvements C Catchbasin Inlet Improvements D Backflow Prevention from East Townline Drain E Underground Storage and Pump Station to Pike Creek

E-1 Recommended Surface Flooding Solution



Existing 100 Year Surface Ponding

Future 100 Year Surface Ponding

ALTERNATIVE #2

Regional Solutions

- Decommission St. Marks Pump Station and construct a merged St. Marks/Scully Pump Station along Riverside Drive.
- Riverside Drive storm trunk sewer improvements from Arlington Blvd to new pump station location.
- Upgrade PJ Cecile Pump Station.

Localized Solutions

- Roadway and storm sewer improvements along Edgewater Blvd/St. Marks Rd/Arlington Blvd block, Kensington Dish Area and Tecumseh Road.
- Redirection of St. Gregory's storm sewer system East of L'Essor High School to new Edgewater Blvd storm sewer system.
- Underground storage at Tecumseh soccer fields parking lot.
- Storm sewer backflow prevention device at Manning Road/St. Gregory intersection sewer outlet to East Townline Drain.
- Catchbasin inlet improvements in isolated areas.
- Underground storage along Southwind Cres/Starwood Ln and incorporation of a pump station to Pike Creek.

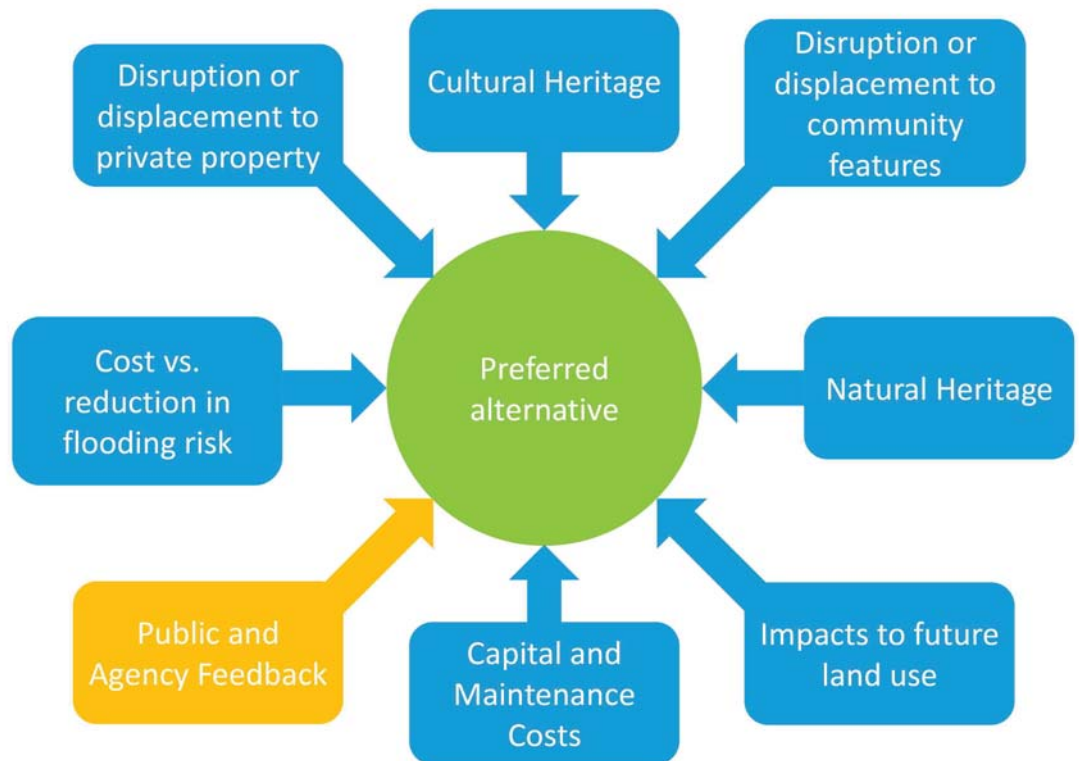
Evaluation Of Alternatives



Input received today will be used to finalize and evaluate each alternative.

There are a number of criteria that factor into the decision making process.

Further details of the recommended alternative and implementation plan will be presented at Public Information Centre #2.



Next Steps



- 1 Review comments provided at and following this event
- 2 Complete the evaluation and select the recommended solution(s)
- 3 Prepare the long-term implementation strategy
- 4 Public Information Centre #2 to present the recommended strategy (anticipate late 2018)
- 5 Complete the Final Storm Drainage Master Plan (anticipate early 2019) to document the study. The Plan will be presented to Council and be available for a 30-day public review period.

 **THANK YOU FOR ATTENDING** 

Your input is important to the outcome of this study. Please complete a comment form or send comments to tecumseh排水emp@dillon.ca

Share Your Input



Share with us your thoughts on the materials presented using the post-it notes provided:

What did you learn about surface flooding in Tecumseh?

If you were deciding which alternatives to implement, what factors would be most important to you?

What questions do you still have about surface flooding that were not answered?

What do you want to see at the next information centre?