TECUMSEH STORM DRAINAGE MASTER PLAN

Presentation to Conseil Scolaire Catholique Providence

Monday, February 11th 2019

DILLON CONSULTING

TECUMSEH

Welcome

Today's Presentation Objectives

- **OUTLINE** why and how the study is being completed
- **PROVIDE** background information and results of the study area drainage modelling
- **PRESENT** the alternative and preferred solutions to reduce surface flooding along St. Gregory's fronting École Secondaire Catholique L'Essor.
- **SUMMARIZE** the next steps in finalizing the study

Project Overview

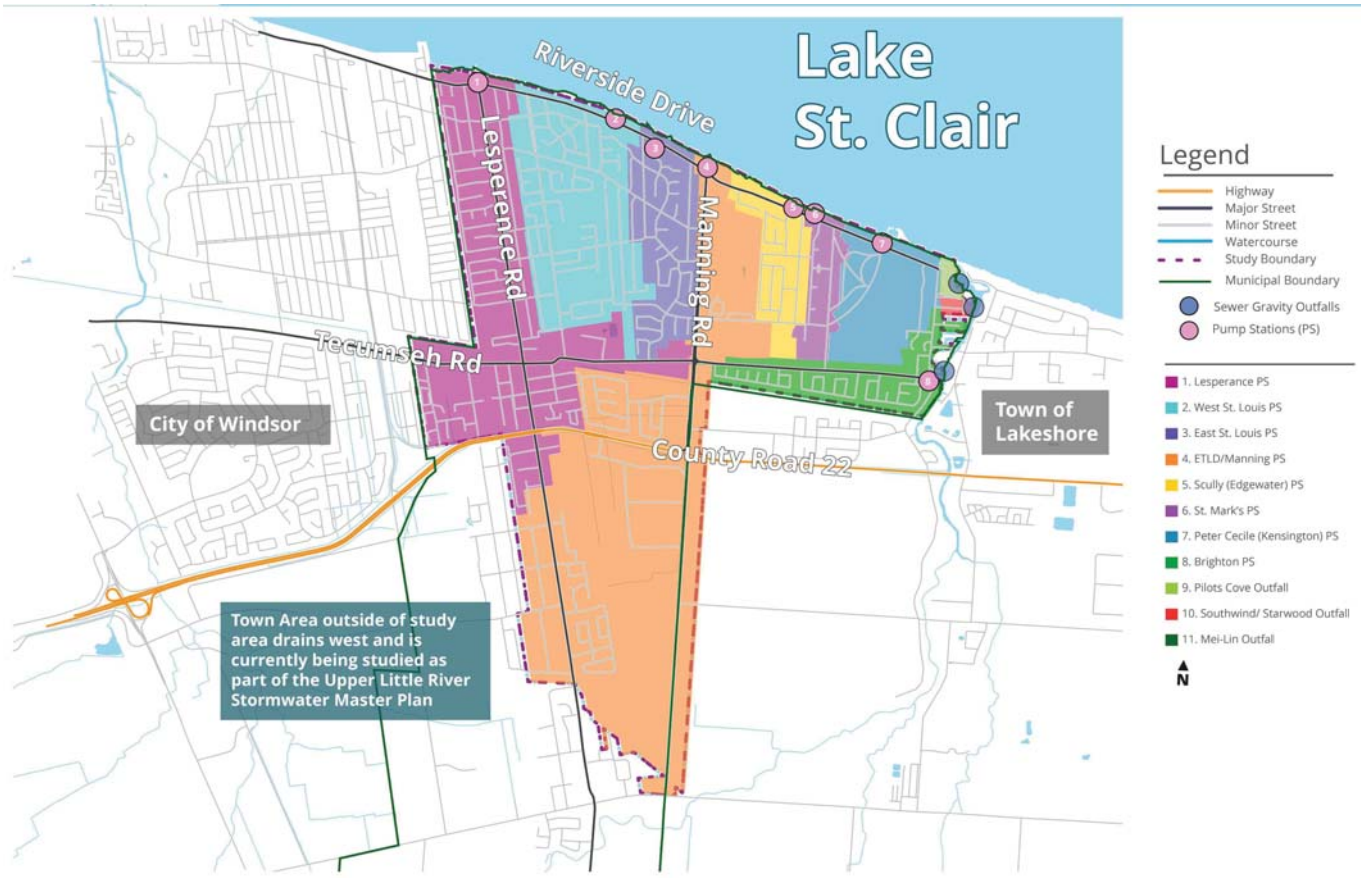
The Town of Tecumseh is completing a Storm Drainage Master Plan to:

- 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 address the following:

- 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, which is to be addressed in a future study outlined within the Town's Flood Mitigation Strategy.

Study Storm Outlets and Service Areas



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 that exceeds standard depth criteria resulting from significant storm events.
- Identify and evaluate alternative solutions to reduce the risk and impacts of surface flooding and define recommended solutions.
- Outline a recommended long-term implementation strategy.

St. Gregory's Road:
September 2016


Little River Boulevard:
September 2016


Grace Road:
September 2016

Study Process and Schedule

The Master Plan is following the requirements of the Municipal Class Environmental Assessment (Class EA) (2000, as amended) - Approach No. 2.

The Master Plan will fulfill the requirements of Phases 1 and 2 of the Class EA including the requirements for the noted Schedule B projects.

Class Environmental Assessment

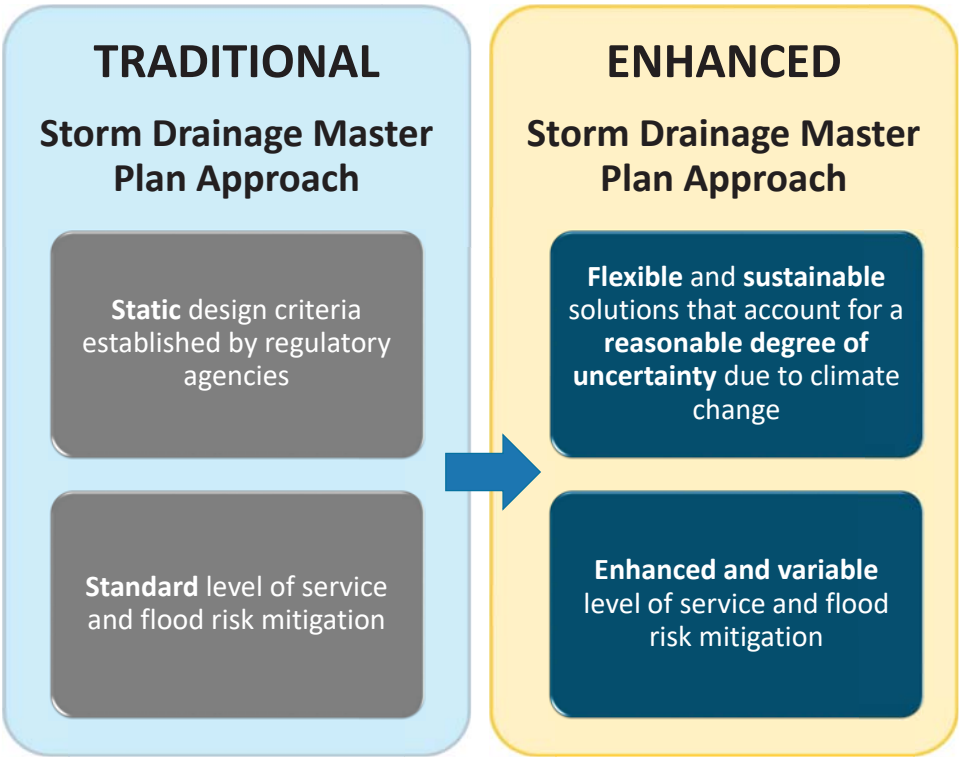
The Class EA Process ensures:

- 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.

Surface Flooding Considerations

Climate Change

- Shift in weather patterns associated with an increase in global average temperatures.
- The Storm Drainage Master Plan will look at ways to improve the resiliency of drainage infrastructure, taking into consideration the impacts of climate change and recommend the required level of service.
- A decision matrix is used to determine a preferred design solution and identify areas that require either a traditional or enhanced level of service.
- Enhanced level of service adds more resiliency to the storm system, but at a higher capital cost.



Existing Condition 1:100 Year Surface Flooding West of Manning Road

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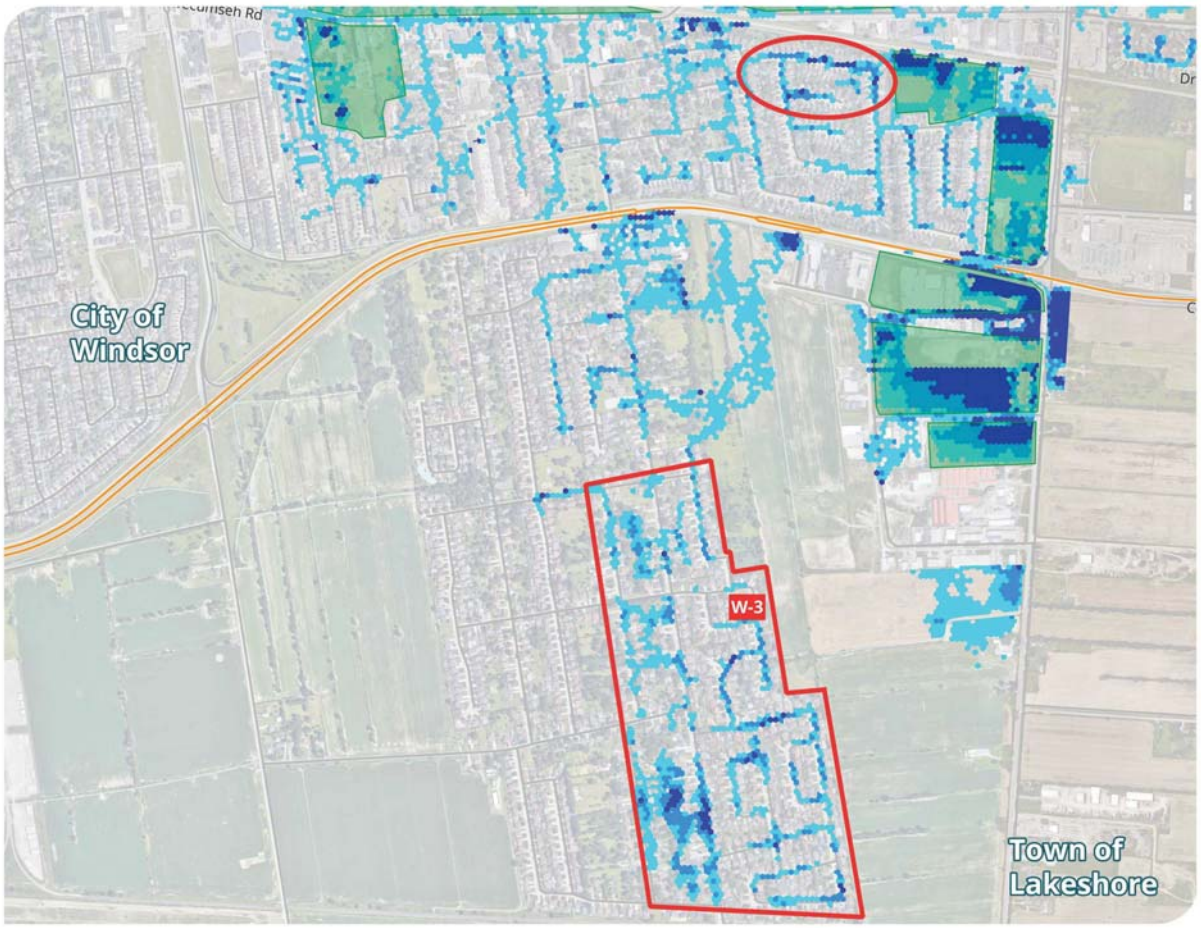
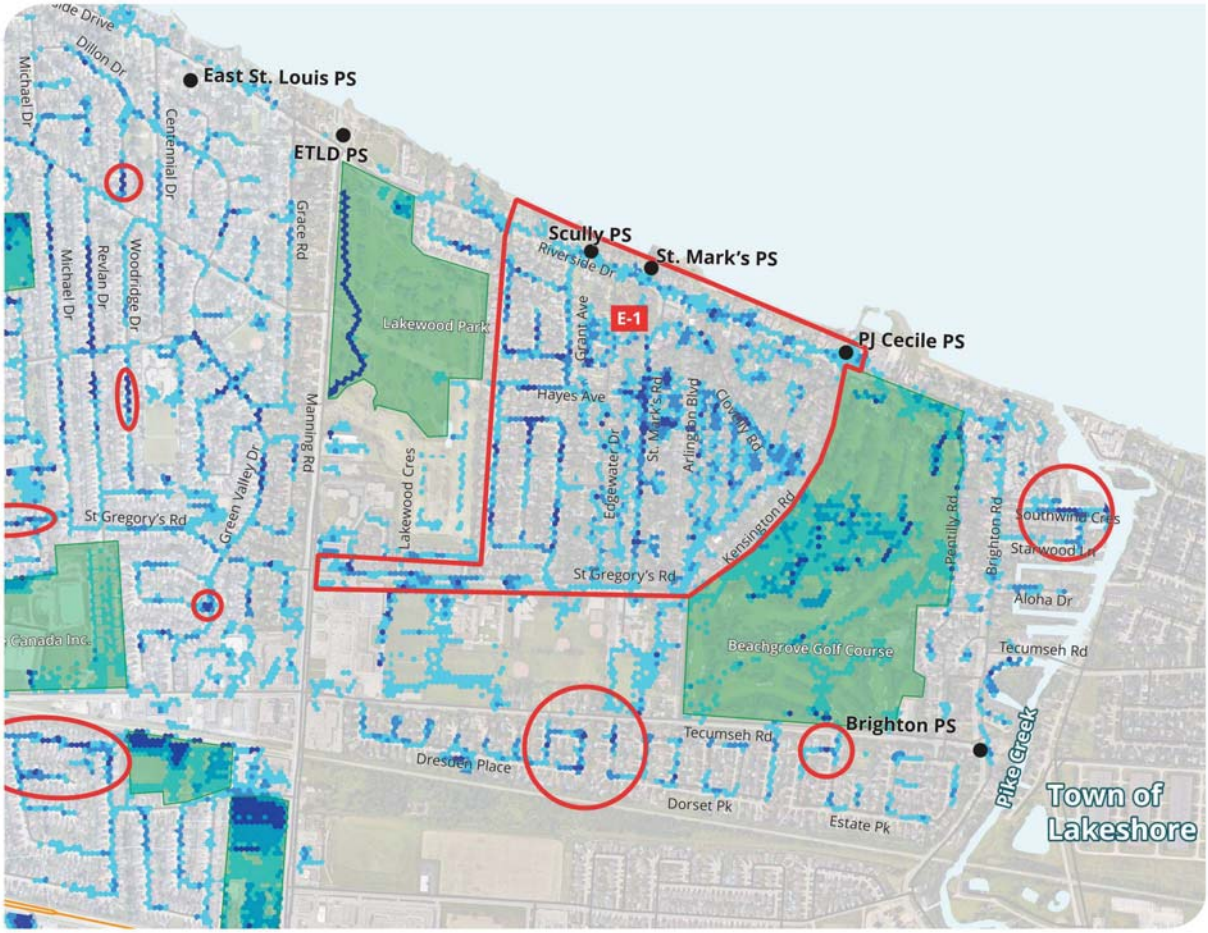


Existing Condition 1:100 Year Surface Flooding East of Manning Road



Public Information Centre #1 Summary

During Public Information Centre #1, Tecumseh residents were informed about:

- The causes of both surface and basement flooding;
- Location of problem areas and extent of current surface flooding conditions; and
- Steps being taken to resolve surface flooding, including alternative and preliminary recommended solutions.

Alternatives solutions to alleviate surface flooding included:

- Aboveground and underground storage;
- Improved pump stations;
- Local and trunk storm sewer upgrades; and
- Surface grading improvements.

Recommended Surface Flooding Mitigation Strategies - West Of Manning Road

REGIONAL PROBLEM AREA ID	LOCATION	RECOMMENDED FLOODING MITIGATION STRATEGIES (STORM INFRASTRUCTURE IMPROVEMENTS)									
		STORM TRUNK SEWER	LOCAL STORM SEWER	ROADWAY GRADING	RE-DIRECTION OF STORM DRAINAGE	INCORPORATION OF SEWER OVERFLOWS	PUMP STATION	UNDERGROUND STORAGE	SURFACE STORAGE	CATHCBASIN 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-1	LACASSE BOULEVARD		●		●		●			●	
W-1	CORONADO DISH AREA	●	●				●			●	
W-2	GREEN VALLEY DRIVE AND AMBERLY CRESCENT		●		●	●				●	●
W-3	ST. ANNE ST BLOCK SOUTH OF COUNTY ROAD 22		●	●	●	●				●	
W-3	LESPERANCE ROAD AND CHARLENE LANE		●		●	●				●	
-	LEMIRE STREET/LANOUE STREET		●		●				●	●	●

● Traditional Level of Service Applied

● Enhanced Level of Service Applied for Added Resiliency

Recommended Surface Flooding Mitigation Strategies - East Of Manning Road

REGIONAL PROBLEM AREA ID	LOCATION	RECOMMENDED FLOODING MITIGATION STRATEGIES (STORM INFRASTRUCTURE IMPROVEMENTS)								
		STORM TRUNK SEWER	LOCAL STORM SEWER	ROADWAY GRADING	RE-DIRECTION OF STORM DRAINAGE	INCORPORATION OF SEWER OVERFLOWS	PUMP STATION	SURFACE STORAGE	CATHCBASIN 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	Riverside Drive	●		●	●		●		●	
E-1	KENSINGTON DISH AREA		●	●			●		●	
-	TECUMSEH ROAD		●	●	●					
-	STARWOOD LANE/SOUTHWIND CRESCENT						●		●	●

● Traditional Level of Service Applied

● Enhanced Level of Service Applied for Added Resiliency

Schedule B Project Summary

The Tecumseh Storm Drainage Master Plan followed the requirements of Approach #2 of the Class EA and has identified alternative solutions to address surface flooding. The evaluation of solutions took into consideration the existing environment and improvements to the system to establish preferred solutions which took into account both public and review agency input.

Provided below is a list of the **Schedule B** projects determined through this study:

Pump Station Improvements

- Construction of a new storm pump station at the Lesperance pump station site;
- Expansion of the West St. Louis pump station;
- Decommission of the St. Mark's storm pump station and construction of a new consolidated storm pump station at the existing Scully pump station site;
- Construction of a new storm pump station and outlet at the PJ Cecile pump station site; and
- Incorporation of a new storm pump station along Southwind Crescent.

Underground/Aboveground Storage

- **Incorporate surface storage within the "Tecumseh Soccer Fields" owned by École Secondaire L'Essor;**
- Incorporate surface storage within municipal owned Buster Reaume Park; and
- Incorporate underground/surface storage behind municipal owned Tecumseh Town Hall property.

Recommended Surface Flooding Mitigation Strategies - East Of Manning Road

SCHEDULE B ALTERNATIVES: ST. GREGORY'S ROAD LOCAL SOLUTION

ALTERNATIVE 1
(aboveground storage outside of roadway)

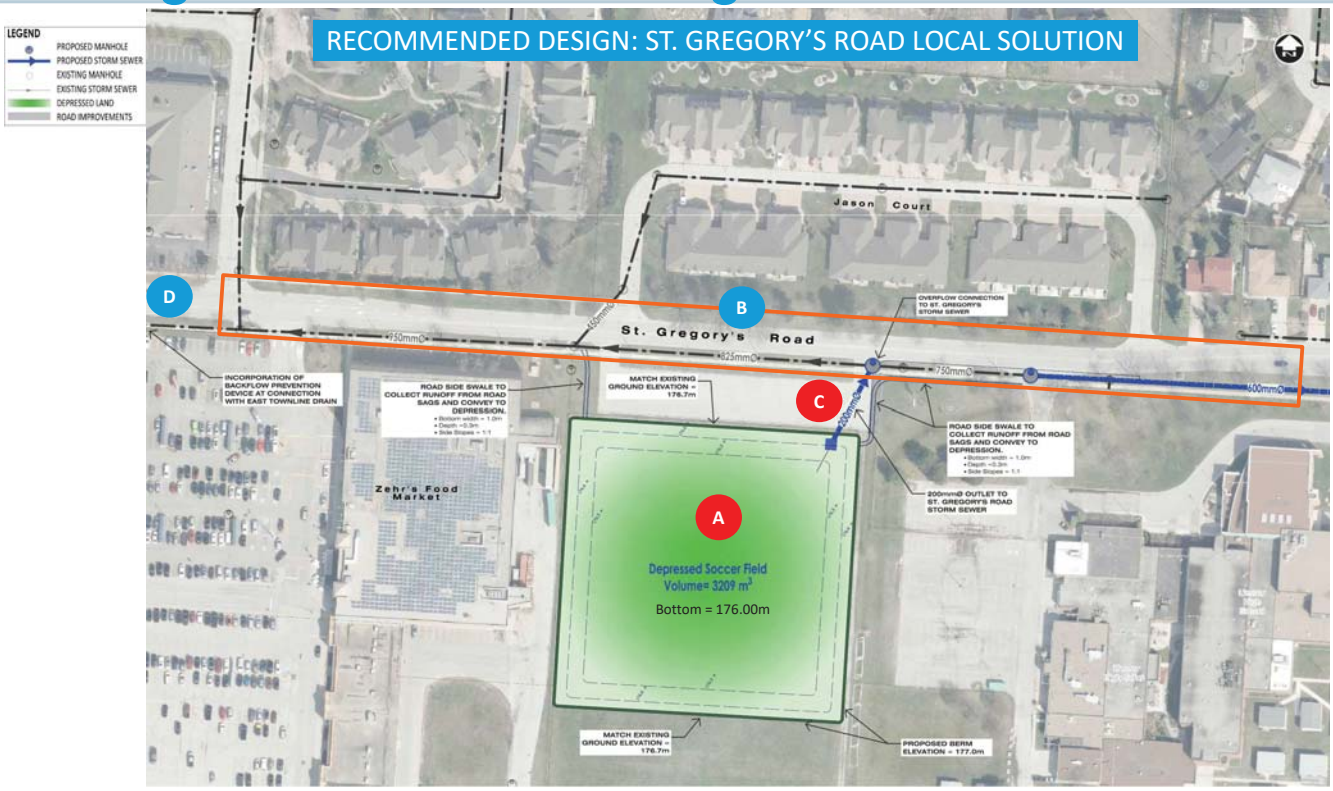
ALTERNATIVE 2
(underground storage within roadway)

EVALUATION OF ALTERNATIVES

	ALTERNATIVE 1	ALTERNATIVE 2
ADVANTAGES	• Effective solution for surface flooding within localized problem area. • Limited traffic disruption during construction.	• Does not disrupt use of soccer fields. • No maintenance easement required along private property. • Greater level of service for storm sewer conveyance during more frequent storm events.
DISADVANTAGES	• Temporary disruption to soccer fields during construction and during storm events beyond a 1:100 year rainfall. • Maintenance easement required around depressed area.	• Higher capital cost than Alternative 1. • Difficult to construct: Utility conflicts within the roadway. • Higher traffic disruption during construction

RECOMMENDED SOLUTION

Recommended Surface Flooding Mitigation Strategies - East Of Manning Road

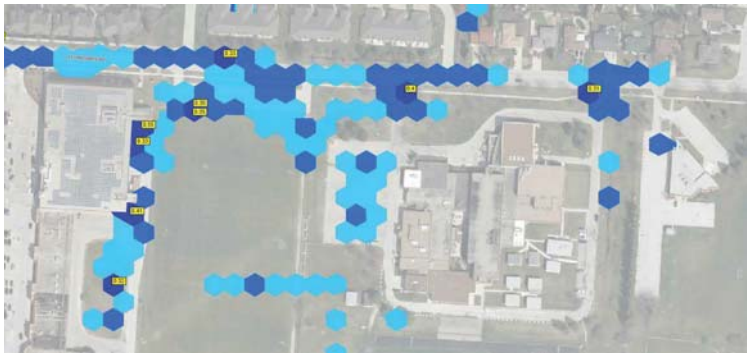


LOCALIZED SOLUTIONS

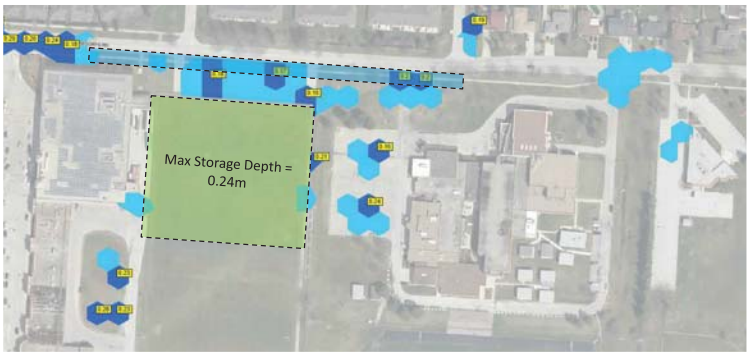
- A Surface Storage (Enhanced Level of Service)
- B Storm Sewer Conveyance, Road Grading and Catchbasin Improvements
- C Overflow Sewer
- D Backflow Prevention

Surface Flooding Comparisons

Existing 1:100yr Surface Flooding



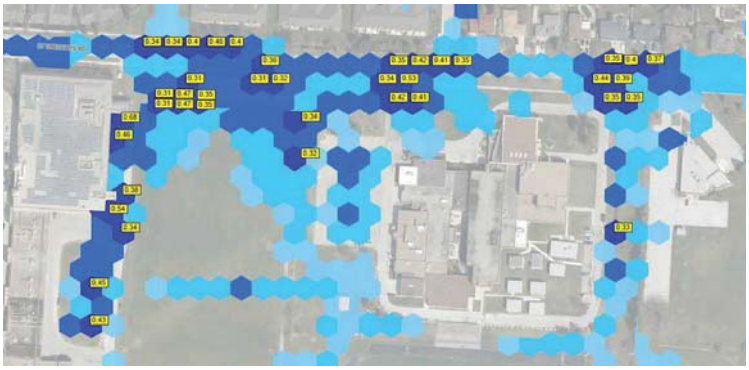
Future 1:100 year Surface Flooding



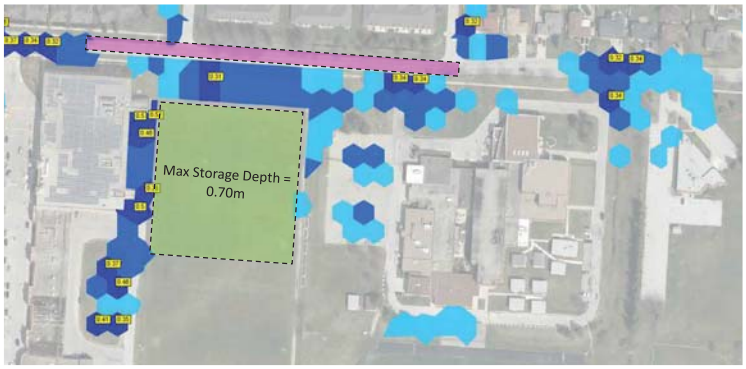
Maximum roadway surface ponding depth of 0.30m

Maximum roadway surface ponding depth of 0.20m

Existing 1:100 year + 40% Surface Flooding



Future 1:100 year + 40% Surface Flooding



Next Steps

1. Continue public and agency consultation and review comments arising from PIC#2.
2. Consider Public/Agency input in refining/continuing the recommended solutions
3. Prepare the long-term implementation strategy
4. Finalize the Storm Drainage Master Plan Report (April 2019) and issue Notice of Completion. The Plan will be presented to Council and will 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
tecumsehdrainagemp@dillon.ca

From: **McLeod, Brad** <bmcleod@dillon.ca>
Date: Fri, Dec 7, 2018 at 11:15 AM
Subject: Information Request - Town of Tecumseh Pump Station Locations
To: ESA-Aylmer (MNRF) <ESA.Aylmer@ontario.ca>
Cc: Flavio Forest <fforest@dillon.ca>, Ryan Langlois <rlanglois@dillon.ca>, Mark Brobbel <mbrobbel@dillon.ca>, 164880 <164880@dillon.ca>

Morning,

Dillon is currently seeking information for seven pump station properties located in the Town of Tecumseh, Essex County, Ontario (see attached figures; 12280 Riverside Drive, 12920 Riverside Drive, 13079 and 13102 Riverside Drive, 13698 Riverside Drive, 13770 Riverside Drive, 14080 Riverside Drive, and 262 and 270 Brighton Road).

At this time, we kindly ask that you provide relevant SAR information for the areas identified, as well as any other information you may have on natural heritage features (PSW's, ANSI's, etc.), species of conservation concern, fish dot records, etc.

If you have any questions, please feel free to give me a call. Thank you

DILLON CONSULTING

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C - 519.791.0855
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BMcLeod@dillon.ca
www.dillon.ca

7 Attachments


Figure 1 12280 Riv...


Figure 2 12920 Riv...


Figure 3 13079_13...


Figure 4 13698 Riv...


Figure 5 13770 Riv...


Figure 6 14080 Riv...


Figure 7 262_270 ...

Town of Tecumseh
Tecumseh Master Drainage Study

12280 Riverside Dr (Lesperance Road Pump Station)
FIGURE 1

ELC

- CGL - Green Lands
- OAO - Open Aquatic

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: PFM
MAP CHECKED BY: PK
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\LONDON\LONDON CAD\GIS\VISUAL COMMUNICATIONS D\MXD TEMPLATES\GREY - 8.5X11 LANDSCAPE - LEGEND BOTTOM.MXD

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PROJECT: 11-1234 STATUS: DRAFT DATE: 08/24/11

Town of Tecumseh
Tecumseh Master Drainage Study

12920 Riverside Dr (West St. Louis Pump Station)
FIGURE 2

ELC

- CGL - Green Lands
- OAO - Open Aquatic

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: PFM
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MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\LONDON\LONDON CAD\GIS\VISUAL COMMUNICATIONS D\MXD TEMPLATES\GREY - 8.5X11 LANDSCAPE - LEGEND BOTTOM.MXD

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PROJECT: 11-1234 STATUS: DRAFT DATE: 08/24/11

Town of Tecumseh
Tecumseh Master Drainage Study

13079, 13102 Riverside Dr
(East St. Louis Pump Station)

FIGURE 3

ELC

- CGL - Green Lands
- OAO - Open Aquatic

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MAP DRAWING INFORMATION:
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MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\LONDON\LONDON CAD\GIS\VISUAL COMMUNICATIONS D\MXD TEMPLATES\GREY - 8.5X11 LANDSCAPE - LEGEND BOTTOM.MXD

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PROJECT: 11-1234 STATUS: DRAFT DATE: 08/24/11

Town of Tecumseh
Tecumseh Master Drainage Study

13698 Riverside Dr (Skully Pump Station)
FIGURE 4

ELC

- CGL - Green Lands
- OAO - Open Aquatic

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

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MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\LONDON\LONDON CAD\GIS\VISUAL COMMUNICATIONS D\MXD TEMPLATES\GREY - 8.5X11 LANDSCAPE - LEGEND BOTTOM.MXD

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PROJECT: 11-1234 STATUS: DRAFT DATE: 08/24/11

Town of Tecumseh
Tecumseh Master Drainage Study

13770 Riverside Dr (St. Mark's Pump Station)
FIGURE 5

ELC

- CGL - Green Lands
- OAO - Open Aquatic

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: PFM
MAP CHECKED BY: PK
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\LONDON\LONDON CAD\GIS\VISUAL COMMUNICATIONS D\MXD TEMPLATES\GREY - 8.5X11 LANDSCAPE - LEGEND BOTTOM.MXD

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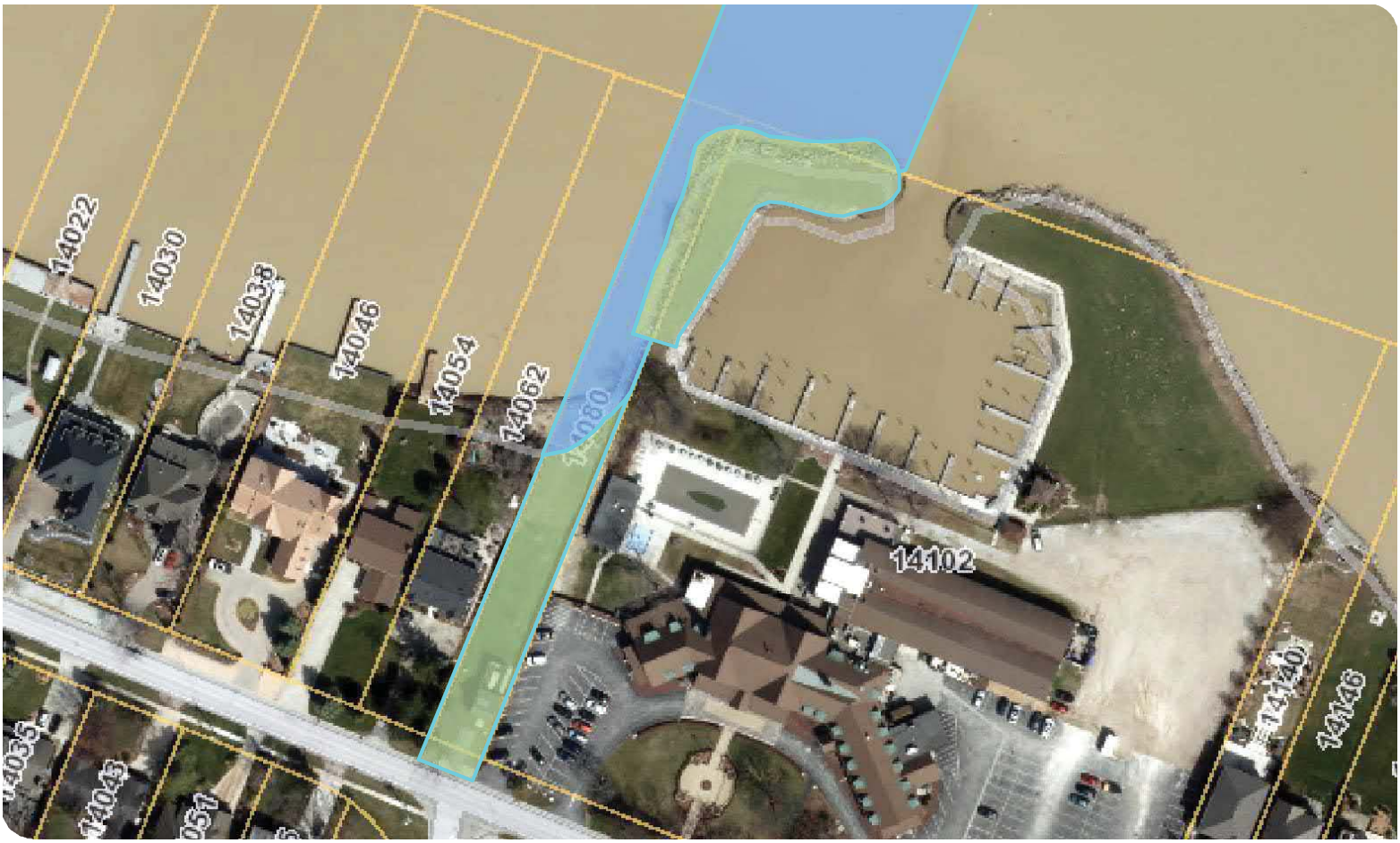

Town of Tecumseh
Tecumseh Master Drainage Study

14080 Riverside Dr (Peter Cecile Pump Station)
FIGURE 6

ELC

- CGL - Green Lands
- OAO - Open Aquatic

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: PFM
MAP CHECKED BY: PK
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\LONDON\LONDON CAD\GIS\VISUAL COMMUNICATIONS D\MXD TEMPLATES\GREY - 8.5X11 LANDSCAPE - LEGEND BOTTOM.MXD

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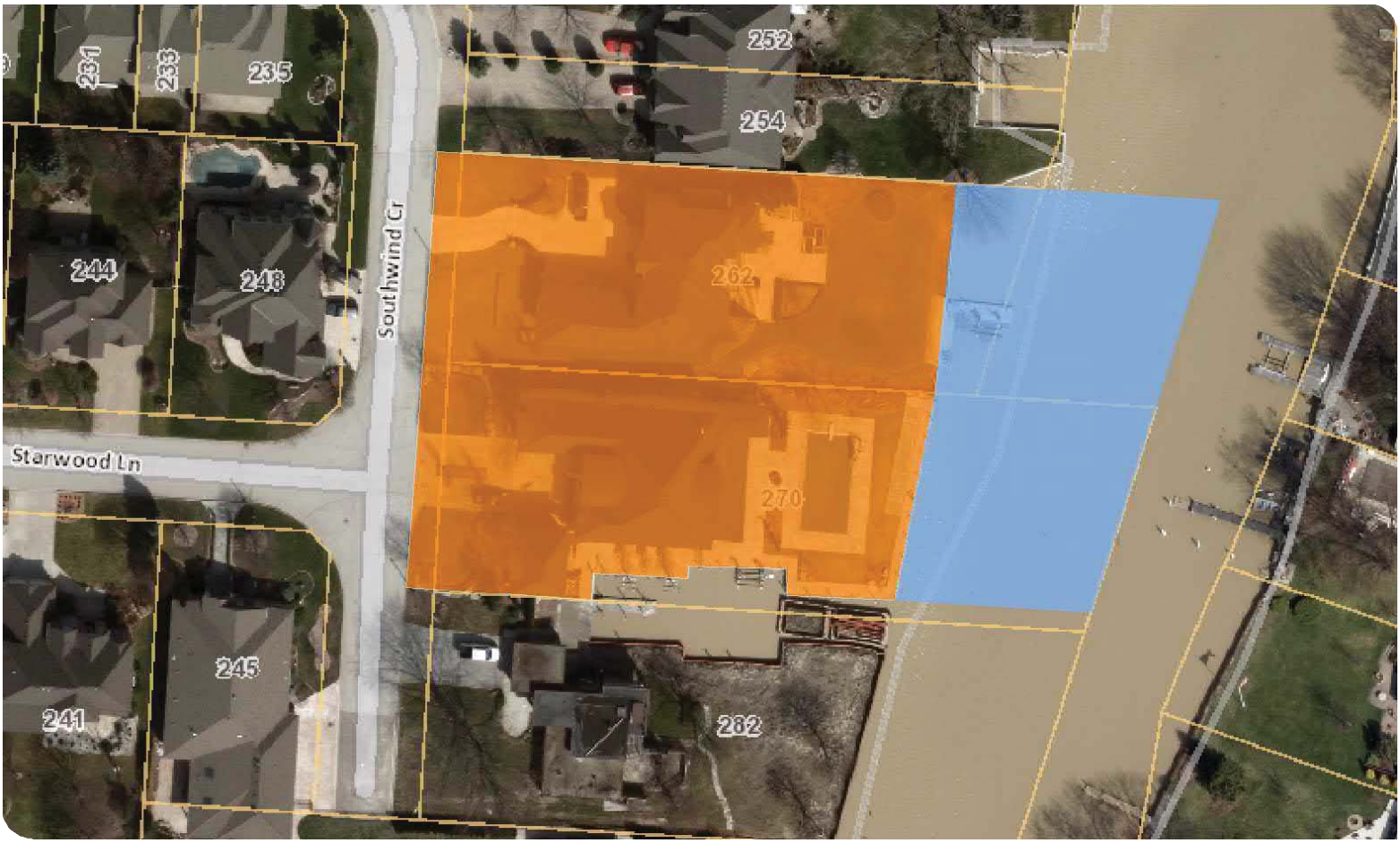

Town of Tecumseh
Tecumseh Master Drainage Study

262, 270 Brighton Rd (Brighton Road Pump Station)
FIGURE 7

ELC

- CVR - Residential
- OAO - Open Aquatic

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MAP DRAWING INFORMATION:
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MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: \\DILLON.CA\DILLON_DFS\LONDON\LONDON CAD\GIS\VISUAL COMMUNICATIONS D\MXD TEMPLATES\GREY - 8.5X11 LANDSCAPE - LEGEND BOTTOM.MXD

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