Township of Ashfield-Colborne-Wawanosh Servicing Master Plan

### **Community of Port Albert**

Council Presentation December 11, 2020



ASHFIELD - COLBORNE - WAWANOSH



# Agenda

- Project Background
- Master Plan Process
- Summary of input to Date
- Study Investigations
- Master Plan Alternatives
- Report Recommendations
- Anticipated costs
- Financing Approaches
- Next Steps



### **Project Study Area**



### Master Plan Study Scope

- Examine existing drainage facilities within the study area and define drainage catchments
- Review municipal sanitary and water servicing issues within the study area and suggest an approach
- Consult with Local Residents and Review Agencies
- Develop a phased urban expansion strategy for the study area that addresses drainage requirements as well as other servicing needs
- Identify and assess existing and required drainage outlets to Lake Huron needed to accommodate development plan
- Prepare a report documenting the Master Plan process and study recommendations



# Features of a Master Plan

- Takes a System Wide Approach to Planning which relates Infrastructure either Geographically or by Function
- Recommends projects to be implemented over an extended period of time
- Addresses at minimum the First Two Phases of the Municipal Class EA and can also cover other phases
- Recommends an Infrastructure Master Plan which can be Implemented through the completion of separate individual projects



### **Master Plan Timelines**

- Initial Notice Published
- Questionnaire Mailed to Residents
- Compiled Results of Questionnaire
- Phase 1 Investigations
- 1<sup>st</sup> Public Meeting
- Consultation following Meeting
- Additional Investigations
- 2<sup>nd</sup> Public Meeting
- Finalize Master Plan

June 2018 June 2018 Jan/Feb 2019 Winter/Summer 2019 September 2019 Fall/Winter 2019 Winter/Spring 2020 January 2021 Spring 2021



# **Summary of Public Input**

- Comments regarding the size, operation and location of proposed SWM Facility
- Comments regarding upgrades to Ashfield Street and impact on existing trees (Large Elm Tree in Particular)
- Comments/concerns regarding the Questionnaire
- Comments regarding wildlife present within study area
- Questions about project funding and how capital costs will be allocated
- Comments/questions related to defined drainage areas and the proposed outlet at the west end of Ashfield Street.
- Concerns about sewage and water servicing of future development lands within the study area

# **Study Investigations**

 Additional investigations were initiated following the 1<sup>st</sup> Public Meeting to address concerns from residents

#### Studies Completed during Phase 1

- Engineering Investigation of Study Area
- Natural Heritage Assessment of Woodlot Areas
- Drainage Assessment of Study Area

#### Studies Completed during Phase 2

- Hydrogeological Review
- Species at Risk Assessment of Study Area
- Stage 1 Archaeological Assessment
- Engineering Review of Sewage and Water Servicing

# Hydrogeological Investigation

- Completed by Ian D. Wilson Associates
- Familiar with the Port Albert Area due to past investigative work completed within the Township
- Purpose of the Study was as follows:
  - Conduct a desktop review of available geological and hydrogeology information to establish the hydrogeological setting of the study area and surrounding lands
  - Conduct desktop analysis of MECP water well records for the study area to confirm aquifer conditions and well yields
  - Provide comments on typical septic system design criteria and sewage system impact potential



# Hydro-G Results

- Available information indicates that the project study area is within a low-risk geologic setting due to depth of overburden (avg. 26m) consisting of clay or hardpan.
- Average well is completed to a depth of 38.4m into the bedrock aquifer with an average yield of 64 L/min
- Due to low permeability of dense silty clays in study area, and probable seasonally perched water table conditions, raised beds would typically be required for septic disposal.
- Based on the low risk geological setting, the number of lots within the Master Plan area will not be limited by MECP Procedure D-5-4 ("nitrate guideline").



### Species at Risk Assessment

- As a result of feedback from residents following the first public meeting, the services of an ecologist were retained to assess the remainder of the study area and the Ashfield Street road allowance to assess trees and species at risk.
- Trees adjacent to the Ashfield Street R/A were assessed to evaluate current health and sensitivity and determine if they could be retained during construction
- Remainder of study area was assessed for presence of species at risk or other sensitive species that might be impacted by the proposed Master Plan projects



### Species at Risk Assessment

#### **Scope of Assessment**

- Wildlife Species at Risk
- Wildlife Corridors
- Trees along Ashfield Street R/A
- Market Street corridor and Wetland Feature

#### Methodology

- Desktop Review
- Field Survey conducted on May 27, 2020



#### Results

- Nineteen (19) SAR were identified as potentially being present and were assessed for their presence
- Three (3) SAR were identified as being present
  - Bobolink (Dolichonyx oryzivorus)
  - Eastern Meadowlark (Sturnella magna)
  - Eastern Wood-pewee (Contopus virens)
- Wildlife Corridors
  - No clearly defined north/south corridor
  - West edge of wetland utilized regularly
  - Could be considered in future developments



Bobolink photo from near Ashfield St.

## Ashfield Street corridor

American Elm is in good condition and should be retained

- Trees of this size and condition are rare due to ongoing effects of Dutch Elm Disease
- Other trees are not sensitive species
  - Apple trees, european buckthorn, green ash, eastern white cedar, norway maple, multiflora rose, chokecherry, cranberry viburnum, poison ivy





#### Figure 1 - Port Albert Natural Heritage Features

Qmerican Elm

Wildlife Corridors (red) Market St Buckthorn/Ash Woodland w/ Sloughs (green) American Elm specimen along Ashfield Rd (white)

ogle Earth

@ 2020 CNES / Airbus



400 m

#### Figure 2 - Port Albert Species at Risk Habitat

Bobolink and/or Eastern Meadowlark: Threatened SAR occupied habitat with legal protections (yellow)

Eastern Wood-pewee: Special Concern SAR occupied habitat (purple)

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# **Recommendations from Report**

#### Ashfield Street

- Modify engineering design to address impacts to Elm
- Approach adjacent property owners to modify road alignment

#### SAR Habitat

• Initiate discussions with MECP on compensation for SAR Habitat

#### Market Street

 Buckthorn-dominated portion of feature less sensitive as long as hydrology addressed so wetland not negatively impacted

#### • Wildlife Corridors

 Incorporate north/south corridors in future development plans wherever possible



### Stage 1 Archaeological Assessment

- Completed by Timmins Martelle Heritage Consultants
- A Stage 1 Assessment is a background review of the study area which identifies potential for the presence of buried cultural artifacts to be present and triggers the need for a Stage 2 (onsite) assessment
- Background review evaluated historic mapping, records of previous archaeological sites, current and historic land uses
- It was determined that a majority of the study area has archaeological potential and would require Stage 2 Assessment prior to development



# **Archaeological Potential**



# **Updated Survey Results**

- 52 Surveys Received within Initial Consultation Period
  - 19 online and 33 paper
- 6 additional surveys received prior to public meeting
  - Paper copies as a result of meetings with residents
- 11 Surveys received following public meeting
  - 9 online and 2 paper
- 68\* Total Surveys Received 27% Response Rate

\* 1 survey was removed by request of the owner



### Survey Results: 27% Response



## **Drainage Problems**



#### Survey Results - Septic Legend NINE MILE RIVER Service Area Parcels Included In Circulation System Class - System Age (150) Developed Lot - No Information (47) Class 5 (4 + 2 Survey) Class 4 - Unknown Year (7) RUSSELL STREET Class 4 - 1970s (27 + 7 Survey) Class 4 - 1980s (10) Class 4 - 1990s (8 + 4 Survey) Oregentunt Class 4 - 2000s\* (21 + 2 Survey) VICTORIA STREET Class 4 - 2010s\* (9 + 2 Survey) \*T Indicates Tertiary System Class 4 = Leaching Bed System Class 5 = Holding Tank (#) = Count of type + survey reponse type\*\* LAKE \*\* Survey response used where no information MARKET STREET HURON ASHFIELD STREET HAWKINS ROAD 21 VICTORIA BEACH ROAD WELLINGTON STR SOUTH STREET

#### Survey Results – Water Supply



### Survey Results – Development Potential



# **Stormwater Management**



## **Stormwater Management**

- As development occurs, ground surfaces are hardened through construction of roads, buildings, landscaping, etc.
- Stormwater management is a method of managing stormwater runoff to replicate an undeveloped state
- Designed to address water quantity issues (volume of runoff) and water quality (removal of sediment and contaminants from runoff.
- On-site (infiltration) methods can be used vs. end-of-pipe (storm ponds)



# **Options for Port Albert**

- Due to silty clay soils in study area, infiltration options are not recommended
- A stormwater management pond was proposed upstream of the upgraded outlet at the west end of Ashfield Street
- Another option is to install a series of stormceptors at key locations within the drainage collection system
- Stormceptors are devices installed within the collection system designed to remove oil, grit and other contaminants before discharging to the lake
- Regular maintenance is required to maintain function



# Stormceptor





Stormceptor installed on London Road

### What is a SWM Facility

The stormwater pond

collects surface water runoff from rooftops, lands and roads.

#### What is a Stormwater Pond?

A stormwater pond is a constructed facility that is designed to improve water quality, provide flood protection and reduce erosion in downstream watercourses. Although these ponds can look natural, a stormwater pond is an engineered structure that must be maintained and cleaned out periodically to ensure proper function.

Catchbasin

Cleaner water leaves the stormwater pond and eventually makes its way to the Lake.

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Plants and bacteria help to remove some pollutants.

Solids in the water settle to the bottom of the pond as sediment.



# Sewage and Water Servicing



# Sewage and Water Servicing

- High level review of Sewage and Water Servicing completed
- Survey results do not indicate a significant concern with septic system operations and/or water quality
- Of 150 septic systems in study area, 51 > 25 years in age, 47 are of an unknown age – 65% could be at risk of failure
- Hydrogeology report indicates that most wells are drilled to bedrock aquifer and overburden provides sufficient separation between septic systems and well supplies
- Aquifer has potential to provide sufficient water quantities for a municipal water supply



# **Proposed Servicing Approach**

#### Sewage Servicing

- Package Treatment Facility to be constructed south of Port Albert discharging to Lake Huron
- Gravity sanitary sewers and sewage pumping stations to be installed throughout the community to service existing and future development areas
- Water Servicing
  - Municipal well system would be developed on municipallyowned land within the community with sufficient capacity to service the fire and water needs of the community
  - Distribution watermains installed throughout the community to service existing and future development areas



### **Conceptual Sewage and Water Servicing**



### **Conceptual Sewage and Water Servicing**



## **Anticipated Costs**

#### Estimated costs to Service Existing

- Distribution Watermain
- Sanitary Collection System
- Sewage Treatment
- Water Treatment

Sub-Total

- \$ 3,800,000 + HST
- \$ 6,000,000 + HST
- \$ 4,300,000 + HST
- \$ 1,800,000 + HST
- \$ 17,100,000

Potential Customers – 260

Total cost per property

\$65,800


# Review of Master Plan Alternatives



### MP Alternatives – Sewage & Water Servicing

Alternative 1 – Service the Entire Community of Port Albert with a Municipally-Owned and Operated Water Distribution and Sanitary Collection and Treatment System. This means that the entire community would be serviced by a new sanitary collection and water system.

Alternative 2 – Service only Future Development Lands with a Municipally-Owned and Operated Water Distribution and Sanitary Collection and Treatment System. This means that new development proposed within the community would be serviced through a municipally owned system.

Alternative 3 - Do Nothing. This option proposes that no improvements or changes be made to address the servicing needs.



#### Review of Sewage & Water Servicing Alternatives

Alternative	Advantages	Disadvantages
Service Entire Community	<ul> <li>More cost effective approach</li> <li>Addresses potential water quality issues associated with aging septic systems &amp; wells</li> <li>Preferred form of servicing is full municipal servicing</li> </ul>	<ul> <li>Recently developed lots would lose investment in new septic and well systems.</li> <li>Economic impacts to existing residents could be significant.</li> </ul>
Service only Future Development Lands	<ul> <li>New development would be serviced by a municipally-owned sewage and water system.</li> <li>Potential water quality impacts to adjacent properties would be minimized.</li> </ul>	<ul> <li>Costs associated with servicing only future development lands could make new development costs prohibitive.</li> </ul>
Do Nothing	<ul> <li>No significant concerns have been identified with existing sewage and and water servicing.</li> <li>Hydrogeology of study area supports existing servicing approach.</li> </ul>	- Potential water quality issues associated with existing septic systems would not be addressed.

# Existing Road & Drainage Infrastructure



#### MP Alternatives – Road & Drainage Infrastructure

Alternative 1 – Reconstruct Existing Road Infrastructure to an Urban Road Cross-Section and Provide Improved Stormwater Drainage Facilities. This means that existing roads would be constructed with curb and gutters and stormwater drainage infrastructure discharging to existing or improved drainage outlets.

Alternative 2 – Reconstruct Existing Road Infrastructure to a Rural Road Cross-Section and Provide Improved Stormwater Drainage Facilities. This means that roads would be reconstructed with roadside ditches to convey stormwater to existing or improved outlets.

Alternative 3 - Do Nothing. This option proposes that no improvements or changes be made to address the road and drainage needs of the community.



#### Review of Road & Drainage Alternatives

Alternative	Advantages	Disadvantages
Reconstruct to an Urban Cross-Section	<ul> <li>Conforms to the current municipal standard for urban areas</li> <li>Provides more efficient drainage from developed parcels</li> <li>Provides enhanced road drainage</li> <li>Provides a longer service life</li> </ul>	<ul> <li>More costly to construct</li> <li>Entire road infrastructure needs to be reconstructed</li> </ul>
Reconstruct to a semi-urban cross-section	<ul> <li>Less expensive to construct</li> <li>Does not meet current municipal standard for urban areas.</li> </ul>	<ul> <li>Requires more ongoing maintenance</li> <li>Shorter service life</li> <li>Less efficient drainage</li> </ul>
Do Nothing	- Least expensive option for residents	<ul> <li>Does not address deficiencies with existing road infrastructure</li> <li>Does not allow for roads to be assumed by Municipality.</li> </ul>
		BMROSS engineering better communities

### MP Alternatives – Future Development Lands

**Problem Statement:** Upgrades to Existing Infrastructure are needed to facilitate development of Vacant Development lands in Port Albert (most currently in a holding zone)

Section 18.8.7 Holding Zone – VR1-H In the area VR1-H no development is permitted until the needed municipal services such as a public road or drainage have been provided. The Holding Zone-H may be removed when these services are available or will be provided by the developer to the satisfaction of the Township.

Alternative 1 – Address stormwater drainage on a parcel by parcel basis as development applications are received

Alternative 2 – Develop a comprehensive approach dealing with drainage for the entire service area

Alternative 3 – Do Nothing



### **Evaluation Considerations**

#### Alternative 1 – Parcel by Parcel Approach

- Does not allow Township to plan ahead for infrastructurerelated capital works projects
- Difficult to address drainage impacts for entire sub-catchment
- Leaves timing to chance and whim of developers
- May result in multiple facilities for Township to maintain

#### Alternative 2 – Comprehensive Approach

- Allows drainage requirements to be addressed for each subcatchment as a whole
- Phased approach will allow Township to plan ahead and budget for necessary infrastructure projects
- Ensures that drainage outlets are designed to address full development within each catchment

# REPORT Recommendations



### Recommendations

#### **Sewage and Water Servicing**

#### Select Alternative 3 – Do Nothing for Sewage and Water Servicing

Rationale for Selecting Alternative 3

- Financial Impact to residents would be significant
- No evidence of significant issues with existing sewage and water systems
- Hydrogeology of study area supports existing servicing model
- Septic inspection program could be developed to address aging septic systems within the community



### Recommendations

#### Select Alternative 1 for Road and Drainage Infrastructure and Alternative 2 for Future Development Areas

For Existing Road and Drainage Infrastructure

- Reconstruct roads to an urban design standard Similar to London Road
- Develop minimum standards for grading, drainage and lot sizes
- In Future Development Areas
  - Develop a phasing plan for road and drainage infrastructure improvements
  - Confirm locations and standards for drainage/road infrastructure
  - Use location 3 if SWM pond is preferred or install stormceptors at key locations within the drainage system

# Urban Road Standard



London Road After





### **Proposed Master Plan Projects**



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### Proposed Phasing Plan – Developed Areas

- 1a) Reconstruct Ashfield Street west of Sydenham
- 1b) Upgrade outlet at west end of Ashfield Street & SWM Facility
- 2a) Reconstruct Wellington Street between Ashfield & Russell
  - Lower profile of road to allow front yard drainage at more lots.
  - Install new drainage infrastructure discharging to Victoria MD
- 2b) Reconstruct Wellington from Ashfield to South Street and Ashfield from Sydenham to London Road
- 3) Reconstruction/Construction of Huron Street
- 4) Reconstruction/Construction of Sydenham and Market R/A
- 5) Additional extensions of currently 'unopened' roads, based on demand, along with associated drainage upgrades

### **Proposed Project Phasing**



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# **Anticipated Costs**

- Ashfield Street & Storm drainage outlet
  - Ashfield Street Construction
  - Outlet Construction
  - Stormwater Facility Allowance
     Sub Total
- Wellington Street Reconstruction\*
  - Russell Street to Ashfield Street
  - Ashfield to South
  - Allowance for upgrades to Victoria St. Dr.
     Sub Total
- Huron Street Reconstruction
  - Ashfield to 360m North
  - Ashfield to 180m South
     Sub Total

- \$ 1,210,000
- \$ 630,000
- \$ 510,000
- \$ 2,350,000
- \$ 1,980,000
- \$ 1,260,000
- \$ 150,000
- \$ 3,390,000
- \$ 1,090,000
  \$ 540,000
  \$ 1,630,000

## **Anticipated Costs**

<ul> <li>Sydenham Street Reconstruction</li> </ul>		
<ul> <li>Ashfield to 200m South</li> </ul>	\$	
<ul> <li>Ashfield to 100m North</li> </ul>	\$	
<ul> <li>Market to 100m North</li> </ul>		
Sub Total	\$1	
<ul> <li>Market Street Reconstruction</li> </ul>		
<ul> <li>Wellington to Sydenham</li> </ul>	\$	
Sub Total	\$	
<ul> <li>Ashfield Street Reconstruction</li> </ul>		
<ul> <li>London Road to Wellington</li> </ul>	\$1	
<ul> <li>Wellington to Sydenham</li> </ul>	\$	
<ul> <li>Allowance for upgrades to Victoria St. Dr.</li> </ul>		
Sub Total	\$ 2	

- 610,000
- 5 270,000
- 5 410,000
- \$ 1,290,000
  - 620,000
- \$ 620,000
- 5 1,370,000 5 600,000 5 150,000 5 **2,120,000**

## Summary of Estimated Costs

- Ashfield Street & Storm drainage outlet \$2,350,000
- Wellington Street Reconstruction
- Huron Street Reconstruction
- Sydenham Street Reconstruction
- Market Street Reconstruction
- Ashfield Street Reconstruction
- Total Anticipated Costs

- \$ 3,390,000
- \$ 1,630,000
  - \$ 1,290,000
  - \$ 620,000
  - \$ 2,120,000
  - \$11,400,000



## Financing Approach

- The financing approach will be finalized following the public meeting once input from residents is received
- Cost contributions will vary by project type Road projects will have a different cost structure than drainage projects
- Similar approach to that used on the London Road Project
  - Base rate plus area charge based on property size
  - Will need to calculate costs based on benefitting drainage area & contribution to stormwater infrastructure (piping, outlets, etc.)
  - Payment will be triggered when benefitting works occur
  - Township will have to finance some work initially and then collect from residents over a set time frame



## **Financing Approach**

- Reconstruction of existing roads already assumed by Township (eg. Wellington Street)
  - Township to pay 100% of the road reconstruction costs
  - Township to pay 50% of the drainage upgrade costs
  - Residents to pay 50% of the drainage costs based on the area of land draining to the road and a flat rate charge per property of \$5000\*
- Construction of road allowances not currently assumed by Township (eg. Ashfield)
  - Township to pay 75% of the road construction costs
  - Properties that benefit from road construction to pay 25% of construction costs less a flat rate charge per property of \$5000\*

## Financing Approach

- Construction of new roads within unopened road allowances (eg. Arthur/Colborne)
  - Abutting landowners to pay 100% of road and drainage costs
  - ACW to maintain once road is constructed and assumed by the Twp.

#### Construction of new storm drainage outlet at end of Ashfield St.

- Township to pay 75% of the drainage upgrade costs
- Residents to pay 25% of the drainage costs based on the area of land draining to the outlet less a flat rate charge per property of \$5000\*
- Construction of new storm water management facilities (pond/stormceptor)
  - Township to pay 75% of the drainage upgrade costs
  - Residents to pay 25% of the drainage costs based on the area of land draining to the outlet less a flat rate charge per property of \$5000\*

### Preliminary costs for property owners

- Wellington Street Reconstruction (1/2 of storm costs)
   High \$64,500 (12.4 acres) Low \$7,300 (0.5 acres)
- Ashfield Street Construction (Sydenham to Huron) ¼ of road costs

High - \$14,500 (5 acres) Low - \$6,900 (0.5 acre)

Storm drainage outlet and SWM facilities – ¼ of costs
 High - \$12,600 (4.9 acres) Low - \$5,200 (0.16 acre)



### **Next Steps**

- Collect input from public meeting and review with ACW staff
- Modify report recommendations based on feedback
- Finalize Financing Approaches and Cost Estimates
- Finalize Master Plan Report
- Council Adoption of Master Plan
- Consider inclusion of Master Plan Recommendations in ACW Official Plan
- Make Final Report Available to Public



# Questions?





### Drain outlet map



### **Ashfield Construction Map**



# Wellington

