Lawrence Park Neighbourhood Investigation of Basement Flooding & Road Improvement Study Class Environmental Assessment

> Public Information Centre 3 Presentation 13 May 2015

OBJECTIVES OF TONIGHT'S MEETING

- Review existing conditions
- Present alternative solutions and evaluation process
- Present recommended alternative solutions
- Answer questions and receive feedback
- Discuss next steps

STUDY PURPOSE

To address issues relating to:

- deteriorating road conditions
- traffic
- pedestrian safety
- road drainage problems
- basement flooding

Measures that improve stormwater quality and reduce storm runoff will also be incorporated



Study Area

STUDY PROCESS

Study is being carried out according to the Municipal Class Environmental Assessment process



COMMUNITY INPUT

Feedback received at PIC#2 identified three priorities:

- 1. Reduce Basement Flooding
- 2. Improve Pedestrian Safety
- 3. Limit Impact to Urban Greenspace/ Recreational Uses







EXISTING CONDITIONS: BASEMENT FLOODING



SEWER SYSTEM STUDY AREA

A separate set of alternatives was developed and evaluated for the **partially separated** and **separated areas**



ALTERNATIVE SOLUTIONS: BASEMENT & SURFACE FLOODING

BRAESIDE RI

WRENCE AVE EAS

LYTHWOOD R

Partially Separated Area

- 2 alternatives were considered:
 - I. Alternative 1 Increase Conveyance
 - II. Alternative 2 Provide Offline Storage

Fully Separated Area

- 3 alternatives were considered:
 - I. Alternative 1 Increase Conveyance
 - II. Alternative 2 Provided Inline Storage
 - III. Alternative 3 Increase Conveyance and Provide Inline Storage

Surface flooding addressed through alternatives on road cross-sections – urban/rural cross-section

Study Are

Partially

RECOMMENDED ALT. SOLUTIONS: PARTIALLY SEPARATED AREA

- Downspout disconnection
- Adding storm sewers to provide adequate capacity on St. Leonards Avenue, Glengowan Avenue and Dundurn Road (total length = 830 m)





RECOMMENDED ALT. SOLUTIONS: FULLY SEPARATED AREA

- Downspout disconnection
- Sealing of sanitary manholes in low lying areas
- Replacement of 1,020 m of sanitary sewers with larger sewers on Bayview Wood, Rochester Avenue, Wood Avenue, Bayview Avenue and Valleyanna Drive
- Construction of a 1,100 m³ underground storage facility on Valleyanna Drive





TRAFFIC SIGHT LINES

- Locations with a potential lack of sight distance were identified and examined
- Recommendations include:
 - Remove or relocate stone wall for Blythwood Road / Strathgowan Crescent
 - Undertake minor works (trimming of tree branches) at Mount
 Pleasant Road / Lawrence Crescent and Mount Pleasant Road /

St. Leonards Avenue



Blythwood Road at Strathgowan Crescent, facing East

TRAFFIC INFILTRATION & SAFETY

- A traffic study was undertaken to understand the study area travel patterns and to highlight infiltration across the study area.
- The findings showed that traffic volumes on internal roads are relatively small, with the exception of Mildenhall Road, which is a collector road.



Recommendations:

- Consideration of turning restrictions at the Blythwood Road and Daneswood Road intersection to reduce traffic volumes through the area
- Clearly defined pedestrian spaces such as sidewalks and pavement markings
- Consistent approach for traffic sign designs and application of parking regulations, speed limits and warning signs
- Appropriate use of traffic control measures such as stop signs and traffic control signals

EXISTING CONDITIONS: STATE OF GOOD REPAIR ON ROADS



EXISTING ROAD WIDTHS



PEDESTRIAN LINKAGES

Priority is on creating pedestrian linkages to key destinations in the neighbourhood and connecting existing sidewalks



FACTORS IMPACTING SIDEWALK INSTALLATION

- Presence of pedestrian generators (school, parks)
- Right-of-Way road width
- Impact on trees and vegetation
- Technical feasibility, cost, impact on utilities (e.g. hydro poles)



ROAD WIDTH REQUIREMENTS

City Policy for Local Residential Roadway requires:

• 8.5 m paved surface, concrete curb and 1.7-2.0 m sidewalk on one or both sides

A local residential roadway must account for the following:

- Emergency and service vehicle access
- Space for pedestrians, cyclists and vehicles
- Safe two way traffic flow
- Width for winter road maintenance
- Parking
- Width for underground structures



ROADWAY CROSS SECTION



INVENTORY OF STREET TREES

- Tree inventory completed for the study area
- Data for each tree included:
 - location
 - species
 - diameter at breast height
 - biological health
 - condition
 - preservation priority



IMPACT ON STREET TREES

- There are approximately 2600 healthy street trees within the municipal right of way across the whole study area; less than 100 street trees were found to be of a low priority.
- Number of street trees that would require removal was determined for each alternative for each street.
- Average percentage removal for all alternatives considered, ranged from 10-80%, depending on the width of construction impacts, the existing road width and the locations of the existing trees.
 - An urban cross section, with a 7.2m road width, and with no sidewalk results in the least impact to street trees.



ALTERNATIVE SOLUTIONS: ROAD CROSS SECTION

- At PIC #2, a preferred road width of 8.5 m with 1 or 2 sidewalks for local roads was presented
- As a result of public input, the study team reconsidered the above
- Alternative Solutions evaluated include:

Local Roads

- Urban or rural cross sections
- 7.2 or 8.5m roadway widths
- 0 or 1 sidewalks
- Identification of sidewalks that create priority linkages

Collector Road

- Urban cross sections
- 8.5 or 9.5m roadway widths
- 1 or 2 sidewalks
- Mildenhall Road, south of Lawrence Ave E

KEY MAP: ROADS EVALUATED

Roadway cross-sections developed and evaluated only for streets which have issues with respect to the existing road width, drainage or lack of sidewalks



ALTERNATIVE SOLUTIONS: ROAD CROSS SECTION

- Fixing roads with existing cross-sections will not address the existing problems/opportunities
 - Roads under 7.2m are insufficient for emergency/operational vehicles
 - Lack of pedestrian infrastructure
 - Direct replacement would not provide for regrading and would not fully
 address issues of storm drainage
- Fixing streets with their existing cross-section would have an impact on trees similar to a 7.2m urban cross-section
- No alternatives provide for zero impact



Existing Tree to

EVALUATION PROCESS: CRITERIA

Socio-Cultural

- Pedestrian Safety
- Impact on Urban Greenspace / Recreational Use (Trees, Parks, Open Spaces)

Technical

- Technical Effectiveness
 - Surface and Basement Flooding
 - Stormwater Quality Improvement
 - Pavement Structural Conditions
 - Pedestrian Connectivity
 - Accessibility for Maintenance & Emergency Vehicle

Economic

Capital Costs

 Pedestrian Safety, Impact on Urban Greenspace and Surface/Basement Flooding assigned higher scoring factor based on community input

RECOMMENDED ALTERNATIVE SOLUTIONS



RECOMMENDED ALTERNATIVE SOLUTIONS: LOCAL ROAD

7.2 metre road + 1 sidewalk + urban cross section



7.2 metre road + urban cross section



- 7.2m road width would have parking limited to one side of road
- Location of sidewalk determined during detailed design stage

RECOMMENDED ALTERNATIVE SOLUTION: MILDENHALL ROAD (S of Lawrence Ave E)

8.5 metre road + 1 sidewalk + urban cross section



- Location of sidewalk determined during detailed design stage
- Existing parking restrictions would remain

EVALUATION PROCESS

- Recommended Alternative Solutions are selected based on the highest score
- In cases where two highest scoring alternatives are within 1 point of each other, a qualitative assessment of the two alternatives was conducted to select the preliminary recommended solution



EVALUATION PROCESS: SCORING

Street Assessment Group ID: 1 – Mildenhall Road South (EXAMPLE 1)

Evaluation Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	
Socio-Cultural						
Pedestrian Safety	0	8	6	8	6	
Impact on Urban Greenspace / Recreational Use (Street Trees, Parks, Open Spaces)	16	8	8	8	12	
Technical - Technical Effectiveness						
Surface Flooding	0	8	8	8	8	
Stormwater Quality Improvement	0	4	4	4	4	
Pavement Structural Conditions	0	4	4	4	4	
Pedestrian Connectivity	0	4	4	4	4	
Accessibility for Maintenance & Emergency Vehicle	2	4	4	3	3	
Economic						
Capital Costs	4	1	2	2	3	
Total	22	41	40	41	44	

EVALUATION PROCESS – Example 1

Street Assessment Group ID: 1 – Mildenhall Road South (EXAMPLE 1)



Alternative 5 has been identified as the Preliminary Preferred Alternative for following reasons:

- · Results in the least impact to street trees
- A sidewalk is included because this is a collector road. It will provide a priority pedestrian linkage to key destinations in the neighbourhood
- Surface flooding is addressed by providing a storm drainage system to prevent ponding
- Meets the requirements for an improvement of roadway structure, improvement in stormwater quality and ability to provide safe conditions for emergency and operational vehicles

EVALUATION PROCESS – Example 1

Street Assessment Group ID: 1 – Mildenhall Road South (EXAMPLE 1)

(1) MILDENHALL ROAD – From Lawrence Avenue East to Blythwood Road





kisting Conditions - Mildenhall F (north of Bayview Wood)



Existing Conditions - Mildenhall Rd (south of Bayview Wood)

Existing Conditions

- Surface flooding and insufficient ditched drainage system
- Poor quality road structure and pavement widths ranging from 7m 9m
- Approximately 340 mature trees within public right-of-way
- No sidewalks

Alternatives to Address the Problems/Opportunities

The study team evaluated 4 Alternative Roadway Cross Sections:

- 9.5m road width + 2 sidewalks + urban cross-section
- 9.5m road width + 1 sidewalk + urban cross-section
- 8.5m road width + 2 sidewalks + urban cross-section
- 8.5m road width + 1 sidewalk + urban cross-section

Preliminary Preferred Alternative



Preliminary Preferred Alternative:

- Results in the least impact to street trees
- ☑ Includes a sidewalk helping to establish a pedestrian linkage to key destinations in the neighbourhood
- ☑ Addresses surface flooding by providing a storm drainage system to prevent ponding
- Meets the requirements for an improvement of roadway structure, improvement in stormwater quality and ability to provide safe conditions for emergency and operational vehicles

EVALUATION PROCESS: SCORING

Street Assessment Group ID: 5 – St. Leonards Avenue (EXAMPLE 2)

Evaluation Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Alternative 9
Socio-Cultural									
Pedestrian Safety	0	8	6	8	6	0	0	0	0
Impact on Urban Greenspace / Recreational Use (Street Trees, Parks, Open Spaces)	16	0	0	0	4	0	8	0	12
Technical - Technical Effectiveness									
Surface Flooding	0	8	8	8	8	8	8	8	8
Stormwater Quality Improvement	0	4	4	4	4	4	4	4	4
Pavement Structural Conditions	0	4	4	4	4	4	4	4	4
Pedestrian Connectivity	0	4	4	4	4	0	0	0	0
Accessibility for Maintenance & Emergency Vehicle	2	4	4	2	2	4	4	2	2
Economic									
Capital Costs	4	0	0	2	2	1	1	3	3
Total	22	32	30	32	34	21	29	21	33

EVALUATION PROCESS – Example 2

Street Assessment Group ID: 5 – St. Leonards Avenue (EXAMPLE 2)

5 ST. LEONARD'S AVENUE - East of St. Ives Avenue



The scores for Alternative 5 and Alternative 9 are closely matched and were further compared.

Alternative 5 has been identified as the Preliminary Preferred Alternative for following reasons:

- · Results in the moderate impact to street trees
- A sidewalk is included as this will provide a priority pedestrian linkage to key destinations in the neighbourhood
- · Surface flooding is addressed by providing a storm drainage system to prevent ponding
- Meets the requirements for an improvement of roadway structure, improvement in stormwater quality and ability to provide safe conditions for emergency and operational vehicles

EVALUATION PROCESS – Example 2

Street Assessment Group ID: 5 – St. Leonards Avenue (EXAMPLE 2)

(5)ST. LEONARD'S AVENUE – East of St. Ives Avenue





Existing Conditions - St. Leonards Ave (east of Mildenhall Rd)

Existing Conditions

- Surface flooding and insufficient ditched drainage system
- · Poor quality road structure and pavement widths ranging from 6m 8m
- Approximately 100 mature trees within public right-of-way
- No sidewalks

Alternatives to Address the Problems/Opportunities

The study team evaluated 8 Alternative Roadway Cross Sections:

- 8.5m road width + 1 sidewalk + rural cross-section
- 8.5m road width + 1 sidewalk + urban cross-section
- 7.2m road width + 1 sidewalk + rural cross-section
- 7.2m road width + 1 sidewalk + urban cross-section
- 8.5m road width + 0 sidewalk + rural cross-section
- 8.5m road width + 0 sidewalk + urban cross-section
- 7.2m road width + 0 sidewalk + rural cross-section
- 7.2m road width + 0 sidewalk + urban cross-section

Preliminary Preferred Alternative



Preliminary Preferred Alternative:

- Results in the moderate impact to street trees
- ${\ensuremath{\overline{\mathbf{U}}}}$ Includes a sidewalk helping to establish a pedestrian linkage to key destinations in the neighbourhood
- Addresses surface flooding by providing a storm drainage system to prevent ponding
- Meets the requirements for an improvement of roadway structure, improvement in stormwater quality and ability to provide safe conditions for emergency and operational vehicles

EVALUATION PROCESS: SCORING

Street Assessment Group ID: 17 - Fidelia Avenue (EXAMPLE 3)

Evaluation Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7	Alternative 8	Alternative 9
Socio-Cultural									
Pedestrian Safety	0	8	6	8	6	0	0	0	0
Impact on Urban Greenspace / Recreational Use (Street Trees, Parks, Open Spaces)	16	0	0	0	4	0	8	0	12
Technical - Technical Effectiveness									
Surface Flooding	0	0	0	0	0	0	0	0	0
Stormwater Quality Improvement	0	4	4	4	4	4	4	4	4
Pavement Structural Conditions	0	4	4	4	4	4	4	4	4
Pedestrian Connectivity	0	0	0	0	0	0	0	0	0
Accessibility for Maintenance & Emergency Vehicle	2	4	4	2	2	4	4	2	2
Economic									
Capital Costs	4	1	1	2	2	1	1	3	3
Total	22	21	19	20	22	13	21	13	25

EVALUATION PROCESS – Example 3

Street Assessment Group ID: 17 - Fidelia Avenue (EXAMPLE 3)

17 FIDELIA AVE, DAWLISH AVE, ST. LEONARDS CRES – West of Mildenhall Rd



Alternative 9 has been identified as the Preliminary Preferred Alternative for following reasons:

- · Results in the least impact to street trees
- Meets the requirements for an improvement of roadway structure, improvement in stormwater quality and ability to provide safe conditions for emergency and operational vehicles

EVALUATION PROCESS – Example 3

Street Assessment Group ID: 17 - Fidelia Avenue (EXAMPLE 3)

17 FIDELIA AVE, DAWLISH AVE & ST. LEONARDS CRES - West of Mildenhall Rd





Existing Conditions - Dawlish Avenue (facing West)

Existing Conditions

- Insufficient ditched drainage system
- Poor quality road structure and pavement widths 6m 8m
- Approximately 90 mature trees within public right-of-way
- No sidewalks

Alternatives to Address the Problems/Opportunities

The study team evaluated 8 Alternative Roadway Cross Sections:

- 8.5m road width + 1 sidewalk + rural cross-section
- 8.5m road width + 1 sidewalk + urban cross-section
- 7.2m road width + 1 sidewalk + rural cross-section
- 7.2m road width + 1 sidewalk + urban cross-section
- 8.5m road width + 0 sidewalk + rural cross-section
- 8.5m road width + 0 sidewalk + urban cross-section
- 7.2m road width + 0 sidewalk + rural cross-section
- 7.2m road width + 0 sidewalk + urban cross-section

Preliminary Preferred Alternative



Preliminary Preferred Alternative:

- ☑ Results in the least impact to street trees
- Meets the requirements for an improvement of roadway structure, improvement in stormwater quality and ability to provide safe conditions for emergency and operational vehicles

MITIGATION MEASURES

- During detailed design we can more accurately identify the # of tree's impacted
- Tree removal counts are based upon a preliminary assessment using the <u>existing center point of the roadway</u>
- Localized road narrowing and/or the use of non-standard construction techniques will be applied where feasible to reduce the impacts
- A new street tree will be planted for every tree removed

QUESTIONS TO BE ASKED IN THE OPEN HOUSE

- Do you agree with the <u>preliminary</u> results of the evaluation? Why or why not?
- 2. What concerns, if any, do you have about potential impacts the preliminary preferred alternative could have on your street? On adjacent streets or the broader Lawrence Park Neighbourhood?
- 3. Do you have other feedback on any other aspect of the evaluation or study?

PUBLIC REVIEW AND FEEDBACK

- Opportunity tonight to view evaluation and recommendations
- Display boards showcase the alternatives and scoring for individual streets
- Comment sheets provided to gather feedback

NEXT STEPS

- Opportunity to provide comments on preliminary recommended solutions
- All comments will be reviewed by project team and consultation summary report to be issued and posted on website
- Study to be completed with final report made available for 30-day public review period

NEXT STEPS

- If no Part II Orders received the City will:
 - prioritize projects in accordance with funding availability and cost benefits
 - plan and coordinate the timing of project detailed design and construction
 - include projects in the capital budget process

THANK YOU AND QUESTIONS

