Lawrence Park Neighbourhood Investigation of Basement Flooding & Road Improvement Study

Public Information Centre
May 26, 2016
Lawrence Park Community Church, 2180 Bayview Avenue
Why are we doing this study?

The City has an obligation to ensure that its infrastructure is in a state of good repair and, when reconstructed, is brought up to date to meet today’s policies and standards.

We must address these infrastructure problems:

- Deteriorated Road Infrastructure
- Pedestrian Safety
- Traffic Management
- Poor Road Drainage
- Incidences of Basement Flooding
Problem: Deteriorated Roads

• Many roads require full reconstruction; built over 50 years ago and are at the end of their service life

Graphic summarizes results of 2013 geotechnical assessment of pavement conditions.
Resurfacing vs. Reconstruction

• Recent resurfacing is **only a temporary solution.** It is not a cost-effective, long-term solution for the road structure or drainage of the roads

• Reconstruction is required:
  • To improve underlying pavement structure deterioration
  • To correct major road drainage problems
  • To change the layout of the existing road features (i.e., width or location of road surface, curbs or sidewalks)

• With maintenance and rehabilitation, reconstructed roads will last up to 100 years
Problem: Pedestrian Safety

- Sidewalks exist on west-side of the neighbourhood; no pedestrian connection to east-side
- Vehicle and pedestrian conflicts
- Busiest street - Mildenhall Road provides only a 1.2m asphalt path with no separation from traffic
Problem: Traffic Management

- Concerns with intersection sight-lines and traffic infiltration

- Concerns with speeding can be addressed through road narrowing, traffic calming and enforcement

- Traffic Calming is a separate process and can be requested by residents or Councillor and is managed outside of the Environmental Assessment
  - Toronto’s traffic calming policy requires a sidewalk on the street
Problem: Poor Road Drainage

- Swales have been filled-in or landscaped
- As a result surface water (or road drainage) does not drain and causes excessive ponding on streets and private property
Problem: Basement Flooding

- Sewer back-ups have been reported during severe rainstorm events.
- Storm drainage system in East-side (former North York) is not functioning during severe storm events, and is backing up in the sanitary sewers.
- Sewer system in West-side (former Toronto) is sized to handle the average rainfall, not severe storm events.
What is the study process?

To address the infrastructure problems, the City is carrying out a Master Plan study under the Municipal Class Environmental Assessment (a prescribed process to meet the requirements of the province’s Environmental Assessment Act). An EA assesses impacts on all aspects of the environment, the community and stakeholders, and produces recommendations based on a logical decision making process.

EXHIBIT A.2
MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA.
Three Stages – Study, Design, Construction

1. Environmental Assessment Study
   Establish framework of road widths, streets with sidewalks, road drainage system, sewer improvements and traffic sight-lines

2. Detailed Engineering Design
   Produce detailed drawings with:
   - Road alignment
   - Sidewalk and curb details (side of street, material)
   - Incorporate locations of other utilities (e.g., hydro, gas)
   - Coordinate other necessary upgrades (e.g., watermains, sanitary sewers)

3. Construction
   Qualified contractor hired to carry out construction; City oversees contract and inspection of work
What we’ve heard

- Study area streets
  - Preserving trees is a key priority
  - Desire to maintain rural, unique character
  - Mixed views on sidewalks

- Traffic safety
  - General agreement with traffic safety recommendations
  - Support for more traffic safety measures (parking restrictions, sight line improvements, signs and turning restrictions)

- Basement flooding
  - General agreement that sewer upgrades needed to reduce basement flooding risk
  - Some concern over potential implications of solutions (e.g., loss of trees, more paved surfaces)
  - Request to extend sewer improvements to additional streets
Infrastructure Standards

City standards and policies have been reviewed and consideration has been given to the study area conditions, and public and stakeholder feedback. The EA report will capture the area specific considerations and will be a guide during the design work that will follow.

<table>
<thead>
<tr>
<th>Standards and Policies</th>
<th>Study Considerations for Lawrence Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Road - 8.5 m road width</td>
<td>7.2 m road width with localized narrowing to 6.6 m</td>
</tr>
<tr>
<td>Local Road - 1.7- 2.0 m sidewalk on one or both sides</td>
<td>Inclusion of a sidewalk on one side was evaluated. 1.5 m sidewalk on local roads that create or maintain a key linkage across the neighbourhood.</td>
</tr>
<tr>
<td>Collector Road - 9.5 m road width 1.7- 2.0 m sidewalk on both sides</td>
<td>8.5 m road width, 1.5 m sidewalk on one side 7.2 m road width, 1.5 m sidewalk on both sides</td>
</tr>
<tr>
<td>Maintain existing ditches</td>
<td>Ditches and underground storm sewers evaluated. Storm sewers score higher because of significant tree loss associated with rebuilding ditches to standard.</td>
</tr>
</tbody>
</table>

Enhanced level of protection against sanitary sewer back-up for 25-50 year storm event and storm sewer back-up and surface flooding for 100-year storm event

*Management of runoff on or between private property is the responsibility of the homeowners
Assessment of Tree Impacts
**Assessment of Tree Impacts**

- **Not Impacted:** The TIZ lies completely outside of the construction width and will not be impacted.
- **Preserved if Possible:** Construction inside the TIZ; the tree will be impacted by construction. Design, construction and post construction mitigation techniques will be used to preserve the tree.
- **Removed and Replaced:** Construction significantly inside the TIZ. Tree significantly impacted by construction to the extent that removal is expected.
Caring for Trees during Construction

Construction Stage
• On-site supervision by certified arborists and communication plan
• Excavation techniques (hand excavation, pneumatic, hydraulic, etc.)
• Root pruning techniques and considerations
• Backfill techniques and considerations
• Tree care during construction

Pictured above: Pneumatic (air) and hydraulic (water) excavation techniques remove the surrounding soil without significantly damaging tree roots.
Post-Construction Care

Post-Construction

• Monitoring
• Irrigation
• Aeration
• Mulching
• Wound treatment, as necessary
• Fertilization (not recommended for at least 1 year post construction)
Table shows the current count of trees estimated to be **removed and replaced**, **preserved if possible** and **not impacted** based on customized Tree Impact Zone assessments.

<table>
<thead>
<tr>
<th>Project ID</th>
<th>Representative Street Name</th>
<th>Approximate Total Number of Trees</th>
<th>Number of Trees to be removed</th>
<th>Number of Trees to be preserved</th>
<th>Number of Trees not impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mildenhall Rd</td>
<td>137</td>
<td>29</td>
<td>43</td>
<td>65</td>
</tr>
<tr>
<td>2</td>
<td>Buckingham Ave</td>
<td>59</td>
<td>7</td>
<td>9</td>
<td>43</td>
</tr>
<tr>
<td>3</td>
<td>Cheltenham Ave</td>
<td>44</td>
<td>3</td>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td>4</td>
<td>Rochester Ave</td>
<td>77</td>
<td>6</td>
<td>13</td>
<td>58</td>
</tr>
<tr>
<td>5</td>
<td>St. Leonards Ave</td>
<td>79</td>
<td>11</td>
<td>20</td>
<td>48</td>
</tr>
<tr>
<td>6</td>
<td>Lewes Cres, Pembury Ave</td>
<td>39</td>
<td>4</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>7</td>
<td>Dawlish Ave</td>
<td>54</td>
<td>14</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>8</td>
<td>Glen Allan Rd, Pinedale Rd, Strathgowan Cres</td>
<td>80</td>
<td>1</td>
<td>12</td>
<td>67</td>
</tr>
<tr>
<td>9</td>
<td>Stratheden Rd, Strathgowan Cres</td>
<td>58</td>
<td>2</td>
<td>8</td>
<td>48</td>
</tr>
<tr>
<td>10A</td>
<td>Garland Ave, Strathgowan Ave</td>
<td>42</td>
<td>5</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>10B</td>
<td>Strathgowan Ave</td>
<td>35</td>
<td>1</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>11</td>
<td>Blyth Hill Rd</td>
<td>86</td>
<td>3</td>
<td>6</td>
<td>77</td>
</tr>
<tr>
<td>12</td>
<td>Blyth Dale Rd, Blanchard Rd</td>
<td>79</td>
<td>2</td>
<td>9</td>
<td>68</td>
</tr>
<tr>
<td>13</td>
<td>Braeside Cres, Proctor Cres</td>
<td>28</td>
<td>0</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>14</td>
<td>Rothmere Dr</td>
<td>48</td>
<td>2</td>
<td>8</td>
<td>38</td>
</tr>
<tr>
<td>15</td>
<td>Mildenhall Rd North</td>
<td>90</td>
<td>2</td>
<td>12</td>
<td>76</td>
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<tr>
<td>16</td>
<td>Bayview Wood, St. Aubyns Cres, Wood Ave</td>
<td>96</td>
<td>8</td>
<td>22</td>
<td>66</td>
</tr>
<tr>
<td>17</td>
<td>Fidelia Ave, St. Leonards Cres, Dawlish Ave</td>
<td>70</td>
<td>6</td>
<td>26</td>
<td>38</td>
</tr>
</tbody>
</table>

**Total Number of Trees**

- **1201**
- **106**
- **247**
- **848**
Adding to the Tree Canopy

• The City will plant new trees as early as this year
• The City will identify potential locations and species type, and will consult with affected property owners
• Overall tree canopy can increase by over a 100 trees
• Early planting will allow trees to become established well ahead of construction
• During construction, the City will replace each tree that is removed
Tree Assessment Example

Wood Avenue

<table>
<thead>
<tr>
<th>Tree No</th>
<th>Tree Species</th>
<th>Condition</th>
<th>Diameter (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>661</td>
<td>ACER SACCHARUM SSP. SACCHARUM</td>
<td>Sugar Maple</td>
<td>Moderate 33</td>
</tr>
<tr>
<td>662</td>
<td>ACER SACCHARUM SSP. SACCHARUM</td>
<td>Sugar Maple</td>
<td>High 54</td>
</tr>
<tr>
<td>663</td>
<td>GINNIA ALBIFLORA</td>
<td>Mayapple</td>
<td>High 36</td>
</tr>
<tr>
<td>664</td>
<td>TELA CORDIF</td>
<td>Eastern White Oak</td>
<td>Moderate 78</td>
</tr>
<tr>
<td>665</td>
<td>QUERCUS RUBRA</td>
<td>Red Oak</td>
<td>High 120</td>
</tr>
<tr>
<td>666</td>
<td>ACER SACCHARUM SSP. SACCHARUM</td>
<td>Sugar Maple</td>
<td>Moderate 85</td>
</tr>
<tr>
<td>667</td>
<td>ACER SACCHARUM SSP. SACCHARUM</td>
<td>Sugar Maple</td>
<td>Moderate 85</td>
</tr>
<tr>
<td>668</td>
<td>ACER SACCHARUM SSP. SACCHARUM</td>
<td>Sugar Maple</td>
<td>Moderate 35</td>
</tr>
</tbody>
</table>

Trees to be removed

Trees to be preserved (if possible)

Trees not impacted

Not Impacted
Preserved if Possible
Removed and Replaced
Wood Avenue

Existing Conditions
- Pavement width (asphalt) – 6.8 m
- Roadway width – 8.2 m
- Swales/culverts on both sides

Post Construction
- Proposed Pavement width – 7.2 m
- Proposed Roadway width – 7.6 m

Features include:
Addition of curbs and storm sewer/catch basins within roadway
Tree Assessment Example

Buckingham Avenue

Not Impacted
Preserved if Possible
Removed and Replaced
Before and After Illustration

Buckingham Avenue

Existing Conditions
• Pavement width (asphalt) – 7.4 m
• Roadway width – 8.2 m
• Swales/culverts on both sides

Post Construction
• Proposed Pavement width – 7.2 m
• Proposed Roadway width – 7.6 m

Features include:
Addition of curbs and storm sewer/catch basins within roadway
Before and After Illustration

St. Leonards Avenue

Existing Conditions
• Pavement width (asphalt) – 7.0 m
• Roadway width – 9.2 m
• Swales/culverts on both sides

Post Construction
• Pavement width – 7.2 m
• Roadway width – 9.1 m

Features to include:
Addition of one sidewalk, curbs and storm sewer/catchbasins within roadway
(note: sidewalk on right-side for illustration purpose only)
Reducing Tree Impacts & Removals

We will continue to find opportunities to reduce tree impacts and removals

**Design Stage**
- Narrowing sections of local roads to 6.6 metres
- Shifting road alignment
- Detail tree removals and retentions on plan drawings
- Plan areas for construction access, staging, material storage
- Examine tunneling vs trenching, grade changes, slope stabilization, etc.

**Construction Stage**
- Tree impact zone (TIZ) fencing and signage, trunk protection, etc.
- Examine considerations for root and crown pruning to avoid damage by construction equipment
- On-site supervision by certified arborists and communication plan
Localized Road Narrowing

Illustrates road narrowing to 6.6 m to reduce impact on trees. Parking would not be allowed within narrowed section of road.
Localized Road Narrowing

Existing Road

Road narrowed to 6.6 m

Preserved Trees

FIGURE NAR1
ILLUSTRATION OF CONVENTIONAL ROAD WIDTH (TOP PHOTO) VERSUS LOCALIZED ROAD NARROWING TO PROTECT EXISTING TREES - STREET A
Localized Shifting of Road

Illustrates road shifting north to avoid removal of trees
Localized Shifting of Road

Existing Conditions

Preliminary Alignment

Shifted Alignment

Preserved Trees

Road Shifted

FIGURE SH12
ILLUSTRATION OF CONVENTIONAL ALIGNMENT (TOP PHOTO) VERSUS SHIFTING OF ROAD ALIGNMENT TO PROTECT EXISTING TREES (LOWER PHOTO) - STREET D
Roads, Sidewalks and Drainage
Full depth reconstruction required for 26 roads in the study area due to deteriorated road conditions.

For each road, the City must address varying road width, pedestrian access and road drainage.

Based on review of City policies/standards and characteristics of the study area, the following set of alternative options were evaluated:

<table>
<thead>
<tr>
<th>Local Road Width</th>
<th>8.5 m or 7.2 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collector Road Width (Mildenhall South)</td>
<td>9.5 m, 8.5 m or 7.2 m</td>
</tr>
</tbody>
</table>
| Sidewalks | Local Road - 0 or 1 sidewalk  
Collector Road - 1 or 2 sidewalks |
| Road Drainage | Urban (storm sewers + catch basins)  
Rural (ditches) |

Sidewalk width of 1.5 m, which is the provincial minimum.
Urban Road Drainage

• Urban road drainage will result in the fewest impacts to trees as the sewer is located under the road surface
• Storm sewers will have perforated pipes to allow storm water to naturally infiltrate into soil
• At time of construction, existing swales will be filled-in and landscaped
Sidewalks

- In review of the study area characteristics, City has examined creating pedestrian linkages to key destinations in the neighbourhood (schools, church, nursery, TTC stops) and connecting existing sidewalks
- Sidewalks are recommended for 5 out of 26 roads
  - **Mildenhall Road South:** Safer and accessible connection along street with high traffic volumes
  - **St. Leonards Ave & Dawlish Ave:** Adds west-east connectors to Bayview Avenue
  - **Glenallen Rd & Pinedale Rd:** Safer connection to local school
- Sidewalks will run alongside the road curb; location (side of street) to be determined during detailed design stage
- City’s new Green Standards may provide alternative sidewalk materials
- Recommendations will help improve accessibility in the neighbourhood
Recommended Alternative Solutions: LOCAL ROAD

7.2 metre road + 1 sidewalk + urban cross section

7.2 metre road + urban cross section

Parking on 7.2 m road width will be limited to one side of road; where road is narrowed to 6.6 m parking will not be allowed
Six alternatives were evaluated; Alternative #5 scored highest and was presented at third PIC (May 2015) as recommended alternative.

We heard concerns from the public about safety and traffic speed and request for a narrower road.

This alternative was reconsidered and is not being recommended.

Previously Recommended Alternative (since revised):
Mildenhall Road, south of Lawrence Avenue

Alternative #5: 8.5m road + 1 sidewalk + urban cross section
Alternative #6: 7.2m road width + 2 sidewalks + urban cross section

- Narrower road option addresses concerns about traffic speed
- Narrower width on a busy road requires a second sidewalk to avoid pedestrians having to walk on the road
- Construction width is 20 cm wider than Alternative #5; this may result in an estimated 3 additional tree removal requirements
- Parking restrictions will largely remain unchanged on Mildenhall Road. Parking around Cheltenham Park will be examined at the detailed design stage.
Study Recommendations

Legend

- 7.2 m width, no sidewalk, urban cross section
- 7.2 m width, 1 sidewalk, urban cross section
- 7.2 m width, 2 sidewalk, urban cross section
Traffic Management
Traffic Management

• Findings for area bound by Mt. Pleasant / Bayview / Blythwood / Lawrence Avenue show traffic volumes within City standards of:
  • < 2500 vehicles per day (local road) and,
  • 2500-8000 vehicles per day (collector road)

• Recommendations include addressing sightline issues at 3 locations:
  • Remove or relocate stone wall at Blythwood Road / Strathgowan Crescent
  • Trimming of tree branches at Mount Pleasant Road / Lawrence Crescent and Mount Pleasant Road / St. Leonards Avenue

• Requests for a stop sign at Dawlish Ave and Mildenhall Road reviewed
  • Analysis shows a potential decrease in angled collisions but an increase in rear-end collisions
  • Staff will review sightlines at intersection for further action

• Staff will continue to work with the Toronto French School to identify further improvements that can be made
Basement Flooding
Addressing Basement Flooding

- Two separate areas based on former municipalities
  - **West-side (former Toronto)**
    - Combined sewers
    - Storm sewers convey road drainage
  - **East-side (former North York)**
    - Sanitary sewers
    - Swales and a partial storm sewer system convey road drainage
- Data from field surveys, soil conditions, sewer flow monitoring and questionnaires were collected and reviewed
- A hydrologic-hydraulic computer model created to analyze operation of sewer systems under different rainstorm conditions
- Model shows the risks based on the ability of sewers to convey flows without flooding basements
- Surface ponding addressed as part of road reconstruction work
West-side (former Toronto)

• Additional capacity needed in the combined sewer to reduce basement flooding risks
• Storm sewers to be added on St. Leonards Ave, Glengowan Rd., & Dundurn Rd. to capture and convey road drainage will reduce flow into the combined sewer
East-side (former North York)

- Additional capacity needed in the sanitary sewer system to reduce basement flooding risks
- Existing sanitary sewers on Rochester Ave., Bayview Ave., Wood Ave., Bayview Wood, and Valleyanna Dr. to be enlarged
- Underground storage tank to be constructed within the road on Valleyanna Dr.
- Sanitary manholes to be sealed in low lying areas
Reducing Your Risks of Flooding

• Downspout disconnection can help us to reduce the amount of water entering the sewer system
  • City has implemented a bylaw requiring owners to disconnect downspouts, where feasible

• Homeowners can take other steps on private property to help reduce the chances of basement flooding
  • Seal cracks or openings in walls, floors, windows and foundations, and seal all window wells
  • Clear eavestroughs and downspouts of leaves
  • Proper grading around home
  • Increase green space around your home to help absorb rainwater and melted snow
  • Repair/replace damaged weeping tile systems
  • Install a backwater valve and sump pump
SCHEDULE OF WORK

• All infrastructure work will be designed and constructed based on **Priority, Coordination and Funding**
• Earliest start for detailed design is 2019-2020, construction following approximately 1 year later
• Projects will be scheduled based on priority and technical sequencing requirements
• Projects to be sequenced for construction over a 10-year period
• City is committed to working with community to engage and consult with residents on design details and construction
NEXT STEPS

• Once study is completed, City will report to Committee of Council for approval of study recommendations

• If approved, a study report will be published and made available on-line for a 30-day public review period

• During the 30-day review period, a resident can contact the City to resolve any outstanding issues, if the issue cannot be resolved, the resident can request Minister of Environment & Climate Change to review and make decision
THANK YOU AND QUESTIONS