Welcome

TRANSPORTATION ENVIRONMENTAL ASSESSMENTS
GROWTH DEVELOPMENT PROJECTS

Public Information Centre
April 6, 2017

Members of the Project Team are available to discuss and answer any questions you may have

Please Sign in
About this PIC

Please take your time and walk through the board presentations.

Project Team members are available to answer your questions.

Please take and fill out a Comment Sheet.

Please ensure you have signed in so we can keep you informed as the study progresses.

Thank you for your interest in these studies.
Purpose of this Public Information Centre

The purpose of this Public Information Centre (PIC) is to:

✔ Provide an overview of information presented in PIC #1
✔ Provide feedback received at and following PIC #1
✔ Present the evaluation of Alternative Designs

✔ Present the Preferred Design
✔ Present potential Stormwater Management Solutions
✔ Present potential impacts and proposed mitigation measures

✔ Provide next steps in the Municipal Class EA Process
✔ Obtain feedback from the community
✔ Identify upcoming study activities
Growth Development Projects

McKAY ROAD & HIGHWAY 400 INTERCHANGE (“McKay”)

SALEM SECONDARY PLAN AREA (“Salem”)

Study Corridors

The City of Barrie

Stantec
Salem Study Area
Salem Secondary Plan

Amendment No. 38 to the City of Barrie Official Plan Salem Secondary Plan provides the following policy direction:

- Schedule 8D-2 identifies the maximum potential widenings to existing streets.
- A maximum 41 m right-of-way is permitted for Arterial roadways.
- Alignment locations, where not defined by an EA, will be conveyed equally on either side of the centre line of the original roadway (except boundary roads).
- The City will use its best efforts to reduce or delay required road widenings.
- The City may require additional lands at intersections to provide for exclusive turning lanes and other special treatments.
McKay Study Area
What is a Municipal Class EA?

MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with the MEA October 2000, as amended in 2007 Municipal Class Environmental Assessment document.
Public Information Centre #1 was held on September 22, 2016, and presented the following:

- Study background and purpose
- Overview of the Municipal Class Environmental Assessment (EA) process
- Existing and future traffic conditions
- Existing environmental conditions and design constraints
- Criteria to evaluate alternatives
- Evaluation of Alternative Design Concepts
- Potential Interim Road Improvements
- Possible Stormwater Management solutions (LIDs)
- Next steps in the Municipal Class EA process

A copy of the information presented at PIC #1 is available on the resource table and on the City of Barrie website (www.barrie.ca).
What Have We Heard From You?

“LID features are important as heavy rain and flooding are becoming more common.”

“Multi-use trails are attractive, but not a good substitute for dedicated bike lanes.”

“There are no existing sidewalks, street lights or services on Salem Road.”

“Multi-use trails are attractive, but not a good substitute for dedicated bike lanes.”

“More property should be taken from the other side of the road to avoid impacts to residents and residential property.”

“I’m not familiar with Roundabouts.”

“Roundabouts are dangerous as many people find them confusing.”

“The existing 80 km/hr speed limit is too fast.”

“Larger Right-of-Ways add costs to the project.”

“Transitioning from 5 lanes to 3 lanes will cause traffic flow problems”
Changes to the Alternatives Since PIC #1

Based on the feedback received at and following PIC #1, the study team incorporated Stormwater LID features into all of the alternatives while avoiding additional impacts to private properties.

**PIC #1 – Alternative 1**

3-lane Cross Section with On-Road Bicycle Lanes, Sidewalks, in a 27 metre ROW

3-lane Cross Section with On-Road Bicycle Lanes, Sidewalks, and “LIDs” within a 27 metre ROW

5-lane Cross Section with On-Road Bicycle Lanes, Sidewalks, 34 metre ROW

5-lane Cross Section with On-Road Bicycle Lanes, Sidewalks, and “LIDs” within a 34 metre ROW

The alternatives were re-evaluated based on these considerations.
## Evaluation of Alternative Designs

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>How Criteria Are Being Assessed</th>
<th>Alternative 1 (MMATMP + LIDs within existing ROW)</th>
<th>Alternative 2 (MMATMP + 4 m additional ROW for LIDs)</th>
</tr>
</thead>
</table>
| Traffic operations (MMATMP, safety, capacity, congestion, etc.) | Based on ability to:  
  - improve connectivity to existing road network  
  - meet Barrie’s MMATMP requirements  
  - improve traffic safety  
  - improve traffic operations (increase capacity, reduce congestion and delays) | Improved connectivity to the existing road network, meets the requirements of the MMATMP | Improved connectivity to the existing road network, meets the requirements of the MMATMP |
| Cycling operations | Adequacy to accommodate cyclists | Provides cycling facilities as per MMATMP | Allows for off-street cycling facilities (i.e. MUT) |
| Transit operations/service | Adequacy for transit operations/service | Meets the current transit needs and planned as outlined in the MMATMP for 2031 | Meets the current transit needs and planned as outlined in the MMATMP for 2031 |
| Pedestrian operations | Adequacy to accommodate pedestrians | Wider sidewalks and improved boulevard space | Wider sidewalks and improved boulevard space |
| Utilities (conflicts, operations) | Extent of utility relocation required | Full utility relocation required | Full utility relocation required |
| Driveways | Impacts on driveway accessibility and operations | Moderate impacts to driveways, improved accessibility with addition of TWL/L | Moderate impacts to driveways, improved accessibility with addition of TWL/L |
| Stormwater management | Ability to accommodate drainage and stormwater management (SWM) Use of Low Impact Development (LID) | Drainage and SWM objectives met using linear LID to meet conservation authority standards | Drainage and SWM objectives met using linear LID to meet conservation authority standards |
| Constructability | Feasibility and ease of construction | No significant difference between alternatives | No significant difference between alternatives |
| Interim improvements | Ability to implement interim improvements | Interim improvements can be accommodated | Interim improvements can be accommodated |
| Geotechnical/hydrogeological conditions | Impact to groundwater Suitability of groundwater conditions | No significant difference between alternatives | No significant difference between alternatives |
| Operations and maintenance requirements | Ease and cost of operations and maintenance requirements | No significant difference between alternatives | No significant difference between alternatives |
| Structures | Impact on structures and other infrastructure (i.e. railways) | Structures including the existing grade-separated crossing on Lockhart Road will require replacement and a widened permanent structure | Structures including the existing grade-separated crossing on Lockhart Road will require replacement and a widened permanent structure Additional widening to be considered to accommodate the LID |

**ENGINEERING / OPERATIONAL ENVIRONMENT SCORE:**

<table>
<thead>
<tr>
<th>Natural Environment</th>
<th>74</th>
<th>73</th>
</tr>
</thead>
</table>
| Watercourses/fisheries/aquatics | Fish habitat in Study Area watercourses (Brook Trout in Lovers Creek tributaries)  
Potential for temporary effects during construction  
Potential for habitat effects due to culvert replacements or extensions where required  
Rain gardens provide surface water attenuation and quality control without expanding the ROW | Fish habitat in Study Area watercourses (Brook Trout in Lovers Creek tributaries)  
Potential for temporary effects during construction  
Potential for habitat effects due to culvert replacements or extensions where required (e.g. possible channel realignments within the ROW)  
Rain gardens are expected to provide greater surface water attenuation and quality control and slow the rate of surface runoff to the watercourses and thus reduce erosion potential | Alternative 2 includes a MUT and rain gardens that require 4.0 m of additional ROW, and will displace more habitat than Alternative 1 |
## Evaluation of Alternative Designs

<table>
<thead>
<tr>
<th>Natural Environment</th>
<th>Evaluation Criteria</th>
<th>How Criteria Are Being Assessed</th>
<th>Alternative 1 (MMATMP + LIDs within existing ROW)</th>
<th>Alternative 2 (MMATMP + 4 m additional ROW for LIDs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildlife and wildlife habitat</td>
<td>Potential impact on SWH, including SOCC</td>
<td>Confirmed SWH for forest breeding birds and amphibian breeding habitat in the Study Area. Other candidate SWH features are associated with woodlands and wetlands. Potential for temporary effects during construction. Potential for loss of edge habitat within the ROW. Rain gardens provide surface water attenuation and quality control without expanding the ROW.</td>
<td>Confirmed SWH for forest breeding birds and amphibian breeding habitat in the Study Area. Other candidate SWH features are associated with woodlands and wetlands. Potential for temporary effects during construction. Potential for loss of edge habitat within the ROW. Rain gardens provide surface water attenuation and quality control. Alternative 2 includes a MUT and rain gardens that require 4.0 m of additional ROW, and will displace more habitat than Alternative 1.</td>
<td></td>
</tr>
<tr>
<td>Species of Risk</td>
<td>Potential impact on SAR (habitat and species)</td>
<td>Breeding and foraging habitat for grassland bird SAR was confirmed in the Study Area and edges of habitat features may overlap with ROW. Proposed activities in the ROW are not anticipated to affect habitat suitability for grassland birds.</td>
<td>Breeding and foraging habitat for grassland bird SAR was confirmed in the Study Area and edges of habitat features may overlap with ROW. Proposed activities in the ROW are not anticipated to affect habitat suitability for grassland birds.</td>
<td></td>
</tr>
<tr>
<td>Vegetation</td>
<td>Potential impact on woodlands and other areas of native vegetation communities (excluding wetlands)</td>
<td>Woodlands, thickets, and meadows are present throughout the Study Area. Potential for temporary effects during construction. Potential for loss of edge habitat within the ROW. Rain gardens provide surface water attenuation and quality control without expanding the ROW.</td>
<td>Woodlands, thickets, and meadows are present throughout the Study Area. Potential for temporary effects during construction. Potential for loss of edge habitat within the ROW. Rain gardens provide surface water attenuation and quality control. Alternative 2 includes a MUT and rain gardens that require 4.0 m of additional ROW, and will displace more habitat than Alternative 1.</td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
<td>Potential impact to groundwater</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetlands</td>
<td>Potential impact on Lover’s Creek PSW Complex, locally significant wetlands, and unevaluated wetlands</td>
<td>Lover’s Creek PSW Complex overlaps the Study Area. Other un-evaluated wetlands are present throughout the Study Area. Potential for temporary effects during construction. Potential for loss of edge habitat within the ROW. Rain gardens provide surface water attenuation and quality control without expanding the ROW.</td>
<td>Lover’s Creek PSW Complex overlaps the Study Area. Other un-evaluated wetlands are present throughout the Study Area. Potential for temporary effects during construction. Potential for loss of edge habitat within the ROW. Rain gardens provide surface water attenuation and quality control. Alternative 2 includes a MUT and rain gardens that require 4.0 m of additional ROW, and will displace more habitat than Alternative 1.</td>
<td></td>
</tr>
<tr>
<td>Land use</td>
<td>Compatibility with existing and future land use</td>
<td>Requires some property acquisition.</td>
<td>Additional ROW requires property acquisition.</td>
<td></td>
</tr>
<tr>
<td>Environmental improvements</td>
<td>Opportunities to enhance aquatic/terrestrial features</td>
<td>Rain gardens provide surface water attenuation and quality control without expanding the ROW. Creates opportunities to mitigate wildlife road mortality at strategic crossing locations.</td>
<td>Rain gardens provide surface water attenuation and quality control. Alternative 2 includes a MUT and rain gardens that require 4.0 m of additional ROW, and will displace more habitat than Alternative 1. Creates opportunities to mitigate wildlife road mortality at strategic crossing locations.</td>
<td></td>
</tr>
</tbody>
</table>

**Natural Environment Score:**
- Alternative 1: 45
- Alternative 2: 38

*The City of Barrie*

*Stantec*
## Evaluation of Alternative Designs

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<th>How Criteria Are Being Assessed</th>
<th>Alternative 1 (MMATMP + LIDs within existing ROW)</th>
<th>Alternative 2 (MMATMP + 4 m additional ROW for LIDs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property acquisition</td>
<td>Degree of property required and households/businesses affected</td>
<td>Least impact to adjacent properties</td>
<td>Greatest impact to adjacent properties</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>Ability to improve visual aesthetics of roadway and community</td>
<td>Improved boulevard with the urbanization of the corridor</td>
<td>Improved boulevard with the urbanization of the corridor</td>
</tr>
<tr>
<td>Noise</td>
<td>Number of noise walls or mitigation measures required</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Construction</td>
<td>Noise, dust, traffic disruptions, feasibility, and ease of construction</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Compliance with AODA</td>
<td>AODA-compliant design</td>
<td>AODA-compliant design</td>
</tr>
<tr>
<td>Public safety</td>
<td>Elimination of conflict points; improved infrastructure for all users</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Local businesses</td>
<td>Disruption/permanent impact to businesses</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td><strong>SOCIAL ENVIRONMENT SCORE:</strong></td>
<td></td>
<td></td>
<td>41</td>
</tr>
<tr>
<td><strong>CULTURAL HERITAGE ENVIRONMENT SCORE:</strong></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Archaeological</td>
<td>Extent of archaeology impacts</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Cultural heritage</td>
<td>Extent of cultural heritage impacts</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>First Nations</td>
<td>Potential impact to First Nations heritage</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td><strong>PROJECT CAPITAL COSTS:</strong></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Life cycle costs (25-year)</td>
<td>Net present value of 25-year life cycle costs</td>
<td>Least costly to construct</td>
<td>Most costly to construct due to the additional LID requirements, additional utility relocation costs, and land acquisition</td>
</tr>
<tr>
<td>Land acquisition costs</td>
<td>Total costs for property acquisition</td>
<td>Least land acquisition cost</td>
<td>Greatest land acquisition cost</td>
</tr>
<tr>
<td><strong>ECONOMIC ENVIRONMENT SCORE:</strong></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td><strong>TOTAL SCORE:</strong></td>
<td></td>
<td></td>
<td>184</td>
</tr>
</tbody>
</table>

### Rank for Scoring Purposes

<table>
<thead>
<tr>
<th>Rank</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Greatest Positive Impact</td>
</tr>
<tr>
<td>2</td>
<td>Positive Impact</td>
</tr>
<tr>
<td>3</td>
<td>Neutral Impact</td>
</tr>
<tr>
<td>4</td>
<td>Least Neutral Impact</td>
</tr>
<tr>
<td>5</td>
<td>Least Impact</td>
</tr>
<tr>
<td>6</td>
<td>Greatest Negative Impact</td>
</tr>
</tbody>
</table>

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**City of Barrie**

**Stantec**
Preferred Design

Alternative 1 is the Preferred Design because:

- Reduced impacts to vegetation and wildlife habitat
- Reduced impacts to private properties
- Less costly to construct

Full strip plans are available on the resource table.
Interim Phasing - Huronia Rd. & McKay Rd. E

**Huronia Road (H1)**
Interim Typical Cross-Section

**McKay Road East (M3)**
Interim Typical Cross-Section
Key Features of Preferred Design

- Multi-modal arterial road corridors, designed for cycling, pedestrians and automotive and transit use
- 3.5 m vehicle lanes
- 1.2 m - 4.2 m raised median, painted median, or two-way left turn lane (width varies to accommodate LIDs – TBD during detailed design)
- 1.5 m on-road bicycle lanes plus 0.5 m buffer on both sides of roadway
- 2 m wide sidewalks on both sides of roadway
- LID stormwater management features
- Roundabout and signalized intersection arrangements
LID Stormwater Management

- SWM practices in Ontario have been gradually shifting towards Low Impact Development (LID).
- The goal of LID is to mimic a site’s pre-development hydrology by slowing down, soaking up, and cleaning stormwater runoff.
- The MOECC is preparing a LID guidance document.
- The City is reviewing their ROW Standard Details to determine the best approach to accommodate linear LID infrastructure.
- The following LID practices are being further reviewed for the Preferred Design:
  - Linear LID infrastructure incorporated within ROWs; and
  - Centralized LID facilities situated adjacent to outlets.
- The approach to LID will be confirmed during detailed design.
Stormwater Management Strategy

LID measures which could be implemented include (but are not limited to):

- Bioretention facilities (linear and centralized);
- Infiltration rock trenches (linear and centralized);
- Infiltration chambers (linear and centralized);
- Perforated pipe systems; and
- Enhanced grassed swales (interim conditions when road is widened but rural cross section).

Stormwater will be pre-treated with catch basin inserts or oil/grit separators.

To control flooding during larger storm events, the following measures will be used:

- Development SWM Ponds (Salem Landowners Group);
- Dry Ponds; and
- Oversized Pipes/Storm Chambers.

Combined centralized LID facilities and dry pond locations are illustrated on the next board.
Possible Salem LID Solutions
### Roundabouts

**Roundabouts** can offer a number of improvements over **signalized intersections**.

<table>
<thead>
<tr>
<th>Improved Safety</th>
<th>Reduced Environmental Impact</th>
<th>Less Maintenance</th>
<th>Improved Aesthetics</th>
</tr>
</thead>
</table>
| Roundabouts reduce the severity of potential collisions by:  
- forcing vehicles to travel more slowly  
- reducing conflict points  
- reducing conflict angles | Fewer delays means that vehicles travelling through a roundabout:  
- operate more efficiently (using less fuel)  
- idle less (reducing unnecessary emissions) | Roundabouts eliminate the costs for maintenance and electricity that are required for traffic signals. | The central island of a roundabout can accommodate public art and landscaping. |
| Lower Speeds | Vehicles must slow down to navigate a roundabout. | | |
| Fewer Delays | Vehicles yield, rather than stop, when entering a roundabout – this reduces delay when compared to waiting for either a green light at a traffic signal or a gap in traffic at a stop sign. | | |
## Potential Impacts & Proposed Mitigation Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Proposed Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stormwater</strong></td>
<td>LID solutions will be confirmed during Detailed Design.</td>
</tr>
<tr>
<td><strong>Vegetation/Trees</strong></td>
<td>A Tree Inventory will be completed during Detailed Design. A Landscape Planting Plan will be prepared using native and/or adapted species (where possible). Natural areas will be restored if temporarily disrupted.</td>
</tr>
<tr>
<td><strong>Birds/Wildlife</strong></td>
<td>Construction will be completed outside of the Primary Nesting Period for this area. Contractors will be made aware of the potential to encounter wildlife, including reptiles and amphibians.</td>
</tr>
<tr>
<td><strong>Species at Risk</strong></td>
<td>Construction timing restrictions for area SAR will be followed.</td>
</tr>
</tbody>
</table>
# Potential Impacts & Proposed Mitigation Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archaeological Resources</td>
<td>A Stage 2 Archaeological Assessment will be carried out in Spring 2017. Written approval will be obtained from the Ministry of Tourism, Culture and Sport prior to construction.</td>
</tr>
<tr>
<td>Property</td>
<td>Property requirements will be confirmed during Detailed Design, at which time the City will engage with affected property owners.</td>
</tr>
<tr>
<td>Construction Disturbances</td>
<td>A Construction Management Plan will be developed during Detailed Design. Construction activities will adhere to the City’s Noise By-Law.</td>
</tr>
<tr>
<td>Fish/Fish Habitat</td>
<td>Specific mitigation measures for each water crossing will be developed during Detailed Design. A detailed erosion and sediment control plan will be prepared and maintained.</td>
</tr>
</tbody>
</table>
What’s Next?

The next phase of this study is **Phase 4**:

- ✔ Respond to comments received from members of the community and reviewing agencies
- ✔ Review & confirm the Preferred Design Alternative for each road segment
- ✔ Complete the Environmental Study Report (ESR)
- ✔ Notify stakeholders of the 30-day public review period
- ✔ File the ESR with the Ministry of the Environment and Climate Change

**Phase 5 is Implementation:**

- ✔ Proceed with detailed design and construction.
Thank you for attending!

Let us know your thoughts!

⇒ Your participation is very important to the City of Barrie.
⇒ The information presented this evening will be available for review on the City’s website.
⇒ Please provide your comments by **April 28, 2017**.

If you have any questions, please contact:

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E-mail: Alvaro.Almuina@barrie.ca