Duckworth Street (Bell Farm Rd to St. Vincent St) Transportation Improvements
Schedule ‘C’ Class EA – Phases 3 & 4
April 16, 2015
Welcome

This Public Information Centre will:

- Detail the study area, study purpose & objective
- Review the preferred solution as presented in the City of Barrie Multi-Modal Active Transportation Master Plan
- Present the design alternative concepts of the preferred solution & identify potential environmental impacts
- Seek input & comments for consideration in the selection of the final preferred solution
- Provide opportunities for the public to ask questions

Public & Stakeholders should:

- Sign the registry
- Review the presentation material
- Ask questions of the City and/or Consultant
- Submit a comment sheet & indicate whether or not you want to be kept informed of the process
Study Background

The City of Barrie Capital Works Program

- Duckworth Street, from Bell Farm Road to St. Vincent Street, has been identified for reconstruction due to its deteriorating condition and planned watermain improvements.
Study Background

The City of Barrie *Multi-Modal Active Transportation Master Plan (MMATMP)*

- City-wide study to identify transportation needs to support growth through 2031

**MMATMP Opportunity Statement**

- The City of Barrie’s transportation system will accommodate growth to 2031 and beyond. An opportunity exists to plan a transportation system which:
  - is safe, efficient and accessible with choices in mobility
  - fosters the use & development of a sustainable transportation network;
  - provides a public transit system that can offer a real alternative to private automobile use
  - provides a network of on-road & off-road pedestrian and cycling facilities that allow the use of active transportation modes as an alternative to the automobile
**Study Background**

The **MMATMP** active transportation recommendations:

- implementation of buffered bicycle lanes – Bell Farm Road to Queen Street
- implementation of regular bicycle lanes – Queen Street to Codrington Street
- implementation of sidewalks on both sides of street, wherever such does not exist
Study Background

Regular Bicycle Lanes

Buffered Bicycle Lanes

Source: Multi-Modal Active Transportation Master Plan
Source: National Association of City Transportation Officials
Source: National Association of City Transportation Officials
Source: Multi-Modal Active Transportation Master Plan
Study Objectives

The **OBJECTIVES** of the study are:

- To complete the EA process initiated through the *Multi-Modal Active Transportation Master Plan*
- To improve the existing road conditions on Duckworth Street
- To consider additional infrastructure improvements (i.e. new watermain, stormwater management upgrades, etc.) in parallel with the proposed transportation works
The **PURPOSE** of the study is to:

- Develop alternative design concepts for the preferred solution identified in the *Multi-Modal Active Transportation Master Plan*
- Identify the location, extent & sensitivity of affected environments
- Assess the design alternatives given the potential environmental impacts
- Seek public input & comment
- Identify a preferred design solution
- Establish measures to mitigate adverse impacts as required
- Satisfy the requirements of the Class EA process
Study Process

**Multi-Modal Active Transportation Plan**

- fulfilled Phases 1 & 2 of Class EA process
- Duckworth St Class EA
- addresses Phases 3 & 4
- provides opportunity for public input:
  - PIC (today)
  - 30-day review of final report & findings
- Following completion of Phases 3 & 4, the City may proceed to Phase 5 (subject to available budget)
Existing Conditions

Looking south from Bell Farm Rd
Looking north from Rose Street
Looking south from Rose Street
Commercial access, north of Grove St
SB left turn queue operations at Grove St

Looking north from Grove St
Looking south from Grove St
Looking north towards Highview Rd
Looking south towards Davies Cres
Looking south towards Wellington St

North approach to Wellington St
Looking north from Wellington St
Looking south from Wellington St
Looking south from Queen St
Looking north from Queen St

Looking north at Penetang St
Looking south at Codrington St
Looking south towards St. Vincent St
North approach to St. Vincent St
Looking north from St. Vincent St
Design Alternatives

- Design Alternatives are intended to demonstrate the range of possible solutions that can be implemented to address the problem statement.

- Design Alternatives have been prepared in consideration of:
  - the study objectives
  - road Segments
  - road needs

- Refer to separate plots illustrating plan view and ROW requirements for each alternative by road Segment.

Duckworth Street has been divided into 3 Segments based on the existing conditions:

Segment 1
- St. Vincent Street to Wellington Street
- 2-lane cross-section

Segment 2
- Wellington Street to Davies Crescent
- 4-lane cross-section

Segment 3
- Davies Crescent to Bell Farm Road
- 5-lane cross-section
Alternative 1 - Do Nothing

- Maintain the status quo with respect to lane configurations
- Design elements include:
  - 3.0 to 5.5 m vehicular lanes
  - 4.2 m median/centre lane
  - no bicycle lanes
  - 1.2 to 1.4 m sidewalks
  - sidewalk on 1 side only south of Melrose Ave
  - road reconstruction
  - upgrades to municipal services

Alternative 1 Cross-Sections by Road Segment

1

2

3
Design Alternative 2

- Considers the Active Transportation improvements as per the MMATMP
- Design elements include:
  - 3.5 m vehicular lanes
  - 4.2 m median/centre lane
  - 1.8 m bicycle lane (includes 0.3 m gutter)
  - 0.5 m bicycle lane buffer (Segments 2 & 3)
  - 2.9 m boulevards
  - 2.0 m sidewalks
  - road reconstruction
  - upgrades to municipal services

Alternative 2 Cross-Sections by Road Segment

1. DUCK WORTH
2. DUCK WORTH
3. DUCK WORTH
Design Alternative 3

- Reduced lane & boulevard widths
- Design elements include:
  - 3.3 m vehicular lanes
  - 4.2 m median/centre lane
  - 1.5 m bicycle lane (includes 0.3m gutter)
  - 1.5 to 2.5 m boulevards (depending on lane provision of adjacent road segment)
  - 2.0 m sidewalks
  - road reconstruction
  - upgrades to municipal services
Design Alternative 4

- Reduced lane & boulevard widths
- 3-lanes from St. Vincent St. to Davies Crescent
- Design elements include:
  - 3.3 m vehicular lanes
  - 3.8 m centre lane (4.2 m with proposed medians)
  - 1.5 m bicycle lane (includes 0.3m gutter)
  - 0.5 m bicycle lane buffer (in Segments 2 & 3)
  - 1.5 to 3.25 m boulevards
  - 2.0 m sidewalks
  - road reconstruction
  - upgrades to municipal services
# Design Alternative Comparison

<table>
<thead>
<tr>
<th>Number of Lanes</th>
<th>Lane Width (meters)</th>
<th>Boulevard Width (meters)</th>
<th>Bicycle Lane Width (m)</th>
<th>Sidewalk Width (m)</th>
<th>Median at Intersection</th>
<th>Pavement Width (m)</th>
<th>ROW Width (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>St Vincent Street to Queen Street</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 1</td>
<td>2</td>
<td>±4.5</td>
<td>±0.6 - 2.5</td>
<td>n/a</td>
<td>±1.3 (some missing)</td>
<td>St Vincent</td>
<td>±9</td>
</tr>
<tr>
<td>Alternative 2</td>
<td>2</td>
<td>3.5</td>
<td>2.9</td>
<td>1.5</td>
<td>2</td>
<td>St Vincent</td>
<td>10.6</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>2</td>
<td>3.3</td>
<td>0 - 1.5(5)</td>
<td>1.5</td>
<td>2-2.5(5)</td>
<td>St Vincent</td>
<td>10.2</td>
</tr>
<tr>
<td>Alternative 4</td>
<td>3</td>
<td>3.3 - 3.8</td>
<td>1.5</td>
<td>1.2 - 1.7</td>
<td>2</td>
<td>St Vincent</td>
<td>13.4 - 14.4</td>
</tr>
<tr>
<td><strong>Queen Street to Melrose Street</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 1</td>
<td>2</td>
<td>±5.5</td>
<td>±2.2</td>
<td>n/a</td>
<td>±1.3 (some missing)</td>
<td>n/a</td>
<td>±9.0 - 11.0</td>
</tr>
<tr>
<td>Alternative 2</td>
<td>2</td>
<td>3.5</td>
<td>2.9</td>
<td>2</td>
<td>2</td>
<td>n/a</td>
<td>10.6</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>2</td>
<td>3.3</td>
<td>1.5</td>
<td>1.5</td>
<td>2</td>
<td>n/a</td>
<td>10.2</td>
</tr>
<tr>
<td>Alternative 4</td>
<td>3</td>
<td>3.3 - 3.8</td>
<td>1.5</td>
<td>1.7</td>
<td>2</td>
<td>n/a</td>
<td>14.4</td>
</tr>
<tr>
<td><strong>Melrose Street to Davies Street</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 1</td>
<td>4</td>
<td>±3.3</td>
<td>±0 - 4.4</td>
<td>n/a</td>
<td>±1.3m</td>
<td>n/a</td>
<td>±13.2 - 18</td>
</tr>
<tr>
<td>Alternative 2</td>
<td>4</td>
<td>3.5</td>
<td>2.9</td>
<td>2</td>
<td>2</td>
<td>Grove Street</td>
<td>18.6</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>4</td>
<td>3.3</td>
<td>2</td>
<td>1.5</td>
<td>2</td>
<td>Grove Street</td>
<td>16.7</td>
</tr>
<tr>
<td>Alternative 4</td>
<td>3</td>
<td>3.3 - 3.8</td>
<td>1.5</td>
<td>1.7</td>
<td>2</td>
<td>Grove Street</td>
<td>14.4</td>
</tr>
<tr>
<td><strong>Davies Street to Bell Farm Road</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 1</td>
<td>5</td>
<td>±3.5 - 3.8</td>
<td>±1.0 - 2.0</td>
<td>n/a</td>
<td>±1.3</td>
<td>Bell Farm</td>
<td>±18</td>
</tr>
<tr>
<td>Alternative 2</td>
<td>5</td>
<td>3.5 - 4.2</td>
<td>2.9</td>
<td>2</td>
<td>2</td>
<td>Bell Farm &amp; Grove</td>
<td>22.8</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>5</td>
<td>3.3 - 4.2</td>
<td>2.5</td>
<td>1.5</td>
<td>2</td>
<td>Bell Farm &amp; Grove</td>
<td>20.4</td>
</tr>
<tr>
<td>Alternative 4</td>
<td>5</td>
<td>3.3 - 4.2</td>
<td>2.5</td>
<td>1.7</td>
<td>2</td>
<td>Bell Farm &amp; Grove</td>
<td>21.4</td>
</tr>
</tbody>
</table>

Note (1): Bike Lane Width includes Bike Lane Buffer where recommended

Note (2): Sidewalks on both sides unless otherwise noted

Note (3): Pavement width measured from curb face to curb face

Note (4): Does not include additional ROW width at some intersections and daylighting triangles

Note (5): Curb face sidewalk on east side between Napier Street and Strabane Avenue
## Evaluation - Segment 1  St. Vincent St to Wellington St

### Traffic Operations
- **Impact to Fish Habitat**: No impacts to fish habitats or aquatic features – same for all alternatives.
- **Impact to Vegetation Communities**: No negative impacts – same for all alternatives.
- **Impact to Amenity Values**: No negative impacts – same for all alternatives.
- **Impact to Wildlife**: No impacts to wildlife – same for all alternatives.
- **Impact to Fishery/Aquatic Impacts**: No impacts to fish habitats or aquatic features – same for all alternatives.
- **Impact to Vegetation**: No negative impacts – same for all alternatives.
- **Impact to Land Use**: No negative impacts – same for all alternatives.

### Cycling Operations
- **Impact to Fish Habitat**: No impacts to fish habitats or aquatic features – same for all alternatives.
- **Impact to Vegetation Communities**: No negative impacts – same for all alternatives.
- **Impact to Amenity Values**: No negative impacts – same for all alternatives.
- **Impact to Wildlife**: No impacts to wildlife – same for all alternatives.
- **Impact to Fishery/Aquatic Impacts**: No impacts to fish habitats or aquatic features – same for all alternatives.
- **Impact to Vegetation**: No negative impacts – same for all alternatives.
- **Impact to Land Use**: No negative impacts – same for all alternatives.

### Pedestrian Operations
- **Impact to Fish Habitat**: No impacts to fish habitats or aquatic features – same for all alternatives.
- **Impact to Vegetation Communities**: No negative impacts – same for all alternatives.
- **Impact to Amenity Values**: No negative impacts – same for all alternatives.
- **Impact to Wildlife**: No impacts to wildlife – same for all alternatives.
- **Impact to Fishery/Aquatic Impacts**: No impacts to fish habitats or aquatic features – same for all alternatives.
- **Impact to Vegetation**: No negative impacts – same for all alternatives.
- **Impact to Land Use**: No negative impacts – same for all alternatives.

### Design Alternative 2:
- **Municipal Services (Water, Stormwater & Sanitary systems)**:
  - New watermain to be included with proposed works – same for all alternatives.
  - Upgrades to existing stormwater management system included with proposed works. No significant difference between alternatives.
  - Opportunity to upgrade existing sanitary – same for all alternatives.

### Design Alternative 3:
- **Municipal Services (Water, Stormwater & Sanitary systems)**:
  - New watermain to be included with proposed works – same for all alternatives.
  - Upgrades to existing stormwater management system included with proposed works. No significant difference between alternatives.
  - Opportunity to upgrade existing sanitary – same for all alternatives.

### Design Alternative 4:
- **Municipal Services (Water, Stormwater & Sanitary systems)**:
  - New watermain to be included with proposed works – same for all alternatives.
  - Upgrades to existing stormwater management system included with proposed works. No significant difference between alternatives.
  - Opportunity to upgrade existing sanitary – same for all alternatives.

### Summary Table

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>How Criteria is Being Assessed</th>
<th>Alternative 1: Do Nothing</th>
<th>Design Alternative 2: MAtTMP Recommendation</th>
<th>Design Alternative 3: Reduced Lane &amp; Boulevard Widths</th>
<th>Design Alternative 4: Continuous Two-way Left Turn Lane, Reduced Lane &amp; Boulevard Widths</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traffic Operations</strong></td>
<td>Impact to interaction operations &amp; road capacity (based on results of Traffic Operations Assessment)</td>
<td>Road to be reconstructed to maintain existing lane configuration &amp; widths. No impact to future road operations</td>
<td>Road to be reconstructed to maintain existing lane configuration &amp; widths. No impact to future road operations</td>
<td>No negative impacts to traffic operations</td>
<td>Centre lane improves access to adjacent properties</td>
</tr>
<tr>
<td><strong>Cycling Operations</strong></td>
<td>Impact to cycling facilities along study corridor</td>
<td>No cycling facilities provided</td>
<td>Provides cycling facilities designed to desired standards as per MAtTMP recommendations</td>
<td>Provides cycling facilities designed to minimum width, but provides buffer where recommended in MAtTMP</td>
<td>Provides cycling facilities designed to minimum width, but provides buffer where recommended in MAtTMP</td>
</tr>
<tr>
<td><strong>Transit Operations</strong></td>
<td>Impact to transit service</td>
<td>Transit infrastructure to remain as currently exists</td>
<td>Transit infrastructure to remain as currently exists</td>
<td>Transit infrastructure to remain as currently exists</td>
<td>Transit infrastructure to remain as currently exists; left turn traffic no longer impacts buses</td>
</tr>
<tr>
<td><strong>Pedestrian Operations</strong></td>
<td>Impact to pedestrian facilities along study corridor</td>
<td>Sidewalks to remain as currently exist</td>
<td>New watermain to be included with proposed works – same for all alternatives</td>
<td>Wider &amp; continuous sidewalk to be provided (all options)</td>
<td>Wider &amp; continuous sidewalk to be provided (all options)</td>
</tr>
<tr>
<td><strong>Municipal Services (Water, Stormwater &amp; Sanitary systems)</strong></td>
<td>Upgrades</td>
<td>New watermain to be included with proposed works – same for all alternatives. Upgrades to existing stormwater management system included with proposed works. No significant difference between alternatives. Opportunity to upgrade existing sanitary – same for all alternatives.</td>
<td>New watermain to be included with proposed works – same for all alternatives. Upgrades to existing stormwater management system included with proposed works. No significant difference between alternatives. Opportunity to upgrade existing sanitary – same for all alternatives.</td>
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</tr>
<tr>
<td><strong>Utilities</strong></td>
<td>Impact to utilities (i.e. relocation)</td>
<td>No relocation of existing utilities</td>
<td>Relocation of utilities required</td>
<td>Relocation of utilities required</td>
<td>Relocation of utilities required</td>
</tr>
<tr>
<td><strong>Fisheries/Aquatic Impacts</strong></td>
<td>Impact to fish habitat, if applicable, and other aquatic features within the study area</td>
<td>No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>No impacts to fish habitats or aquatic features – same for all alternatives</td>
</tr>
<tr>
<td><strong>Wildlife/Terrestrial Impacts</strong></td>
<td>Impact to wildlife species within study area</td>
<td>No impacts to wildlife – same for all alternatives</td>
<td>No impacts to wildlife – same for all alternatives</td>
<td>No impacts to wildlife – same for all alternatives</td>
<td>No impacts to wildlife – same for all alternatives</td>
</tr>
<tr>
<td><strong>Species at Risk</strong></td>
<td>Impact on SARRs and endangered species</td>
<td>No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
</tr>
<tr>
<td><strong>Vegetation Impacts</strong></td>
<td>Impact to vegetation communities on adjacent properties (i.e. trees, shrubs, plants, etc.)</td>
<td>No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
</tr>
<tr>
<td><strong>Land use</strong></td>
<td>Impact of proposed works on surrounding land use (i.e. are improvements consistent with surrounding land uses)</td>
<td>No negative impacts – same for all alternatives</td>
<td>Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
<td>Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
<td>Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
</tr>
</tbody>
</table>

### Graphical Impact Analysis

- **Greatest Impact**: Red
- **Positive Impact**: Green
- **Least Impact**: Blue
- **Neutral Impact**: Grey

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**Legend**

- **Greatest Impact**: Red
- **Positive Impact**: Green
- **Least Impact**: Blue
- **Neutral Impact**: Grey
## Evaluation - Segment 1  St. Vincent St to Wellington St

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>How Criteria is Being Assessed</th>
<th>Alternative 1: Do Nothing</th>
<th>Design Alternative 2: MMATMP Recommendation</th>
<th>Design Alternative 3: Reduced Lane &amp; Boulevard Widths</th>
<th>Design Alternative 4: Continuous Two-way Left Turn Lane, Reduced Lane &amp; Boulevard Widths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property/Development Impacts</td>
<td>Impacts to property based on widening of road platform and/or ROW</td>
<td>○ No impact to adjacent properties</td>
<td>☀ Greatest impact to adjacent properties (1322 m²)</td>
<td>○ Least impact to adjacent properties (272 m²)</td>
<td>○ Second greatest impact to adjacent properties (1187 m²)</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>Visual impacts</td>
<td>○ No change to existing conditions</td>
<td>☀ Greatest opportunity to enhance aesthetics due to desired boulevard width</td>
<td>○ Limited opportunity to enhance aesthetics due to minimum boulevard width</td>
<td>○ Limited opportunity to enhance aesthetics due to minimum boulevard width</td>
</tr>
<tr>
<td>Noise Impacts</td>
<td>Impacts to residents during construction phase. Future impacts to residents as per Noise Assessment</td>
<td>○ No change to existing conditions</td>
<td>○ No significant difference between alternatives</td>
<td>○ No significant difference between alternatives</td>
<td>○ No significant difference between alternatives</td>
</tr>
<tr>
<td>Construction Impacts</td>
<td>Impacts to adjacent properties through construction phase</td>
<td>○ No change to existing conditions</td>
<td>○ No significant difference between alternatives</td>
<td>○ No significant difference between alternatives</td>
<td>○ No significant difference between alternatives</td>
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<tr>
<td>Economic Environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archaeological &amp; Heritage Impacts</td>
<td>Impacts to the cultural and heritage features as per the results of the Stage 1 Archaeological Assessment completed for the study corridor</td>
<td>○ Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
<td>☀ Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
<td>○ Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
<td>○ Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
</tr>
<tr>
<td>Driveway Grades</td>
<td>Impact to driveway grades as a result of required road widening</td>
<td>○ No change to existing conditions</td>
<td>11 driveways where grades will exceed 8%</td>
<td>7 driveways where grades will exceed 8%</td>
<td>26 driveways where grades will exceed 8%</td>
</tr>
<tr>
<td>Driveway Operations</td>
<td>Impact to driveway operations</td>
<td>○ No change to existing conditions</td>
<td>○ No significant difference between alternatives</td>
<td>○ No significant difference between alternatives</td>
<td>○ No significant difference between alternatives</td>
</tr>
<tr>
<td>Construction Costs</td>
<td>Costs to construct individual alternatives</td>
<td>○ Least cost to construct</td>
<td>☀ Second greatest cost to construct: $2,542/m x 690m = $1,754,000</td>
<td>○ Second least cost to construct: $2,442/m x 690m = $1,685,000</td>
<td>○ Greatest to construct: $2,763/m x 690m = $1,907,000</td>
</tr>
<tr>
<td>Maintenance Costs</td>
<td>Future maintenance requirements</td>
<td>○ No additional cost to maintain over existing conditions</td>
<td>☀ Second greatest cost to maintain due to additional road width</td>
<td>○ Some additional cost to maintain over existing conditions due to new sidewalk</td>
<td>○ Greatest cost to maintain due to additional lane</td>
</tr>
<tr>
<td>Land Acquisition Costs</td>
<td>Total land acquisition costs</td>
<td>○ Least land acquisition costs</td>
<td>☀ Greatest land acquisition costs: 1,322m² x $270/m² = $357,000</td>
<td>○ Second least land acquisition costs: 272m² x $270/m² = $73,000</td>
<td>○ Second greatest land acquisition costs: 1,187m² x $270/m² = $321,000</td>
</tr>
</tbody>
</table>

### Evaluation Criteria Legend
- **Greatest Impact**: Red dot
- **Neutral Impact**: Green dot
- **Negative Impact**: Red dot
- **Least Impact**: Green dot

### Impact Levels
- **Greatest Impact**: Red dot
- **Neutral Impact**: Green dot
- **Negative Impact**: Red dot
- **Least Impact**: Green dot
### Evaluation - Segment 2 Wellington St to Davies Cres

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>How Criteria is Being Assessed</th>
<th>Alternative 1: Do Nothing</th>
<th>Design Alternative 2: MMATMP Recommendation</th>
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<th>Design Alternative 4: Continuous Two-way Left Turn Lane, Reduced Lane &amp; Boulevard Widths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Operations</td>
<td>Impact to interaction operations &amp; road capacity (based on results of Traffic Operations Assessment)</td>
<td>☐ Road to be reconstructed to maintain existing lane configuration &amp; widths. No impact to future road operations</td>
<td>☐ Road to be reconstructed to maintain existing lane configuration &amp; widths. No impact to future road operations</td>
<td>☐ No negative impacts to traffic operations</td>
<td>Centre turn lane improves access to adjacent properties</td>
</tr>
<tr>
<td>Cycling Operations</td>
<td>Impact to cycling facilities along study corridor</td>
<td>☐ No cycling facilities provided</td>
<td>☐ Provides cycling facilities designed to desired standards as per MMATMP recommendations</td>
<td>☐ Provides cycling facilities designed to minimum standards (narrow lanes, no buffer)</td>
<td>Provides cycling facilities designed to minimum width, but provides buffer where recommended in MMATMP</td>
</tr>
<tr>
<td>Transit Operations</td>
<td>Impact to transit service</td>
<td>☐ Transit infrastructure to remain as currently exists</td>
<td>☐ Transit infrastructure to remain as currently exists</td>
<td>☐ Transit infrastructure to remain as currently exists</td>
<td>☐ Transit infrastructure to remain as currently exists</td>
</tr>
<tr>
<td>Pedestrian Operations</td>
<td>Impact to pedestrian facilities along study corridor</td>
<td>☐ Sidewalks to remain as currently exist</td>
<td>☐ Wider &amp; continuous sidewalk to be provided (all options)</td>
<td>☐ Wider &amp; continuous sidewalk to be provided (all options)</td>
<td>☐ Wider &amp; continuous sidewalk to be provided (all options)</td>
</tr>
<tr>
<td>Municipal Services (Water, Stormwater &amp; Sanitary systems)</td>
<td>Upgrades</td>
<td>☐ New watermain to be included with proposed works – same for all alternatives</td>
<td>☐ New watermain to be included with proposed works – same for all alternatives</td>
<td>☐ New watermain to be included with proposed works – same for all alternatives</td>
<td>☐ New watermain to be included with proposed works – same for all alternatives</td>
</tr>
<tr>
<td>Utilities</td>
<td>Impact to utilities (i.e. relocation)</td>
<td>☐ No relocation of existing utilities</td>
<td>☐ Relocation of utilities required</td>
<td>☐ Relocation of utilities required</td>
<td>☐ Relocation of utilities required</td>
</tr>
<tr>
<td>Fisheries’ Aquatic Impacts</td>
<td>Impact to fish habitats, if applicable, and other aquatic features within the study area</td>
<td>☐ No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>☐ No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>☐ No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>☐ No impacts to fish habitats or aquatic features – same for all alternatives</td>
</tr>
<tr>
<td>Wildlife/Terrestrial Impacts</td>
<td>Impact to wildlife species within study area</td>
<td>☐ No impacts to wildlife – same for all alternatives</td>
<td>☐ No impacts to wildlife – same for all alternatives</td>
<td>☐ No impacts to wildlife – same for all alternatives</td>
<td>☐ No impacts to wildlife – same for all alternatives</td>
</tr>
<tr>
<td>Species at Risk</td>
<td>Impact on SARs and endangered species</td>
<td>☐ No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>☐ No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>☐ No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>☐ No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
</tr>
<tr>
<td>Vegetation Impacts</td>
<td>Impact to vegetation communities on adjacent properties (i.e. trees, shrubs, plants, etc.)</td>
<td>☐ No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>☐ No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>☐ No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>☐ No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
</tr>
<tr>
<td>Land use</td>
<td>Impact of proposed works on surrounding land use (i.e. are improvements consistent with surrounding land-uses)</td>
<td>☐ No negative impacts – same for all alternatives</td>
<td>☐ Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
<td>☐ Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
<td>☐ Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
</tr>
</tbody>
</table>

#### Physical Environment

<table>
<thead>
<tr>
<th>Natural Environment</th>
<th>Negative Impact</th>
<th>Neutral Impact</th>
<th>Positive Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatest</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Least</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Least</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Greatest</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
## Evaluation - Segment 2 Wellington St to Davies Cres

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>How Criteria is Being Assessed</th>
<th>Alternative 1: Do Nothing</th>
<th>Design Alternative 2: MMATMP Recommendation</th>
<th>Design Alternative 3: Reduced Lane &amp; Boulevard Widths</th>
<th>Design Alternative 4: Continuous Two-way Left Turn Lane, Reduced Lane &amp; Boulevard Widths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property/Development Impacts</td>
<td>Impacts to property based on widening of road platform and/or ROW</td>
<td>No impact to adjacent properties</td>
<td>Greatest impact to adjacent properties (2127 m²)</td>
<td>Second greatest impact to adjacent properties (700 m²)</td>
<td>Least impact to adjacent properties (557 m²)</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>Visual impacts</td>
<td>No change to existing conditions</td>
<td>Second greatest opportunity to enhance aesthetics due to desired boulevard width</td>
<td>Limited opportunity to enhance aesthetics due to minimum boulevard width</td>
<td>Greatest opportunity to enhance aesthetics due to maximum boulevard width</td>
</tr>
<tr>
<td>Noise Impacts</td>
<td>Impacts to residents during construction phase. Future impacts to residents (as per Noise Assessment)</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Construction Impacts</td>
<td>Impacts to adjacent properties through construction phase</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Archaeological &amp; Heritage Impacts</td>
<td>Impacts to the cultural and heritage features as per the results of the Stage 1 Archaeological Assessment completed for the study corridor</td>
<td>Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
<td>Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
<td>Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
<td>Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
</tr>
<tr>
<td>Driveway Grades</td>
<td>Impact to driveway grades as a result of required road widening</td>
<td>No change to existing conditions</td>
<td>5 driveways where grades will exceed 8%</td>
<td>1 driveway where grades will exceed 8%</td>
<td>0 driveways where grades will exceed 8%</td>
</tr>
<tr>
<td>Driveway Operations</td>
<td>Impact to driveway operations</td>
<td>No change to existing conditions</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Construction Costs</td>
<td>Costs to construct individual alternatives</td>
<td>Least cost to construct</td>
<td>Greatest cost to construct. $3,284/m x 300m = $985,000</td>
<td>Second greatest cost to construct. $3,047/m x 300m = $914,000</td>
<td>Second least cost to construct. $2,905/m x 300m = $872,000</td>
</tr>
<tr>
<td>Maintenance Costs</td>
<td>Future maintenance requirements</td>
<td>No additional cost to maintain over existing conditions</td>
<td>Greatest cost to maintain</td>
<td>Second greatest cost to maintain</td>
<td>Least cost to maintain</td>
</tr>
<tr>
<td>Land Acquisition Costs</td>
<td>Total land acquisition costs</td>
<td>Least land acquisition costs</td>
<td>Greatest land acquisition costs 2,127 m² x $270/m² = $574,000</td>
<td>Second greatest land acquisition costs 700 m² x $270/m² = $189,000</td>
<td>Second least land acquisition costs 557 m² x $270/m² = $150,000</td>
</tr>
</tbody>
</table>

### Social Environment

#### Property/Development Impacts
- No impact to adjacent properties

#### Aesthetics
- No change to existing conditions
- Limited opportunity to enhance aesthetics due to minimum boulevard width

#### Noise Impacts
- No significant difference between alternatives

#### Construction Impacts
- No significant difference between alternatives

### Cultural Heritage

#### Archaeological Heritage Impacts
- Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives

### Economic Environment

#### Driveway Grades
- No change to existing conditions
- 5 driveways where grades will exceed 8%

#### Driveway Operations
- No change to existing conditions

#### Construction Costs
- Least cost to construct
- $3,284/m x 300m = $985,000

#### Maintenance Costs
- Greatest cost to maintain

#### Land Acquisition Costs
- Least land acquisition costs
- 2,127 m² x $270/m² = $574,000

### Greatest Negative Impact Neutral Impact Least Greatest Positive Impact

- ★★★ (Greatest)
- ★ (Positive)
- ★ (Neutral)
- ★ (Negative)
- ★ (Least)
### Evaluation - Segment 3  
**Davies Cres to Bell Farm Road**

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>How Criteria is Being Assessed</th>
<th>Alternative 1: Do Nothing</th>
<th>Design Alternative 2: MRATMP Recommendation</th>
<th>Design Alternative 3: Reduced Lane &amp; Boulevard Widths</th>
<th>Design Alternative 4: Continuous Two-way Left Turn Lane, Reduced Lane &amp; Boulevard Widths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Operations</td>
<td>Impact to intersection operations &amp; road capacity (based on results of Traffic Operations Assessment)</td>
<td>Road to be reconstructed to maintain existing lane configuration &amp; widths. No impact to future road operations</td>
<td>Road to be reconstructed to maintain existing lane configuration &amp; widths. No impact to future road operations</td>
<td>No negative impacts to traffic operations</td>
<td>No negative impacts to traffic operations</td>
</tr>
<tr>
<td>Cycling Operations</td>
<td>Impact to cycling facilities along study corridor</td>
<td>No cycling facilities provided</td>
<td>Provides cycling facilities designed to desired standards as per MRATMP recommendations</td>
<td>Provides cycling facilities designed to minimum standards (narrow lanes, no buffer)</td>
<td>Provides cycling facilities designed to minimum width, but provides buffer where recommended in MRATMP</td>
</tr>
<tr>
<td>Transit Operations</td>
<td>Impact to transit service</td>
<td>Transit infrastructure to remain as currently exists</td>
<td>Transit infrastructure to remain as currently exists</td>
<td>Transit infrastructure to remain as currently exists</td>
<td>Transit infrastructure to remain as currently exists</td>
</tr>
<tr>
<td>Pedestrian Operations</td>
<td>Impact to pedestrian facilities along study corridor</td>
<td>Sidewalks to remain as currently exist</td>
<td>Wider &amp; continuous sidewalk to be provided (all options)</td>
<td>Wider &amp; continuous sidewalk to be provided (all options)</td>
<td>Wider &amp; continuous sidewalk to be provided (all options)</td>
</tr>
<tr>
<td>Municipal Services (Water, Stormwater &amp; Sanitary systems)</td>
<td>Upgrades</td>
<td>New watermain to be included with proposed works – same for all alternatives</td>
<td>New watermain to be included with proposed works – same for all alternatives</td>
<td>New watermain to be included with proposed works – same for all alternatives</td>
<td>New watermain to be included with proposed works – same for all alternatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upgrades to existing storm water management system included with proposed works. No significant difference between alternatives</td>
<td>Opportunity to upgrade existing sanitary – same for all alternatives</td>
<td>Opportunity to upgrade existing sanitary – same for all alternatives</td>
<td>Opportunity to upgrade existing sanitary – same for all alternatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Opportunity to upgrade existing sanitary – same for all alternatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td>Impact to utilities (i.e. relocation)</td>
<td>No relocation of existing utilities</td>
<td>Relocation of utilities required</td>
<td>Relocation of utilities required</td>
<td>Relocation of utilities required</td>
</tr>
<tr>
<td>Fishery/ Aquatic Impacts</td>
<td>Impact to fish habitat, if applicable, and other aquatic features within the study area</td>
<td>No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>No impacts to fish habitats or aquatic features – same for all alternatives</td>
<td>No impacts to fish habitats or aquatic features – same for all alternatives</td>
</tr>
<tr>
<td>Wildlife/ Terrestrial Impacts</td>
<td>Impact to wildlife species within study area</td>
<td>No impacts to wildlife – same for all alternatives</td>
<td>No impacts to wildlife – same for all alternatives</td>
<td>No impacts to wildlife – same for all alternatives</td>
<td>No impacts to wildlife – same for all alternatives</td>
</tr>
<tr>
<td>Species at Risk</td>
<td>Impact on SARA's and endangered species</td>
<td>No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
<td>No suitable habitat for species at risk within study corridor. No negative impacts – same for all alternatives</td>
</tr>
<tr>
<td>Vegetation Impacts</td>
<td>Impact to vegetation communities on adjacent properties (i.e. trees, shrubs, plants, etc.)</td>
<td>No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
<td>No provincially rare species or vegetation communities were identified within the development footprint. No negative impacts – same for all alternatives</td>
</tr>
<tr>
<td>Land use</td>
<td>Impact of proposed works on surrounding land use (i.e. are improvements consistent with surrounding land-uses)</td>
<td>No negative impacts – same for all alternatives</td>
<td>Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
<td>Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
<td>Improvements consistent with existing land use. No negative impacts – same for all alternatives</td>
</tr>
</tbody>
</table>

#### Natural Environment

<table>
<thead>
<tr>
<th>Negative Impact</th>
<th>Neutral Impact</th>
<th>Positive Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatest</td>
<td>Least</td>
<td>Least</td>
</tr>
<tr>
<td>![Red Circle]</td>
<td>![White Circle]</td>
<td>![Green Circle]</td>
</tr>
</tbody>
</table>

**Key:**
- **Greatest:** Most negative impact
- **Least:** Least negative impact
- **Neutral:** No significant impact
## Evaluation - Segment 3 Davies Cres to Bell Farm Road

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>How Criteria is Being Assessed</th>
<th>Alternative 1: Do Nothing</th>
<th>Design Alternative 2: MMATMP Recommendation</th>
<th>Design Alternative 3: Reduced Lane &amp; Boulevard Widths</th>
<th>Design Alternative 4: Continuous Two-way Left Turn Lane, Reduced Lane &amp; Boulevard Widths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property/Development Impacts</td>
<td>Impacts to property based on widening of road platform and/or ROW</td>
<td>No impact to adjacent properties</td>
<td>Greatest impact to adjacent properties (2347 m²)</td>
<td>Second greatest impact to adjacent properties (1309 m²)</td>
<td>Least impact to adjacent properties (1040 m²)</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>Visual impacts</td>
<td>No change to existing conditions</td>
<td>Greatest opportunity to enhance aesthetics due to desired boulevard width</td>
<td>Second greatest opportunity to enhance aesthetics due to minimum boulevard width</td>
<td>Least opportunity to enhance aesthetics due to below minimum boulevard width for 5-lane cross section</td>
</tr>
<tr>
<td>Noise Impacts</td>
<td>Impacts to residents during construction phase. Future impacts to residents (as per Noise Assessment)</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Construction Impacts</td>
<td>Impacts to adjacent properties through construction phase</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td>Cultural Heritage</td>
<td>Archaeological &amp; Heritage Impacts</td>
<td>Impacts to the cultural and heritage features as per the results of the Stage 1 Archaeological Assessment completed for the study corridor</td>
<td>Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
<td>Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
<td>Archaeological potential has been removed. Impacts to the cultural and heritage environment are similar for all design alternatives</td>
</tr>
<tr>
<td>Driveway Grades</td>
<td>Impact to driveway grades as a result of required road widening</td>
<td>No change to existing conditions</td>
<td>7 driveways where grades will exceed 8%</td>
<td>4 driveways where grades will exceed 8%</td>
<td>5 driveways where grades will exceed 8%</td>
</tr>
<tr>
<td>Driveway Operations</td>
<td>Impact to driveway operations</td>
<td>No change to existing conditions</td>
<td>20 m raised centre median to restrict commercial access to right-in/right-out, will also restrict access to residential properties on west side of Duckworth Street</td>
<td>“Pork-chop” island at commercial access will limit right-in/right-out</td>
<td>“Pork-chop” island at commercial access will limit right-in/right-out</td>
</tr>
<tr>
<td>Construction Costs</td>
<td>Costs to construct individual alternatives</td>
<td>Least cost to construct</td>
<td>Greatest cost to construct. $3,680/m x 580m = $2,134,000</td>
<td>Second least cost to construct. $3,450/m x 580m = $2,001,000</td>
<td>Second greatest cost to construct. $3,181/m x 580m = $2,039,000</td>
</tr>
<tr>
<td>Maintenance Costs</td>
<td>Future maintenance requirements</td>
<td>No additional cost to maintain over existing conditions</td>
<td>Second greatest cost to maintain</td>
<td>Least cost to maintain</td>
<td>Greatest cost to maintain, additional costs associated with snow lifting operations due to reduced boulevard width, and paint markings</td>
</tr>
<tr>
<td>Land Acquisition Costs</td>
<td>Total land acquisition costs</td>
<td>Least land acquisition costs</td>
<td>Greatest land acquisition costs</td>
<td>Second greatest land acquisition costs</td>
<td>Second least land acquisition costs</td>
</tr>
</tbody>
</table>

### Key

- **Greatest**: Highest impact or cost.
- **Neutral**: Moderate impact or cost.
- **Least**: Lowest impact or cost.

### Negative Impact

- Red

### Neutral Impact

- Orange

### Positive Impact

- Green
Next Steps to Complete the Study

To COMPLETE the study, the team will:

- Review & address public, agency & stakeholder comments
- Identify a preferred solution considering the initial assessment & any comments received (the preferred solution may be a combination of the design alternatives proposed)
- Prepare a final Class EA report for City Council review & endorsement
- Place the final Class EA report on Public Record for 30-day review period (Notice of Study Completion to be posted)
- Proceed to design & implementation

Important

- If concerns are raised which cannot be resolved in discussions with the City through the public consultation process, the Ministry of the Environment & Climate Change (MOECC) may be requested (subsequent to the filing of the Notice of Completion) to make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments
Your Input is Important to Us

BEFORE you leave:

- Have all your questions been answered?
- Have you signed the project registry to be informed?
- Have you completed a comment sheet?

Public Comments

- Comments regarding this project are being collected to assist the project team in meeting the Class EA requirements.
- Comments will be maintained for reference during the study and, with the exception of personal information, may be used in the Class EA report which will become public information.

Who to CONTACT for further information:

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Senior Water Technologist
City of Barrie
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Barrie, ON  L4M 4T5

(705) 739-4220 x4991
lloyd.spooner@barrie.ca

Access to Information

- The City continues to enhance accessibility that is inclusive of all ages & abilities.
- Please let us know if you have any special needs.