Welcome

to the

Garden Street
Dryden Boulevard to Taunton Road

Class Environmental Assessment Study

Public Information Centre #2

January 29, 2013
6 PM to 8 PM
Purpose of Public Information Centre #2

• The purpose of this second public information centre is to present the preliminary preferred design for the widening of Garden Street from Dryden Boulevard to Taunton Road.

Problem:
• The current 2-lane road is inadequate to accommodate future traffic demand generated by the anticipated growth and planned transportation network.

Opportunity to improve Garden Street to:
• Support long-term development / growth
• Address future traffic demand
• Enhance safety (pedestrian crossing, transit)
• Promote cycling
• Improve transit services
Study Background

• In July 2010, Council adopted the Whitby Transportation Master Plan (TMP) to guide the Town’s transportation policies, programs and infrastructure improvements to meet transportation needs to the year 2031.

• One of the roadway initiatives identified in the TMP is the widening of Garden Street between Dryden Boulevard and Taunton Road from 2 lanes to 4 lanes.

• The study corridor is comprised of Garden Street between Dryden Boulevard to Taunton Road, the corridor includes 3 existing intersections and is approximately 1.3 km in length.

• Each intersection currently provides an exclusive left turn lane on Garden Street with the intersections spaced a minimum of 300m apart.

• Garden Street, both south of Dryden Boulevard and north of Taunton Road includes a 4-lane cross-section as well as additional turning lanes where applicable.

Traffic Operations

• Existing and projected traffic volumes on Garden Street were reviewed and assessed. It is currently anticipated the need to widen Garden Street to 4 lanes will occur in 2019.

• Existing Travel speeds on the corridor were reviewed and operating speeds are typical of an arterial roadway of this classification (Arterial Type B).
Municipal Class EA Process

This study is being carried out as a ‘Schedule B’ Municipal Class Environmental Assessment as outlined in the *Municipal Class Environmental Assessment* document (2000, amended 2011). However, for this project a higher level of consultation will be conducted, which is sufficient to meet the requirements of a ‘Schedule C’ project.
Summary of Public Information Centre #1

Comments from PIC #1 provided valuable insight into the issues within the study area. Here is a brief summary of some of main concerns and opportunities.

- Garden Street should not be a thoroughfare for commuters from Highway 401 to Highway 407.
- Traffic impacts need to be addressed to improve safety and liveability in our neighbourhood.
- Students need safer options to cross Garden Street. As well as more opportunities to walk and cycle.
- Our fences need to be higher to reduce noise impacts and increase privacy and security.
- U-turns in my driveway and along my street are causing a hazard.
- Are there mitigation measures for the street trees along Garden Street?
- Truck traffic seems to be increasing. Why are trucks not restricted along Garden Street?
- Can’t we limit urban growth?
- Excessive speeding by automobiles is a concern in my neighbourhood.
- Something needs to be done about traffic noise.
Evaluation Criteria

The following criteria were used to evaluate the alternative solutions:

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<th>Transportation/Engineering:</th>
<th>Socio-Economic and Cultural:</th>
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<td>• Transportation Master Plan Objectives and Goals</td>
<td>• Archaeological/Cultural Heritage Resources</td>
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<td>• Corridor Efficiency and Level of Service</td>
<td>Natural Heritage Resources</td>
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<td>Natural Environment:</td>
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<td>• Surface Water, Ground Water Impacts</td>
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<td>• Vegetation Impacts</td>
<td>• Operation and Maintenance Costs</td>
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<td></td>
<td>• Property Acquisition Costs</td>
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</tbody>
</table>
Alternative Solutions

The study identified and evaluated 6 alternative solutions for Garden Street.

• **Alternative #1 – Do Nothing**
  - Continue existing conditions; no changes or improvements to Garden Street corridor

• **Alternative #2 – Travel Demand Management**
  - Shift demand to transit, carpools, alternative modes

• **Alternative #3 – Improve Pedestrian/Cycling Facilities**
  - Addition of a multi-use path on one side of Garden Street
  - Improve pedestrian crossing opportunities

• **Alternative #4 – Traffic Operations/System Management Improvements**
  - Make operational changes to Garden Street without major physical changes, e.g. restriping lanes, adding traffic signals

• **Alternative #5 – Widen Garden Street**
  - Widen Garden Street to 4 lanes

• **Alternative #6 – Combination of Alternatives**
  - Widen Garden Street to 4 lanes
  - Addition of a multi-use path on one side of Garden Street
  - Improve pedestrian crossing opportunities.
## Evaluation of Alternative Solutions

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Measures</th>
<th>Alternative 1: Do Nothing to Garden Street, other improvements planned by Region and Town are in place</th>
<th>Alternative 2: Travel Demand Management</th>
<th>Alternative 3: Improve Pedestrian/Cycling Facilities</th>
<th>Alternative 4: Traffic Operations/Systems Management Improvements</th>
<th>Alternative 5: Widen Garden Street</th>
<th>Alternative 6: Combination of Alternatives</th>
</tr>
</thead>
</table>
| A principle or standard by which something may be judged or decided. | Dimensions, quantity, or capacity as ascertained by comparison with a standard. | •Continue existing conditions.  
•No change to study corridor, but includes Transportation Master Plan proposed changes i.e. Brock Street, Thickson Road, Anderson Street widening | •Shift demand to transit, carpooling, alternative modes | •Add multi-use path to one side of Garden Street  
•Improve pedestrian crossing opportunities | •Minor geometric/physical improvements  
•May include adding lanes at intersections, signal timing changes, improved signage and pavement markings | •Widen Garden Street to 4 travel lanes | •Widen Garden Street to 4 travel lanes  
•Add multi-use path to one side of Garden Street  
•Improve pedestrian crossing opportunities  
•Traffic system improvements  
•Traffic Demand Management |
| Socio-Economic | | | | | | |
| Archaeological/ Cultural Heritage Resources | Minimizes number of heritage features affected and provides opportunities to enhance built heritage and cultural features | •No impacts | •No impacts since no identified features and existing disturbance to study area | •No impacts since no identified features and existing disturbance to study area | •No impacts since no identified features and existing disturbance to study area | •No impacts since no identified features and existing disturbance to study area | •No impacts since no identified features and existing disturbance to study area |
| Natural Heritage Resources | Minimizes number of natural heritage features affected and provides opportunities for their protection or enhancement | •No impacts | •No impacts since no identified features and existing disturbance to study area | •No impacts since no identified features and existing disturbance to study area | •No impacts since no identified features and existing disturbance to study area | •No impacts since no identified features and existing disturbance to study area | •No impacts since no identified features and existing disturbance to study area |
| Business Impacts | Minimizes adverse physical effects on local businesses | •Potential for increased traffic issues that will adversely affect local businesses | •Potential for increased traffic issues still exist as additional capacity is not provided | •Potential for increased traffic issues still exist as additional capacity is not provided | •Potential for increased traffic issues still exist as additional capacity is not provided | •Opportunity to address all traffic issues adversely affecting local businesses | •Opportunity to address all traffic issues adversely affecting local businesses  
•Improved cyclist/pedestrian access to local businesses  
•Widen Garden Street to 4 travel lanes  
•Add multi-use path to one side of Garden Street  
•Improve pedestrian crossing opportunities  
•Traffic system improvements  
•Traffic Demand Management |
| Residential Impacts | Minimizes adverse physical effects on local residents | •Potential for increased traffic issues that will adversely affect local residents | •Potential for increased traffic issues still exist as additional capacity is not provided | •Potential for increased traffic issues still exist as additional capacity is not provided | •Potential for increased traffic issues still exist as additional capacity is not provided | •Opportunity to address all traffic issues adversely affecting local residents | •Opportunity to address all traffic issues adversely affecting local residents  
•Improved cyclist/pedestrian access to local businesses  
•Widen Garden Street to 4 travel lanes  
•Add multi-use path to one side of Garden Street  
•Improve pedestrian crossing opportunities  
•Traffic system improvements  
•Traffic Demand Management |
| Visual/Aesthetics and Streetscape | Minimizes physical impacts on visual/aesthetic and streetscape | •No impacts | •No impacts | •Potential improvement with urban design on boulevard landscape design to accommodate Multi-use Path | •Potential impact on existing boulevard trees for turn lanes. | •Potential impact on existing boulevard trees for road widening. | •Allow for a comprehensive streetscape design for the entire corridor. |
| Noise Impacts | Minimizes adverse effects of noise as a result of roadway functions | •Noise impacts of less than 5db (insignificant to noticeable) | •Noise impacts of less than 5db (insignificant to noticeable) | •Noise impacts of less than 5db (insignificant to noticeable) | •Noise impacts of less than 5db (insignificant to noticeable) | •Noise impacts of less than 5db (insignificant to noticeable) | •Noise impacts of less than 5db (insignificant to noticeable) |
| Air Quality | Minimizes adverse effects on air quality and potential vehicle exhaust emissions | •Increased congestion and related emissions | •Increased congestion and related emissions | •Increased congestion and related emissions | •Increased congestion and related emissions | •Reduced congestion related emissions | •Reduced congestion related emissions |
### Evaluation of Alternative Solutions

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<th>Alternative 5: Widen Garden Street</th>
<th>Alternative 6: Combination of Alternatives</th>
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<tbody>
<tr>
<td><strong>Transportation</strong></td>
<td></td>
<td>Minimizes travel delay while maximizes the efficiency of movement for people and goods within the corridor</td>
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<tr>
<td><strong>Corridor Efficiency and Level of Service</strong></td>
<td></td>
<td>Minimizes travel delay while maximizes the efficiency of movement for people and goods within the corridor</td>
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<tr>
<td><strong>Traffic Safety</strong></td>
<td></td>
<td>Potential for increased safety issues associated with traffic growth</td>
<td>Potential for increased safety issues associated with traffic growth</td>
<td>Potential for increased safety issues associated with traffic growth</td>
<td>Potential for increased safety issues associated with traffic growth</td>
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<tr>
<td><strong>Surface Water, Ground Water Impacts</strong></td>
<td></td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
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<tr>
<td><strong>Terrestrial Impacts</strong></td>
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<td>No impacts</td>
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<tr>
<td><strong>Vegetation Impacts</strong></td>
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<tr>
<td><strong>Modifications</strong></td>
<td></td>
<td>No impacts</td>
<td>No impacts</td>
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<tr>
<td><strong>Utility Relocation</strong></td>
<td></td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
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<tr>
<td><strong>Property Acquisition</strong></td>
<td></td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
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<tr>
<td><strong>Accommodation of Future Municipal Services</strong></td>
<td></td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
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<tr>
<td><strong>Capital Costs</strong></td>
<td></td>
<td>Construction costs: 1.3 km (approx.) of new multi-use path</td>
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<tr>
<td><strong>Operation and Maintenance Costs</strong></td>
<td></td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
<td>No impacts</td>
</tr>
</tbody>
</table>

**Natural Environment**

- **Surface Water, Ground Water Impacts**
  - Minimizes adverse effects on local water
- **Terrestrial Impacts**
  - Minimizes adverse effects on local terrestrial areas
- **Vegetation Impacts**
  - Minimizes adverse effects on local vegetation

**Engineering**

- **Utility Relocation**
  - Minimizes need for utility relocation
- **Property Acquisition**
  - Minimizes need for property acquisition
- **Accommodation of Future Municipal Services**
  - Maximizes opportunities for municipal services
- **Capital Costs**
  - Minimizes capital costs
- **Operation and Maintenance Costs**
  - Minimizes operation and maintenance costs
Evaluation of Alternative Solutions

• Based on the evaluation Alternative #6 – Combination of Alternatives is the preferred solution.
• This alternative provides the preferred socio-economic and transportation conditions as well as satisfactory engineering and cost factors.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>ALTERNATIVE #1: DO NOTHING (to Garden Street, other improvements planned by Region and Town are in place)</th>
<th>ALTERNATIVE #2: TRAVEL DEMAND MANAGEMENT</th>
<th>ALTERNATIVE #3: IMPROVE PEDESTRIAN/ CYCLING FACILITIES</th>
<th>ALTERNATIVE 4: TRAFFIC OPERATIONS/ SYSTEMS MANAGEMENT IMPROVEMENTS</th>
<th>ALTERNATIVE 5: WIDEN GARDEN STREET</th>
<th>ALTERNATIVE 6: COMBINATION OF ALTERNATIVES</th>
</tr>
</thead>
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<tr>
<td>SUMMARY</td>
<td>• Continue existing conditions • No change to study corridor, but includes Transportation Master Plan proposed changes i.e. Brock Street, Thickson Road, Anderson Street widening</td>
<td>• Shift demand to transit, carpooling, alternative modes • Add multi-use path to one side of Garden Street • Improve pedestrian crossing opportunities</td>
<td>• Minor geometric/physical improvements • May include adding lanes at intersections, signal timing changes, improved signage and pavement markings</td>
<td>• Widen Garden Street to 4 travel lanes</td>
<td>• Widen Garden Street to 4 travel lanes • Add multi-use path to one side of street • Pedestrian crossing opportunities • Traffic system improvements • Traffic Demand Management</td>
<td></td>
</tr>
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<thead>
<tr>
<th>Socio-Economic</th>
<th>Archaeological/Cultural Heritage Resources</th>
<th>Natural Heritage Resources</th>
<th>Business Impacts</th>
<th>Residential Impacts</th>
<th>Visual/Aesthetics and Streetscape</th>
<th>Noise Impacts</th>
<th>Air Quality</th>
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<tr>
<th>Transportation</th>
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<th>Accommodation of Pedestrians &amp; Cyclists</th>
<th>Emergency Services Response times</th>
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<tr>
<th>Cost</th>
<th>Capital Costs</th>
<th>Operation and Maintenance Costs</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>No capital cost</td>
<td>No capital cost</td>
</tr>
</tbody>
</table>

| Recommendation                 | Not recommended | Not recommended | Not recommended | Not recommended | Not recommended | Recommended |

Legend:

- Least Preferred
- More Preferred
- Most Preferred
Alternative Design Concepts

The study identified and evaluated 4 alternative design concepts for the preferred solution for Garden Street.

• **Alternative #1**
  – Widen about the centreline

• **Alternative #2** – Widen to the East
  – Hold existing west curb line

• **Alternative #3** – Widen to the West
  – Hold existing east curb line

• **Alternative #4** – Reduced Tree Impacts
  – Widen about the centreline
  – Locate left-turn lanes east or west of centreline as required to reduce tree impacts
Alternative Design Concepts

Design Concept #1 – Widen About Centreline
• Equal distribution of new roadway limits on both sides.
Alternative Design Concepts

Design Concept #2 – Widen to the East Side
- Distribution of new roadway limits towards east side.
Alternative Design Concepts

Design Concept #3 – Widen to the West Side

- Distribution of new roadway limits towards west side.
Alternative Design Concepts

Design Concept #4 – Reduced Tree Impacts (Recommended Design Concept)

- Generally equal distribution of new roadway limits on both sides, auxiliary lanes developed left of centre, right of centre and about centre to limit tree impacts.
Alternative Design Concepts

Design Concept #4 – Reduced Tree Impacts (Recommended Design Concept)

- Generally equal distribution of new roadway limits on both sides, auxiliary lanes developed left of centre, right of centre and about centre to limit tree impacts.
Evaluation of Alternative Design Concepts

<table>
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<tr>
<th>FACTOR</th>
<th>DESIGN CONCEPT #1</th>
<th>DESIGN CONCEPT #2</th>
<th>DESIGN CONCEPT #3</th>
<th>DESIGN CONCEPT #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodation of Future Travel Demand</td>
<td>• No difference between alternatives in terms of capacity.</td>
<td>• No difference between alternatives in terms of capacity.</td>
<td>• No difference between alternatives in terms of capacity.</td>
<td>• No difference between alternatives in terms of capacity.</td>
</tr>
<tr>
<td>Traffic Operations;</td>
<td>• Left turn lanes are evenly distributed about centreline resulting in smaller deflections of through traffic for both northbound and southbound directions.</td>
<td>• Left turn lanes are developed exclusively by deflection of southbound traffic (to the west of centre) resulting in a more adverse deflection for southbound traffic throughout the corridor and no shift for northbound traffic.</td>
<td>• Left turn lanes are developed exclusively by deflection of northbound traffic (to the east of centre) resulting in a more adverse deflection for northbound traffic throughout the corridor and no shift for southbound traffic.</td>
<td>• Left turn lanes are distributed west of centerline, east of centerline and evenly about the centerline to minimize tree impacts on adjacent boulevards. Deflections to through traffic vary throughout the corridor.</td>
</tr>
<tr>
<td>Ability to Meet Design Guidelines</td>
<td>• Boulevard slopes may exceed Town maximum gradient of 8%.</td>
<td>• Boulevard slopes become steeper in east boulevard and may exceed Town maximum gradient of 8%.</td>
<td>• Possible need for retaining walls. Separation of the roadway from sidewalks and multi-use trail are unbalanced, decreased separation to vehicles along the east side of Garden Street. 3.5m lane widths are provided for auxiliary lanes.</td>
<td>• Boulevard slopes may exceed Town maximum gradient of 8%.</td>
</tr>
<tr>
<td>Access to/from Garden Street (driveways, side streets, window streets)</td>
<td>• Balanced distribution of boulevard within the corridor. Boulevard slopes will remain similar.</td>
<td>• Unbalanced distribution of boulevard within the corridor. Reduction in size of the east boulevard. Requires steeper boulevard slopes or possible retaining walls at window streets.</td>
<td>• Unbalanced distribution of boulevard within the corridor. Reduction in size of the west boulevard. Requires steeper boulevard slopes or possible retaining walls at window streets.</td>
<td>• Balanced distribution of boulevard within the corridor where auxiliary lanes are not present. Boulevard slopes will remain similar where auxiliary lanes are not present.</td>
</tr>
<tr>
<td>Social, Economic and Cultural Impacts</td>
<td>• Equal distribution of new roadway limits relative to adjacent residences.</td>
<td>• Unbalanced distribution of new roadway limits Greater impacts to residences located on the east side of the road.</td>
<td>• Unbalanced distribution of new roadway limits Greater impacts to residences located on the west side of the road.</td>
<td>• Equal distribution of new roadway limits relative to adjacent residences where auxiliary lanes are not present.</td>
</tr>
<tr>
<td>Residential Impacts</td>
<td>• Balanced impacts to residences adjacent to the east and west side of Garden Street.</td>
<td>• Unbalanced impacts to residents adjacent to Garden Street. Residents to the east will experience greater impacts as the road centerline is shifted to the east.</td>
<td>• Unbalanced impacts to residents adjacent to Garden Street. Residents to the east will experience greater impacts as the road centerline is shifted to the west.</td>
<td>• Balanced impacts to residences adjacent to the east and west side of Garden Street.</td>
</tr>
<tr>
<td>Noise Impacts</td>
<td>• Roadway boulevard widths and streetscape opportunities (vegetation, trees, etc.) will be balanced within the ROW.</td>
<td>• Roadway boulevard widths and streetscape opportunities (vegetation, trees, etc.) will be unbalanced. Vegetation opportunities will be reduced on the east side of Garden Street as a result of reduced boulevard widths.</td>
<td>• Roadway boulevard widths and streetscape opportunities (vegetation, trees, etc.) will be unbalanced. Vegetation opportunities will be reduced on the west side of Garden Street as a result of reduced boulevard widths. Limited streetscape opportunities due to the addition of a multi-use trail within the west boulevard.</td>
<td>• Roadway boulevard widths and streetscape opportunities (vegetation, trees, etc.) will be unbalanced.</td>
</tr>
<tr>
<td>Visual Aesthetics (streetscape)</td>
<td>• Roadway boulevard widths and streetscape opportunities (vegetation, trees, etc.) will be balanced within the ROW.</td>
<td>• Roadway boulevard widths and streetscape opportunities (vegetation, trees, etc.) will be unbalanced. Vegetation opportunities will be reduced on the east side of Garden Street as a result of reduced boulevard widths.</td>
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<td>• Roadway boulevard widths and streetscape opportunities (vegetation, trees, etc.) will be unbalanced. Vegetation opportunities will be reduced on the west side of the road centerline. Separation of boulevard from sidewalks within the corridor. Reduction in size of the west boulevard. Requires steeper boulevard slopes or possible retaining walls at window streets.</td>
</tr>
</tbody>
</table>
## Evaluation of Alternative Design Concepts

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<tr>
<th>FACTOR</th>
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<th>DESIGN CONCEPT #4</th>
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</thead>
<tbody>
<tr>
<td>Natural Environment</td>
<td>WIDEN ABOUT THE CENTRELINE</td>
<td>WIDEN TO THE EAST (HOLD EXISTING WEST CURB LINE)</td>
<td>WIDEN TO THE WEST (HOLD EXISTING EAST CURB LINE)</td>
<td>REDUCED TREE IMPACTS (WIDEN ABOUT CENTRELINE)</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Balanced impacts to street trees and recent plantings (saplings) on the east and west side of Garden Street due to widening and grading.</td>
<td>Unbalanced impacts to street trees and recent plantings (saplings) on the east side of Garden Street.</td>
<td>Unbalanced impacts to street trees and recent plantings (saplings) on the west side of Garden Street.</td>
<td>Balanced impacts to street trees and recent plantings (saplings) on the east and west side of Garden Street due to widening and grading.</td>
</tr>
<tr>
<td></td>
<td>Impacts approximately 130 street trees and 9 small trees or saplings</td>
<td>Reduced impacts to trees on west side of Garden Street, where auxiliary lanes are not required.</td>
<td>Reduced impacts to trees on east side of Garden Street, where auxiliary lanes are not required.</td>
<td>Impacts approximately 87 street trees.</td>
</tr>
<tr>
<td></td>
<td>Tree impacts have been qualitatively assessed based on the information available during the study and will require confirmation during detail design as a result of grading review.</td>
<td>Impacts approximately 129 street trees and 16 small trees or saplings</td>
<td>Impacts are anticipated to be similar or greater than alternatives #1 and #2</td>
<td>Tree impacts have been qualitatively assessed based on the information available during the study and will require confirmation during detail design as a result of grading review.</td>
</tr>
<tr>
<td></td>
<td>• Balanced impacts to street trees and recent plantings (saplings) on the west side of Garden Street</td>
<td>Tree impacts have been qualitatively assessed based on the information available during the study and will require confirmation during detail design as a result of grading review.</td>
<td>Tree impacts have been qualitatively assessed based on the information available during the study and will require confirmation during detail design as a result of grading review.</td>
<td>• Balanced impacts to street trees and recent plantings (saplings) on the east and west side of Garden Street due to widening and grading.</td>
</tr>
<tr>
<td>Financial</td>
<td>Operating costs are anticipated to be similar for all alternatives.</td>
<td>Operating costs are anticipated to be similar for all alternatives.</td>
<td>Operating costs are anticipated to be similar for all alternatives.</td>
<td>Operating costs are anticipated to be similar for all alternatives.</td>
</tr>
<tr>
<td>Capital Costs</td>
<td>Capital costs will be slightly higher than Alternatives #2 and #3 and comparable to Alternative #4.</td>
<td>Capital costs will be slightly reduced.</td>
<td>Capital costs will be slightly reduced.</td>
<td>Capital costs will be slightly higher than Alternatives #2 and #3 and comparable to Alternative #1.</td>
</tr>
<tr>
<td></td>
<td>Alternative requires full reconstruction of all curbs and relocation of all catch basins along the corridor.</td>
<td>Curb replacement and catch basin relocations will not be required on the west side of Garden Street where there are no auxiliary lanes.</td>
<td>Curb replacement and catch basin relocations will not be required on the east side of Garden Street where there are no auxiliary lanes.</td>
<td>Alternative requires full reconstruction of all curbs and relocation of all catch basins along the corridor.</td>
</tr>
<tr>
<td>Property Acquisition</td>
<td>No property acquisition is anticipated.</td>
<td>No property acquisition is anticipated.</td>
<td>No property acquisition is anticipated.</td>
<td>No property acquisition is anticipated.</td>
</tr>
<tr>
<td>Utility Relocation</td>
<td>Impacts to existing catch basins and storm leads on the east and west sides of Garden Street.</td>
<td>Impacts to existing catch basins and storm leads generally on the east side of Garden Street.</td>
<td>Impacts to existing catch basins and storm leads generally on the west side of Garden Street.</td>
<td>Impacts to existing catch basins and storm leads on the east side of Garden Street due to grading in the areas of left turn lanes and window streets.</td>
</tr>
<tr>
<td></td>
<td>Potential minor impacts to hydro poles on the east side of Garden Street due to grading in the areas of left turn lanes and window streets.</td>
<td>Impacts to existing catch basins and storm leads on the west side of Garden Street, only where left turn lanes are present.</td>
<td>Impacts to existing catch basins and storm leads on the east side of Garden Street, only where left turn lanes are present.</td>
<td>Potential minor impacts to hydro poles on the east side of Garden Street due to grading in the areas of left turn lanes and window streets.</td>
</tr>
<tr>
<td></td>
<td>Impacts to two (2) Hydro Guy anchors.</td>
<td>Potential impacts to hydro poles on the east side of Garden Street due to more significant grading throughout the corridor and in the areas of left turn lanes and window streets.</td>
<td>Potential impacts to hydro poles on the east side of Garden Street due to reduced grading throughout the corridor and in the areas of left turn lanes and window streets.</td>
<td>Impacts to two (2) Hydro Guy anchors.</td>
</tr>
<tr>
<td></td>
<td>Impacts to one (1) Rogers Terminal and two (2) Bell Terminals due to the addition of the multi-use trail.</td>
<td>Impacts to two (2) Hydro Guy anchors.</td>
<td>Impacts to one (1) Rogers Terminal and two (2) Bell Terminals due to the addition of the multi-use trail.</td>
<td>Impacts to one (1) Rogers Terminal and two (2) Bell Terminals due to the addition of the multi-use trail.</td>
</tr>
</tbody>
</table>

18
# Evaluation of Alternative Design Concepts

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>DESIGN CONCEPT #1</th>
<th>DESIGN CONCEPT #2</th>
<th>DESIGN CONCEPT #3</th>
<th>DESIGN CONCEPT #4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WIDEN ABOUT THE CENTRELINE</td>
<td>WIDEN TO THE EAST (HOLD EXISTING WEST CURB LINE)</td>
<td>WIDEN TO THE WEST (HOLD EXISTING EAST CURB LINE)</td>
<td>REDUCED TREE IMPACTS (WIDEN ABOUT CENTRELINE)</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>Balanced impacts to both the east and west sides of Garden Street.</td>
<td>Unbalanced impacts along Garden Street</td>
<td>Unbalanced impacts along Garden Street</td>
<td>Balanced impacts to both the east and west sides of Garden Street where auxiliary lanes are not present.</td>
</tr>
<tr>
<td></td>
<td>Maintains the existing road alignment.</td>
<td>More significant impacts to the east side of Garden Street.</td>
<td>More significant impacts to the west side of Garden Street.</td>
<td>Maintains the existing road alignment.</td>
</tr>
<tr>
<td></td>
<td>Balanced deflection to through traffic where auxiliary lanes are present.</td>
<td>Increased vegetation opportunities on the west side of Garden Street.</td>
<td>Increased vegetation opportunities on the east side of Garden Street.</td>
<td>Balanced deflection to through traffic where auxiliary lanes are present.</td>
</tr>
<tr>
<td></td>
<td>Improved visual esthetics.</td>
<td>Requires a shift to the existing road alignment.</td>
<td>Requires a shift to the existing road alignment.</td>
<td>Unbalanced deflection to northbound through traffic where auxiliary lanes are present.</td>
</tr>
<tr>
<td></td>
<td>Improved pedestrian access and safety via proposed centre median on Garden Street.</td>
<td>Unbalanced deflection to southbound through traffic where auxiliary lanes are present.</td>
<td>Unbalanced deflection to northbound through traffic where auxiliary lanes are present.</td>
<td>Improved pedestrian access and safety via proposed centre median on Garden Street.</td>
</tr>
<tr>
<td></td>
<td>Not Preferred</td>
<td>Potential for more significant utility impacts.</td>
<td>Reduced visual esthetics.</td>
<td>Not Preferred</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improved pedestrian access and safety via proposed centre median on Garden Street.</td>
<td>Improved pedestrian access and safety via proposed centre median on Garden Street.</td>
<td></td>
</tr>
</tbody>
</table>

The following criteria were also considered, however no significant differences were found between the alternatives.

### Social, Economic and Cultural Impacts
- Commercial / Industrial Impacts
- Institutional Impacts
- Air Quality Impacts
- Archaeological & Heritage Resources
- Adjacent Local Roads (Potential for Traffic Infiltration)
- Support of Existing Land Use, Policies and Development Plans

### Natural Environment
- Aquatic Habitat
- Stormwater
- Ground Water
- Erosion and Land Forms
- Sustainability
- Wildlife, Wildlife Habitat

### Transportation Service
- Transit Operations and Accessibility
- Accommodation of Pedestrians and Cyclists (on-road)
- Access for Emergency Vehicles
- Ability to Accommodate Municipal Services

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The following criteria were also considered, however no significant differences were found between the alternatives.
Technically Preferred Design Concept

- **Design Concept #4** is the preferred design alternative as a result of the evaluation process.
- There are balanced impacts to both the east and west sides of Garden Street.
- The existing road alignment is maintained.
- The boulevards will be relatively balanced in size and width.
- Improved visual aesthetics through an evenly distributed corridor.

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>DESIGN CONCEPT #1: WIDEN ABOUT THE CENTRELINE</th>
<th>DESIGN CONCEPT #2: WIDEN TO THE EAST (HOLD EXISTING WEST CURB LINE)</th>
<th>DESIGN CONCEPT #3: WIDEN TO THE EAST (HOLD EXISTING EAST CURB LINE)</th>
<th>DESIGN CONCEPT #4: REDUCED TREE IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY</td>
<td>• Balanced impacts to both the east and west sides of Garden Street. • Maintains the existing road alignment. • Improved visual aesthetics.</td>
<td>• More significant impacts to the east side of Garden Street. • Increased vegetation opportunities on the west side of Garden Street. • Requires a shift to the existing road alignment. • Lane shift to northbound through traffic where auxiliary lanes are present. • Potential for more significant utility impacts. • Reduced visual aesthetics.</td>
<td>• More significant impacts to the west side of Garden Street. • Increased vegetation opportunities on the west side of Garden Street. • Requires a shift to the existing road alignment. • Lane shift to southbound through traffic where auxiliary lanes are present. • Reduced visual aesthetics.</td>
<td>• Balanced impacts to both the east and west sides of Garden Street where there are no auxiliary lanes. • Maintains the existing road alignment. • Left turn lanes are shifted right of centre, left of centre and about centre to reduce tree impacts along the corridor. • Improved visual aesthetics.</td>
</tr>
</tbody>
</table>

Transportation Service / Engineering
- Accommodation of Future Travel Demand
- Traffic Operations
- Ability to Meet Design Guidelines
- Access to/from Garden Street

Socio, Economic and Cultural Impacts
- Residential Impacts
- Noise Impacts
- Visual Aesthetics

Natural Environment
- Vegetation

Financial
- Operating Cost
- Constructability and Staging
- Capital Costs
- Property Acquisition
- Utility Relocation

Recommendation
- Not recommended
- Not recommended
- Not recommended
- Recommended

Legend:
- Least Preferred
- Most Preferred
Addressing Traffic Issues on Cork Drive

Existing concerns related to traffic operations and traffic calming on Cork Drive have been identified and investigated as part of this study and in response to comments provided at PIC #1.

The following three alternative solutions were developed and assessed to determine the appropriate mitigation method:

• The reduction of lane widths on Cork Drive through the addition of bike lanes. *(Not preferred due to no effect on speeds and on-street parking impacts).*

• The conversion to a right-in/right-out intersection at Garden Street. *(Not preferred due to operational concerns for drivers).*

• Installation of median and lane width reduction at Garden Street. *(Preferred as a visual cue to drivers to reduce speed and discourage u-turns).*

In addition to the above the study will recommend the monitoring of Cork Drive under Town traffic calming policies following the implementation of physical changes to determine any further mitigation.
Intersection Pedestrian Signal

• Intersection Pedestrian Signals (IPS) are traffic signals designed to assist pedestrians crossing a roadway. IPS controls traffic on the main roadway to allow pedestrians to cross.

Example: IPS formerly at Baldwin Street and Campbell Street

• An IPS is recommended on Garden Street at Meadowglen Drive to enhance pedestrian safety and improve pedestrian connections for area schools, businesses and residents.
Tree Impacts and Measures

A certified arborist undertook an inventory and review of the potential tree impacts associated with the Technically Preferred Design. Several measures have been considered for preservation of the existing trees where possible.

To reduce impacts to existing trees, design alternations and measures considered include:

- Shifting of left turn lanes to east/west
- A reduction of left turn lane width from 3.5m to 3.3m to preserve right-of-way
- A focus on reducing impacts to trees adjacent to window streets and reducing tree impacts through strategic widening
- An Advanced Tree Planting / Transplant program will be implemented to offset tree impacts to the corridor.

Based on the arborist’s review of the Technically Preferred Design Concept, the following table illustrates the estimated impact to the trees within the Garden Street corridor.

- Total number of trees in the corridor 270 (approximate)
- Total number of impacted trees 87
- Trees suitable for transplant -8
- Trees currently in fair / poor condition -25
- Total Tree Impacts 54

Further direction for the preservation of trees and overall corridor impacts will be considered in the detailed design phase of this project.
Noise Impacts and Measures

• A Noise Impact Assessment was undertaken as part of the Garden Street Environmental Assessment to identify existing and future noise levels in the area.
• The Provincial directive for sound levels is urban areas is at (or below) Leq 55 dBA and increases of greater than 5 dBA warrant mitigation.
• The noise impact assessment found that future sound levels with the widening of Garden Street compared to existing sound levels are predicted increase by less than 5 dBA at all analyzed locations (considered acoustically insignificant to noticeable).
• Gradual changes in traffic and noise levels are anticipated with the future undertaking and are expected to be within the 5 dBA increase.
• Fencing deficiencies and replacement within the corridor are to be addressed through the Town’s fence replacement program which is ongoing.
• The table below provides the range of sound levels for existing and future conditions (based on different locations and the future corridor configuration):

<table>
<thead>
<tr>
<th>Existing/Future Horizon Years</th>
<th>Sound Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>50 dBA – 60 dBA</td>
</tr>
<tr>
<td>2021</td>
<td>52 dBA – 62 dBA</td>
</tr>
<tr>
<td>2031</td>
<td>53 dBA – 63 dBA</td>
</tr>
</tbody>
</table>
## Summary of Potential Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Factor</th>
<th>Anticipated Impact</th>
<th>Proposed Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural Environment</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Vegetation and Vegetation     | • Garden Street: requires removal of existing ornamental landscape trees and / or relocation of small trees and saplings | • Minimize the extent of grading limits that will result in the need to remove existing vegetation or conditions  
  • Advance tree planting and tree transplant program will be instituted. Trees to be transplanted or retained will be clearly identified in the field. Care will be used when transplanting. Where feasible, a tree/shrub protection barrier will be used around trees to be maintained.  
  • The movement and storage of heavy equipment, and storage of materials will be confined to a predetermined area. Materials and equipment will not be stored/paced over root systems of any existing trees to remain.  
  • Ornamental tree plantings will be established to improve the urban landscape and will be included in the detail design phase.  
  • During detail design, the exact number of street trees to be removed and or relocated on Garden Street will be determined and a suitable compensation will be implemented.  
  • In an effort to compensate for vegetation removed, and to enhance the aesthetics of the works and reduce any potential visually intrusive effects, a landscaping and refurbishing plan is recommended for implementation at the post-construction stage.  
  • Should any trees be damaged as a result of construction, a replacement tree will be provided. |
| Communities                   |                                                                                 |                                                                                                                                                                                                                     |
| Fisheries and Aquatic Habitat | • No critical or significant fisheries or aquatic habitat will be affected by this project. | • None                                                                                                                                                                                                                |
| Wildlife and Wildlife Habitat | • No critical or significant wildlife habitat will be affected by this project.    | • None                                                                                                                                                                                                                |
| Surface Water                 | • Increase in quantity of runoff and amount of pollutants draining to the receiving watercourses, as a result of increase in the existing pavement area  
  • Possible reduction of surface water infiltration. | • Review opportunities to improve the water quality in the study area to improve Total Suspended Solids (TSS) treatment and other contaminant in detailed design in accordance with MOE’s Stormwater Management Planning and Design Manual (2003). |
| Ground Water                  | • Alteration to the groundwater regime as a result of the proposed works is expected to be negligible post-construction. | • Construction dewatering may be required for this project depending on the proposed construction methods and timing.  
  • If dewatering is required, a Permit to take Water investigation will be conducted during detail design to assess individual wells, anticipated quantity and quality impacts, and develop a mitigation plan which may include temporary municipal water service during construction. Resident cooperation will be an important aspect of this investigation. |
| Soil Removal and Contaminants | • Potential for removal of contaminated soils                                      | • All waste generated during construction must be disposed of in accordance with MOE requirements.  
  • Any soils that are removed during construction should be tested for contaminants that may have been used or dumped along the corridor limits.  
  • If soils are contaminated they will require disposal in accordance with Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of Site Condition, detailing the new requirements related to site assessment and clean up. The Town is to notify the MOE and have a contingency plan for how and where the soils will be disposed. |

### Summary of Potential Impacts and Mitigation Measures (cont.)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Anticipated Impact</th>
<th>Proposed Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Environment</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Land Use and Socio-Economic Impacts         | • Temporary impacts to one existing private access point and three local public roads while construction is taking place. It should be noted that all access points have alternative access available. | • Access is to be maintained or appropriate detours will be implemented to ensure access to individual driveways and side streets during construction.  
• Timing of construction activities can be coordinated to mitigate many of these impacts. Construction activities should not have significant impacts on regular business, resident, and institution operations throughout the corridor. Work hours in the corridor can be restricted, as appropriate. |
| Property Requirements                        | • No requirement for additional property are anticipated.                          | • None                                                                                                                                               |
| **Noise**                                    |                                                                                    |                                                                                                                                                      |
| • The proposed road works on Garden Street including widening: and potential change in profile will result in decreased separation distance to the roadway and increased traffic volumes for adjacent receptor locations. In specific locations noise levels exceeding the 55dBA threshold currently exist and are anticipated in the future. The improvements and traffic volumes are not anticipated to result in an increase of 5dBA change in noise levels along the corridor. • The proposed road works on Garden Street will result in temporary increase in noise levels in the area. | • Timing of construction activities can be coordinated to mitigate noise levels during the construction of the improvements. Construction activities should not have significant impacts on regular business, resident, and institution operations throughout the corridor. Work hours in the corridor can be restricted, as appropriate to minimize noise impacts to adjacent businesses, residents and institutions. • Noise and vibration related to construction activities will be in conformance with the Town’s Noise By-law. |
| **Archaeology, Heritage and Cultural Resources** | • No impacts are anticipated.                                                      | • In the event that deeply buried archaeological remains are encountered, the Heritage Operations Unit of the Ontario Ministry of Culture should be notified immediately.  
• In the event that human remains are encountered during construction, both the Ministry of Culture, and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Government Services, Consumer Protection Branch should be contacted immediately.  
• No heritage features are expected to be affected as a result of the proposed widening of Garden Street. |
| **Air Quality**                              | • Reduced air quality during construction                                         | • To minimize reduced air quality due to dust, apply water and calcium chloride during construction.                                               |
| **Safety**                                   | • Safety for pedestrian, cyclists, and motorists                                   | • A multi-use trail (i.e. pedestrians and cyclists) is proposed on the west side of Garden Street throughout the study corridor.  
• With the additional roadway width, pedestrians will have wider intersections to cross. Proposed Intersection Pedestrian Signals (IPS) at the Garden Street / Meadowglen Drive intersection may be considered to improve pedestrian safety. |
| **Streetscaping / Urban Design**             | • Reduced aesthetics                                                             | • Existing streetscaping on Garden Street can be partially maintained. New streetscaping can be provided on the east and west sides of Garden Street to relocate or replace impacted streetscape elements.  
• Streetscaping details will be determined during detail design. |
| **Utilities**                                | • Relocation of existing utilities                                             | • Existing utilities will need to be relocated. Formal definition of impacts on utilities, specifically Bell Canada, Enbridge Gas Distribution, Whitby Hydro, and Rogers Cable Systems will be determined during detail design. |
Next Steps

The next steps for the study are:

• Review all comments and suggestions received from the public and agencies following Public Information Centre #2.

• Finalize the Project File Report, including the recommended preferred design concept.

• The Project File Report will be filed for a minimum 30-day public review.

Implementation Program

• Advanced Tree Planting / Transplanting Program will commence in 2013 / 2014.

• Construction of the road widening is currently anticipated for 2019, subject to budget and Council approval.
Thank You!

We invite you to fill out a comment sheet with your comments and suggestions.

If you wish to be put on our mailing list, require further information, or wish to provide any input to the study, please contact the project team:

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Please visit the project website at www.whitby.ca  
Town of Whitby > Town Hall > Environmental Assessment  
(under Public Works / Engineering Services)