APPENDIX A
ANCASTER TRANSPORTATION MASTER PLAN PHASE 1 REPORT
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</table>
1.0 Transportation Analysis

1.1 Existing Infrastructure and Traffic Data

1.1.1 Existing Infrastructure Inventory

An inventory of the existing roadway infrastructure was undertaken to determine roadway lane geometry, intersection control, intersection lane configurations and posted speed limits. The inventory is illustrated on Figure 1.

1.1.2 Existing Traffic Volumes

Existing peak hour turning movement volumes were provided by the City of Hamilton for the following intersections:

1. Fiddler’s Green Road and Amberly Boulevard/Calvin Street.
2. Fiddler’s Green Road and Garner Road.
3. Fiddler’s Green Road and Gilbert Avenue.
4. Fiddler’s Green Road and Highway 403 eastbound on ramp.
5. Fiddler’s Green Road and Jerseyville Road.
6. Fiddler’s Green Road and Wilson Street.
7. Garner Road and Highway 403 on and off ramps.
8. Garner Road and Kitty Murray Lane.
9. Garner Road and Shaver Road.
10. Garner Road and Hamilton Drive.
11. Garner Road and Southcote Road.
12. Golf Links Road and Cloverleaf Drive/Neville Drive.
13. Golf Links Road and Kitty Murray Lane.
14. Golf Links Road and Legend Court/Meadowlands Boulevard.
15. Golf Links Road and Martindale Crescent.
16. Golf Links Road and McNiven Road/Southcote Road.
17. Golf Links Road and Stone Church Road.
18. Highway 6 and Book Road.
19. Jerseyville Road and Lover’s Lane.
20. Jerseyville Road and Wilson Street.
22. Mohawk Road and Filman Road.
23. Mohawk Road and Lincoln M. Alexander Parkway WB Ramps.
24. Mohawk Road and Scenic Drive/Upper Horning Drive.
25. Mohawk Road/Rousseaux Street and McNiven Road/Lime Kiln Road.
26. Rymal Road and Glancaster Road.
27. Shaver Road and Book Road.
28. Shaver Road and Jerseyville Road.
29. Southcote Road and Stonehenge Drive.
30. Stone Church Road and Harrogate Drive.
31. Stone Church Road and Stonehenge Drive.
32. Stonehenge Drive and Kitty Murray Lane.
33. Sulphur Springs Road and Lover’s Lane.
34. Trinity Road and Book Road.
35. Upper Paradise Road and Garner Road/Rymal Road.
36. Wilson Street and Church Street/Sulphur Springs Road.
37. Wilson Street and Fortino’s Plaza access.
38. Wilson Street and Garner Road on ramp (west of signal).
39. Wilson Street and Garner Road/Mason Drive.
40. Wilson Street and Halson Street.
41. Wilson Street and Highway 403 eastbound off ramp.
42. Wilson Street and Highway 403 westbound off ramp.
43. Wilson Street and Highway 52/Trinity Road.
44. Wilson Street and Montgomery Drive.
45. Wilson Street and Shaver Road.
46. Wilson Street and Tradewind Drive.
47. Wilson Street and Wal-Mart Plaza access.
48. Wilson Street East and Rousseaux Street/Old Dundas Road.
Figure 1 – Infrastructure Inventory
The counts were undertaken by the City in early to late June of 2008.

Average Annual Daily Traffic (AADT) volumes were also provided for the following roadway segments:

1. Fiddler’s Green north of Oakley Crescent.
2. Garner Road east of Shaver Road.
3. Garner Road west of Glancaster Road.
4. Garner Road west of Highway 403 off ramp.
5. Garner Road west of Southcote Road.
6. Golf Links Road west of Chancery Drive.
7. Golf Links Road west of Highway 403.
8. Golf Links Road west of Stone Church Road.
13. Jerseyville Road east of Lover’s Lane.
14. Jerseyville Road west of Shaver.
15. Kitty Murray Lane between Garner Road and access to Redeemer College.
16. Lincoln M. Alexander Parkway east of Golf Links Road.
17. Mohawk Road east of Filman Road.
18. Mohawk Road west of McNiven Road.
19. Mohawk Road west of Scenic Drive/Upper Horning Drive.
20. Old Dundas Road north of Montgomery Drive.
21. Rousseaux Street west of McNiven Road/Lime Kiln Road.
22. Scenic Drive north of Mohawk Road.
23. Shaver Road south of Highway 403.
24. Southcote Road north of Garner Road.
25. Stone Church west of Omni Boulevard.
26. Stonehenge Drive east of Southcote Road.
27. Sulphur Springs Road north of Woodview Crescent.
28. Sulphur Springs Road west of Mansfield Drive.
29. Wilson Street between Highway 403 W-N/S ramp and S-E ramp.
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30. Wilson Street east of Trinity Road.
31. Wilson Street north of Montgomery Drive.
32. Wilson Street south of Academy Street.
33. Wilson Street west of Fiddler’s Green.
34. Wilson Street west of Halson Street.

The AADT volumes are illustrated on Figure 2.
Figure 2 – Average Annual Daily Traffic Volumes
1.1.3 Traffic Signal Timing and Phasing

Signal timing and phasing were provided for the 31 signalized intersections in the study area:

1. Fiddler's Green Road and Amberly Boulevard/Calvin Street;
2. Fiddler's Green Road and Gilbert Avenue;
3. Fiddler's Green Road and Wilson Street;
4. Golf Links Road and Cloverleaf Drive/Neville Drive;
5. Fiddler's Green Road and Amberly Boulevard/Calvin Street;
6. Fiddler's Green Road and Gilbert Avenue;
7. Fiddler's Green Road and Wilson Street;
8. Golf Links Road and Cloverleaf Drive/Neville Drive;
9. Golf Links Road and Kitty Murray Lane;
10. Golf Links Road and Legend Court/Meadowlands Boulevard;
11. Golf Links Road and Martindale Crescent;
12. Golf Links Road and McNiven Road/Southcote Road;
13. Highway 6 and Book Road;
14. Mohawk Road and Filman Road;
15. Mohawk Road and Lincoln M. Alexander Parkway WB Ramps;
16. Mohawk Road and McNiven Road/Lime Kiln Road;
17. Mohawk Road and Scenic Drive/Upper Horning Drive;
18. Stone Church Road and Golf Links Road;
19. Stone Church Road and Harrogate Drive;
20. Stone Church Road and Stonehenge Drive;
21. Upper Paradise Road and Garner Road/Rymal Road;
22. Wilson Street and Church Street/Sulphur Springs Road;
23. Wilson Street and Fortino's Plaza access;
24. Wilson Street and Garner Road;
25. Wilson Street and Halson Street;
26. Wilson Street and Highway 403 westbound off ramp;
27. Wilson Street and Highway 52/Trinity Road;
28. Wilson Street and Montgomery Drive;
29. Wilson Street and Rousseaux Street;
30. Wilson Street and Tradewind Drive; and
31. Wilson Street and Wal-Mart Plaza access.

With the exception of the Book Road/Fiddler’s Green Road, Garner Road/Southcote Road, Garner Road/Fiddler’s Green Road, and Glancaster Road/Rymal Road intersections, all signal timings provided are relatively new.

1.2 Transportation Network Analysis

A transportation network operational analysis was undertaken to assess the existing conditions at signalized intersections for the Ancaster Transportation Master Plan study area.

1.2.1 Existing Transportation Assessment

The existing transportation assessment was undertaken for signalized intersections within the Ancaster study area for the weekday morning and afternoon peak periods to identify current capacity constraints. Additional assessment was conducted for signalized intersections along the Golf Links Road corridor for the Saturday peak period to reflect the increase in traffic demand generated by adjacent retail and commercial developments. The Synchro (version 6) software package was utilized to evaluate the operational performance of the signalized intersections. Synchro employs the Highway Capacity Manual (HCM) techniques for signalized intersections. This analysis method generates performance measures for signalized intersections, including average delay and Level of Service (LOS) for each intersection as a whole and on a per movement basis.

LOS is a measure used to quantify the amount of delay experienced by motorists at an intersection or particular movement. HCM measures Level of Service as a range from LOS A to LOS F, where LOS A reflects excellent conditions with little or no delay and LOS F reflects congested conditions and failure of the movement or intersection with significant delays experienced by motorist.
The operational performance of the signalized intersections within the study area were measured using the intersection HCM (overall) volume-to-capacity (v/c) ratio and the corresponding LOS for the Weekday AM, PM, and Saturday peak hours. In the case of individual turning movements, those movements / lane groups with either a v/c ratio in excess of 0.85 or a LOS below D or both were identified as “critical” movements. Turning movements meeting these “critical” criteria are approaching capacity and prone to poor operation during the peak periods.

**AM Peak Hour**

The analysis indicates that the majority of the signalized intersections is currently operating at a LOS C or better during the Weekday AM peak hour (Table 1). The exception is the Wilson Street and Rousseaux Street/Old Ancaster Road, which operates at a LOS E with a corresponding v/c ratio of 0.82.

### Table 1 – Weekday AM Peak Hour Signalized Intersection Performance

<table>
<thead>
<tr>
<th>Intersection Location</th>
<th>Overall Intersection</th>
<th>Critical Movements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOS</td>
<td>v/c</td>
</tr>
<tr>
<td>Fiddler’s Green Road and Amberly Boulevard/Calvin Street</td>
<td>B</td>
<td>0.53</td>
</tr>
<tr>
<td>Fiddler’s Green Road and Gilbert Avenue</td>
<td>A</td>
<td>0.37</td>
</tr>
<tr>
<td>Fiddler’s Green and Garner Road</td>
<td>B</td>
<td>0.66</td>
</tr>
<tr>
<td>Fiddler’s Green Road and Wilson Street</td>
<td>C</td>
<td>0.66</td>
</tr>
<tr>
<td>Garner Road and Southcote Road</td>
<td>A</td>
<td>0.47</td>
</tr>
<tr>
<td>Garner Road and Glancaster Road</td>
<td>B</td>
<td>0.34</td>
</tr>
<tr>
<td>Golf Links Road and Cloverleaf Drive/Neville Drive</td>
<td>B</td>
<td>0.45</td>
</tr>
<tr>
<td>Golf Links Road and Kitty Murray Lane</td>
<td>B</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Dillon Consulting Limited
<table>
<thead>
<tr>
<th>Intersection Location</th>
<th>Overall Intersection</th>
<th>Critical Movements</th>
<th>Approach &amp; Movement</th>
<th>LOS</th>
<th>v/c</th>
<th>v/c &gt; 0.85</th>
<th>Delay (sec/veh)</th>
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<td></td>
</tr>
<tr>
<td>Mohawk Road and Filman Road</td>
<td>A</td>
<td>0.82</td>
<td>EBT</td>
<td>B</td>
<td>0.86</td>
<td>10.9</td>
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</tr>
<tr>
<td>Mohawk Road and Lincoln M. Alexander Parkway WB Off-ramp</td>
<td>B</td>
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<td></td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mohawk Road/Rousseaux Street and McNiven Road/Lime Kiln Road</td>
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<td>0.84</td>
<td>EBT</td>
<td>C</td>
<td>0.90</td>
<td>28.0</td>
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<td>Rymal Road and Upper Paradise Road</td>
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<td>Stone Church Road and Harrogate Drive</td>
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<td>Wilson Street and Church Street/Sulphur Springs Road</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Wilson Street and Fortino's Plaza</td>
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<td>Wilson Street and Garner Road</td>
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<td>Wilson Street and Highway 403 WB Off-ramp</td>
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<td></td>
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<tr>
<td>Intersection Location</td>
<td>Overall Intersection</td>
<td>Critical Movements</td>
<td>Approach &amp; Movement</td>
<td>LOS v/c &gt; 0.85</td>
<td>Delay (sec/veh)</td>
<td></td>
<td></td>
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<tr>
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<td>Wilson Street and Tradewind Drive</td>
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<td>Wilson Street and Wal-Mart Plaza</td>
<td>A 0.38</td>
<td>N/A</td>
<td></td>
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</tr>
</tbody>
</table>

Individual turning movements beyond the critical threshold (v / c ratio > 0.85) include the following:

**Fiddler’s Green Road and Wilson Street**

The northbound left turn movement experiences a LOS F with a corresponding v/c ratio of 0.95. The movement experiences delays of 88.7 seconds per vehicle as motorists wait for a gap in opposing traffic to make the left turn movement.

**Mohawk Road and Filman Road**

The eastbound through movement experiences a LOS B with a corresponding v/c ratio of 0.86 and delays of 10.9 seconds per vehicle. Although the movement is beyond the critical threshold it is below capacity and the delay experienced is considered minor.

**Mohawk Road/Rousseaux Street and McNiven Road/Lime Kiln Road**

The eastbound through movement experiences a LOS C with a corresponding v/c ratio of 0.90 and delays of 28 seconds per vehicle. Although the movement is beyond the critical threshold it is below capacity and the delay experienced is considered acceptable.
**Wilson Street and Rousseaux Street/Old Ancaster Road**

The eastbound through movement experiences a LOS E with a corresponding v/c ratio of 0.88 and delays of 62.5 seconds per vehicle. The northbound through movement experiences a LOS D with a corresponding v/c ratio of 0.85 and delays of 53.6 seconds per vehicle. The southbound left turn movement experiences a LOS D with a corresponding v/c ratio of 0.87 and delays of 48.7 seconds per vehicle.

**PM Peak Hour**

The analysis indicates that the majority of the signalized intersections are currently operating at a LOS C or better during the Weekday PM peak hour (Table 2). The exceptions are the intersections at Fiddler’s Green Road and Wilson Street, and at Wilson Street and Rousseaux Street/Old Ancaster Road, which operates at a LOS D (v/c ratio of 0.89) and LOS E (v/c ratio of 1.04) respectively.

**Table 2 – Weekday PM Peak Hour Signalized Intersection Performance**

<table>
<thead>
<tr>
<th>Intersection Location</th>
<th>Overall Intersection</th>
<th>Critical Movements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOS</td>
<td>v/c</td>
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<tr>
<td>Fiddler’s Green Road and Amberly Boulevard/Calvin Street</td>
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<tr>
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<td>Fiddler’s Green and Garner Road</td>
<td>B</td>
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<tr>
<td>Fiddler’s Green Road and Wilson Street</td>
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<td>Intersection Location</td>
<td>Overall Intersection</td>
<td>Critical Movements</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>----------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Golf Links Road and Kitty Murray Lane</td>
<td>C</td>
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<td>Golf Links Road and Legend Court/Meadowlands Boulevard</td>
<td>B</td>
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<td></td>
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<tr>
<td>Highway 6 and Book Road</td>
<td>B</td>
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<td>Mohawk Road and Filman Road</td>
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<td>Mohawk Road and Lincoln M. Alexander Parkway WB Off-ramp</td>
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<td>Mohawk Road/Rousseaux Street and McNiven Road/Lime Kiln Road</td>
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<td>Rymal Road and Upper Paradise Road</td>
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<td>Stone Church Road and Golf Links Road</td>
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<td>Stone Church Road and Harrogate Drive</td>
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<td>Wilson Street and Church Street/Sulphur Springs Road</td>
<td>B</td>
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</tr>
<tr>
<td>Wilson Street and Fortino’s Plaza</td>
<td>B</td>
<td>N/A</td>
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<tr>
<td>Wilson Street and Garner Road</td>
<td>B</td>
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<td>Intersection Location</td>
<td>Overall Intersection</td>
<td>Critical Movements</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Wilson Street and Halson Street</td>
<td>C 0.78</td>
<td>NBTL E</td>
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<td>Wilson Street and Highway 403 WB Off-ramp</td>
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<td>EBT D</td>
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<td>Wilson Street and Wal-Mart Plaza</td>
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<td>N/A</td>
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</tbody>
</table>

Individual turning movements beyond the critical threshold (v / c ratio > 0.85) include the following:

**Fiddler’s Green Road and Wilson Street**
The northbound left turn movement experiences a LOS E with a corresponding v/c ratio of 0.94 and delays of 68.3 seconds per vehicle. The eastbound through movement experiences a LOS D with a corresponding v/c ratio of 0.85 and delays of 58.9 seconds per vehicle. The westbound left turn movement experiences a LOS D with a corresponding v/c ratio of 0.91 and delays of 50.1 seconds per vehicle. The westbound left through movement experiences a LOS D with a corresponding v/c ratio of 0.93 and delays of 43.6 seconds per vehicle.

**Golf Links Road and Cloverleaf Drive/Neville Drive**
The northbound left turn movement experiences a LOS F with a corresponding v/c ratio of 0.97 and delays of 87.5 seconds per vehicle. The southbound left turn movement
experiences a LOS E with a corresponding v/c ratio of 0.93 and delays of 56.7 seconds per vehicle.

**Golf Links Road and Martindale Crescent**
The eastbound left turn movement experiences a LOS E with a corresponding v/c ratio of 0.91 and delays of 62.8 seconds per vehicle. The westbound through movement experiences a LOS C with a v/c ratio of 0.99 and delays of 34.3 seconds per vehicle. The southbound left turn movement experiences a LOS D with a v/c ratio of 0.86 and delays of 48.2 seconds per vehicle.

**Golf Links Road and McNiven Road/Southcote Road**
The westbound left turn movement experiences a LOS D with a corresponding v/c ratio of 0.91 and delays of 51.3 seconds per vehicle. The southbound left turn movement also experiences a LOS D with a v/c ratio of 0.89 and delays of 47.0 seconds per vehicle.

**Stone Church Road and Golf Links Road**
The northbound left turn movement experiences a LOS D with a corresponding v/c ratio of 0.88 and delays of 54.5 seconds per vehicle.

**Wilson Street and Fortino’s Plaza**
The southbound left turn movement experiences a LOS F with a corresponding v/c ratio of 0.95 and delays of 83.1 seconds per vehicle.

**Wilson Street and Highway 403 WB Off-ramp**
The eastbound through movement experiences a LOS D with a v/c ratio of 0.97 and delays of 44.1 seconds per vehicle.

**Wilson Street and Rousseaux Street/Old Ancaster Road**
The eastbound through movement experiences a LOS E with a corresponding v/c ratio of 0.92 and delays of 76.6 seconds per vehicle. The westbound left turn movement experiences a LOS E with a v/c ratio of 0.93 and delays of 68.4 seconds per vehicle. The northbound through movement also experiences a LOS E with a v/c ratio of 0.85 and delays of 58.9 seconds per vehicle. The southbound left turn movement is over
capacity with a v/c ratio of 1.13 and corresponding LOS F, delays reach 123.7 seconds per vehicle.

Overall, the signalized intersections currently operate with sufficient capacity to accommodate the existing traffic volumes during the AM and PM peak hours with the exception of the Wilson Street and Rousseaux Street/Old Ancaster Road intersection, which is over capacity in the PM peak hour with a v/c ratio of 1.04. Congestion at the intersection can be attributed to the high volume of commuting traffic to/from the Lincoln M. Alexander Parkway and crossing the escarpment along Wilson Street. Old Ancaster Road is also utilized by commuters originating from the Town of Dundas to access the Lincoln M. Alexander Parkway and the Meadowlands commercial area, adding to the congestion experienced at the intersection.

Figure 3 – Intersection Constraints
1.3 Existing Infrastructure Condition

1.3.1 Pavement Condition

The condition of the paved infrastructure within the Ancaster Study area has been assessed by City staff for each road segment and is illustrated on Figure 4. Pavement deterioration is site specific since it depends on many variables (environment, traffic, pavement type/structure and sub grade condition), which makes the deterioration rates vary significantly from one pavement section to another.
The following major road segments within the Ancaster study area have been assessed as being deficient and may require preventative maintenance and/or rehabilitation:

- Southcote Road
  - South of Gray Court Drive
- Wilson Street
  - Between Valleyview Drive and Central Drive
  - Between Halson Street and Rousseaux Street
- Jerseyville Road
  - East of Fiddler’s Green Road
  - Between Meadowbrook Drive and Valleyview Drive
  - West of Stevenson Street
- Stone Church Road
  - East of Omni Boulevard
- Scenic Drive
  - North of Daffodil Crescent
- Mohawk Road
  - East of Scenic Drive.

All other major roadways within the study area are currently within their functional life cycle.
1.3.2 Summary of Transportation Problems/Opportunities/Constraints

Based on an evaluation of the existing conditions and through input received from the public and technical agencies, there have been a number of transportation problems/opportunities identified. A summary of these problems/opportunities in a broad context are as follows:

- Impacts of commuter traffic infiltration and congestion on the ability to preserve Ancaster’s historic urban street character;
- Safety and operational traffic problems and the potential need for increased capacity on roadways and intersections within the study area;
- Traffic impacts of development areas;
- Capacity constraints on external road linkages (i.e., escarpment crossings, Highway 403);
- Limited network connectivity to Highway 403 (lack of westbound ramps) to provide alternative access and deal with Highway 403 emergency/traffic congestion impacts;
- Lack of east-west network connectivity within the community;
- Impacts of external truck traffic;
- Travel Demand Management opportunities within the ATMP study area;
- Local transit service modifications/enhancements opportunities; and
- Cycling, trails and pedestrian facility enhancements opportunities.