



# Comparative Evaluation of Alternative Road Networks



Category of Consideration / Evaluation Criteria	Do Nothing (Committed Projects Only)	Committed Projects + Alternative Road Network No. 1	Committed Projects + Alternative Road Network No. 2	Committed Projects + Alternative Road Network No. 3	Committed Projects + Alternative Road Network No. 4	Committed Projects + Hybrid Network
<b>Factor A: Transportation/Traffic</b>						
Change in level of transportation service	Committed Projects do not address forecast screenline capacity deficiencies. 	Provides reasonable benefits to a number of screenlines, but does not address critical screenlines as well as other Alternatives. SL 1 (Grand River)– 5th best SL 2B (Hwy 403) – 3rd best SL 8 ( CNR) – 4th best SL 11 (Downtown) – 2nd Best 	Provides good benefits to key screenlines and provides benefits to a number of other screenlines, including SL 11, through the downtown area. SL 1 (Grand River)– Best SL 2B (Hwy 403) – 4th best SL 8 ( CNR) – 3rd best SL 11 (Downtown) – 3rd best 	Provides good benefits to key screenlines and provides benefits to a number of other screenlines, SL 1 (Grand River)– 3rd best SL 2B (Hwy 403) – Best SL 8 ( CNR) – 2nd best SL 11 (Downtown) – 3rd Best 	Provides limited benefits to a number of screenlines, but does not address critical screenlines as well as other Alternatives. SL 1 (Grand River)– 4th best SL 2B (Hwy 403) – 5th best SL 8 ( CNR) – 5th best SL 11 (Downtown) – 5th best 	Provides good benefits to key screenlines and provides good benefits to a number of other screenlines, including the downtown., SL 1 (Grand River)– 2nd best SL 2B (Hwy 403) – 2nd best SL 8 ( CNR) – Best SL 11 (Downtown) – Best 
Network Travel Time	9,946 Veh-hrs travel time in PM Peak 	9,454 Veh-hrs Reduces PM travel time by 5% 	9,046 Veh-hrs Reduces PM travel time by 9% 	9,150 Veh-hrs Reduces PM travel time by 8% 	9,530 Veh-hrs Reduces PM Peak travel time by 4% 	9,028 Veh-hrs Reduces PM Peak travel time by 9% 
Support for Transit / Non-Auto Modes	Widening of King George Road to provide TWLTL (Dunsdon to Fairview) could support existing transit service on routes 4A /4C.  Increased congestion on major arterial roads in the City could affect on time service reliability for transit, make cycling along existing roadways less attractive, and make pedestrian crossing of major roadways more difficult.  Increased congestion on major roadways could encourage additional transit ridership, although the potential ridership increase would be limited. 	Improvement to North Park Road provides some limited support for Transit Routes 4A and 4c.  Widening BSAR improves travel times on Transit Route 6 and 5 (using Colborne St bridge).  Upgrading classification / capacity of Memorial Dr / North Park Road could make implementation of on road cycling facilities more difficult. 	New connection to NW Industrial area increases opportunities to service this growing employment node with direct transit service. Existing trails could be maintained within ROW or in separate ROW.  Widened WGP will support on time performance of Route 9 service along WGP serving the WGP/Henry St node and the Lynden Park Mall.  Terrace Hill widening provides some support for Route 4A / 4C  Grey St extension provides direct transit route and potential walk/cycle route (through potential development area) along Grey St corridor  BSAR extension to Glenwood / WGP provides opportunity to incorporate cycling/walking trails along this route (formalize existing informal trail) 	Widening of King George Road / St Paul Ave could support continued reliable transit service on routes 4A /4C, although pedestrian crossing of a 6-7 lane arterial would be more difficult.  Widening West St to 6 lanes provides some support for transit route 2, although pedestrian crossing of 6 lane arterial is more difficult.  Charing Cross extension provides opportunity for pedestrian / bike connection to Henry St corridor.  Widening Rawdon Street to 4 lanes could negatively affect pedestrian crossing / cycling along this route due to narrow cross section.  New St. Paul St connection across river would enhance pedestrian /cycling crossing opportunities and could improve transit access and routing to West Brant area. 	Upgrading capacity of Balmoral could reduce effectiveness of route for future cycling facility.  Widening of Clarence and West Street would support transit operations on Route 2. 	New connection to NW Industrial area increases opportunities to service this growing employment node with direct transit service. Existing trails could be maintained within ROW or in separate ROW.  Widened WGP will support on time performance of Route 9 service along WGP serving the WGP/Henry St node and the Lynden Park Mall.  Removal of On Street Parking on Brant Ave improves route 4C  Grey St extension provides direct transit route and potential walk/cycle route (through potential development area) along Grey St corridor  BSAR extension to Glenwood / WGP provides opportunity to incorporate cycling/walking trails along this route (formalize existing informal trail) 



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










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Traffic Infiltration in Neighbourhoods	69,510 veh-km of travel on collector/local roads 	57,870 veh-km of travel on collector/local roads (-17%) 	59,050 veh-km of travel on collector/local roads (-15%) 	62,260 veh-km of travel on collector/local roads (-10%) 	64,420 veh-km of travel on collector/local roads (-7%) 	53,970 veh-km of travel on collector/local roads (-22%) 
<b>Factor B: Social / Cultural Environment</b>						
Potential impact on Agricultural / Resource Based Lands	None of the committed projects affect agricultural / resource based lands that aren't already planned for redevelopment 	<b>1.8 km</b> 1.3 km - Memorial Dr connection to Hwy 24 located within current agricultural lands (potential future development) 0.5 km - WGP connection to CR 32 located within current agricultural lands (potential future development) 	<b>2.7 km</b> 2.7 km of Oak Park Rd Extension adjacent to current agricultural lands 	None of the improvements in Network 3 affect agricultural / resource based lands that aren't already planned for redevelopment 	<b>3.10 km</b> 2.1 km - Balmoral Dr connection to Hwy 24 located within current agricultural lands (potential future development) 0.60 km - Balmoral Dr is adjacent to current agricultural lands on West side 0.40 km - Elgin St connection to CR 18 located within current agricultural lands (potential future development) 	<b>5.5 km</b> 2.7 km of Oak Park Rd Extension adjacent to current agricultural lands 2.8 km - Connection from Hwy 24 to WGP located within current agricultural lands (potential future development) 
Potential impact on Heritage Resources and Archaeological Features	None of the committed projects affect heritage resource areas or known archaeological features 	The are no known heritage resource areas or known archaeological features adjacent to improvements, 	<b>5.5 km</b> 4.3 km - of Oak Park Rd Extension adjacent to potential Heritage resource/ archaeological features / and Oakhill Cemetery 1.2 km of BSAR extension adjacent to Glebe Farm and Mohawk Park areas 	<b>2.0 km</b> 0.4 km along St. Paul adjacent to St Joseph's Cemetery 0.4 km along West St adjacent to Mount Hope cemetery 1.2 km of St Paul Ave extension crosses Grand River, with potential to affect Heritage resource/ archaeological features 	The are no known heritage resource areas or known archaeological features adjacent to improvements, 	<b>5.5 km</b> 4.3 km - of Oak Park Rd Extension adjacent to potential Heritage resource/ archaeological features / and Oakhill Cemetery 1.2 km of BSAR extension adjacent to Glebe Farm and Mohawk Park areas 



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Noise Levels	<p>Increased traffic flows in residential areas will increase noise levels slightly in a number of neighbourhoods throughout the City.</p> 	<p>A 17 % reduction in traffic through neighbourhoods will improve noise levels.</p> <p>Widening Queensway Dr and Rawdon St to 4 lanes would increase traffic flows and noise in these two residential areas.</p> <p>BSAR extension could increase noise levels in Greenwich / Murray St neighbourhoods, although mitigation could be provided during design.</p> 	<p>A 15 % reduction in traffic through neighbourhoods will improve noise levels.</p> <p>Widening Terrace Hill Street to 4 lanes would increase traffic flows adjacent to the Hospital area.</p> <p>BSAR extension could increase noise levels in Greenwich / Murray St neighbourhoods and in the Mohawk Park area, mitigation could be provided during design.</p> <p>Grey Street extension would remove traffic / noise from parallel residential streets</p> 	<p>A 10 % reduction in traffic through neighbourhoods will improve noise levels.</p> <p>Widening St Paul Ave and Rawdon St to 4 lanes would increase traffic flows and noise in these two residential areas.</p> <p>Widening Dundas Street to 4 lanes would increase traffic flows and noise in this residential area.</p> 	<p>A 7 % reduction in traffic through neighbourhoods will improve noise levels.</p> <p>Widening Elgin Street to 4 lanes (Clarence to WGP) would increase traffic flows and noise in this residential area.</p> <p>Widening Dundas Street to 4 lanes would increase traffic flows and noise in this residential area.</p> 	<p>A 22 % reduction in traffic through neighbourhoods will significantly improve noise levels in many residential areas.</p> <p>BSAR extension could increase noise levels in Greenwich / Murray St neighbourhoods and in the Mohawk Park area, although mitigation could be provided during design.</p> <p>Grey Street extension would remove traffic and noise from parallel residential streets</p> 
Impact on Neighbourhoods & Communities	<p>Committed projects have limited affect on existing neighbourhoods as most locations are within industrial / commercial areas. Increased traffic in neighbourhoods will likely result in increased requests for "Traffic Calming" to prevent short cutting of traffic.</p> <p>Shellard Lane is being widened in conjunction with new development.</p> 	<p>BSAR extension would negatively affect existing residential neighbourhoods in the Greenwich / Murray St area.</p> <p>Widening Rawdon Street to 4 lanes would affect the East Ward neighbourhood due to narrow ROW width, increased traffic in an area of stable residential land uses.</p> <p>Upgrading the capacity of Memorial Dr / North Park Rd would affect the Gable Heights / Terrace Hill residential neighbourhoods.</p> <p>Widening Queensway Dr would affect the Carolina Park / Henderson Neighbourhoods affecting access to schools and increasing traffic flows.</p> 	<p>BSAR extension would negatively affect existing residential neighbourhoods in the Greenwich / Murray St and Lynwood /Park Rd S areas.</p> <p>Widening Terrace Hill Street to 4 lanes would affect the North Ward / Terrace Hill neighbourhood due to increased traffic in an area of stable residential land uses.</p> <p>Upgrading the capacity of Grey St through Echo Park would negatively affect the use of the existing park area but would reduce traffic volumes through the residential neighbourhoods along the parallel roadways to the south.</p> 	<p>Widening Rawdon Street to 4 lanes would affect the East Ward neighbourhood due to narrow ROW width, increased traffic in an area of stable residential land uses.</p> <p>Widening St Paul Ave to 4 lanes would affect the North Ward / Holmedale neighbourhood due to increased traffic in an area of stable residential land uses.</p> <p>Widening Dundas Street to 4 lanes would affect the North Ward / Terrace Hill neighbourhood due to increased traffic in an area of stable residential land uses.</p> 	<p>Widening Elgin Street to 4 lanes would affect the East Ward neighbourhood due to narrow ROW width, and increased traffic in an area of stable residential land uses.</p> <p>Upgrading the capacity of Balmoral Dr / Ewing Dr. would affect the Myrtleville residential neighbourhoods.</p> <p>Widening Dundas Street to 4 lanes would affect the North Ward / Terrace Hill neighbourhood due to increased traffic in an area of stable residential land uses.</p> 	<p>BSAR extension would negatively affect existing residential neighbourhoods in the Greenwich / Murray St and Lynwood /Park Rd S areas.</p> <p>Upgrading the capacity of Grey St through Echo Park would negatively affect the use of the existing park area but would reduce traffic volumes through the residential neighbourhoods along the parallel roadways to the south.</p> <p>Removal of on-street parking on Brant Ave could increase traffic, moderately affecting on the neighbourhood.</p> <p>Grey St. connection to Elgin would provide a new road / pedestrian crossing of CNR, improving safety and accessibility.</p> 



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<b>Factor C: Natural Environment</b>						
Affects on Existing Environmentally Sensitive Areas	None of the committed projects affect existing designated environmentally Sensitive Areas 	None of the projects affect existing designated environmentally Sensitive Areas 	Oak Park Rd extension is adjacent to a Provincially Significant area on north side of Grand River, although affects could be mitigated by changing alignment to avoid direct impacts. 	None of the projects affect existing designated environmentally Sensitive Areas 	None of the projects affect existing designated environmentally Sensitive Areas 	Oak Park Rd extension is adjacent to a Provincially Significant area on north side of Grand River, although affects could be mitigated by changing alignment to avoid direct impacts 
Affects on Other Natural Areas	None of the committed projects affect Other Natural Areas 	<b>0.8 km</b> 0.4 km along BSAR extension (Mohawk Canal Park) 0.2 km BSAR widening may affect Earl Haig / Riverview Parks 0.2 km along Rawdon (Arrowdale GC) 	<b>5.1 km</b> 0.7km along BSAR extension (Mohawk Canal / Park) 2.6 km along Oak Park Rd extension (Conservation area) 1.0 km BSAR Extension adjacent to Glebe Farm 0.2km – Terrace Hill (adjacent to City View Park) 0.6 km – Grey St – ex. open space / Echo Park 	<b>1.0 km</b> 0.7 km along St. Paul Extension through D'Aubigny Creek Park 0.15 km along St Paul Ave adjacent to Dufferin Park 0.2 km along Rawdon (Arrowdale GC) 	<b>1.7 km</b> 0.2 km BSAR widening may affect Earl Haig / Riverview Parks 0.4 km – Elgin St widening adjacent to Arrowdale GC 0.1 km – Clarence St widening adjacent to Greenwood Park 1.0 km – Balmoral Dr adjacent to Northridge GC although limited affect due to capacity upgrade 	<b>4.9 km</b> 0.7km along BSAR extension (Mohawk Canal / Park) 2.6 km along Oak Park Rd extension (Conservation area) 1.0 km BSAR Extension adjacent to Glebe Farm 0.6 km – Grey St – ex. open space / Echo Park 
Affects on Air Quality	VOC = 191 kg CO = 4,260 kg NOx = 141 kg 	VOC = 191 kg CO = 4,020 kg NOx = 133 kg 	VOC = 189 kg CO = 3,990 kg NOx = 132 kg 	VOC = 188 kg CO = 3,980 kg NOx = 131 kg 	VOC = 191 kg CO = 4,020 kg NOx = 133 kg 	VOC = 189 kg CO = 3,980 kg NOx = 131 kg 
Affects on Habitat Areas	Henry St crosses one warm water creek and Shellard Lane widening crosses a number of coldwater creek crossings. 	Henry St crosses one warm water creek and Shellard Lane widening crosses a number of coldwater creek crossings. Widened BSAR crossing of Grand River may affect fish habitat. 	Henry St crosses one warm water creek and Shellard Lane widening crosses a number of coldwater creek crossings. Oak Park Rd extension could affect habitat area in the Brant Conservation area and new bridge crossing may affect fishery habitat in the Grand River. 	Henry St crosses one warm water creek and Shellard Lane widening crosses a number of coldwater creek crossings. New bridge crossing St. Paul Ave extension may affect fishery habitat in the Grand River and is adjacent to D'Aubigny Creek (coldwater fishery) 	Henry St crosses one warm water creek and Shellard Lane widening crosses a number of coldwater creek crossings. Park Rd north widening crosses one warm water creek 	Henry St crosses one warm water creek and Shellard Lane widening crosses a number of coldwater creek crossings. Oak Park Rd extension could affect habitat area in the Brant Conservation area and new bridge crossing may affect fishery habitat in the Grand River 





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<b>Factor D: Economical Environment Group</b>						
Network Improvement Capital Cost	\$17 M 	\$17M + \$51 M \$ 68 M 	\$17M + \$67 M \$84 M 	\$17M + \$ 77 M \$94 M 	\$17M + \$ 44 M \$ 61M 	\$17M + \$72M \$89 M 
Use of Existing Infrastructure	No new infrastructure added but no improvement to existing planned either. 	13.8 lane-km of new facilities 	34.0. lane-km of new facilities 	8 lane-km of new facilities 	5.8 lane-km of new facilities 	40.3 lane-km of new facilities 
Potential Affects on Local Businesses	None of the committed projects have significant impacts on local business, but increased congestion (particularly in downtown areas) could affect investment and viability of existing businesses 	Rawdon St widening has potential to affect existing businesses in corridor due to narrow width  Rawdon St extension to WGP could improve access to Henry St / WGP commercial node.  Charing Cross extension could benefit existing businesses along Charing Cross by enhancing access.  Partial BSAR extension could draw some through traffic out of downtown, allowing for conversion to two way street system  	Charing Cross extension could benefit existing businesses along Charing Cross by enhancing access.  BSAR extension could draw through traffic out of downtown, allowing for conversion to two way street system  Widening Terrace Hill to 4 lanes has potential to affect adjacent business owners.  	Rawdon St widening has potential to affect existing businesses in corridor due to narrow width  Charing Cross extension could benefit existing businesses along Charing Cross by enhancing access.  Widening West St to 6 lanes has potential to affect adjacent business owners.  Widening King George Rd to 7 lanes has potential for significant impacts on adjacent businesses despite enhanced access from TWLTL  Widening Dundas St to 4 lanes has potential to affect adjacent business owners.  	Widening of Clarence has potential to affect existing businesses in corridor due to narrow width, but TWLTL could also enhance access.  Widening West St to 6 lanes has potential to significantly affect adjacent business owners.  Widening Dundas St to 4 lanes has potential to affect adjacent business owners.  	Charing Cross extension could benefit existing businesses along Charing Cross by enhancing access.  BSAR extension could draw through traffic out of downtown, allowing for conversion to two way street system.  Removal of on-street parking on Brant Ave could negatively affect existing businesses (parking is already restricted during peak periods)  



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Support for Future Residential / Employment Growth	<p>Committed Projects do not support enhanced access to new residential / employment growth areas.</p> <p style="text-align: center;">○</p>	<p>BSAR widening supports continued growth in West Brant, and partial extension to Rawdon supports downtown revitalization by removing through traffic.</p> <p>Rawdon extension to WGP supports redevelopment of Henry / WGP node</p> <p>Widening WGP enhances access across Highway 403</p> <p>New Memorial Dr connection to Hwy 24 and connection from WGP to CR 32 could support future growth areas.</p> <p style="text-align: center;">◐</p>	<p>Oak Park Rd extension provides direct support to NW Industrial Park and links to residential development in West Brant</p> <p>BSAR extension supports continued growth in West Brant and enhances opportunities for downtown revitalization by removing through traffic.</p> <p>Widening WGP enhances access across Highway 403</p> <p style="text-align: center;">●</p>	<p>St. Paul St extension across Grand River supports continued growth in West Brant.</p> <p>Widening King George Rd may provide limited support to intensification within this corridor by enhancing access</p> <p style="text-align: center;">◑</p>	<p>BSAR widening supports continued growth in West Brant.</p> <p>Widening Clarence will enhance local accessibility along corridor but termination of BSAR at Clarence directs through traffic into downtown area.</p> <p>Balmoral extension to Hwy 24 could support future growth areas.</p> <p style="text-align: center;">◒</p>	<p>Oak Park Rd extension provides direct support to NW Industrial Park and links to residential development in West Brant</p> <p>BSAR extension supports continued growth in West Brant and enhances opportunities for downtown revitalization by removing through traffic.</p> <p>Widening WGP enhances access across Highway 403</p> <p>New E-W connection between Highway 24 and WGP will support development of this potential new growth area</p> <p style="text-align: center;">●</p>
						<b>RECOMMENDED</b>



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## Summary of Evaluation Results

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Transportation / Traffic Criteria	Worst In all criteria	4 <sup>th</sup> best	2 <sup>nd</sup> best (Best in 2/4 criteria - Network Travel Time & Support for Transit)	3 <sup>rd</sup> best	5 <sup>th</sup> best	<b>Best</b> In all criteria
Social / Cultural Criteria	<b>Best</b> (Best in 3/4 criteria - Agricultural, Heritage & Impacts on Neighbourhoods)	2 <sup>nd</sup> best	Worst	3 <sup>rd</sup> best (Best in 1/4 criteria - Agricultural Impacts)	3 <sup>rd</sup> best	3 <sup>rd</sup> best (Best in 1/4 criteria - Noise Impacts)
Natural Environmental Criteria	<b>Best</b> (Best in 3/4 criteria - Environmentally Sensitive Areas, Other natural Areas, Habitat Areas)	2 <sup>nd</sup> best (Best in 1/4 criteria - Environmentally Sensitive Areas)	Worst (Best in 1/4 criteria - Air Quality)	3 <sup>rd</sup> best (Best in 2/4 criteria - Environmentally Sensitive Areas, Air Quality)	2 <sup>nd</sup> best (Best in 1/4 criteria - Environmentally Sensitive Areas)	4 <sup>th</sup> best (Best in 1/4 criteria - Air Quality)
Economic Environment Criteria	3 <sup>rd</sup> best (Best in 1/4 criteria - Capital Cost)	2 <sup>nd</sup> best	2 <sup>nd</sup> best (Best in 1/4 criteria - Support Future Growth Areas)	Worst	4 <sup>th</sup> best	<b>Best</b> (Best in 2/4 criteria - Affects on Businesses & Support Future Growth Areas)
						<b>RECOMMENDED</b>

The Recommended Alternative provides the best transportation benefits in all categories, and provides significant social / cultural benefits in terms of reducing noise in neighbourhoods and minimizing neighbourhood disruption. Potential for negative affects to Agricultural and Heritage Resource areas can be mitigated during detailed route planning and design to some degree.

The potential for negative environmental affects to Environmentally Sensitive Areas, Other Natural Areas, and Habitat Areas can also be mitigated during detailed route planning and design to some degree, while positive environmental benefits will result in terms of air quality due to reduced congestion in the transportation network.

While the recommended alternative costs more and results in the highest amount of new roadway to maintain, property acquisition costs will be potentially lower and there is significantly less potential for impacts on existing business in established corridors. The Recommended Alternative provides the best support for the City's growth objectives and planned growth areas, including the downtown.