

**The City of**



## **TRANSPORTATION MASTER PLAN**

Appendix F – 2014 MMATMP Transportation Network  
Alternatives  
April 2019



# APPENDIX

Table 5-2 – Multi-Modal Transportation Network Alternatives

Alternatives	Alternative 1 “Do nothing”	Alternative 2 Auto-Oriented “Business as Usual” Approach	Alternative 3 Increased Emphasis on Non-Auto Modes	Alternative 4 Strong Emphasis on Non-Auto Modes
<b>Land Use</b>				
<b>Annexed Lands</b>	Development of Annexed Lands according to the Secondary Plan.			
<b>Intensification Areas</b>	Development of planned Intensification Areas to 50 residents and jobs per hectare (Duckworth, Bayfield, Dunlop, Essa, Yonge).			
<b>Urban Growth Centre (Downtown)</b>	Intensification of uses in Downtown Barrie (identified Urban Growth Centre) to 150 residents and jobs per hectare.			
<b>Transportation Projects</b>				
<b>City of Barrie Capital Plan 2011-2014</b>	Construction of transportation projects contained in the Capital Plan 2011-2014.			
<b>New Transit Plan for Barrie</b>	Implementation of New Transit Plan for Barrie.			
<b>MTO/Highway 400</b>	Expansion of Highway 400 to 8 and 10 lanes (as per approved MTO PDR and TESR). Reconstruction of Duckworth Street Interchange and Crossing (as per separate EA and design).			
<b>GO Transit</b>	Improved peak period service on the Barrie line to the Allandale and Waterfront stations. All-day two-way service only extended to Bradford (as per Metrolinx’s The Big Move).			
<b>Active Transportation – Pedestrians</b>				
<b>Active Transportation Modal Share (Pedestrian and Cyclist)</b>	Less than 6%	6%	12%	20% (Objective established in the Big Move for the overall GTHA).
<b>Local Street Network Characteristics</b>	No change from existing situation.	Limit the number of culs-de-sac. Provide direct links to nearby bus stops on arterials or collectors (street or mid-block pedestrian link). Provide pedestrian/cycling shortcuts across long blocks and culs-de-sac, especially to reach local services (parks, schools, shops, etc.).		

Alternatives	Alternative 1 “Do nothing”	Alternative 2 Auto-Oriented “Business as Usual” Approach	Alternative 3 Increased Emphasis on Non-Auto Modes	Alternative 4 Strong Emphasis on Non-Auto Modes
<b>Sidewalks – Arterials and Collectors</b>	No change from existing situation.	Provided on both sides of the street: ○ 2.0m width on 6 to 7 lane roads ○ 1.5m width on other roads	Provided on both sides of the street: ○ 2.0m width on 6 to 7 lane roads ○ 2.0m width in the Annexed Lands ○ 1.5m width on other roads	Provided on both sides of the street: ○ 2.0m width on all roads
<b>Sidewalks – Local Streets</b>	No change from existing situation	Provided on one side, 1.5m width	Provided on one side, 1.5m width, except: ○ Within 250m of schools (both sides) ○ Annexed Lands (both sides)	Provided on both sides of the street (except for short culs-de-sac): ○ Within 250m of schools: 2.0m width ○ Annexed Lands: 2.0m width ○ Elsewhere: 1.5 m width
<b>Sidewalks – Maintenance</b>	Existing maintenance standard (snowpack condition).	Snowpack conditions on all streets.	Snowpack conditions on all streets.	Clear iceless sidewalks on arterials and collectors. Snowpack conditions for local streets.
<b>Active Transportation – Cyclists</b>				
<b>Cycling Network Mesh Width and Coverage</b>	No expansion of cycling network.	More than 90% of the City within 2,000m of cycling network. Cycling mesh width between 2,000 to 4,000m (1,000 to 1,500 in the Annexed Lands)	More than 90% of the City within 800m of cycling network. Cycling mesh width between 1,000 to 1,500m (500 to 800 in the Annexed Lands).	More than 90% of the City within 400m of cycling network Cycling mesh width between 500 to 800m (250 to 500 in the Annexed Lands). Connect all schools to the cycling network.
<b>Cycling Facilities – Arterials and Collectors</b>	No expansion of cycling network.	Bicycle lanes, where space is available and interventions are simple (limited interference with curbs, boulevards, etc.). Shared lanes where bicycle lanes cannot be added.	Buffered bicycle lanes for streets with 4 lanes or more. Bicycle lanes on all other arterials and collectors.	Separated bicycle lanes or cycle tracks for streets with 4 lanes or more. Bicycle lanes on all other arterials and collectors.
<b>Maintenance</b>		Existing three-season maintenance.	Existing three-season maintenance Consider year-round maintenance	Year-round maintenance
<b>Active Transportation – Off-Road Pathways</b>				
<b>Active Transport Pathways</b>	No expansion of pathway network.	Provide hard-surfaced pathways through selected natural corridors under City control.	Provide hard-surfaced pathways through most natural corridors and natural heritage system.	Provide hard-surfaced pathways through most natural corridors and natural heritage system. Specific pathways upgraded and designed for higher usage with separation of pedestrians and cyclists.
<b>Mid-Block Connections</b>	No additional mid-block connections.	Provide midblock pedestrian/bicycle connections where convenient and little investment is required. Create a continuous network using existing local streets, pathways and midblock connections.	Provide a greater number of midblock pedestrian/ bicycle connections to support mesh width. Create a continuous network using existing local streets, pathways and midblock connections.	Provide midblock pedestrian/bicycle connections to achieve mesh width (except where there are major physical constraints. Create a continuous network using existing local streets, pathways and midblock connections.
<b>Maintenance</b>		Existing three-season maintenance.	Three-season maintenance. Consider year-round maintenance on some mid-block connections and major pathways.	Year-round maintenance.
<b>Transit</b>				
<b>Transit Modal Share</b>	Less than 2.6%	2.6%	7%	12%
<b>Route Structure</b>	Multi-hub network requiring fewer transfers as per New Transit Plan. No expansion to serve Annexed Lands, except where identified in New Transit Plan.	Modest route extensions to serve the Annexed Lands.	Additional routes and extensions to serve the Annexed Lands. Increased service to GO stations.	Additional routes and extensions to serve the Annexed Lands. Increased service to GO stations.

Alternatives	Alternative 1 “Do nothing”	Alternative 2 Auto-Oriented “Business as Usual” Approach	Alternative 3 Increased Emphasis on Non-Auto Modes	Alternative 4 Strong Emphasis on Non-Auto Modes
<b>Service Frequency</b>	30 minutes weekday peak 30 minutes weekday midday 60 minutes weekday evenings 30-60 minutes on Saturdays 60 minutes on Sundays	20-30 minutes weekday peak 30 minutes weekday midday 45 minutes weekday evenings 30-45 minutes on Saturdays 30-45 minutes on Sundays Additional frequency to serve Intensification Areas	12-15 minutes weekday peak 15-20 minutes weekday midday 20-30 minutes weekday evenings 20-30 minutes on Saturdays 20-30 minutes on Sundays Additional frequency to serve Intensification Areas	6-8 minutes weekday peak 8-10 minutes weekday midday 10-15 minutes weekday evenings 10-15 minutes on Saturdays 10-15 minutes on Sundays
<b>System Service Span</b>	19 hours on weekdays 18 hours on Saturdays 10 hours on Sunday			18-19 hours daily
<b>Road Network</b>				
<b>Arterial and Collector Network</b>	Existing arterial and collector network.	Expansion of arterial and collector network into the Annexed Lands (network developed for the preferred land-use alternative).		
<b>Lanes on Arterial and Collector Roads</b>	Existing arterial and collector lanes (except 2011-2014 Capital Plan).	Number of lanes on arterials and collector roads varies to meet 85% of capacity and maximal cross-sections.		
<b>Maintenance</b>		Existing maintenance standards.		

Note: Transit and active transportation modal shares are additive.



## 6. EVALUATION OF NETWORK ALTERNATIVES

In this section, the various overall network alternatives are evaluated, including Highway 400 crossing and interchange alternatives. The various alternatives under consideration (see section 5) are all evaluated to identify the best option that meets policy objectives, the City’s needs and requirements, the accommodation of new growth, while being financially sustainable.

The four alternatives under consideration are the following:

- Do nothing.
- Low/existing modal share – Auto-oriented “status quo” approach.
- Medium modal share – Increased emphasis on non-auto modes.
- High modal share - Strong emphasis on non-auto modes.

### 6.1 Evaluation Criteria and Weighting

Evaluation criteria were developed to assess the alternatives. The evaluation criteria were established through consultation with the City of Barrie. The evaluation criteria reflect all components of the environment in the study area including natural, social and cultural environments, transportation elements and cost considerations. The evaluation criteria and a description of the key considerations for each criterion are provided in Table 6-1 below.

Table 6-1 – Evaluation Criteria

Criteria	Key Considerations
<b>Planning and Land Use</b>	
<b>Compliance with Provincial Legislation</b>	Consistency/Conformity with applicable Provincial Legislation and Planning Policy: <ul style="list-style-type: none"> <li>• Places to Grow Act, 2005</li> <li>• Provincial Policy Statement, 2005</li> <li>• Growth Plan for the Greater Golden Horseshoe, 2006</li> <li>• Places to Grow Simcoe</li> </ul>
<b>City Strategic Directions</b>	Consistency with Municipal Strategic Directions : <ul style="list-style-type: none"> <li>• Manage Growth &amp; Protect the Environment</li> <li>• Bring New Employment Lands to Market</li> <li>• Expand Transportation Choices, Including Active Transportation</li> <li>• Strengthen Barrie’s Financial Condition</li> <li>• Develop Affordable Long Range Plans that Reflect Changes In Our Community’s Growth</li> </ul> Consistency with the Official Plan
<b>City Planning Principles for Annexed Lands</b>	Consistency with Planning Principles: <ul style="list-style-type: none"> <li>• New neighbourhoods draw on strengths of historic neighbourhoods; including grid streets, public spaces, pedestrian-friendly street design</li> <li>• New neighbourhoods have basic services and shops including “corner stores” and/or local convenience commercial areas</li> <li>• Provision of a diversity of housing types</li> <li>• A high priority be placed on supporting active transportation and on accessibility to public transit</li> <li>• Potential to achieve planning principles at implementation</li> </ul>
<b>Compatibility with Existing Development</b>	Effect of proposed land uses on existing development external to Annexed Lands.
<b>Natural Environment</b>	

<b>Wetlands, Vegetation, Wildlife Habitat, Ground and Surface Water</b>	Potential impact of loss of natural areas, terrestrial ecosystems, watercourses or wetland area.
<b>Air Quality</b>	Supports the objective of improved air quality. This is mostly associated with distances driven by car.
<b>Social and Cultural Environment</b>	
<b>Social Environment</b>	Potential impact to residences, community facilities, public parks, institutions or businesses. Potential impact to visual aesthetic.
<b>Archaeology &amp; Cultural Heritage Resources</b>	Presence and characteristics of registered archaeological resources and designated built heritage resources under the Heritage Act. Potential adverse impacts on archaeological resources and built heritage resources.
<b>Economic Activity</b>	Supports existing and future economic activity in the City of Barrie and the vital role of goods movement.
<b>Public Acceptance</b>	Public acceptance of the alternative and its impacts on the community.
<b>Transportation</b>	
<b>Safe, Connected and Accessible Walking Environment</b>	Presence of enhancements to pedestrian infrastructure on Barrie’s streets. Continuity of walking routes. Pedestrian share of modal share during peak hours.
<b>Safe and Connected Cycling Environment</b>	Presence of enhancements to cycling infrastructure. Continuity of cycling routes serving Barrie’s neighbourhoods. Cycling share of modal share during peak hours.
<b>Safe, Reliable and Convenient Local Transit</b>	Transit share of modal share during peak hours. Proximity of residential, commercial and employment areas with transit.
<b>Acceptable Vehicular Demand for Projected Traffic Demand</b>	Potential for Barrie’s road network to meet projected traffic volumes. Total vehicle-kilometres and vehicle-hours travelled.
<b>Transportation Demand Management Goals</b>	Opportunities to implement transportation demand management measures (carpooling, work hours, etc.).
<b>Meets Travel Needs of All Barrie Residents</b>	Extent to which all areas of the City are served by all transportation modes: walking, cycling, transit and private vehicles.
<b>Financial</b>	
<b>Capital Cost</b>	General estimate of capital cost of the proposed improvements.
<b>Operating Cost</b>	General evaluation of operating costs of the proposed improvements.

## 6.2 Evaluation of Alternatives

An evaluation matrix was prepared to evaluate the four retained network alternatives and is presented in Table 6-2. A relative ranking and weighting of the proposed alternatives is provided in the evaluation matrix. Each potential impact was given a rank from -4 to 4. A significant negative effect is -4; a significant positive impact is 4. Therefore, the alternative with the larger value indicates a greater degree of positive potential effects. A neutral effect was given a score of 0. The score was then calculated by multiplying the weighting by the rank. The weights add up to 100 points. Therefore, total scores can range from - 400 to 400.

This analysis shows that Alternative 3 has the highest score and is the preferred alternative.



Table 6-2 – Alternatives Evaluation

Criteria	Weight	Alternative 1 “Do nothing”	Alternative 2 Auto-Oriented “Business as Usual” Approach	Alternative 3 Increased Emphasis on Non-Auto Modes	Alternative 4 Strong Emphasis on Non-Auto Modes
<b>Planning and Land Use</b>	18				
<b>Compliance with Provincial Legislation</b>	5	This alternative would not adequately serve Intensification Areas and the Annexed Lands, while non-auto modal shares would decrease.	This alternative would only maintain existing non-auto modal shares and Provincial policies would not be met.	This alternative would improve existing non-auto modal shares. Provincial targets would be partially achieved.	This alternative would improve existing non-auto modal shares. Provincial targets would be met.
<b>City Strategic Directions</b>	5	This alternative would not support growth and bring new employment lands available. This alternative would not be in line with the City’s Strategic Directions.	This alternative would not support growth and bring new employment lands available (but more so than Alternative 1). This alternative would not be in line with the City’s Strategic Directions.	This alternative would meet the City’s Strategic Directions. This alternative would support growth and bring new employment lands available.	This alternative would meet the City’s Strategic Directions. This alternative would support growth and bring new employment lands available.
<b>City Planning Principles for Annexed Lands</b>	5	This alternative would not adequately serve the Annexed Lands since road, transit and active transportation options would not be expanded to these areas.	This alternative would adequately serve the Annexed Lands since road, transit and active transportation options would be improved to serve these areas.	This alternative would well serve the Annexed Lands by providing multimodal and continuous road, transit and active transportation options.	This alternative would well serve the Annexed Lands by providing multimodal and continuous road, transit and active transportation options.
<b>Compatibility with Existing Development</b>	3	Alternative has very little impact upon existing land uses.	Some projects would require additional rights-of-way and would be closer to existing development.	Some projects would require additional rights-of-way and would be closer to existing development.	Some projects would require additional rights-of-way and would be closer to existing development (to greater extent than other Alternatives)
<b>Natural Environment</b>	7				
<b>Wetlands, Vegetation, Wildlife Habitat, Ground and Surface Water</b>	4	No anticipated negative impact.	New roads and roadway expansions may have localized impacts that should be mitigated.	New roads and roadway expansions may have localized impacts that should be mitigated.	New roads and roadway expansions may have localized impacts that should be mitigated.
<b>Air Quality</b>	3	Alternative has the longest distances driven because of limited new road links (long distances travelled), which will affect air quality.	Alternative has long distances driven because of limited new road links (long distances travelled), which will affect air quality.	Alternative has moderate distances driven because of limited new road links (long distances travelled), which will affect air quality.	Alternative has the fewest distances driven because of limited new road links (long distances travelled), which will affect air quality.

Criteria	Weight	Alternative 1 “Do nothing”	Alternative 2 Auto-Oriented “Business as Usual” Approach	Alternative 3 Increased Emphasis on Non-Auto Modes	Alternative 4 Strong Emphasis on Non-Auto Modes
<b>Social and Cultural Environment</b>	17				
<b>Social Environment</b>	5	No anticipated negative impact.	New roads and roadway expansions may have localized impacts that should be mitigated.	New roads and roadway expansions may have localized impacts that should be mitigated.	New roads and roadway expansions may have localized impacts that should be mitigated (most widening).
<b>Archaeology &amp; Cultural Heritage Resources</b>	3	No anticipated impact from existing situation.	No significant impacts from existing situation. Local adjustments may be required during project design.	No significant impacts from existing situation. Local adjustments may be required during project design.	No significant impacts from existing situation. Local adjustments may be required during project design.
<b>Economic Activity</b>	3	No change from existing situation. Does not support expected employment and population growth. No improvements to active and transit (social equity).	Supports expected employment and population growth. Limited improvements to active and transit (social equity).	Supports expected employment and population growth. Numerous improvements to active and transit (social equity).	Supports expected employment and population growth. Numerous improvements to active and transit (social equity).
<b>Public Acceptance</b>	6	Lack of improvement from current conditions could be a concern for many residents (increased congestion, etc.)	Numerous improvements and business as usual approach would likely be acceptable to the public.	Moderate shift in the city’s transportation would likely be acceptable / neutral to the public.	Important shifts in the City’s direction would likely not be acceptable to the public.
<b>Transportation</b>	38				
<b>Safe, Connected and Accessible Walking Environment</b>	8	Very limited improvements to walking environment. No improvements in pre-2010 Barrie.	Some improvements to walking environment, some lack of continuity. Limited improvements in pre-2010 Barrie.	Improvements to walking environment, continuous sidewalks and trails. Numerous improvements in pre-2010 Barrie.	Improvements to walking environment, continuous sidewalks and trails. Best walking infrastructure provided. Significant improvements in pre-2010 Barrie.
<b>Safe and Connected Cycling Environment</b>	8	No improvements to cycling infrastructure and conditions.	Limited improvements to cycling infrastructure and conditions	Extensive coverage of the City by cycling infrastructure and improved cycling conditions	Very extensive coverage of the City by cycling infrastructure and connectivity and best cycling conditions offered.
<b>Safe, Reliable and Convenient Local Transit</b>	8	Very limited improvements to transit service quality and coverage.	Limited improvements to transit service quality and coverage.	Significant improvements to transit service quality and coverage.	Very improvements to transit service quality and coverage.
<b>Acceptable Vehicular Demand for Projected Traffic Demand</b>	8	Does not meet projected traffic volume demand.	Somewhat meets projected traffic volume demand.	Partially meets projected traffic volume demand.	Partially meets projected traffic volume demand.

Criteria	Weight	Alternative 1 “Do nothing”	Alternative 2 Auto-Oriented “Business as Usual” Approach	Alternative 3 Increased Emphasis on Non-Auto Modes	Alternative 4 Strong Emphasis on Non-Auto Modes
Transportation Demand Management Goals	2	Alternative with limited compatibility with TDM. 	Alternative with possibility of implementing TDM. 	Alternative with possibility of implementing TDM. 	Alternative with possibility of implementing TDM. 
Meets Travel Needs of All Barrie Residents	4	Offers few travel alternatives for residents. 	Offers few (but slightly more) travel alternatives to residents. 	Offers considerable travel alternatives to residents. 	Offers the most travel alternatives to residents. 
<b>Financial</b>	<b>20</b>				
Additional Capital Cost (2013-2031)	16	No additional capital costs required, beyond already approved projects. 	Estimated capital cost of \$0.8 to \$1.0 billion dollars 	Estimated capital cost of \$1.0 to \$1.2 billion dollars. 	Estimated capital cost of \$1.3 to \$1.5 billion dollars. 
Operating Cost	4	No additional operational costs required, beyond already approved projects. 	Significant additional operational costs required, since this option has the most traffic lanes. 	Important additional operational costs required. 	Important additional operational costs required. 
Rank		4	3	1	2