

3.0 Alternative Solutions

Table 3.3: Evaluation of Alternatives

Criteria	Alternative 1 Bathurst Street Corridor	Alternative 2 Yonge Street Corridor	Alternative 3 Do Nothing	Conclusion
Traffic Safety and Operations				
Traffic Safety	Ranked First: - provides an alternate route for drivers with minimal access points - provides a route that meets safety requirements with reduced design speed and intersection improvements at Bathurst and Yonge	Ranked Second: - Yonge Street will be required to handle all north-south traffic in the area leading to increased congestion - the Yonge Street- Green Lane intersection would require non-standard improvements to accommodate the additional traffic (e.g. triple left turn lanes).	Ranked Third: continued congestion could result in an increase in driver frustration and potentially safety issues	<i>Bathurst is preferred from a traffic safety and operations perspective as it provides a safer facility for traffic than the other alternatives; is the only alternative that will improve the overall level of service through the study area; and is the only alternative that will improve the overall network by ensuring that all Regional Roads in the area function as designated. It will provide an alternative route to Yonge Street</i>
Level of Traffic Service	Ranked First: - provides an alternate route addressing capacity issues - results in improved conditions at the Yonge Street/Green Lane intersection	Ranked Second: - continued reliance on Yonge Street as the only north-south Regional Road - Widening Yonge Street to 6 lanes may require lanes to be used for HOV lanes in keeping with the York Region Good Roads Policy. Thus, the additional capacity may not be able to be provided. - Increasing capacity at the Yonge Street/Green Lane intersection will be difficult thus overall level of service not expected to improve	Ranked Third: - continued reliance on Yonge Street as the only north-south Regional Road - Increased congestion and reduced level of service with no improvements	
Regional Road Network Continuity	Ranked First: Improves the Regional road network by ensuring Bathurst Street functions as the Regional road as designated	Ranked Second: no change to the continuity of the network	Ranked Second: no change to the continuity of the network	

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Criteria	Alternative 1 Bathurst Street Corridor	Alternative 2 Yonge Street Corridor	Alternative 3 Do Nothing	Conclusion
Natural Environment	Ranked Third: - requires the greatest amount of vegetation removal and thus has the greatest impact on terrestrial habitat. Mitigation can lessen impact on terrestrial environment however it will still be greater than for the other alternatives - new road may provide barrier for wildlife movement. Mitigation in the form of wildlife passage under the road can lessen this impact. - additional traffic will increase noise and dust in the area potentially disrupting wildlife and may also result in an increase in collisions - No impact on species at risk is anticipated for any of the alternatives.	Ranked Second: - requires less vegetation removal than improvements on Bathurst Street and thus has a lesser impact on terrestrial habitat. - Additional traffic is not anticipated to result in noticeable increase in disruption to wildlife or in collisions resulting in wildlife death. - No impact on species at risk is anticipated for any of the alternatives.	Ranked First: - No vegetation removal is required and thus no terrestrial habitat will be displaced or disrupted. - No impact on species at risk is anticipated for any of the alternatives.	<i>Do Nothing is preferred from a natural environment perspective as it involves no impact on the terrestrial or aquatic environments. Of the remaining 2 alternatives, both involve construction over 6 watercourses and widening Yonge Street is preferred over Bathurst as it involves less vegetation removal and would allow Bathurst to continue to re-naturalize through the old bridge area. The addition of traffic to Yonge Street is anticipated to have less of a noticeable impact on wildlife (e.g. disruption and barrier to movement) as the road already carries significant traffic and likely poses a barrier to wildlife movement.</i>
Potential for Impact on Terrestrial Habitat and Wildlife				
Potential for Impact on Aquatic Resources	Ranked Second: Reconstruction works in six stream crossings required and construction works would require removal of riparian vegetation.	Ranked Second: Reconstruction works in six stream crossings would be required and construction works would require removal of riparian vegetation.	Ranked First: No stream crossing improvements, therefore no affect on riparian vegetation.	
Potential for Impact on Groundwater and Surface Water Resources	Ranked Equal: No impact on groundwater or surface water resources is anticipated for any of the alternatives.	Ranked Equal: No impact on groundwater or surface water resources is anticipated for any of the alternatives.	Ranked Equal: No impact on groundwater or surface water resources is anticipated for any of the alternatives.	

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Criteria	Alternative 1 Bathurst Street Corridor	Alternative 2 Yonge Street Corridor	Alternative 3 Do Nothing	Conclusion
Social Environment				
Potential for Impact on Existing Residences and Communities	Ranked Third: - no displacement of residents however some residential property will be required - Increased traffic and short-term construction-related noise and dust could affect the approximately 22 residences along Bathurst Street. - Significant change in character of the road and disruption from resulting traffic would be noticeable	Ranked First: - no displacement of residents however some residential property may be required - Increased traffic and short-term construction-related noise and dust could affect the approximately 8 residences along Yonge Street. - residents are accustomed to traffic-related noise and are less likely to notice the increase in traffic over time than residents on Bathurst Street. Ranked Equal: - No community or recreation features would be displaced.	Ranked First: - No displacement of residents or need for property - No increase in traffic or construction-related disruption. Ranked Equal: - No community or recreation features would be displaced.	<i>Do Nothing is preferred from a social environment perspective as it involves no displacement of residential property or disruption impacts. Of the remaining alternatives, Yonge Street is preferred over Bathurst as the addition of traffic associated with improvements represents little change to the current situation and thus associated disruption (noise, dust, etc.) is not expected to be as noticeable. Yonge Street improvements will also require less residential property than Bathurst improvements.</i>
Potential for Impact on Community and Recreational Facilities	Ranked Equal: No community or recreation features would be displaced.	Ranked Equal: No community or recreation features would be displaced.	Ranked Equal: No community or recreation features would be displaced.	
Planned Land Use				
Conformity to Environmental and Planning Legislation	Ranked First: - Improvements to transportation are supportive of future growth areas outside of the Greenbelt identified through "Places to Grow" and the Region's "Planning for Tomorrow" processes. - The Greenbelt Plan permits transportation infrastructure improvements as long as policies are met.	Ranked First: - Yonge Street is outside or on the border of the Greenbelt thus Greenbelt policies are not applicable - Improvements to transportation are supportive of future growth areas identified through "Places to Grow" and the Region's "Planning for Tomorrow" processes.	Ranked Third: - Greenbelt policies do not apply - Providing no transportation capacity improvements is not supportive of future growth areas identified through "Places to Grow" and the Region's "Planning for Tomorrow" processes.	<i>Bathurst Street is preferred from a Planned Land Use perspective as it provides the best transportation service to the area thus supporting future growth areas outside of the Greenbelt as identified in planning initiatives such as Places to Grow and the Region's Planning for Tomorrow.</i>
Impact on Planned Future Development	Ranked First: Improvements to Bathurst Street have the potential to impact proposed development at the intersection of Bathurst and Yonge. This alternative provides the best level of service through	Ranked Second: Improvements to Yonge Street have the potential to impact proposed development at the intersection of Bathurst and Yonge as well as the intersection of Yonge and Green Lane.	Ranked Third: - no proposed development will be directly impacted by the construction of improvements - will result in increased congestion on Yonge Street which will significantly affect the development	

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Criteria	Alternative 1 Bathurst Street Corridor	Alternative 2 Yonge Street Corridor	Alternative 3 Do Nothing	Conclusion
	the area and thus reduces congestion supporting planned future development elsewhere	This alternative does not provide the best level of service for the area and future road capacity issues could also affect proposed development.	potential of the area including future development currently requesting approval as well as all future development along Yonge Street.	
Economic Environment				
Potential for Impact on Existing Business	Ranked First: - No businesses will be displaced and access will be maintained to all businesses during construction. - While more traffic will travel on Bathurst potentially resulting in increased noise and dust, the few businesses along the road are not likely to be sensitive to this change.	Ranked Third: - improvements to Yonge Street would result in either significant congestion at the Yonge and Green Lane intersection which could affect access for businesses and/or displacement of businesses at the intersection to allow for major intersection modifications. - Access will be maintained to businesses during construction. - It is not likely that businesses along Yonge will be sensitive to disruption (e.g. noise, dust) from change in traffic levels.	Ranked Second: - No displacement of businesses would be required. - As congestion increases, access to Yonge Street businesses likely to become more difficult.	<i>Bathurst is preferred from an Economic perspective</i> as no businesses will be removed and minimal disruption impact (e.g. noise, dust) to businesses is anticipated during construction or operation. Although Bathurst has more agricultural lands within the corridor, minimal impact on active agricultural land is anticipated for any of the alternatives. Both the Yonge Street and Do Nothing alternatives will result in congestion at the Yonge and Green Lane intersection that could negatively affect business (e.g. limit access)
Potential for Impact on Agriculture	Ranked Second: - any displacement of lands currently in agricultural production will be minimal. - Minimal conflicts with farm vehicles anticipated as the shoulder will be wide enough to accommodate	Ranked Second: any displacement of lands currently in agricultural production will be minimal.	Ranked First: This alternative results in no change to the current conditions and thus no potential for impact on agriculture.	

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Criteria	Alternative 1 Bathurst Street Corridor	Alternative 2 Yonge Street Corridor	Alternative 3 Do Nothing	Conclusion
Cultural Environment				
Potential for Impact on Archaeological Resources	Ranked Third: Bathurst Street is relatively undisturbed and thus has potential for archaeological resources and would require that a Stage 2 Archaeological assessment prior to construction to ensure that any archaeological sites are identified and archaeological resources protected.	Ranked Second: Yonge Street is a relatively disturbed corridor and is less likely to have potential for archaeological resources.	Ranked First: The "Do Nothing" alternative will not adversely affect the archaeological resources.	<i>Do Nothing is preferred from the Cultural Environment perspective</i> as there is no disturbance and thus no potential for archaeological or heritage resource impacts. Of the remaining alternatives, <i>Yonge Street is preferred</i> as the character of the road corridor is more disturbed and less likely to result in heritage or archaeological resource impacts.
Potential for Impact on Built Heritage Resources	Ranked Third: - This alternative will result in potential impact to the Old Bridge which is a built heritage feature. - Bathurst is considered a cultural landscape (roadside) given that this section of Bathurst Street is a good example of a 19th Century roadside.	Ranked First: This alternative is not likely to result in the displacement of built heritage features or cultural landscapes	Ranked First: This alternative involves no change and will not impact heritage features.	
Cost				
Relative Construction Cost	Ranked Third: - Highest construction cost - Property acquisition will be required.	Ranked Second: - Lower construction cost than Bathurst Street - Some property acquisition will be required at the Yonge-Green Lane intersection	Ranked First: No construction cost	<i>Do Nothing is preferred from a Cost perspective</i> as there is no cost for construction and limited cost for maintenance. Of the remaining alternatives, <i>Yonge Street is preferred</i> as both the construction and operation and maintenance costs are anticipated to be lower than for Bathurst Street due in part to the significant topography variation on Bathurst.
Relative Operation and Maintenance Cost	Ranked Third: - adds a road to the network that the Region currently maintains. - significant grade changes could require increased winter maintenance compared to other Regional roads	Ranked First: increase in maintenance cost over current costs not anticipated to be significant	Ranked Second: - Adding congestion on Yonge Street has the potential to result in faster road deterioration and the need for more frequent maintenance. - Likely increased user costs due to congestion and resulting travel time increases.	

5.0 Alternative Design Concepts

Table 5.3: Evaluation of Alternative Design Concepts - Section 1 - Sta. 0+180 to Sta. 1+900

EVALUATION FACTOR / CRITERIA	TRAFFIC OPERATIONS			NATURAL ENVIRONMENT
	ALTERNATIVE A: WIDENING THE ROAD EQUALLY	ALTERNATIVE B: WIDEN TO THE WEST	ALTERNATIVE C: WIDEN TO THE EAST	
Traffic Safety	Ranked Equally: All alternatives improve the horizontal and vertical profile of the road however steep grade changes still remain.	Ranked Equally: All alternatives improve the horizontal and vertical profile of the road however steep grade changes still remain.	Ranked Equally: All alternatives improve the horizontal and vertical profile of the road however steep grade changes still remain.	Ranked First: South of Morning Sideroad, much of this area is identified as part of the Regional Greenlands System or as potentially regionally significant forests and lands on both sides of the road are generally well vegetated. The Cawthra Mullock Reserve is within this section on the west side of the road. This alternative will hold the western property line therefore resulting in the least impact to the Cawthra Mullock Reserve
Level of service	Ranked Equally: The road capacity and level of service will be the same for all alternatives	Ranked Equally: The road capacity and level of service will be the same for all alternatives	Ranked Equally: The road capacity and level of service will be the same for all alternatives	Lands north of Morning Sideroad up to Sta. 1+900 are primarily cleared lands with some vegetation along the edges. Alternatives B and C may impact the edge vegetation on one side of the road.
Regional Road Network Continuity	Ranked Equally: All alternatives will improve network continuity.	Ranked Equally: All alternatives will improve network continuity.	Ranked Equally: All alternatives will improve network continuity.	All alternatives provide a larger culvert (Sta. 0+660) to improve safe wildlife crossing opportunities.
Impact on Terrestrial Habitat	Ranked Second: South of Morning Sideroad, much of this area is identified as part of the Regional Greenlands System or as potentially Regionally Significant Forests and lands on both sides of the road are generally well vegetated. The Cawthra Mullock Reserve is within this section on the west side of the road. This alternative splits the widening on both sides of the existing road. Some vegetation will be removed from both sides of Bathurst. While there will still be property required from the reserve it will be less than that required for Alternative B. Lands north of Morning Sideroad up to Sta. 1+900 are primarily cleared lands with some vegetation along the edges. Alternative A may impact the edge vegetation on both sides of the road.	Ranked Third: South of Morning Sideroad, much of this area is identified as part of the Regional Greenlands System or as potentially regionally significant forests and lands on both sides of the road are generally well vegetated. The Cawthra Mullock Reserve is within this section on the west side of the road. This alternative involves widening to the west therefore resulting in the greatest impact to the Cawthra Mullock Reserve. Lands north of Morning Sideroad up to Sta. 1+900 are primarily cleared lands with some vegetation along the edges. Alternatives B and C may impact the edge vegetation on one side of the road.	Lands north of Morning Sideroad up to Sta. 1+900 are primarily cleared lands with some vegetation along the edges. Alternatives B and C may impact the edge vegetation on one side of the road.	All alternatives provide a larger culvert (Sta. 0+660) to improve safe wildlife crossing opportunities.

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Table 5.3: Evaluation of Alternative Design Concepts - Section 1 – Sta. 0+180 to Sta. 1+900

EVALUATION FACTOR / CRITERIA	ALTERNATIVE A: WIDENING THE ROAD EQUALLY	ALTERNATIVE B: WIDEN TO THE WEST	ALTERNATIVE C: WIDEN TO THE EAST
	All alternatives provide a larger culvert (Sta. 0+660) to improve safe wildlife crossing opportunities.		
	This alternative will require the removal of 1 butternut tree on the west side of the road (approximately Sta. 0+540). There is also a butternut on the east side at Sta. 0+540. However it can be avoided with minor improvements to design.	This alternative will require the removal of 3 butternut trees on the west side of the road (Sta. 0+440, Sta. 0+540, Sta. 0+080).	This alternative will require the removal of 1 butternut tree on the east side of the road (Sta. 0+540).
Impact on Aquatic Resources	Ranked Equally: All alternatives have 4 watercourse crossings. All alternatives provide the same opportunity to improve the crossings.	Ranked Equally: All alternatives have 4 watercourse crossings. All alternatives provide the same opportunity to improve the crossings.	Ranked Equally: All alternatives have 4 watercourse crossings. All alternatives provide the same opportunity to improve the crossings.
Impact on Groundwater and Surface Water Resources	Ranked Equally: all alternatives have minimal potential for impact on ground or surface water.	Ranked Equally: all alternatives have minimal potential for impact on ground or surface water.	Ranked Equally: all alternatives have minimal potential for impact on ground or surface water.
SOCIAL ENVIRONMENT			
Impact on Existing Residences and Communities	Ranked First: There are a total of 9 residences fronting on Bathurst Street in this section. (7 on the west side; 2 on the east side). This alternative will require property from all 9 residences. All the residences will remain well removed from the property line and road in this alternative.	Ranked Third: There are 7 residences fronting Bathurst Street on the west side in this section. This alternative will require property from these 7 residences. This alternative will bring the property line and road quite close to one of the residences (Sta. 0+580).	Ranked Second: There are 2 residences fronting Bathurst Street on the east side. This alternative will require property from these residences. This alternative will bring the property line and road quite close to one of the residences (Sta. 1+220).
Impact on Community and Recreational	Ranked Equally: There are no community/recreational features in this section of the study area.	Ranked Equally: There are no community/recreational features in this section of the study area.	Ranked Equally: There are no community/recreational features in this section of the study area.

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Table 5.3: Evaluation of Alternative Design Concepts - Section 1 – Sta. 0+180 to Sta. 1+900

EVALUATION FACTOR / CRITERIA	ALTERNATIVE A: WIDENING THE ROAD EQUALLY	ALTERNATIVE B: WIDEN TO THE WEST	ALTERNATIVE C: WIDEN TO THE EAST
Features			
PLANNED LAND USE			
Conformity to Environmental & Planning Legislation	Ranked equally: All alternatives are within the Greenbelt and have the potential to impact lands identified as natural heritage system.	Ranked equally: All alternatives are within the Greenbelt and have the potential to impact lands identified as natural heritage system.	Ranked equally: All alternatives are within the Greenbelt and have the potential to impact lands identified as natural heritage system.
Impact on Future Development	Ranked Equally: All alternatives will result in an improved Bathurst Street thus supporting future growth in this area of York Region.	Ranked Equally: All alternatives will result in an improved Bathurst Street thus supporting future growth in this area of York Region.	Ranked Equally: All alternatives will result in an improved Bathurst Street thus supporting future growth in this area of York Region.
ECONOMIC ENVIRONMENT			
Impact on Existing Businesses	Ranked Equally: There are no businesses in this section of Bathurst Street.	Ranked Equally: There are no businesses in this section of Bathurst Street.	Ranked Equally: There are no businesses in this section of Bathurst Street.
Impact on Agriculture	Ranked Equally: There are no farm operations in this section of Bathurst Street.	Ranked Equally: There are no farm operations in this section of Bathurst Street.	Ranked Equally: There are no farm operations in this section of Bathurst Street.
CULTURAL RESOURCES			
Impact on Archaeological Resources	Ranked Equally: There is potential archaeology in this area. A Stage 2 Archaeological Assessment is required for much of the alignment in this section.	Ranked Equally: There is potential archaeology in this area. A Stage 2 Archaeological Assessment is required for much of the alignment in this section.	Ranked Equally: There is potential archaeology in this area. A Stage 2 Archaeological Assessment is required for much of the alignment in this section.
Impact on Built Heritage Resources	Ranked Equally: There are no built heritage features within this section of Bathurst Street. There are however a number of identified cultural landscape units on both sides of the road that could be affected by the alternatives: Unnamed roadscape (CLU 9) at approximately Sta. 0+940	Ranked Equally: There are no built heritage features within this section of Bathurst Street. This alternative may impact the following cultural landscape units: - Unnamed roadscape (CLU 9) at approximately Sta. 0+940 - Agricultural landscape (CLU 4) It is also noted that Bathurst Street is	Ranked Equally: There are no built heritage features within this section of Bathurst Street. This alternative may impact the following cultural landscape units: - Maple Bush (CLU 7) at Morning Sideroad - Morning Side Road (CLU 6) It is also noted that Bathurst Street is

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Table 5.3: Evaluation of Alternative Design Concepts - Section 1 – Sta. 0+180 to Sta. 1+900

EVALUATION FACTOR / CRITERIA	ALTERNATIVE A: WIDENING THE ROAD EQUALLY	ALTERNATIVE B: WIDEN TO THE WEST	ALTERNATIVE C: WIDEN TO THE EAST
	- Agricultural landscape (CLU 4) - Maple Bush (CLU 7) at Morning Sideroad - Morning Side Road (CLU 6) It is noted that while this alternative has the potential to impact a greater number of cultural landscape units, the extent of the widening and thus the extent of the impact will be less. It is also noted that Bathurst Street is identified as a cultural landscape unit throughout the study area (CLU 1). All of the alternatives have the same potential to impact this CLU.	identified as a cultural landscape unit throughout the study area (CLU 1). All of the alternatives have the same potential to impact this CLU.	identified as a cultural landscape unit throughout the study area (CLU 1). All of the alternatives have the same potential to impact this CLU.
COST			
Construction Costs	Ranked Equally: All alternatives will have similar construction costs.	Ranked Equally: All alternatives will have similar construction costs.	Ranked Equally: All alternatives will have similar construction costs.
Operation and Maintenance Cost	Ranked Equally: All alternatives will have similar operation and maintenance costs.	Ranked Equally: All alternatives will have similar operation and maintenance costs.	Ranked Equally: All alternatives will have similar operation and maintenance costs.

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Table 5.5: Evaluation of Alternative Design Concepts Section 3 – Sta. 3+100 to Sta. to Graham Sideroad

EVALUATION FACTOR / CRITERIA	ALTERNATIVE A: WIDENING THE ROAD EQUALLY	ALTERNATIVE B: WIDEN TO THE WEST	ALTERNATIVE C: WIDEN TO THE EAST
TRAFFIC OPERATIONS			
Traffic Safety	Ranked Equally: All alternatives improve the horizontal and vertical profile of the road however steep grade changes still remain.	Ranked Equally: All alternatives improve the horizontal and vertical profile of the road however steep grade changes still remain.	Ranked Equally: All alternatives improve the horizontal and vertical profile of the road however steep grade changes still remain.
Level of service	Ranked Equally: The road capacity and level of service will be the same for all alternatives	Ranked Equally: The road capacity and level of service will be the same for all alternatives	Ranked Equally: The road capacity and level of service will be the same for all alternatives
Regional Road Network Continuity	Ranked Equally: All alternatives will improve network continuity.	Ranked Equally: All alternatives will improve network continuity.	Ranked Equally: All alternatives will improve network continuity.
NATURAL ENVIRONMENT			
Impact on Terrestrial Habitat	Ranked Second: While this alternative would remove less of the forested areas on the east side, it would also remove all trees and hedgerows to the west. All alternatives have the potential to provide larger culverts in 2 locations to improve safe wildlife crossing opportunities.	Ranked First: Lands to the west are primarily farmed. Widening in this direction will remove some hedgerows including some trees. All alternatives have the potential to provide larger culverts in 2 locations to improve safe wildlife crossing opportunities.	Ranked Third: To the east there are some pockets of forested lands as well as trees and hedgerows associated with the residential properties. This alternative would remove the greatest amount of terrestrial habitat. All alternatives have the potential to provide larger culverts in 2 locations to improve safe wildlife crossing opportunities.
Impact on Aquatic Resources	Ranked Equally: All alternatives have 4 watercourse crossings. All alternatives provide the same opportunity to improve the crossings.	Ranked Equally: All alternatives have 4 watercourse crossings. All alternatives provide the same opportunity to improve the crossings.	Ranked Equally: All alternatives have 4 watercourse crossings. All alternatives provide the same opportunity to improve the crossings.
Impact on Groundwater and Surface Water Resources	Ranked Equally: All alternatives have minimal impact on ground or surface water. For all alternatives, the profile of the road will be raised to reduce the current flooding issues.	Ranked Equally: All alternatives have minimal impact on ground or surface water. For all alternatives, the profile of the road will be raised to reduce the current flooding issues.	Ranked Equally: All alternatives have minimal impact on ground or surface water. For all alternatives, the profile of the road will be raised to reduce the current flooding issues.