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Road Improvements near Derry Road East and Alstep Drive:
Environmental Study Report*


Appendix K: Evaluation of Alternative Solutions (Table)

Table 1: Evaluation Results

Evaluation Criteria	Alternative 1: Do Nothing	Alternative 2: TDM Measures	Alternative 3: Improve Local Intersection Operations	Alternative 4: Widen Existing Regional Roads	Alternative 5: Widen Existing Municipal Roads	Alternative 6: Extend Alstep Drive
 Planning and Transportation						
Provincial Planning Objectives	 Is inconsistent with the transportation policies of the Growth Plan and the PPS, as the resulting congestion would impact user safety and increase GHG emissions through inefficient transportation.	 Is consistent with the transportation policies of the Growth Plan and the PPS, in that it would promote transportation choices that reduce automobile reliance in favour of transit and active transportation and allow for optimization of existing infrastructure and public service facilities.	 Is consistent with the transportation policies of the Growth Plan and the PPS, as it would enhance connectivity among transportation modes, improve intersection safety, and optimize the use of existing infrastructure.	 Is consistent with the transportation policies of the Growth Plan and the PPS, as it would enhance connectivity among transportation modes, improve intersection safety, and optimize the use of existing infrastructure.	 Is consistent with the transportation policies of the Growth Plan and the PPS, as it would enhance connectivity among transportation modes, improve intersection safety, and optimize the use of existing infrastructure.	 Is consistent with the transportation policies of the Growth Plan and the PPS, as it would enhance connectivity among transportation modes and optimize the use of existing infrastructure (i.e., the existing but unbuilt road right-of-way).
Regional Planning Objectives	 Does not interfere with Peel Region's transportation planning.	 Supports Peel Region's transportation planning.	 Supports Peel Region's transportation planning.	 Widening the road would negatively impact the space available for the multi-purpose trail	 No immediate negative impact on Peel Region Long Range Transportation Plan.	 No immediate negative impact on Peel Region Long Range Transportation Plan.
Municipal Planning Objectives	 Does not interfere with the Mississauga Transportation Master Plan.	 Supports Mississauga's transportation planning.	 Supports Mississauga's transportation planning.	 Widening the road would negatively impact the space available for the multi-purpose trail	 Does not interfere with the Mississauga Transportation Master Plan.	 Would improve network connectivity.
Safety	 Decrease in safety due to increase in traffic volume. Inconsistent with Vision Zero goal.	 Some minor improvements to pedestrian and bicycle safety by reducing vehicular demand during peak periods.	 Improvement in safety by adding auxiliary lanes and optimizing signal timing to manage traffic volume.	 Would improve safety by reducing congestion through the provision of extra lanes.	 Municipal roads would not be at capacity, therefore widening municipal roads will not provide a significant safety benefit.	 No significant change in safety by providing alternative routes for visitors and workers in this area.
Traffic Operations	 Inefficient traffic operations due to increase in traffic volume.	 Minimal improvement to traffic operations by reducing vehicular demand during peak periods.	 Improvement in traffic operation efficiency by adding auxiliary lanes and optimizing signal timing.	 Widening the road would improve traffic operations due to increase in road capacity.	 Municipal roads would not be at capacity, therefore widening municipal roads will not provide a significant benefit to traffic operations.	 No significant Improvement in traffic operations expected with addition of Alstep Drive extension.
Public Transit Operations	 Possible delay in public transit operations due to increase in traffic volume.	 TDM will promote use of public transit. Public transit operations will improve if transportation demand is managed to relieve traffic volume during peak hours.	 Possible Improvement in public transit operations due to optimized signal timing.	 Possible improvement in public transit operations with the increase in road capacity.	 Municipal roads would not be at capacity, therefore widening municipal roads will not provide a significant benefit to public transit operations.	 No significant change in public transit operations.
Active Transportation Accommodation	 While a multi-use trail along Derry Road accommodates both pedestrians and cyclists, a dedicated cycling facility is not available for cyclists.	 TDM would promote active transportation alternatives.	 Local intersection improvements could help improve infrastructure and safety related to active transportation.	 Widening the road may negatively impact the space available for the multi-purpose trail and active transportation facilities.	 Current sidewalks accommodate pedestrians, but a dedicated cycling facility is not available for cyclists.	 Extension could potentially be designed to accommodate active transportation.
Network Connectivity	 Would accommodate existing network connectivity.	 Would accommodate existing network connectivity.	 Would provide an opportunity to enhance network connectivity at intersections.	 Widening the road would negatively impact network connectivity by impacting space available for the multi-purpose trail.	 Would accommodate existing network connectivity.	 Would improve network connectivity by connecting the transportation grid.

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Emergency Service Response Times	Potential decrease in emergency service response times due to increase in traffic volume.	No significant change in emergency service response times if transportation demand is managed to relieve traffic volume during peak hours.	Potential improvement in emergency service response times due to addition of auxiliary lanes, which allows more space for drivers to move aside for emergency vehicles.	Potential improvement in emergency service response times due to addition of through lanes, which allows more space for drivers to move aside for emergency vehicles.	Municipal roads would not be at capacity, therefore widening municipal roads will not provide a significant benefit for emergency vehicles.	Potential improvement in emergency service response times due to the provision of alternative routes for emergency vehicles to access from.
Planning and Transportation Summary	Not Preferred <i>Alternative 1 is not preferred because it is inconsistent with planning objectives and would negatively impact traffic operations and safety.</i>	Preferred <i>Alternative 2 is preferred because it is consistent with planning objectives and provides some improvements to safety and traffic/transit operations.</i>	Preferred <i>Alternative 3 is preferred because it has positive effect on all planning and transportation criteria.</i>	Neutral <i>Alternative 4 is neutral because while it may improve traffic safety and traffic operations, it may negatively impact active transportation facilities.</i>	Neutral <i>Alternative 3 is neutral because it does not have significant benefits within the planning and transportation criteria.</i>	Preferred <i>Alternative 3 is preferred because it has either a positive or neutral effect on all planning and transportation criteria.</i>
Socio-Economic Environment						
Noise and Vibration Impacts	No change in noise and vibration impacts.	No change in noise and vibration impacts.	No change in noise and vibration impacts.	Slight increase in noise and vibration.	Slight increase in noise and vibration.	Slight increase in noise and vibration.
Land-use Impacts	Alternative would not have any impacts on existing designated land uses.	Alternative would not have any impacts on existing designated land uses.	Alternative would not have any impacts on existing designated land uses.	Alternative would not have any impacts on existing designated land uses.	Alternative would not have any impacts on existing designated land uses.	Alternative would not have any impacts on existing designated land uses.
Property Impacts	No property acquisitions required.	Some potential limited property impacts may be due to possible property acquisition required for active transportation facilities (e.g., sidewalks).	Some potential negative property impacts due to possible property acquisition. However, these would be limited to areas near or approaching the intersections.	Potential-negative property impacts along regional road due to possible property acquisition.	Negative property impacts due to property acquisition required for widening.	No property acquisitions required.
Socio-Economic Environment Summary	Neutral <i>Alternative considered neutral due to lack of any significant socio-economic benefits or impacts.</i>	Neutral <i>Alternative considered neutral due to lack of any significant socio-economic benefits or impacts.</i>	Neutral <i>Alternative considered neutral due to lack of any significant socio-economic benefits or impacts.</i>	Not Preferred <i>Alternative 4 is not preferred due to potential property requirements along the regional road.</i>	Not Preferred <i>Alternative 5 is not preferred due to property requirements where widening is required.</i>	Neutral <i>Alternative considered neutral due to lack of any significant socio-economic benefits or impacts.</i>
Healthy Community						
Impacts on active transportation	Does not encourage use of sidewalks and/or multi use trails and does not improve ability to meet cyclist/pedestrian requirements.	Encourages use of sidewalks and/or multi use trails and allows for improvements to meet cyclist/pedestrian requirements.	Provides opportunity to address cyclist/pedestrian requirements in intersection improvements.	Widening the road would negatively impact the space available for the multi-purpose trail and active transportation facilities, thereby discouraging use of sidewalks and/or multi use trails and impacting ability to meet cyclist/pedestrian requirements.	Limited space available to address cyclist/pedestrian requirements in road widening exercise.	While extension could potentially be designed to accommodate active transportation, it in itself would unlikely be sufficient to encourage use of active transportation.
Impacts on Accessibility	Does not encourage age friendly and accessible living.	Promotion of TDM measures would include highlighting opportunities for age friendly and accessible living.	Intersection improvements would provide opportunity to integrate age friendly and accessible living features.	Widening the road would negatively impact the space available for the multi-purpose trail and active transportation facilities, which may impact space available for pedestrian and mechanized accessibility.	Limited space available to address accessibility requirements in road widening exercise.	Extension could potentially be designed to integrate accessibility features.

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Impacts on Air Quality	Decrease in air quality due to increased vehicles in idle state during peak hours, thereby increasing risk to respiratory and cardiovascular health due to increased exposure to traffic-related air pollution.	Improvement in air quality (compared to “do nothing”) due to fewer vehicles in idle state during peak hours and due to promotion in active transportation methods, thereby decreasing risk to respiratory and cardiovascular health from exposure to traffic-related air pollution.	Improvement in air quality (compared to “do nothing”) due to fewer vehicles in idle state during peak hours and due to promotion in active transportation methods, thereby decreasing risk to respiratory and cardiovascular health from exposure to traffic-related air pollution.	Improvement in air quality (compared to “do nothing”) by improving traffic efficiency, including reduction of idling and slow-moving traffic, thereby decreasing risk to respiratory and cardiovascular health from exposure to traffic-related air pollution.	Municipal roads would not be at capacity, therefore widening municipal roads will not provide a significant improvement to air quality (compared to “do nothing”). Therefore, no significant change in the risk of respiratory and cardiovascular outcomes associated with exposure to traffic related air pollution.	No significant change in air quality as there are no significant improvements expected in traffic operations. Therefore, no significant change in the risk of respiratory and cardiovascular outcomes associated with exposure to traffic related air pollution.
Healthy Community Summary	Not Preferred <i>Alternative 1 is not preferred because it is not compatible with the healthy community criteria.</i>	Preferred <i>Alternative 2 is preferred because it encourages active transportation, provides options for accessibility, and improves air quality compared to “do nothing”.</i>	Preferred <i>Alternative 3 is preferred because it provides an opportunity to incorporate improvements that will aid active transportation and accessibility and improves air quality compared to “do nothing”.</i>	Not Preferred <i>Alternative 4 is not preferred because of negative impacts on active transportation and accessibility.</i>	Neutral <i>Alternative 5 is considered neutral because of limited opportunity to incorporate improvements that will aid active transportation and accessibility.</i>	Neutral <i>Alternative 6 is considered neutral because, while the design of the extension could accommodate accessibility, it will likely not encourage use of active transportation.</i>
Natural Environment						
Climate Change	Increases the rate of GHG emissions due to increased vehicles in idle state during peak hours.	Reduction in GHG emissions (compared to “do nothing”) due to fewer vehicles in idle state during peak hours and due to promotion in active transportation methods.	Reduction in GHG emissions (compared to “do nothing”) by improving traffic efficiency, including reduction of idling and slow-moving traffic.	Reduction in GHG emissions (compared to “do nothing”) by improving traffic efficiency, including reduction of idling and slow-moving traffic.	Municipal roads would not be at capacity, therefore widening municipal roads will not provide a significant improvement in the reduction in GHG emissions (compared to “do nothing”).	No significant change in GHG emissions as there are no significant improvements expected in traffic operation.
Natural Heritage Policies	Is compatible with applicable natural heritage policies.	Is compatible with applicable natural heritage policies.	Is compatible with applicable natural heritage policies.	Is compatible with applicable natural heritage policies.	Is compatible with applicable natural heritage policies.	Is compatible with applicable natural heritage policies.
Trees and Vegetation	No impact on existing trees and vegetation, including sensitive areas.	No significant impact on existing trees and vegetation, including sensitive areas.	No significant impact on existing trees and vegetation, including sensitive areas.	Some boulevard greenspace may be removed; however, no sensitive areas would be impacted.	Some boulevard greenspace may be removed; however, no sensitive areas would be impacted.	Most of the greenspace (grass) within the ROW would be removed; however, no sensitive areas would be impacted.
Wildlife	No impact on wildlife.	No impact on wildlife.	No significant impact on wildlife.	No significant impact on wildlife.	No significant impact on wildlife.	No significant impact on wildlife.
Ground Water	No direct impact on ground water expected.	No direct impact on ground water expected.	No direct impact on ground water expected.	No direct impact on ground water expected.	No direct impact on ground water expected.	No direct impact on ground water expected.
Natural Environment Summary	Neutral <i>The alternative will have no or minimal impacts on the natural environment, although will have higher GHG emissions compared to alternatives 2, 3 and 4.</i>	Preferred <i>Alternative is preferred, given that it has no or minimal impacts on the natural environment and reduces GHG emissions compared to the “do nothing” alternative.</i>	Preferred <i>Alternative is preferred, given that it has no or minimal impacts on the natural environment and reduces GHG emissions compared to the “do nothing” alternative.</i>	Preferred <i>Alternative is preferred, given that it has no or minimal impacts on the natural environment and reduces GHG emissions compared to the “do nothing” alternative.</i>	Neutral <i>The alternative will have minimal impacts on the natural environment, but with no reduction to GHG emissions compared to the “do nothing” alternative.</i>	Neutral <i>The alternative will have minimal impacts on the natural environment, but with no reduction to GHG emissions compared to the “do nothing” alternative.</i>

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 Cultural Environment						
Archaeological Resources	● No impact on archaeological resources.	● No impact on archaeological resources.	● No impact on archaeological resources.	○ Widening the regional road could cause encroachment on Moore's Cemetery, which would require additional archaeological investigations.	● There are no areas along municipal roads that require additional archaeological investigation except for the southern portion of Menkes Drive (by farm field). It is not anticipated that, if Menkes Drive were widened, such widening would encroach into the area requiring Stage 2 archaeological assessment. If this should change during Phase 3, then the required Stage 2 and subsequent archaeological investigations would be undertaken to clear the area of archaeological resources prior to construction. Therefore, no impact on archaeological resources is anticipated.	● No impact on archaeological resources.
Built Heritage Resources	● No impact on built heritage resources.	● No impact on built heritage resources.	● No impact on built heritage resources.	○ Widening the regional road could cause encroachment on Moore's Cemetery, potentially impacting its built heritage. This would require additional cultural heritage impact investigation.	● No impact on built heritage resources is anticipated, as those near municipal roads in the study area consist of or are within commercial/industrial lands. If required, the cultural heritage assessment will be updated to assess potential impacts on built heritage and mitigation measures once a preferred alternative design is identified.	● No impact on built heritage resources.
Cultural Heritage Landscapes	● No impact on cultural heritage landscapes.	● No impact on cultural heritage landscapes.	● No impact on cultural heritage landscapes.	○ Widening the regional road could cause encroachment on Moore's Cemetery, potentially impacting its cultural heritage. This would require additional cultural heritage impact investigation.	● No impact on cultural heritage landscapes is anticipated, as those near municipal roads in the study area consist of or are within commercial/industrial lands. If required, the cultural heritage assessment will be updated to assess potential impacts on cultural heritage landscapes and mitigation measures once a preferred alternative design is identified.	● No impact on cultural heritage landscapes.
Cultural Environment Summary	● Preferred <i>Alternative is preferred because of lack of impacts on archaeological, built heritage, and cultural heritage resources.</i>	● Preferred <i>Alternative is preferred because of lack of impacts on archaeological, built heritage, and cultural heritage resources.</i>	● Preferred <i>Alternative is preferred because of lack of impacts on archaeological, built heritage, and cultural heritage resources.</i>	○ Not Preferred <i>Alternative is not preferred because of potential impacts to Moore's Cemetery.</i>	● Preferred <i>Alternative is preferred because of lack of impacts on archaeological, built heritage, and cultural heritage resources.</i>	● Preferred <i>Alternative is preferred because of lack of impacts on archaeological, built heritage, and cultural heritage resources.</i>

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Technical						
Construction Feasibility	● Construction not required.	● Provision of carpool dedicated parking spaces and bicycle racks.	● Reasonable construction feasibility.	○ Complex construction feasibility to expand regional arterial roads.	○ Somewhat complex construction feasibility to expand existing municipal roads.	● Reasonable construction feasibility.
Stormwater Drainage	● No impact on current stormwater drainage.	● No impact on current stormwater drainage.	○ Improvements may require some realignment of stormwater collection.	○ Widening would require significant realignment of stormwater system. Stormwater drainage may need to be updated to accommodate increased volume of stormwater runoff.	○ Widening may require some realignment of stormwater collection facilities.	○ Stormwater drainage must be designed to accommodate stormwater runoff on the new surface.
Utilities	● Utility relocation not required.	○ Utility relocation may be required.	○ Some utility relocation will be required.	○ Significant utility relocation will be required.	○ Some utility relocation may be required.	● Opportunity for utility installation.
Technical Summary	● Preferred <i>Alternative is preferred due to avoidance of construction.</i>	● Preferred <i>Alternative is preferred due to avoidance of construction</i>	○ Neutral <i>Alternative is considered neutral because construction is feasible with minimal changes required to stormwater and utilities.</i>	○ Not Preferred <i>Alternative is not preferred given the complexity of the widening and changes required to the stormwater system and utilities.</i>	○ Not Preferred <i>Alternative is not preferred because construction of somewhat complex feasibility and impacts to stormwater and utilities.</i>	○ Neutral <i>Alternative is considered neutral because construction is feasible with the opportunity to incorporate any new utilities into the design. However, stormwater collection may be required.</i>
Cost						
Capital Costs	● No capital costs.	○ Moderate capital costs due to installation of sidewalks and traffic signalling improvements.	○ Moderate capital costs.	○ High capital costs to expand a regional arterial road.	○ High capital costs to widen a municipal road.	○ High capital costs to install new road surface.
Property Costs	● Property acquisition unnecessary.	● Minimal property acquisition may be necessary.	○ Some possible property acquisitions.	○ Property acquisition required.	○ Property acquisition required.	● Property acquisition unnecessary given that road allowance exists.
Maintenance Costs	● No maintenance costs.	● Low maintenance costs.	○ Moderate maintenance costs.	○ High maintenance costs.	○ Moderate maintenance costs.	○ Moderate maintenance costs.
Cost Summary	● Preferred <i>Alternative is preferred due to low costs and no property acquisition.</i>	● Preferred <i>Alternative is preferred due to low costs and minimal property acquisition.</i>	○ Neutral <i>Alternative is neutral due to moderate capital and maintenance costs.</i>	○ Not Preferred <i>Alternative is not preferred due to high capital and maintenance costs and required property acquisition.</i>	○ Not Preferred <i>Alternative is not preferred due to high capital costs and required property acquisition.</i>	○ Neutral <i>Alternative is neutral due to high capital costs, but no property acquisition required.</i>
Overall Summary	○ Not Preferred <i>Alternative 1 is not preferred due to its inconsistency with planning objectives and negative air quality impacts.</i>	● Preferred <i>Alternative 2 is preferred due to its consistency with planning objectives, promotion of active transportation and avoidance of construction.</i>	● Preferred <i>Alternative 3 is preferred because it has generally positive results for the evaluation criteria.</i>	○ Not Preferred <i>Alternative 4 is not preferred due to its inconsistency with planning objectives, property impacts and anticipated costs.</i>	○ Not Preferred <i>Alternative 5 is not preferred due to its lack of project benefits and anticipated costs.</i>	○ Neutral <i>Alternative 6 is considered neutral because its construction will not have any significant impacts, but it will not have any significant traffic management benefits.</i>