Evaluation Factors and Sub-Factors	Alternative S1-1	Alternative S1-2 – Preferred
	Summary of Potential Net Effects and Ranking	
1.0 Natural Environment		
1.1 Fish and Fish Habitat		
1.1.1 Fish Habitat	Standard net effects to watercourses as outlined in the accompanying memo at the following: **6 watercourses:** • 1 crossing is a permanent coolwater system (East Branch Sixteen Mile Creek, ~1.1 km within the TPR) • 1 is an intermittent tributary of East Branch Sixteen Mile Creek tributary classified as cool water (total ~1.8 km within the TPR) • 4 are mapped intermittent tributaries, unclassified (2 associated with highway ditches), part of a tributary system to East Branch Sixteen Mile Creek tributary (unconfirmed fish) (Total ~12 km within the TPR) Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, offsetting / enhancement measures; until confirmed, net effects remain the same as potential effects: • Impacting a long reach of intermittent watercourse that either contain or are upstream of moderately sensitive coolwater fish communities • Several intermittent features that are within the alternative are likely to be impacted; however, these are highly impacted / modified by the existing Highway 401 / 407 corridor LOW NET EFFECT	Standard net effects to watercourses as outlined in the accompanying memo at the following: **5 watercourses:** • 1 crossing is a permanent coolwater system (East Branch Sixteen Mile Creek, ~0.5 km within the TPR) • 4 are mapped intermittent tributaries, unclassified (2 associated with highway ditches), part of a tributary system to East Branch Sixteen Mile Creek tributary (unconfirmed fish) (Total 13.4 km within the study area) Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, offsetting / enhancement measures; until confirmed, net effects remain the same as potential effects: • Several intermittent features that are within the alternative are likely to be impacted; however, these are highly impacted / modified by the existing Highway 401 / 407 corridor LOW NET EFFECT
	RANKING: 2nd Both alternatives have potential to impact several intermittent systems though this alternative impacts a longer, meandering reach of East Branch Sixteen Mile Creek (with commensurate potential for some realignment) as well as a long defined, intermittent tributary.	**RANKING: 1st** Both alternatives have potential to impact several intermittent watercourses though this alternative impacts a shorter, more perpendicular reach of East Branch Sixteen Mile Creek and avoids impact to an intermittent tributary of East Branch Sixteen Mile Creek.
1.1.2 Fish Community	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, offsetting / enhancement measures; until confirmed, net effects remain the same as potential effects: • Impacting a long reach of intermittent watercourse with moderately sensitive coolwater fish community LOW NET EFFECT	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, offsetting / enhancement measures; until confirmed, net effects remain the same as potential effects: • Impacting one existing crossing of a permanent watercourse with moderately sensitive coolwater fish community LOW NET EFFECT
	RANKING: 2nd Both alternatives impact East Branch Sixteen Mile Creek with moderately sensitive coolwater fish community; however, this alternative impacts a longer, more meandering reach of the permanent watercourse.	**RANKING: 1st** Both alternatives impact East Branch Sixteen Mile Creek with moderately sensitive coolwater fish community. This alternative impacts a shorter, more perpendicular reach.
1.2 Terrestrial Ecosystems		
1.2.1 Wildlife and Wildlife Habitat	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of small existing wildlife habitats will be removed. Net effects include:	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Large portions of small existing wildlife habitats will be removed. Net effects include:

Evaluation Factors and Sub-Factors	Alternative S1-1 Summary of Potential Net Effects and Ranking	Alternative S1-2 – Preferred Summary of Potential Net Effects and Ranking
	• Permanent loss of candidate wildlife habitat including potential habitat for Species at Risk (SAR) and Species of Conservation Concern (SCC). • Loss of tracts of candidate Significant Wildlife Habitat (SWH) and other areas for breeding and rearing of young (e.g. amphibian breeding habitat). • Fragmentation of one moderately sized natural corridor associated with Sixteen Mile Creek. • Removals through this alternative would represent 16.7 ha losses, or complete removal for many habitat patches. • Reduction of wildlife habitat quality through indirect effects that cannot be fully mitigated including edge effects (e.g. increased light and noise and the introduction of pathways for invasive species) and increased potential for animal-vehicle collisions. HIGH NET EFFECT	• Permanent loss of candidate wildlife habitat including potential habitat for Species at Risk (SAR) and Species of Conservation Concern (SCC) • Loss of tracts of candidate SWH and other areas for breeding and rearing of young (e.g. amphibian breeding habitat). • Fragmentation of one moderately sized natural corridor associated with Sixteen Mile Creek. • Removals through this alternative would represent ~8.8 ha losses, or complete removal for many habitat patches. • Reduction of wildlife habitat quality through indirect effects that cannot be fully mitigated including edge effects (e.g. increased light and noise and the introduction of pathways for invasive species) and increased potential for animal-vehicle collisions. MODERATE NET EFFECT
	RANKING: 2nd Both alternatives have the potential to affect wildlife habitat including wetland and cultural meadow communities. This alternative will result in a greater area of habitat removal.	**RANKING: 1st** Both alternatives have the potential to affect wildlife habitat. This alternative will result in a lesser area of habitat removal.
1.2.2 Wetlands	Net effects associated with the route are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Net effects include: • Impacts to 5 unevaluated wetlands including approximately ~9.2 ha of unevaluated wetland, including ~6.3 ha of deciduous swamp. • Significant removals to several large wetlands communities throughout the section. • The largest wetland in this section (Patch SM-EB-1 and SM-EB-2) will be significantly affected by this alternative, removing ~4.2 ha of SM-EB-1 and ~4.3 ha of SM-EB-2. • Reduction in wetland quality through Indirect effects that cannot be fully mitigated including edge effects (e.g. increased light, wind, road contaminants and the introduction of pathways for invasive species) and impacts to hydrologic and groundwater inputs that support these features Affected wetlands are generally small but several areas, such as the swamps and marshy complexes are expected to provide higher structural and native-species diversity and other functions. HIGH NET EFFECT	Net effects associated with the route are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Net effects include: • Impacts to 3 unevaluated wetlands including approximately ~5.0 ha of unevaluated wetland, including ~3.8 ha of deciduous swamp. • Reduction in wetland quality through indirect effects that cannot be fully mitigated including edge effects (e.g. increased light, wind, road contaminants and the introduction of pathways for invasive species) and impacts to hydrologic and groundwater inputs that support these features MODERATE NET EFFECT
	RANKING: 2nd Both alternatives have the potential to affect wetland communities. This alternative will result in a greater area of wetland removal.	**RANKING: 1st** Both alternatives have the potential to affect wetland communities. This alternative will result in a lesser area of wetland removal.
1.2.3 Woodlands and Vegetation	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Route alignment constraints along the existing highway will allow for a small reduction in the amount of woodland removed. Net effects include: • Removal of ~13.8 ha of vegetation communities from 19-unit features including forest, swamp and meadow • No significant woodlands are affected by this alternative • No interior woodland habitat is affected by this alternative.	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. Route alignment constraints along the existing highway will allow for a small reduction in the amount of woodland removed. Net effects include: • Removal of ~7.6 ha of vegetation communities including forest, swamp, thicket, and meadow • No significant woodlands are impacted by this route alternative. • No interior woodland habitat is impacted by this route alternative.

Evaluation Factors and Sub-Factors	Alternative S1-1 Summary of Potential Net Effects and Ranking	Alternative S1-2 – Preferred Summary of Potential Net Effects and Ranking
	• No significant valley lands are affected by this alternative. • Reduction in vegetation community quality through Indirect effects that cannot be fully mitigated including effects from road contaminants (e.g. salt, heavy metals, sediment / debris), introduction of pathways for invasive species, edge / exposure impacts (e.g. canopy blow down) Aside from SM-EB-1 and SM-EB-2, vegetation communities within this alternative are generally small and of low diversity, or early-successional and containing higher abundances of non-native and disturbance-tolerant species, however, higher quality habitats are also present. These features represent the only remaining patches of natural vegetation in the general landscape. HIGH NET EFFECT	• No significant valley lands are impacted by this route alternative. • Reduction in vegetation community quality through Indirect effects that cannot be fully mitigated including effects from road contaminants (e.g. salt, heavy metals, sediment / debris), introduction of pathways for invasive species, edge / exposure impacts (e.g. canopy blow down) Aside from SM-EB-1 and SM-EB-2, vegetation communities within this alternative are generally small and of low diversity, or early-successional and containing higher abundances of non-native and disturbance-tolerant species, however, higher quality and provincially rare habitats are also present. These features represent the only remaining patches of natural vegetation in the general landscape. MODERATE NET EFFECT
	RANKING: 2nd Both alternatives have the potential to affect woodland meadow communities. This alternative will result in a greater area of woodland/meadow removal.	**RANKING: 1st** Both alternatives have the potential to affect woodland and meadow communities. This alternative will result in a lesser area of woodland and meadow removal.
1.2.4 Designated/Special/ Natural Areas	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. • There are no ESA, ESPAs, ANSI or other designated areas within this alternative. • There are no national or provincial parks within this alternative. • There are no Conservation Authority lands within this alternative. • There are no Greenbelt Area Natural Heritage System crossings within this alternative. • Impacts Greenbelt River Valley System Net effects include removals of portions of Regional Natural Heritage System -- Region of Halton Official Plan, Alternative intersects with Key Features at one location, including fragmentation of a minor riparian zone and partial removal of associated woodlot (~25%) as described in sections above. HIGH NET EFFECT	Net effects associated with the alternative are dependent on the ability to implement avoidance, mitigation, compensation / enhancement measures; until confirmed, net effects remain the same as potential effects. • There are no ESA, ESPAs, ANSI or other designated areas within this alternative. • There are no national or provincial parks within this alternative. • There are no Conservation Authority lands within this alternative. • There are no Greenbelt Area Natural Heritage System or River Valley System crossings within this alternative. Net effects include removals of portions of Regional Natural Heritage System -- Region of Halton Official Plan. Alternative intersects with Key Features at one location including fragmentation of a minor riparian zone as described in sections above. MODERATE NET EFFECT
	RANKING: 2nd Both alternatives have the potential to affect Key Features. This alternative will result in a greater area of Key Features removal.	**RANKING: 1st** Both alternatives have the potential to affect Key Features communities. This alternative will result in a lesser area of Key Features removal.
1.3 Ecosystem Services	**Relative ES Value** • Agriculture: Moderate • Natural Cover: Moderate • Cumulative: Moderate **ES Value Representation** • Agriculture: 25% • Natural Cover: 75% MODERATE NET EFFECT	**Relative ES Value** • Agriculture: Low • Natural Cover: Moderate • Cumulative: Moderate **ES Value Representation** • Agriculture: 23% • Natural Cover: 77% MODERATE NET EFFECT
	RANKING: 2nd While both alternatives have an overall moderate net effect using the Ecosystem Service (ES) Net Effects weighting, S1-1 has a Moderate effect for all three relative ES measures – Agriculture, Natural Cover and Cumulative. As such, the weighted score of this alternative is higher than S1-2.	**RANKING: 1st** While both alternatives have an overall moderate net effect using the Ecosystem Service (ES) Net Effects weighting, S1-2 has a Low effect for the Agriculture relative ES measure resulting in a lower weighted score than S1-1 and making it the preferred alternative for S1.
1.4 Groundwater		

Evaluation Factors and Sub-Factors	Alternative S1-1 Summary of Potential Net Effects and Ranking	Alternative S1-2 – Preferred Summary of Potential Net Effects and Ranking
1.4.1 Areas of Groundwater Recharge or Discharge	• Small loss of recharge due to footprint and small loss of discharge due to interception. LOW NET EFFECT	• Small loss of recharge due to footprint and small loss of discharge due to interception. LOW NET EFFECT
	RANKING: 1st Same Net Effect	**RANKING: 1st** Same Net Effect
1.4.2 Groundwater Source Areas and Wellhead Protection Areas	• No Net Effect NO NET EFFECT	• No Net Effect NO NET EFFECT
	RANKING: 1st Same Net Effect	**RANKING: 1st** Same Net Effect
1.4.3 Large Volume Wells	• No Net Effect NO NET EFFECT	• No Net Effect NO NET EFFECT
	RANKING: 1st Same Net Effect	**RANKING: 1st** Same Net Effect
1.4.4 Private Wells	• Potential reduction water quality within the shallow aquifer in at least 5 wells due to potential salt issue only. • At least 11 wells are to be removed/ decommissioned by alternative. LOW NET EFFECT	• Potential reduction water quality within the shallow aquifer in at least 3 wells due to potential salt issue only. • At least 15 wells are to be removed/ decommissioned by alternative. LOW NET EFFECT
	RANKING: 1st Same Net Effect	**RANKING: 1st** Same Net Effect
1.4.5 Groundwater-Dependent Commercial Enterprises	• 8 commercial use and wells displaced. MODERATE NET EFFECT	• 8 commercial use and wells displaced. MODERATE NET EFFECT
	RANKING: 1st Same Net Effect	**RANKING: 1st** Same Net Effect
1.4.6 Groundwater-Sensitive Ecosystems	• Low potential to affect sensitive ecosystems with wetland areas in buffer zone and coolwater streams that are somewhat dependent on groundwater due to the presence of relatively small number of water courses and wetlands. Some loss of discharge function anticipated. LOW NET EFFECT	• Low potential to affect sensitive ecosystems with wetland areas in buffer zone and coolwater streams that are somewhat dependent on groundwater due to the presence of relatively small number of watercourses and wetlands. Some loss of discharge function anticipated. LOW NET EFFECT
	RANKING: 1st Same Net Effect	**RANKING: 1st** Same Net Effect
1.5 Surface Water		
1.5.1 Watershed / Subwatershed Drainage Features / Patterns	• Corridor is adjacent to major watercourse corridor (East 16 Mile Creek) and will impact buffer for that corridor. • Realignment of the meander upstream of 401-Trafalgar on East 16 Mile Creek would be required. • Alignment will cover completely a tributary section of East 16 Mile Creek, requiring removal of that system. • Widening of 401 to north will impact creek in an area where significant meandering and cutting is occurring. • Widening of 407 southwest side will encroach on tributary drainage feature. • A minimum of 6 culvert extensions beneath 401 and 407 would be required. • Drainage along north and south sides of highways will require repositioning.	• Widening of 401 to north will impact creek in an area where significant meandering and cutting is occurring. • Realignment of the meander upstream of 401-Trafalgar on East 16 Mile Creek would be required. • Widening of 407 southwest side will encroach on tributary drainage feature. • A minimum of 6 culvert extensions beneath 401 and 407 would be required. • Drainage along north and south sides of highways will require repositioning • In summary, there is one potential realignment on East 16 Mile Creek which would be costly to accommodate.

Evaluation Factors and Sub-Factors	Alternative S1-1 Summary of Potential Net Effects and Ranking	Alternative S1-2 – Preferred Summary of Potential Net Effects and Ranking
	• In summary, there are a number of proximity and loss / realignment potential surface watercourse issues which would be costly to accommodate. MODERATE NET EFFECT	LOW NET EFFECT
	RANKING: 2nd Loss of tributary connection to East 16 Mile Creek will require supplementing flow to the creek through SWM measures, which could be problematic for Conservation Halton.	**RANKING: 1st** Compared to S1-1 this alternative does not lose a tributary connection to East 16 Mile Creek; all other impacts are common to both alternatives.
1.5.2 Surface Water Quality and Quantity	• Introduces 116 ha impervious area to East Sixteen Mile Creek including 60 ha to Lisgar subwatershed; • Potential impacts/encroachment to Highway 407 stormwater management ponds (6 ponds); • Medium impacts on quality through direct and indirect discharges of contaminated and sediment-laden run-off, thermal impact on the coolwater system; • High impacts on hydrology due to changes in ground permeability; • High effects on modifications to surface drainage patterns and alterations of water bodies. MODERATE NET EFFECT	• Introduces 101 ha impervious area to East Sixteen Mile Creek including 76 ha to Lisgar subwatershed. • Potential impacts/encroachment to Highway 407 stormwater management ponds (6 ponds) • Medium impacts on quality through direct and indirect discharges of contaminated and sediment-laden run-off, thermal impact on the coolwater system. • High impacts on hydrology due to changes in ground permeability. • High effects on modifications to surface drainage patterns and alterations of water bodies. MODERATE NET EFFECT
	RANKING: 2nd Larger impervious area; and larger impervious area to the sensitive watershed.	**RANKING: 1st** Smaller impervious area
1.6 Air Quality and Climate Change		
1.6.1 Local and regional air quality impacts; greenhouse gas emissions	• Most residences are sufficiently far from GTAW to experience little change in local air quality. A few (around Steeles Ave.) are anticipated to be close enough to experience a greater change, but pollutants will remain within acceptable levels. LOW NET EFFECT	• Most residences are sufficiently far to experience little change in local air quality. A few (around Steeles Ave.) are anticipated to be close enough to experience a greater change, but the pollutants will be within acceptable levels. LOW NET EFFECT
	RANKING: 2nd Nearest residences are well set back from GTAW from an air quality perspective, for the anticipated volume of traffic there.	**RANKING: 1st** Nearest residences are well set back from GTAW for the anticipated volume of traffic there. This alternative also contributes to the shortest overall corridor length, thus reducing regional emissions of GHG's and air pollutants.
2.0 Land Use / Socio-Economic Environment		
2.1 Land Use Planning Policies, Goals, Objectives		
2.1.1 Indigenous Land Claims	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.
2.1.2 Provincial / Federal Land Use Planning Policies / Goals / Objectives	• Consistent with the Growth Plan policies. • Impacts Greenbelt River Valley System • Impacts PPS agricultural lands, employment lands, public space and recreation policies. • Impacts 211 hectares of employment lands.	• Consistent with the Growth Plan policies. • Greater impact on Greenbelt Plan • Impacts PPS employment lands and agricultural lands and public space and recreation policies. • Impacts 173 hectares of employment lands. • Impacts 51 hectares of Agricultural Lands.

Evaluation Factors and Sub-Factors	Alternative S1-1 Summary of Potential Net Effects and Ranking	Alternative S1-2 – Preferred Summary of Potential Net Effects and Ranking
	• Impacts 53 hectares of Agricultural Lands. • Impacts 28 hectares of environmental policy area lands. MODERATE NET EFFECT	• Impacts 19 hectares of environmental policy area lands. LOW NET EFFECT
	RANKING: 2nd Effects to agricultural, employment and environmental policy area lands are reduced. This alternative removes a greater amount of employment area lands.	**RANKING: 1st** Effects to agricultural, employment and environmental policy area lands are reduced. This alternative removes a smaller amount of employment area lands.
2.1.3 Municipal (local and regional) Land Use Planning Policies / Goals / Objectives	• Impacts 211 hectares of employment area adjacent to Highway 401. • Impacts 53 hectares of Agricultural Lands. • Impacts 28 hectares of open space/ recreational lands. • Impacts 7 hectares of rural lands. • Impacts 196 hectares of future urban area lands. • Impacts 28 hectares of environmental policy area. • Low impact on City of Mississauga Ninth Line Study Area • Consistent with Halton Corridor Protection Lands (ROPA 43). LOW NET EFFECT	• Impacts 173 hectares of employment area adjacent to Highway 401. • Impacts 51 hectares of Agricultural Lands. • Impacts 11 hectares of rural lands. • Impacts 163 hectares of future urban area lands. • Impacts 19 hectares of environmental policy area. • Low impact on City of Mississauga Ninth Line Study Area. • Consistent with Halton Corridor Protection Lands (ROPA 43) LOW NET EFFECT
	RANKING: 2nd Greater overall effect on employment lands and future urban area lands with minimal effect on agricultural lands. Also affects some open space lands to the south of Highway 401 and adjacent to the Outlet mall.	**RANKING: 1st** Minimal impact on employment lands and agricultural lands in comparison to S1-1 given the more direct connection.
2.1.4 Development Objectives of Private Property Owners	• Likely interest to develop lands but no applications made because of the GTA West Study Area. LOW NET EFFECT	• Likely interest to develop lands but no applications made because of the GTA West Study Area. LOW NET EFFECT
	RANKING: 1st Effects to future potential development can be reduced by removing property from the FAA and compensating impacted landowners.	**RANKING: 1st** Effects to future potential development can be reduced by removing property from the FAA and compensating impacted landowners.
2.2 Land Use – Community		
2.2.1 First Nation Reserves	• No reserves in study area. NO NET EFFECT	• No reserves in study area. NO NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.
2.2.2 Indigenous Sacred Areas	• No known or reported Indigenous Sacred Areas NO NET EFFECT	• No known or reported Indigenous Sacred Areas NO NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.
2.2.3 Urban and Rural Residential Uses and Properties	• 6 residential properties impacted (2.85 hectares). LOW NET EFFECT	• 6 residential properties impacted (1.5 hectares). LOW NET EFFECT
	RANKING: 2nd Greater net effect to the total area of residential lands.	**RANKING: 1st** Lower net effect to the total area of residential lands.
2.2.4 Commercial/ Industrial Uses and Properties	• Impacts 4 properties (Redwood Pet Resort, CBC, Toronto Premium Outlets, residential dwelling no named business). • Impacts 1 vacant industrial use.	• Impacts 4 properties (Toronto Premium Outlets, Family Golf Academy and Fishburn Business Centre, residential dwelling no named business). • Potential impacts to Toronto Premium Outlets parking area can be mitigated through preliminary design.

Evaluation Factors and Sub-Factors	Alternative S1-1 Summary of Potential Net Effects and Ranking	Alternative S1-2 – Preferred Summary of Potential Net Effects and Ranking
	LOW NET EFFECT **RANKING: 1st** Design refinements could avoid some commercial land-uses.	• Impacts 1 vacant industrial use. LOW NET EFFECT **RANKING: 2nd** The alternative impacts the use of the Fishburn Business park as 3 buildings are impacted.
2.2.5 Recreational Areas and Tourist Attractions	• No impacts. NO NET EFFECT **RANKING: 1st** No impacts.	• Design refinements could avoid impacts to the Golf Academy. NO NET EFFECT **RANKING: 2nd** This alternative impacts the Golf Academy located south of Highway 401 while the other alternative does not impact any recreational areas or tourist attractions.
2.2.6 Community Facilities / Institutions	• Impacts a small portion of lands at Churchill Meadows Christian Church. NO NET EFFECT **RANKING: 1st** Impacts a small portion of lands; does not impact the use of the lands. Design refinements could avoid impacts.	• Impacts a small portion of lands at Churchill Meadows Christian Church. NO NET EFFECT **RANKING: 1st** Impacts a small portion of lands; does not impact the use of the lands. Design refinements could avoid impacts.
2.2.7 Municipal Infrastructure and Public Service Facilities	• No impacts. NO NET EFFECT **RANKING: 1st** No impacts	• No impacts. NO NET EFFECT **RANKING: 1st** No impacts
2.3 Noise Sensitive Areas (NSA's)		
2.3.1 Transportation Noise	• Residences on 9th Line are anticipated to be far enough away from Highway 401/407 ETR and close enough to GTAW to result in an increase in average traffic noise. LOW NET EFFECT **RANKING: 1st** Some residences on 9th Line where noise is not dominated by existing sources (Highway 401 and 407 ETR) may experience an increase in traffic noise.	• Noise at nearest residences (on Steeles Ave) is dominated by existing traffic noise. Residences on 9th and 10th Line are anticipated to be well setback from the GTAW. LOW NET EFFECT **RANKING: 1st** Relatively good setback from those residences on both 9th and 10th Line where noise is not dominated by existing sources (Highway 401 and 407 ETR) though they may still experience an increase in traffic noise.
2.4 Land Use – Resources		
2.4.1 Indigenous Treaty Rights and Land Use Management	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT **RANKING: 1st** No difference between alternatives.	Treaties including Nanfan (1701), Treaty 3 (1795), Treaty 3.75 (1795), Treaty 13 (1805), Treaty 13A (1805), Treaty 18, 1818, Treaty 19 (1918), Williams Treaty (1923), as well as various Assertions and Claims. • Additional Indigenous Assertions and/or Claims may be filed and/or proven at any time. MODERATE NET EFFECT **RANKING: 1st** No difference between alternatives.
2.4.2 Agriculture / Specialty Crop • Removal or sterilization of Class 1 – 3 agricultural lands • Specialty Crops/Cropland affected	• Loss of 14.4 ha of Class 1 - 3 lands • No effect	• Loss of 8.1 ha of Class 1 – 3 lands • No effect

Evaluation Factors and Sub-Factors	Alternative S1-1	Alternative S1-2 – Preferred
	Summary of Potential Net Effects and Ranking	
• Cropland affected	• Loss of 12.0 ha of common field crop cropland Loss of 0.5 ha of small grains cropland Loss of 1.9 ha of forage cropland	• Loss of 8.1 ha of common field cropland
• Livestock operations affected	• One livestock operation affected (Horses)	• No effect
• Loss of agricultural buildings	• Loss of one machine shed and one retired barn	• No effect
• Agricultural buildings within 50 m	• No effect	• No effect
• Field crop operations affected	• Three field crop operations affected	• One field crop operation affected
• Farm properties greater than 20 ha affected	• One farm property greater than 20 ha affected	• One farm property greater than 20 ha affected
• Farm properties less than 20 ha affected	• Two farm properties less than 20 ha affected	• No effect
• Severed parcels greater than 20 ha created	• No effect	• No effect
• Severed parcels less than 20 ha created	• Two severed parcels less than 20 ha created	• One severed parcel less than 20 ha created
• Landlocked parcels created	• One landlocked parcel created	• One landlocked parcel created
• High investment operations affected	• No effect	• No effect
• Farm equipment transportation routes affected	• No effect	• No effect
• Division of agricultural community areas	• No effect	• No effect
• Loss of tile drainage	• No effect	• No effect
	LOW NET EFFECT	LOW NET EFFECT
	RANKING: 2nd	**RANKING: 1st**
	• Greater loss of Class 1 – 3 lands • Greater number of properties affected • Greater number of livestock operations affected • Greater number of agricultural buildings affected • Greater number of field crop operations affected • Greater number of severed parcels < 20 ha created	• Smaller loss of Class 1 – 3 lands • Fewer properties affected • No livestock operations affected • No agricultural buildings affected • Fewer field crop operations affected • Fewer severed parcels < 20 ha created
2.4.3 Recreation	• No impacts.	• No impacts.
	NO NET EFFECT	NO NET EFFECT
	RANKING: 1st	**RANKING: 1st**
	No impacts	No impacts
2.4.4 Aggregate and Mineral Resources	• No impacts.	• No impacts.
	NO NET EFFECT	NO NET EFFECT
	RANKING: 1st	**RANKING: 1st**
	No impacts	No impacts

Evaluation Factors and Sub-Factors	Alternative S1-1 Summary of Potential Net Effects and Ranking	Alternative S1-2 – Preferred Summary of Potential Net Effects and Ranking
2.5 Major Utility Transmission Corridors and Pipelines		
2.5.1 Major Existing Utility Transmission Corridors and Pipelines	• No impacts. NO NET EFFECT	• No impacts. NO NET EFFECT
	RANKING: 1st No impacts	**RANKING: 1st** No impacts
2.5.2 Major Proposed Utility Transmission Corridors and Pipelines	• No impacts. NO NET EFFECT	• No impacts. NO NET EFFECT
	RANKING: 1st No impacts	**RANKING: 1st** No impacts
2.6 Contaminated Property and Waste Management	**Properties within alternative:** • Six (6) commercial/ light Industrial/ agricultural business properties; • One (1) institutional (church). **Properties within 250 m of alternative:** • Two (2) gas stations; • Six (6) commercial/ light Industrial/ agricultural business properties. MODERATE NET EFFECT	**Properties within alternative:** • Six (6) commercial/ light industrial/ agricultural business properties; • One (1) institutional property (church). **Properties within 250 m of alternative:** • Two (2) gas stations; • One (1) automobile repair facility; • Eight (8) commercial/ light Industrial/ agricultural business properties. MODERATE NET EFFECT
	RANKING: 1st One (1) property of high concern to be directly impacted; Six (6) properties of medium concern to be directly impacted; Five (5) properties of high concern to be indirectly impacted; Three (3) properties of medium concern to be indirectly impacted.	**RANKING: 2nd** Two (2) properties of high concern to be directly impacted; Five (5) properties of medium concern to be directly impacted; Five (5) properties of high concern to be indirectly impacted; Six (6) properties of medium concern to be indirectly impacted.
2.7 Landscape Composition		
2.7.1 Terrain	• Mostly flat, level topography with agricultural land use, occasional isolated residences and commercial / industrial uses. • This alternative will affect >7 watercourses, including a high level stream (ESM Creek) and associated floodplain. • 5 unevaluated wetlands are affected by this alternative • Increased noise and light pollution to surrounding uses, primarily agricultural operations, wildlife and vegetation communities, buffered through topography, planting and fencing. MODERATE NET EFFECT	• Mostly level topography with agricultural land uses, occasional isolated residences and industrial uses. • This alternative will affect >6 watercourses, including a high-level stream (ESM Creek) and associated floodplain. • 3 unevaluated wetlands are affected by this alternative • Increased noise and light pollution to surrounding uses, primarily agricultural operations, wildlife and vegetation communities, buffered through topography, planting and fencing. MODERATE NET EFFECT
	RANKING: 2nd Greater net effect on topographic character and existing land use patterns.	**RANKING: 1st** S1-2 is preferred as it has a lower net effect on terrain.
2.7.2 Vegetation	• Alternative interrupts a large linear vegetative community and adjacent high level watercourse at Highway 401 just east of Trafalgar Road • Removal of several small woodlots, the majority of which are fragmented and/or isolated. No identified significant woodlands or valley lands affected. MODERATE NET EFFECT	• Alternative interrupts a large linear vegetative community and associated stream at Highway 401 just east of Trafalgar Road • Effect on several small and isolated woodlots near Highway 401. MODERATE NET EFFECT
	RANKING: 2nd Higher net effects to vegetative communities in this alternative and greater area of vegetation removal; similar effects to woodlots as S1-2.	**RANKING: 1st** Lower net effects and smaller area of vegetation removal to vegetative community adjacent to a high-level watercourse, effect on another stream with no floodplain and minimal associated vegetation and one additional small woodlot in comparison with S1-1.

Evaluation Factors and Sub-Factors	Alternative S1-1	Alternative S1-2 – Preferred
	Summary of Potential Net Effects and Ranking	
2.7.3 Visual Impacts	• Visual effect from key receptor (residential neighbourhood to the southeast). • Diminished aesthetic quality of scenic views, visual impact can be reduced through mitigation/compensation measures. • Moderate to high spatial dominance of landscape alterations. • Low absorptivity due to primarily flat agricultural lands. MODERATE NET EFFECT	• Diminished aesthetic quality of scenic views, reduced visual impact through mitigation/compensation measures. • Visual effect from key receptor (residential neighbourhood to the southeast). • Effect on a business centre which falls under this alternative. • Low spatial dominance of landscape alterations. • Low absorptivity due to primarily flat agricultural lands. MODERATE NET EFFECT
	RANKING: 2nd Spatial dominance of S1-1 is greater than S1-2. No significant difference in effect to key receptor.	**RANKING: 1st** S1-2 is preferred as the spatial dominance of landscape alterations in S1-1 is greater than S1-2. No significant difference in effect to key receptor.
2.7.4 Aesthetics	• Longer alternative and separate from the alignment of the existing 407 ETR connection, moderate effect on landscape. • Effect on view to the north of Highway 401 along the stream corridor and associated woodlot at Eighth Line. MODERATE NET EFFECT	• Shorter alternative has low effect on landscape and aligns with the existing 407 ETR connection. LOW NET EFFECT
	RANKING: 2nd Alternative is less integrated with the existing 407 ETR and the alternative is longer (i.e. has a greater effect), more disruption of existing views and vistas.	**RANKING: 1st** Alternative is more integrated with the existing 407 ETR; less disruption of existing views and vistas.
3.0 Cultural Environment		
3.1 Built Heritage Resources and Cultural Heritage Landscapes		
3.1.1 Built Heritage Resources	• There are 1 designated (BHR 032), 1 listed (BHR 015) and 1 potential (BHR 016) BHRs affected by this alternative. HIGH NET EFFECT	• There are 1 designated (BHR 032) and 1 listed (BHR 015) BHRs affected by this alternative. HIGH NET EFFECT
	RANKING: 1st There are 1 designated, 1 listed and 1 potential BHRs affected by this alternative which will require further evaluation in order to determine their Cultural Heritage Value and Interest. Once Cultural Heritage Value and Interest has been determined, avoidance, protection and mitigation measures must be completed.	**RANKING: 1st** There are 1 designated and 1 listed BHRs affected by this alternative which will require further evaluation in order to determine their Cultural Heritage Value and Interest. Once Cultural Heritage Value and Interest has been determined, avoidance, protection and mitigation measures must be completed.
3.1.2 Heritage Bridges	• There are no Heritage Bridges affected by this alternative. NO NET EFFECT	• There are no Heritage Bridges affected by this alternative. NO NET EFFECT
	RANKING: 1st There are no Heritage Bridges affected by this alternative.	**RANKING: 1st** There are no Heritage Bridges affected by this alternative.
3.1.3 Cultural Heritage Landscapes	• There are 3 listed (CHL 001, CHL 018 and CHL 019) and 1 designated (CHL 033) CHLs affected by this alternative. HIGH NET EFFECT	• There are 2 listed (CHL 001 and CHL 018) and 1 designated (CHL 033) CHLs affected by this alternative. HIGH NET EFFECT
	RANKING: 1st There are 3 listed and 1 designated CHLs affected by this alternative which will require further evaluation in order to determine their Cultural Heritage Value and Interest. Once Cultural Heritage Value and Interest has been determined, avoidance, protection and mitigation measures must be completed.	**RANKING: 1st** There are 2 listed and 1 designated CHLs affected by this alternative which will require further evaluation in order to determine their Cultural Heritage Value and Interest. Once Cultural Heritage Value and Interest has been determined, avoidance, protection and mitigation measures must be completed.
3.2 Archaeology		

Evaluation Factors and Sub-Factors	Alternative S1-1	Alternative S1-2 – Preferred
	Summary of Potential Net Effects and Ranking	
3.2.1 Pre-Contact and Contact Indigenous Archaeological Sites	• No registered sites, however archaeological potential is present within much of this alternative. LOW NET EFFECT	• No registered sites, however archaeological potential is present within much of this alternative. LOW NET EFFECT
	RANKING: 1st No registered pre-contact and contact Indigenous sites are present within this alternative. 175 hectares of undisturbed land containing archaeological potential.	**RANKING: 1st** No registered pre-contact and contact Indigenous sites are present within this alternative. 133 hectares of undisturbed land containing archaeological potential.
3.2.2 Historic Euro-Canadian Archaeological Sites	• 1 registered archaeological site. Archaeological potential is present within much of this alternative. MODERATE NET EFFECT	• 2 registered archaeological sites. Archaeological potential is present within much of this alternative. MODERATE NET EFFECT
	RANKING: 1st 1 known archaeological site requiring further assessment within this alternative. 175 hectares of undisturbed land containing archaeological potential.	**RANKING: 1st** 2 known archaeological sites requiring further assessment within this alternative. 133 hectares of undisturbed land containing archaeological potential.
3.2.3 Indigenous Burial Sites	• No known or reported Indigenous Burial Sites. NO NET EFFECT	• No known or reported Indigenous Burial Sites. NO NET EFFECT
	RANKING: 1st No difference between alternatives.	**RANKING: 1st** No difference between alternatives.
3.2.4 Cemeteries	• No registered cemeteries present within this alternative. LOW NET EFFECT	• No registered cemeteries present within this alternative. LOW NET EFFECT
	RANKING: 1st No registered cemeteries are present within this alternative. 175 hectares of undisturbed land containing archaeological potential.	**RANKING: 1st** No registered cemeteries are present within this alternative. 133 hectares of undisturbed land containing archaeological potential.
4.0 Transportation		
4.1 System Capacity & Efficiency		
4.1.1 Movement of People	• Provides high capacity freeway and transitway operations, but does not allow for a connection to future employment lands via Trafalgar Road. MODERATE CAPACITY & EFFICIENCY	• Provides high capacity freeway and transitway operations. HIGH CAPACITY & EFFICIENCY
	RANKING: 2nd Volumes of people moved are similar, but S1-1 does not provide access to future employment lands via Trafalgar Road from GTA West.	**RANKING: 1st** Volumes of people moved are similar, but S1-2 provides access to future employment lands via Trafalgar Road from GTA West.
4.1.2 Movement of Goods	• Provides high capacity freeway and transitway operations, but does not allow for a connection to future employment lands via Trafalgar Road. MODERATE CAPACITY & EFFICIENCY	• Provides high capacity freeway and transitway operations. HIGH CAPACITY & EFFICIENCY
	RANKING: 2nd Volumes of trucks moved are similar, but S1-1 does not provide access to future employment lands via Trafalgar Road from GTA West.	**RANKING: 1st** Volumes of trucks moved are similar, but S1-1 does not provide access to future employment lands via Trafalgar Road from GTA West.
4.1.3 System performance during peak periods	• Overall Volume/Capacity (V/C) ratios indicate high utilization, but V/C ratios are critical on sections of Highway 401, 407 ETR, Winston Churchill Blvd, and Trafalgar Road. MODERATE PERFORMANCE	• Overall V/C ratios indicate high utilization, but V/C ratios are critical on sections of Highway 401, 407 ETR, Winston Churchill Blvd, and Trafalgar Road. MODERATE PERFORMANCE
	RANKING: 1st No discernable difference between the alternatives.	**RANKING: 1st** No discernable difference between the alternatives.

Evaluation Factors and Sub-Factors	Alternative S1-1 Summary of Potential Net Effects and Ranking	Alternative S1-2 – Preferred Summary of Potential Net Effects and Ranking
4.2 System reliability / redundancy	• Limited opportunities for redundancy on the local road network. LOW REDUNDANCY	• Limited opportunities for redundancy on the local road network. LOW REDUNDANCY
	RANKING: 1st	**RANKING: 1st**
4.3 Safety		
4.3.1 Traffic Safety	• No anticipated safety concerns. NO NET EFFECT	• No anticipated safety concerns. NO NET EFFECT
	RANKING: 1st No anticipated safety concerns.	**RANKING: 1st** No anticipated safety concerns.
4.3.2 Emergency Access	• Moderate potential to improve access. HIGH ACCESS	• High potential to improve access. HIGH ACCESS
	RANKING: 1st No discernable difference between the alternatives.	**RANKING: 1st** No discernable difference between the alternatives.
4.4 Mobility & Accessibility		
4.4.1 Modal integration and balance	• Opportunities for intermodal connections at transitway station. LOW POTENTIAL FOR IMPROVEMENT	• Opportunities for intermodal connections at transitway station. LOW POTENTIAL FOR IMPROVEMENT
	RANKING: 1st No discernable difference between the alternatives.	**RANKING: 1st** No discernable difference between the alternatives.
4.4.2 Linkages to Population and Employment Centres	• Provides freeway-to-freeway connections to Highway 401 and 407 ETR, but does not allow access from GTA West to Trafalgar Road. MODERATE ACCESSIBILITY	• Provides freeway-to-freeway connections to Highway 401 and 407 ETR. HIGH ACCESSIBILITY
	RANKING: 2nd Fewer connections to planned employment areas (no access to/from Trafalgar Road)	**RANKING: 1st** Provides greater opportunity for connection to planned employment areas.
4.4.3 Recreation and Tourism Travel	• Provides inter-regional connections. LOW SUPPORT	• Provides inter-regional connections. LOW SUPPORT
	RANKING: 1st No discernable difference between the alternatives.	**RANKING: 1st** No discernable difference between the alternatives.
4.4.4 Accommodation for pedestrians, cyclists, snowmobiles, and specialized vehicles	• Opportunities to maintain existing routes across the corridor. LOW ACCOMMODATION	• Opportunities to maintain existing routes across the corridor. LOW ACCOMMODATION
	RANKING: 1st No discernable difference between the alternatives.	**RANKING: 1st** No discernable difference between the alternatives.
4.5 Network Compatibility		

Evaluation Factors and Sub-Factors	Alternative S1-1	Alternative S1-2 – Preferred
	Summary of Potential Net Effects and Ranking	
4.5.1 Network connectivity	• Provides full freeway-to-freeway connections, but no connection to Trafalgar Road from GTA West. MODERATE CONNECTIVITY	• Provides full freeway-to-freeway connections. HIGH CONNECTIVITY
	RANKING: 2nd Fewer connections to arterial road network. (no access to/from Trafalgar Road)	**RANKING: 1st** Provides more direct connections to arterial road network.
4.5.2 Flexibility for future expansion	• Opportunities to expand the freeway and transitway within the proposed right-of-way. Accommodates planned expansion of Highway 401. MODERATE FLEXIBILITY	• Opportunities to expand the freeway and transitway within the proposed right-of-way. Accommodates planned expansion of Highway 401. MODERATE FLEXIBILITY
	RANKING: 1st No discernable difference between the alternatives.	**RANKING: 1st** No discernable difference between the alternatives.
4.6 Engineering		
4.6.1 Constructability	• Requires traffic staging / management on freeways. MODERATE POTENTIAL FOR CONSTRUCTABILITY ISSUES	• Requires traffic staging / management on freeways and multiple (4) level bridges in a compact configuration. HIGH POTENTIAL FOR CONSTRUCTABILITY ISSUES
	RANKING: 1st Although both alternatives require traffic staging, Alternative S1-2 has fewer complex structures.	**RANKING: 2nd** Although both alternatives require traffic staging, Alternative S1-2 has more complex structures in a compact configuration.
4.6.2 Compliance with design criteria	• Conforms to design criteria. HIGH CONFORMITY	• Conforms to design criteria. HIGH CONFORMITY
	RANKING: 1st No discernable difference between the alternatives.	**RANKING: 1st** No discernable difference between the alternatives.
4.7 Construction Cost	• Estimated cost: $184 million LOW RELATIVE COST	• Estimated cost: $215 million HIGH RELATIVE COST
	RANKING: 1st	**RANKING: 2nd**
4.8 Traffic Operations	• Volumes indicate potential for operational issues. MODERATE POTENTIAL FOR NEGATIVE EFFECT	• Volumes indicate potential for operational issues. MODERATE POTENTIAL FOR NEGATIVE EFFECT
	RANKING: 1st Although volumes indicate potential for traffic operations issues, there are no non-standard highway elements.	**RANKING: 1st** Although volumes indicate potential for traffic operations issues, there are no non-standard highway elements.