DESCRIPTION OF ALTERNATIVES

Alternative 1A: This alternative considers the roadway improvements along the existing Trafalgar Road corridor north of 15 Side Road through Stewarttown. Underpass grade separations at the CN Rail and Metrolinx line crossings on Trafalgar Road are proposed. Under this alternative, Trafalgar Road would cross the CN Rail line to the east of the existing at-grade crossing.

Alternative 1B: This alternative considers the roadway improvements along the existing Trafalgar Road corridor north of 15 Side Road through Stewarttown. Underpass grade separations at the CN Rail and Metrolinx line crossings on Trafalgar Road are proposed. Under this alignment Trafalgar Road would cross the CN Rail line to the west of the existing at-grade crossing.

Alternative 1C: This alternative considers the roadway improvements along the existing Trafalgar Road corridor north of 15 Side Road through Stewarttown. Underpass grade separations at the CN Rail and Metrolinx line crossings on Trafalgar Road are proposed. This alignment crosses the CN Rail line further to the east of the existing at-grade crossing than Alternative 1A via an underpass to accommodate a "service road" concept south of the 17 Side Road intersection.

Alternative 2: This alternative would bypass Stewarttown to the west (about mid-concession) starting south of 15 Side Road and would continue northerly along the westerly property line of the Trafalgar Road Sports Complex. Both the CN and Metrolinx railway crossings along the existing Trafalgar Road would remain at-grade; the CN and Metrolinx railway crossings under the new alignment would be grade separated as underpasses.

Alternative 3: This is the most westerly of the three alternatives. This alternative would bypass Stewarttown starting at south of 15 Side Road. Both the CN and Metrolinx railway crossings along the existing Trafalgar Road alignment would remain at-grade; the CN and Metrolinx railway crossings would be grade separated as underpasses

Typical Cross Sections:

Alternatives 1A, 1B and 1C: Between 15 Side Road and 17 Side Road – two 3.5 m lanes in each direction; no on-street bike lanes; 3.0 m multi-use path on both sides of the road.
Between 17 Side Road and Highway 7 – two 3.5 m lanes in each direction; 1.8 m on-street bike lanes; 5.0 m median; 2.0 m side walk on the east side of the road.

Alternatives 2 and 3: Between 15 Side Road and Highway 7 – two 3.5 m lanes in each direction; 1.8 m on-street bike lanes; 5.0 m median; 2.0 m side walk on the east side of the road.

Factors

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
Socio-Economic Environment							
Community and Property Effects	Impacts to Residential Areas	Qualitative Description (see factor below for quantitative measurement of property impacts)	• With the exception of the Club at North Halton in the southeast quadrant of the Maple Avenue intersection, land uses on both sides of Trafalgar Road are residential between 15 Side Road and 17 Side Road; there is a mix of frontage, side lots, and reverse frontage properties. • The future Trafalgar Road ROW will encroach on properties between 15 Side Road and Stewarttown Road as a result of the proposed widening, introduction of multiuse pathway, and grade changes. Full buyouts are anticipated for a few residential properties on the east side of Trafalgar Road through this section. • Access impacts are expected for properties with direct access to Trafalgar Road. • North of 17 Side Road to Highway 7, land uses are mixed, including some rural residential properties with direct access to Trafalgar Road and residential subdivision between Princess Anne Drive and 20 Side Road. • A few of the properties in the northeast quadrant of Trafalgar Road Maple Avenue would result in full buyout. • North of the proposed grade	• With the exception of the Club at North Halton in the southeast quadrant of the Maple Avenue intersection, land uses on both sides of Trafalgar Road are residential between 15 Side Road and 17 Side Road; there is a mix of frontage, side lots, and reverse frontage properties. • The future Trafalgar Road ROW will encroach on properties between 15 Side Road and Stewarttown Road as a result of the proposed widening, introduction of multiuse pathway, and grade changes. Full buyouts are anticipated for a few properties on both the east and west sides of Trafalgar Road through this section. • Access impacts are expected for properties with direct access to Trafalgar Road. • North of 17 Side Road to Highway 7, land uses are mixed, including some rural residential properties with direct access to Trafalgar Road and residential subdivision between Princess Anne Drive and 20 Side Road. • North of the proposed grade	• With the exception of the Club at North Halton in the southeast quadrant of the Maple Avenue intersection, land uses on both sides of Trafalgar Road are residential between 15 Side Road and 17 Side Road; there is a mix of frontage, side lots, and reverse frontage properties. • The future Trafalgar Road ROW will encroach on properties between 15 Side Road and Stewarttown Road as a result of the proposed widening, introduction of multiuse pathway, and grade changes. Full buyouts are anticipated for a few properties on the east of Trafalgar Road through this section. • Access impacts are expected t for properties with direct access to Trafalgar Road. • North of 17 Side Road to Highway 7, including some rural residential properties with direct access to Trafalgar Road and residential subdivision between Princess Anne Drive and 20 Side Road. • A few of the properties in the northeast quadrant of	• Property impacts are primarily direct impacts to agricultural fields (i.e. severing of agricultural fields). • Direct residential property impacts at the new Trafalgar Road intersections at 17 Side Road and 20 Side Road.	• Property impacts are primarily direct impacts to agricultural fields (i.e. severing of agricultural fields). • Direct residential property impacts at the new Trafalgar Road intersections at 17 Side Road and 20 Side Road.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			separation, the proposed widening of Trafalgar Road will largely be along the centreline. There would property impacts along the frontage of some rural residential properties on the east side of Trafalgar Road north of Princess Anne Drive.	separation to Highway 7, the potential impacts to residential areas are similar to Alternative 1A	Trafalgar Road Maple Avenue would result in full buyout. • North of the proposed grade separation to Highway 7, the potential impacts to residential areas are similar to Alternative 1A		
	Impacts to Farm and Business Operations	Qualitative Description	• Minimal impacts to agricultural lands and operation. Impacts are primarily along the frontage of the properties to accommodate the proposed widening. • Businesses on Stewarttown Road will be accessible via a new signalized intersection south of 17 Side Road. The existing "south" Stewarttown Road intersection will become a cul-du-sac. • There would be direct impact to the North Halton Golf and Country Club. Based on aerial photography, the practice range directly adjacent to Trafalgar Road will be impacted. Some reconfiguration of the area may be required subject to consultation with the golf course. (see factor below) • Minor property impacts to businesses north of 17 Side Road on the west of Trafalgar Road: impacts are generally along the frontage of the eastern	• Minimal impacts to agricultural lands and operation. Impacts are primarily along the frontage of the properties to accommodate the proposed widening • Businesses on Stewarttown Road will be accessible via a new signalized intersection south of 17 Side Road. The existing "south" Stewarttown Road intersection will become a cul-du-sac. • There would be direct impact to the North Halton Golf and Country Club. Based on aerial photography, the practice range directly adjacent to Trafalgar Road will be impacted. Some reconfiguration of the area may be required subject to consultation with the golf course. (see factor below) • Minor property impacts to businesses north of 17 Side Road on the west of Trafalgar	• Minimal impacts to agricultural lands and operation. Impacts are primarily along the frontage of the properties to accommodate the proposed widening • Businesses on Stewarttown Road will be accessible via a new signalized intersection south of 17 Side Road. The existing "south" Stewarttown Road intersection will become a cul-du-sac. • There would be direct impact to the North Halton Golf and Country Club. Based on aerial photography, the practice range and one of the 18 holes that are directly adjacent to Trafalgar Road will be impacted. Reconfiguration of the area would be required subject to consultation with the golf course. (see factor below) • Minor property impacts to businesses north of 17 Side	• Significant impacts to agricultural properties as agricultural lands are severed; which would directly impact the operations by creating a barrier on the property. • Creates irregularly shaped fields and limits the viability for future farming operations.	• Significant impacts to agricultural properties as agricultural lands are severed; which would directly impact the operations by creating a barrier on the property. • Creates irregularly shaped fields and limits the viability for future farming operations.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			portions of the property	Road: impacts are generally along the frontage of the eastern portions of the property	Road on the west of Trafalgar Road: impacts are generally along the frontage of the eastern portions of the property		
	Impacts to Institutional and Recreational Uses	Qualitative Description	• Minor impacts along westerly property limits of Christian Reformed Church and accesses (i.e. frontage along Trafalgar Road) • There would be no impact to the Georgetown District Christian School. • Very minor impacts to the Trafalgar Road Sports Park; largely in the area of the access to Trafalgar Road. The access will become signalized. • No impacts to Devereaux Cemetery.	• Direct impact to the easterly portions of the Trafalgar Sports Park to accommodate the proposed rail crossing underpass. There would be direct impact to the stormwater management pond and the internal access road will become a local road connection 17 Side Road and Trafalgar Road. • Minor impacts to westerly limits of Christian Reformed Church property and accesses (i.e. frontage along Trafalgar Road). • There would be no impact to the Georgetown District Christian School. • No impacts to Devereaux Cemetery.	• Minor impacts to westerly limits of Christian Reformed Church property and accesses (i.e. frontage along Trafalgar Road) • There would be no impact to the Georgetown District Christian School. • Very minor impacts to the Trafalgar Road Sports Park; largely in the area of the access to Trafalgar Road. The access will become signalized. • No impacts to Devereaux Cemetery.	• Direct impacts to two sports fields located along at the westerly property limits of Trafalgar Sports Park. There may be limited opportunities to relocate the two sports field within the Sports Park. • No direct impacts to Devereaux Cemetery.	• Very minor impacts to Trafalgar Sports Park in the most northwest corner of the property. • Direct impacts to undeveloped northerly portion of Devereaux Cemetery property.
	Impact on Existing Commercial Operations – Club at North Halton (Golf Course)	Overall Impact on the Golf Course Subjective	• Approximately 10.0 ha of property would be required. • The area of the property that would be required for the alignment overlaps with an area currently being considered by the Club at North Halton for the construction of a retention pond; subject to consultation with the golf course.	• Approximately 6.79 ha of property would be required. • The area of the property that would be required for the alignment overlaps with an area currently being considered by the Club at North Halton for the construction of a retention pond; subject to consultation	• Approximately 18.65 ha of property would be required. • The area of the property that would be required for the alignment overlaps with an area currently being considered by the Club at North Halton for the construction of a retention pond; subject to consultation	**No Impact**	**No Impact**

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			• The golf course would be operational with minor reconfiguration of the practice range; subject to consultation with the golf course.	with the golf course. • The golf course would be operational with minor reconfiguration of the practice range; subject to consultation with the golf course.	with the golf course. • The practice range and one of the 18 holes would be directly impacted. The operation of the fairway in this section of the golf course would depend on the future layout possibilities for the land and the ability to relocate the related pathway and green. This alternative would have the most significant impact to the golf course.		
	Property Impacts Unit of Measure: hectares	ha	Property impacts would primarily be on existing residential lands along Trafalgar Road, specifically within Stewarttown.	Property impacts would primarily be on existing residential lands along Trafalgar Road, specifically within Stewarttown.	Property impacts would primarily be on existing residential lands along Trafalgar Road, specifically within Stewarttown.	Impacts would primarily be on agricultural and rural lands. Four large agricultural parcels would be severed and would impact the farming operations and long term farming operations viability. Greater absolute area of property required compared to Alternatives 1A, 1B, and 1C.	Impacts would primarily be on agricultural and rural lands. Six large agricultural parcels would be severed and would impact the farming operations and long term farming operations viability. Greater absolute area of property required compared to Alternatives 1A, 1B, and 1C.
	Access Impacts due to horizontal and vertical profile changes, median condition, etc.	m	Lengths of driveways for properties situated along the Trafalgar Road corridor would likely be reduced as a result of road widening. Grade changes may also result. Exact details related to these access impacts would be reviewed on an individual basis during detail design.	Lengths of driveways for properties situated along the Trafalgar Road corridor would likely be reduced as a result of road widening. Grade changes may also result. Exact details related to these access impacts would be reviewed on an individual basis during detail design.	Lengths of driveways for properties situated along the Trafalgar Road corridor would likely be reduced as a result of road widening. Grade changes may also result. Exact details related to these access impacts would be reviewed on an individual basis during detail design.	No change in access for properties situated along existing Trafalgar Road corridor.	No change in access for properties situated along existing Trafalgar Road corridor.
Provision for Pedestrians		m	• A 3.0 m multi-use path would be provided on both sides of the road between 15 Side Road and 17 Side Road. • A 2.0 m sidewalk would be provided on the east side of the road between 17 Side Road and			• A 3.0 m multi-use path would be provided on the east side of the road between 15 Side Road and 17 Side Road. • A 2.0 m sidewalk would be provided on the east side of the road	

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			Highway 7.			between 17 Side Road and Highway 7. • Due to the location of these alignments, the multi-use path and sidewalk would be situated away from the community, making them less accessible compared to Alternatives 1A, 1B, and 1C.	
Provision for Cyclists		m	• No on-street bike lane will be provided between 15 Side Road and 17 Side Road in order to minimize impacts to properties directly adjacent to Trafalgar Road. • A 3.0 m multi-use path would be provided on the east side of the road between 15 Side Road and 17 Side Road. • A 1.8 m paved on-street bike lane with markings will be provided on both sides of the road between 17 Side Road and Highway 7.			• A 1.8 m paved on-street bike lane with markings will be provided on both sides of the road and a 3.0 m multi-use path would be provided on the east side of the road between 15 Side Road Highway 7. • Due to the location of these alignments, the on street bike lanes would be situated away from the community, making them less accessible compared to Alternatives 1A, 1B, and 1C.	
Land Use Compatibility	Compatibility of existing land use and future land use	Qualitative Description	• Impacts to residential, farm and business operations, as well as institutional and recreation land uses are described above. • Proposed improvements to Trafalgar Road would support future land use, including: o Some anticipated developments in Stewarttown o Increase in activity at Trafalgar Sports Park o Alignment follows existing, minimizing rural property requirements o Minimal impacts to Trafalgar Sports Park property (near the access to Trafalgar Road only) • Change in overall streetscape north of 15 Side Road resulting from raised Black Creek crossing structure through residential area	• Impacts to residential, farm and business operations, as well as institutional and recreation land uses are described above. • Proposed improvements to Trafalgar Road would support future land use, including: o Some anticipated developments in Stewarttown o Increase in activity at Trafalgar Sports Park o Alignment follows existing, minimizing rural property requirements • Compared to Alternatives 1A and 1C, this would have the most impact to Trafalgar Sports Park property to accommodate the CN Rail underpass to the west of the existing Trafalgar Road / CN Rail crossing and related service road	• Impacts to residential, farm and business operations, as well as institutional and recreation land uses are described above. • Proposed improvements to Trafalgar Road would support future land use, including: o Some anticipated developments in Stewarttown o Increase in activity at Trafalgar Sports Park o Alignment follows existing, minimizing rural property requirements o Minimal impacts to Trafalgar Sports Park property (easterly portion) • Change in overall streetscape north of 15 Side Road resulting from raised Black Creek crossing structure through residential area	• Impacts to residential, farm and business operations, as well as institutional and recreation land uses are described above. • Location of the new Trafalgar Road would be away from the existing communities in Georgetown and Stewarttown, and would be less likely to attract local uses of the corridor (auto and active transportation). • Devereaux Cemetery will not be impacted; however, there would be direct impact to the Trafalgar Sports Park. • No impacts to existing Stewarttown community • Would not address existing need for grade separations along Trafalgar Road as no changes will be made to at-grade rail crossings along existing Trafalgar Road	• Impacts to residential, farm and business operations, as well as institutional and recreation land uses are described above. • Location of the new Trafalgar Road would be away from the existing communities in Georgetown and Stewarttown, and would be less likely to attract local uses of the corridor (auto and active transportation). • The northerly portion of Devereaux Cemetery would be impacted. • No impacts to existing Stewarttown community • While there would be minimal impacts to south east corner of the Estates of Black Creek development, the new community would be in very close proximity to Trafalgar Road

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
				• Change in overall streetscape north of 15 Side Road resulting from raised Black Creek crossing structure through residential area		• Significant impacts to Trafalgar Sports Park property would result in the loss of two sports fields • Visual intrusion of new road in a rural setting	• Visual intrusion of new road in a rural setting
Noise and Air Quality		Qualitative Description	• Residential properties along Trafalgar Road are considered noise sensitive areas. • There will likely be a slight increase in noise level as a result of the proposed road widening. However, the absolute noise level increase would be relatively less than Alternatives 2 and 3. • A noise analysis will be carried out once a preferred alternative is selected. • The overall air quality would be similar to existing condition with incremental change with additional traffic. An air quality study will be carried out once a preferred alternative is selected.			• Most of the land uses along these alignments are agricultural and with very few noise sensitive areas. • The potential increase in noise level would be greater compared to Alternatives 1A, 1B, and 1C as noise sensitive areas under these alternatives are currently in a rural setting. • A noise analysis will be carried out once a preferred alternative is selected. • Both alternatives would be introducing a new road in a rural setting resulting in removal of vegetation and localized air quality impacts. An air quality study will be carried out once a preferred alternative is selected	
Illumination		Qualitative Description	• Corridor will be outfitted with standard illumination fixtures where necessary				
SUMMARY – Socio-Economic Environment			**SEE SEPARATE SUMMARY**				
Cultural Environment							
Cultural Heritage Landscapes & Built Heritage Resources		Qualitative Descriptions	• No direct impact to Devereaux House (11494 Trafalgar Road), which is designated under Part IV of the Ontario Heritage Act. However, the direct access to Trafalgar Road will be removed and access to Devereaux House will be via the Trafalgar Sports Park access. • Impact to Black Creek crossing, which is identified as a built heritage resource.	• While there would be no direct impact to the Devereaux House, the physical infrastructure of the road and side walk would encroach onto the area inside the property's picket fence and be located in very close proximity to the Devereaux House. • Impact to Black Creek crossing, which is identified	• No direct impact to Devereaux House (11494 Trafalgar Road), which is designated under Part IV of the Ontario Heritage Act. However, the direct access to Trafalgar Road will be removed and access to Devereaux House will be via the Trafalgar Sports Park access. • Impact to Black Creek	• No direct impacts to Devereaux House (11494 Trafalgar Road), which is designated under Part IV of the Ontario Heritage Act. • Potential for a total of seven indirect impacts. There will be physical change to the character of the following cultural heritage landscapes: o two roadscapes: Trafalgar Road, and Highway 7;	• No direct impacts Devereaux House (11494 Trafalgar Road), which is designated under Part IV of the Ontario Heritage Act. • Potential for a total of nine indirect impacts. There will be physical change to the character of the following cultural heritage landscapes: o two roadscapes: Trafalgar Road, and Highway 7; o one agricultural landscape:

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	**ALTERNATIVE 1B**	**ALTERNATIVE 1C**	**ALTERNATIVE 2**	**ALTERNATIVE 3**
			• Potential for a total of seven indirect impacts to cultural heritage landscape. There will be physical change to the character of the following cultural heritage landscapes: o two roadscapes: Trafalgar Road, and Highway 7; o two railscape: CN and Metrolinx; o St. John's Anglican Cemetery o North Halton Golf and Country Club o Residences: 11727 and 11753 Trafalgar Road	as a built heritage resource. • Potential for a total of seven indirect impacts cultural heritage landscape. There will be physical change to the character of the following cultural heritage landscapes: o two roadscapes: Trafalgar Road, and Highway 7; o two railscape: CN and Metrolinx; o St. John's Anglican Cemetery o North Halton Golf and Country Club o Residences: 11727 and 11753 Trafalgar Road	crossing, which is identified as a built heritage resource. • Potential for a total of seven indirect impacts cultural heritage landscape. There will be physical change to the character of the following cultural heritage landscapes: o two roadscapes: Trafalgar Road, and Highway 7; o two railscape: CN and Metrolinx; o St. John's Anglican Cemetery o North Halton Golf and Country Club o Residences: 11727 and 11753 Trafalgar Road	o two railscape: CN and Metrolinx; o one agricultural landscape: Lots 1-15, Concessions 7 & 8, geographic Township of Esquesing; and o three farm complexes located at 10746 Trafalgar Road, 12268 15 Side Road, and 12794 20 Side Road	Lots 1-15, Concessions 7 & 8, geographic Township of Esquesing; o two railscape: CN and Metrolinx; o one residence at 12337 17 Side Road; and o four farm complexes: 10746 Trafalgar Road,12399 and 12268 15 Side Road, and 12794 20 Side Road
Archaeology Resources		Qualitative Descriptions	• Land is already disturbed along the existing Trafalgar Road corridor where improvements would be made. As a result, no archaeological impacts are anticipated at this time, though there is some potential in the Black Creek area due to structural improvements being carried out.			• The proposed alignment would be built through greenfield areas. There would be potential for archaeological finds in undisturbed areas, particularly near water crossing. A Stage 2 Archaeology Assessment would be required.	
SUMMARY – Cultural Environment			**SEE SEPARATE SUMMARY**				
Natural Environment							
Policy Areas	Impacts to designated natural environmental features/areas	Qualitative and Quantitative	Although Alternative 1 options impact the greatest number of policy defined areas, it has the least amount of direct and in-direct impacts on affected natural features. Encroachment into features is minor and generally located immediately adjacent to the existing Trafalgar Road ROW.	Although Alternative 1 options impact the greatest number of policy defined areas, it has the least amount of direct and in-direct impacts on affected natural features. Encroachment into features is minor and generally located immediately adjacent to the existing Trafalgar	Although Alternative 1 options impact the greatest number of policy defined areas, it has the least amount of direct and in-direct impacts on affected natural features. Encroachment into features is minor and generally located immediately adjacent to the existing Trafalgar	Although the total number of policy defined areas impacted would be less than the Alternative 1 options, a greater total area is required to be removed and removed from features that have increased sensitivity/significance. A greater area of lands designated	Although the total number of policy defined areas impacted would be less than the Alternative 1 options, a greater total area is required to be removed and removed from features that have increased sensitivity/significance. A greater area of lands designated under the Greenbelt is impacted

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			The typical cross section has been reduced (e.g. by eliminating the on-street bike lanes) to reduce encroachment to adjacent natural features. Summary: The following policy defined areas are affected by this alignment: Regional Official Plan- Halton Region (2009) Alignment encroaches within 7 features in total, all designated as part of the Regional Natural Heritage System. • Feature #15 (woodland). A small narrow strip (ranging from ~10m to 28 m in width) along the existing ROW (~1,920 m2) (0.19 ha) will require removal. • Feature #19 (woodland/watercourse) - A small narrow strip (~7m width) along the existing ROW (~1,520 m2) (0.15 ha) will require removal. • Feature # 21 (cultural meadow). A small narrow strip (~6m width) along the existing ROW (~710 m2) would be removed. Feature is highly altered as it is being removed to accommodate development of a sports park for the Town. *Note: Land Use Changes • Feature #25 (watercourse/small	Road ROW. This Alternative potentially impacts additional potentially suitable BOBO and EAME habitat (provincially threatened species under ESA) located north of 17 Side Road (old field/cultural meadow). As such additional policy considerations under the ESA apply. But it also results in less encroachment into Feature #13. Summary: Potential impacts on policy defined areas are the same as those described for Alternative 1A, with the exception of the following: • Old Field/Cultural Meadow Alternative1B crosses an additional agricultural field that has been identified as potentially suitable BOBO and EAME habitat (provincially Threatened species under the ESA). It would require the remove of 6,427 m2 (0.64 ha) of potential habitat. This field (old field/cultural meadow) is located north of Sideroad 17 and the rail line, east of Trafalgar Road. Additional policy considerations: Endangered Species Act (2007) • Feature #13 - There are slightly less removals	Road ROW. This alternative has slightly more removals of policy defined areas but does not have additional risk associated with potential BOBO and EAME habitat north of Sideroad 17, and addressing under the ESA. Summary: Potential impacts on policy defined areas are the same as those described for Alternative 1A, with the exception of the following: • Feature #13 This alternative would result in the removal of ~ 4,805 m2 (0.5 ha) of habitat, this is the greatest area of removal required of the three options. It includes a 20 m strip along ROW. Although, total area removed is somewhat negligible when compared to Alternative1A. Additional policy considerations: Regional Official Plan- Halton Region (2000), Halton Regional Official Plan (2006), Town of Halton Hills Official Plan (2008), Interference with Wetlands and Alterations to Shorelines and Watercourse160/06	under the Greenbelt is impacted from this alternative. The total impacted area is less than Alternative 3 but more than the Alternative 1 options. This Alternative also requires bisecting through significant policy areas. Summary: The following policy defined areas are affected by this alignment: Regional Official Plan- Halton Region (2009) - Alignment encroaches within 4 features in total, all designated as part of the Regional Natural Heritage System. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. • Feature #22 (woodland) FOD 5-3. An area of ~ 6,170 m2 (0.62 ha) would be removed • Feature #24 (Stewarttown Woods ESA) An area of ~13,900 m2 (1.4 ha) would be removed within the Black Creek valley and would severe the ESA (policy designated area). • Feature #12 (Black Creek) - Requires the construction of a new crossing structure over	from this alternative. The total impacted area is greater than all Alternatives. This Alternative also requires bisecting through significant policy areas. Summary: The following policy defined areas are affected by this alignment: Regional Official Plan- Halton Region (2009) Alignment encroached within 4 features in total, all designated as part of the Regional Natural Heritage System. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. • Feature #20 (Wetland/Woodland) – a very small portion will require removal (~140 m2) (0.01 ha). • Feature #24 (Stewarttown Woods ESA) Feature would be removed at two locations and would sever the ESA - south of 17 Sideroad ~39,580 m2 (3.9 ha), and at the Black Creek Valley ~19,340m2 (1.9 ha). • Feature #12 (Black Creek) - This alternative would require the construction of

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			woodlot). This alternative would not encroach within the feature, but is located adjacent to this feature, in close proximity. • Feature #13 (wetland/woodland). A small narrow strip (~15m width) to the east and along the existing corridor (~3,500 m2 in total, 0.35 ha) would be removed. • Feature #11 (Hungry Hollow ESA). A small narrow strip (~13 m width) to the east and along existing corridor (~ 1040 m2). • Feature #12 (Black Creek) - Requires replacement of existing crossing structure and extension to accommodate the proposed road widening. This include enclosure of ~37 m Natural Heritage policies of the Plan indicate that transportation uses are permitted within the Regional Natural Heritage System. If development or site alteration is to occur within or adjacent to the Natural Heritage System the proponent is required to complete an EIA to demonstrate that the development/ alteration will not result in a negative impact to the ecological function of the feature Halton Regional Official Plan (2006)	required with this option, then in Options 1A and 1C at~ 2,718 m2 (0.27 ha). This includes a narrow strip (~10 m) to the east and along the ROW. Policy considerations: Regional Official Plan- Halton Region (2000), Halton Regional Official Plan (2006), Town of Halton Hills Official Plan (2008), Interference with Wetlands and Alterations to Shorelines and Watercourse160/06 • Feature #21 (cultural meadow) – additional removals of vegetation 495 m2 (0.05 ha) are required to the feature that is currently designated as protected countryside. Feature is highly altered as it is being removed to accommodate development of a sports park for the Town. Future land use will be recreational. Additional policy considerations: OMMAH Greenbelt Plan Natural Heritage System (2005)*Note: Land Use Changes • Feature #25 (woodland/watercourse) - This Option does not run		Black Creek in the proximity of 15 Side Road. Natural Heritage policies of the Plan indicate that transportation uses are permitted within the Regional Natural Heritage System. If development or site alteration is to occur within or adjacent to the Natural Heritage System the proponent is required to complete an EIA to demonstrate that the development/ alteration will not result in a negative impact to the ecological function of the feature Halton Regional Official Plan (2006) Impacts 4 features in total. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. Identified as candidate Significant Woodlands • Feature #22 (woodland) FOD 5-3. An area of ~ 6,170 m2 (0.62 ha) would be removed. Identified candidate Significant Woodlands • Feature #24 (Stewarttown Woods ESA) An area of ~13,900 m2 (1.4 ha) would be removed within the Black Creek valley and would	a new crossing structure of Black Creek just north of 15 Side Road. Natural Heritage policies of the Plan indicate that transportation uses are permitted within the Regional Natural Heritage System. If development or site alteration is to occur within or adjacent to the Natural Heritage System the proponent is required to complete an EIA to demonstrate that the development/ alteration will not result in a negative impact to the ecological function of the feature Halton Regional Official Plan (2006) Impacts 4 features in total. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. Identified as candidate Significant Woodlands • Feature #20 (Wetland/Woodland) – a very small portion will require removal (~140 m2) (0.01 ha). Identified as candidate Significant Woodlands • Feature #24 (Stewarttown Woods ESA) Feature would be removed at two locations and would sever

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			Impacts 6 features in total. • Feature #15 (woodland). A small narrow strip (ranging from ~10m to 28 m in width) along the existing ROW (~1,920 m2) (0.19 ha) will require removal. Identified as candidate Significant Woodlands • Feature #19 (woodland/watercourse) - A small narrow strip (~7m width) along the existing ROW (~1,520 m2) (0.15 ha) will require removal. Identified as candidate Significant Woodlands • Feature #25 (watercourse/small woodlot). This alternative would not encroach within the feature, but is located adjacent to this feature, in close proximity. Identified as candidate Significant Woodlands • Feature #13 (wetland/woodland). A small narrow strip (~15m width) to the east and along the existing corridor (~3,500 m2 in total, 0.35 ha) would be removed. Designated as Greenlands A and candidate Significant Woodlands. • Feature #11 (Hungry Hollow ESA). A small narrow strip	adjacent and in close proximity of Feature #25 as the other Alternative 1 options. Additional policy considerations: Halton Regional Official Plan (2006), Interference with Wetlands and Alterations to Shorelines and Watercourse160/06		severe the ESA (policy designated area). Designated as Greenlands A and B and identified candidate Significant Woodlands. • Feature #12 (Black Creek) - Requires the construction of a new crossing structure over Black Creek in the proximity of 15 Side Road. Designated as Greenlands A (Black Creek corridor). Natural Heritage policies of the Plan indicate that infrastructure works may be permitted within Greenlands. Works that are to occur within or adjacent to the Greenlands System the proponent is required to complete an Environmental Impact Assessment (EIA) to demonstrate that the development/alteration will not result in a negative impact to the ecological function of the feature. Should this alternative be selected, the significance of the woodlands should be evaluated Town of Halton Hills Official Plan (2008) Impacts 3 features in total, all designated as Candidate Significant Woodlands. • Feature #15 (woodland)	the ESA - south of 17 Sideroad ~39,580 m2 (3.9 ha), and at the Black Creek Valley. Designated as Greenlands A and B and identified as candidate Significant Woodlands. • Feature #12 (Black Creek) - This alternative would require the construction of a new crossing structure of Black Creek just north of 15 Side Road. Designated as Greenlands A (Black Creek corridor) Natural Heritage policies of the Plan indicate that infrastructure works may be permitted within Greenlands. Works that are to occur within or adjacent to the Greenlands System the proponent is required to complete an Environmental Impact Assessment (EIA) to demonstrate that the development/alteration will not result in a negative impact to the ecological function of the feature. Should this alternative be selected, the significance of the woodlands should be evaluated Town of Halton Hills Official Plan (2008) Impacts 3 features in total, all designated as Candidate Significant Woodlands.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			(~13 m width) to the east and along existing corridor (~ 1040 m2). Designated as Greenlands A (Black Creek corridor) and Greenlands B (remaining ESA lands) and candidate Significant Woodlands. • Feature #12 (Black Creek) - Requires replacement of existing crossing structure and extension to accommodate the proposed road widening. This includes enclosure of ~37 m. Designated as Greenlands A (Black Creek corridor). Natural Heritage policies of the Plan indicate that infrastructure works may be permitted within Greenlands. Works that are to occur within or adjacent to the Greenlands System the proponent is required to complete an Environmental Impact Assessment (EIA) to demonstrate that the development/alteration will not result in a negative impact to the ecological function of the feature. Should this alternative be selected, the significance of the woodlands should be evaluated Town of Halton Hills Official Plan (2008) Impacts 4 features in total, all designated as Candidate Significant Woodlands. • Feature #15 (woodland). A			FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. • Feature #22 (woodland) FOD 5-3. An area of ~ 6,170 m2 (0.62 ha) would be removed • Feature #24 (Stewarttown Woods ESA) An area of ~13,900 m2 (1.4 ha) would be removed within the Black Creek valley and would severe the ESA (policy designated area). Natural Heritage policies of the Plan prohibit development within significant wetlands and significant habitat of endangered and threatened species as well as restriction of activities within remaining natural heritage features unless demonstrated through the completion of an Environmental Impact Study (EIS) that there will be no negative impact on the feature or its ecological function. OMMAH Greenbelt Plan Natural Heritage System (2005) Impacts 3 features in total, designated as protected countryside. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would	• Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. • Feature #20 (Wetland/Woodland) – a very small portion will require removal (~140 m2) (0.01 ha). • Feature #24 (Stewarttown Woods ESA) Feature would be removed at two locations and would sever the ESA - south of 17 Sideroad ~39,580 m2 (3.9 ha), and at the Black Creek Valley Natural Heritage policies of the Plan prohibit development within significant wetlands and significant habitat of endangered and threatened species as well as restriction of activities within remaining natural heritage features unless demonstrated through the completion of an Environmental Impact Study (EIS) that there will be no negative impact on the feature or its ecological function. OMMAH Greenbelt Plan Natural Heritage System (2005) Impacts 3 features in total, designated as protected countryside.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			small narrow strip (ranging from ~10m to 28 m in width) along the existing ROW (~1,920 m2) (0.19 ha) will require removal. • Feature #19 (woodland) - A small narrow strip (~7m width) along the existing ROW (~1,520 m2) (0.15 ha) will require removal. • Feature #13 (wetland/woodland). A small narrow strip (~15m width) to the east and along the existing corridor (~3,500 m2 in total, 0.35 ha) would be removed. • Feature #11 (Hungry Hollow ESA). A small narrow strip (~13 m width) to the east and along existing corridor (~ 1040 m2). Natural Heritage policies of the Plan prohibit development within significant wetlands and significant habitat of endangered and threatened species as well as restriction of activities within remaining natural heritage features unless demonstrated through the completion of an Environmental Impact Study (EIS) that there will be no negative impact on the feature or its ecological function. OMMAH Greenbelt Plan Natural Heritage System (2005) Impacts 2 features in total,			be removed. • Feature #22 (woodland) FOD 5-3. An area of ~ 6,170 m2 (0.62 ha) would be removed • Feature #24 (Stewarttown Woods ESA) An area of ~13,900 m2 (1.4 ha) would be removed within the Black Creek valley and would severe the ESA (policy designated area). Infrastructure is permitted within Protected Countryside if demonstrated there will not be a significant impact on the form and function of the feature and there is no other reasonable alternative. The amount of Greenbelt, particularly the Natural Heritage System, should be minimized where feasible. Niagara Escarpment Area Plan (2005) Within the study area, a small portion of the northern extent of the study area located along Side Road 20 falls under the Niagara Escarpment Plan area, specifically the land is designated as Niagara Escarpment - Rural Area. Alternative 2 will require 10,710m2 (9.9 ha) of land under this designation.	• Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. • Feature #20 (Wetland/Woodland) – a very small portion will require removal (~140 m2) (0.01 ha). • Feature #24 (Stewarttown Woods ESA) Feature would be removed at two locations and would sever the ESA - south of 17 Sideroad ~39,580 m2 (3.9 ha), and at the Black Creek Valley. Infrastructure is permitted within Protected Countryside if demonstrated there will not be a significant impact on the form and function of the feature and there is no other reasonable alternative. The amount of Greenbelt, particularly the Natural Heritage System, should be minimized where feasible. Niagara Escarpment Area Plan (2005) Within the study area, a small portion of the northern extent of the study area located along Side Road 20 falls under the Niagara Escarpment Plan area, specifically the land is designated as Niagara Escarpment - Rural

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			designated as protected countryside. • Feature #15 (woodland). A small narrow strip (ranging from ~10m to 28 m in width) along the existing ROW (~1,920 m2) (0.19 ha) will require removal. Protected Countryside • Feature # 21 (cultural meadow). A small narrow strip (~6m width) along the existing ROW (~710 m2) would be removed that is currently designated as protected countryside. Feature is highly altered as it is being removed to accommodate development of a sports park for the Town. Future land use will be recreational. Infrastructure is permitted within Protected Countryside if demonstrated there will not be a significant impact on the form and function of the feature and there is no other reasonable alternative. The amount of Greenbelt, particularly the Natural Heritage System, should be minimized where feasible. Niagara Escarpment Area Plan (2005) Within the study area, a small portion of the northern extent of the study area located north of Side			Permitted uses of these areas applicable to this study include; existing uses, and transportation and utility facilities with only linear facilities being permitted in prime agricultural areas. Endangered Species Act (2007) A total of 5 features identified as potential SAR habitat that have potential to be impacted. They are identified either as features that are suitable SAR habitat or a feature where SAR occurrence records are present. Suitable Habitats: • Agricultural Fields (hay crop) – Alignment would cross an agricultural field (hay crop) that has been identified as potentially suitable BOBO and EAME habitat (provincially Threatened species under the ESA). This area is ~11,400m2 (1.14 ha) in size. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. • Feature #22 (woodland) FOD 5-3. An area of ~ 6,170 m2 (0.62 ha) would be removed Occurrence Records: • Feature #24	Area. Alternative 3 will require 10,710m2 (9.9 ha) of land under this designation. Permitted uses of these areas applicable to this study include; existing uses, and transportation and utility facilities with only linear facilities being permitted in prime agricultural areas. Endangered Species Act (2007) A total of 5 features identified as potential SAR habitat that have potential to be impacted. They are identified either as features that are suitable SAR habitat or a feature where SAR occurrence records are present. Suitable Habitats: • Agricultural Fields (hay crop)– Alignment would cross an agricultural field (hay crop) that has been identified as potentially suitable BOBO and EAME habitat (provincially Threatened species under the ESA). This area is ~11,400m2 (1.14 ha) in size. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			Road 20 and the rail line, falls under the Niagara Escarpment Plan area, specifically the land is designated as Niagara Escarpment - Rural Area. Alternative 1 (all options) will require 9,900m2 (9.9 ha) of land under this designation. Permitted uses of these areas applicable to this study include; existing uses, and transportation and utility facilities with only linear facilities being permitted in prime agricultural areas. Endangered Species Act (2007) A total of 5 features identified as potential SAR habitat that have potential to be impacted. They are identified either as features that are suitable SAR habitat or a feature where SAR occurrence records are present. Suitable Habitats: • Agricultural Fields (hay crop) located north and south of the railway line, south of Hwy 7 would be crossed by the new alignments, resulting in the removal of ~18,500 m2 (1.8 ha) of potential habitat • Feature #15 (woodland). A small narrow strip (ranging from ~10m to 28 m in width) along the existing ROW (~1,920 m2) (0.19 ha) will require removal.			(Stewarttown Woods ESA) An area of ~13,900 m2 (1.4 ha) would be removed within the Black Creek valley and would severe the ESA (policy designated area). Ensure all requirements of the Endangered Species Act (ESA 2007) are addressed, as applicable. Additional targeted BOBO and EAME surveys would be required prior to the completion of Detailed Design. Compensation of the removed area in terms of habitat removal may be required depending on the findings of those surveys. Impacts to SAR bats from removal of habitat should also be assessed once details of vegetation removals are confirmed. Additional surveys to screen for suitable habitat (i.e. cavity/snag trees) should be undertaken. Federal Fisheries Act (1985) A total of 3 watercourses (fish habitat) are impacted, which include: • Feature #16 (watercourse). Would require a new crossing structure and enclosure of the feature where the new road segment	Occurrence Records: • Feature #24 (Stewarttown Woods ESA) Feature would be removed at two locations and would sever the ESA - south of 17 Sideroad ~39,580 m2 (3.9 ha), and at the Black Creek Valley. Ensure all requirements of the Endangered Species Act (ESA 2007) are addressed, as applicable. Additional targeted BOBO and EAME surveys would be required prior to the completion of Detailed Design. Compensation of the removed area in terms of habitat removal may be required depending on the findings of those surveys. Impacts to SAR bats from removal of habitat should also be assessed once details of vegetation removals are confirmed. Additional surveys to screen for suitable habitat (i.e. cavity/snag trees) should be undertaken. Federal Fisheries Act (1985) A total of 3 watercourses (fish habitat) are impacted, which include: • Feature #16 (watercourse). Would require two new crossing structures and

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			• Feature #19 (woodland/watercourse) - A small narrow strip (~7m width) along the existing ROW (~1,520 m2) (0.15 ha) will require removal. Occurrence Records Present: • Feature #11 (Hungry Hollow ESA). A small narrow strip (~13 m width) to the east and along existing corridor (~ 1040 m2). Ensure all requirements of the Endangered Species Act (ESA 2007) are addressed, as applicable. Additional targeted BOBO and EAME surveys would be required prior to the completion of Detailed Design. Compensation of the removed area in terms of habitat removal may be required depending on the findings of those surveys. Impacts to SAR bats from removal of habitat should also be assessed once details of vegetation removals are confirmed. Additional surveys to screen for suitable habitat (i.e. cavity/snag trees) should be undertaken. Federal Fisheries Act (1985) A total of 5 watercourses (fish habitat) are impacted, which include: • Feature #16 (watercourse) - Would require two new			will cross. • Feature #12 (Black Creek) - Requires the construction of a new crossing structure over Black Creek in the proximity of 15 Side Road. • Feature #10 (ephemeral watercourse) – flows through agricultural fields, alignment will require new culvert structure. Fisheries Act review exemption objectives should be considered as well as 'measures to avoid harm' should be implemented to avoid impacts to the aquatic environment. Any works that have potential to 'seriously harm' fish or fish habitat requires review and authorization from DFO. CVC Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourse160/06 • Feature #16 (watercourse). Would require a new crossing structure and enclosure of the feature where the new road segment will cross. • Feature #24 (Stewarttown Woods ESA) An area of ~13,900 m2 (1.4 ha) would be removed within the Black	enclosure of the feature where the new road segment will cross. • Feature #12 (Black Creek) - This alternative would require the construction of a new crossing structure of Black Creek just north of 15 Side Road. • Feature #10 (ephemeral watercourse) – flows through agricultural fields, alignment will require new culvert structure. Fisheries Act review exemption objectives should be considered as well as 'measures to avoid harm' should be implemented to avoid impacts to the aquatic environment. Any works that have potential to 'seriously harm' fish or fish habitat requires review and authorization from DFO. CVC Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourse160/06 • Feature #16 (watercourse). Would require two new crossing structures and enclosure of the feature where the new road segment will cross. • Feature #24 (Stewarttown Woods ESA) Feature would be removed at two

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			crossing structures and enclosure of the feature where the new road segments will cross. • Feature #19 (watercourse) - An extension of the existing culvert will also be required which will enclose ~21 m of watercourse. • Feature #14 (watercourse) – Requires extension (~10 m upstream and ~12 m downstream) of existing culvert structure and possible replacement. • Feature #25 (watercourse) This alternative would not encroach within the feature, but is located adjacent to this feature, in close proximity • Feature #12 (Black Creek) - Requires replacement of existing crossing structure and extension to accommodate the proposed road widening. This include enclosure of ~37 m Fisheries Act review exemption objectives should be considered as well as 'measures to avoid harm' should be implemented to avoid impacts to the aquatic environment. Any works that have potential to 'seriously harm' fish or fish habitat requires review and authorization from DFO. CVC Regulation of Development,			Creek valley and would severe the ESA (policy designated area). • Feature #12 (Black Creek) - Requires the construction of a new crossing structure over Black Creek in the proximity of 15 Side Road. • Feature #10 (ephemeral watercourse) – flows through agricultural fields, alignment will require new culvert structure. Any works proposed within regulated areas will require a permit from CVC (Reg 160/06). Provincial Policy Statement (2014) • Fish Habitat • Habitat of Endangered and Threatened Species • Candidate SWH • Candidate Significant Woodlands	locations and would sever the ESA - south of 17 Sideroad ~39,580 m2 (3.9 ha), and at the Black Creek Valley • Feature #12 (Black Creek) - This alternative would require the construction of a new crossing structure of Black Creek just north of 15 Side Road. • Feature #10 (ephemeral watercourse) – flows through agricultural fields, alignment will require new culvert structure. Any works proposed within regulated areas will require a permit from CVC (Reg 160/06). Provincial Policy Statement (2014) • Fish Habitat • Habitat of Endangered and Threatened Species • Candidate SWH • Candidate Significant Woodlands

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			Interference with Wetlands and Alterations to Shorelines and Watercourse160/06 • Feature #16 - Would require two new crossing structures and enclosure of the feature where the new road segments will cross. • Feature #19 - An extension of the existing culvert will also be required which will enclose ~21 m of watercourse. • Feature #14 (watercourse) – Requires extension (~10 m upstream and ~12 m downstream) of existing culvert structure and possible replacement. • Feature #25 (watercourse/small woodlot) - This alternative would not encroach within the feature, but is located adjacent to this feature, in close proximity • Feature #13 (wetland/woodland). A small narrow strip (~15m width) to the east and along the existing corridor (~3,500 m2 in total, 0.35 ha) would be removed. • Feature #11 (Hungry Hollow ESA). A small narrow strip (~13 m width) to the east and along existing corridor (~ 1040 m2). • Feature #12 (Black Creek) -				

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			Requires replacement of existing crossing structure and extension to accommodate the proposed road widening. This include enclosure of ~37 m Any works proposed within regulated areas will require a permit from CVC (Reg 160/06). Provincial Policy Statement (2014) • Fish Habitat • Habitat of Endangered and Threatened Species • Candidate SWH • Candidate Significant Woodlands				
Vegetation	Impact to vegetation, considering sensitivity, quality and significance of vegetation (including provincially or regionally rare/uncommon plant species) and relative magnitude of potential effect	Qualitative and Quantitative	Minor amounts of vegetation removal required, removals are primarily limited to along the existing ROW that is already disturbed. Slightly more vegetation removals then Alternative1B but less than all others alternatives. Summary: Individual tree removal will be required to accommodate the widened ROW. No provincially or regionally significant species are anticipated to be impacted, although would require confirmation during detailed design. Minor vegetation removals required to accommodate proposed road widening and intersection improvements. Vegetation affected	Minor amounts of vegetation removal required, removals are primarily limited to along the existing ROW that is already disturbed. Least amount of vegetation removal and potential for in-direct impacts on vegetation amongst all alternatives. Summary: Potential impacts on vegetation are the same as those described for Alternative 1A, with the exception of the following: • Feature #13 - There are slightly less removals required under Alternative 1B, than in Alternatives 1A and 1C at ~ 2,718 m2 (0.27 ha). This includes a	Minor amounts of vegetation removal required, removals are primarily limited to along the existing ROW that is already disturbed. Slightly more vegetation removals then Alternative1B and 1A but considerably less then Alternative 2 and 3. Summary: Potential impacts on vegetation are the same as those described for Alternative 1A, with the exception of the following: • Feature #13 - This alternative would result in the removal of ~ 4,805 m2 (0.5 ha) of habitat, this is the greatest area of removal amongst the	Considerably greater amount of vegetation removal required with this alternative when compared to Alternatives 1A, 1B, 1C, but a lesser amount of amount of vegetation removal required when compared to Alternative 3. Vegetation removal includes larger areas and in several features that have increased sensitivity / significance. Summary: Individual tree and hedgerow removal will be required to accommodate the new road alignment. No provincially or regionally significant species are anticipated to be impacted, although would require	Considerably greater amount of vegetation removal required with this alternative when compared to Alternatives 1A, 1B, 1C, greatest amount of vegetation removals of all the alternatives. Vegetation removal includes larger areas and in several features that have increased sensitivity / significance. Summary: Individual tree and hedgerow removal will be required to accommodate the new ROW road alignment. No provincially or regionally significant species are anticipated to be impacted, although would require confirmation during detailed design.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			is predominantly common, disturbance tolerant species found within the existing ROW. Small areas of encroachment outside the existing ROW may result in the limited removal of vegetation identified as part of natural vegetation communities. No significant flora species are anticipated to be affected, although would require confirmation during detailed design. This is applicable to the following vegetation units: • A small area of CUM1-1 (450m2) (0.05 ha) on the south side of the Metrolinx railway (west of Trafalgar Road). Low sensitivity feature. • Feature #15 (woodland) FOD5-1. A small narrow strip (ranging from ~10m to 28 m in width) along the existing ROW (~1,920 m2) (0.19 ha) would be removed. Feature has moderate sensitivity, although likely low sensitivity in the area of encroachment. • Feature #19 (woodland) FOD5-8. A small narrow strip (~7m width) along the existing ROW (~1,520 m2) (0.15 ha) would be removed. Feature has moderate sensitivity, although likely low sensitivity in the area of encroachment. • Feature # 21 (cultural meadow).	narrow strip (~10 m) to the east and along the ROW. • Feature #21 (cultural meadow) – additional removals of vegetation 495 m2 (0.05 ha) would be required within this vegetation community above what is required in Option 1A, although considered negligible. • Feature #25 - This alternative would not run adjacent and in close proximity of Feature #25 as Alternatives 1A and 1C.	three sub options under Alternative 1. It includes a 20 m strip removal along the ROW. However, the total increased in area removed is somewhat negligible when compared to Alternative 1A.	confirmation during detailed design. Vegetation removals required to accommodate the construction of the new road alignment. Removal of vegetation within these features has potential to impact significant flora species, although would require confirmation during detailed design. These areas include: • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. Feature has moderate sensitivity. • Feature #22 (woodland) FOD 5-3. An area of ~6,540 m2 (0.65 ha) would be removed. Feature has moderate sensitivity. • Feature #24/#12 (Stewarttown Woods ESA/Black Creek) SWD 3-4 and SWD. An area of ~4,200 m2 (0.42 ha) would be removed, vegetation removals are more limited compared to Alternative 3 as an agriculture field is present at the crossing location. Feature has high sensitivity. Should this alternative be selected as the preferred, additional detailed field surveys	Vegetation removals required to accommodate the construction of the new road alignment. Removal of vegetation within these features has potential to impact significant flora species, although would require confirmation during detailed design. These areas include: • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. Feature has moderate sensitivity. • Feature #20 (Wetland/Woodland) – a very small portion of SWD3-3 would be removed (~140 m2) (0.01 ha). Feature is moderately sensitive. • Feature #45 (wetland) MAS2-1. An area of ~1,750 m2 (0.18 ha) would be removed. Feature is low sensitivity. • Feature #24/#12 (Stewarttown Woods ESA/Black Creek) FOD/SWC. Vegetation would be removed at two locations. The first, south of 17 Sideroad is ~3,230 m2 (0.32 ha). The second, at the Black Creek Valley ~9,975m2 (0.99 ha). Feature has high sensitivity. Should this alternative be selected as the preferred, additional

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			A small narrow strip (~6m width) along the existing ROW (~310 m2 of CUM1-1 and ~400 m2 of MAMM 1-12), 0.07 ha, would be removed. Feature is highly altered as it is being removed to accommodate development. Low sensitivity. • Feature #25 (watercourse/small woodlot) This alternative would not encroach within the feature, but is located adjacent to this feature, in close proximity. There is potential for indirect effects to the vegetation within feature from salt spray. Feature is moderate sensitivity. • Feature #13 (wetland/woodland). A small narrow strip (~15m width) along the existing ROW (~3,500 m2 in total, 0.35 ha), includes FOD5 (~2,100 m2) and SWD2-1 (~1,400 m2) would be removed. Feature has moderate sensitivity, although likely low sensitivity in the area of encroachment. • A small area of MAS 2-1 (cattail marsh) along the existing ROW will require removal of ~885 m2 (0.08 ha) of vegetation. • Feature #11 (Hungry Hollow ESA). A small narrow strip (~13 m width) along existing ROW (~ 1040 m2), 0.10 ha,			of existing vegetation should be undertaken to identify presence of provincial or regionally significant flora species. Overall, there will be removal of larger portions of vegetation within the existing natural communities/features required to accommodate the new road alignments, features in which have increased sensitivity/ significance. Potential impacts on the form and function of these features as well as significant flora species.	detailed field surveys of existing vegetation should be undertaken to identify presence of provincial or regionally significant flora species. Overall, there will be removal of larger portions of vegetation within the existing natural communities/features required to accommodate the new road alignments, features in which have increased sensitivity/ significance. Potential impacts on the form and function of these features as well as significant flora species.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			would be removed. Feature is high sensitivity, although likely low sensitivity in the area of encroachment. Overall, there will be removal of vegetation within the existing ROW and limited removals within existing natural communities/features. Minor encroachment into natural features is not anticipated to affect the form or function of the wetland and woodland features. Minor vegetation removals are not anticipated to affect significant flora species.				
Wildlife	• Impact to species of conservation concern (federally and provincially and TRCA species of conservation concern. • Impact on habitat • Impacts to wildlife movement opportunities	Qualitative and Quantitative	Minor amounts of vegetation/habitat removal required, removals are primarily limited to along the existing ROW that is disturbed, limited impact on wildlife and wildlife habitat anticipated. Summary: Individual tree would be removed to accommodate the proposed widened ROW. No provincially or regionally significant fauna species are anticipated to be impacted with the application of appropriate timing windows for removal to address possible nesting birds or roosting bats. Minor vegetation/habitat removals would be required to accommodate road widening and intersection	Minor amounts of vegetation/habitat removal required, removals are primarily limited to along the existing ROW that is disturbed, limited impact on wildlife and wildlife habitat anticipated. Increased potential for impacts associated with the presence of additional potentially suitable BOBO and EAME habitat (old field/cultural meadow) north of 17 Side Road (provincially threatened species under ESA). Although, there are slightly less removals required then in Alternatives1A and 1C at ~ 2,718 m2. This includes a narrow strip (~10 m) to the east of the ROW.	Although the Alternative 1 Options impact the greatest number of policy defined areas, it has the least amount of direct and in-direct impacts on affected natural features. This option has slightly more removals of habitats when compared to Alternative 1A but does not have additional risk of impacts to EAME and BOBO from encroaching within the additional agricultural field. Summary: Potential impacts on policy defined areas are the same as those described for Option 1A, with the exception of the following:	This alternative would result in a large amount of vegetation/habitat removal, although, it would avoid larger natural areas therefore less in-direct (noise, light, etc.) impacts when compared to Alternative 3, larger areas of removal required and in several features that have increased sensitivity / significance. Summary: Individual tree and hedgerow removal would be removed to accommodate the new road alignment. No provincially or regionally significant fauna species are anticipated to be impacted with the application of appropriate timing windows for	This alternative would result in the greatest amount of adjacent natural habitat – increased in-direct impacts on wildlife such as noise, light, etc. larger areas of removal required and in several features that have increased sensitivity/significance. Increased bi-section of candidate wildlife movement corridors when compared to other alternatives. Summary: Individual tree and hedgerow removal will be required to accommodate the new road alignment. No provincially or regionally significant fauna species are anticipated to be impacted with the application of appropriate timing windows for

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			improvements. Vegetation/habitats affected are predominantly within the existing ROW and are generally disturbed due to anthropogenic activity. Small areas of encroachment outside the existing ROW may result in the limited removal of vegetation/habitat identified as part of natural vegetation communities. No significant fauna species or sensitive habitats are anticipated to be affected, although would require confirmation during detailed design. This is applicable to the following vegetation units: • A small area of CUM1-1 (~450m2) (0.05 ha) on the south side of the Metrolinx railway (west of Trafalgar Road). Low sensitivity feature, no known sensitive wildlife habitats are anticipated to be affected. • BOBO and EAME Habitat. Agricultural fields (hay crop) located north and south of the Metrolinx railway are crossed by the new alignments, resulting in the removal of ~18,500 m2 (1.8 ha) of potential habitat. • Feature #15 (woodland) FOD5-1. A small narrow strip ranging from ~10m to 28 m in width along the existing ROW	Summary: Potential impacts on wildlife and wildlife habitat are the same as those described for Alternative 1A, with the exception of the following: • Alternative 1B crosses an additional agricultural field that has been identified as potentially suitable BOBO and EAME habitat (provincially Threatened species under the ESA). This field (old field/cultural meadow) is located north of 17 Side Road and the CN railway, east of Trafalgar Road. • Feature #13 - There are slightly less removals required with this alternative, than in Alternatives 1A and 1C at~ 2,718 m2 (0.27 ha). This includes a narrow strip (~10 m) to the east and along the ROW. Feature has moderate sensitivity, although likely low sensitivity in the area of encroachment. No known sensitive wildlife habitats are anticipated to be affected. Several SCC have been recorded within this feature. • Feature #21 (cultural meadow) – additional	• Feature #13 - This option would result in the removal of ~ 4,805 m2 (0.5 ha) of habitat, this is the greatest area of removal required of the three options. It includes a 20 m strip along ROW. Although, total area removed is somewhat negligible when compared to Alternative 1A. Feature has moderate sensitivity, although likely low sensitivity in the area of encroachment. No known sensitive wildlife habitats are anticipated to be affected. Several SCC have been recorded within this feature. Recommendations: Same as Alternative 1A	removal to address possible nesting birds or roosting bats. Vegetation/habitat removals are required to accommodate the construction of the new road alignment. These features have moderate to high sensitive / significance and have records of SAR and SCC present. Removal of vegetation within these features has potential to impact significant fauna species, although would require confirmation during detailed design. These areas include: • Amphibian breeding pond – removal pond feature, documented amphibian breeding in 2014. Located south of 20 Side Road, west of Trafalgar Road. • BOBO and EAME Habitat – Alignment would cross an agricultural field (hay crop) that has been identified as potentially suitable BOBO and EAME habitat (provincially Threatened species under the ESA). This area is ~11,400m2 (1.14 ha) in size. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. Feature has moderate sensitivity,	removal to address possible nesting birds or roosting bats. Vegetation/habitat removals are required to accommodate the construction of the new road alignment. These features have moderate to high sensitive / significance and have records of SAR and SCC present. Removal of vegetation within these features has potential to impact significant fauna species, although would require confirmation at Detailed Design. These areas include: • Amphibian breeding pond – removal pond feature, documented amphibian breeding in 2014. Located south of 20 Side Road, west of Trafalgar Road. • BOBO and EAME Habitat – Alignment crosses an agricultural field (hay crop) that has been identified as potentially suitable BOBO and EAME habitat (provincially Threatened species under the ESA). This area is ~11,400m2 (1.14 ha) in size. • Feature #15 (woodland) FOD5-1. An area of ~2,530 m2 (0.25 ha) would be removed. Feature has moderate sensitivity, although likely low sensitivity in the

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			(~1,920 m2) (0.19 ha) would be removed. Feature has moderate sensitivity, although likely low sensitivity in the area of encroachment. Several SCC have been recorded within this feature. No known sensitive wildlife habitats are anticipated to be affected. Between this feature and Feature #19 have been identified as a candidate wildlife corridor. • Feature #19 (woodland) FOD5-8. A small narrow strip (~7m width) along the existing ROW (~1,520 m2) (0.15 ha) would be removed. Feature has moderate sensitivity, although likely low sensitivity in the area of encroachment. Several SCC have been recorded within this feature. No known sensitive wildlife habitats are anticipated to be affected. Between this feature and Feature #15 have been identified as a candidate wildlife corridor. • Feature # 21 (cultural meadow). A small narrow strip (~6m width) along the existing ROW (~310 m2 of CUM1-1 and 400 m2 of MAMM 1-12). Low sensitivity, no known sensitive wildlife habitats are anticipated to be affected. • Feature #25 (watercourse/small	removals of vegetation/habitat 495 m2 (0.05 ha) are required within this vegetation community above what is required in Option 1A, although considered negligible. • Feature #25 - This alternative would not run adjacent and in close proximity of Feature #25 as the other two options do, although in-direct impacts to Feature #25 are negligible. Recommendations: Same as Alternative 1A If selected as the preferred alternative, additional targeted BOBO and EAME surveys would be required at Detailed Design. Compensation of the removed area in terms of habitat removal may be required depending on the findings of those surveys.		although likely low sensitivity in the area of encroachment. Several SCC have been recorded within this feature. No known sensitive wildlife habitats are anticipated to be affected. Between this feature and Feature #19 have been identified as a candidate wildlife corridor • Feature #22 (woodland) FOD 5-3. An area of ~6,540 m2 (0.65 ha) would be removed. Feature has moderate sensitivity. Provides wildlife habitat and high potential for SCC or SAR presence. • Feature #24/#12 (Stewarttown Woods ESA/ Black Creek) SWD 3-4 and SWD. An area of 4,200 m2 (0.42 ha) would be removed and the alignment would bi-sect this feature. Vegetation removals would be less compared to Alternative 3 as an agriculture field is present at the crossing location. Feature is high sensitivity. Several SCC and SAR have been recorded within this feature. This Feature is located within the Black Creek valley, which is a candidate wildlife movement	area of encroachment. Several SCC have been recorded within this feature. No known sensitive wildlife habitats are anticipated to be affected. Between this feature and Feature #19 have been identified as a candidate wildlife corridor • Feature #20 (Wetland/Woodland) – a very small portion of SWD3-3 would be removed (~140 m2) (0.01 ha). This feature has confirmed amphibian breeding habitat and SWH. Feature is moderately sensitive. • Feature #45 (wetland) MAS2-1, a small wet depressional area. An area of ~1,750 m2 would be removed and the alignment would bi-sect this feature. Feature has confirmed amphibian breeding habitat. Feature is low sensitivity. • Feature #24/#12 (Stewarttown Woods ESA/Black Creek) FOD/SWC. Vegetation would be removed at two locations. The first, south of 17 Side Road ~3,230 m2 (0.32 ha). The second, at the Black Creek Valley ~9,975m2 (0.99 ha) Feature is high sensitivity. Several SCC and SAR have been recorded within this

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			woodlot) – This alternative would not encroach within the feature, but is located adjacent to this feature, in close proximity. Potential for indirect effects to the wildlife within the feature are anticipated to be negligible as the feature is already impacted (e.g. noise, light from the existing Trafalgar Road) Feature is moderate sensitivity. • Feature #13 (wetland/woodland). A small narrow strip (~15m width) along the existing ROW (~3,500 m2 in total), includes FOD5 (~2,150 m2) and SWD2-1 (~1,400 m2) would be removed. Feature has moderate sensitivity, although likely low sensitivity in the area of encroachment. No known sensitive wildlife habitats are anticipated to be affected. Several SCC have been recorded within this feature. • Feature #11 (Hungry Hollow ESA). A small narrow strip (~13 m width) along existing ROW (~ 1040 m2). Feature is high sensitivity, although likely low sensitivity in the area of encroachment. No known sensitive wildlife habitats are anticipated to be affected. This			corridor. Recommendations: Vegetation clearing and culvert removal activities should be carried out outside of identified timing windows to avoid direct impacts to wildlife. Water crossing structure design should consider wildlife passage at those locations identified as candidate wildlife movement corridors (Black Creek valley and between Feature #15/18) as to maintain/improve movement function. Overall, there will be removal of larger portions of vegetation within the existing natural communities/features required to accommodate the new road alignments, features in which have increased sensitivity/ significance. Potential impacts on the form and function of these features as well as significant fauna species. Appropriate mitigation (e.g. timing windows for vegetation removals, culvert design for wildlife passage) should be carried out at. Wildlife within these areas will be displaced to adjacent available habitats.	feature. This Feature is located within the Black Creek valley, which is a candidate wildlife movement corridor. Recommendations: Same as Alternative 2.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			Feature is located within the Black Creek valley, which is a candidate wildlife movement corridor. The typical cross section has been reduced (e.g. by eliminating the on-street bike lanes) to reduce encroachment to adjacent natural features and the associated habitats. Recommendations: Woodland trees and wetland areas are to be retained and protected, if feasible. Vegetation clearing and culvert removal activities should be carried out outside of identified timing windows to avoid direct impacts to wildlife. Water crossing structure design should consider wildlife passage at those locations identified as candidate wildlife movement corridors (Black Creek valley and between Features 15/19) as to maintain/improve movement function. Additional targeted BOBO and EAME surveys would be required prior to the completion of Detailed Design. Compensation of the removed area in terms of habitat removal may be required depending on the findings of those surveys. Overall, there will be removal of vegetation/habitat within the existing ROW and limited removals within existing natural				

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			communities/features. Minor encroachment into natural features is not anticipated to affect the form or function of the wetland and woodland features and habitats. Minor vegetation removals are not anticipated to affect significant fauna species if appropriate mitigation (e.g. timing windows for vegetation removals, culvert design for wildlife passage) is adhered to. Wildlife will be displaced to adjacent available habitats.				
Fisheries and Aquatic Habitat	Effect on fish and fish habitat considering sensitivity and relative magnitude of potential effect	Qualitative and Quantitative	Impacts to aquatic features by this alternative is limited to extensions of existing crossings, resulting in minor additional enclosure of features and minor removals of riparian vegetation. The three features with culvert extensions are low or moderate sensitivity, and the anticipated clear-span bridge replacement at Black Creek would avoid impacts to the high sensitivity aquatic habitat feature. A new segment of road is proposed adjacent to one cold water creek, identified as highly sensitive. Summary: The alternative has the potential to impact four aquatic features crossing Trafalgar Road. Culvert extensions would be required on three intermittent watercourses, reducing allochthonous and solar inputs to contributing fish habitat	Same as Alternative 1A, although does not include the construction of a new road segment adjacent to Feature # 25. Recommendations: same as Alternative 1A	Same as Alternative 1A. Recommendations: same as Alternative 1A	Impacted features include a low sensitivity feature and a new crossing of a high sensitivity feature (Black Creek). The crossing location at Black Creek is on a meander bend with confirmed Brook Trout spawning and presence of Atlantic Salmon (via fish stocking reintroduction). A clear-span bridge of the meander belt would limit potential impacts to the aquatic habitat within the channel, but would impact a large portion of riparian vegetation affecting adjacent reaches of the watercourse as well as the section spanned by the bridge. Due to the need to raise the road profile of 15 Side Road to avoid over topping during regional storm event, the two existing	Directly impacted features include a low sensitivity feature and a new crossing of a high sensitivity feature (Black Creek), as well as potential indirect impacts to an adjacent groundwater-fed stream. The conditions at the crossing location of Black Creek are similar to Alternative 2; however the meander bend is slightly less pronounced at the crossing location and a clear-span bridge would have less impact to riparian areas of adjacent reaches. Summary: This alternative would impact the ephemeral drainage feature (Feature 16) and Black Creek (Feature 12) as described in Alternative 2, with the exception that the crossing of Black Creek is on a less pronounced meander

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			and potentially interfering with groundwater input to the watercourses. All three intermittent watercourses are contributing fish habitat with potential, unconfirmed seasonal use by fish, and two have evidence of groundwater inputs at the existing culverts. A bridge widening (assumed bridge replacement) would be required at the existing Black Creek crossing location, a permanent, coldwater watercourse with confirmed direct fish habitat. At one location, a new road segment is proposed adjacent to Feature #25 (intermittent watercourse). There is potential for in-direct impacts to this feature. Details of the impacts to each feature follow: • Feature #16 (Intermittent watercourse). This alternative would require two new culvert structures south of the Metrolinx railway, between Trafalgar Road and 20 Side Road, enclosing an additional ~72 m of this watercourse. Feature is low sensitivity, with no specialized fish habitat. Groundwater inputs are suspected to be contributing to existing flow. • Feature #19 (Intermittent watercourse). This alternative would require a culvert			Black Creek crossings on 15 Side Road would like need to be replaced. Summary: This alternative would impact one ephemeral drainage feature and one high sensitivity watercourse. New crossings would be required for both watercourses, enclosing or covering new sections of aquatic habitat, reducing allochthonous and solar inputs. The ephemeral feature is potential contributing fish habitat with unconfirmed seasonal flows. The permanent watercourse, Black Creek, is confirmed direct fish habitat for sensitive coldwater species and the new crossing of Black Creek is located on a meander bend of the watercourse. Details of the impacts to each feature follow: • Feature #16 (Intermittent drainage). This feature is mapped as an intermittent watercourse. The feature drains toward a confirmed channel with contributing fish habitat. A new culvert will be required and enclose ~170 m of the feature. Feature is low sensitivity. It is anticipated to provide in-direct fish habitat • Feature #12 – Black Creek	bend with slightly reduced impacts to riparian vegetation of adjacent reaches. Additionally, the alternative may indirectly impact an unmapped water feature (Feature 43) adjacent to the route (to the east) with a combination of tile drainage and groundwater inputs of moderate sensitivity. Details of the impacts to this additional feature follow: • Feature #43 (Unmapped watercourse). This feature originates as tile drainage into a modified channel. Groundwater inputs were observed flowing from the west at the culvert crossing 17 Side Road, and were evident throughout the channel flowing south of the road. The permanent flow and groundwater inputs make this a moderately sensitive feature. The alternative would not cross the watercourse, but runs parallel ~25 m to the west. Impacts could include disruption to groundwater inputs to the watercourse. • Feature #10 (ephemeral watercourse) – flows through agricultural fields, alignment would require new culvert structure and would provide

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			extension of ~16 m to the west and ~ 5 m to the east of Trafalgar Road, enclosing an additional ~21 m in total of the watercourse. Based on the condition of the existing culvert it is anticipated it would be replaced with a new structure. Feature is moderate sensitivity. There is no specialized fish habitat present, but there is evidence of groundwater input immediately downstream of the existing culvert. • Feature #14 (Intermittent watercourse). Alternative 1A, 1B and 1C would require a culvert extension of ~8 m on the west side and a culvert extension with potential channel realignment of ~20 m of the channel on the east side of Trafalgar Road. Feature is moderate sensitivity. There is no specialized fish habitat present, but there is evidence of groundwater input immediately upstream of the existing culvert. • Feature #25 (intermittent watercourse) – This alternative would not encroach within the feature, but is located adjacent to this feature, in close proximity. Potential for indirect effects to aquatic habitat from road salt application and stormwater runoff. Feature has noted groundwater seepages			(Permanent Watercourse). A new bridge crossing of the watercourse would be required. This reach of the watercourse is high sensitivity, with coldwater habitat supporting Brook Trout with confirmed Brook Trout spawning redds within the reach. The reach is also stocked with Atlantic Salmon (provincially extinct) as part of the reintroduction program. Significant overhanging trees and vegetation creating important cover habitat for fish would be impacted by the new road alignment. Crossing is on a meander bend of the watercourse, increasing risk of erosion, and meandering of the river over time would be a risk to the structure. • Feature #10 (ephemeral watercourse) – flows through agricultural fields, alignment will require new culvert structure. Provides in-direct fish habitat Recommendations: Additional detailed surveys should be undertaken on Feature 16 during detailed design should this alternative be selected. The bridge crossing structure at	in-direct fish habitat. Recommendations: Same as Alternative 2.

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			and is anticipated to be in-direct habitat. Feature is moderate sensitivity; brook Trout are known to occur downstream in close vicinity. • Feature #12 – Black Creek (Permanent watercourse). Alternatives 1A, 1B and 1C would require the existing Black Creek crossing on Trafalgar Road to be widened by ~30 m to the east (downstream) and ~7 m to the west (upstream), covering an additional ~37 m of the channel, removing riparian vegetation and potentially reducing allochthonous and solar inputs. This is anticipated to be a replacement with a clear-span bridge of the meander belt. The feature is high sensitivity, coldwater with resident Brook Trout. The bridge widening would potentially impact two specific sensitive features of the watercourse: Widened bridge abutments could interfere with a groundwater seepage channel ~8 m west of the bridge on the north bank; and sensitive fish habitat in the form of a nursery pool with YOY salmonids observed ~6 m east of the bridge on the south bank. This would need to be assessed at detailed design. Recommendations: If selected as the preferred			Black Creek should be a clear-span structure of the meander belt to avoid impacts to the watercourse; however, this will still impact riparian vegetation. Design considerations should include protection of groundwater sources to aquatic habitat such as with the installation of open-bottom culvert structures. Overall, following design mitigation, impacts to aquatic features will include potential enclosure of Feature 16 (intermittent watercourse), reducing organic inputs to fish habitat downstream, removal of riparian vegetation within the Black Creek valley within the crossing location, and covering of ~45 m of high sensitivity habitat by the new bridge.	

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			alternative, fish sampling should be conducted in intermittent features to confirm fish use prior to detail design of crossing structures. All culvert extensions should ideally be replacements with open-bottom structures to minimize impacts to groundwater inputs, especially on Features 19 and 14 where groundwater evidence was observed. Also with footings set outside of the annual high watermark. The proposed clear-span bridge at Black Creek would protect important salmonid rearing habitat along existing channel banks. Areas of groundwater input, such as the northeast bank of Black Creek, should be maintained with appropriate design and fill materials. Overall, potential impacts to sensitive fish habitat and groundwater input channels in Black Creek can be mitigated with appropriate design (i.e. clear-span bridge). Following design mitigation, impacts of these route alternatives would be limited to minor losses of riparian vegetation, allochthonous input and solar inputs to channel sections enclosed or covered by structure extensions.				
Surface Water Quality and Quantity	Potential to affect surface and ground	Qualitative Description	• Salt used on roadways is impacting groundwater quality downstream from existing waterway crossings along Trafalgar Road. Widening of the roadway at water crossing locations will result in incremental increase in salt runoff potential in winter months.			• Salt used on roadways is impacting groundwater quality downstream from existing waterway crossings along Trafalgar Road. Constructing a new road and new crossings would result in	

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
	water quality in adjacent areas					an increase in salt runoff potential in winter months. • The construction of a new roadway through otherwise undeveloped rural and agricultural lands has the potential to impact surface and groundwater quality in the vicinity as a result of motor vehicle emissions and related contaminant runoff.	
SUMMARY – Natural Environment			**SEE SEPARATE SUMMARY**				
Transportation							
Traffic Operations (Future Conditions – 2031)	Ability to accommodate future vehicle demand		• Accommodate traffic demands through 2031 along the Trafalgar Road corridor • Trucks would be able to climb grades of Black Creek valley in right lane, improving traffic flow through Stewarttown			• Primarily serves interregional travel in Halton Region • No improvements to the existing Trafalgar Road corridor would be carried out, e.g. rail crossings would remain at-grade in Stewarttown and associated delays would not be resolved. • Out of the way travel for residents of Stewarttown; travel reliability for residents would not be improved	
Road Safety	• Grade through Black Creek valley • Rail crossing safety features		• Opportunity to improve grade of Trafalgar Road through Black Creek valley in Stewarttown (currently at ~8%, would improve to ~5%); would also improve sight distance. • Grade improvements would raise the profile of Trafalgar Road through the Black Creek Valley preventing overtopping of the roadway during Regional storm events. • Opportunity to improve existing at-grade rail crossings (via grade-separated crossings) would improve road safety along the existing alignment			• Grade through Black Creek valley along existing Trafalgar Road corridor would not be improved. • Rail crossings along existing Trafalgar Road alignment would remain at grade • Sightline issue at 20 Side Road along existing alignment would not be resolved. • Active transportation facilities would not be provided on existing Trafalgar Road alignment n • The new corridor would be designed to geometric standards.	
Intersection Requirements	• Removal or addition of intersections • Intersection improvements	Number of Intersections and Qualitative Descriptions	• The proposed widening would improve the operation at 15 Side Road intersection • "South" Stewarttown Road would become a cul-de-sac and "North" Stewarttown Road would become a signalized intersection • The intersection of 17 Side Road / Maple Avenue would be shifted to the east as a result of the grade separation. The	• The proposed widening would improve the operation at 15 Side Road intersection • "South" Stewarttown Road would become a cul-de-sac and "North" Stewarttown Road would become a signalized intersection • The existing 17 Side Road intersection would be closed at the CN Rail crossing. 17 Side Road will be rerouted	• The proposed widening would improve the operation at 15 Side Road intersection New signalized intersection at Maple Avenue to the east of the existing along the new alignment • "South" Stewarttown Road would become a cul-de-sac. Access to Stewarttown Road would be limited to right-in right-out access at the	• New intersection approximately 600 m south of 15 Side Road where the existing Trafalgar Road alignment would connect to the new Trafalgar Road bypass • Grades along 15 Side Road approaching the 15 Side Road / Trafalgar Road intersection will be raised and a full moves signalized intersection would be implemented. The 15 Side Road / Black Creek crossing structures would likely need to be raised, modified, or replaced in order to accommodate this grade change. • New signalized intersection at 17 Side Road crossing • 20 Side Road would be realigned and connect to Trafalgar Road • The approach to the intersection at Highway 7 would be	

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
			access to Trafalgar Sports Park north of CN Rail crossing would become a signalized intersection • Berton Boulevard would become a signalized intersection • 20 Side Road would be realigned and connect to Trafalgar Road • The approach to the intersection at Highway 7 would be reconfigured	through Trafalgar Sports Park (i.e. a portion of the internal road within the Trafalgar Sports Park would become a local road) and would tie in with Trafalgar Road north of the proposed underpass rail crossing. The existing intersection at 17 Side Road / Maple Avenue will be converted to a T-intersection and shifted to the west to accommodate the CN Rail underpass. • The access to Trafalgar Sports Park north of CN Rail crossing would become a signalized intersection • Berton Boulevard would become a signalized intersection • 20 Side Road would be realigned and connect to Trafalgar Road • The approach to the intersection at Highway 7 would be reconfigured	existing north access point. All other movements will be achieved via a new "service road" and connect to Trafalgar Road via 17 Side Road / Maple Avenue intersection. • The access to Trafalgar Sports Park north of CN Rail crossing would become a signalized intersection • Berton Boulevard would become a signalized intersection • 20 Side Road would be realigned and connect to Trafalgar Road • The approach to the intersection at Highway 7 would be reconfigured	reconfigured.	
Geometric Standards	Minimum Horizontal Geometry: Radius	m	80 km/h Design Speed: Minimum Radius – 250 m Actual Radius – 340 m	80 km/h Design Speed: Minimum Radius – 250 m Actual Radius – 250 m	80 km/h Design Speed: Minimum Radius – 250 m Actual Radius – 340 m	80 km/h Design Speed: Minimum Radius – 340 m Actual Radius – >340 m	80 km/h Design Speed: Minimum Radius – 340 m Actual Radius – >340 m
	Minimum Vertical Geometry: crest and sag value	Minimum Crest (C) and Sag (S) Value (K)	80 km/h Design Speed: C – 35 S – 30	80 km/h Design Speed: C – 35 S – 30	80 km/h Design Speed: C – 35 S – 30	80 km/h Design Speed: C – 35 S – 30	80 km/h Design Speed: C – 35 S – 30
			• Overall profile would be improved on existing Trafalgar Road north of 15 Side Road by changing the grade from ~8% to ~5%.			• Overall profile to meet design speed of 80 km/h.	

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
Rail Operations	Number of crossings: grade separated and/or at-grade	Qualitative Descriptions	• Two existing at-grade crossings along Trafalgar Road (CN Rail and Metrolinx) will be replaced by grade-separated underpass crossings			• Two grade-separated underpass rail crossings will be constructed (CN Rail and Metrolinx crossings) • Rail crossings along existing Trafalgar Road corridor and on 17 Side Road will remain at-grade	
			• The existing CN rail crossing on 17 Side Road would remain at grade.	• The access road through Trafalgar Sports Park would be reconstructed to become a local road connecting 17 Side Road to Trafalgar Road. The existing CN rail crossing on 17 Side Road would be closed.	• The existing CN rail crossing on 17 Side Road would remain at grade.	• Rail detours required during construction	• Rail detours required during construction • Relocation of rail switches on CN Rail line required
Network Compatibility	Existing network functions	Qualitative Descriptions	• Compatible with the existing network in Stewarttown, and would support existing and future traffic needs. • "South" Stewarttown Road would become a cul-de-sac while "North" Stewarttown Road would become a signalized intersection. • The access to Trafalgar Sports Park would become a signalized intersection. • 20 Side Road would be realigned to connect to Trafalgar Road.			• These alternatives would bypass Stewarttown, mainly serving inter-regional travel. • Emergency vehicles destined to Georgetown and Stewarttown properties would still have to rely on existing Trafalgar Road; the existing at grade crossings may lead to potential delay in response time or detours. • 20 Side Road would be realigned to connect to Trafalgar Road. • New intersections at 15 Side Road and 17 Side Road.	
				• The access road through Trafalgar Sports Park would be reconstructed to become a local road connecting 17 Side Road to Trafalgar Road. The existing CN rail crossing on 17 Side Road would be eliminated.		• Due to the proximity of the new 15 Side Road intersection to the two existing Black Creek crossings and the need to raise the road profile to not overtop during regional storm events, the two existing Black Creek structures may have to be replaced.	
Utilities	Quantity of Relocations Required	Qualitative Description of General Requirements	• Utilities relocations on both sides of Trafalgar Road to accommodate widening of the roadway			• Primarily passes through greenfield land. Localized (i.e. minimal) utility relocation may be required. • Utility connections for new light standards and intersections along the corridor will be required	
SUMMARY – Transportation			**SEE SEPARATE SUMMARY**				

FACTORS	INDICATOR	UNIT	DESIGN ALTERNATIVES – 15 SIDE ROAD TO HIGHWAY 7				
			ALTERNATIVE 1A	ALTERNATIVE 1B	ALTERNATIVE 1C	ALTERNATIVE 2	ALTERNATIVE 3
Preliminary Cost Estimate							
Capital Cost		Order of Magnitude	• $$$	• $$$	• $$$	• $$$$	• $$$$
Constructability and Construction Staging	Staging and Detour Requirements	Order of Magnitude	• $$$	• $$$	• $$$	• $$	• $$
		Qualitative Description	• Rail detours will be required throughout construction for CN Rail (two tracks) and Metrolinx (one track) in the vicinity of the proposed underpasses. The rail detour of the Metrolinx track may temporarily impact lands immediately to the north (i.e. future potential development on Lindsay Court). • There would be temporary traffic impacts along Trafalgar Road corridor in vicinity of the 15 Side Road, 17 Side Road and 20 Side Road intersections due to the proposed widening. • Partial lane closures will be required during construction to accommodate the widening of Trafalgar Road to 4 lanes (timing of the closure, i.e. night / weekend / summer, would be determined during detailed design) • The Black Creek crossing will need to be constructed in stages, requiring lane closures to accommodate the replacement of the existing structure, as well as associated retaining walls; a portion of the existing structure may be used as detour during construction. Each of the option under Alternative 1 would require a unique staging strategy at Black Creek.			• Rail detours will be required throughout construction for CN Rail (two tracks under Alternative 2 and one track under Alternative 3) and Metrolinx (one track) in the vicinity of the proposed underpasses. The rail detour of the Metrolinx track may temporarily impact lands immediately to the north (i.e. future potential development on Lindsay Court). • No impacts to traffic on existing Trafalgar Road alignment during construction. The construction of the new Trafalgar Road bypass would be constructed in greenfield conditions. • Partial or temporary full closures and/or detours will be required on 15 Side Road, 17 Side Road, and 20 Side Road when constructing the new intersections.	
	Geotechnical / Foundation Conditions	Qualitative Description	• Replacement of existing Black Creek crossing structure would be required to accommodate the widening of Trafalgar Road and also the raise in road profile to avoid overtopping of the road during regional storm event. Retaining the Black Creek bridge on the existing Trafalgar Road alignment is preferred from a geotechnical viewpoint based on available borehole data			• New Black Creek crossing structure would be required: comparing to Alternatives 1A, 1B and 1C, geotechnical conditions at new crossing locations are considered to be less than favourable	
			• Trafalgar Road would be grade separated at the CN Rail crossing north of 17 Side Road and the Metrolinx Rail crossing south of Highway 7 as underpasses. At present, no evidence is available that the soil and groundwater conditions impacting construction are more favourable along any one alignment in comparison to the others.				
Maintenance Cost	Total amount of infrastructure to be maintained post-construction	Order of Magnitude	• $	• $	• $ • The new service road between Stewarttown Road and 17 Side Road along the original Trafalgar Road alignment will need to be maintained, resulting in greater long-term maintenance costs	• $$ • The original Trafalgar Road alignment plus the new Trafalgar Road corridor will both need to be maintained, resulting in significantly greater long-term maintenance costs	• $$ • The original Trafalgar Road alignment plus the new Trafalgar Road corridor will both need to be maintained, resulting in significantly greater long-term maintenance costs