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## 11. Significance of Residual Adverse Cumulative Effects

### 11.1 Context for Determination of Significance

The EA Guidelines (Section 9.7) describe the requirements for the assessment of the significance of the adverse environmental effects. Section 9, Likely Environmental Effects, and Section 10, Likely Cumulative Effects, of this Environmental Screening report described the residual effects of the Projects subject to Federal EA and the cumulative effects of the Undertaking in combination with other projects and activities. Taking into account the implementation of the proposed mitigation measures, the residual adverse cumulative effects were identified in **Table 10-1**. All residual adverse cumulative effects identified have been carried forward to this Section in order to assess their significance. For the purpose of this Environmental Screening report, the significance of the residual cumulative adverse effects is being assessed and includes the consideration of the Projects subject to Federal EA and the 407 East Transportation Corridor as a whole. It is noted that beneficial effects are not considered further in terms of their significance.

As per the EA Guidelines, the following criteria were defined in relation to assessing the significance of the residual adverse effects from the 407 East Transportation Corridor:

- Magnitude**..... The size or degree of the effects compared against baseline conditions or thresholds, and other applicable measurement parameters (i.e., standards, guidelines, objectives).
- Extent** ..... The geographic area over or throughout which the effects are likely to be measurable.
- Duration**..... The time period over which the effects are likely to last
- Frequency** ..... The rate of recurrence of the effects (or conditions causing the effect).
- Permanence** ..... The degree to which the effects can or will be reversed (typically measured by the time it will take to restore the environmental attribute or feature)
- Ecological Context** ..... The importance of the environmental attribute or feature to ecosystem health and function

These criteria are generally used in Federal EAs carried out under the *CEA Act* and aim to address both the nature and extent of the residual effects, environmental implications of the effects, as well as human health implications (where relevant).

**Table 11-1** provides the framework that was established for the assessment of significance of cumulative effects, and includes the significance assessment criteria and definitions for three levels of significance (low, medium and high). As described in the EA Guidelines, these levels of significance were framed to generally reflect Federal and provincial regulatory and industry standards and guidelines to the extent possible. Where available, these standards and guidelines were described in Section 9, Likely Effects. In cases where these points of reference were not available, the assessments were made by MTO based on professional judgement concerning the type and nature of the environmental effects. The application of this framework to the cumulative effects identified in Section 10 provides the basis of an overall opinion on the significance of

the identified cumulative effects by MTO. As noted in the EA Guidelines, the Responsible Authorities will make a final determination on the significance of the adverse effects of the Projects subject to Federal EA taking into account MTO’s opinions and any other factors they considered relevant.

**Table 11-1 Significance Assessment Framework**

Significance Assessment Criteria	Significance Level		
	Low	Medium	High
<b>Magnitude of Effect</b>	Cumulative effects may be noticeable and/or measurable, but are not likely to exceed a reference criterion or guideline value.	Cumulative effects are likely to be noticeable and measurable, representing a small change relative to existing condition. Cumulative effects may exceed a reference criterion or guideline value on occasion and/or at an individual location.	Cumulative effects are likely to be noticeable and measurable, representing large measurable changes relative to existing conditions. Cumulative effects are likely to exceed a reference criterion or guideline on an ongoing basis across the RSA.
<b>Extent of Effect</b>	Cumulative effects are likely to be measurable within an area immediately surrounding the 407 East Transportation Corridor ROW and those of other projects and activities, generally within 500 m. Cumulative effects may be experienced within a few hamlets/built up areas traversed by the transportation corridor.	Cumulative effects are likely to be noticeable and/or measurable within the RSA or within most of the hamlets/built up areas traversed by the transportation corridor	Cumulative effects are likely to be noticeable or measurable within the RSA. Cumulative effects will be experienced by all hamlets/built up areas traversed by the transportation corridor, having adverse implications for VECs beyond the RSA.
<b>Duration/Timing (of effect)</b>	Cumulative effects result from short-term events, are considered to be short-term disturbances or losses limited to within the planning horizon (i.e., up to 2031)	Cumulative effects are ongoing effects related to the Construction and/or Operations and Maintenance phases of the 407 East Transportation Corridor Undertaking and those of other projects and activities.	Cumulative effects are ongoing effects that are likely to persist beyond the Construction and/or Operations and Maintenance phases of the 407 East Transportation Corridor Undertaking and those of other projects and activities.
<b>Frequency (or probability) (of Projects or Activities causing cumulative effect)</b>	A few other projects or activities causing cumulative effects are likely to occur along with the 407 East Transportation Corridor. They will occur periodically over the planning horizon (i.e., up to 2031)	Several projects or activities causing cumulative effects are likely to occur along with the 407 East Transportation Corridor. They will occur periodically over the planning horizon (i.e., up to 2031).	The majority of projects or activities causing cumulative effects are likely to occur along with the 407 East Transportation Corridor. They are likely to occur frequently or repeatedly over the planning horizon (i.e., up to 2031).
<b>Permanence (of effect)</b>	Measurable or noticeable cumulative effects are not likely to persist over the planning horizon (i.e., up to 2031). MTO’s mitigation and/or compensation measures and potentially those of other projects and activities will ensure that long term effects do not occur.	Measurable or noticeable cumulative effects are likely to persist for some time over the planning horizon. Adverse regional trends are potentially reversible.	Cumulative effects are not readily reversible despite the implementation of mitigation and/or compensation measures. Adverse regional trends are likely to persist.
<b>Ecological Importance (of a resource or VEC)</b>	Not Applicable	The resource / VEC is common and abundant. The resource / VEC will continue to fulfill its ecological functions.	The resource / VEC is not common across the RSA. Abundance and quality is required for the resource / VEC to continue to fulfill its ecological functions.

After the application of this framework to the residual adverse cumulative effects, an effect was assessed to be a negligible effect (not significant), a minor adverse effect (not significant), a moderate adverse effect (not significant) or a significant adverse effect, according to the following definitions:

- a) **Negligible Effect (Not Significant)** are those environmental effects which, after taking into consideration applicable mitigation measures have been assessed to have a “low” level of significance for the majority of the significance criteria described above; or having a “low” or “medium” level of significance for the majority of the criteria with “low” permanence.
- b) **Minor Adverse Effects (Not Significant)** are those environmental effects which, after taking into consideration mitigation measures, have been assessed to have a “low” or “medium” level of significance for the majority of the criteria described above.
- c) **Moderate Adverse Effects (Not Significant)** are those environmental effects which, after taking into consideration mitigation measures, have been assessed to have a “medium” level of significance for the majority of the criteria described above or having a “low” or “medium” level of significance for the majority of the criteria with “high” permanence.
- d) **Significant Adverse Effects** are those environmental effects which, after taking into consideration mitigation measures, have a magnitude that has a “high” magnitude, “high” extent and “high” duration.

**Table 11-2** provides a summary of the significance assessment for the residual adverse cumulative effects.

**Table 11-2 Significance of Residual Adverse Cumulative Effects**

Residual Adverse Cumulative Effect	Project Phase	VEC Affected	Residual Effect Significance Levels					Ecological Importance (of resource or VEC)	Overall Significance of Cumulative Effects
			Magnitude	Extent	Duration	Frequency	Permanence		
Increased dust levels	Construction	Air Quality Sensitive Receptors (Human Receptors)	<b>Medium</b> Increased dust levels during construction of the 407 East Transportation Corridor in combination with other projects/activities may exceed a reference criterion or guideline value on occasion or at an individual location	<b>Low</b> Increased dust levels are likely to be measureable within 500 m of the 407 East Transportation Corridor	<b>Low</b> Cumulative effect are likely to be short term (e.g., major earthworks during windy periods) in duration at any one location along the ROW	<b>Low</b> Cumulative effects will occur periodically during the construction phase as a result of a few other projects/activities that are likely to occur along the 407 East Transportation Corridor	<b>Low</b> Effects are not likely to persist once the activities causing the effects have ceased.	<b>High</b> Good air quality is required for the VECs to continue to function.	<b>Negligible Cumulative Effect (Not Significant)</b>
Reduced regional air quality (i.e., increased emission of contaminants of concern)	Operations and Maintenance	Air Quality Sensitive Receptors (Human Receptors)	<b>Medium</b> Changes in air quality represent small measureable changes relative to baseline conditions and may exceed a reference criterion or guideline value on occasion or at an individual location	<b>Medium</b> Cumulative effects are likely to be noticeable or measureable within the RSA and in most hamlets/built up areas traversed by the transportation corridor	<b>Medium</b> Cumulative effects are ongoing effects related to the Operations and Maintenance Phase of the 407 East Transportation Corridor and those of other projects/activities	<b>Medium</b> Most projects and activities causing the cumulative effects are likely to occur along with the 407 East Transportation Corridor. Exceedances of reference criteria or guideline values are likely to occur periodically during the Operations and Maintenance Phase	<b>Medium</b> Reduced regional air quality is likely to persist over the planning horizon, but regional trends are reversible.	<b>High</b> Good air quality is required for the VEC to continue to function.	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
Increased noise levels along the transportation corridor	Construction	Noise Sensitive Areas (Human Receptors)	<b>Medium</b> Noise levels during construction may exceed a reference criterion or guideline value on occasion or at an individual location	<b>Low</b> Cumulative effect is likely to be measureable within 500 m of the 407 East Transportation Corridor and other projects/activities	<b>Low</b> Cumulative effect are likely to be short term in duration at any one location (i.e., pile driving) along the ROW	<b>Low</b> Cumulative effects will occur periodically during the construction phase as a result of a few other projects/activities that are likely to occur along the 407 East Transportation Corridor	<b>Low</b> Effects are not likely to persist once the activities causing the effects have ceased.	<b>N/A</b>	<b>Negligible Cumulative Effect (Not Significant)</b>
Increased noise levels along the transportation corridor	Operations and Maintenance	Noise Sensitive Areas (Human Receptors)	<b>Medium</b> Ambient noise levels will increase over baseline conditions and may exceed a reference criterion on occasion or at an individual location	<b>Medium</b> Cumulative effects are likely to be measureable and noticeable within the RSA and in most hamlets/built up areas traversed by the 407 East Transportation Corridor	<b>Medium</b> Cumulative effects are ongoing effects related to the Operations and Maintenance Phase of the 407 East Transportation Corridor	<b>Medium</b> Most projects and activities causing the cumulative effects are likely to occur along with the 407 East Transportation Corridor. Exceedances of reference criteria or guideline values are likely to occur periodically during the Operations and Maintenance Phase	<b>High</b> Cumulative effects are not readily reversible despite the implementation of mitigation / compensation. Regional trends are likely to persist	<b>N/A</b>	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
Changes in valley slopes and landform	Construction	Surface Waterbodies / watercourses	<b>Low</b> Cumulative effects on valley slopes and landforms are likely to be observable along watercourses	<b>Medium</b> Cumulative effects on valley slopes and landform are likely to be observable within the RSA	<b>Low</b> Cumulative effects on valley slopes and landforms result from short term events and are considered to be short term disturbances	<b>Medium</b> Several project and activities causing the cumulative effects are likely to affect the same valleys or landforms along the 407 East Transportation Corridor	<b>High</b> Cumulative effects on valley slopes and landforms are permanent	<b>Medium</b> Natural water courses are common and abundant. Changes in valley slopes and landforms is not likely impair the ecological functions of the VEC	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
Increased soil exposure to erosion	Construction	Surface Waterbodies / watercourses	<b>Low</b> Cumulative effects are likely be measurable and/or noticeable	<b>Low</b> Cumulative effects are likely measurable and/or noticeable within an area immediately surrounding the 407 East Transportation Corridor and other projects/activities	<b>Low</b> Cumulative effects are considered to be short term disturbances	<b>Low</b> Cumulative effects may occur periodically during the construction phase as a result of a few other projects/activities that are likely to occur along the 407 East Transportation Corridor	<b>Low</b> Cumulative effects are not likely to be measurable or noticeable over the planning horizon	<b>Medium</b> Natural water courses are common and abundant. The resource / VEC will continue to fulfill its ecological functions.	<b>Negligible Cumulative Effect (Not Significant)</b>

**Table 11-2 Significance of Residual Adverse Cumulative Effects**

Residual Adverse Cumulative Effect	Project Phase	VEC Affected	Residual Effect Significance Levels						Overall Significance of Cumulative Effects
			Magnitude	Extent	Duration	Frequency	Permanence	Ecological Importance (of resource or VEC)	
<b>Lowering of groundwater table in surficial soils</b>	Construction	Groundwater in Surficial Soils  Surface Waterbodies / watercourses  Wetlands  Specialized and Sensitive Wildlife Habitat	<b>Low</b> Cumulative effects are likely be measurable and/or noticeable	<b>Low</b> Cumulative effects are likely measurable and/or noticeable within an area immediately surrounding major cuts along the 407 East Transportation Corridor and other projects/activities involving groundwater extraction	<b>Low</b> Cumulative effects are considered to be short term disturbances	<b>Low</b> Cumulative effects may occur periodically during the construction phase as a result of a few other projects/activities that are likely to occur along the 407 East Transportation Corridor	<b>Low</b> Cumulative effects are not likely to be measurable or noticeable over the planning horizon	<b>Medium</b> Ground water and natural water courses are common and abundant. The resource / VEC will continue to fulfill its ecological functions.	<b>Negligible Cumulative Effect (Not Significant)</b>
<b>Alteration of Groundwater flow in surficial soils</b>	Construction	Groundwater in Surficial Soils  Surface Waterbodies / watercourses  Wetlands  Specialized and Sensitive Wildlife Habitat	<b>Low</b> Cumulative effects are likely be measurable and/or noticeable	<b>Low</b> Cumulative effects are likely measurable and/or noticeable within an area immediately surrounding major fills along the 407 East Transportation Corridor and other projects/activities major fill operations	<b>Low</b> Cumulative effects are considered to be short term disturbances	<b>Low</b> Cumulative effects may occur periodically during the construction phase as a result of a few other projects/activities that are likely to occur along the 407 East Transportation Corridor	<b>Low</b> Cumulative effects are not likely to be measurable or noticeable over the planning horizon	<b>Medium</b> Ground water and natural water courses are common and abundant. The resource / VEC will continue to fulfill its ecological functions.	<b>Negligible Cumulative Effect (Not Significant)</b>
<b>Reduction in groundwater quality in surficial soils</b>	Operations and Maintenance	Groundwater in Surficial Soils  Surface Waterbodies / watercourses  Wetlands  Specialized and Sensitive Wildlife Habitat	<b>Medium</b> Cumulative effects may be measurable and/or noticeable and may exceed a reference criterion or guideline value in certain settings (e.g., areas of fine sands and silts)	<b>Low</b> Cumulative effects may be measurable and/or noticeable within an area immediately surrounding the 407 East Transportation Corridor and other projects/activities.	<b>Medium</b> Cumulative effects are measurable and ongoing effects related to the Operations and Maintenance Phase of the 407 East Transportation Corridor and other transportation infrastructure projects	<b>Low</b> Cumulative effects may occur periodically during the operation/maintenance phase as a result of a few other projects/activities that are likely to occur along the 407 East Transportation Corridor	<b>High</b> Cumulative effects are not readily reversible.	<b>Medium</b> Ground water and natural water courses are common and abundant. The resource / VEC will continue to fulfill its ecological functions.	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
<b>Increased turbidity</b>	Construction	Surface Waterbodies / watercourses  High Sensitivity Fish Habitat	<b>Low</b> Cumulative effects are likely be measurable and/or noticeable	<b>Low</b> Cumulative effects are likely measurable and/or noticeable within an area immediately surrounding the 407 East Transportation Corridor and other projects/activities	<b>Low</b> Cumulative effects are considered to be short term disturbances	<b>Low</b> Cumulative effects may occur periodically during the construction phase as a result of a few other projects/activities that are likely to occur along the 407 East Transportation Corridor	<b>Low</b> Cumulative effects are not likely to be measurable or noticeable over the planning horizon	<b>Medium</b> Natural water courses are common and abundant. The resource / VEC will continue to fulfill its ecological functions.	<b>Negligible Cumulative Effect (Not Significant)</b>
<b>Decreased surface water quality due to effluent discharges</b>	Operations and Maintenance	Surface Waterbodies / watercourses  High Sensitivity Fish Habitat	<b>Medium</b> Changes in surface water quality represent small measureable changes relative to baseline conditions and may exceed a reference criterion or guideline value on occasion or at an individual location (i.e., a location where treated effluent is discharged to the same watercourse from another project/activity)	<b>Low</b> Cumulative effects are likely to be measureable within an area immediately downstream of a project or activity. New watercourse crossings are sufficiently widespread across the RSA such that substantial overlaps in effects are not likely.	<b>Medium</b> Cumulative effects are measurable and ongoing effects related to the Operations and Maintenance Phase of the 407 East Transportation Corridor and other transportation infrastructure projects	<b>Low</b> A few projects or activities causing the cumulative effect are likely to occur along the 407 East Transportation Corridor (e.g., other roads crossing or connecting to the 407 East Transportation). Other projects/activities are likely to occur periodically over the planning horizon.	<b>Medium</b> Measurable effects are likely to persist for some time over the planning horizon, but regional trends are reversible.	<b>Medium</b> Natural water courses are common and abundant. The resource / VEC will continue to fulfill its ecological functions.	<b>Minor Adverse Cumulative Effect (Not Significant)</b>

**Table 11-2 Significance of Residual Adverse Cumulative Effects**

Residual Adverse Cumulative Effect	Project Phase	VEC Affected	Residual Effect Significance Levels					Ecological Importance (of resource or VEC)	Overall Significance of Cumulative Effects
			Magnitude	Extent	Duration	Frequency	Permanence		
<b>Increased loss of vegetation and vegetation communities</b>	Construction	Forested Areas Specialized and Sensitive Wildlife Habitat	<b>Medium</b> The cumulative effects represents a small change relative to existing conditions.	<b>Medium</b> The cumulative effects are likely to be measureable within the RSA.	<b>Low</b> The cumulative effect is the result of short term losses limited to within the planning horizon	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation corridor. These are likely to occur periodically over the planning horizon (i.e., cumulative losses of vegetation communities will not occur all at once)	<b>Low</b> Given MTO's plans to restore, enhance and create vegetation and vegetative communities, measureable cumulative effects attributable to the 407 East Transportation Corridor are not likely to persist over the planning horizon	<b>High</b> Forested areas are not common across the RSA. Abundance and quality is required for the resource / VEC to continue to fulfill its ecological functions.	<b>Minor Adverse Cumulative Effect (Not Significant)</b>
<b>Reduced area of interior forest habitat</b>	Construction	Forested Areas with Interior Habitat Specialized and Sensitive Wildlife Habitat	<b>Medium</b> The cumulative effects represents a small change relative to existing conditions. Reduced area of interior forest habitat may exceed a reference criterion or guideline value at an individual location (i.e., an individual woodlot affected by multiple projects)	<b>Medium</b> The cumulative effect is measureable within the RSA.	<b>Low</b> The cumulative effect is the result of short term losses limited to within the planning horizon	<b>Medium</b> Several project or activities are likely to occur along the 407 East Transportation corridor. These are likely to occur periodically over the planning horizon (i.e., cumulative losses of interior forests will not occur all at once)	<b>High</b> Cumulative effects on interior forest habitat are not readily reversible despite MTO's plans to restore, enhance and create vegetation and vegetative communities. Interior forest habitat of similar function to that lost is very difficult to replace.	<b>High</b> Interior forest habitat not common across the RSA. Abundance and quality is required for the resource / VEC to continue to fulfill its ecological functions.	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
<b>Reduced quality/function of retained vegetation and habitat</b>	Construction, Operations and Maintenance	Forested Areas Forested Areas with Interior Habitat Specialized and Sensitive Wildlife Habitat	<b>Medium</b> Reduced quality of vegetation and habitat may be noticeable at an individual location (i.e., an individual vegetation community affected by multiple projects)	<b>Low</b> Cumulative effect is likely to be noticeable in close proximity to the 407 East Transportation Corridor and/or other projects and activities	<b>Medium</b> Cumulative effects are ongoing effects related to the Construction, Operations and Maintenance Phases of the 407 East Transportation Corridor and those of other projects and activities	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation corridor. These are likely to occur periodically over the planning horizon	<b>Medium</b> Noticeable cumulative effects are likely to persist for some time over the planning horizon, but regional trends are reversible.	<b>High</b> Forested areas are not common across the RSA. Abundance and quality is required for the resource / VEC to continue to fulfill its ecological functions.	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
<b>Increased loss of wetland areas</b>	Construction	Wetlands	<b>Medium</b> The cumulative effects represents a small change relative to existing conditions. Reduced wetland areas may exceed a reference criterion or guideline value at an individual location (i.e., an individual wetland affected by multiple projects)	<b>Medium</b> The cumulative effect is measureable within the RSA.	<b>Low</b> The cumulative effect is the result of short term losses limited to within the planning horizon.	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation corridor. These are likely to occur periodically over the planning horizon (i.e., cumulative losses of wetlands will not occur all at once)	<b>Low</b> Given MTO's plans to restore, enhance and create wetlands, measurable cumulative effects attributable to the 407 East Transportation Corridor are not likely to persist over the planning horizon.	<b>High</b> Wetland areas are not common across the RSA. Abundance and quality is required for the resource / VEC to continue to fulfill its ecological functions.	<b>Negligible Cumulative Effect (Not Significant)</b>
<b>Reduced quality/function of retained portions of wetlands</b>	Construction, Operations and Maintenance	Wetlands Specialized and Sensitive Wildlife Habitat	<b>Medium</b> Reduced quality/function of wetlands may be noticeable at an individual location (i.e., an individual wetland affected by multiple projects)	<b>Low</b> Cumulative effect is likely to be noticeable in close proximity to the 407 East Transportation Corridor and/or other projects and activities	<b>Medium</b> Cumulative effects are ongoing effects related to the Operations and Maintenance Phase of the 407 East Transportation Corridor and those of other projects and activities	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation Corridor. These are likely to occur periodically over the planning horizon	<b>Medium</b> Noticeable cumulative effects are likely to persist for some time over the planning horizon.	<b>High</b> Wetland areas are not common across the RSA. Abundance and quality is required for the resource / VEC to continue to fulfill its ecological functions.	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
<b>Restrictions to wildlife movement and increased wildlife mortality</b>	Construction Operations and Maintenance	Mammals and Amphibians	<b>Medium</b> Cumulative effects are likely to be noticeable and/or measureable at an individual location	<b>Low</b> Cumulative effect is likely to be measureable in close proximity to the 407 East Transportation Corridor and/or other projects and activities	<b>Medium</b> Cumulative effects are ongoing effects related to the Construction, Operations and Maintenance Phases of the 407 East Transportation Corridor and those of other projects and activities	<b>Low</b> A few projects or activities causing the cumulative effect are likely to occur along the 407 East Transportation Corridor. These are likely to occur periodically over the planning horizon	<b>Medium</b> Measureable or noticeable cumulative effects are likely to persist for some time over the planning horizon. Adverse regional trends are potentially reversible as wildlife become habituated to the presence of the transportation corridor..	<b>Moderate</b> VEC species are common and abundant. The resource / VEC will continue to fulfill its ecological functions.	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>

**Table 11-2 Significance of Residual Adverse Cumulative Effects**

Residual Adverse Cumulative Effect	Project Phase	VEC Affected	Residual Effect Significance Levels					Overall Significance of Cumulative Effects	
			Magnitude	Extent	Duration	Frequency	Permanence		Ecological Importance (of resource or VEC)
<b>Disruption to wildlife within the retained portions of vegetation communities and wetlands</b>	Construction Operations and Maintenance	Mammals, Amphibians, Breeding/Migratory Birds  Federal (COSEWIC) Species at Risk	<b>Medium</b> Disruption may be noticeable and/or measureable. The cumulative effect may exceed a reference criterion or guideline value at an individual location (i.e., an individual vegetation community or wetland affected by multiple projects)	<b>Low</b> Cumulative effect is likely to be measureable in close proximity to the 407 East Transportation Corridor and/or other projects and activities	<b>Medium</b> Cumulative effects are ongoing effects related to the Construction, Operations and Maintenance Phases of the 407 East Transportation Corridor and those of other projects and activities	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation corridor. These are likely to occur periodically over the planning horizon	<b>High</b> Cumulative effects are not readily reversible despite the implementation of mitigation / compensation.	<b>Moderate</b> VEC species are common and abundant. The resource / VEC will continue to fulfill its ecological functions.	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
<b>Removal of individual Butternut Trees</b>	Construction	Federal (COSEWIC) Species at Risk (i.e., Butternut Trees)	<b>Medium</b> The cumulative effect represents a small change relative to existing conditions.	<b>Medium</b> The cumulative effect is likely to be measureable within the RSA.	<b>Low</b> The cumulative effect is the result of short term losses over the planning horizon	<b>Low</b> A few projects or activities causing the cumulative effect are likely to occur along the 407 East Transportation Corridor and are likely to occur periodically.	<b>Low</b> Measureable or noticeable cumulative effects on the overall Butternut tree population are not likely to persist over the planning horizon (i.e., up to 2031). MTO's mitigation and/or compensation measures and potentially those of other projects and activities will ensure that long term effects do not occur.	<b>High</b> Butternut trees are not common in the RSA.	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
<b>Increase disruption to Redside Dace habitat</b>	Construction	Federal (COSEWIC) Species at Risk (i.e., Redside Dace Habitat)	<b>Medium</b> The cumulative effect represents a small change relative to existing conditions.	<b>Low</b> Cumulative effect is likely to be measureable in close proximity to the transportation corridor and/or other projects and activities	<b>Low</b> The cumulative effect is the result of short term disturbances over the planning horizon	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation corridor. These are likely to occur periodically over the planning horizon	<b>Low</b> Given <i>Fisheries Act</i> requirements for mitigation and compensation, measurable cumulative effects attributable to the 407 East Transportation Corridor are not likely to persist over the planning horizon.	<b>High</b> Redside Dace habitat is not common in the RSA.	<b>Negligible Cumulative Effect (Not Significant)</b>
<b>Changes in community character</b>	Construction, Operations and Maintenance	Community character	<b>Medium to High</b> Cumulative effects due to changes in landscape composition are likely to represent a large change relative to baseline conditions in a Regional Study Area context. Cumulative effects due to fugitive dust, noise and light may be noticeable and/or measureable at an individual location	<b>Medium</b> Cumulative effects are likely to be noticeable or measurable in most hamlets / built up areas traversed by the 407 East Transportation Corridor.	<b>Medium</b> Cumulative Effects are ongoing effects related to both the Construction and Operations and Maintenance Phases of the 407 East Transportation Corridor and those of other projects and activities	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation corridor. These are likely to occur periodically over the planning horizon (i.e., community character is not likely to change all at once).	<b>High</b> Cumulative effects are not readily reversible despite the implementation of mitigation / compensation.	<b>N/A</b>	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>
<b>Reduced Agricultural Activity</b>	Construction, Operations and Maintenance	Agricultural Operations  Class 1,2 and 3 Agricultural Soils	<b>Medium</b> The cumulative effect represents a small measureable change relative to existing conditions.	<b>Medium</b> The cumulative effect is measureable within the RSA.	<b>Low</b> The cumulative effect is the result of short term losses over the planning horizon.	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation Corridor. These are likely to occur periodically over the planning horizon.	<b>High</b> Cumulative effects are not readily reversible despite the implementation of mitigation / compensation.	<b>N/A</b>	<b>Moderate Adverse Cumulative Effect (Not Significant)</b>

**Table 11-2 Significance of Residual Adverse Cumulative Effects**

Residual Adverse Cumulative Effect	Project Phase	VEC Affected	Residual Effect Significance Levels					Overall Significance of Cumulative Effects	
			Magnitude	Extent	Duration	Frequency	Permanence		Ecological Importance (of resource or VEC)
<b>Disruption to the use and enjoyment of private property</b>	Construction Operations and Maintenance	Use and enjoyment of private property	<b>Medium</b> The cumulative effect represents small measureable changes relative to baseline conditions and may exceed a reference criterion or guideline value on occasion or at an individual location (i.e., at a specific residential location)	<b>Low</b> Cumulative effects are likely to be noticeable or measurable in a few hamlets / built up areas traversed by the transportation corridor.	<b>Medium</b> Cumulative Effects are ongoing effects related to both the Construction and Operations and Maintenance Phases of the 407 East Transportation Corridor and those of other projects and activities	<b>Medium</b> Several project or activities are likely to occur along with the 407 East Transportation corridor. These are likely to occur periodically over the planning horizon.	<b>Medium</b> Measurable cumulative effects are likely to persist for some time over the planning horizon.	<b>N/A</b>	<b>Minor Adverse Cumulative Effect (Not Significant)</b>