

## Evaluation Criteria and Indicators Reference Sheet

Factor / Sub-Factor	Criteria	Indicator for Route Selection
<b>1. NATURAL ENVIRONMENTAL FACTORS</b>		
<b>1.1 Fisheries and Aquatic Ecosystems</b>		
	1.1.1 Fish Habitat	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption</li> </ul> as applicable to the following: <ul style="list-style-type: none"> <li>• critical fish habitat features</li> <li>• riparian areas</li> <li>• habitat rehabilitation goals</li> </ul>
	1.1.2 Fish Community	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption</li> </ul> as applicable to the following: <ul style="list-style-type: none"> <li>• fish species at risk (vulnerable, threatened or endangered fish species)</li> <li>• fish movement/migration</li> <li>• critical fish life stage processes (spawning, rearing, nursery, feeding)</li> <li>• long-term fish community management goals</li> </ul>
<b>1.2 Terrestrial Ecosystems</b>		
	1.2.1 Wildlife	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption</li> </ul> as applicable to the following: <ul style="list-style-type: none"> <li>• wildlife species at risk (vulnerable, threatened or endangered wildlife species)</li> <li>• wildlife of local and regional importance</li> <li>• migratory birds</li> <li>• critical wildlife habitat features</li> <li>• ecologically functional areas such as connective corridors or travel ways for movement/migration</li> <li>• important wildlife areas such as deeryards, heronries, waterfowl areas, important bird areas</li> <li>• wildlife management, rehabilitation/research program sites</li> <li>• interference with critical wildlife life stage processes (eg mating/rearing) etc</li> </ul>
	1.2.2 Wetlands	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption</li> </ul> as applicable to the following: <ul style="list-style-type: none"> <li>• provincially significant wetlands, their buffer areas, and their wetland function</li> <li>• evaluated and un-evaluated wetlands, their wetland buffer areas, and their wetland function</li> <li>• wetland management, research and/or wetland conservation programs/areas</li> </ul>
	1.2.3 Forests	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption</li> </ul> as applicable to the following: <ul style="list-style-type: none"> <li>• significant woodlands/valley lands</li> <li>• forest management / research program areas</li> </ul>
	1.2.4 Vegetation	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption</li> </ul> as applicable to the following: <ul style="list-style-type: none"> <li>• populations of vegetation species at risk (vulnerable, threatened or endangered species), species of conservation concern and significant regional/local flora/communities</li> </ul>

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		<ul style="list-style-type: none"> <li>• areas/corridors supporting known populations of vegetation species at risk (vulnerable, threatened or endangered species), species of conservation concern and significant flora/communities</li> <li>• vegetation management, rehabilitation/research program sites</li> </ul>
	1.2.5 Designated/ Special Areas	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character / aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> to designated/special areas.
<b>1.3 Groundwater</b>		
	1.3.1 Areas of Ground water Recharge and Discharge	Potential and significance of alteration to areas of groundwater recharge and discharge due to physical intrusion or groundwater interception, draw-down, impoundment, obstruction, or soil compaction impacting groundwater base-flow and quality
	1.3.2 Groundwater Source Areas and Wellhead Protection Areas	Potential and significance of alteration to groundwater source areas and wellhead protection areas due to physical intrusion, or groundwater interception, draw-down, impoundment, obstruction and by soil compaction
	1.3.3 Large Volume Wells	Potential and significance of alteration to large volume wells due to physical intrusion or groundwater interception, draw-down, impoundment, obstruction and by soil compaction
	1.3.4 Private Wells	Potential and significance of alteration to private well use due to physical intrusion, or groundwater interception, draw-down, impoundment, obstruction and by soil compaction
	1.3.5 Groundwater-Dependent Commercial Enterprises (e.g. water bottling operations)	Potential and significance of alteration to groundwater use by groundwater-dependent commercial enterprises due to physical intrusion, or groundwater interception, draw-down, impoundment, obstruction and by soil compaction
	1.3.6 Groundwater-Sensitive Ecosystems (e.g. groundwater fed wetlands, coldwater streams)	Potential and significance of alteration to groundwater-sensitive ecosystems due to physical intrusion, or groundwater interception, draw-down, impoundment, obstruction and by soil compaction
<b>1.4 Surface Water</b>		
	1.4.1 Watershed / Sub-Watershed Drainage Features/Patterns	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration/ disruption.</li> </ul> as applicable to the following: <ul style="list-style-type: none"> <li>• watercourse crossings (permanent, intermittent and ephemeral)</li> <li>• floodplain or meander belts</li> <li>• riparian areas</li> <li>• sensitive headwater areas</li> <li>• watershed and subwatershed management plans</li> </ul>
	1.4.2 Surface Water Quality and Quantity	Potential and significance of impacts on quality through direct and indirect discharges of contaminated and sediment-laden run-off  Potential and significance of impacts on hydrology due to changes in ground permeability, modifications to surface drainage patterns and alterations of water bodies

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<b>2. LAND USE / SOCIO-ECONOMIC FACTORS</b>		
<b>2.1 Land Use Planning Policies, Goals, Objectives</b>		
	2.1.1 First Nations Land Claims	Potential and significance of encroachment, severance, displacement to areas for which there are First Nations outstanding land claims
	2.1.2 Provincial/ Federal land use planning policies/ goals/objectives	Degree of compatibility with federal/provincial land use policies/goals/ Objectives
	2.1.3 Municipal (regional and local) land use planning policies/goals/ objectives (Official Plans)	Degree of compatibility with municipal Official Plans
	2.1.4 Development Objectives of Private Property Owners	Potential to isolate property from current/future urban envelope  Impact on future land use
<b>2.2 Land Use / Community</b>		
	2.2.1 First Nation Reserves	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character / aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time.</li> </ul> to First Nation Reserves
	2.2.2 First Nations' Sacred Grounds	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character / aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time.</li> </ul> to First Nations' sacred grounds
	2.2.3 Urban and Rural Residential	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement, property acquisition;</li> <li>• long-term alteration / disruption (e.g. loss of parking area);</li> <li>• change in area character / aesthetics (e.g. loss of trees/garden area);</li> <li>• nuisance impacts (e.g. intrusion of highway into current residential envelope);</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services;</li> <li>• interference with residential community cohesion;</li> <li>• change to highway operational impacts (e.g. snow storage and highway access visibility).</li> </ul> to urban and rural residential areas (residents [owners/tenants] and community groups).
	2.2.4 Commercial / Industrial	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement, property acquisition;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character / aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services;</li> <li>• interference with commercial community cohesion;</li> </ul>

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		<ul style="list-style-type: none"> <li>• change to highway operation impacts (e.g. customer parking, cargo loading/off-loading) to commercial and industrial areas (business owners/tenants and customers).</li> </ul>
	2.2.5 Tourist Areas and Attractions (e.g. museums, theatres, etc.)	<p>Potential and significance of:</p> <ul style="list-style-type: none"> <li>• encroachment, severance, displacement, property acquisition;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character/ aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services;</li> <li>• loss of “critical mass” in number of signature business attractions (e.g. number of antique shops).</li> </ul> <p>to tourist areas and attractions.</p>
	2.2.6 Community Facilities / Institutions (e.g. hospitals, schools, places of worship, unique community features)	<p>Potential and significance of:</p> <ul style="list-style-type: none"> <li>• encroachment, severance, displacement, property acquisition;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character/ aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services</li> <li>• change to ease and safety of pedestrian movements across the highway and within the highway right-of-way;</li> <li>• change to highway operation impacts to current use (e.g. highway noise and vibration interfering with church services).</li> </ul> <p>to community facilities and institutions.</p>
	2.2.7 Municipal Infrastructure and Public Service Facilities (e.g. sewage and water services, police/emergency services, local utilities)	<p>Potential and significance of:</p> <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> <p>to municipal infrastructure and public service facilities.</p>
	2.2.8 Downtown Historic Crossroads Function	<p>Potential and significance of interference by long-distance through-traffic on:</p> <ul style="list-style-type: none"> <li>• “main street” function and structure;</li> <li>• character/aesthetics;</li> <li>• change to ease and safety of pedestrian movements across the highway and within the highway right-of-way;</li> <li>• change to on-street parking</li> </ul> <p>in the historic downtown area</p>
<b>2.3 Noise Sensitive Areas (NSAs)</b> (residential areas and sensitive institutional uses)		
	2.3.1 Highway Noise	<ul style="list-style-type: none"> <li>• Potential for significant traffic noise increases in NSAs and for noise-sensitive receivers immediately adjacent to the highway.</li> </ul>
	2.3.2 Construction Noise	Not considered in this phase
<b>2.4 Agriculture</b>		
	2.4.1 Agriculture - Canada Land Inventory Class 1,2,3 Land	<p>Potential and significance of:</p> <ul style="list-style-type: none"> <li>• encroachment, severance, displacement, property acquisition;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character / aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> </ul>

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		<ul style="list-style-type: none"> <li>• change to facilities / utilities / services.</li> </ul> as applicable to the following: <ul style="list-style-type: none"> <li>• Canada Land Inventory Classes 1, 2 and 3 soils</li> <li>• Specialty crops/cropland</li> <li>• Dairy/livestock operations</li> <li>• Field crop operations</li> <li>• High investment agricultural operations</li> <li>• Established agricultural farm communities</li> </ul>
	2.4.2 Agriculture – Farm Infrastructure	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• nuisance impacts;</li> </ul> to farm infrastructure (field tile drainage systems/outlets, irrigation systems, barns / silos/ structures, etc.)
	2.4.3 Agriculture – Operations on Individual Farms	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• nuisance impacts;</li> </ul> to in-farm field operations (planting, harvesting, grazing, nutrient management, etc.)
	2.4.4 Agriculture – Transportation Linkages between Integrated Agricultural Business Units	Potential to sever/disrupt transportation linkages between integrated agricultural business units (movement between integrated agricultural business units of equipment, materials, workers, etc.)
<b>2.5 Land Use / Resources</b>		
	2.5.1 First Nations' Treaty Rights or Use of Land and Resources for Traditional Purposes  (e.g. hunting, fishing, harvesting of country foods, harvesting of medicinal plants)	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time.</li> </ul> to First Nations' treaty rights or use of land and resources for traditional purposes
	2.5.2 Parks and Recreational Areas (e.g. national/ provincial parks, conservation areas, municipal parks, public spaces, golf courses, trails, greenways and open space linkages)	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement, property acquisition;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character/ aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> to parks and recreational areas.
	2.5.3 Aggregates, Mineral-Resources	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement, property acquisition;</li> <li>• long-term alteration / disruption;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> to current/future extraction of aggregate and mineral resources.

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<b>2.6 Major Utility Transmission Corridors</b>  (e.g. railroads, hydro, gas, oil)		Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> To major utility transmission corridors.
<b>2.7 Contaminated Property and Waste Management</b>  (e.g. Landfills, Hazardous Waste Sites, "Brownfield" Areas, other known contaminated sites, and high-risk contamination areas)		Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> to contaminated property and waste management.
<b>2.8 Landscape Composition</b>		
	2.8.1 Scenic Composition (total aesthetic value of landscape components)	Potential and significance of change to scenic composition (total aesthetic value of landscape components).
	2.8.2 Sensitive Viewer Groups	Potential and significance of change vistas/outlooks for sensitive viewer groups.
	2.8.3 Scenic value of views/vistas from the transportation facility	Potential and significance of views/vistas from the transportation facility.
	2.8.4 Specimen Trees	Not considered in this phase
<b>2.9 Air Quality</b>		
	2.9.1 Local and Regional Air Quality  (Total contaminant and greenhouse gas emissions)	Previously addressed during Needs Assessment Phase
	2.9.2 Sensitive receptors to air pollutants and greenhouse gas emissions	Presence and potential for impacts to sensitive receptors to air pollutants and greenhouse gas emissions, including consideration of number of sensitive receptors immediately adjacent to the highway.
<b>3. CULTURAL ENVIRONMENTAL FACTORS</b>		
<b>3.1 Cultural Heritage – Built Heritage and Cultural Landscapes</b>		
	3.1.1 Buildings or "Standing" Sites of Architectural or Heritage Significance or Ontario Heritage Foundation Easement Properties	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement, property acquisition;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character / aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> to buildings or "standing" sites of extreme local, provincial or national interest or Ontario Heritage Foundation easements properties.
	3.1.2 Heritage Bridges	Potential for destruction or significant alteration of heritage bridges

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	3.1.3 Areas of Historic 19 <sup>th</sup> Century Settlement	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character / aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> to areas of historic 19 <sup>th</sup> century settlement.
	3.1.4 Cultural Heritage Landscapes (collection of individual man-made features modifying pristine landscape)	Potential and significance of change to composition of cultural landscapes.
	3.1.5 First Nations' Burial Sites	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character / aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time.</li> </ul> to First Nations' burial sites.
	3.1.6 Cemeteries	Potential and significance of: <ul style="list-style-type: none"> <li>• encroachment, severance, displacement;</li> <li>• long-term alteration / disruption;</li> <li>• change in area character/ aesthetics;</li> <li>• nuisance impacts;</li> <li>• change to access / travel time;</li> <li>• change to facilities / utilities / services.</li> </ul> to cemeteries.
<b>3.2 Cultural Heritage – Archaeology</b>		
	3.2.1 Pre-Historic and Historic First Nations Sites	Potential for destruction or disturbance of pre-historic and historic First Nations archaeological sites of extreme local, provincial or national interest
	3.2.2 Historic Euro-Canadian Archaeological Sites	Potential for destruction or disturbance of historic Euro-Canadian archaeological sites of extreme local, provincial or national interest
<b>4. AREA ECONOMY – Previously addressed during Needs Assessment Phase</b>		
<b>5. TRANSPORTATION FACTORS</b>		
<b>5.1 Area Transportation System Capacity and Efficiency</b>		
	5.1.1 Federal/ Provincial/Municipal transportation planning policies/goals/ objectives	Previously addressed during Needs Assessment Phase.
	5.1.2 Efficient movement of people	Potential to support the efficient movement of people between communities and regions based on Level of Service (LOS) and volume to capacity (v/c) on a network, screenline and critical link basis
	5.1.3 Efficient movement of goods	Potential to support efficient movement of goods between urban growth centres and regional intermodal facilities based on road network and Highway 7&8 corridor performance measures (LOS and travel speed)

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<b>5.2 Area Transportation System Reliability / Redundancy</b>		Potential to support system reliability and redundancy for travel (people and goods) between regions and communities during adverse conditions
<b>5.3 Safety</b>		
	5.3.1 Traffic Safety	Potential to improve traffic safety based on opportunity to reduce congestion on area road network (LOS and v/c) and reduce the frequency of intersections and entrances in the Highway 7&8 corridor
	5.3.2 Emergency Access	Potential to support emergency access to/from existing and/or new provincial facilities.
	5.3.3 Pedestrian, Cyclist and Snowmobile Safety within the highway right-of-way	Potential and significance of change to ease and safety of movement across the highway and within the right-of-way.
<b>5.4 Mobility and Accessibility</b>		
	5.4.1 Modal integration, balance and efficiency	Potential to improve modal choice and increase mode split for person trips between communities, regions and major transit station areas based on connection to concentrations of population, travel performance indicators (LOS, v/c, travel speed) at critical screenlines and on potential to provide higher order transit service.
	5.4.2 Linkages to Population and Employment Centres	Potential to improve linkages to population and employment centres for people and goods movement
	5.4.3 Recreation and Tourism Travel	Potential to support recreation and tourism travel within and to/from the Analysis Area by provision of higher order network (roads and transit) continuity and connectivity and through network performance indicators (LOS, v/c, travel speed)
	5.4.4 Accommodate mobility of pedestrians, cyclists and snowmobiles	Potential to accommodate mobility of pedestrians, cyclists within critical travel corridors in urbanized areas and snowmobiles in recognized rural trails
<b>5.5 Network Compatibility</b>		
	5.5.1 Network Connectivity	Potential to improve transportation system connectivity within and to/from the analysis area.
	5.5.2 Flexibility for Future Expansion	Potential to address future transportation needs beyond the forecasted planning horizons.
<b>5.6 Engineering</b>		
	5.6.1 Constructability	Potential ease of implementation considering feasibility/difficulty of physical, property or environmental constraints
	5.6.2 Compliance with Design Criteria	Conformity to applicable provincial safety and design standards.
<b>5.7 Traffic Operations</b>		Potential for negative impact on traffic operations due to factors such as design features, private access, and transportation network connections
<b>5.8 Construction Cost (excludes property costs and engineering costs)</b>		Relative road construction cost, excluding property and engineering costs