

RICHMOND HILL EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE A: To Improve mobility by providing a fast, convenient, reliable, and efficient rapid transit service

				RH2	
Goals		Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	Yonge Street
A1	Increase attractiveness of rapid transit service	Projected travel time along each alternative	Travel time	IBI	9.4 minutes
		Passenger volume at the peak load point	AM peak hour passenger volume in 2031	York Region Travel Demand Model	5,100
		Transit Boardings	AM peak period boardings (NB and SB)	York Region Travel Demand Model	5,000
		Route features with potential to reduce service reliability	Constraints/# of intersections & operation in mixed traffic	Plan	signalized intersections 6.3 km of dedicated transitway
A2	Maximize transit connectivity	Connections to inter-regional services	No. of crossing services (i.e. GO etc.)	Build on Preliminary Screening	GO Bus stop at King Rd Continuation to the South Yonge Street rapid transit system.
A3	Alignment geometry that maximizes speed and ride comfort and minimizes safety risks and maintenance costs	% of route > 3% grade	%	Profile	2.5%
		No. of running way sections > 3.5%	#	Profile	4 (320m, 470m, 390m, 350m)
		No. of curves < 100 metres	#	Plan	0
		No. of curves > 100 metres and < 300 metres	#	Plan	0
A4	Convenient service connections to	Length of service connections	Relative measure	Plan	
A5	Station locations that maximize ridership potential of rapid transit service	Existing and future residents or residences within 500 m walking distance of station	No. of residents in 2013	Land use forecasts, GIS Analysis	2,400
		Existing and future employment within a 500 m walking distance of a station	No. of employees in 2031	Land use forecasts, GIS Analysis	450
		Major traffic generators or attractors within 500 m walking distance of proposed stations	#	Plan	Oak Ridges core area, Library, Oak Ridges Recreation Centre

RICHMOND HILL EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE B: To protect and enhance the social environment in the corridor

				RH2
				Yonge Street
Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	
B1 Minimize adverse effects on and maximize benefits for communities in corridor	Potential for displacement/disruption of unique and distinctive community features	No. of unique & distinctive community features disrupted	Plan, Heritage (Unterman); Land use	No substantial impact on community features
	Number and type of industrial uses displaced or disrupted	No. of industrial properties	Plan	None
	Length of route with potential for an increase or decrease in business activity	Length (m)	Plan	1.8 km (through Oak Ridges core)
	Number and type of retail, office and service commercial businesses displaced or affected	No. of affected retail, office or service commercial	Plan	20
	Number of residential properties displaced or disrupted by location	No. of residential properties	Plan	None
	Barrier impact – potential for division of communities by the facility right-of-way	Qualitative	Plan, Land use	Low: route follows existing Yonge St
	Number and type of community features/services affected	No. of community features	Plan	None
	Construction effects	Length of new construction	Plan	6.3 km on existing major roadway
B2 Maintain or improve road traffic and pedestrian circulation	Number of intersections with restricted access	No. of intersections	Plan	10
	Number of driveways with restricted access due to the alignment	No. of driveways	Plan	70
	Potential for infiltration of neighbourhoods by diverted traffic	Qualitative	Plan, Projected LOS along route	Minor potential
	Loss of residential street parking	Length of residential street parking loss	Plan	No existing residential street parking
	Change in convenience of pedestrian crossing movements	Qualitative	Plan	Operation in dedicated ROW
	Number of instances where primary access routes to social or community institutions are made more indirect or otherwise disrupted	#	Plan	None
	Number of stations with the potential to increase traffic and parking on local streets	No. of stations	IBI	5 stations

RICHMOND HILL EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE B: To protect and enhance the social environment in the corridor

					RH2
Goals		Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	Yonge Street
B3	Maintain a high level of public safety and security in corridor	Locations with potential to decrease public safety	Qualitative	Plan	Motorists unfamiliar with u-turns across transitway.
		Effect of transitway insertion on emergency vehicle circulation	Qualitative	Plan, emergency agencies, municipalities	May use transitway but some median crossing restriction on Yonge St.
B4	Minimize adverse noise and vibration effects	Approximate number of noise-sensitive receptors that may potentially experience an increase in ambient sound levels based on the proximity of the route alternative to existing and/or future receptors	No. of receptors	Plan, Noise consultant (Senes)	Existing noise levels are generally high through Richmond Hill. Residential subdivisions are generally set back from Yonge St.
		Approximate number of residences or Vibration-sensitive buildings that may potentially experience an increase in vibration levels based on the proximity of the route alternative to existing and/or future receptors	No. of residences/buildings	Plan, Vibration consultant (Senes)	Low to none
		Construction effects	Qualitative/ Noise Level/ Mitigation during construction	Plan, Noise consultant (Senes)	Moderate. Route has a range of low to high existing ambient noise conditions.
B5	Minimize adverse effects on cultural resources	Significance of built heritage and cultural heritage landscapes	Significance of building & type of disruption	Plan, Heritage consultant (Unterman)	Low impact
		Number of archaeological resources displaced or disrupted	No. of resources	Plan, Archaeological consultant (ASI)	12 Sites
		Significance of archaeological resources displaced or disrupted	Type of disruption	Plan, Archaeological consultant (ASI)	Medium-High Impact (score of 59)
B6	Minimize disruption of community vistas and adverse effects on street and neighbourhood aesthetics	Visual impact on people living and working in and visiting the community	Qualitative	Plan	Median transitway including stations with streetscaping.

RICHMOND HILL EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE C: To promote a sustainable environment by protecting and enhancing the natural environment in the corridor

				RH2	
				Yonge Street	
Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source		
C1	Minimize adverse effects on Aquatic Ecology	Number of watercourse crossings	No. of watercourse crossings	Plan, Environmental	1 watercourse crossing (perpendicular crossing of East Humber River)
		Type of watercourse crossing to be affected	Type and significance of watercourse crossing	Plan, Environmental	Watercourse crossing has permanent flow and natural channel.
		Type and significance of fish habitat to be affected	Type and significance of fish habitat	Plan, Environmental	Type II fish habitat present and cattail marsh (east side), therefore mitigation required at the crossing if widening required.
C2	Minimize adverse effects on Terrestrial Ecology	Number and status of any species at risk	No. & status of terrestrial ecosystems (ELC vegetation communities)	Plan, Environmental	30 ELC vegetation communities (affect not substantial since majority of widening to be done in existing ROW)
		Area, type and significance of wildlife habitat/vegetation communities to be affected	Type, occurrence and significance of terrestrial ecosystems (wetlands, forests, thickets, fields, etc.)	Plan, Environmental	70% of the area is represented by cultural meadow, sultural thicket and cultural woodland.
C3	Improve regional air quality and minimize adverse local effects	Predicted change in air quality	Qualitative	Air Consultant	Low. Route is already largely developed as an urban environment.
		Number of residential units potentially affected by local air quality degradation	No. of residential units affected	Air Consultant	Residential subdivisions are generally set back from Yonge St. Residences on Yonge St are located in mixed use areas.
		Construction effects	Effects	Air Consultant	Dust control measures will be adopted. Multiple interfaces with commercial and residential developments.
C4	Minimize adverse effects on corridor hydrogeological, geological and hydrological conditions	Minimization of total recharge area affected.	Length of alignment (km) over recharge areas with moderate to higher permeable soils	Geologic Survey of Canada Surficial Geology map, Plan	Approx. 3.2 km of route over permeable moraine and glacial river deposits. Negligable decrease in recharge expected.
		Change in potential for flooding by removal of storage capacity	Qualitative	Geologic Survey of Canada Surficial Geology map, Plan	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.
		Potential for adverse effects on surface water quality/quantity. Preference for minimizing proximity to watercourses	Rating of watercourse crossings and length of span (km) in floodplain deposits	Plan, Environmental (Jagger Hims)	Route crosses several watercourses and is in proximity to ponds and Bond Lake.
		Number of sites with contaminants	No. of contaminated sites	Contaminated sites consultant	11 High Risk; 2 Medium-Risk; 14 Low-Risk

RICHMOND HILL EVALUATION OF ROUTE ALTERNATIVES
OBJECTIVE D: To promote smart growth and economic development in the corridor

				RH2	
Goals		Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	Yonge Street
D1	Support Regional and Municipal Planning Policies and approved urban structure	Conformity with, and support for, policies of official plans and urban structures of Region, internal and adjacent municipalities, including GTA	Qualitative	Plan, Reports, Land Use	Route recommended in TMP for rapid transit.
		Conformity with land use designations, including compatibility with existing development	Qualitative	Plan, Land Use, OP's	Route traverses existing commercial and residential developments.
		Service to planned centres, major and minor	Qualitative	Plan, TMP, OP's, Reports	Direct access to the Oak Ridges core area.
D2	Provide convenient access to social and community facilities in corridor	Proximity to hospitals, educational institutions, community centres, local government offices etc.	Qualitative	Plan, Reports, Land Use, Build on Preliminary Screening	Direct access to Oak Ridges Public Library, Charles Connor Room. Reasonable access to Oak Ridges Recreation Centre.
D3	Protect provisions for goods movement in corridor	Inventory of major truck routes, delivery and loading areas, manufacturing operations affected by transitway insertion	Qualitative	Plan	Numerous businesses along Yonge St requiring deliveries. Median transitway may cause trucks to modify access routes.
D4	Promote transit-oriented development	Opportunities for re-development	Qualitative	Plan	High potential
		Potential opportunities for development and higher order uses, at stations, termini, and along the corridor	Qualitative	Plan	Good potential for transit-oriented developments along route.

RICHMOND HILL EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE E: To maximize the cost-effectiveness of the rapid transit system

				RH2	
Goals		Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	Yonge Street
E1	Minimize capital cost of vehicles, facilities and systems required	Estimate of cost of capital works including: elevated, at-grade, cut and cover, tunnelled or open cut running way, stations, systems and major utility relocation works	Estimate (qualitative assessment from plan)	Plan, Profile, cross section	Estimate (higher staging costs due to length of dedicated transitway)
		Estimated vehicle fleet cost	Estimate (No. of fleet to be required, Frequency of the service, Length of service)	Plan	Estimate
E2	Minimize property acquisition cost to implement facilities	Estimated value of residential units to be acquired	Qualitative assessment from plan	Plan, Land Use	None
		Estimated value of industrial units to be acquired	Qualitative assessment from plan	Plan, Land Use	None
		Estimated value of commercial units to be acquired	Qualitative assessment from plan	Plan, Land Use	Minor takings from Yonge St frontage
		Potential remediation costs for known or potentially contaminated sites	Qualitative assessment from plan	Plan, Golder	27 sites
E3	Minimize adverse effects of alignment characteristics on operating and maintenance costs	Influence of route length on O & M costs	Route length	Plan, YC Program Office	6.3 km
		Influence of alignment characteristics on O & M costs	No. of stations, effect of alignment on maintenance costs	Plan, YC Program Office	5 stations
		Influence of route location on O & M costs	No. of stations, ease of access of maintenance vehicles	Plan, YC Program Office	Not applicable

AURORA EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE A: To Improve mobility by providing a fast, convenient, reliable, and efficient rapid transit service

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	Aur2		Aur3		Aur4	
				Yonge Street		Yonge Street/ Industrial Parkway/ St. John's Sideroad		Yonge Street/ Industrial Parkway/ adjacent to GO Bradford ROW	
A1 Increase attractiveness of rapid transit service	Projected travel time along each alternative	Travel time	IBI	🕒	12.1 minutes	🕒	13.4 minutes	🕒	11.4 minutes
	Passenger volume at s. of Wellington	AM peak hour passenger volume in 2031	York Region Travel Demand Model	🕒	2,400	🕒	2,700	🕒	1,500
	Transit Boardings	AM peak period boardings (NB and SB)	York Region Travel Demand Model	🕒	3500-4000	🕒	3000-3500	🕒	2500-3000
	Route features with potential to reduce service reliability	Constraints/# of intersections & operation in mixed traffic	Plan	🕒	12 signalized intersections Approx. 3 km operation in mixed high volume traffic on Yonge St and 3.2 km of dedicated transitway	🕒	6 signalized intersections Approx. 6 km operation in mixed moderate traffic volume on Industrial Pkwy and St.John's Sdrd and 2 km of dedicated transitway on Yonge St	🕒	3 signalized intersections Approx. 2.5 km operation in mixed moderate traffic volume on Industrial Pkwy and 2 km of dedicated transitway on Yonge St
	Overall A1 Rating				🕒		🕒		🕒
A2 Maximize transit connectivity	Connections to inter-regional services	No. of crossing services (i.e. GO, etc.)	Build on Preliminary Screening	🕒	GO Bus stop at Murray Drive	🕒	Reasonable connection to GO Rail services at Aurora GO Station	🕒	Good connection to GO Rail services at Aurora GO Station
	Overall A2 Rating				🕒		🕒		🕒
A3 Alignment geometry that maximizes speed and ride comfort and minimizes safety risks and maintenance costs	% of route > 3% grade	%	Profile	🕒	40%	🕒	40%	🕒	30%
	No. of running way sections > 3.5%	#	Profile	🕒	5 (560m, 290m, 215m, 95m, 120m)	🕒	13 (560m, 235m, 145m, 270m, 155m, 90m, 180m, 80m, 120m, 130m, 170m, 110m, 60m)	🕒	5 (560m, 235m, 145m, 270m, 165m)
	No. of curves with radius < 100 metre	#	Plan	🕒	0 Curves	🕒	Industrial Parkway - 5 Curves	🕒	Industrial Parkway - 5 Curves New ROW - 0 Curves
	No. of curves with radius ≥ 100 metres and < 300 metres	#	Plan	🕒	0 Curves	🕒	Industrial Parkway - 7 Curves	🕒	Industrial Parkway - 7 Curves New ROW - 2 Curves
	Overall A3 Rating				🕒		🕒		🕒
A4 Convenient service connections to maintenance facility and storage yard	Length of service connections	Relative measure	Plan		Not Applicable		Not Applicable		Not Applicable
	Overall A4 Rating								
A5 Station locations that maximize ridership potential of rapid transit service	Existing and future residents or residences within 500 m walking distance of station	No. of residents in 2013	Land use forecasts, GIS Analysis	🕒	9,100	🕒	6,600	🕒	5,900
	Existing and future employment within a 500 m walking distance of a station	No. of employees in 2031	Land use forecasts, GIS Analysis	🕒	4,200	🕒	4,200	🕒	2,800
	Major traffic generators or attractors within 500 m walking distance of proposed stations	#	Plan	🕒	Aurora Historic Core, Library, and commercial areas	🕒	Aurora Leisure Complex	🕒	Aurora Leisure Complex
	Overall A5 Rating				🕒		🕒		🕒

LEGEND: Least Responsive ○ 🕒 🕒 🕒 🕒 Most Responsive

AURORA EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE B: To protect and enhance the social environment in the corridor

				Aur2		Aur3		Aur4	
				Yonge Street		Yonge Street/ Industrial Parkway/ St. John's Sideroad		Yonge Street/ Industrial Parkway/ adjacent to GO Bradford ROW	
Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source						
B1 Minimize adverse effects on and maximize benefits for communities in corridor	Potential for displacement/disruption of unique and distinctive community features	No. of unique & distinctive community features disrupted	Plan, Heritage (Unterman); Land use	●	No substantial impact on community features	●	No substantial impact on community features	●	No substantial impact on community features
	Number and type of industrial uses displaced or disrupted	No. of industrial properties	Plan	●	None	●	None	○	20 along new ROW, adjacent to existing GO Bradford ROW
	Length of route with potential for an increase or decrease in business activity	Length (m)	Plan	●	3.3 km Henderson to development south of St.John's Sdrd.	●	Lower potential due to land use primarily industrial	●	Lower potential due to land use primarily industrial
	Number and type of retail, office and service commercial businesses displaced or affected	No. of affected retail, office or service commercial	Plan	●	None	●	None	●	2 along new ROW, adjacent to existing GO Bradford ROW
	Number of residential properties displaced or disrupted by location	No. of residential properties	Plan, Land use	●	None	●	None	●	None
	Barrier impact – potential for division of communities by the facility right-of-way	Qualitative	Plan	●	Low: route follows existing Yonge St	●	Low: route follows existing roadways	●	Low: route follows existing roadways and rail ROW's
	Number and type of community features/services affected	No. of community features	Plan, Land use	●	None	●	None	●	None
	Construction effects	Length of new construction	Plan (major vs minor roadway)	●	4.2 km on existing major roadway	●	2.0 km on existing major roadway (Yonge St)	●	2.0 km on existing major roadway (Yonge St)
	Overall B1 Rating				●		●		●
B2 Maintain or improve road traffic and pedestrian circulation	Number of intersections with restricted access	No. of intersections	Plan	●	5 intersections Operation in mixed traffic in Aurora Historic Core	●	3 intersections on Yonge St Operation in mixed traffic on Ind Pkwy and St. John's Sdrd	●	3 intersections on Yonge St Operation in mixed traffic on Ind Pkwy
	Number of driveways with restricted access due to the alignment	No. of driveways	Plan	●	54 driveways along Yonge St (does not include between Golf Links Rd and Aurora Heights since operation is in mixed traffic)	●	23 driveways along Yonge St 0 on Industrial Pkwy and St.John's since operation is in mixed traffic	●	23 driveways along Yonge St 0 on Industrial Pkwy and St.John's since operation is in mixed traffic
	Potential for infiltration of neighbourhoods by diverted traffic	Qualitative	Plan, Projected LOS along route	●	Moderate to High in downtown core area	●	Little to none	●	Little to none
	Loss of residential street parking	Length of residential street parking loss	Plan	●	None. Assumes parking prohibited in Historic Core in peak hour.	●	No existing residential street parking	●	No existing residential street parking
	Change in convenience of pedestrian crossing movements	Qualitative	Plan	●	Transitway on longer route length. Operation in dedicated ROW.	●	Transitway on shorter route length. Operation in mixed traffic has no effect.	●	Transitway on shorter route length. Operation in mixed traffic has no effect.
	Number of instances where primary access routes to social or community institutions are made more indirect or otherwise disrupted	#	Plan	●	1 (Aurora Cemetery)	●	1 (Aurora Cemetery)	●	1 (Aurora Cemetery)
	Number of stations with the potential to increase traffic and parking on local streets	No. of stations	IBI	●	6 stations	●	5 stations	●	4 stations
Overall B2 Rating				●		●		●	
B3 Maintain a high level of public safety and security in corridor	Locations with potential to decrease public safety	Qualitative	Plan	●	Motorists unfamiliar with u-turns across transitway.	●	Motorists unfamiliar with u-turns across transitway (Yonge St portion).	●	Motorists unfamiliar with u-turns across transitway (Yonge St portion). Stations adjacent to GO rail line may be a safety concern.
	Effect of transitway insertion on emergency vehicle circulation	Qualitative	Plan, emergency agencies, municipalities	●	May use transitway but some median crossing restriction.	●	May use transitway but some median crossing restriction on Yonge St. Otherwise operation in mixed traffic and no effect.	●	No effect when adjacent to rail ROW.
	Overall B3 Rating				●		●		●

AURORA EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE B: To protect and enhance the social environment in the corridor

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	Aur2 Yonge Street		Aur3 Yonge Street/ Industrial Parkway/ St. John's Sideroad		Aur4 Yonge Street/ Industrial Parkway/ adjacent to GO Bradford ROW	
B4 Minimize adverse noise and vibration effects	Approximate number of noise-sensitive receptors that may potentially experience an increase in ambient sound levels based on the proximity of the route alternative to existing and/or future receptors	No. of receptors	Plan, Noise consultant (Senes)	●	Residential pockets close to Yonge St exposed to high existing sound levels. Larger numbers of residences closer to Yonge St and therefore likely to be impacted by transit noise.	●	Low potential. Route is highly industrial so existing sound levels are expected to be high. Closest residences are generally further from this route than residences in the vicinity of A2 and A4.	●	Low potential.
	Approximate number of residences or Vibration-sensitive buildings that may potentially experience an increase in vibration levels based on the proximity of the route alternative to existing and/or future receptors	Qualitative	Plan, Vibration consultant (Senes)	●	Low to none	●	Low to none	●	Moderate
	Construction effects	Qualitative/ Noise Level/ Mitigation during construction	Plan, Noise consultant (Senes)	●	Low Route has high existing ambient noise levels.	●	Moderate	●	High Route has low existing ambient noise levels.
	Overall B4 Rating				●		●		●
B5 Minimize adverse effects on cultural resources	Significance of built heritage and cultural heritage landscapes	Significance of building & type of disruption	Plan, Heritage consultant (Unterman)	●	Minimal impact	●	No impact	●	No impact
	Number of archaeological resources displaced or disrupted	No. of resources	Plan, Archaeological consultant (ASI)	●	3 sites	●	0 sites	●	0 sites
	Significance of archaeological resources displaced or disrupted	Type of disruption	Plan, Archaeological consultant (ASI)	●	Medium Impact (score of 38)	●	Medium Impact (score of 25)	●	Medium Impact (score of 25)
	Overall B5 Rating				●		●		●
B6 Minimize disruption of community vistas and adverse effects on street and neighbourhood aesthetics	Visual impact on people living and working in and visiting the community	Qualitative	Plan	●	Median transitway including stations with streetscaping.	●	Limited Median transitway along Yonge Street	●	Median transitway along Yonge St including stations with streetscaping. Separate transitway running alongside existing GO rail line.
	Overall B6 Rating				●		●		●

LEGEND: Least Responsive ○ ● ● ● ● Most Responsive

AURORA EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE C: To promote a sustainable environment by protecting and enhancing the natural environment in the corridor

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	Aur2		Aur3		Aur4	
				Yonge Street		Yonge Street/ Industrial Parkway/ St. John's Sideroad		Yonge Street/ Industrial Parkway/ adjacent to GO Bradford ROW	
C1 Minimize adverse effects on Aquatic Ecology	Number of watercourse crossings	No. of watercourse crossings	Plan, Environmental	☐	5 watercourse crossings (3 perpendicular and 2 parallel of Tannery Creek)	☐	2 watercourse crossings (2 perpendicular of tributary of Tannery Creek)	☐	2 watercourse crossings (2 perpendicular of tributary of Tannery Creek)
	Type of watercourse crossing to be affected	Type and significance of watercourse crossing	Plan, Environmental	●	Operation in mixed traffic at the crossing locations.	●	None. Operation in mixed traffic along Industrial Pkwy where the crossings are located.	●	None. Operation in mixed traffic along Industrial Pkwy where the crossings are located.
	Type and significance of fish habitat to be affected	Type and significance of fish habitat	Plan, Environmental	●	None since no widening in the locations of the crossings.	●	None	●	None
	Overall C1 Rating				●	●	●	●	●
C2 Minimize adverse effects on Terrestrial Ecology	Number and status of any species at risk	No. & status of terrestrial ecosystems (ELC vegetation communities)	Plan, Environmental	●	22 Ecological Land Classification vegetation communities along route. Low potential for impact due to limited widening and mixed traffic operation.	●	25 Ecological Land Classification vegetation communities along route. Low potential for impact due to limited widening on Yonge St and mixed traffic operation on Industrial Pkwy.	●	24 Ecological Land Classification vegetation communities along route. Low potential for impact due to limited widening on Yonge St and mixed traffic operation on Industrial Pkwy. None affected by new row.
	Type and significance of wildlife habitat/vegetation communities to be affected	Type, occurrence and significance of terrestrial ecosystems (wetlands, forests, thickets, fields, etc.)	Plan, Environmental	☐	All areas are relatively small providing minimal wildlife habitat for small mammals and birds.	●	Minimal significance on Yonge St. No widening on Industrial Pkwy or St. John's Sdrd, therefore no affect to habitat/vegetation communities.	●	Minimal significance on Yonge St. No widening on Industrial Pkwy, therefore no affect to habitat/vegetation communities.
	Overall C2 Rating				●	●	●	●	●
C3 Improve regional air quality and minimize adverse local effects	Predicted change in air quality	Qualitative	Air Consultant (Senes)	●	Minimal. Route is already largely developed as an urban environment.	●	Minimal. Route is already largely developed mostly as an industrial, urban environment.	●	Minimal. Route is already largely developed mostly as an industrial, urban environment.
	Number of residential units potentially affected by local air quality degradation	No. of residential units affected	Air Consultant (Senes)	☐	Residential pockets close to Yonge St are exposed to existing vehicle emissions.	●	Closest residences are generally further away from this route than those in the vicinity of A2 and A4.	☐	Residences on south end of route are separated from the alternative by the GO line and industry.
	Construction effects	Effects	Air Consultant (Senes)	☐	Dust control measures will be adopted. Multiple interfaces with commercial and residential developments.	●	Dust control measures will be adopted. Multiple interfaces with industrial developments.	☐	Dust control measures will be adopted. Multiple interfaces with residential and industrial developments.
	Overall C3 Rating				☐	●	●	☐	☐
C4 Minimize adverse effects on corridor hydrogeological, geological and hydrological conditions	Minimization of total recharge area affected.	Length of alignment (km) over recharge areas with moderate to higher permeable soils	Geologic Survey of Canada Surficial Geology map, Plan	●	Approx. 1.7 km of route over permeable moraine deposits. Negligable decrease in recharge expected. No affect in area where mixed traffic operation assumed.	●	Approx. 1.7 km of route along Yonge St over permeable moraine deposits. Negligable decrease in recharge expected. No affect in area where mixed traffic operation assumed.	●	Approx. 1.7 km of route along Yonge St over permeable moraine deposits. Negligable decrease in recharge expected. No affect in area where mixed traffic operation assumed.
	Change in potential for flooding by removal of storage capacity	Qualitative	Geologic Survey of Canada Surficial Geology map, Plan	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.
	Potential for adverse effects on surface water quality/quantity. Preference for minimizing proximity to watercourses	Rating of watercourse crossings and length of span (km) in floodplain deposits	Plan, Environmental (Jagger Hims)	☐	Low to moderate. Route closer to watercourses.	☐	Low to moderate. Route not as close to watercourses.	●	Low. Least span in proximity to watercourses.
	Number of sites with contaminants	No. of contaminated sites	Contaminated sites consultant	☐	12 High Risk; 9 Medium Risk; 19 Low Risk	☐	12 High Risk; 11 Medium Risk; 18 Low Risk	☐	8 High Risk; 2 Medium Risk; 13 Low Risk
	Overall C4 Rating				●	●	●	●	●

LEGEND: Least Responsive ☐ ☐ ☐ ● ● Most Responsive

AURORA EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE D: To promote smart growth and economic development in the corridor

				Aur2		Aur3		Aur4	
				Yonge Street		Yonge Street/ Industrial Parkway/ St. John's Sideroad		Yonge Street/ Industrial Parkway/ adjacent to GO Bradford ROW	
Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source						
D1 Support Regional and Municipal Planning Policies and approved urban structure	Conformity with, and support for, policies of official plans and urban structures of Region, internal and adjacent municipalities, including GTA	Qualitative	Plan, Reports, Land Use	●	Matches corridor recommended in TMP for rapid transit and conforms well with policies	●	Generally within TMP corridor but less supportive of policies	●	Generally within TMP corridor but less supportive of policies.
	Conformity with land use designations, including compatibility with existing development	Qualitative	Plan, Land Use, OP's	●	Route traverses existing commercial land use with higher density residential developments in proximity.	●	Route traverses existing industrial development.	●	Route traverses existing industrial and residential development.
	Service to planned centres, major and minor	Qualitative	Plan, TMP, OP's, Reports	●	Direct access to Aurora business district.	○	Bypasses Aurora business district.	○	Bypasses Aurora business district.
	Overall D1 Rating				●		●		●
D2 Provide convenient access to social and community facilities in corridor	Proximity to hospitals, educational institutions, community centres, local government offices etc.	Qualitative	Plan, Reports, Land Use, Build on Preliminary Screening	●	Direct access to Aurora Public Library, Community Centre, Dr.S.W. Williams High School, Aurora Museum, St.Andrews College, Recreation Centres, School Board Headquarters.	●	Direct access to Aurora Leisure Complex, Aurora Montessori School, Foundations Private School, Royal Canadian Legion Ontario head office, Sheppard's Bush Conservation Area.	●	Direct access to Aurora Montessori School. Reasonable access to Aurora Leisure Complex, Foundations Private School, Royal Canadian Legion Ontario head office, Sheppard's Bush Conservation Area.
	Overall D2 Rating				●		●		●
D3 Protect provisions for goods movement in corridor	Inventory of major truck routes, delivery and loading areas, manufacturing operations affected by transitway insertion	Qualitative	Plan	●	Numerous businesses along Yonge St requiring deliveries. Median transitway may cause trucks to modify access routes.	●	Major route for trucks accessing the numerous industrial businesses along Industrial Pkwy. Low impact since transit operation is in low volume mixed traffic.	●	Major route for trucks accessing the numerous industrial businesses along Industrial Parkway. Transitway adjacent to existing GO rail ROW, therefore operations not affected.
	Overall D3 Rating				●		●		●
D4 Promote transit-oriented development	Opportunities for re-development	Qualitative	Plan	●	High potential outside heritage district.	●	Minimal opportunity.	●	Minimal opportunity.
	Potential opportunities for development and higher order uses, at stations, termini, and along the corridor	Qualitative	Plan	●	Good potential for transit-oriented developments along route.	●	Low potential	●	Low potential
	Overall D4 Rating				●		●		●

LEGEND: Least Responsive ○ ● ● ● ● Most Responsive

AURORA EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE E: To maximize the cost-effectiveness of the rapid transit system

				Aur2		Aur3		Aur4		
				Yonge Street		Yonge Street/ Industrial Parkway/ St. John's Sideroad		Yonge Street/ Industrial Parkway/ adjacent to GO Bradford ROW		
Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source							
E1	Minimize capital cost of vehicles, facilities and systems required	Estimate of cost of capital works including: elevated, at-grade, cut and cover, tunnelled or open cut running way, stations, systems and major utility relocation works	Estimate (qualitative assessment from plan)	Plan, Profile, cross section		Estimate \$105 million range (higher staging costs, shorter length)		Estimate \$80 million range (mixed traffic on Industrial Pkwy and St. John's Sdrd)		Estimate \$90-100 million range (brand new ROW)
		Estimated vehicle fleet cost	Estimate (No. of fleet to be required, Frequency of the service, Length of service)	Plan		Shortest route length contributes to lower fleet cost.		Longest route increases round-trip time potentially requiring more vehicles.		Longer route increases round-trip time potentially requiring more vehicles.
	Overall E1 Rating									
E2	Minimize property acquisition cost to implement facilities	Estimated value of residential units to be acquired	Qualitative assessment from plan	Plan, Land Use		Minor takings from Yonge St. frontage.		Minimal takings		None
		Estimated value of industrial units to be acquired	Qualitative assessment from plan	Plan, Land Use		None		None		Significant acquisition of new ROW adjacent to GO Rail.
		Estimated value of commercial units to be acquired	Qualitative assessment from plan	Plan, Land Use		Minor takings from Yonge St. frontage.		Minimal takings		Significant acquisition of new ROW adjacent to GO Rail.
		Potential remediation costs for known or potentially contaminated sites	Qualitative assessment from plan	Plan, Golder		40 sites		41 sites		23 sites
	Overall E2 Rating									
E3	Minimize adverse effects of alignment characteristics on operating and maintenance costs	Influence of route length on O & M costs	Route length	Plan, YC Program Office		6.2 km		8.0 km		6.7 km
		Influence of alignment characteristics on O & M costs	No. of stations, effect of alignment on maintenance costs	Plan, YC Program Office		6 stations No sharp curves		5 stations Curves are tighter on Industrial Pkwy		4 stations Curves are tighter on Industrial Pkwy
		Influence of route location on O & M costs	No. of stations, ease of access of maintenance vehicles	Plan, YC Program Office		Not applicable		Not applicable		Not applicable
	Overall E3 Rating									

LEGEND: Least Responsive Most Responsive

NEWMARKET/EAST GWILLIMBURY EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE A: To Improve mobility by providing a fast, convenient, reliable, and efficient rapid transit service

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	NE2	NE3	NE5	NE6	NE7	NE8
				Yonge Street/ Green Lane	adjacent to GO Bradford ROW	Yonge Street/Eagle Street West/Newmarket GO Bus Terminal	Yonge Street/Davis Drive/Main Street/Green Lane	Yonge Street/Davis Drive to Leslie Street	Yonge Street/Davis Drive/Bayview Parkway/Green Lane
A1 Increase attractiveness of rapid transit service	Projected travel time along each alternative	Travel time	IBI	14.2 minutes	7 minutes	8.5 minutes	16.6 minutes	17 minutes	16.2 minutes
	Passenger volume at the peak load point	AM peak hour passenger volume in 2031	York Region Travel Demand Model	1,000	900	900	1,300	1,300	1,300
	Transit Boardings	AM peak period boardings (NB and SB)	York Region Travel Demand Model	3,000	2,100	2,800	3,400	3,600	4,000
	Route features with potential to reduce service reliability	Constraints/# of intersections & operation in mixed traffic	Plan	17 signalized intersections 8.5 km of dedicated transitway on Yonge Street and Green Lane	5 intersections 7.0 km of new ROW	7 signalized intersections Approx. 1.4 km operation in moderate mixed traffic volume on Eagle St and 3.1 km of dedicated transitway on Yonge St	16 signalized intersections Approx. 4.1 km operation in heavy mixed traffic on Davis Dr, Main St and Green Lane and 4.2 km of dedicated transitway on Yonge St	19 signalized intersections Approx. 4.1 km operation in heavy mixed traffic on Davis Dr and 4.2 km of dedicated transitway on Yonge St	16 signalized intersections Approx. 2.5 km operation in heavy mixed traffic on Davis Dr and Green Lane, 1.9 km in light mixed traffic on Bayview Parkway, 400 m on new ROW and 4.2 km of dedicated transitway on Yonge St
	Overall A1 Rating								
A2 Maximize transit connectivity	Connections to inter-regional services	No. of crossing services (i.e. GO, etc.)	Build on Preliminary Screening	Connects to GO Rail services at East Gwillimbury GO Station	Connects to GO Rail services at Newmarket and East Gwillimbury GO Stations	Connects to GO Bus services	Connects to GO Rail services at East Gwillimbury Station & reasonable access to Newmarket Station	Connects to GO Rail services at Newmarket GO Station	Connects to GO Rail services at Newmarket and East Gwillimbury GO Stations
	Overall A2 Rating								
A3 Alignment geometry that maximizes speed and ride comfort and minimizes safety risks and maintenance costs	% of route > 3% grade	%	Profile	30%	20%	30%	33%	33%	25%
	No. of running way sections > 3.5%	#	Profile	4 (820m, 300m, 190m, 180m)	7 (250m, 220m, 145m, 75m, 100m, 40m, 110m)	1 (820m)	8 (820m, 250m, 240m, 50m, 80m, 40m, 180m, 180m)	7 (820m, 250m, 220m, 200m, 165m, 380m, 175m)	5 (820m, 250m, 110m, 190m, 180m)
	No. of curves with radius < 100 metre	#	Plan	1 Curve	0 Curves	1 Curve	3 Curves	1 Curve	3 Curves
	No. of curves with radius ≥ 100 metres and < 300 metres	#	Plan	0 Curves	2 Curves	Eagle St - 1 Curve	Main St - 3 Curves	0 Curves	Bayview Pkwy - 2 Curves
	Overall A3 Rating								
A4 Convenient service connections to maintenance facility and storage yard (MSF)	Proximity to nearest MSF	Non-revenue distance to end of service	Plan	2.9 km	2.9 km	2.4 km	2.9 km	6.0 km	2.9 km
	Overall A4 Rating								
A5 Station locations that maximize ridership potential of rapid transit service	Existing and future residents or residences within 500 m walking distance of station	No. of residents in 2013	Land use forecasts, GIS Analysis	13,850	8,800	9,400	17,000	16,000	17,100
	Existing and future employment within a 500 m walking distance of a station	No. of employees in 2031	Land use forecasts, GIS Analysis	6,250	3,250	4,450	6,800	8,600	7,500
	Major traffic generators or attractors within 500 m walking distance of proposed stations	#	Plan	Upper Canada Mall, commercial developments/big box stores, York Regional Centre	Pickering College, Southlake Regional Health Centre, Newmarket Historical area	Upper Canada Mall, York Regional Centre.	Upper Canada Mall, York Regional Centre, Southlake Regional Health Centre, Newmarket Historical area	Upper Canada Mall, York Regional Centre, Southlake Regional Health Centre, Newmarket Historical area	Upper Canada Mall, York Regional Centre, Southlake Regional Health Centre, Newmarket Historical area
	Overall A5 Rating								

LEGEND: Least Responsive ○ ◐ ◑ ◒ ◓ Most Responsive

NEWMARKET/EAST GWILLIMBURY EVALUATION OF ROUTE ALTERNATIVES
OBJECTIVE B: To protect and enhance the social environment in the corridor

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	NE2	NE3	NE5	NE6	NE7	NE8
				Yonge Street/ Green Lane	adjacent to GO Bradford ROW	Yonge Street/ Eagle Street West/ Newmarket GO Bus Terminal	Yonge Street/ Davis Drive/Main Street/Green Lane	Yonge Street/Davis Drive to Leslie Street	Yonge Street/Davis Drive/Bayview Parkway/Green Lane
B1 Minimize adverse effects on and maximize benefits for communities in corridor	Potential for displacement/disruption of unique and distinctive community features	No. of unique & distinctive community features disrupted	Plan, Heritage (Unterman); Land use	● No substantial impact on community features	● Holland River valley lands	● No substantial impact on community features	● No substantial impact on community features	● No substantial impact on community features	● No substantial impact on community features
	Number and type of industrial uses displaced or disrupted	No. of industrial properties	Plan	● None	○ 9	● None	● None	● None	● None
	Number and type of retail, office and service commercial businesses displaced or affected	No. of affected retail, office or service commercial	Plan	○ 10	○ 6	○ 8	○ 10	○ 10	○ 10
	Number of residential properties displaced or disrupted by location	No. of residential properties	Plan, Land use	● 1	○ 25	● 1	● 1	● 1	● 1
	Barrier impact – potential for division of communities by the facility right-of-way	Qualitative	Plan	● Low: route follows existing roadways	● Low: route follows existing rail ROW	● Low: route follows existing roadways	● Low: route follows existing roadways	● Low: route follows existing roadways	● Low: route follows existing roadways
	Number and type of community features/services affected	No. of community features	Plan, Land use	● None	○ Golf Course, East Holland River	● None	● None	● None	● None
	Construction effects	Length of new construction	Plan (major vs minor roadway)	○ 8.5 km on existing major roadway (Yonge St and Green Ln)	○ 7.0 km on new ROW	● 3.1 km on existing major roadway (Yonge St)	● 4.2 km on existing major roadway (Yonge St)	● 4.2 km on existing major roadway (Yonge St)	● 4.2 km on existing major roadway (Yonge St) and .4 km new ROW
	Overall B1 Rating				●	○	●	●	○
B2 Maintain or improve road traffic and pedestrian circulation	Number of intersections with restricted access	No. of intersections	Plan	● None	● None	● None	● None	● None	● None
	Number of driveways with restricted access due to the alignment	No. of driveways	Plan	○ 51 driveways along Yonge St (does not include Green Ln since operation is in mixed traffic)	● None	○ 23 driveways along Yonge St (does not include Eagle St due to mixed traffic operation)	○ 34 driveways along Yonge St (does not include Davis Dr, Main St or Green Ln due to mixed traffic operation)	○ 34 driveways along Yonge St (does not include Davis Dr due to mixed traffic operation)	○ 34 driveways along Yonge St (does not include Davis Dr, Bayview Pkwy or Green Lane due to mixed traffic operation)
	Potential for infiltration of neighbourhoods by diverted traffic	Qualitative	Plan, Projected LOS along route	○ Some potential south of Davis Dr	● Little to none	○ Some potential south of Davis Dr	○ Moderate potential	○ Some potential south of Davis Dr	○ Moderate potential
	Loss of residential street parking	Length of residential street parking loss	Plan	● No existing residential street parking	● No existing residential street parking	● No existing residential street parking	● No existing residential street parking	● No existing residential street parking	● Assume current parking remains
	Change in convenience of pedestrian crossing movements	Qualitative	Plan	○ Low to moderate	○ Low to moderate	○ Low to moderate	○ Low to moderate	○ Low to moderate	○ Low to moderate
	Number of instances where primary access routes to social or community institutions are made more indirect or otherwise disrupted	#	Plan	○ Newmarket Cemetery, Quaker House,	● None	○ Newmarket Cemetery, Quaker House,	○ Newmarket Cemetery, Quaker House,	○ Newmarket Cemetery, Quaker House,	○ Newmarket Cemetery, Quaker House,
	Number of stations with the potential to increase traffic and parking on local streets	No. of stations	IBI	○ 7 stations	● 5 stations	● 4 stations	○ 8 stations	○ 6 stations	○ 8 stations
	Overall B2 Rating				○	●	●	○	○
B3 Maintain a high level of public safety and security in corridor	Locations with potential to decrease public safety	Qualitative	Plan	○ Motorists unfamiliar with u-turns across transitway.	○ Stations adjacent to GO rail line may be a safety concern	○ Motorists unfamiliar with u-turns across transitway (Yonge St portion).	○ Motorists unfamiliar with u-turns across transitway (Yonge St portion).	○ Motorists unfamiliar with u-turns across transitway (Yonge St portion).	○ Motorists unfamiliar with u-turns across transitway (Yonge St portion).
	Effect of transitway insertion on emergency vehicle circulation	Qualitative	Plan, emergency agencies, municipalities	○ May use transitway but some median crossing restriction on Yonge St.	● No effect.	● May use transitway but some median crossing restriction on Yonge St. Otherwise operation in mixed traffic and no effect.	● May use transitway but some median crossing restriction on Yonge St. Otherwise operation in mixed traffic and no effect.	● May use transitway but some median crossing restriction on Yonge St. Otherwise operation in mixed traffic and no effect.	● May use transitway but some median crossing restriction on Yonge St. Otherwise operation in mixed traffic and no effect.
	Overall B3 Rating				○	●	●	○	○

NEWMARKET/EAST GWILLIMBURY EVALUATION OF ROUTE ALTERNATIVES
OBJECTIVE B: To protect and enhance the social environment in the corridor

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	NE2	NE3	NE5	NE6	NE7	NE8
				Yonge Street/ Green Lane	adjacent to GO Bradford ROW	Yonge Street/ Eagle Street West/ Newmarket GO Bus Terminal	Yonge Street/ Davis Drive/Main Street/Green Lane	Yonge Street/Davis Drive to Leslie Street	Yonge Street/Davis Drive/Bayview Parkway/Green Lane
B4 Minimize adverse noise and vibration effects	Approximate number of noise-sensitive receptors that may potentially experience an increase in ambient sound levels based on the proximity of the route alternative to existing and/or future receptors	No. of receptors	Plan, Noise consultant (Senes)	●	●	●	●	●	●
	Approximate number of residences or Vibration-sensitive buildings that may potentially experience an increase in vibration levels based on the proximity of the route alternative to existing and/or future receptors	No. of residences/buildings	Plan, Vibration consultant (Senes)	●	●	●	●	●	●
	Construction effects	Qualitative/Noise Level/Mitigation during construction	Plan, Noise consultant (Senes)	●	●	●	●	●	●
	Overall B4 Rating				●	●	●	●	●
B5 Minimize adverse effects on cultural resources	Significance of built heritage and cultural heritage landscapes	Significance of building & type of disruption	Plan, Heritage consultant (Unterman)	●	●	●	●	●	●
	Number of archaeological resources displaced or disrupted	No. of resources	Plan, Archaeological consultant (ASI)	●	●	●	●	●	●
	Significance of archaeological resources displaced or disrupted	Type of disruption	Plan, Archaeological consultant (ASI)	●	●	●	●	●	●
	Overall B5 Rating				●	●	●	●	●
B6 Minimize disruption of community vistas and adverse effects on street and neighbourhood aesthetics	Visual impact on people living and working in and visiting the community	Qualitative	Plan	●	●	●	●	●	●
	Overall B6 Rating				●	●	●	●	●

LEGEND: Least Responsive ○ ◐ ◑ ◒ ◓ Most Responsive

NEWMARKET/EAST GWILLIMBURY EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE C: To promote a sustainable environment by protecting and enhancing the natural environment in the corridor

				NE2	NE3	NE5	NE6	NE7	NE8
Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	Yonge Street/ Green Lane	adjacent to GO Bradford ROW	Yonge Street/Eagle Street West/Newmarket GO Bus Terminal	Yonge Street/Davis Drive/Main Street/Green Lane	Yonge Street/Davis Drive to Leslie Street	Yonge Street/Davis Drive/Bayview Parkway/Green Lane
C1 Minimize adverse effects on Aquatic Ecology	Number of watercourse crossings	No. of watercourse crossings	Plan, Environmental	4 watercourse crossings (1 perpendicular each of: Tannery Creek, Western Creek, small tributaries of East Holland River)	8 watercourse crossings (3 perpendicular and 5 parallel of East Holland River, 1 perpendicular of Western Creek)	2 watercourse crossings (1 perpendicular each of: Tannery Creek and Western Creek)	4 watercourse crossings (1 perpendicular of: Tannery Creek, and 3 of Western Creek)	5 watercourse crossings (1 perpendicular of: Tannery Creek, and 4 of Western Creek)	6 watercourse crossings (all perpendicular: 1 of Tannery Creek, 2 of Western Creek, 3 of small feeder creeks of the East Humber River)
	Type of watercourse crossing to be affected	Type and significance of watercourse crossing	Plan, Environmental	All crossings have permanent flow. Mitigation would be required in these areas if affected.	All crossings have permanent flow. Mitigation would be required in these areas if affected.	All crossings have permanent flow. Western Creek crossing on Eagle St where operation in mixed traffic, therefore no affect.	All crossings have permanent flow. 2 Western Creek crossings on Davis Dr where operation in mixed traffic, therefore no affect.	All crossings have permanent flow. 3 Western Creek crossings on Davis Dr where operation in mixed traffic, therefore no affect.	All crossings have permanent flow. 1 crossing on Davis Dr and 3 on Bayview Pkwy where operation in mixed traffic, therefore no affect.
	Type and significance of fish habitat to be affected	Type and significance of fish habitat	Plan, Environmental	Type II (important) present in Tannery Creek, and Type III (marginal) present in other three.	Numerous areas of concern.	Type II (important) present in Tannery Creek.	Type II (important) present in Tannery Creek.	Type II (important) present in Tannery Creek.	Type II (important) present in Tannery Creek.
	Overall C1 Rating				●	○	●	●	●
C2 Minimize adverse effects on Terrestrial Ecology	Number and status of any species at risk	No. & status of terrestrial ecosystems (ELC vegetation communities)	Plan, Environmental	3 Ecological Land Classification vegetation communities along route. Low potential for affect due to limited widening on Yonge St.	16 Ecological Land Classification vegetation communities along route. Moderate potential due to locations in close proximity to new row.	3 Ecological Land Classification vegetation communities along route. Low potential for affect due to limited widening on Yonge St.	10 Ecological Land Classification vegetation communities along route. Low potential for affect due to operation in mixed traffic.	3 Ecological Land Classification vegetation communities along route. Low potential for affect due to limited widening on Yonge St.	9 Ecological Land Classification vegetation communities along route. Low potential for affect due to operation in mixed traffic.
	Area, type and significance of wildlife habitat/vegetation communities to be affected	Type, occurrence and significance of terrestrial ecosystems (wetlands, forests, thickets, fields, etc.)	Plan, Environmental	Community types represented contain minimal habitat and no concern is evident.	Significant concerns due to areas that provide good wildlife habitat and travel corridors.	Community types represented contain minimal habitat and no concern is evident.	Community types represented contain minimal habitat and no concern is evident.	Community types represented contain minimal habitat and no concern is evident.	Community types represented contain minimal habitat and no concern is evident.
	Overall C2 Rating				●	●	●	●	●

NEWMARKET/EAST GWILLIMBURY EVALUATION OF ROUTE ALTERNATIVES

OBJECTIVE C: To promote a sustainable environment by protecting and enhancing the natural environment in the corridor

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	NE2		NE3		NE5		NE6		NE7		NE8	
				Yonge Street/ Green Lane	adjacent to GO Bradford ROW	Yonge Street/Eagle Street West/Newmarket GO Bus Terminal	Yonge Street/Davis Drive/Main Street/Green Lane	Yonge Street/Davis Drive to Leslie Street	Yonge Street/Davis Drive/Bayview Parkway/Green Lane						
C3 Improve regional air quality and minimize adverse local effects	Predicted change in air quality	Qualitative	Air Consultant	●	Minimal. Route is already largely developed as an urban environment.	●	Minimal. Route is already largely developed as an urban environment.	●	Minimal. Route is already largely developed as an urban environment.	●	Minimal. Route is already largely developed as an urban environment.	●	Minimal. Route is already largely developed as an urban environment.	●	Minimal. Route is already largely developed as an urban environment.
	Number of residential units potentially affected by local air quality degradation	No. of residential units affected	Air Consultant	●	Mainly commercial zoning along Yonge St. Residences are generally set-back from Green Lane.	●	Several residential subdivisions located along the route. Industrial uses.	●	Mainly commercial zoning along Yonge St. Potential affect to residences located adjacent to Eagle St.	●	Mainly commercial zoning along Yonge St and Davis Dr. Potential affect to residences located adjacent to Main St.	●	Mainly commercial zoning along Davis Dr.	●	Mainly commercial zoning along Yonge St and Davis Dr. Potential affect to residences located adjacent to Bayview Pkwy.
	Construction effects	Effects	Air Consultant	●	Dust control measures will be adopted. Multiple interfaces with commercial and residential developments.	●	Dust control measures will be adopted. Multiple interfaces with industrial and residential developments.	●	Dust control measures will be adopted. Multiple interfaces with commercial and residential developments.	●	Dust control measures will be adopted. Multiple interfaces with commercial and residential developments.	●	Dust control measures will be adopted. Multiple interfaces with commercial and residential developments.	●	Dust control measures will be adopted. Multiple interfaces with commercial and residential developments.
	Overall C3 Rating				●	●	●	●	●	●	●	●	●	●	
C4 Minimize adverse effects on corridor hydrogeological, geological and hydrological conditions	Minimization of total recharge area affected.	Length of alignment (km) over recharge areas with moderate to higher permeable soils	Geologic Survey of Canada Surficial Geology map, Plan	●	Approx. 2.0 km of route over permeable Newmarket Till deposits. Negligable decrease in recharge expected.	●	No portion of route over permeable Newmarket Till deposits. Negligable decrease in recharge expected.	●	Approx. 0.4 km of route over permeable Newmarket Till deposits. Negligable decrease in recharge expected. No affect in area where mixed traffic operation assumed.	●	Approx. 2.4 km of route over permeable Newmarket Till deposits. Negligable decrease in recharge expected. No affect in area where mixed traffic operation assumed.	●	Approx. 0.4 km of route over permeable Newmarket Till deposits. Negligable decrease in recharge expected. No affect in area where mixed traffic operation assumed.	●	Approx. 1.8 km of route over permeable Newmarket Till deposits. Negligable decrease in recharge expected. No affect in area where mixed traffic operation assumed.
	Change in potential for flooding by removal of storage capacity	Qualitative	Geologic Survey of Canada Surficial Geology map, Plan	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.	●	Construction through aquifers, if any, may require special construction measures to eliminate or minimize changes to groundwater conditions.
	Potential for adverse effects on surface water quality/quantity. Preference for minimizing proximity to watercourses	Rating of watercourse crossings and length of span (km) in floodplain deposits	Plan, Environmental (Jagger Hims)	●	Moderate. Minor span in proximity to watercourses.	●	High. Closer to watercourses.	●	Low to moderate. Minor span in proximity to watercourses.	●	Moderate. Moderate span in proximity to watercourses.	●	Moderate. Minor span in proximity to watercourses.	●	Highest. Longer portions are closer to watercourses.
	Number of sites with contaminants	No. of contaminated sites	Contaminated sites consultant	●	14 High Risk; 5 Medium Risk; 14 Low Risk	●	7 High Risk; 5 Medium Risk; 16 Low Risk	●	7 High Risk; 5 Medium Risk; 6 Low Risk	●	17 High Risk; 5 Medium Risk; 14 Low Risk	○	28 High Risk; 7 Medium Risk; 29 Low Risk	○	20 High Risk; 5 Medium Risk; 24 Low Risk
	Overall C4 Rating				●	●	●	●	●	●	●	●	●	●	

LEGEND: Least Responsive ○ ● ● ● ● Most Responsive

NEWMARKET/EAST GWILLIMBURY EVALUATION OF ROUTE ALTERNATIVES
OBJECTIVE D: To promote smart growth and economic development in the corridor

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	NE2	NE3	NE5	NE6	NE7	NE8
				Yonge Street/ Green Lane	adjacent to GO Bradford ROW	Yonge Street/Eagle Street West/Newmarket GO Bus Terminal	Yonge Street/Davis Drive/Main Street/Green Lane	Yonge Street/Davis Drive to Leslie Street	Yonge Street/Davis Drive/Bayview Parkway/Green Lane
D1 Support Regional and Municipal Planning Policies and approved urban structure	Conformity with, and support for, policies of official plans and urban structures of Region, internal and adjacent municipalities, including GTA	Qualitative	Plan, Reports, Land Use	● Entire route recommended in TMP for rapid transit. Supports Newmarket OP in providing access to Yonge St Regional Centre.	○ Not consistent	● Yonge St is recommended in TMP for rapid transit.	● Recommended in TMP south of Davis Dr. Supports Newmarket OP in providing access to all Centres in Newmarket: Yonge St, Regional Healthcare and Historic Downtown.	● Recommended in TMP south of Davis Dr. Supports Newmarket OP in providing access to both Yonge St and Regional Healthcare Centres.	● Not consistent with TMP north of Davis Dr. Supports Newmarket OP in providing access to both Yonge St and Regional Healthcare Centres.
	Conformity with land use designations, including compatibility with existing development	Qualitative	Plan, Land Use, OP's	● Route traverses existing commercial and residential developments. Higher density residential developments in proximity to route.	○ Route traverses existing industrial and residential developments.	● Route traverses existing commercial and residential developments.	● Route traverses existing commercial and residential developments. Higher density residential developments in proximity to route.	● Route traverses existing commercial and residential developments. Higher density residential developments in proximity to route.	● Route traverses existing commercial and residential developments. Higher density residential developments in proximity to route.
	Service to planned centres, major and minor	Qualitative	Plan, TMP, OP's, Reports	● Direct access to York Regional Centre and urban centre along Yonge St.	○ None	● Reasonable access to York Regional Centre.	● Direct access to York Regional Centre and urban centre along Yonge St, and Historic Downtown on Main St.	● Direct access to York Regional Centre and urban centre along Yonge St, Southlake Regional Centre and Historic Downtown on Main St.	● Direct access to York Regional Centre and urban centre along Yonge St, Southlake Regional Centre and Historic Downtown on Main St.
	Overall D1 Rating				●	○	●	●	●
D2 Provide convenient access to social and community facilities in corridor	Proximity to hospitals, educational institutions, community centres, local government offices etc.	Qualitative	Plan, Reports, Land Use, Build on Preliminary Screening	● Direct access to York Regional Centre, York Regional Headquarters, Upper Canada Mall, Seneca College. Bypasses Newmarket historical area on Main St. and Southlake Regional Health Centre.	○ Direct access to Newmarket historical area on Main St, Tannery Centre and Bayview park. Reasonable access to Southlake Regional Health Centre. Bypasses York Regional Centre, Upper Canada Mall and designated urban centre along Yonge St.	● Direct access to York Regional Centre, York Regional Headquarters, and Upper Canada Mall, Bypasses Newmarket historical area on Main St. and Southlake Regional Health Centre.	● Direct access to York Regional Centre, York Regional Headquarters, Upper Canada Mall, Seneca College, designated urban zone along Yonge St, Tannery Centre and Newmarket historical area on Main St. Reasonable access to Southlake Regional Health Centre.	● Direct access to York Regional Centre, York Regional Headquarters, Upper Canada Mall, Seneca College, Hollingsworth Arena, Tannery Centre, designated urban zone along Yonge St, Southlake Regional Health Centre and Newmarket historical area on Main St.	● Direct access to York Regional Centre, York Regional Headquarters, Upper Canada Mall, Seneca College, designated urban zone along Yonge St, Southlake Regional Health Centre, Newmarket historical area on Main St, Tannery Centre, Bayview Park, and Mabel Davis Conservation Area.
	Overall D2 Rating				●	○	●	●	●
D3 Protect provisions for goods movement in corridor	Inventory of major truck routes, delivery and loading areas, manufacturing operations affected by transitway insertion	Qualitative	Plan	○ Yonge St. has numerous commercial developments that use the corridor as a desirable delivery route. May create challenge for trucks utilizing u-turns due to median transitway.	● Transitway adjacent to existing GO rail ROW, therefore operations not affected.	● Eagle St not a major truck route. Yonge St. has numerous commercial developments that use the corridor as a desirable delivery route. May create challenge for trucks utilizing u-turns due to median transitway.	● Yonge St. has numerous commercial developments that use the corridor as a desirable delivery route. May create challenge for trucks utilizing u-turns due to median transitway. Main Street not a major truck route. Moderate impact since transitway operation in high volume mixed traffic (Davis Dr) and in low volume mixed traffic (Main St).	● Yonge St. has numerous commercial developments that use the corridor as a desirable delivery route. May create challenge for trucks utilizing u-turns due to median transitway. Moderate impact since transitway in high volume mixed traffic (Davis Dr).	● Yonge St. has numerous commercial developments that use the corridor as a desirable delivery route. May create challenge for trucks utilizing u-turns due to median transitway. Moderate impact since transitway operation in high volume mixed traffic (Davis Dr) and in low volume mixed traffic (Bayview Pkwy).
	Overall D3 Rating				○	●	●	●	●
D4 Promote transit-oriented development	Opportunities for re-development	Qualitative	Plan	● High potential for re-development around Davis Dr intersection.	○ Minimal opportunity.	● High potential along Yonge St.	● High potential for re-development around Davis Dr intersection.	● High potential for re-development around Davis Dr intersection.	● High potential for re-development around Davis Dr intersection.
	Potential opportunities for development and higher order uses, at stations, termini, and along the corridor	Qualitative	Plan	● Good potential for transit-oriented developments along route.	○ Moderate transit-oriented development potential at GO stations on Davis Dr and Green Ln.	● Moderate transit-oriented development potential at Newmarket GO bus terminal.	● Moderate transit-oriented development potential at GO station on Green Ln.	● Moderate transit-oriented development potential at GO station on Davis Dr.	● Moderate transit-oriented development potential at GO stations on Davis Dr and Green Ln.
	Overall D4 Rating				●	○	●	●	●

LEGEND: Least Responsive ○ ◐ ◑ ◒ ◓ Most Responsive

NEWMARKET/EAST GWILLIMBURY EVALUATION OF ROUTE ALTERNATIVES
OBJECTIVE E: To maximize the cost-effectiveness of the rapid transit system

Goals	Typical indicators measuring route's ability to achieve goals	Unit of measure	Information Source	NE2 Yonge Street/ Green Lane		NE3 adjacent to GO Bradford ROW		NE5 Yonge Street/Eagle Street West/Newmarket GO Bus Terminal		NE6 Yonge Street/Davis Drive/Main Street/Green Lane		NE7 Yonge Street/Davis Drive to Leslie Street		NE8 Yonge Street/Davis Drive/Bayview Parkway/Green Lane	
				Indicator	Rating	Indicator	Rating	Indicator	Rating	Indicator	Rating	Indicator	Rating	Indicator	Rating
E1 Minimize capital cost of vehicles, facilities and systems required	Estimate of cost of capital works including: elevated, at-grade, cut and cover, tunnelled or open cut running way, stations, systems and major utility relocation works	Estimate (qualitative assessment from plan)	Plan, Profile, cross section	●	Estimate \$200 million range (higher staging costs, longer route length)	●	Estimate \$185 million range (brand nw ROW)	●	Estimate \$85 million range (mixed traffic on Eagle St)	●	Estimate \$155 million range (mixed traffic on Davis Dr, and Main St)	●	Estimate \$160 million range (mixed traffic on Davis Dr)	●	Estimate \$170 million range (mixed traffic on Davis Dr, and Bayview Pkwy)
	Estimated vehicle fleet cost	Estimate (No. of fleet to be required, Frequency of the service, Length of service)	Plan	○	Longer route length	○	Longer route length	●	Shortest route	○	Longer route length	○	Longer route length	○	Longest route length
	Overall E1 Rating				○	○	●	○	○	○	○	○	○		
E2 Minimize property acquisition cost to implement facilities	Estimated value of residential units to be acquired	Qualitative assessment from plan	Plan, Land Use	●	1	○	35	●	1	●	1	●	1	●	1
	Estimated value of industrial units to be acquired	Qualitative assessment from plan	Plan, Land Use	●	None	○	9	●	None	●	None	●	None	●	None
	Estimated value of commercial units to be acquired	Qualitative assessment from plan	Plan, Land Use	○	10	○	6	○	9	○	10	○	10	○	10
	Potential remediation costs for known or potentially contaminated sites	Qualitative assessment from plan	Plan, Golder	○	33 sites	○	28 sites	○	18 sites	○	36 sites	○	64 sites	○	49 sites
	Overall E2 Rating				●	○	●	○	●	○	○	○	○	○	
E3 Minimize adverse effects of alignment characteristics on operating and maintenance costs	Influence of route length on O & M costs	Route length	Plan	○	8.5 km	○	7.0 km	●	4.5 km	○	8.3 km	○	8.3 km	○	9.0 km
	Influence of alignment characteristics on O & M costs	No. of stations, effect of alignment on maintenance costs	Plan	○	7 stations Moderate influence	○	5 stations Low influence	○	4 stations Low influence	○	8 stations Moderate influence	○	8 stations moderate influence	○	8 stations Moderate influence
	Overall E3 Rating				○	○	○	○	●	○	○	○	○	○	

LEGEND: Least Responsive ○ ○ ○ ● ● Most Responsive