APPENDIX G

Detailed Evaluation Matrices for Alternatives

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Golder Associates CIMA Partners in excellence

EVALUATION OF ALTERNATIVES – SIDNEY STREET CORRIDOR FROM BELL BOULEVARD TO TRACEY STREET / TRACEY PARK DRIVE

Category	Regulatory/Policy/Design Requirement	General Objective	Project-specific Target	DO NOTHING	ALTERNATIVE 1 Symmetrical widening with traffic islands at Tracey Street / Tracey Park Drive	ALTERNATIVE 2 Widening predominantly to the west side	ALTERNATIVE 3 Widening predominantly to the east side	ALTERNATIVE 4 Widening without traffic islands at Tracey Street/ Tracey Park Drive and slight shift east mid-corridor
Natural Environment	Provincial Policy Statement (2014)	Protection of fish habitat	No development or site alteration in fish habitat or riparian areas (defined as areas within 15m from top of bank)	No changes to the tributary of Potter Creek	Intersection improvements at Bell Blvd. will widen the road cross-section at the tributary of Potter Creek; therefore a culvert extension of up to 15 m may be required	Intersection improvements at Bell Blvd. will widen the road cross-section at the tributary of Potter Creek; therefore a culvert extension of up to 15 m may be required	Intersection improvements at Bell Blvd. will widen the road cross-section at the tributary of Potter Creek; therefore a culvert extension of up to 15 m may be required	Intersection improvements at Bell Blvd. will widen the road cross-section at the tributary of Potter Creek; therefore a culvert extension of up to 15 m may be required
	Migratory Birds Convention Act (1994)	Protection of nesting habitat of migratory birds in Canada	No clearing of trees, shrubs or meadow grasses that would result in the destruction of nests of migratory birds	No trees, shrubs, or meadow would be affected	Removal of 989 m^2 of meadow and 40 trees within the zone of impact	Removal of 304 m^2 of meadow and 33 trees within the zone of impact	Removal of 1754 m^2 of meadow and 36 trees within the zone of impact	Removal of 1227 m^2 of meadow and 36 trees within the zone of impact
	Ontario Regulation 319/09 – Quinte Conservation Authority	Protection of public safety and property from natural hazards, and protection of wetlands, shorelines and watercourses	No unapproved excavation, filling, site grading or development within 30 m of the Potter Creek tributary	No construction; therefore no work within 30 m of the tributary of Potter Creek	Work at the Sidney Street/Bell Boulevard intersection is within 30m of the tributary of Potter Creek	Work at the Sidney Street/Bell Boulevard intersection is within 30m of the tributary of Potter Creek	Work at the Sidney Street/Bell Boulevard intersection is within 30m of the tributary of Potter Creek	Work at the Sidney Street/Bell Boulevard intersection is within 30m of the tributary of Potter Creek
Social and Economic Environment	City of Belleville Official Plan (2002)	Provision of a safe, convenient and functional transportation network	Provision of sufficient carrying capacity on Sidney Street to accommodate anticipated traffic growth	Sidney Street will not provide sufficient capacity to accommodate the future traffic forecasts	Driving lanes and turning lanes meet the recommendations of the traffic report to accommodate traffic forecasts to 2031	Driving lanes and turning lanes meet the recommendations of the traffic report to accommodate traffic forecasts to 2031	Driving lanes and turning lanes meet the recommendations of the traffic report to accommodate traffic forecasts to 2031	Driving lanes and turning lanes meet the recommendations of the traffic report to accommodate traffic forecasts to 2031
			Incorporation of dedicated cycling corridors or lanes where feasible	No cycling facilities are provided	Dedicated cycling facilities are provided in accordance with the City's TMP	Dedicated cycling facilities are provided in accordance with the City's TMP	Dedicated cycling facilities are provided in accordance with the City's TMP	Dedicated cycling facilities are provided in accordance with the City's TMP
			Provision of street lighting and sidewalks where pedestrian traffic is anticipated	Street lighting is present, but sidewalks are discontinuous	Street lighting will be provided for all streets and sidewalks will be provided on both sides of the roadway	Street lighting will be provided for all streets and sidewalks will be provided on both sides of the roadway	Street lighting will be provided for all streets and sidewalks will be provided on both sides of the roadway	Street lighting will be provided for all streets and sidewalks will be provided on both sides of the roadway
		Application of high standards of urban design wherever possible	Use of tree plantings using species native to this climatic region which are suited to urban streetscapes	Some existing trees are non-native invasive species and some are cultivated versions of native species	Design will use native tree species in boulevards with consideration of underground and overhead utilities	Design will use native tree species in boulevards with consideration of underground and overhead utilities	Design will use native tree species in boulevards with consideration of underground and overhead utilities	Design will use native tree species in boulevards with consideration of underground and overhead utilities
			Locate services and plant to eliminate or avoid visual clutter; increase the level of public safety; and reduce the risk of service interruption through accident or natural disaster	Utility poles and services will remain in the existing location	Joint use hydro poles will be used to place illumination and traffic signals where possible to reduce pole clutter; the hydro poles can be moved farther away from the road than existing	Joint use hydro poles will be used to place illumination and traffic signals where possible to reduce pole clutter	Joint use hydro poles will be used to place illumination and traffic signals where possible to reduce pole clutter; the hydro poles can be moved farther away from the road than existing	Joint use hydro poles will be used to place illumination and traffic signals where possible to reduce pole clutter; the hydro poles can be moved farther away from the road than existing
		Providing accessibility for Ontarians with disabilities	Install ramps at intersections and across curbs; avoid use, wherever possible, of steps or impediments to access	Existing intersections include sidewalk ramps at all designated crossing locations	Design will include sidewalk ramps at all designated crossing locations	Design will include sidewalk ramps at all designated crossing locations	Design will include sidewalk ramps at all designated crossing locations	Design will include sidewalk ramps at all designated crossing locations
			Use of audible pedestrian signals where demand warrants	Existing traffic signals do not include audible pedestrian signals or countdown heads	Signal design will include audible pedestrian signals with countdown heads	Signal design will include audible pedestrian signals with countdown heads	Signal design will include audible pedestrian signals with countdown heads	Signal design will include audible pedestrian signals with countdown heads
	Public concerns identified for the project	Improve driveway access during high traffic conditions	Improve driveway access on Sidney Street through design	Access to driveways on Sidney St. would remain difficult due to high traffic volumes, and will continue to affect traffic flow	Continuous centre turn lane will assist access to driveways; improved traffic flow will reduce queueing and improve opportunities to exit driveways	Continuous centre turn lane will assist access to driveways; improved traffic flow will reduce queueing and improve opportunities to exit driveways	Continuous centre turn lane will assist access to driveways; improved traffic flow will reduce queueing and improve opportunities to exit driveways	Continuous centre turn lane will assist access to driveways; improved traffic flow will reduce queueing and improve opportunities to exit driveways
		Improve pedestrian safety on the west side of Sidney Street	Improve pedestrian safety through provision of pedestrian facilities	Sidewalks on the west side of Sidney Street will remain discontinuous	Design will include a 1.5m wide sidewalk and 1.5m wide boulevard on the west side of Sidney Street	Design will include a 1.5m wide sidewalk and 1.2m wide boulevard on the west side of Sidney Street	Design will include a 1.5m wide sidewalk and 1.2m wide boulevard on the west side of Sidney Street	Design will include a 1.5m wide sidewalk and 1.2m wide boulevard on the west side of Sidney Street

EVALUATION OF ALTERNATIVES – SIDNEY STREET CORRIDOR FROM BELL BOULEVARD TO TRACEY STREET / TRACEY PARK DRIVE

Category	Regulatory/Policy/Design Requirement	General Objective	Project-specific Target	DO NOTHING	ALTERNATIVE 1 Symmetrical widening with traffic islands at Tracey Street / Tracey Park Drive	ALTERNATIVE 2 Widening predominantly to the west side	ALTERNATIVE 3 Widening predominantly to the east side	ALTERNATIVE 4 Widening without traffic islands at Tracey Street/ Tracey Park Drive and slight shift east mid-corridor
Transportation Design		Address difficulty with left turns from Sidney Street onto Bell Boulevard in both directions due to traffic congestion and lack of advance signal	Improve Sidney Street / Bell Boulevard intersection function through design	Intersection operation will remain sub-optimal	Provision of additional through lanes, longer storage lengths for left turn lanes and dedicated southbound right turn lane will improve overall operation of the intersection for all traffic movements	Provision of additional through lanes, longer storage lengths for left turn lanes and dedicated southbound right turn lane will improve overall operation of the intersection for all traffic movements	Provision of additional through lanes, longer storage lengths for left turn lanes and dedicated southbound right turn lane will improve overall operation of the intersection for all traffic movements	Provision of additional through lanes, longer storage lengths for left turn lanes and dedicated southbound right turn lane will improve overall operation of the intersection for all traffic movements
	Property Impacts	Consideration of effects on property ownership	Minimize the total amount of residential and commercial property frontage lost	No impact to property frontages	805 m^2 of residential property frontage required, and 2474 m^2 of commercial property frontage required	1027 m^2 of residential property frontage required, and 1428 m^2 of commercial property frontage required	887 m^2 of residential property frontage required, and 3303 m^2 of commercial property frontage required	389 m^2 of residential property frontage required, and 2424 m^2 of commercial property frontage required
			Minimize the number of properties where the house frontage would no longer meet the City's 7.5 m standard setback from the property line	No impact to property frontages	12 properties will not meet the setback requirement; 2 properties will be less than 50% of the setback requirement	14 properties will not meet the setback requirement; 5 properties will be less than 50% of the setback requirement	7 properties will not meet the setback requirement; 4 properties will be less than 50% of the setback requirement	9 properties will not meet the setback requirement; no properties will be less than 50% of the setback requirement
			Minimize the number of properties requiring full buy out	No properties required	1 property with a house will need to be acquired	No properties in their entirety will need to be acquired	1 property with a house will need to be acquired	1 property with a house will need to be acquired
		Consideration of the usable portion of existing driveways	Minimize number of driveways that would become non-functional for parking	No impact to driveways	No residential driveways become non-functional for parking	1 residential driveway becomes non-functional for parking	1 residential driveway becomes non-functional for parking	No residential driveways become non-functional for parking
		Consideration of effects on ability to access residential driveways	Minimize restrictions on turning movements entering/exiting driveways on residential properties	Existing turning movements will not be restricted	Turning movements restricted for 6 driveways	Turning movements restricted for 5 driveways	Turning movements restricted for 6 driveways	Turning movements restricted for 2 driveways
	TAC Geometric Design Guide and City of Belleville Design Standards	Design of driving lanes to meet the standards for arterial roadways	Driving lane width equal to standard	Lane width of 3.25 m will continue to be sub-standard	Lane width of 3.5 m is standard for an arterial roadway	Lane width of 3.5 m is standard for an arterial roadway	Lane width of 3.5 m is standard for an arterial roadway	Lane width of 3.5 m is standard for an arterial roadway
		Adequate provision for traffic signals	Traffic signals to be incorporated at both intersections in the study area	Traffic signal location and performance will not be improved	Traffic signals will be accommodated with this alternative	Traffic signals will be accommodated with this alternative	Traffic signals will be accommodated with this alternative	Traffic signals will be accommodated with this alternative
		Safe separation of pedestrians from driving lanes	Provision of a boulevard buffer between any proposed sidewalks and driving lanes	No buffer exists in areas where sidewalks are not present	Boulevard width of 1.5 m will provide good buffer for pedestrians on the sidewalk	Boulevard width of 1.2 m will provide good buffer for pedestrians on the sidewalk	Boulevard width of 1.2 m will provide good buffer for pedestrians on the sidewalk	Boulevard width of 1.2 m will provide good buffer for pedestrians on the sidewalk
		Maintenance of through-traffic during construction	Construction staging to maintain at least one lane of traffic open in either direction during construction	No construction required	Standard construction staging techniques can be used for this alternative (widen to one side, widen the other side)	Standard construction staging techniques can be used for this alternative (widen to one side, widen the other side); more lanes may be available during construction with this option	Standard construction staging techniques can be used for this alternative (widen to one side, widen the other side); more lanes may be available during construction with this option	Standard construction staging techniques can be used for this alternative (widen to one side, widen the other side); more lanes may be available during construction with this option
		Protect other infrastructure in the project area	Minimize the need to interfere with or relocate existing utilities	No utility relocation required	Existing hydro and illumination poles will be impacted, impacts to buried gas pipe and other underground services to be determined	Existing hydro and illumination poles will be impacted, impacts to buried gas pipe and other underground services to be determined; some hydro poles may be salvaged	Existing hydro and illumination poles will be impacted, impacts to buried gas pipe and other underground services to be determined	Existing hydro and illumination poles will be impacted, impacts to buried gas pipe and other underground services to be determined

EVALUATION OF ALTERNATIVES – TRACEY STREET AND TRACEY PARK DRIVE INTERSECTION

Category	Regulatory/Policy/Design Requirement	General Objective	Project-specific Target	DO NOTHING	ALTERNATIVE 1 Realign Tracey Street	ALTERNATIVE 2 Realign Tracey Park Drive	ALTERNATIVE 3 Realign combination of Tracey Street and Tracey Park Drive
Natural Environment	Migratory Birds Convention Act (1994)	Protection of nesting habitat of migratory birds in Canada	No clearing of trees that would result in the destruction of nests of migratory birds	No trees would be affected	Removal of 2 trees within the zone of impact	Removal of 5 trees within the zone of impact	Removal of 1 trees within the zone of impact
Social and Economic Environment	City of Belleville Official Plan (2002)	Provision of a safe, convenient and functional transportation network	Provision of sufficient carrying capacity at the intersection to accommodate anticipated traffic growth	Sidney Street, Tracey Street and Tracey Park Drive will not provide sufficient capacity at the intersection to accommodate the future traffic forecasts	Driving lanes and turning lanes provided by this design meet the recommendations of the traffic report to accommodate traffic forecasts to 2031	Driving lanes and turning lanes provided by this design meet the recommendations of the traffic report to accommodate traffic forecasts to 2031	Driving lanes and turning lanes provided by this design meet the recommendations of the traffic report to accommodate traffic forecasts to 2031
		Application of high standards of urban design wherever possible	Use of tree plantings using species native to this climatic region which are suited to urban streetscapes	Some existing trees are non-native invasive species and some are cultivated versions of native species	Design will incorporate native tree species in boulevards with consideration of underground and overhead utilities	Design will incorporate native tree species in boulevards with consideration of underground and overhead utilities	Design will incorporate native tree species in boulevards with consideration of underground and overhead utilities
			Locate services and associated plant to eliminate or avoid visual clutter; increase the level of public safety; and reduce the risk of service interruption through accident or natural disaster	Utility poles and services will remain in the existing locations	Joint use hydro poles will be used to place illumination and traffic signals where possible to reduce pole clutter	Joint use hydro poles will be used to place illumination and traffic signals where possible to reduce pole clutter	Joint use hydro poles will be used to place illumination and traffic signals where possible to reduce pole clutter
		Providing accessibility for Ontarians with disabilities	Install ramps at intersections and across curbs and avoid the use, wherever possible, of steps and other impediments to access	Existing intersection includes sidewalk ramps at all designated crossing locations	Design will include sidewalk ramps at all designated crossing locations	Design will include sidewalk ramps at all designated crossing locations	Design will include sidewalk ramps at all designated crossing locations
			Use of audible pedestrian signals where demand warrants	Existing traffic signals do not include audible pedestrian signals or countdown heads	Signal design will include audible pedestrian signals complete with countdown heads	Signal design will include audible pedestrian signals complete with countdown heads	Signal design will include audible pedestrian signals complete with countdown heads
	Property Impacts	Consideration of effects on property ownership	Minimize the total amount of residential property frontage lost	No impact to property frontages	240 m^2 of residential property frontage required	68 m^2 of residential property frontage required	20 m^2 of residential property frontage required
			Minimize the number of properties where the house frontage would no longer meet the City's 7.5 m standard setback from the property line	No impact to property frontages	2 properties will not meet the setback requirement and both will be less than 50% of the setback requirement	1 property will not meet the setback requirement and will also be less than 50% of the setback requirement	1 property will not meet the setback requirement
			Minimize the number of properties requiring full buy out	No properties required	1 residential property with a house will need to be acquired	No properties in their entirety will need to be acquired	No properties in their entirety will need to be acquired
		Consideration of the usable portion of existing residential driveways	Minimize number of driveways that would become non-functional for parking	No impact to driveways	1 residential driveway becomes non-functional for parking	No residential driveways become non-functional for parking	No residential driveways become non-functional for parking
Transportation Design	TAC Geometric Design Guide and City of Belleville Design Standards	Adequate provision for traffic signals	Traffic signals to be incorporated at the intersection	Traffic signal location and performance will not be improved	Traffic signals will be accommodated with this alternative	Traffic signals will be accommodated with this alternative	Traffic signals will be accommodated with this alternative
		Safe separation of pedestrians from driving lanes	Provision of a boulevard buffer between any proposed sidewalks and driving lanes	Existing boulevard width varies from 1.6m to 5m and provides good buffer for pedestrians on the sidewalk	Boulevard width of 1.5 m will provide good buffer for pedestrians on the sidewalk	Boulevard width of 1.5 m will provide adequate buffer for pedestrians on the sidewalk	Boulevard width of 1.5 m will provide adequate buffer for pedestrians on the sidewalk
		Protect other infrastructure in the project area	Minimize the need to interfere with or relocate existing utilities	No utility relocation required	Bell pedestal will not require relocation	Bell pedestal will require relocating at significant cost	Bell pedestal will not require relocation