

Evaluation of Eramosa Road Cycling Facility Design Options
Guelph Protected Cycling Network



Table 1: Suitability of Design Option as an All Ages and Abilities Cycling Facility Pre-Screening

Criterion	Ideal Condition	Option 0 – Existing Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
Comfortable Cycle Facility Width and Separation from Vehicular Traffic	<ul style="list-style-type: none"> Greatest suitability for all ages and abilities, based on: <ul style="list-style-type: none"> Optimal facility width Physical separation from traffic. 	<ul style="list-style-type: none"> No existing dedicated facility. 	<ul style="list-style-type: none"> Facility is primarily designed to meet current width guidelines. Facility is physically separated from vehicular traffic by raised medians. Per Ontario Traffic Manual (OTM) Book 18, the recommended buffer width between vehicular and cyclist lanes is 1.0 metre (m). South of Meyer Drive, the buffer is primarily less than the 1.0 m recommended width with only 0.3 m provided in some locations. 	<ul style="list-style-type: none"> Due to physical constraints the proposed multi-use path is 0.4 m narrower than recommended in current design guidelines. Facility is physically separated from traffic by a raised curb and boulevard. Absence of cycling facility on east side of Eramosa Road creates cyclist comfort/safety issues. 	<ul style="list-style-type: none"> Due to physical constraints the proposed multi-use path is 0.4 m narrower than recommended in current design guidelines. Facility is physically separated from traffic by a raised curb and boulevard. 	<ul style="list-style-type: none"> Facility is primarily designed to meet current width guidelines. Per OTM Book 18, the recommended buffer width between vehicular and cyclist lanes is 1.0 m. Cycle track option includes a minimum 1.0 m boulevard plus 0.5 m curb and gutter between cyclists and vehicles. As part of the cycle track construction, opportunity exists to widen sidewalk to optimal width.
	Letter Grade	F	B	D	C	A
Cycling Access to Key Destinations	<ul style="list-style-type: none"> Safe, accessible cycling facilities are provided between key destinations along both sides of the corridor. Clearly delineated locations for cyclists to cross the roadway with priority are provided. 	<ul style="list-style-type: none"> No existing dedicated facility. 	<ul style="list-style-type: none"> Cycling access is provided on both sides of the corridor. Cycling lanes are clearly identified through intersections. Riders have clearly defined operating spaces through intersections. Bike boxes could be provided for riders wishing 	<ul style="list-style-type: none"> Cycling access is only provided to destinations on one side of the corridor. Cross rides are provided at intersections but are not as well marked as with alternatives that include separate cycling and pedestrian facilities. 	<ul style="list-style-type: none"> Cycling access is provided on both sides of the corridor. Cross rides are provided at intersections but are not as well marked as with alternatives that include separate cycling and pedestrian facilities. 	<ul style="list-style-type: none"> Cycling access is provided on both sides of the corridor. Cycling lanes are clearly identified through intersections. Riders have clearly defined operating spaces through intersections.

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			to make a left turn at minor intersections.	<ul style="list-style-type: none"> Dedicated waiting areas are provided for riders wishing to make a left turn at minor intersections. 	<ul style="list-style-type: none"> Dedicated waiting areas are provided for riders wishing to make a left turn at minor intersections. 	<ul style="list-style-type: none"> Bike boxes could be provided for riders wishing to make a left turn at minor intersections.
	Letter Grade	F	A	D	C	A
Evenness of Cycling Facility	<ul style="list-style-type: none"> Cycle facility is at one level, without elevation changes (i.e. ramps) at driveways/entrances. 	<ul style="list-style-type: none"> No existing cycling facility. 	<ul style="list-style-type: none"> Proposed facility will be at the same grade throughout the corridor with exception of raised sections adjacent to transit stops. 	<ul style="list-style-type: none"> Multi-use pathway will incorporate curb ramps at multiple intersections and driveway accesses. 	<ul style="list-style-type: none"> Multi-use pathway will incorporate curb ramps at multiple intersections and driveway accesses. 	<ul style="list-style-type: none"> Proposed facility will be at the same grade relative to the sidewalk throughout the corridor with exception of at protected and other signalized intersections.
	Letter Grade	Not Applicable	B	D	D	B
Impact of Steep Sections on Accessibility and Safety	<ul style="list-style-type: none"> Road elevation change generally less than 5% to allow for sustained cycling speeds and reduced weaving. Steeper segments are limited to: <ul style="list-style-type: none"> Less than 500 m in length, for grades between 5% and 7%. Less than 150 m in length (about a block), for grades between 7% and 8% Less than 30 m in length, for grades above 8%. 	<ul style="list-style-type: none"> Approximately 0.8 kilometre (km) of the 2.4 km corridor has steep elevation changes of 6 to 8%. Approximately 300 m segment between the Speed River and Queen Street has a grade estimated at > 8% Approximately 500 m segment between Stuart Street and Skov Crescent has a grade estimated at 6% 	<ul style="list-style-type: none"> Approximately 0.8 km of the 2.4 km corridor has steep elevation changes of 6 to 8%. Approximately 300 m segment between the Speed River and Queen Street has a grade estimated at > 8% Approximately 500 m segment between Stuart Street and Skov Crescent has a grade estimated at 6% Approximately 500 m segment between Meyer Drive and Orchard Crescent has a grade estimated at 6%. 	<ul style="list-style-type: none"> Approximately 0.8 km of the 2.4 km corridor has steep elevation changes of 6 to 8%. Approximately 300 m segment between the Speed River and Queen Street has a grade estimated at > 8% Approximately 500 m segment between Stuart Street and Skov Crescent has a grade estimated at 6% Approximately 500 m segment between Meyer Drive and 	<ul style="list-style-type: none"> Approximately 0.8 km of the 2.4 km corridor has steep elevation changes of 6 to 8%. Approximately 300 m segment between the Speed River and Queen Street has a grade estimated at > 8% Approximately 500 m segment between Stuart Street and Skov Crescent has a grade estimated at 6% Approximately 500 m segment between Meyer Drive and 	<ul style="list-style-type: none"> Approximately 0.8 km of the 2.4 km corridor has steep elevation changes of 6 to 8%. Approximately 300 m segment between the Speed River and Queen Street has a grade estimated at > 8% Approximately 500 m segment between Stuart Street and Skov Crescent has a grade estimated at 6% Approximately 500 m segment between Meyer Drive and

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		<ul style="list-style-type: none"> Approximately 500 m segment between Meyer Drive and Orchard Crescent has a grade estimated at 6%. Ability of the corridor to function as a All Ages and Abilities cycling spine is degraded by the impact of elevation, with exception of the segment between Metcalfe Street and Meyer Drive. 	<ul style="list-style-type: none"> Ability of the corridor to function as an All Ages and Abilities cycling spine is degraded by the impact of elevation, with exception of the segment between Metcalfe Street and Meyer Drive. 	<p>Orchard Crescent has a grade estimated at 6%.</p> <ul style="list-style-type: none"> Ability of the corridor to function as an All Ages and Abilities cycling spine is degraded by the impact of elevation, with exception of the segment between Metcalfe Street and Meyer Drive. 	<p>Orchard Crescent has a grade estimated at 6%.</p> <ul style="list-style-type: none"> Ability of the corridor to function as an All Ages and Abilities cycling spine is degraded by the impact of elevation, with exception of the segment between Metcalfe Street and Meyer Drive. 	<p>Orchard Crescent has a grade estimated at 6%.</p> <ul style="list-style-type: none"> Ability of the corridor to function as an All Ages and Abilities cycling spine is degraded by the impact of elevation, with exception of the segment between Metcalfe Street and Meyer Drive.
	Letter Grade	D	D	D	D	D
Rider Safety	<ul style="list-style-type: none"> Lowest risk of conflicts with motorized vehicles, considering: <ul style="list-style-type: none"> Relative vehicular and cyclist location and operating speeds Traffic speed at conflict points Crossing control Number of contraflow conflicts with turning vehicles and potential mitigation measures 	<ul style="list-style-type: none"> There are no existing cycling facilities on Eramosa Road. 	<ul style="list-style-type: none"> The proposed cycle lane will be physically separated by a raised concrete median for the majority of study corridor and cycle facilities will be clearly marked through intersections. While no contra-flow conditions exist within the corridor, there will be no mitigation of right hook conflicts with exception of protected intersection designs at Woolwich Street, 	<ul style="list-style-type: none"> The proposed facility will be physically separated from vehicular traffic by a curb and in most cases a concrete or landscaped boulevard. In most instances, cyclists will cross through intersections in a shared pedestrian crossing. With a cycling facility on only one side of the roadway, there will be a total of 15 	<ul style="list-style-type: none"> The proposed facility will be physically separated from vehicular traffic by a curb and in most cases a concrete or landscaped boulevard. In most instances, cyclists will cross through intersections in a shared pedestrian crossing. Some cyclists may choose to travel contra-flow to vehicular traffic on either side of 	<ul style="list-style-type: none"> The proposed facility will be physically separated from vehicular traffic by a curb and in most cases a concrete or landscaped boulevard. At minor intersections, the cycle and pedestrian facilities will be raised, forcing vehicles to yield right-of-way and eliminating right hook conflicts. Major intersections will be

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	<ul style="list-style-type: none"> ○ Number of right hook conflicts and potential mitigation measures ○ Risk of cyclist travel in mixed traffic. 		<p>Stevenson Street, and Victoria Road.</p> <ul style="list-style-type: none"> • Auto turning speeds and radius can be reduced through the placement of physical separator up to the intersection/access and green pavement markings. • Lower risk of cyclist travel in mixed traffic than Options 0 and 2.1 due to cycling facilities on both sides of the roadway. 	<p>contra-flow conflicts at intersections.</p> <ul style="list-style-type: none"> • While a protected intersection is only proposed at Woolwich Street, crossings are set back from the intersection where possible to provide improved visibility of pedestrians and cyclists. • 50% more conflict points between bikes and turning vehicles (due to contraflow bike movement) compared to Options 1 and 3. The vehicular left turn conflict with contraflow cyclist is more significant at large signalized intersections. To mitigate this conflict, cyclists should dismount and walk their bikes across. • Higher risk of cyclist travel in mixed traffic than Options 1, 2.2, and 3, due to lack of cycling facility on east side of the roadway. 	<p>the roadway. While no protected intersections are proposed with this alternative, crossings are set back from the intersection where possible to provide improved visibility of pedestrians and cyclists.</p> <ul style="list-style-type: none"> • Doubles the number of conflict points between bikes and turning vehicles (due to contraflow bike movements on both sides) compared to Options 1 and 3. The vehicular left turn conflict with contraflow cyclist is more significant at large signalized intersections. To mitigate this conflict, cyclists should dismount and walk their bikes across. • Lower risk of cyclist travel in mixed traffic than Options 0 and 2.1 due to cycling facilities on both sides of the roadway. 	<p>designed with protected cycling facilities.</p> <ul style="list-style-type: none"> • Lower risk of cyclist travel in mixed traffic than Options 0 and 2.1 due to cycling facilities on both sides of the roadway.
	Letter Grade	F	B	D	C	A

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	<ul style="list-style-type: none"> Lowest risk of conflict between transit vehicles and cyclists, considering locations where cyclists would travel through bus loading zone. 	<ul style="list-style-type: none"> Cyclists using Eramosa Road would travel in front of 9 transit stops. Potential conflicts between transit vehicles cyclists adjacent to these stops. 	<ul style="list-style-type: none"> 9 locations where proposed cycling lanes will cross passenger loading zones with 0.5 m buffer between the curb and the cycle lane. Tactile surface indicators and coloured pavements, pavement markings and signs can be used to alert riders and pedestrians of the conflict zone. Raised and coloured pavement, pavement markings and signs at all bus stops to increase cyclist and transit user awareness of conflicts with no physical conflict between cycle facility and transit vehicle. 	<ul style="list-style-type: none"> Proposed cycle facility does not impact bus loading zones or passenger zones. 	<ul style="list-style-type: none"> Proposed cycle facility does not impact bus loading zones or passenger zones. 	<ul style="list-style-type: none"> 2 locations where proposed cycling facilities will cross passenger loading zones with a 0.5 to 1 m buffer/alighting zone between the curb and the cycle track. Tactile surface indicators and coloured pavements, pavement markings and signs can be used to alert riders and pedestrians of the conflict zone. No physical conflict between cycle facility and transit vehicle.
	Letter Grade	F	C	A	A	B
	<ul style="list-style-type: none"> Lowest risk of pedestrian and bike collisions, considering: <ul style="list-style-type: none"> Separation of cyclists and pedestrians Relative operating speeds of cyclists and pedestrians on shared facilities Sudden path narrowing on shared facilities Anticipated pedestrian volumes 	<ul style="list-style-type: none"> Lack of cycling facility and higher traffic speeds and volumes encourages cyclists to ride on sidewalks. 	<ul style="list-style-type: none"> Least risk of pedestrian/bike collisions (similar to Option 3), considering complete separation between cyclists and pedestrians, including clear pavement markings at intersections to maintain separation. 	<ul style="list-style-type: none"> Lower risk of pedestrian/bike collisions than Option 2.2, considering separation of cyclists from pedestrians on one side of the road. Clear pavement markings at intersections to separate multi-use path users, lowering the risk of collisions within intersections 	<ul style="list-style-type: none"> Highest risk of pedestrian/bike collisions (similar to Option 0), considering lack of separation between pedestrians and cyclists along the multi-use paths. Clear pavement markings at intersections to separate multi-use path users, lowering the risk 	<ul style="list-style-type: none"> Low to moderate risk of pedestrian/bike collisions. Separate facilities are provided for cyclists and pedestrians, including clear pavement markings at intersections to maintain separation. Sidewalk and cycle track are separated by tactile strips but without a physical barrier between

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				<ul style="list-style-type: none"> Points of localised narrowing/ weaving/ conflict identified that increase the risk of collisions. 	<ul style="list-style-type: none"> of collisions within intersections Points of localised narrowing/ weaving/ conflict identified that increase the risk of collisions. 	<ul style="list-style-type: none"> them users veer into the other facility particularly within highly constrained areas where boulevards cannot be provided.
	Letter Grade	F	A	D	F	C
Cohesion	<ul style="list-style-type: none"> Consistent design throughout the corridor. 	<ul style="list-style-type: none"> No cycling facilities exist along the corridor. 	<ul style="list-style-type: none"> Design is less consistent than Options 2.1 and 2.2: <ul style="list-style-type: none"> Protected cycle lane can be provided for the entirety of the corridor provided the road is generally reduced to a three lane cross-section Facility width varies between 1.5 m and 2.5 m wide along the length of the corridor Buffer width and type varies. 	<ul style="list-style-type: none"> Design is more consistent than Option 1: <ul style="list-style-type: none"> 3.5 m to 4.0 m wide multi-use path can be provided along the west side of the roadway along the entirety of the study corridor provided the road is generally reduced to a three-lane cross-section Setback from the back of curb varies, however. 	<ul style="list-style-type: none"> Design is more consistent than Option 1: <ul style="list-style-type: none"> Consistent 3.0 m wide multi-use path can be provided along both sides of the roadway along the entirety of the study corridor, provided the road is generally reduced to a three lane cross-section Setback from the back of curb varies, however. 	<ul style="list-style-type: none"> Most consistent design: <ul style="list-style-type: none"> Intersection treatments are consistent from one end of the corridor to the other Consistent 1.8 m to 2.2 m wide cycle track can be provided along both sides of the roadway along the entirety of the study corridor, provided the road is generally reduced to a three lane cross-section Setback from the back of curb varies, however.
	Letter Grade	F	C	B	B	A
Overall Score for Option		F	B	D	C	A

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Pre-Screening of Options for Further Consideration	Options that score a letter grade above F are carried forward for further consideration.	No Option does not adequately meet All Ages and Abilities cycling design requirements and will not be carried forward for further consideration.	Yes Option meets the majority of requirements of All Ages and Abilities facility design and will be carried forward.	Yes *Option does not adequately meet All Ages and Abilities cycling design requirements, but will be carried forward for comparison purposes.	Yes *Option does not adequately meet All Ages and Abilities cycling design requirements, but will be carried forward for comparison purposes.	Yes Option meets the majority of requirements of All Ages and Abilities facility design and will be carried forward for further consideration.

Table 2: Overall Evaluation of Eramosa Road Design Options – Traffic and Safety

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
Winter Maintenance Implications	<ul style="list-style-type: none"> City’s current winter maintenance equipment can be used to clear snow from cycling infrastructure. Adequate space for snow storage. Low potential for damage to cycling infrastructure from winter maintenance equipment (i.e. potential impact to bollards or raised curbs). 	<ul style="list-style-type: none"> Winter maintenance of cycle lane could be completed using sidewalk plows; however, coordination of clearing operations would be required to prevent snow from the roadway from blocking the cycle lane. Limited visibility of the physical barrier in heavy snow fall events could result in damage to the plows, vehicles and the barriers, particularly at entrances. Snow clearing practice for driving lanes may require changes due to physical separators. 	<ul style="list-style-type: none"> Existing city equipment can be used to maintain the multi-use path with no net increase in linear length of active transportation facility. Adequate boulevard width will exist along the majority of the proposed multi-use path to accommodate snow storage. 	<ul style="list-style-type: none"> Existing city equipment can be used to maintain the multi-use path with no net increase in linear length of active transportation facility. With exception of the segment between Stephenson Road and Orchard Road, there will be inadequate space within the boulevard to accommodate snow storage. Specialized winter maintenance processes will be required. 	<ul style="list-style-type: none"> Existing city equipment can be used to maintain the proposed cycle track. Total length active transportation facilities that will need to be maintained within the corridor will be doubled. With exception of the segment between Woolwich Street and Arthur Street, there will adequate space within the boulevard to accommodate snow storage.
	Letter Grade	C	A	D	C

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	<ul style="list-style-type: none"> Ability to keep cycle facility clear, considering: <ul style="list-style-type: none"> Potential for facility to become partially blocked by surface debris, including leaves Relative location of catch basins and gutters to proposed cycling facility Clearing of snow/ice to enable all season operation of the facility. 	<ul style="list-style-type: none"> The facility will be adjacent to the curb with gutter and surface catchbasins within the rideable area of the cycle lane. The proposed physical separation between vehicular and cycling lanes has an increased potential to trap debris. Specific snow clearing operations will be required for the cycle lanes. 	<ul style="list-style-type: none"> Potential exists for the facility surface to become littered (i.e. with leaves) however there are no raised edges to specifically trap debris. Curb and gutter are located outside the limits of this proposed facility. 	<ul style="list-style-type: none"> Potential exists for the facility surface to become littered (i.e. with leaves) however there are no raised edges to specifically trap debris. Curb and gutter are located outside the limits of this proposed facility. 	<ul style="list-style-type: none"> Potential exists for the facility surface to become littered (i.e. with leaves) however there are no raised edges to specifically trap debris. Curb and gutter are located outside the limits of this proposed facility.
	Letter Grade	C	A	A	A
Connectivity of Cycling and Pedestrian Facilities during Construction	<ul style="list-style-type: none"> Pedestrian and cyclist access and connectivity can be maintained during construction. 	<ul style="list-style-type: none"> No anticipated impact to pedestrian facilities. 	<ul style="list-style-type: none"> Temporary closure of existing sidewalk (one side of the roadway) will be required during construction. 	<ul style="list-style-type: none"> Temporary closure of existing sidewalks will be required during construction. 	<ul style="list-style-type: none"> Temporary closure of existing sidewalks will be required during construction.
	Letter Grade	A	C	F	F
Accessibility	<ul style="list-style-type: none"> Width of dedicated pedestrian facilities meets Accessibility for Ontarians with Disabilities Act (AODA) standards. Adequate space exists within the right-of-way to add rest areas on steep sections of roadways. 	<ul style="list-style-type: none"> Existing sidewalk is maintained with this option, with segments not currently meeting AODA standards due to insufficient width. No space within the existing right-of-way to provide for rest areas for pedestrians within steep sections. 1.5 m boarding/alighting area provided between cycle track only at the Orchard Bus Stop. At 	<ul style="list-style-type: none"> Existing sidewalk is maintained on the south side with this option, with segments not currently meeting AODA standards due to insufficient width. The multi-use pathway width will meet AODA requirements. Space within the existing right-of-way to provide for rest areas for pedestrians within the steep section between Meyer Drive 	<ul style="list-style-type: none"> The multi-use pathway width will meet AODA requirements. Space within the existing right-of-way to provide for rest areas for pedestrians within the steep section between Meyer Drive and Orchard Crescent, but not in steep sections closer to the river. Boarding/alighting area provided as part of the multi-use pathway where cyclists may be operating. 	<ul style="list-style-type: none"> Sidewalks will be reconstructed to exceed AODA requirements as part of this alternative. Space within the existing right-of-way to provide for rest areas for pedestrians within the steep section between Meyer Drive and Orchard Crescent, but not in steep sections closer to the river. Transit users will need to cross the cycle track when

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	<ul style="list-style-type: none"> No conflict between cycling facility and transit alighting areas 	other locations, passengers will board/alight from the cycle track area.	and Orchard Crescent, but not in steep sections closer to the river. <ul style="list-style-type: none"> Boarding/alighting area provided as part of the multi-use pathway where cyclists may be operating. 		boarding/alighting buses. In most locations the width of the sidewalk and cycle track could be narrowed (but still be compliant) in order to provide a 1.5 m pad between the cycle track and back of curb.
	Letter Grade	F	D	C	C
Traffic Delays	<ul style="list-style-type: none"> Vehicular travels times through the corridor are maintained or reduced.^a 	<ul style="list-style-type: none"> Travel time increase would be greater than Option 2 due to increased midblock delays. Proposed lane reductions at the intersection of Woolwich Street and Eramosa Road (particularly the removal of the westbound right turn lane and risk of southbound and westbound left turn spillover into the single through lane) will impose corridor access constraints at the west limit. Through lane capacity along the entirety of Eramosa Road is reduced from two lanes to one in each direction. A 2-lane cross-section is provided along 70% of the corridor (7 m combined curb-to-curb width). Left turn lanes are provided at Arthur Street, Delhi Street, Metcalfe Street, Stevenson 	<ul style="list-style-type: none"> Anticipated travel time increase of half a minute or less between Woolwich and Victoria Road (not including delay increases at those intersections). Proposed lane reductions at the intersection of Woolwich Street and Eramosa Road (particularly the removal of the westbound right turn lane and risk of southbound and westbound left turn spillover into the single through lane) will impose corridor access constraints at the west limit. Through lane capacity along the entirety of Eramosa Road is reduced from two lanes to one in each direction for the majority of the corridor, with two lanes westbound (though could be eastbound) maintained between Victoria Road and west of Stephenson Street. 	<ul style="list-style-type: none"> Westbound travel time increase would be greater than Option 2.1 due to removal of westbound left turn lane at Meyer Drive. Proposed lane reductions at the intersection of Woolwich Street and Eramosa Road (particularly the removal of the westbound right turn lane and risk of southbound and westbound left turn spillover into the single through lane) will impose corridor access constraints at the west limit. Through lane capacity along the entirety of Eramosa Road is reduced from two lanes to one in each direction with exception of the segment between Skov Crescent and Meyer Road where a four-lane section is provided. A centre two-way-left-turn lane (converted to dedicated lefts at 	<ul style="list-style-type: none"> Travel time increase would be greater than Option 2 due to increased midblock delays. Proposed lane reductions at the intersection of Woolwich Street and Eramosa Road (particularly the removal of the westbound right turn lane and risk of southbound and westbound left turn spillover into the single through lane) will impose corridor access constraints at the west limit. Marginal benefit compared to other alternatives due to second westbound downstream lane on Wyndham Street. Through lane capacity along the entirety of Eramosa Road is reduced from two lanes to one in each direction. A 2-lane cross-section is provided along 40% of the

^a Note that for all alternatives, it is assumed that the condition at Woolwich could include southbound left and through right, and northbound through and right regardless of how the intersection is illustrated in the concept plans.

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		<p>Street, Meyer Drive, Victoria Street and through the commercial segment (two-way-left-turn lane).</p> <ul style="list-style-type: none"> Proposed lane reductions at Victoria Road (eastbound and westbound through movements reduced from two to one lane; eastbound right turns made from shared lane) will limit access into and out of the Eramosa Road corridor. 	<ul style="list-style-type: none"> A centre two-way-left-turn lane (converted to dedicated lefts at intersections) is provided along the entirety of the corridor. No proposed changes to the lane configuration at the Victoria Road intersection; cross-section reduction occurs west of the intersection. 	<p>intersections) is provided along the corridor west of Meyer Road.</p> <ul style="list-style-type: none"> No proposed operational changes to lane configuration at the Victoria Road intersection; cross-section reduction occurs west of the intersection. 	<p>corridor (7 m combined curb-to-curb width).</p> <ul style="list-style-type: none"> Proposed lane reductions at Victoria Road (eastbound through movement reduced from two lanes to one lane; eastbound right turns made from shared lane) will impact travel times for individuals moving off Eramosa Road and heading northbound on Victoria Road. Larger intersection footprint reduces intersection efficiency.
	Letter Grade	D	B	C	D
<ul style="list-style-type: none"> Ability to accommodate auxiliary lanes for vehicular traffic. 	<ul style="list-style-type: none"> Left-turn lanes are provided at all major intersections for both the eastbound and westbound travel directions. Right turn lanes not available westbound at Woolwich Street or eastbound at Victoria Road. With exception of the segment between Meyer and Stephenson, all mid-block turning movements will need to be completed from the only through lane. 	<ul style="list-style-type: none"> Left-turn lanes are provided at most major intersections for both the eastbound and westbound travel directions. Eastbound dedicated left turn lane is removed at Stephenson Street, though this could be accommodated if desired. Westbound dedicated left turn lane is removed at Meyer Street, though this could be accommodated if desired. Right turn lane not available westbound at Woolwich Street but provided at Victoria Road. Majority of the corridor will include a two-way-left-turn lane to accommodate mid-block left turning movements. 	<ul style="list-style-type: none"> Left-turn lanes are provided at most major intersections for both the eastbound and westbound travel directions. Westbound dedicated left turn lane is removed at Stephenson Street, though this could be accommodated if required. Eastbound and westbound dedicated left turn lanes are removed at Meyer Street. Right turn lane not available westbound at Woolwich Street but provided at Victoria Road. Majority of the corridor will include a two-way-left-turn lane to accommodate mid-block left turning movements. 	<ul style="list-style-type: none"> Dedicated left turn lanes are not provided for eastbound traffic at Skov Crescent, and east and westbound traffic at both Stephenson Street and Victoria Street. The Stephenson Street and Victoria Street intersections could be reconfigured, however. Right turn lanes not available westbound at Woolwich Street or eastbound at Victoria Road. Removal of eastbound right turn channel increases potential impact of right turns on through movement. Segments of the corridor between Meyer Street and Metcalfe Street will include two-way-left-turn lanes. 	

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	<ul style="list-style-type: none"> Ability to move more people once the intersections are at capacity. 	<ul style="list-style-type: none"> Dedicated and physically separated pedestrian and cyclist facilities provide the greatest people moving potential once vehicular lanes are at capacity. 	<ul style="list-style-type: none"> Combined facility on one side of the corridor would result in a slight increase in net cyclist and pedestrian capacity relative to the existing condition. 	<ul style="list-style-type: none"> Combined facilities on both sides of the corridor would result in a moderate increase in net cyclist and pedestrian capacity relative to the existing condition. 	<ul style="list-style-type: none"> Dedicated and physically separated pedestrian and cyclist facilities provide the greatest people moving potential once vehicular lanes are at capacity.
	Letter Grade	A	C	B	A
Public Transit	<ul style="list-style-type: none"> Transit travel times through the corridor are maintained or reduced. 	<ul style="list-style-type: none"> Greater potential for increased transit travel times due to increased queues, reduced capacity at intersections, and midblock activity. 	<ul style="list-style-type: none"> Slightly less potential for increased transit travel times due to increased queues and reduced capacity at intersections. 	<ul style="list-style-type: none"> Slightly less potential for increased transit travel times due to increased queues and reduced capacity at intersections. 	<ul style="list-style-type: none"> Greater potential for increased transit travel times due to increased queues, reduced capacity at intersections, and midblock activity.
	Letter Grade	D	C	C	D
	<ul style="list-style-type: none"> Transit pads can be provided between the curb and cycle facility/sidewalk or adequate space exists to accommodate a shelter beyond the cycle facility/sidewalk. 	<ul style="list-style-type: none"> Transit pads do not currently exist at any stops with exception of the westbound stop near Orchard Crescent due to space constraints. It is anticipated that a pad could be maintained at Orchard Crescent with implementation of this design alternative. 	<ul style="list-style-type: none"> Transit pads do not currently exist at any stops with exception of the westbound stop near Orchard Crescent due to space constraints. It is anticipated that a pad could be maintained at Orchard Crescent and a new pad added west of Metcalfe Street with implementation of this design alternative. 	<ul style="list-style-type: none"> Transit pads do not currently exist at any stops with exception of the westbound stop near Orchard Crescent due to space constraints. It is anticipated that a pad could be maintained at Orchard Crescent and a new pad added west of Metcalfe Street with implementation of this design alternative. 	<ul style="list-style-type: none"> Transit pads do not currently exist at any stops with exception of the westbound stop near Orchard Crescent due to space constraints. It is anticipated that transit stop improvements could be made with this alternative; however, space will not be adequate to accommodate a proper pad and shelter, even at the existing Orchard Crescent stop.
	Letter Grade	C	B	B	D

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
Emergency Services ^b	<ul style="list-style-type: none"> Least anticipated impact to emergency service response times. 	<ul style="list-style-type: none"> Emergency access times will be impacted by the loss of through lane capacity. With nearly 70% of the corridor reduced to a two-lane cross-section, emergency vehicles will be required to straddle the centerline and travel between stopped cars. By contrast, three-lane cross sections provide the ability for emergency vehicles to take control of a full lane. 	<ul style="list-style-type: none"> A minimum three lane cross-section is provided along the entirety of the study area which could facilitate access for emergency vehicles. Limited impact to emergency vehicle travel times is anticipated. 	<ul style="list-style-type: none"> A minimum three lane cross-section is provided along the entirety of the study area which could facilitate access for emergency vehicles. Limited impact to emergency vehicle travel times is anticipated. 	<ul style="list-style-type: none"> Emergency access times will be impacted by the loss of through lane capacity. With nearly 40% of the corridor reduced to a two-lane cross-section, emergency vehicles will be required to straddle the centerline and travel between stopped cars. By contrast, three-lane cross sections provide the ability for emergency vehicles to take control of a full lane.
	Letter Grade	D	B	B	C

Table 3: Overall Evaluation of Eramosa Road Design Options – Engineering

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
Construction Complexity	<ul style="list-style-type: none"> Least construction complexity associated with: <ul style="list-style-type: none"> Utility relocation requirements Construction staging. 	<ul style="list-style-type: none"> No anticipated impacts to hydro poles. Anticipated impact to 11 traffic poles. Anticipated impact to approximately 1 kilometres of Bell conduit and buried cable. Relocation/adjustment required for 8 maintenance holes, 6 valves and 1 hydrant. Complex construction staging due to presence of retaining walls and 	<ul style="list-style-type: none"> Anticipated impacts to 4 standard hydro poles and one major pole. It is anticipated that no underground conversion is required and poles can be relocated within the existing right-of-way. Anticipated impact to 11 traffic poles. Potential impact to <500 metres of Bell conduit and buried cable. 	<ul style="list-style-type: none"> Anticipated impacts to 15 standard hydro poles and one major pole. It is anticipated that approximately 500 m of overhead hydro will require underground conversion due to lack of available right-of-way (ROW). Anticipated impact to 24 traffic poles. 	<ul style="list-style-type: none"> Anticipated impacts to 32 hydro poles. It is anticipated that no underground conversion is required and poles can be relocated within the existing right-of-way. Anticipated impact to 37 traffic poles. Anticipated impact to approximately 2 km of Bell conduit and buried cable.

^b Note: Due to the significant importance of maintaining or improving overall emergency service response times, the value of the scores associated with this criteria have been doubled when determining a preferred alternative.

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
		<p>ultimate two-lane cross-section along much of the corridor.</p> <ul style="list-style-type: none"> • Complex detouring will be required. 	<ul style="list-style-type: none"> • Relocation/adjustment required for 10 maintenance holes, 7 valves and 2 hydrants. • Construction impact limited to one side of the corridor, with space available within the ultimate three lane cross-section to accommodate construction equipment. • Construction will be complicated by the presence of retaining walls and segments of raised pedestrian walkway. 	<ul style="list-style-type: none"> • Anticipated impact to approximately 2 km of Bell conduit and buried cable. • Relocation/adjustment required for 13 maintenance holes, 8 valves and 4 hydrants. • Complex construction staging due to presence of retaining walls and ultimate two-lane cross-section through these portions of the corridor. • Additional complexity due to the need to replace all existing pedestrian facilities, including raised walkways, on both sides of the roadway. • Complex detouring will be required. 	<ul style="list-style-type: none"> • Relocation/adjustment required for 13 maintenance holes, 13 valves and 3 hydrants. • Very complex construction staging due to presence of retaining walls, need to replace existing pedestrian facilities – including raised sidewalks, and ultimate two-lane cross-section along much of the corridor. • Complex detouring will be required.
	Letter Grade	D	C	F	F
Infrastructure/ Road Impacts	<p>Fewest impacts to existing municipal infrastructure, including:</p> <ul style="list-style-type: none"> ○ Culvert extensions ○ Bridge widening ○ Impacts to roadway geometry or alignment. 	<ul style="list-style-type: none"> • Bridge crossing of the Speed River at the western limit of the study area is not anticipated to require replacement. • No culverts present along this section of Eramosa Road. • No proposed changes to road alignment. • Total curb-to-curb width of 7 m through the majority of the corridor may be problematic for large and/or emergency vehicle access. 	<ul style="list-style-type: none"> • Bridge crossing of the Speed River at the western limit of the study area is not anticipated to require replacement. • No culverts present along this section of Eramosa Road. • No proposed changes to road alignment. • Proposed design requires narrowing of the roadway (one side only). • Lack of lane balance on either side of some intersections (i.e. where a left turn lane is provided in one direction only) 	<ul style="list-style-type: none"> • Bridge crossing of the Speed River at the western limit of the study area is not anticipated to require replacement. • No culverts present along this section of Eramosa Road. • No proposed changes to road alignment. • Proposed design requires narrowing of the roadway (both sides). • Lack of lane balance on either side of some intersections (i.e. where a left turn lane is provided in one direction only) 	<ul style="list-style-type: none"> • Bridge crossing of the Speed River at the western limit of the study area is not anticipated to require replacement. • No culverts present along this section of Eramosa Road. • No proposed changes to road alignment. • Proposed design requires narrowing of the roadway (both sides). • Total curb-to-curb width of 7 m through the majority of the corridor may be problematic for

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
		<ul style="list-style-type: none"> Option requires modification to existing roadway to install raised concrete barriers. 	results in less than ideal lane alignments at intersections.	results in less than ideal lane alignments at intersections.	large and/or emergency vehicle access.
	Letter Grade	D	C	C	D
Drainage	<ul style="list-style-type: none"> Avoids unnecessary impacts to floodplains. Avoids changes to existing catchbasins. Minimizes increase in impervious surface area. Maintains or improves existing stormwater management and drainage. 	<ul style="list-style-type: none"> Minor increase in impervious area within the regulated area south of the Speed River. May require changes to existing catch basins. Existing catchbasins are located within the proposed bike lane. Proposed physical barriers may introduce issues with draining the roadway to the existing storm sewer system and require the addition of a second set of catchbasins on the inside of the cycle lane barriers. 	<ul style="list-style-type: none"> Minor increase in impervious area within the regulated area south of the Speed River. Existing curbs and catch basins will need to be relocated on one side of the roadway to implement this alternative. Change in impervious area may require assessment of existing sewers, may require upgrades and possibly storage. Porous hardscaped surface on multi-use path may mitigate increase in impervious area. 	<ul style="list-style-type: none"> Minor increase in impervious area within the regulated area south of the Speed River. Existing curbs and catch basins will need to be relocated on both sides of the roadway to implement this alternative. Greater increase in impervious area than one side only. May require assessment of existing sewers, may require upgrades and possibly storage. Porous hardscaped surface on multi-use path may mitigate increase in impervious area. 	<ul style="list-style-type: none"> Minor increase in impervious area within the regulated area south of the Speed River. Existing curbs and catch basins will need to be relocated to implement this alternative. Change in impervious area may require assessment of existing sewers, may require upgrades and possibly storage. Porous hardscaped surface on cycle track may mitigate increase in impervious area.
	Letter Grade	C	B	C	C
Impact on City Operations	<ul style="list-style-type: none"> Minimizes interactions with existing waste collection processes. 	<ul style="list-style-type: none"> Waste collection vehicles will be separated from curbside waste collection sites by a minimum of 2.2 m. At some mid-block community waste pickup locations, collection staff will be required to cross the concrete barrier to pick up cans and boxes, significantly impacting ability to collect large size grey and blue carts. 	<ul style="list-style-type: none"> Existing waste collection processes should not be impacted. 	<ul style="list-style-type: none"> Existing waste collection processes should not be impacted. 	<ul style="list-style-type: none"> Existing waste collection processes should not be impacted.
	Letter Grade	D	A	A	A

Table 4: Overall Evaluation of Eramosa Road Design Options – Natural Environment

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
Vegetation and Landscaping	<ul style="list-style-type: none"> Minimal removal of vegetation. Opportunities for landscaping enhancements. Opportunities to incorporate Low-Impact Development (LID) features into the design. 	<ul style="list-style-type: none"> No anticipated impacts to vegetation or landscaping. No anticipated opportunity to incorporate surface Low Impact Development features due to existing right-of-way constraints. 	<ul style="list-style-type: none"> Minimal anticipated impacts to vegetation or landscaping. Minimal opportunity for landscape enhancements due to limited right-of-way. No anticipated opportunity to incorporate surface Low Impact Development features due to right-of-way constraints. 	<ul style="list-style-type: none"> Greater anticipated impacts to vegetation and landscaping from Stevenson Street to Victoria Road than Option 2.1. Minimal opportunity for landscape enhancements due to limited right-of-way. No anticipated opportunity to incorporate surface Low Impact Development features due to right-of-way constraints. 	<ul style="list-style-type: none"> Greater anticipated impacts to vegetation and landscaping from Stevenson Street to Victoria Road than Option 2.1 (similar to Option 2.2). Minimal opportunity for landscape enhancements due to limited right-of-way. No anticipated opportunity to incorporate surface Low Impact Development features due to right-of-way constraints.
	Letter Grade	A	B	C	C
Tree Removal	<ul style="list-style-type: none"> Fewest mature trees to be removed. 	<ul style="list-style-type: none"> No anticipated impacts to mature trees. Impacts to be determined following topographical survey and arborist assessment. 	<ul style="list-style-type: none"> Potential impact to one mature tree within the right-of-way, south of Callander Drive. Other impacts only anticipated if proposed facility encroaches on private property. Impacts to be determined following topographical survey and arborist assessment. 	<ul style="list-style-type: none"> Potential impact to one mature tree within the right-of-way, south of Callander Drive. Other impacts only anticipated if proposed facility encroaches on private property. Impacts to be determined following topographical survey and arborist assessment. 	<ul style="list-style-type: none"> Potential impact to one mature tree within the right-of-way, south of Callander Drive. Other impacts only anticipated if proposed facility encroaches on private property. Impacts to be determined following topographical survey and arborist assessment.
	Letter Grade	A	B	B	B
Urban Forestry	<ul style="list-style-type: none"> Boulevard space is wide enough to support mature trees without the need for soil cells. 	<ul style="list-style-type: none"> West of Stevenson Street (approximately 60% of corridor length) the boulevards will be insufficiently wide to support street trees even if use of soil cells is considered. Between Stevenson Street and Meyer Drive street trees could 	<ul style="list-style-type: none"> West of Metcalfe Street (approximately 40% of corridor length) the boulevards will be insufficiently wide to support street trees even if use of soil cells is considered. East of Metcalfe Street street trees may be accommodated 	<ul style="list-style-type: none"> West of Metcalfe Street (approximately 40% of corridor length) the boulevards will be insufficiently wide to support street trees even if use of soil cells is considered. 	<ul style="list-style-type: none"> West of Stevenson Street (approximately 60% of corridor length) the boulevards will be insufficiently wide to support street trees even if use of soil cells is considered.

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
		<p>be accommodated within the boulevards.</p> <ul style="list-style-type: none"> East of Meyer Drive there is limited space to accommodate street trees with exception of the south side of the roadway between Meyer Drive and Callander Drive. 	<p>within soil cells on the north side of the roadway.</p> <ul style="list-style-type: none"> Boulevard space on the south side of the roadway is insufficiently wide to support street trees with the exception of the segment between Meyer Drive and Callander Drive. 	<ul style="list-style-type: none"> East of Metcalfe Street street trees may be accommodated within soil cells. 	<ul style="list-style-type: none"> East of Stevenson Street street trees may be accommodated within soil cells.
	Letter Grade	D	C	B	C
Natural Heritage	<ul style="list-style-type: none"> Least anticipated impact to designated natural heritage features. 	<ul style="list-style-type: none"> Minimal anticipated impact to designated natural heritage features around Speed River for all alternatives. Existing conditions and potential for impacts to be determined as part of the Environmental Impact Study. 	<ul style="list-style-type: none"> Minimal anticipated impact to designated natural heritage features around Speed River for all alternatives. Existing conditions and potential for impacts to be determined as part of the Environmental Impact Study. 	<ul style="list-style-type: none"> Minimal anticipated impact to designated natural heritage features around Speed River for all alternatives. Existing conditions and potential for impacts to be determined as part of the Environmental Impact Study. 	<ul style="list-style-type: none"> Minimal anticipated impact to designated natural heritage features around Speed River for all alternatives. Existing conditions and potential for impacts to be determined as part of the Environmental Impact Study.
	Letter Grade	B	B	B	B
Aquatic Species and Habitat	<ul style="list-style-type: none"> Lowest potential for impacts to features containing fish and fish habitat, including Species at Risk (SAR). 	<ul style="list-style-type: none"> Minimal potential for impacts to Speed River fish habitat as bridge work is contained to top of bridge deck (no widening). All alternatives involve minor path widening/construction activities at the south bridge approach. Potential for minor changes to drainage/impervious surface area to impact stormwater quality/quantity. Existing conditions and potential for impacts to be determined as 	<ul style="list-style-type: none"> Minimal potential for impacts to Speed River fish habitat as bridge work is contained to top of bridge deck (no widening). All alternatives involve minor path widening/construction activities at the south bridge approach. Potential for minor changes to drainage/impervious surface area to impact stormwater quality/quantity. Existing conditions and potential for impacts to be determined as 	<ul style="list-style-type: none"> Minimal potential for impacts to Speed River fish habitat as bridge work is contained to top of bridge deck (no widening). All alternatives involve minor path widening/construction activities at the south bridge approach. Potential for minor changes to drainage/impervious surface area to impact stormwater quality/quantity. Existing conditions and potential for impacts to be determined as 	<ul style="list-style-type: none"> Minimal potential for impacts to Speed River fish habitat as bridge work is contained to top of bridge deck (no widening). All alternatives involve minor path widening/construction activities at the south bridge approach. Potential for minor changes to drainage/impervious surface area to impact stormwater quality/quantity. Existing conditions and potential for impacts to be determined as

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
		part of the Environmental Impact Study.	part of the Environmental Impact Study.	part of the Environmental Impact Study.	part of the Environmental Impact Study.
	Letter Grade	B	B	B	B
Terrestrial Species and Habitat	<ul style="list-style-type: none"> Lowest potential for impacts to woodlands, wetlands, candidate Significant Wildlife Habitat, and potential SAR and/or SAR habitat. 	<ul style="list-style-type: none"> No woodlands, wetlands, or candidate Significant Wildlife Habitat identified through review of City of Guelph Official Plan. Existing conditions and potential for impacts to be determined as part of the Environmental Impact Study. 	<ul style="list-style-type: none"> No woodlands, wetlands, or candidate Significant Wildlife Habitat identified through review of City of Guelph Official Plan. Existing conditions and potential for impacts to be determined as part of the Environmental Impact Study. 	<ul style="list-style-type: none"> No woodlands, wetlands, or candidate Significant Wildlife Habitat identified through review of City of Guelph Official Plan. Existing conditions and potential for impacts to be determined as part of the Environmental Impact Study. 	<ul style="list-style-type: none"> No woodlands, wetlands, or candidate Significant Wildlife Habitat identified through review of City of Guelph Official Plan. Existing conditions and potential for impacts to be determined as part of the Environmental Impact Study.
	Letter Grade	A	A	A	A

Table 5: Overall Evaluation of Eramosa Road Design Options – Socio-Cultural Environment

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
Alignment with Policy	<ul style="list-style-type: none"> Consistent with objectives and policies outlined in Guelph’s Official Plan and Transportation Master Plan. 	<ul style="list-style-type: none"> Due to steep grades, this alternative does not truly provide the All Ages and Abilities cycling facilities identified within the Transportation Master Plan. Option aligns with Master and Official Plan policies aimed at providing multi-modal transportation corridors and improving health of citizens through provision of safe spaces to enjoy physical activity. 	<ul style="list-style-type: none"> This alternative does not provide the All Ages and Abilities cycling facilities identified within the Transportation Master Plan due to steep grades and the fact that multi-use pathways are not considered to be truly All Ages and Abilities on corridors with numerous driveways. Option aligns with Master and Official Plan policies aimed at providing multi-modal transportation corridors and improving health of citizens 	<ul style="list-style-type: none"> This alternative does not provide the All Ages and Abilities cycling facilities identified within the Transportation Master Plan due to steep grades and the fact that multi-use pathways are not considered to be truly All Ages and Abilities on corridors with numerous driveways. Option aligns with Master and Official Plan policies aimed at providing multi-modal transportation corridors and improving health of citizens 	<ul style="list-style-type: none"> Due to steep grades, this alternative does not provide the All Ages and Abilities cycling facilities identified within the Transportation Master Plan. Option aligns with Master and Official Plan policies aimed at providing multi-modal transportation corridors and improving health of citizens through provision of safe spaces to enjoy physical activity.

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
			through provision of safe spaces to enjoy physical activity.	through provision of safe spaces to enjoy physical activity.	
	Letter Grade	C	D	D	C
Cultural Heritage	<ul style="list-style-type: none"> Lowest potential for impacts to structures or landscapes with cultural heritage value or potential. 	<ul style="list-style-type: none"> Potential impact to Guelph Cenotaph landscaping/walkway. No other impacts to cultural heritage properties or resources anticipated. 	<ul style="list-style-type: none"> Potential impact to Guelph Cenotaph landscaping/walkway. No other impacts to cultural heritage properties or resources anticipated. 	<ul style="list-style-type: none"> Potential impact to Guelph Cenotaph landscaping/walkway. Edge impacts to 3 other properties with cultural heritage value or potential (no impacts to buildings anticipated). 	<ul style="list-style-type: none"> Potential impact to Guelph Cenotaph landscaping/walkway. Edge impacts to 2 other properties with cultural heritage value or potential (no impacts to buildings anticipated).
	Letter Grade	B	B	C	C
Archaeological Resources	<ul style="list-style-type: none"> Avoids impacts to lands with archaeological potential. 	<ul style="list-style-type: none"> Potential edge impacts to undisturbed land at Guelph Cenotaph. 	<ul style="list-style-type: none"> Potential edge impacts to undisturbed land at Guelph Cenotaph and Skov Park. 	<ul style="list-style-type: none"> Potential edge impacts to undisturbed lands at Guelph Cenotaph and Skov Park. 	<ul style="list-style-type: none"> Potential edge impacts to undisturbed lands at Guelph Cenotaph and Skov Park.
	Letter Grade	B	C	C	C
Parkland	<ul style="list-style-type: none"> Least impacts to parkland. 	<ul style="list-style-type: none"> No anticipated impact to park lands. 	<ul style="list-style-type: none"> Potential edge impacts to Skov Park. 	<ul style="list-style-type: none"> Potential edge impacts to Skov Park. 	<ul style="list-style-type: none"> No anticipated impact to park lands.
	Letter Grade	A	B	B	A
Placemaking	<ul style="list-style-type: none"> Proposed facility is consistent with or enhances the image of the corridor. 	<ul style="list-style-type: none"> There will be limited opportunities to add any streetscaping features. The boulevard is only wide enough to accommodate a 1.2 m wide sidewalk in most cases, while the existing slopes make it difficult to find level spaces large enough to accommodate seating. North of Metcalf, the street opens up into more commercial space, with landscaped boulevards. 	<ul style="list-style-type: none"> Opportunities for site furnishings are limited with this option, and would only be available around the plazas surrounding the intersection of Eramosa Road at Stevenson Road. 	<ul style="list-style-type: none"> Opportunities for site furnishings are limited with this option, and would only be available around the plazas surrounding the intersection of Eramosa Road at Stevenson Road. Lack of space for additional streetscaping options resulting from implementing wide pathways on either side of the roadway would reduce the 	<ul style="list-style-type: none"> In terms of streetscape, this concept is ideal as it adds cycling amenities without limiting streetscape opportunities by taking space from the roadway.

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
		<ul style="list-style-type: none"> This alternative leaves the existing sidewalk as is, i.e. narrow, and bounded by hard features on both sides in many cases. 		visual interest of the streetscape.	
	Letter Grade	C	C	D	B
Property Impacts	<ul style="list-style-type: none"> Avoids/limits requirements for property acquisition. 	<ul style="list-style-type: none"> No anticipated property impacts. 	<ul style="list-style-type: none"> No anticipated property impacts. 	<ul style="list-style-type: none"> Minor property impacts anticipated. 	<ul style="list-style-type: none"> Minor property impacts anticipated.
	Letter Grade	A	A	B	B
Property Access	<ul style="list-style-type: none"> Fewest property access impacts during construction and operations. 	<ul style="list-style-type: none"> Option requires construction along the active lanes of Eramosa Road and will result in roadway access issues during construction. No significant long-term access implications. 	<ul style="list-style-type: none"> Option requires construction along the active lanes of Eramosa Road (west side only) and will result in roadway access issues during construction. No significant long-term access implications. 	<ul style="list-style-type: none"> Option requires construction along the active lanes of Eramosa Road and will result in roadway access issues during construction. No significant long-term access implications. 	<ul style="list-style-type: none"> Raised crossings will be installed at intersections with local roads and driveways. Temporary access restrictions/detours required during construction. Option requires relocation of all curb and catchbasins along the corridor, resulting in additional roadway access issues during construction. No significant long-term access implications.
	Letter Grade	C	B	C	D
Public Opinion	<ul style="list-style-type: none"> Most aligned with input from stakeholders, Indigenous communities, and 	<ul style="list-style-type: none"> 22 comments received to date in support of protected cycling lanes. 	<ul style="list-style-type: none"> 3 comments received to date in opposition to multi-use paths. 	<ul style="list-style-type: none"> 3 comments were received to date in opposition to multi-use paths. 	<ul style="list-style-type: none"> 8 comments were received to date in support of cycle tracks.

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
	the general public. ^c				
	Letter Grade	A	F	F	C

Table 6: Overall Evaluation of Eramosa Road Design Options – Cost

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
Capital Costs	Lowest capital construction costs associated with: <ul style="list-style-type: none"> Construction complexity Infrastructure/road impacts. 	<ul style="list-style-type: none"> Estimated capital infrastructure cost of \$6,230,000. 	<ul style="list-style-type: none"> Estimated capital infrastructure cost of \$7,220,000. 	<ul style="list-style-type: none"> Estimated capital infrastructure cost of \$13,600,000. 	<ul style="list-style-type: none"> Estimated capital infrastructure cost of \$15,100,000.
	Letter Grade	A	B	C	D
Operation and Maintenance Costs	Lowest anticipated operation and maintenance costs	<ul style="list-style-type: none"> Annual winter maintenance budget for active transportation facilities along the corridor will be doubled as sidewalk plows will need to make two passes on each side to clear sidewalks and cycle lanes separately. Winter maintenance costs for the roadway will increase due to specialized clearing requirements to ensure cycle lanes are not blocked by snow moved off of driveways and through lanes. Low physical barriers between vehicular and cycling 	<ul style="list-style-type: none"> Annual winter maintenance budget for active transportation facilities along the corridor will increase by 50% as sidewalk plows will need to make two passes on one side to clear the 3.0 m wide multi-use pathway. Asphalt pathways have greater maintenance requirements and shorter lifespans than concrete sidewalks. Replacement of the multi-use pathway will be required on an estimated 20-year cycle rather than the approximate 40-year potential lifecycle of concrete sidewalks. 	<ul style="list-style-type: none"> Annual winter maintenance budget for active transportation facilities along the corridor will be doubled as sidewalk plows will need to make two passes on each side to clear 3.0 m wide multi-use pathways. Asphalt pathways have greater maintenance requirements and shorter lifespans than concrete sidewalks. Replacement will be required on an estimated 20-year cycle rather than the approximate 40-year potential lifecycle of concrete sidewalks. 	<ul style="list-style-type: none"> Annual winter maintenance budget for active transportation facilities along the corridor will be doubled as sidewalk plows will need to make two passes on each side to clear sidewalks and cycle tracks. Asphalt pathways have greater maintenance requirements and shorter lifespans than concrete. Replacement of the cycle track will be required on an estimated 20-year cycle.

^c Public input summarized in this section is general feedback received for the study; not specific to the Eramosa Road corridor.

Criterion	Ideal Condition	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
		infrastructure have the potential to damage plows. <ul style="list-style-type: none"> Barriers will require regular repair. 			
	Letter Grade	D	B	C	C

Table 7: Combination of Scoring for College Avenue Designs to Determine a Preferred Design Option

Score Source	Option 1 – Protected Cycling Lanes	Option 2.1 – Multi-Use Pathway – One Side Only	Option 2.2 – Multi-Use Pathway – Two Sides	Option 3 – Cycle Track
All Ages and Abilities Cycle Facility Design Suitability	B	D	C	A
Overall Evaluation of Cycle Facility Design Options	B	A	C	D
Combined Final Letter Grade	A	B	C	A

Recommended Design Option

A preferred design option has not been identified for Eramosa Road at this point. While Option 1 (Protected Bike Lane) and Option 3 (Cycle Track) score highest in this evaluation, the ideal design for these facilities requires that Eramosa Road is reduced to two lanes in several sections. Emergency Services has indicated a minimum three lane cross-section on Eramosa Road is required to facilitate timely access to the Guelph General Hospital. Accommodating sidewalks, a three lane cross-section and either cycle tracks or protected bike lanes on Eramosa will require several compromises – particularly between Arthur Street and Stevenson Road. The study team is still exploring the technical feasibility of these options. The only initial option that contemplated keeping a three lane cross-section throughout the corridor is Option 2.1 (Multi-Use Pathway, One Side). However, Option 2.1 does not provide equal cycling access to both sides of the roadway and the multi-use pathway options result in pedestrians using a shared facility where cyclists can reach high speeds along steep downhill segments.