

Table A.1: Bridge Condition & Function

Criteria	Measures	Retain Keep the existing bridge (conduct maintenance repairs) (optionally realign south approach road)	Rehabilitate Strengthen the existing bridge (widening not feasible) (adding a sidewalk not feasible)	Replace Construct a new bridge at the same location (remove existing bridge)
Bridge Condition	Deterioration, structural risk	The existing bridge is in generally good to fair condition, requiring repair to gusset plates and damaged steel, potential cable anchorage upgrades, and improvement in collision safety features. Deck replacement and repainting may be considered.	The existing bridge is in generally fair condition, requiring repair to gusset plates and damaged steel, potential cable anchorage upgrades, and improvement in collision safety features. Deck replacement and repainting should be considered.	The construction of a new bridge would meet current standards.  Permanent removal (demolition) of the existing concrete bridge.
		Neutral	Least Preferred	Most Preferred
Bridge Life & Maintenance	Years to next assessment, frequency, reliability, disruption	The existing bridge appears to have additional service life remaining. Following repairs, above-average maintenance is anticipated until the next assessment is conducted in up to 20 years.	The existing bridge appears to have additional service life remaining. Following repairs, above-average maintenance is anticipated until the next assessment is conducted in up to 20 years.	The design life for a replacement bridge is 75 years. The structure will likely require minimal maintenance for the first 20 years.
		Neutral	Neutral	Most Preferred
Vehicle types crossing the bridge	Fire trucks (30 t) Ambulance (9 t) Service vehicles, Snow Removal, Buses (if required)	The current load posting of the bridge is 5 tonnes, which is a very low value. Trucks and other heavy emergency vehicles would continue to not be permitted.	Rehabilitation of the bridge would not likely allow increase of the load posting due to uncertainties in the cable anchorage strength.	The construction of a replacement bridge would meet current standards and would allow trucks and emergency vehicles to use the bridge. No posted load limit signage required.
		Neutral	Least Preferred	Most Preferred
Bridge Safety & Function	Width, collision risk, on-road cyclists and pedestrians, deck surface	Bridge would remain one lane wide.  Signage requiring vehicles to yield to oncoming traffic would remain, with associated collision risk.  Cyclists would share the lane, single-file.  The concrete deck type would remain.  Continued risk of collision with bridge.	Bridge would remain one lane wide.  Signage requiring vehicles to yield to oncoming traffic would remain, with associated collision risk.  Cyclists would share the lane, single-file.  The concrete deck type would remain.  Continued risk of collision with bridge.	Two lanes of traffic and shoulders.  Cyclists in separate lanes (at shoulders).  Concrete deck with asphalt.  Bridge barrier system included.  A sidewalk is considered optional but recommended for consideration under this alternative.
		Neutral	Least Preferred	Most Preferred
Bridge Condition & Function Evaluation Summary		Neutral	Least Preferred	Most Preferred

Table A.2: Transportation

Criteria	Measures	Retain Keep the existing bridge (conduct maintenance repairs) (optionally realign south approach road)	Rehabilitate Strengthen the existing bridge (widening not feasible) (adding a sidewalk not feasible)	Replace Construct a new bridge at the same location (remove existing bridge)
Roadway Design	Design criteria, geometry, speed reduction, cross-section, approach sight lines	Narrow, alternating one-way traffic with no shoulder is a mismatch to roadway width and operating speeds.  Posted speed reduction at bridge.  Roadway profile unchanged.  Roadway horizontal alignment curved to south; substandard sight lines for traffic.	Narrow, alternating one-way traffic with no shoulder is a mismatch to roadway width and operating speeds.  Posted speed reduction at bridge.  Roadway profile unchanged.  Roadway horizontal alignment curved to south; substandard sight lines for traffic.	Two lane bridge matches roadway width and operating speeds.  No posted speed reduction required.  Roadway vertical profile improved.  Roadway horizontal alignment straightened to improve sight lines; requires additional right-of-way west of existing.
		Neutral	Neutral	Most Preferred
Traffic Operations	Travel delays due to bridge configuration	The bridge would remain one lane wide, and yield-controlled to accommodate alternating traffic directions. This is narrower than the roadway, forming a minor constraint.	The bridge would remain one lane wide, and yield-controlled to accommodate alternating traffic directions. This is narrower than the roadway, forming a minor constraint.	The bridge would be two-lanes wide, matching the roadway, and no longer a constraint on traffic flow.
		Neutral	Neutral	Most Preferred
Network Connectivity & Access	Alternative routes, Fire & Emergency access	Trucks and emergency vehicles would continue to use an alternative route.  The CP Rail crossing over Sewell’s Road north of the bridge would form a vertical clearance constraint on trucks unless the roadway is lowered.	Trucks and emergency vehicles would continue to use an alternative route.  The CP Rail crossing over Sewell’s Road north of the bridge would form a vertical clearance constraint on trucks unless the roadway is lowered.	Trucks and emergency vehicles would have full access across the new bridge.  The CP Rail crossing over Sewell’s Road north of the bridge would form a vertical clearance constraint on trucks unless the roadway is lowered.
		Neutral	Neutral	Most Preferred
Active transportation	On-road cyclists & On-road pedestrians (Off-road recreational trail usage not included.)	Sewell’s Road is not a designated cycling route. Cyclists would continue to share the lanes with vehicles, due to narrow/soft shoulders, and share the lanes on the bridge, single file.  Currently, there are no sidewalks along the roadway. Pedestrians would continue to walk along the shoulder of the road and on the edge of the driving lanes on the bridge.	Sewell’s Road is not a designated cycling route. Cyclists would continue to share the lanes with vehicles, due to narrow/soft shoulders, and share the lanes on the bridge, single file.  Currently, there are no sidewalks along the roadway. Pedestrians would continue to walk along the shoulder of the road and on the edge of the driving lanes on the bridge.	Sewell’s Road is not a designated cycling route. A replacement bridge would be wider and could accommodate cyclists, which would provide accommodation if the designation is changed in the future.  Currently, there are no sidewalks along the roadway. The replacement bridge could include one or more sidewalks to accommodate future needs, or the ability to widen in the future. Alternatively, separate pedestrian bridge(s) adjacent to the vehicular bridge could be planned for the future.
		Neutral	Neutral	Most Preferred
Recreational Access	Maintains or improves recreational access to RNUP and Zoo	Maintains existing recreational access.	Maintains existing recreational access.	Improves recreational access.
		Neutral	Neutral	Most Preferred
Transportation Evaluation Summary		Neutral	Neutral	Most Preferred

Table A.3: Heritage & Archaeology

Criteria	Measures	Retain Keep the existing bridge (conduct maintenance repairs) (optionally realign south approach road)	Rehabilitate Strengthen the existing bridge (widening not feasible) (adding a sidewalk not feasible)	Replace Construct a new bridge at the same location (remove existing bridge)
Cultural Heritage	Role in community, namesake and history	Both Sewell’s Road and Sewell’s Road Bridge have identified cultural heritage value. The bridge was designed by York County engineer Frank Barber in 1912 and has an existing role in the community. The bridge is currently used as a crossing.	Rehabilitation has the potential to impact its cultural heritage.	A replacement bridge would not have a pre-existing role in the community. Consideration could be given to designing a bridge of a similar configuration, or erection of a memorial monument to recognize and document the history of the original bridge.
		Most Preferred	Neutral	Least Preferred
Built Heritage	Uniqueness of bridge	The existing bridge is designated under Part IV of the Ontario Heritage Act, By-law No. 25155 as being of historical and architectural value or interest.	The work to rehabilitate the bridge may detract from some of the heritage characteristics.	The new bridge may conserve little or no heritage characteristics.
		Most Preferred	Neutral	Least Preferred
Archaeological Potential	Area of disturbance	The works to retain the bridge are anticipated to remain within previously disturbed lands or areas of no potential within the existing right-of-way.	The work to rehabilitate the bridge is anticipated to remain in previously disturbed and assessed lands and areas of no potential within the existing right-of-way. A detour bridge is not anticipated. There is limited potential to impact areas of archaeological potential. Sewell’s Road Bridge and its roadway approaches are areas of ossuary potential.	A replacement bridge is anticipated to remain on the existing alignment and within the existing right-of-way. A detour bridge is not anticipated. There is potential to impact areas of archaeological potential with temporary works outside of the existing right-of-way.
		Most Preferred	Neutral	Least Preferred
Heritage & Archaeology Evaluation Summary		Most Preferred	Neutral	Least Preferred

Table A.4: Natural Environment & Hydraulics

Criteria	Measures	Retain Keep the existing bridge (conduct maintenance repairs) (optionally realign south approach road)	Rehabilitate Strengthen the existing bridge (widening not feasible) (adding a sidewalk not feasible)	Replace Construct a new bridge at the same location (remove existing bridge)
Terrestrial Habitat	Potential for impacts to Species at Risk and Significant Wildlife Habitat (temporary and permanent)	No impacts to SAR if no construction is proposed.	Potential temporary impacts related anthropogenic disturbances (i.e. noise, lights) to adjacent potential SAR bird and SAR bat habitat (i.e. forests, swamps and bluffs) during construction.  Minimal permanent impacts to potential SAR bird and SAR bat habitat (i.e. forests, swamps and bluffs) if construction limits remain within ROW.  Temporary removal of potential Barn Swallow habitat (i.e. bridge) to facilitate bridge repairs.	Potential temporary impacts related anthropogenic disturbances (i.e. noise, lights) to adjacent potential SAR bird and SAR bat habitat (i.e. forests, swamps and bluffs) during construction.  Minimal permanent impacts to potential SAR bird and SAR bat habitat (i.e. forests, swamps and bluffs) if construction limits remain within ROW.  Temporary or permanent removal of potential Barn Swallow habitat (i.e. bridge) to facilitate bridge replacement.
		No impacts to SWH if no construction is proposed.	Potential temporary impacts related anthropogenic disturbances (i.e. noise, lights) to adjacent potential SWH habitat for birds and bats (i.e. forests, swamps and bluffs) during construction.  Minimal permanent impacts to potential SWH for birds and bats if construction limits remain within ROW.  Removal of potential snake hibernacula habitat if bridge abutments are proposed to be disturbed.	Potential temporary impacts related anthropogenic disturbances (i.e. noise, lights) to adjacent potential SWH habitat for birds and bats (i.e. forests, swamps and bluffs) during construction.  Minimal permanent impacts to potential SWH for birds and bats if construction limits remain within ROW.  Removal of potential snake hibernacula habitat if bridge abutments are proposed to be replaced.
		Most Preferred	Neutral	Neutral
Aquatic Habitat	Potential for impacts to Species at Risk and aquatic habitat (temporary and permanent)	No anticipated impacts to aquatic SAR since none have been identified within the vicinity of the crossing.	No anticipated impacts to aquatic SAR since none have been identified within the vicinity of the crossing.	No anticipated impacts to aquatic SAR since none have been identified within the vicinity of the crossing.
		No impacts to aquatic habitat if no in-water work is proposed.	Permanent loss of aquatic habitat if proposed widening work extends below the high water mark.  Temporary loss of aquatic habitat to accommodate construction footprint if in-water work is proposed.	Permanent loss of aquatic habitat if proposed widening work extends below the high water mark.  Temporary loss of aquatic habitat to accommodate construction footprint if in-water work is proposed.
		Most Preferred	Least Preferred	Least Preferred
River Conveyance	Clearance, span, bank scour, climate change resilience (potential damage to structure)	No improvement to river conveyance, continued risk of substandard clearances.	No improvement to river conveyance, continued risk.	A replacement bridge would be designed to meet current standards, involving raising the roadway profile and bridge soffit, potentially combined with lengthening the span to provide adequate clearance, In addition, fluvial geomorphology over the life of the bridge and protection of adjacent river banks against scour would be considered.
		Neutral	Neutral	Most Preferred
Natural Environment & Hydraulics Evaluation Summary		Most Preferred	Neutral	Neutral

Table A.5: Public Uses in RNUP

Criteria	Measures	Retain Keep the existing bridge (conduct maintenance repairs) (optionally realign south approach road)	Rehabilitate Strengthen the existing bridge (widening not feasible) (adding a sidewalk not feasible)	Replace Construct a new bridge at the same location (remove existing bridge)
Rouge National Urban Park (RNUP)	Public and worker access to amenities (visitor centre, trailheads, etc.)	Maintains existing public and worker access.	Maintains existing public and worker access.	Maintains existing public and worker access.
		Neutral	Neutral	Neutral
Toronto Zoo	Public and worker access to zoo	Maintains existing public and worker access.	Maintains existing public and worker access.	Maintains existing public and worker access.
		Neutral	Neutral	Neutral
Public Uses in RNUP Evaluation Summary		Neutral	Neutral	Neutral

Table A.6: Implementation

Criteria	Measures	Retain Keep the existing bridge (conduct maintenance repairs) (optionally realign south approach road)	Rehabilitate Strengthen the existing bridge (widening not feasible) (adding a sidewalk not feasible)	Replace Construct a new bridge at the same location (remove existing bridge)
Complexity & Constructability	Construction access, staging, methods, duration, and other factors	Complexity related to work on an unusual bridge type and unknown suspension cable anchorage condition.  No road realignment.	Complexity related to work on an unusual bridge type and unknown suspension cable anchorage condition.  Minor road realignment for south approach, to improve sight lines. May require small or negligible property acquisition.	New bridge would achieve more reliable performance.  Minor road realignment for south approach, to improve sight lines. May require small or negligible property acquisition.
		Most Preferred	Least Preferred	Most Preferred
Cost Considerations	Design & Construction, Lifecycle, Maintenance and Future replacement	Lowest cost.	High cost, high maintenance.	Normal cost, low maintenance
		Most Preferred	Neutral	Most Preferred
Implementation Evaluation Summary		Most Preferred	Least Preferred	Most Preferred

Table A.7: Overall Preferred Alternative

<b>Retain</b> Keep the existing bridge (conduct maintenance repairs) (optionally realign south approach road)	<b>Rehabilitate</b> Strengthen the existing bridge (widening not feasible) (adding a sidewalk not feasible)	<b>Replace</b> Construct a new bridge at the same location (remove existing bridge)
<b>Most Preferred</b>	<b>Least Preferred</b>	<b>Neutral</b>