Criteria	Measures	RetainRehabilitateKeep the existing bridge (conduct maintenance repairs)Repair the existing bridge (widening not feasible) (adding a sidewalk not feasible)		R Co (re
Bridge Condition	Deterioration, structural risk	The existing bridge is generally in fair condition, with the deck grating and pier in poor condition, requiring replacement. Access to the pier would likely require removal of the span during construction.	The existing bridge is generally in fair condition, with the deck grating and pier in poor condition, requiring replacement. Access to the pier would likely require removal of the span during construction.	Tł m ar br
		Least Preferred	Least Preferred	Μ
Bridge Life & Maintenance	Years to next assessment, frequency, reliability, disruption	The existing structure is nearing the end of its service life. Following repairs, a monitoring and maintenance program would be required to extend the service life until rehabilitation or replacement.	The existing structure is nearing the end of its service life. Following repairs, a monitoring and maintenance program would be required to extend the service life until rehabilitation or replacement.	Tł Tł fo
		Least Preferred	Least Preferred	Μ
Vehicle types crossing the bridge	Fire trucks (30 t) Ambulance (9 t) Service vehicles, Snow Removal, Buses (if	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.	Ability to strengthen the bridge is limited due to the obsolete and proprietary structure type. Strengthening to accommodate fire trucks, ambulances and other heavy vehicles does not appear feasible.	Tł cu tru No
	required)	Least Preferred	Least Preferred	М
Bridge Safety & Function	Width, collision risk, on-road cyclists and pedestrians, deck surface	Bridge would remain one lane wide. Traffic signals would remain, to control alternating direction of traffic. Cyclists would be required to dismount and walk their bikes to cross the bridge. The metal open-grating deck type would remain; traction concern for some users. Continued risk of collision with bridge. Neutral	Bridge would remain one lane wide. Traffic signals would remain, to control alternating direction of traffic. Cyclists would be required to dismount and walk their bikes to cross the bridge. The metal open-grating deck type would remain; traction concern for some users. Continued risk of collision with bridge. Neutral	T\ wi S6 eli C <u>`</u> A a R( sh
Bridge Condition	on & Function Imary	Least Preferred	Least Preferred	м

# eplace

onstruct a new bridge at the same location emove existing bridge)

he construction of a replacement bridge would leet current strength and durability requirements, nd would include the removal of the existing ridge.

ost Preferred

he design life for a replacement bridge is 75 years. he structure will likely require minimal maintenance or the first 20 years.

#### ost Preferred

The construction of a new bridge would meet urrent strength requirements and would allow Tucks and emergency vehicles to use the bridge. No posted load limit signage required.

#### ost Preferred

wo lane bridge with modest shoulders. Remains ithin existing right-of-way.

eparate lane provided for each direction, allowing imination of traffic signals.

yclists would share lanes, at shoulders.

new closed-surface deck would be provided, with roughened texture.

educed risk of collision with bridge, due to noulder width.

ost Preferred

## lost Preferred

# Table B.2: Transportation

Criteria	Measures	<b>Retain</b> Keep the existing bridge (conduct maintenance repairs)	<b>Rehabilitate</b> Repair the existing bridge (widening not feasible) (adding a sidewalk not feasible)	R C (r
Roadway Design	Design criteria, geometry, speed reduction, cross-section, approach sight lines	Signalized, 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 curves provides traffic calming.	Signalized, 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 provides traffic calming.	T SI P R
		Neutral	Neutral	Μ
Traffic Operations	Travel delays due to bridge configuration	Signal lights at each end of the bridge would continue to be used to manage the two way flow across the single lane bridge. The signals create queues of traffic, and form a minor constraint on traffic.	Signal lights at each end of the bridge would continue to be used to manage the two way flow across the single lane bridge. The signals create queues of traffic, and form a minor constraint on traffic.	T rc liç
		Neutral	Neutral	Μ
Network Connectivity &	Alternative routes, Fire & Emergency	Trucks and emergency vehicles would continue to use an alternative route.	Trucks and emergency vehicles would continue to use an alternative route.	T re
Access	access	Neutral	Neutral	Μ
Active transportation	On-road cyclists & On- road pedestrians (Off-road recreational trail usage not included.)	Old Finch Avenue 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 lange	Old Finch Avenue 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 lance.	O re a C Si p
		Neutral	Neutral	M
Recreational	Maintains or improves	Maintains existing recreational access	Maintains existing recreational access	In
Access	recreational access to RNUP and Zoo	Neutral	Neutral	M
Transportation Evaluation Sum	nmary	Neutral	Neutral	N

# leplace

onstruct a new bridge at the same location emove existing bridge)

wo lane bridge matches roadway width and operating peeds, and allows traffic flow without signals.

Posted speed reduction still required.

Potential to improve roadway profile.

oadway horizontal curves provides traffic calming.

### lost Preferred

he bridge would be two-lanes wide, matching the badway, allowing removal of the existing traffic signal ghts, and no longer forming a constraint on traffic flow.

#### ost Preferred

rucks and emergency vehicles could use the bridge, educing travel by 2 to 3 km.

#### lost Preferred

Id Finch Avenue is not a designated cycling route. A eplacement bridge would be wider and could ccommodate cyclists, which would provide ccommodation if desired.

urrently, there are no sidewalks along the roadway. A dewalk is recommended due to bridge length and otential usage.

## lost Preferred

nproves recreational access.

lost Preferred

lost Preferred

# Table B.3: Heritage & Archaeology

Criteria	Measures	<b>Retain</b> Keep the existing bridge (conduct maintenance repairs)	Rehabilitate Repair the existing bridge (widening not feasible) (adding a sidewalk not feasible)	F ()
Cultural Heritage	Role in community, namesake and history	The 1954 version of the Milne Bridge was installed by the 2nd Field Engineer Regiment of the Royal Canadian Engineers when its predecessor was washed out by Hurricane Hazel. That event was memorialized with a plaque on site just prior to the bridge being replaced in 1988, again with the assistance of the Canadian military. Both the 1954 and 1988 structures were proprietary panel bridge types, sold under the trade name "Bailey Bridge", a popular temporary bridge technology used in World War II. The bridge was named after the property owner, Wm. A. Milne.	Rehabilitation has the potential to impact its cultural heritage.	A ro to d C th s b b
		Most Preferred	Neutral	L
Built Heritage	Uniqueness of bridge	The bridge is not currently designated as a heritage property under the Ontario Heritage Act, but has been listed by the City as of heritage interest.	The work to rehabilitate the bridge may detract from some of the heritage characteristics.	A n T c s c
		Most Preferred	Neutral	L
Archaeological Potential	Area of disturbance	The minimal 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 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 should works extend further east of the existing right-of- way. Milne's Bridge and its roadway approaches are areas of ossuary potential.	A e v p v a
		Most Preferred	Neutral	L
Heritage & Arch Evaluation Sum	naeology nmary	Most Preferred	Neutral	L

# Replace

Construct a new bridge at the same location remove existing bridge)

A replacement bridge would not have a pre-existing ole in the community. Consideration could be given o designing a bridge of a similar configuration, or erection of a memorial monument to recognize and document the history of the original bridge.

Given the site constraints, clearance, alignment, and the history of previous bridges on site, consideration should be given to constructing a replacement bridge with a modern version of a sympathetic bridge type.

### east Preferred

A replacement bridge would have a similar form, nassing and appearance to the existing bridge, but no structural parts would be reused.

The bridge alignment could be maintained to conserve the functional arrangement of the bridge crossing. Operational risks related to the substandard (existing) approach road geometry could be partially mitigated in the design.

#### east Preferred

A replacement bridge is anticipated to remain on the existing alignment and within the existing right-ofvay. A detour bridge is not anticipated. There is potential to impact areas of archaeological potential with temporary works outside of the existing right-ofvay. Milne's Bridge and its roadway approaches are areas of ossuary potential.

#### east Preferred

## east Preferred

# Evaluation of Alternatives – Site B: Milne Bridge (ID# 813) Table B.4: Natural Environment & Hydraulics

Criteria	Measures	<b>Retain</b> Keep the existing bridge (conduct maintenance repairs)	Rehabilitate Repair the existing bridge (widening not feasible) (adding a sidewalk not feasible)	R C (r
Terrestrial Habitat	Potential for impacts to Species at Risk and Significant Wildlife Habitat (temporary and	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) during construction.	P di S co
	permanent)		Minimal permanent impacts to potential SAR bird and SAR bat habitat (i.e. forests) if construction limits remain within ROW.	N a lir
			Temporary removal of potential Barn Swallow habitat (i.e. bridge) to facilitate bridge repairs.	T S re
		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) during construction.	P di S co
			Minimal permanent impacts to potential SWH for birds and bats if construction limits remain within ROW.	N bi R
			Removal of potential snake hibernacula habitat if bridge abutments are proposed to be disturbed.	R b
		Most Preferred	Neutral	N
Aquatic Habitat	Potential for impacts to Species at Risk and aquatic habitat	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.	N ha ci
	(temporary and permanent)	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.	P w
			Temporary loss of aquatic habitat to accommodate construction footprint if in-water work is proposed.	T C
		Most Preferred	Least Preferred	L

# leplace

onstruct a new bridge at the same location emove existing bridge)

Potential temporary impacts related anthropogenic listurbances (i.e. noise, lights) to adjacent potential SAR bird and SAR bat habitat (i.e. forests) during onstruction.

Inimal permanent impacts to potential SAR bird nd SAR bat habitat (i.e. forests) if construction mits remain within ROW.

emporary or permanent removal of potential Barn wallow habitat (i.e. bridge) to facilitate bridge eplacement.

otential temporary impacts related anthropogenic isturbances (i.e. noise, lights) to adjacent potential WH habitat for birds and bats (i.e. forests) during onstruction.

linimal permanent impacts to potential SWH for irds and bats if construction limits remain within OW.

emoval of potential snake hibernacula habitat if ridge abutments are proposed to be replaced.

#### eutral

lo anticipated impacts to aquatic SAR since none ave been identified within the vicinity of the rossing.

ermanent loss of aquatic habitat if proposed videning work extends below the high water mark.

emporary loss of aquatic habitat to accommodate onstruction footprint if in-water work is proposed.

east Preferred

Criteria	Measures	<b>Retain</b> Keep the existing bridge (conduct maintenance repairs)	<b>Rehabilitate</b> Repair the existing bridge (widening not feasible) (adding a sidewalk not feasible)	R C (r
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 c p le c th b T
		Neutral	Neutral	N
Natural Enviror Evaluation Sun	nment & Hydraulics nmary	Most Preferred	Neutral	N

# Table B.5: Public Uses in RNUP

Criteria	Measures	<b>Retain</b> Keep the existing bridge (conduct maintenance repairs)	Rehabilitate Repair the existing bridge (widening not feasible) (adding a sidewalk not feasible)	F (1
Rouge National Urban Park	Public and worker access to amenities	Maintains existing public and worker access.	Maintains existing public and worker access.	N a
(RNUP)	(visitor centre, trailheads, etc.)	Neutral	Neutral	N
Toronto Zoo	Public and worker access to zoo	Maintains existing public and worker access.	Maintains existing public and worker access.	N a
		Neutral	Neutral	N
Public Uses in Evaluation Sun	RNUP nmary	Neutral	Neutral	N

# Replace

construct a new bridge at the same location remove existing bridge)

A replacement bridge would be designed to meet surrent standards, involving raising the roadway profile and bridge soffit, potentially combined with engthening 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.

he replacement substructure may be arranged to educe impact on river conveyance.

lost Preferred

# leutral

# Replace

construct a new bridge at the same location remove existing bridge)

linor improvement to public and worker access as result of widening the bridge.

#### eutral

linor improvement to public and worker access as result of widening the bridge.

#### eutral

# leutral

# Table B.6: Implementation

Criteria	Measures	<b>Retain</b> Keep the existing bridge (conduct maintenance repairs)	<b>Rehabilitate</b> Repair the existing bridge (widening not feasible) (adding a sidewalk not feasible)	R C (r
Complexity & Constructability	Construction access, staging, methods, duration, and other factors	Removal of existing bridge for access to replace the pier may create complexities and increase risk of not being able to re-erect the bridge, due to disruption. (e.g. challenges in finding spare parts) Inability to lengthen the bridge due to additional panels not being readily available, and potential inability to replace the open-grating deck with a closed type due to details and loading. Design responsibility risk may make it very difficult to reuse superstructure after temporary dismantlement without redesign, and alterations that could be unmanageable.	Removal of existing bridge for access to replace the pier may create complexities and increase risk of not being able to re-erect the bridge, due to disruption. (e.g. challenges in finding spare parts) Inability to lengthen the bridge due to additional panels not being readily available, and potential inability to replace the open-grating deck with a closed type due to details and loading. Design responsibility risk may make it very difficult to reuse superstructure after temporary dismantlement without redesign, and alterations that could be unmanageable.	R cc in hy fo P as hi sc D
		Least Preferred	Least Preferred	М
Cost Considerations	Design & Construction, Lifecycle, Maintenance and Future replacement	Neutral	Neutral	N
Implementation Evaluation Sum	nmary	Least Preferred	Least Preferred	N

# **Table B.7: Overall Preferred Alternative**

Retain 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 b (remove existing b
Least Preferred	Least Preferred	Most Preferred

# leplace

onstruct a new bridge at the same location emove existing bridge)

eplacement with a new bridge would be lower omplexity and allow improvements to deck surface addition to lengthening of the bridge to improve ydraulics.

Potential to lengthen bridge and eliminate the need or a permanent pier in the channel.

Potential to involve the military again in the erection, is a training exercise. Would be a connection to the istory of the previous bridges and may generate ome cost savings (to be determined).

Design responsibility would be clear.

#### lost Preferred

eutral

lost Preferred

oridge at the same location oridge)