




Presentation Outline

- Problem/Opportunity Statement
- Review of the Environmental Assessment Process
- Re-cap of Existing Conditions & Context
- Traffic Update
- Alternatives
- Evaluation of Alternatives
- Questions and Comments

Project Team



Natural Environment Background Information Provided By: 

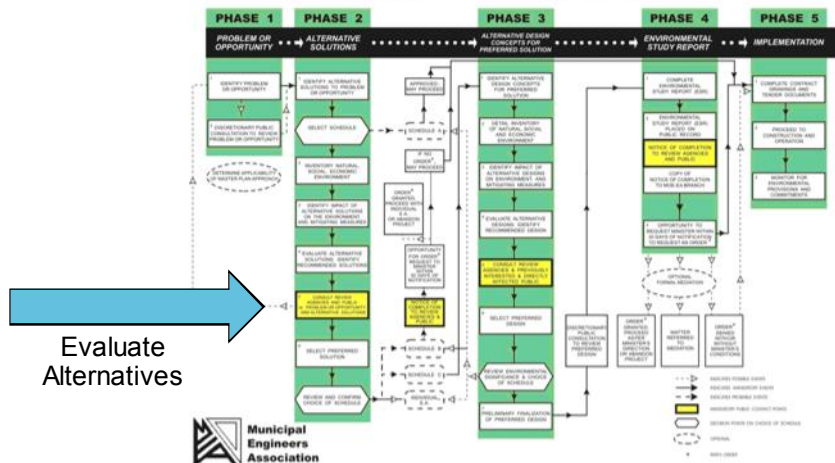
Problem Statement

- Sackville Bridge has deteriorated to a condition level where repairs or upgrades will be required within the next 5 years to keep the bridge in service for vehicular traffic.
- Relative to current design standards the Sackville Bridge has functional deficiencies that cannot be addressed through repair of the existing bridge alone.
- An evaluation of alternatives is required to establish an appropriate program of improvements that balances safety, transportation, heritage, environmental and cost considerations.



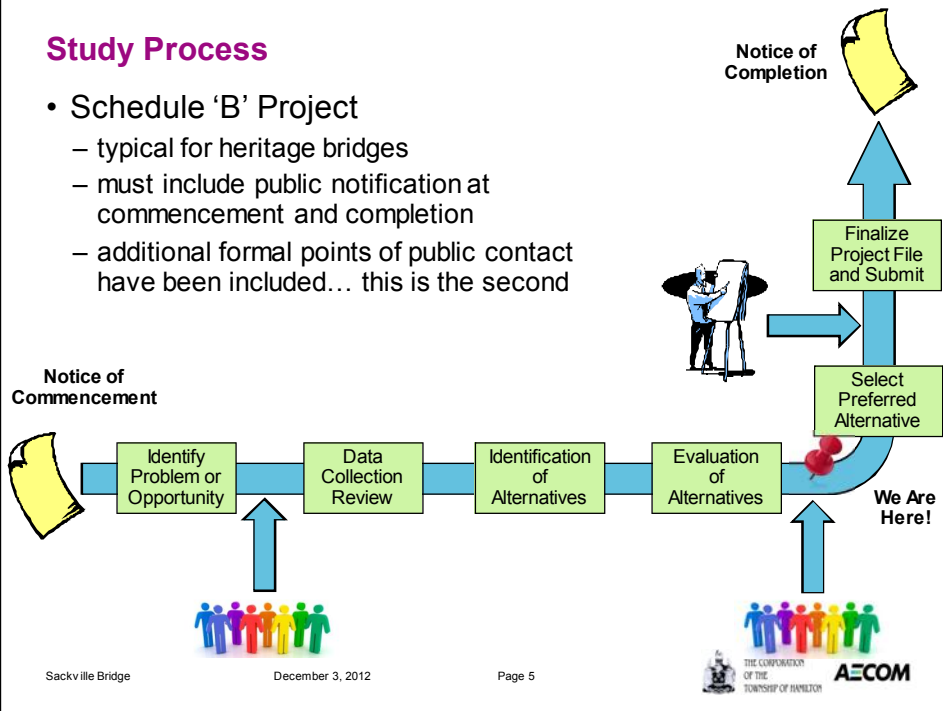
Municipal Class Environmental Assessment (EA)

NOTE: This flow chart is to be read in conjunction with Part 4 of the Municipal Class EA



Study Process

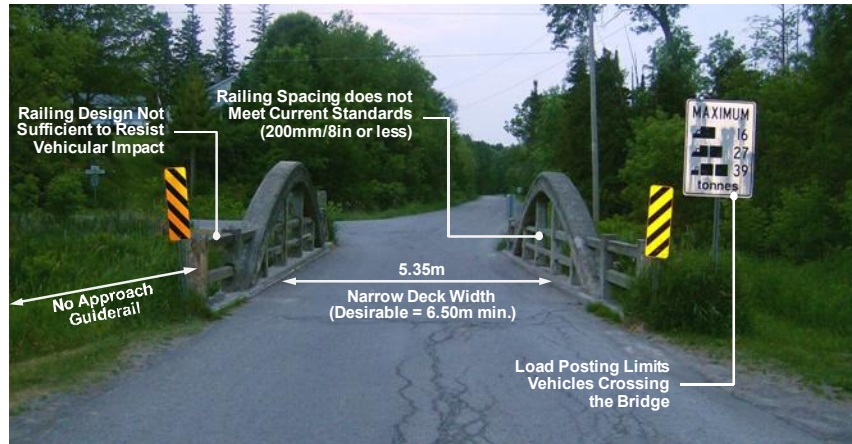
- Schedule 'B' Project
 - typical for heritage bridges
 - must include public notification at commencement and completion
 - additional formal points of public contact have been included... this is the second



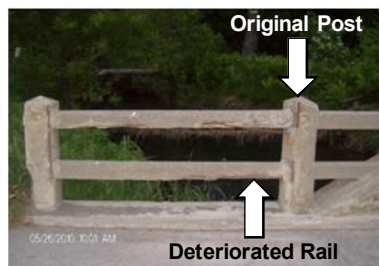
Site Location & Overview



Functional Considerations



Existing Condition



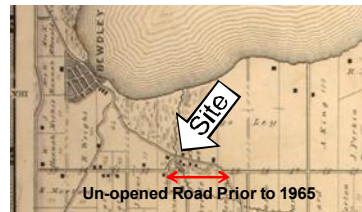
Natural Environment Overview

- Bewdley Marsh Provincially Significant Wetland situated immediately north of the site
- Cold water stream
 - Brook trout dominant species in stream
- Suitable breeding habitat for amphibians at neighbouring ponds
- Important turtle nesting habitat along road
 - Snapping turtles



History of Sackville Bridge

- Historically an east-west crossing point over Plainville Creek (Cold Creek).
- Primary crossing point until construction of Manley Bridge on County Road 9 about 1965.
- Likely built in the 1920's, possibly by W.C. Gibson a Port Hope Contractor.
- Named after the Sackvilles
 - James Sackville Sr. was employed at and later owned a saw mill on Cold Creek immediately upstream of Cavan Road



Stamp (Undated) in Concrete Curb
"W.C. Gibson"

Summary of Traffic Patterns

- Average daily traffic (AADT) of approximately **850** vehicles per day.
- On summer weekends traffic **increases by roughly 33%** to approximately **1,150** vehicles per day.
- On weekdays **35%** of the traffic is **through traffic** travelling directly between County Roads 9 & 28.
- Remaining **65%** would be local traffic on Cavan Road and traffic travelling between Bewdley and County Road 9 via Cavan Road.
- On weekends **through traffic declines** with only approximately **20%** traffic travelling directly between County Roads 9 & 28.

June & July 2012 Traffic Patterns

Daily Traffic Volume		Through Traffic % (A ↔ B)	
###	Weekday (June)	###.##%	Weekday (June)
###	Weekend (June)	###.##%	Weekend (June)
###	Weekend (July)		



Motor Vehicle Accident History

- Concerns raised by residents
 - History of vehicle hitting bridge prior to 1997
- OPP Accident Data available from 1997 to present
- Cavan Road (Rice Lake Drive to County Road 9)
 - No reported multi-vehicle collisions
 - No reported collisions with the structure
 - Two collisions involving animals
 - 1 dog & 1 wild turkey
- County Road 9 (Rice Lake Drive to Cavan Road)
 - 8 reported incidences in the vicinity of Sackville Bridge Road
 - 4 multi-vehicle collisions at intersection (failing to yield)
 - 2 single vehicle accidents due to wildlife
 - 2 single vehicle accidents due to weather conditions

Role of Cavan Road

- Cavan Road acts as a collector road providing a mix of:
 - local land access for residents
 - connectivity between Bewdley and the arterial network, in particular traffic travelling to and from areas to the east
 - 1 km shorter to use Cavan Road to get to Highway 28
- AADT on Cavan Road is higher than 90% of the other roads in the Township (excluding county roads).
- An interconnected road network provides alternatives is operational more efficient for emergency response, snow removal, waste collection, mail delivery, etc.

Conclusions

- As a linkage Cavan Road is an important part of the road network.
- For certain types of traffic using Cavan Road the arterial road network (County Road 9 & County Road 28) provides an appropriate alternate route
 - A diversion of traffic would reduce the exposure of businesses along Rice Lake Drive through the Bewdley Community.



Table 1.3.4.1 Characteristics of Rural Roads

	Rural Locals	Rural Collectors	Rural Arterials	Rural Freeways
service function	traffic movement secondary consideration	traffic movement and land access of equal importance	traffic movement primary consideration	optimum mobility
land service	land access primary consideration	traffic movement and land access of equal importance	land access secondary consideration	no access
traffic volume vehicles per day (typically)	<1000 AADT	<5000 AADT	<12 000 AADT	>8000 AADT
flow characteristics	interrupted flow	interrupted flow	uninterrupted flow except at	freeflow (grade separated) major intersections
design speed (km/h)	50 - 110	60 - 110	80 - 130	100 - 130
average running speed (km/h) (free flow conditions)	50 - 90	50 - 90	60 - 100	70 - 110
vehicle type	predominantly passenger cars, light to medium trucks and occasional heavy trucks	all types, up to 30% trucks in the 3:1 to 5:1 range	all types, up to 20% trucks	all types, up to 20% heavy trucks
normal connections	locals collectors	locals collectors arterials	collectors arterials freeways	arterials freeways

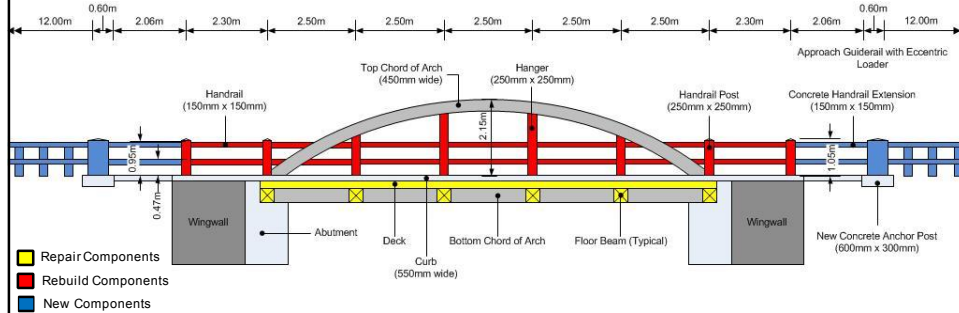
Alternative #1: Do Nothing

- Continued use of bridge by vehicular traffic
- Continue to monitor structural condition
 - 5yr +/- lifespan before condition of steel in hangers becomes a concern
- Minor repairs to hand rails likely required in the short-term
- Conduct further study at such a time that the bridge can no longer support vehicular traffic and develop a strategy



Alternative #2: Rehabilitate Existing Bridge

- Repair deck top, deck soffit and floor beams
- Remove and rebuild handrails, rail posts and hangers
- Extend railings and install approach guiderail



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Alternative #2: Approach Guiderail

- Extend existing hand rail by one section at all quadrants.
- New larger end post to anchor guiderail system.
- Guiderail with eccentric loader end treatment system to protect against vehicular impact with railing ends.
 - At northeast, northwest and south east quadrants.
- Entrance end treatment at southwest quadrant to accommodate intersection with Sackville Bridge Road.



Conceptual Visualization of Approach Guiderail at North West Quadrant

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Approach Guiderail Schematic



Alternative #2: Summary

Positives

- Limited environmental impacts beyond existing roadway
 - shoulder widening at northwest quadrant
- Heritage aspects of structure largely preserved
 - sympathetic modifications
- Approach guiderail reduces risk posed by structure
- Two way-traffic on all roads
 - no reduction in route options
- Low cost compared to other alternatives

Negatives

- Narrow bridge width remains potential for:
 - vehicle/vehicle conflicts
 - vehicle/pedestrian conflicts
- Traffic continues to operate at higher speeds over the bridge
- No reduction in through traffic
- Existing railing system remains deficient by current standards

Alternative #3: Rehabilitate Existing Bridge with Traffic Control at Bridge

- Rehabilitate bridge as described under Alternative #2
- Install 3-way stop at intersection of Cavan Road and Sackville Bridge Road



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Alternative #3: Summary

Positives

- Limited environmental impact beyond existing roadway
 - shoulder widening at northwest quadrant
- Heritage aspects of structure largely preserved
 - sympathetic modifications
- Approach guiderail reduces risk posed by structure
- Two way-traffic on all roads
 - no reduction in route options
- All way stop condition will:
 - reduce speeds in the immediate vicinity of the narrow bridge
 - likely encourage the diversion of some through traffic to the arterial road network
- Low cost compared to other alternatives

Negatives

- Narrow bridge width remains potential for:
 - vehicle/vehicle conflicts
 - vehicle/pedestrian conflicts
- All way stop condition would be **atypical** and minor operational issues may result
 - rolling stops on Cavan Road may be common due to lack of cross traffic
 - in certain circumstances queuing onto the bridge may occur
- Existing railing system remains deficient by current standards
- Stop condition may divert some higher speed traffic, but will not calm traffic along the length of Cavan Road

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Alternative #4: Road Network Modification (One Way)

- Rehabilitate as described under Alternative 2.
- Close bridge to East-bound traffic.
- East-bound traffic routed along Sackville Bridge Road by an island at the intersection.
 - Upgrades on Sackville Bridge Road (widening & guiderail)
- Two way traffic operation continues on Cavan Road east of the bridge.
 - No access over bridge from west
 - All access from County Road 9



Alternative #4: Summary

Positives

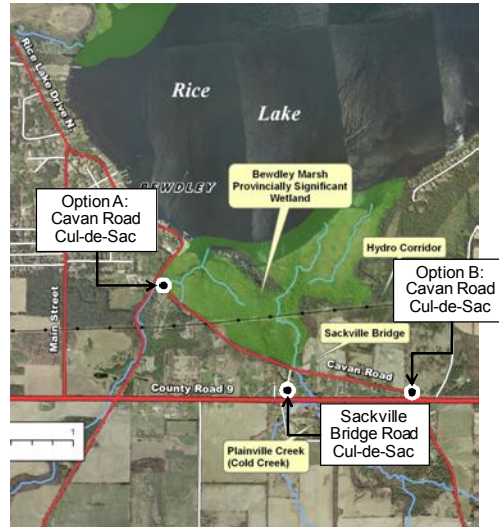
- Narrow structure is appropriate for one-way traffic. Potential for vehicular conflict on the bridge reduced
- Heritage aspects of structure largely preserved
 - sympathetic modifications
- Approach guiderail reduces risk posed by structure
- Overall traffic volume on Cavan Road east of the bridge will be reduced

Negatives

- One-way configuration is uncommon for a rural environment and may lead to driver confusion
 - Operational issues re: turning of vehicles that need travel road in both directions (ie. waste collection)
- Environmental disruption and costs associated with upgrading Sackville Bridge Road
 - widening and guiderail
- Higher volumes of traffic directed to intersection of County Road 9 and Sackville Bridge Road:
 - due to the hill to the east sight-lines at this location are not as good as those at Cavan Road and County Road 9
 - there is a history of 'failure to yield' type collisions at this location
- Existing railing system remains deficient by current standards
- Reduces options for residents living on Cavan Road and less convenient east-bound travel
- Higher cost compared to Alternatives 2 & 3

Alternative #5: Road Network Modification (Cul-de-Sac)

- Rehabilitate as described under Alternative 2.
- Dead end Cavan Road and Sackville Bridge Road
 - No access to County Road 9 from Sackville Bridge Road
 - Cul-de-Sac Cavan Road on one end
 - Option A: No access to Rice Lake Drive (Bewdley)
 - OR
 - Option B: No access to County Road 9



Alternative #5: Summary

Positives

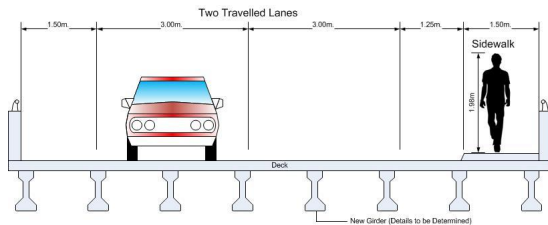
- Narrow structure is appropriate for low-volume traffic. Potential for vehicular conflict on the bridge reduced.
- Heritage aspects of structure largely preserved
 - sympathetic modifications
- Approach guiderail reduces risk posed by structure
- Overall traffic volume on Cavan Road will be reduced
 - Cavan Road no longer a 'through' traffic route
- No upgrades required on Sackville Bridge Road

Negatives

- Loss of connectivity on Cavan Road:
 - Operational complexities
 - Eliminates value of Cavan Road as a collector type road
- Limited options for residents living on Cavan Road
 - Increased travel time and distance
- Loss of connectivity to County Road 9 or Bewdley
- Higher volumes of traffic directed to Rice Lake Drive
- Existing railing system remains deficient by current standards
- Higher cost compared to Alternatives 2 & 3

Alternative #6: Replace with New Structure

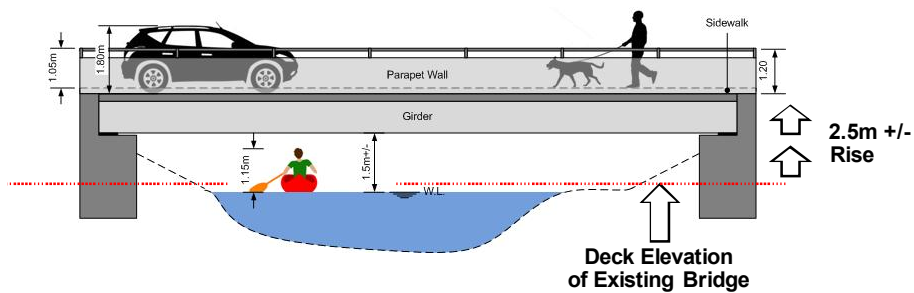
- Remove existing bridge
- Construct a new bridge to current design standards:
 - Increased width to accommodate 6.0m road with side clearances and sidewalk on the bridge
 - Longer span to clear watercourse and pass storm flows
 - Install approach guiderail
 - Increased height to allow for navigability clearance
- Raise approaches on Cavan Road to match new bridge height
- Regrade Sackville Bridge Road at Intersection to match new elevation of Cavan Road



Conceptual Deck Cross Section



Alternative #6: Conceptual Elevation of New Bridge



Alternative #6: Summary

Positives

- All width related issues are eliminated by the new wider structure
- Load posting eliminated
- Railings and all other components of the structure will be fully compliant with current standards
- Two way-traffic on all roads
 - no reduction in route options

Negatives

- Loss of heritage aspects of the bridge
 - Potential for mitigating strategies at increased cost (i.e. salvage relocate a portion of the existing bridge)
- Significant environmental disruption associated with construction of larger structure:
 - larger structure would impact ponds to the south and marsh to the north
- No traffic diversion or traffic calming impacts
 - may attract some additional traffic to Cavan Road
- Significant road work required to raise bridge approaches
- Highest cost compared to other alternatives

Alternative #7: Closure & Conversion to Pedestrian Bridge

- Rehabilitate as described under Alternative 2.
- Close bridge to all traffic and construct pedestrian pathway.
- East-bound traffic routed along Sackville Bridge Road by an island at the intersection.
 - Upgrades on Sackville Bridge Road (widening & guiderail)
- Two way traffic operation continues on Cavan Road east of the bridge.
 - All access from County Road 9
 - Turning circle on east side of bridge.



Alternative #7: Summary

Positives

- Long term potential to incorporate the bridge as a heritage feature of a future local trail system in the area
- Significant reduction in traffic volume on Cavan Road west of the bridge
- Reduction in traffic on Cavan Road east of the bridge
 - reduces potential for turtle injury
- Width related issues are eliminated through closure of the bridge to vehicular traffic
 - no vehicle/vehicle conflicts
 - no vehicle/pedestrian conflicts

Negatives

- Loss of Cavan Road as a component of the larger transportation network
 - presents operational challenges
- Increased traffic on alternative routes
 - Main Street & Rice Lake Drive
- Environmental disruption and costs associated with upgrading Sackville Bridge Road
 - widening and guiderail
- Higher volumes of traffic directed to intersection of County Road 9 and Sackville Bridge Road:
 - due to the hill to the east sight-lines at this location are not as good as those at Cavan Road and County Road 9
 - there is a history of 'failure to yield' type collisions at this location
- Property acquisition required to construct turning circle
- Higher cost compared to Alternatives 2 & 3

High-Level Comparison of Alternatives

SBR = Sackville Bridge Road
CR9 = County Road 9

Key Criteria	Alt 1 Do Nothing	Alt 2 Rehabilitate Existing Bridge	Alt 3 Rehabilitate with Traffic Control	Alt 4 Road Network Modification (One Way)	Alt 5 Road Network Modification (Cul-de-Sac)	Alt 6 Replace with New Structure	Alt 7 Closure and Pedestrian Bridge Conversion
Heritage Value	Continued Decline	Preserved Some Mod's	Preserved Some Mod's	Preserved Some Mod's	Preserved Some Mod's	Lost	Preserved Loss of Original Function
Through Traffic Use	No Change	No Change	Minor Reduction	Partial Reduction	Complete Eliminated	Potential Increase	Significant Reduction
Safety at Bridge	No Improvement	Limited Improvement	Moderate Improvement	Most Issues Addressed	Conforms to Low Volume Guidelines	All Issues Addressed	All Issues Addressed
Safety at Other Locations	No Change	No Change	No Change	Increased Risk at SBR/CR9	Potential Improvement	No Change	Increased Risk at SBR/CR9
Natural Environment	No Impact (Short Term)	Lowest Impact	Lowest Impact	Medium Impact	Medium Impact	Highest Impact	Medium Impact
Connectivity & Options	No Change (Short Term)	2-Way Traffic Well Connected	2-Way Traffic Well Connected	1-Way Traffic Reduced Options	Dead End Reduced Options	2-Way Traffic Well Connected	Dead End Reduced Options
Alternate Routes	No Impact (Short Term)	No Change in Traffic on Alts.	No Change in Traffic on Alts.	Increased Traffic on Alts.	Increased Traffic on Alts.	No Change in Traffic on Alts.	Increased Traffic on Alts.
Capital Cost	Lowest (Short-term)	Low	Low	Medium	Medium	High	Lowest
Total Project Cost **	No capital cost	\$475k to \$525k	\$490k to \$540k	\$650k to \$725k	\$625k to \$700k	\$1,400k to \$1,700k	\$450k to \$500k

Technically Recommended Alternative: Alternative #3

- Addresses major criteria in a balanced fashion
 - heritage, natural environment, safety at the bridge, road network connectivity
- Can be implemented at a low cost relative to other alternatives
- Does not preclude implementation of further traffic calming measures along Cavan Road if desired and warranted

Next Steps

- Listen to feedback
- Determine a preferred alternative
- Consider budget implications
- Implement preferred option when feasible



Questions

Please provide us with your comments

Thank You!

Cavan Road Signage Plan

