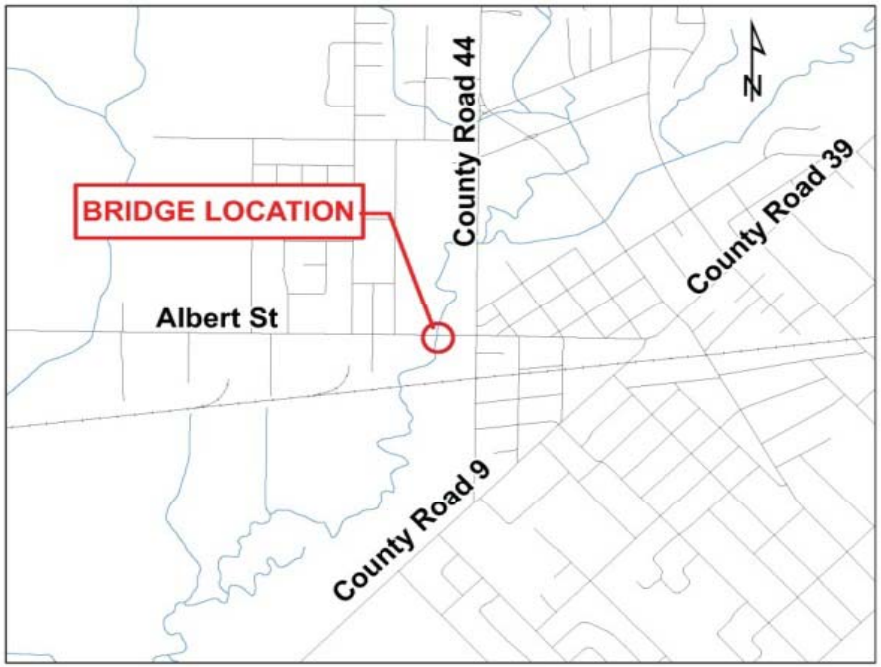
Albert Street Bridge Replacement

Municipal Class Environmental Assessment

(May 2, 2013)



Welcome

Your comments are important to us. Following your review of the information, please complete one of the comment forms and place it in the box provided or send it back to the address on the form prior to May 17, 2013.

If you have any questions our representatives will be pleased to assist you.

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PROJECT OVERVIEW

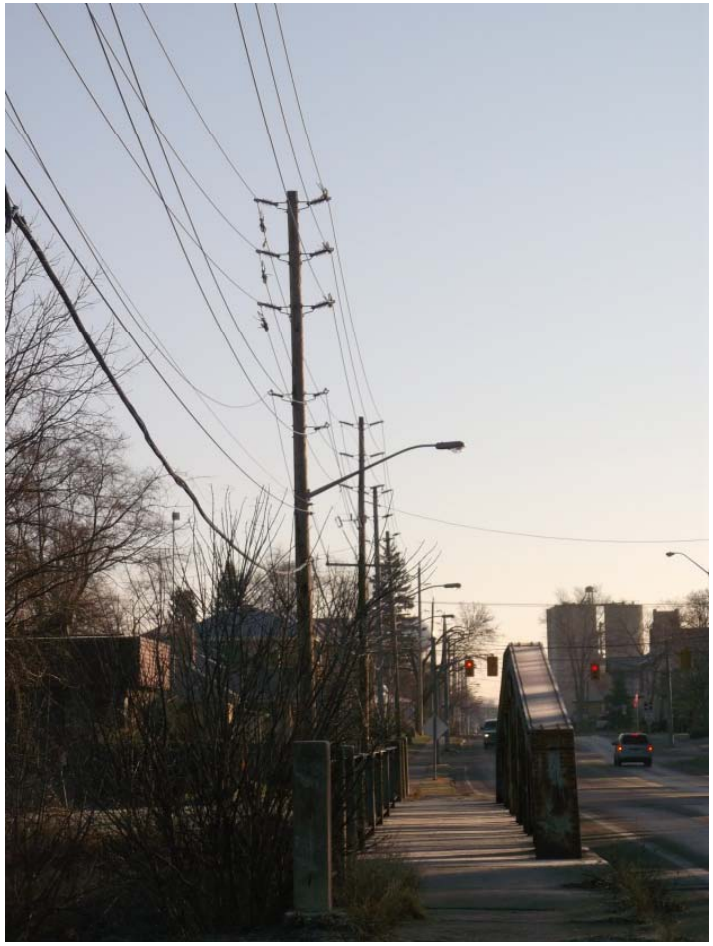
The Albert Street Bridge is a pony truss structure constructed in 1937consisting of 2 through lanes and a sidewalk on the north side. The structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

The bridge is located on an arterial road crossing the Sydenham River. It carries over 5,000 vehicles per day, is a vital link to the downtown area and is a heavily used pedestrian link due to its location to nearby residential areas, community facilities and parks.

Given the current age, condition and spatial constraints of the existing bridge the County of Middlesex has retained AECOM to conduct a review of and confirm the feasibility of replacing the Albert Street Bridge.

The project will be a Schedule B activity under the Municipal Class Environmental Assessment Process incorporating key planning principles including: public consultation, assessment of a reasonable range of solutions, consideration for the natural, social, economic and technical environments, and provide clear documentation.

EXISTING CONDITIONS



Existing utilities

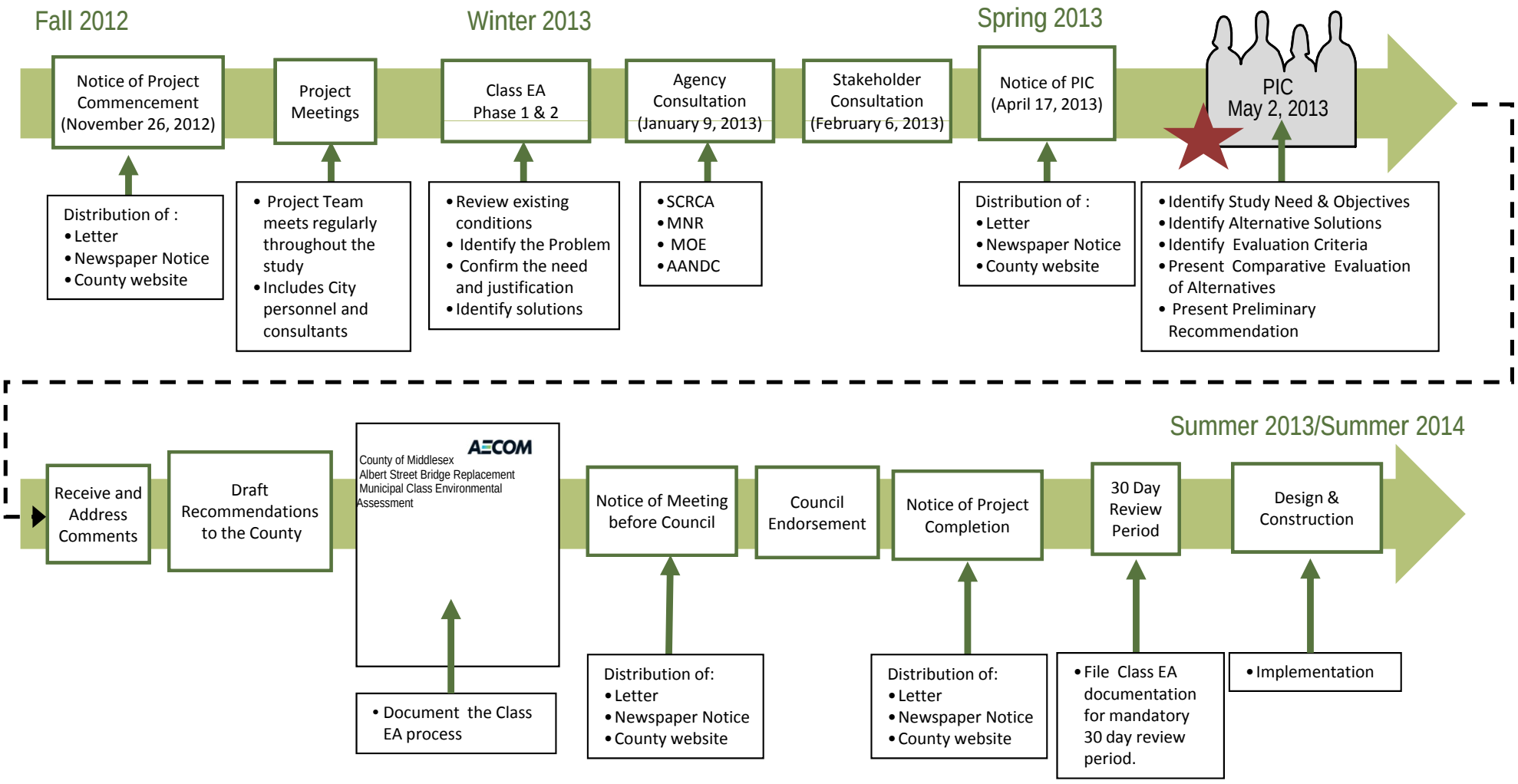
Existing outlet

Existing sidewalk – looking west

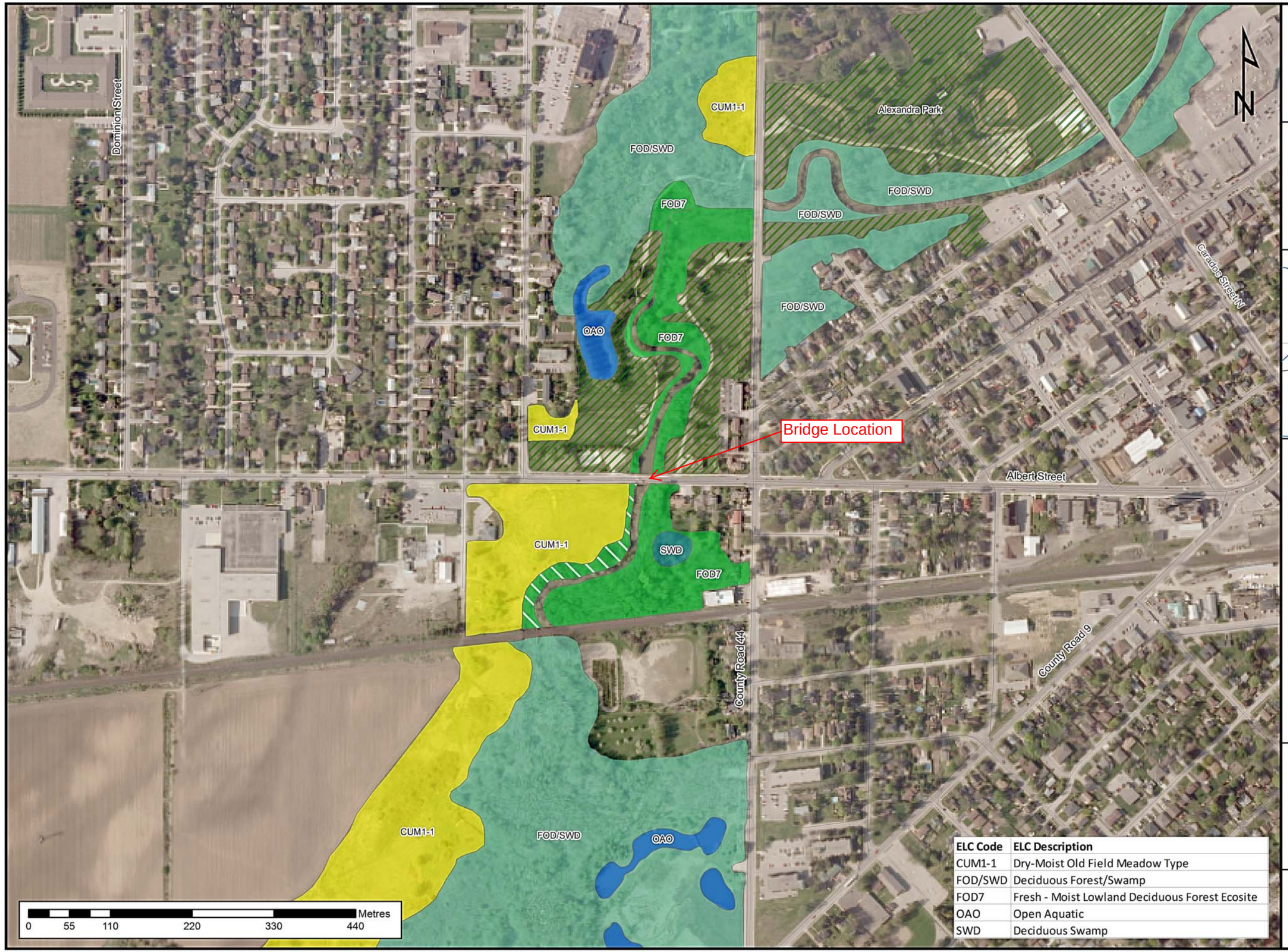
EXISTING STRUCTURE

- The existing structure is 76 years old (and approaching the end of its functional service life).
- Rehabilitation history includes a deck replacement in 1977 and bearing replacement in 1996.
- There is medium to severe localized corrosion of existing structural steel, with some steel section loss (impacting load carrying capacity).
- There is some deterioration of the concrete abutments with medium delamination's and cracking, some areas with efflorescence staining.
- The pedestrian railing system is substandard and does not meet current code requirements.
- The main truss is unprotected from impact loading from traffic.

PUBLIC CONSULTATION & CLASS EA PROCESS



★ Indicates where we are in the process.



ELC Code	ELC Description
CUM1-1	Dry-Moist Old Field Meadow Type
FOD/SWD	Deciduous Forest/Swamp
FOD7	Fresh - Moist Lowland Deciduous Forest Ecosite
OAO	Open Aquatic
SWD	Deciduous Swamp

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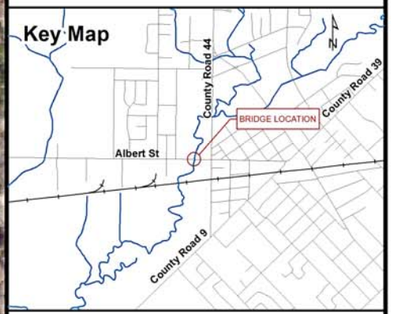
County of Middlesex Albert Street Bridge Replacement



Legend

Street

ELC Code

- Alexandra Park
- CUM1-1
- FOD/SWD
- FOD7
- OAO
- SWD
- Potential Turtle Nesting - Significant Wildlife Habitat

Figure 1

Ecological Land Classification

AECOM

NATURAL ENVIRONMENT

- The Provincially Significant Sydenham River Wetland Complex is approximately 120 m to the north and 200 m to the south of the site.
- Habitat for five species designated under the Endangered Species Act (ESA, 2007) was identified as potentially being present at the site. Three have not been documented in over twenty years therefore it is unlikely that they are present at the site.
- Habitat for a total of four species of Special Concern was also identified as potentially being present at the site.
- Due to the disturbed nature of the habitat present within the study area and its close proximity to human settlement there is limited potential for Significant Wildlife Habitat. Turtle nesting habitat may be present south of the bridge .
- There are no aquatic species at risk in the immediate vicinity of the bridge. Protected mussel species are found downstream, but with no in-water works and suitable erosion and sediment control, no impacts are anticipated to downstream reaches.
- The area provides fish habitat for a range of commonly-occurring species, although the quality of the habitat at the bridge is reduced due to the accumulation of sediment from upstream and localized erosion.
- A structural assessment of the bridge in 2007 confirmed that Barn Swallows do nest underneath this bridge.

ALTERNATIVE SOLUTIONS

The following alternative solutions have been identified.

DO NOTHING

This alternative has been included to provide a base to which the other alternatives can be compared. Under this alternative, no measures to improve the condition of the structure are considered and the bridge remains in its present condition.

REMOVE EXISTING BRIDGE DO NOT REPLACE EXISTING BRIDGE

The existing bridge will be abandoned with no repairs occurring. Vehicular and pedestrian traffic would be re-routed.

REHABILITATE EXISTING BRIDGE

Rehabilitation of sections of the bridge including deck replacement, structural steel strengthening and coating, expansion joint replacement and substructure rehabilitation.

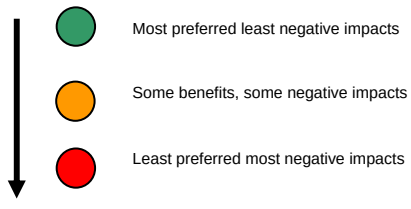
REPLACE EXISTING BRIDGE

This alternative involves the removal of all substructure and super-structure elements and replacement of all features with a new bridge.

Albert Street Bridge Replacement
Evaluation of Alternative Solutions

Options	**OPTION 1**	**OPTION 2**	**OPTION 3**	**OPTION 4**
Criteria	**Do Nothing** **No improvements or changes would be made to the bridge.**	**Remove Existing Bridge/ Do Not Replace Bridge**	**Rehabilitate Existing Bridge**	**Remove Existing Bridge and Replace with a New Bridge**
Social/Cultural Impacts • Public Health & Safety • Cultural Heritage Resources (archaeological features, built heritage resources, cultural heritage landscapes) • Aesthetics • Nuisance Impacts (noise, traffic disruption during construction) • Property Impacts/acquisition • Pedestrian/cyclist access • Impact to existing Land Use	• Bridge will continue to deteriorate over time with potential increased risk to public safety. • Existing railing is substandard and does not meet current safety codes. • Overall functional safety upgrades required for the structure. • Existing bridge provides a sidewalk on one side only. • No impact to cultural heritage resources within the area. • Potential loss of structure if bridge continues to deteriorate. • Existing bridge aesthetics will deteriorate over time. • Potential nuisance impacts due to on-going maintenance requirements. • No property impacts at the present time. • No known impacts to Aboriginal Communities. • Pedestrian/cycling access across Albert Street would be interrupted once the condition of the bridge deteriorates, resulting in a 1.8 km detour. • Removing the bridge would not directly impact the existing land uses, but would impact traffic patterns and pedestrian movement in the area.	• Bridge will continue to deteriorate overtime with potential increased risk to public safety. • No impact to cultural heritage resources within the area. • Full bridge closure and traffic detouring required resulting in increased travel distances for vehicles. • No known impacts to Aboriginal Communities. • Pedestrian/cycling access across Albert Street would be interrupted once the condition deteriorates, resulting in a 1.8 km detour. • Removing the bridge would not directly impact the existing land uses, but would impact traffic patterns and pedestrian movement in the area.	• No functional safety upgrades would be implemented. • Substandard railing could be improved. • No impact to cultural heritage resources within the area. • Stage 2 Archaeological Assessment may be required if work occurs outside of the existing right-of-way. • Full bridge closure and traffic detouring required resulting in increased travel distances for vehicles and pedestrians. • Full bridge closure may impact emergency services and reduce accessibility to hospital across Albert Street. • The structure is not designated as a Heritage Structure under the Heritage Act. • Bridge aesthetics can be maintained /improved through design. • No known impacts to Aboriginal Communities. • The County has the ability to provide a temporary pedestrian crossing north of the existing bridge for use during construction. Pedestrian access will only be available on one side of the bridge once rehabilitation is complete. • On-road cycling can be accommodated following construction. • Separate cycling lanes will not be provided. • Some disruption to the surrounding land uses during construction. Disruption typical for a roadway construction project (noise, dust, redirection of traffic).	• Functional safety upgrades including railing improvements would be implemented. • Wider bridge cross-section will provide for sidewalks on both sides of the bridge. • Stage 2 Archaeological Assessment may be required if work occurs outside of the existing right-of-way. • Full bridge closure and traffic detouring required resulting in increased travel distances for vehicles and pedestrians. • Full bridge closure may impact emergency services and reduce accessibility to hospital across Albert Street. • The structure is not designated as a Heritage Structure under the Heritage Act. There is no local interest in preserving the structure as is by the Municipality or County. • Bridge aesthetics can be improved through design. • No known impacts to Aboriginal Communities. • The County has the ability to provide a temporary pedestrian crossing north of the existing bridge for use during construction. • On-road cycling can be accommodated following construction. • Separate cycling lanes will not be provided. • Some disruption to existing land uses during construction. Disruption typical for a roadway construction project (noise, dust, redirection of traffic).
Natural Environmental • Terrestrial Wildlife & Vegetation • Aquatic Life & Vegetation • Water Quality	• Potential for negative impact to terrestrial and aquatic habitat as a result of bridge deterioration overtime. • Potential for negative impacts to water quality as a result of bridge deterioration overtime.	• Potential for disruption to terrestrial Species-At-Risk habitat. • MNR permitting under the Endangered Species Act may be required due to presence of Barn Swallow habitat on bridge. • No in-water works required. • Low potential for negative impacts to water quality if erosion and sediment control measures are in place prior to removal of the bridge.	• Potential for disruption to terrestrial Species-At-Risk habitat. • No aquatic Species-At-Risk in immediate vicinity of the bridge therefore no disruption to Species-At-Risk habitat. • No in-water works required. • MNR permitting under the Endangered Species Act may be required due to presence of Barn Swallow habitat on bridge. • Low potential for negative impacts to water quality if erosion and sediment control measures are in place prior to rehabilitation.	• Potential for disruption to terrestrial Species-At-Risk habitat. • No aquatic Species-At-Risk in immediate vicinity of the bridge therefore no disruption to Aquatic Species-At-Risk habitat. • No in-water works required. • MNR permitting under the Endangered Species Act may be required due to presence of Barn Swallow habitat on bridge. • Low potential for negative impacts to water quality if erosion and sediment control measures are in place prior to rehabilitation of the bridge.
Technical/ Engineering • Service Life • Hydraulic Performance • Impact on local traffic patterns and level of service • Design (materials, substructure, trusses, deck) • Construction implementation • Maintenance • Approval Requirements • Conformance with Municipal, Provincial and Regulatory requirements	• Deterioration of the bridge will continue until closure is required. • No construction related impacts to adjacent community. • No conflict with existing utilities. • Existing traffic impacts resulting from narrow width of bridge will continue. • Main truss is unprotected from impact loading from traffic. • Existing load carrying capacity of bridge may be impacted by continuing corrosion/loss of existing structural steel. • Existing concrete abutments continue to deteriorate. • Service life potential of the existing bridge has been met. • No agency approvals required. • Not consistent with Provincial Policy 1.6.5.3 as discontinuing maintenance will eventually limit connectivity of the transportation system.	• Agency approvals required for bridge closure. • Impacts to side streets, entrances and traffic volume as a result of bridge closure. • Not consistent with Provincial Policy 1.6.5.3 as removing the bridge limits the connectivity of the existing transportation system.	• Life expectancy of bridge is estimated to be limited due to the condition of the existing components. The service life expectancy until the next rehabilitation or replacement is approximately 15 to 20 years. • Functional upgrades to bridge width are not possible with this option. Narrow traffic lanes and one sidewalk will be maintained which is not consistent with road reconstruction east of the bridge and proposed upgrades west of the bridge. • Full bridge closure (12 weeks) or reduction to one lane is required (8 weeks). • Hydraulic capacity of the bridge is unchanged. • Navigational clearances temporarily disrupted during rehabilitation. • Temporary impacts to side streets, entrances and traffic volume as a result of full bridge closure. • Main truss is located adjacent to the traffic load and exposed to potential impacts. • No utility relocations required. • Bridge rehabilitation extends service life of bridge. • Stormwater Management treatment is required as part of the overall design. • Sediment/erosion control required during construction to restrict debris entering the river. • Flooding and erosion assessment required to satisfy St. Clair Region Conservation Authority requirements. • Site is located within the St. Clair Region Conservation Authority regulated area. St. Clair Region Conservation Authority approval required. • Consistent with Provincial Policies for “Transportation Systems” and “Transportation and Infrastructure Corridors”, including maintaining or improving connectivity within and among transportation systems and modes (1.6.5.3).	• Life expectancy of bridge will be extended. Will meet the requirements of the Highway Bridge Design code - Service life of new bridge is estimated to be a minimum of 75 years. A new bridge would not require any rehabilitation within the next 25 to 30 years. • Localized disruption during rehabilitation as structure would be closed to through traffic. • New bridge girders will match the existing structure depth below the existing road surface and will maintain existing hydraulic capacity. • Replacement of bridge will allow for installation of railings that meet current codes requirements and modernization of bridge cross section according to current standards. • New cross section will provide a wider roadway platform of similar dimensions as the recent road reconstruction east of the bridge and similar reconstruction /upgrades planned for the west side of the bridge. • The existing abutments will be maintained in place to reduce disruption of the watercourse and to facilitate construction of the new bridge. • Full bridge closure required during replacement. • Rapid bridge construction techniques can mitigate the duration of full bridge closure. • Lane reductions are required for remaining bridge work. • Temporary impacts to side streets, entrances and traffic volume as a result of full bridge closure. • Work cannot be staged due to the configuration of the existing truss structure. • Navigational clearances temporarily disrupted during replacement. • Existing hydro line will not require relocation. • Existing stormwater outlets will require relocation. • Stormwater Management treatment is required as part of the overall design. • Sediment/erosion control required during construction to restrict debris entering the river. • Flooding and erosion assessment required to satisfy St. Clair Region Conservation Authority requirements. • Site is located within the St. Clair Region Conservation Authority regulated area. St. Clair Region Conservation Authority approval required. • Consistent with Provincial Policies for “Transportation Systems” and “Transportation and Infrastructure Corridors”, including maintaining or improving connectivity within and among transportation systems and modes (1.6.5.3).
Economic • Total Estimate Capital Costs • Estimated Operating & Maintenance Costs	• No associated capital cost as nothing would be implemented. • Potential for ongoing operation and maintenance costs as bridge continues to deteriorate.	• Low capital costs. • Low operation and maintenance costs.	• Medium capital costs. • High future maintenance costs.	• Highest capital costs. • Lowest ongoing operation and maintenance costs as rehabilitation would not be required for 30 years.

LEGEND



WHAT TO EXPECT DURING CONSTRUCTION

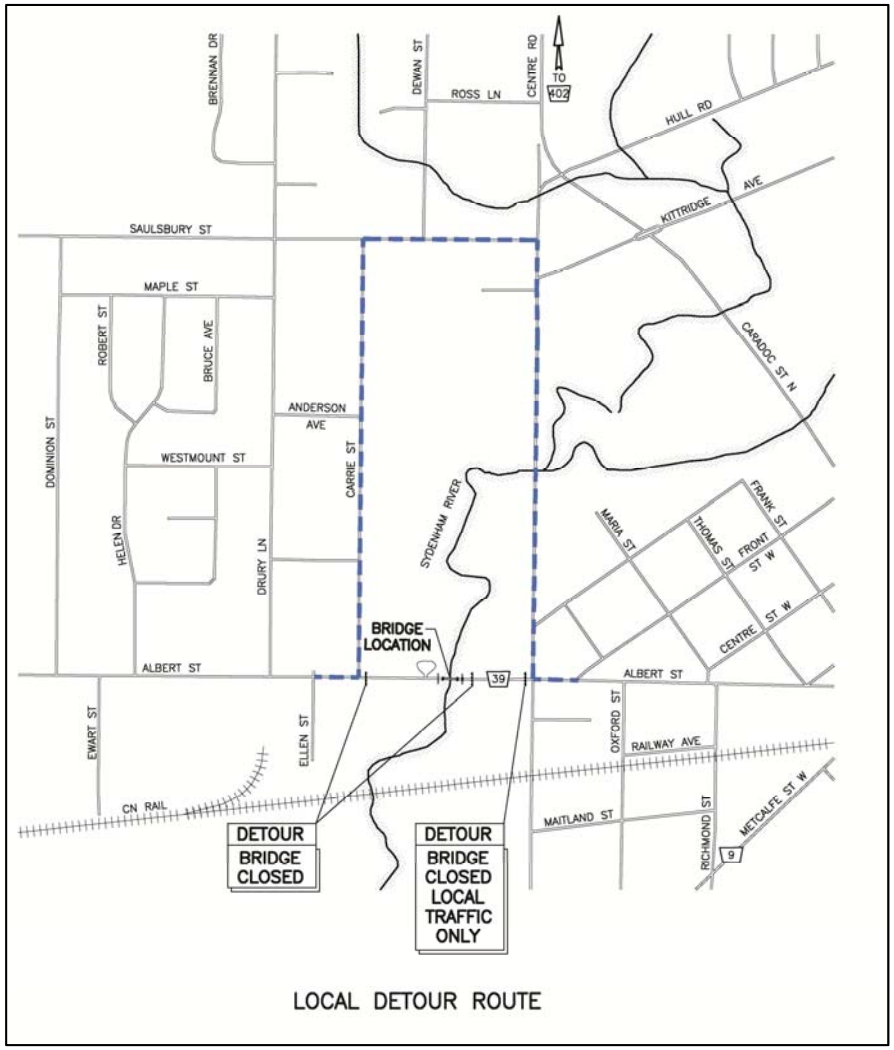
Construction Duration

- Total construction duration estimated to be 16 weeks and consisting of:
  - 8 weeks of full bridge and road closure to remove the existing bridge and replace the main components of the bridge using “rapid bridge construction methods”
  - 8 weeks of temporary lane closures and traffic staging to complete construction of the remaining bridge components.
- Incorporate Contractor Incentive clauses into the Contract to reduce construction duration and/or eliminate extra time requirements.
- Incorporate into the Contract extended working hours (daily) and extended working days (potentially to include Saturday work for certain operations).

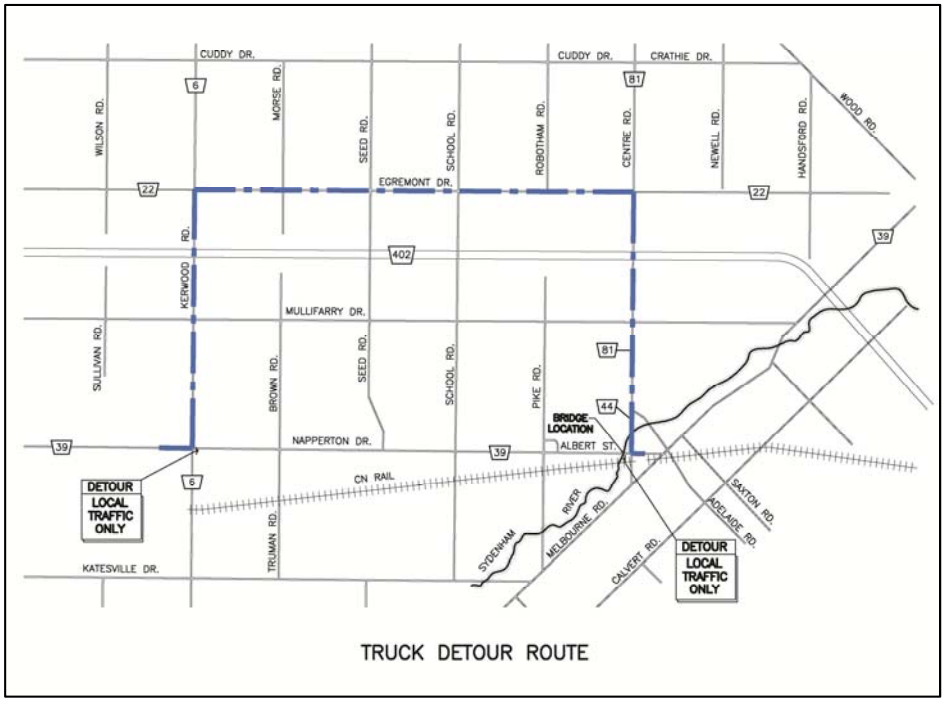
Traffic Management

- Vehicles will not have access to the bridge during closure & pedestrians will not have access during the entire duration of construction.
- Local detours and bypass detours for vehicular traffic during construction will be provided. Detour routes considered the levels of anticipated truck traffic, current road traffic volumes, existing traffic signals, emergency services.
- Appropriate signage will be located in advance of the detours.

DETOUR DURING CONSTRUCTION



LOCAL DETOUR ROUTE



TRUCK DETOUR ROUTE

WHAT TO EXPECT DURING CONSTRUCTION

Pedestrian Link

- The bridge has frequent pedestrian usage due to its location in the community and recreational facilities.
- Consideration of a temporary pedestrian link will be considered as part of this project.
- The ideal location for a temporary pedestrian link would be on the north side of the bridge in a location where minimal disturbance will occur and will require the shortest span.

Natural Environment

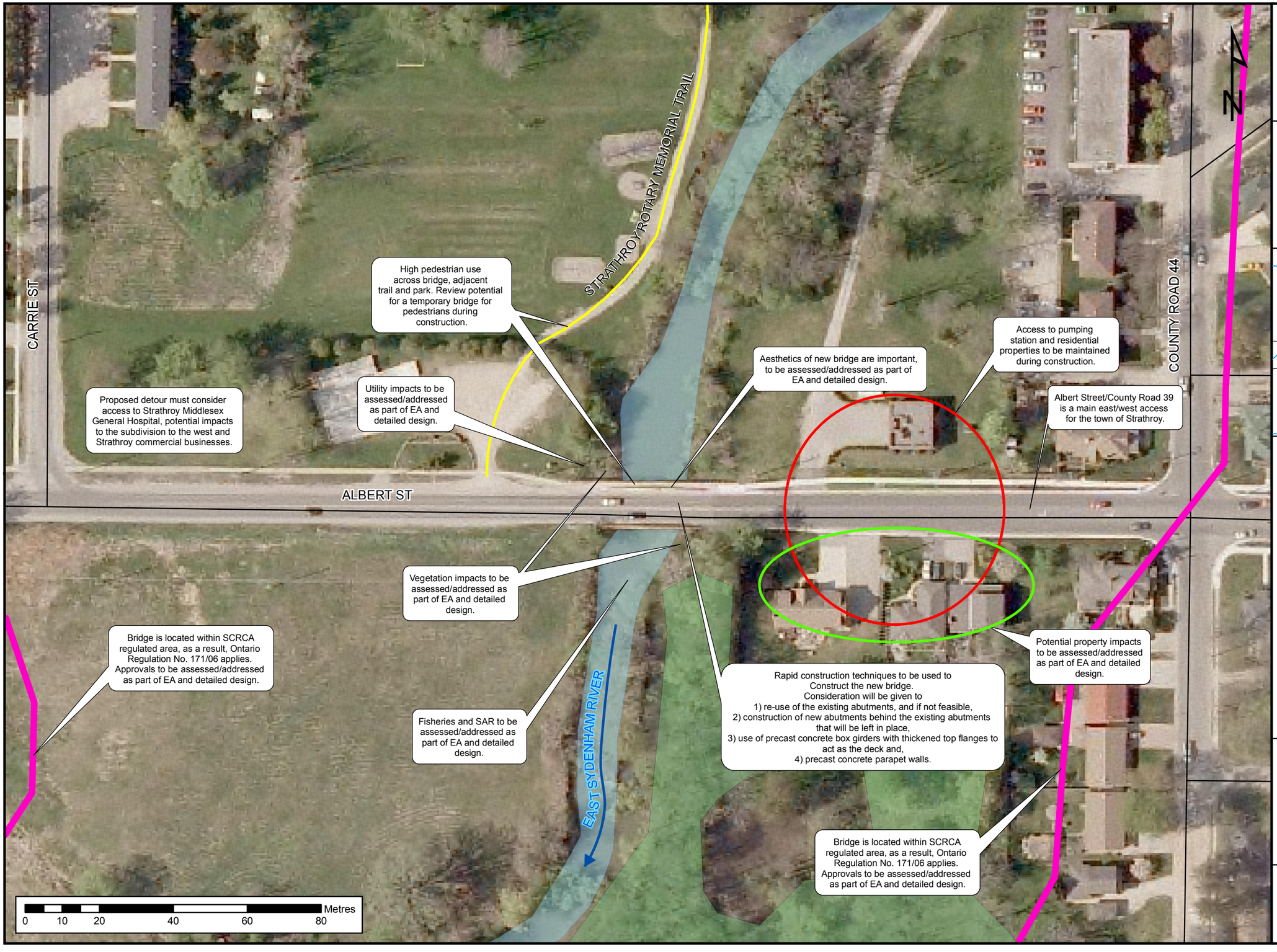
- Sediment control barriers will be implemented along the River.
- Permit from St. Clair Region Conservation Authority is required prior to construction.
- Vegetation removal will be kept to the minimum amount required and not permitted during bird breeding season
- Soil testing, including appropriate disposal if contaminated will be undertaken.
- In-water work will be restricted from March to July, however no in water work is anticipated.

DESIGN CONSIDERATIONS

- Single span bridge (approximately 34 m long).
- Asphalt paving and waterproofing of top surface .
- Total roadway width between the curbs is 10.5m. Initial configuration will have 2 through lanes. Future configuration will have 2 through lanes and one middle turn lane (with roadway width similar to east of bridge).
- Concrete sidewalk (1.5m wide) each side of road with parapet wall and railing.
- It is the intent to implement an alternative such that no in-water works are required. It is also our intent that all physical work will be contained in the right-of-way limits.
- We will ensure that the assessment and mitigation measures are of sufficient scope and detail to gain all required approvals and authorizations as required.

PROJECT SCHEDULE

Spring 2013	• Completion of the Municipal Class EA
Summer/Fall 2013	• Detailed Design & Approvals
Winter/Spring 2014	• Tendering & Contract Award
June 2014	• Start of Construction
July/August 2014	• Bridge Closure (8 weeks)
October 2014	• End of Construction



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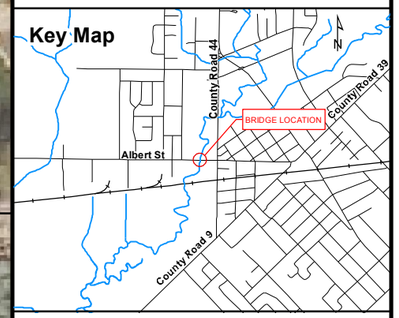
County of Middlesex Albert Street Bridge Replacement

Key Map

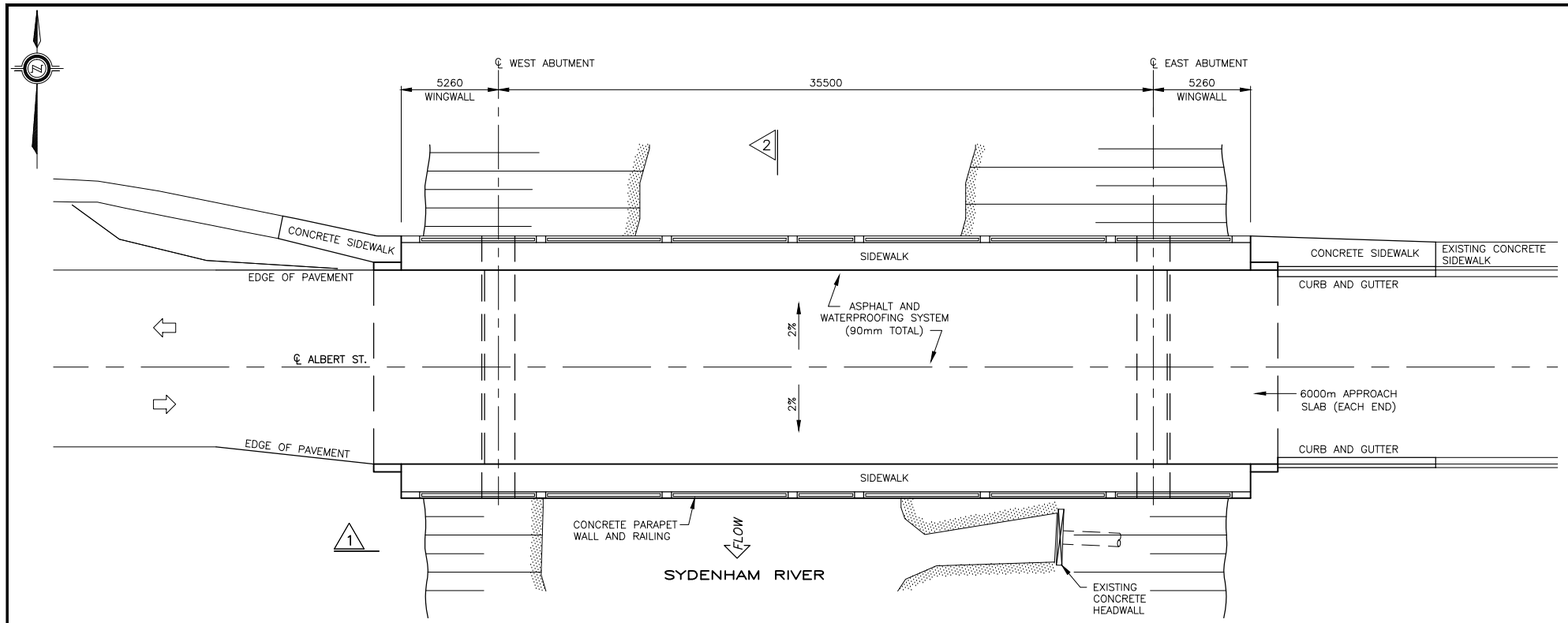


Legend

- SCRCA Boundary
- Strathroy Rotary Memorial Trail
- Street
- River
- Wooded Area

Significant Project Issues to be Considered

AECOM



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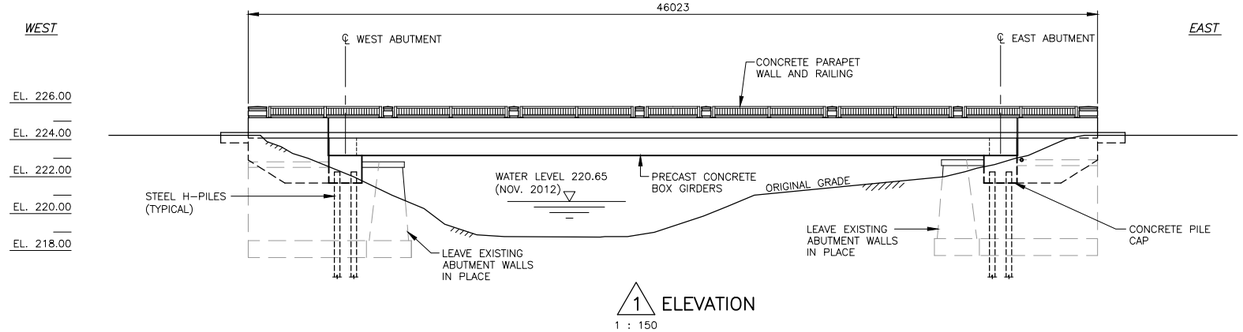
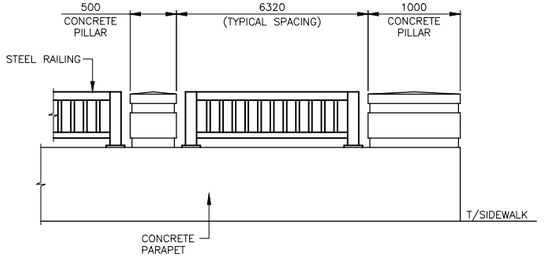
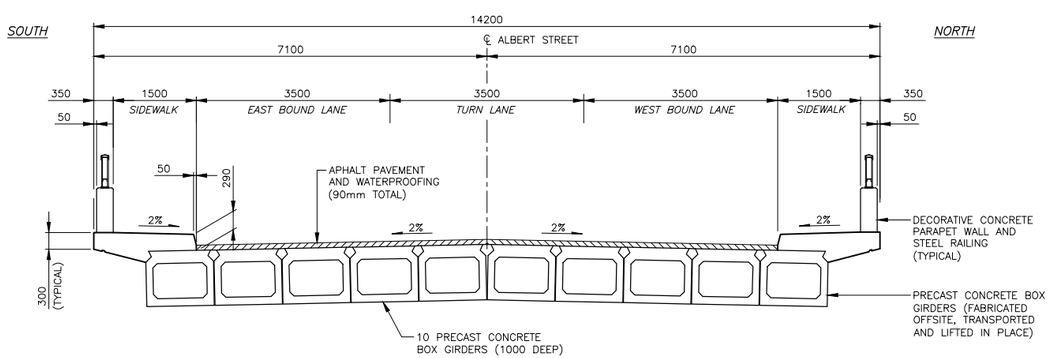


1 ELEVATION
1 : 150



PARTIAL PARAPET/RAILING ELEVATION
N.T.S.



2 SECTION
1 : 50

VERIFY SCALE IF PLAN SHEET IS REDUCED
30 CM

REV	DESCRIPTION	DRN	CHK	DATE (Y/M/D)
0	ISSUED FOR REVIEW	T.G.	X	X

AECOM
250 YORK STREET
LONDON, ONTARIO
N6B 6K2 CANADA
519-673-0510

DRN: T.G. | CHK: --- | APP: ---- | DES: J.P.

PREPARED FOR
middlesex county

PREPARED BY
AECOM

COUNTY OF MIDDLESEX
ALBERT STREET BRIDGE, STRATHROY ONTARIO
BRIDGE No.ST-04 (MTC SITE 19-194)

BRIDGE REPLACEMENT
GENERAL ARRANGEMENT
REHABILITATED

PROJECT START DATE (M / Y)	APRIL 2013
PROJECT NO.	60275667
FILENAME	60275667-SHT-30-000-S1(GA-B).dwg
SHEET NO.	
DRAWING NO.	**S1**

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