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<b>TO:</b>	<b>CHAIR AND MEMBERS BUILT AND NATURAL ENVIRONMENT COMMITTEE MEETING ON NOVEMBER 14, 2011</b>
<b>FROM:</b>	<b>JOHN LUCAS, P.ENG. ACTING DIRECTOR, ROADS AND TRANSPORTATION PLANNING, ENVIRONMENTAL &amp; ENGINEERING SERVICES</b>
<b>SUBJECT</b>	<b>CLARE BRIDGE (4-BR-04) REPLACEMENT ENVIRONMENTAL ASSESSMENT</b>

<b>RECOMMENDATION</b>
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That, on the recommendation of the the Acting Director, Roads and Transportation, Planning, Environmental and Engineering Services:

- (a) The Clare Bridge Replacement Environmental Study Report **BE ACCEPTED**;
- (b) A Notice of Completion **BE FILED** with the Municipal Clerk; and
- (c) The Environmental Study Report **BE PLACED** on public record for a 30 day review period.

<b>PREVIOUS REPORTS PERTINENT TO THIS MATTER</b>
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- September 12, 2005, Environment and Transportation Committee – Delegation presentation
- October 17, 2005, Environment and Transportation Committee – Old Victoria Road Bridge
- January 25, 2010, Environment and Transportation Committee Report – Old Victoria Road Bridge Replacement – Business Case Assessment

<b>BACKGROUND</b>
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**Purpose:**

This report seeks approval to finalize a Schedule 'B' Class Environmental Assessment for the replacement of Clare Bridge located on Old Victoria Road north of Dingman Drive

**Context:**

Currently, Clare Bridge is a Bailey bridge, which was installed in 1999 as a temporary measure when the original bridge failed. It carries traffic on Old Victoria Road over Dingman Creek. This area is predominantly agricultural in nature and low traffic volumes are present. Accordingly, a replacement bridge will need to accommodate heavy and wide farm vehicles. When the Bailey bridge was installed in 1999, a 10 tonne load limit was assigned to the structure. The narrow width of the Bailey bridge has made it difficult for agricultural vehicles to travel over the bridge forcing farm vehicles to use Highbury Avenue and Westchester Bourne as alternative routes. Using these high volume Arterial Roads as alternative routes has caused significant out-of-the-way travel (up to 8 km) and increased operating costs for local farmers, and safety concerns due to conflicts between higher speed Arterial Road traffic and slow moving farm vehicles. On occasion, witnesses have reported that the load limit on the current Bailey bridge has been disregarded, occasionally resulting in damage to the structure and causing the City to invest in short term repairs to the bridge.

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The bridge was temporarily closed for structural repairs in 2005 during harvest time, significantly affecting farming operations in the area. Extensive repairs, which again closed the bridge for an extended period of time were also completed in January, 2010, when on overload condition resulted in failure of part of the deck and a number of floor beams. Major repairs and ongoing minor maintenance repairs over the last twelve years has cost the City \$134,648.00 including \$50,000.00 for the installation of the existing temporary Bailey bridge installed in 1999.

While this area is still predominantly agricultural, with interchange improvements along Hwy 401 and proposed redevelopment of the southern corridor along HWY 401, this area has the potential to grow significantly in the future.

**Discussion:**

A cost/benefit analysis of three possible future scenarios was provided to the Municipal Council in January, 2010. Options included:

- o Close and remove the bridge;
- o Maintain the existing restricted bridge; or,
- o Replace with an unrestricted bridge.

The economic analysis concluded that it is better to replace the bridge than to maintain the existing restricted bridge, and much better to replace it than remove it. The report summarized the analysis results as follows:

- o The Old Victoria Road Bridge over Dingman Creek is an important crossing within the SE London agra-business community.
- o Repairs in 2005 gave the structure a maximum life of about five years (to 2010).
- o Further repairs are in progress due to an overloading event.
- o The existing structure load restriction and width serve only a limited amount of the crossing needs.
- o The analysis strongly recommends a new bridge with no restrictions for heavy farm equipment weight or width.

Dillon Consulting was hired in 2010 by the City of London to undertake an Environmental Assessment (EA) on the Clare Bridge. The study area is shown below in Figure 1. This EA took into consideration all impacts resulting from the bridge replacement project. Many factors were considered during evaluation of the design which included:

- o impact on the social environment;
- o environmental inventories and impact assessments;
- o technical considerations;
- o future traffic patterns;
- o existing and future land uses;
- o construction staging; and
- o cost estimates.

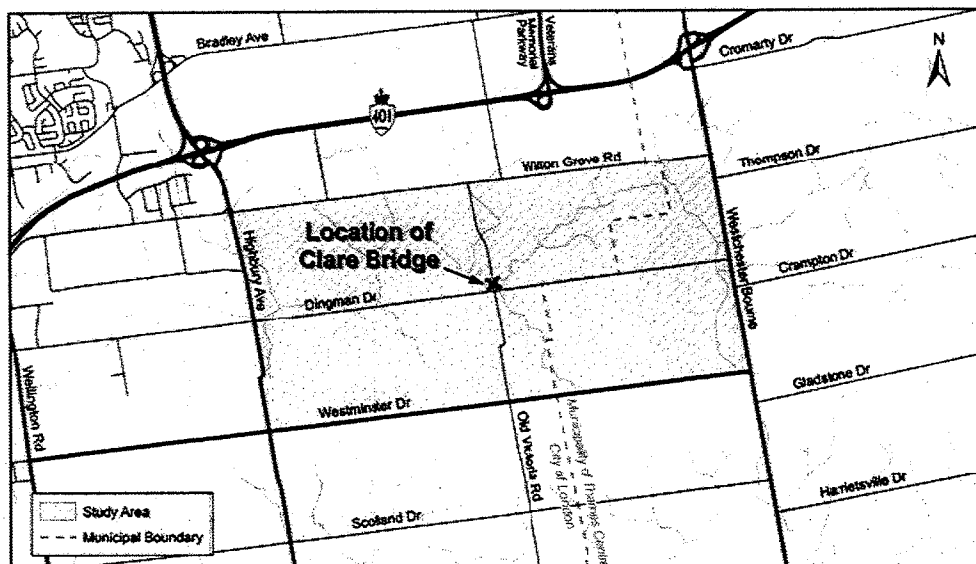


Figure 1: Clare Bridge Replacement Study Area/Project Limits

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Recommended Alternative

The recommended design for the replacement of the Clare Bridge incorporates a number of features. They include:

- no heavy or wide farm vehicle restrictions;
- road profile and intersection improvements;
- drainage improvements; and,
- design elements that can be easily modified in the future to accommodate a wider road width as re-development of the area progresses.

Public Consultation

Relevant agencies and the local public were solicited and kept informed throughout the entire EA process. Notice of Study Commencement was mailed out to the relevant agencies and Study Area property owners within the City of London, and hand delivered to the properties outside of the City limits on November 18, 2010, as well as advertisements being placed in the London Free Press on November 20, 2010 and December 24, 2010. Seven (7) comment cards were received from the general public along with seven (7) responses from the relevant agencies.

A Public Information Centre (PIC) was held on September 14, 2011. This PIC presented the preferred design for the Clare Bridge replacement project including identifying required roadworks for input and comment. Nine (9) attendees attended the PIC, and ten (10) comment sheets were provided. Following the PIC, the preliminary, preferred design and Environmental Study Report (ESR) were finalized.

A copy of the executive summary for the ESR is contained in Appendix A. The public have been informed of the date for this B&NEC public meeting through a mailout during the first week of November 2011, London Free Press advertisements as well as posting on the City's website.

Design Issues

The EA study identified and addressed impacts associated with the project. The following important issues are noted:

1.     Hydraulic Requirements  
The current existing Bailey bridge is inadequate for the Dingman Creek Watershed. A larger clear opening is required to accommodate the Regional Storm Events and a profile change (raising the elevation of the bridge above the creek) is required to provide adequate freeboard for the structure. The recommended structure provides for the installation of a 12.2m precast culvert, with the provision for 0.3m of freeboard between the high water level of a Regional Storm and the underside of the structure.
  
2.     Horizontal Alignment  
The hydraulic requirements for the structure require the existing centreline road profile to be raised approximately 1.0m above the existing road elevation. Due to the proximity of Dingman Creek and this structure to the Dingman Drive intersection, merging this increase in road elevation on Old Victoria Road back to the existing elevation on Dingman Drive will be a significant challenge. The recommended option proposes to raise the profile of Dingman Drive east and west of Old Victoria Road, as well as raising the profile of Old Victoria Road south of Dingman Drive to provide for smooth transitions and appropriate site lines at the intersection of Dingman Drive and Old Victoria Road.
  
3.     Environmental Conditions  
Dingman Creek is a tributary of Thames River, with very tolerant warm water fisheries upstream and downstream of the bridge. Twenty (20) species of fish, and four (4) species of mussels have been found in the area, all relatively common to Ontario. None of the fish or mussels found are on the Species at Risk (SAR) list.

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4. Archaeological Concerns

A Stage 1 Archaeological Background Research Report (Fisher Archaeological Consulting, Report No. P042-227-2010) has been completed and has concluded that there is a high potential for discovery of Aboriginal and Euro-Canadian Sites. The Stage 1 Background Research Report recommends a Stage 2 Archaeological Assessment be completed because the new construction footprint will exceed the existing bridge and road footprint.

5. Economic Impact

Many of the comment sheets and public comments from the area residents/agricultural businesses indicated the need for an unrestricted, wide bridge to accommodate the local farming industry in the area. Due to the load limiting factor and narrow width of the existing Bailey bridge many slow moving farm vehicles are forced onto Highbury Avenue or Westchester Bourne where there are significantly higher traffic volumes and speeds. This results in an unsafe condition for both the farm vehicles and the motoring public.

One of the reasons that the preferred option was chosen is for its relatively quick installation time. Being a precast structure, the associated footings, wing walls and roadworks will require three to four months to complete the work. Other options were estimated to take four to six months to construct.

As the work is being completed, Old Victoria Road and Dingman Drive will need to be closed while the road profiles are adjusted. This will require long distance detours around the area for the local farmers and residents. While this is not desirable, the local residents are prepared to live with the closure knowing that the replacement structure will provide a long term solution to an ongoing problem that impacts their livelihood.

6. Future Development

With the City's plan to develop the southern corridor of Highway 401, traffic volumes may increase as redevelopment in the area advances. Replacement of the existing load restricted bridge with a new, non-restricted structure will provide safe, secure vehicle passage for all vehicle sizes for the foreseeable future.

7. Utilities

There is a Bell fibre optic cable located along the east limit of the road. Detailed design will determine if it needs to be relocated.

8. Property Implications

The existing right-of-way is 20 metres wide. The preferred option, including road reconstruction works can be contained within the existing right-of-way, with no permanent loss of farm land to the adjacent properties. Temporary working easements from the properties adjacent to the structure location would be required for the duration of the construction season to provide adequate working room for the contractor.

**Cost and Timing:**

The preliminary cost estimate for replacing Clare Bridge, and completion of the roadworks required due to profile changes is approximately \$ 1,300,000, as itemized below:

Item		Estimate*	Schedule*
Construction	Bridge	\$ 880,000	2012/13
	Roadworks	\$ 300,000*	2012/13
Engineering	Design and Construction	\$ 120,000	2012
<b>Total</b>		<b>\$ 1,300,000</b>	

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The above estimate was used to update project budget TS 1212 – Clare Bridge Replacement Project in the 2012 Capital Budget. Detailed design and construction funds for the bridge work have been approved in the 2010 Budget, and construction is anticipated in 2012 or 2013. Additional funds were found to be needed for the associated road works as compared to the previous budget estimates.

**Conclusions:**

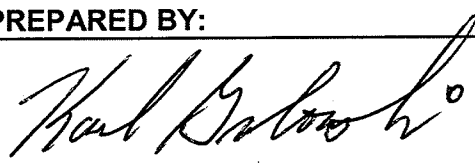
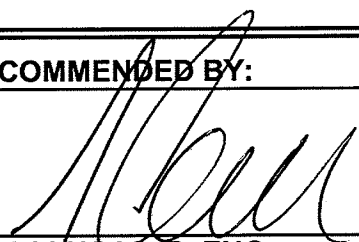
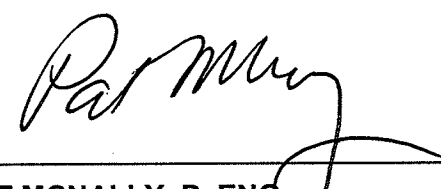
A Class B Environmental Assessment has been undertaken to consider replacement options for Clare Bridge located on Old Victoria Road north of Dingman Drive. It is ready for final public review. The EA was prepared with public and agency participation, and includes a preliminary design which addresses all impacts associated with the structure replacement.

It is recommended that the ESR be placed on public record for a 30 day review period in accordance with the Environmental Assessment Act.

Subject to no Part 2 Orders (“bump up”) being received within the 30 day review period, detailed design could commence thereafter.

**Acknowledgements:**

This report was prepared with assistance from Jane Fullick, Technologist II of the Transportation Planning and Design Division.

<b>PREPARED BY:</b>	<b>RECOMMENDED BY:</b>
	
<b>KARL GRABOWSKI, P. ENG TRANSPORTATION PLANNING &amp; DESIGN, ENVIRONMENTAL AND ENGINEERING SERVICES</b>	<b>JOHN LUCAS, P. ENG. ACTING DIRECTOR, ROADS AND TRANSPORTATION, ENVIRONMENTAL AND ENGINEERING SERVICES</b>
<b>REVIEWED &amp; CONCURRED BY:</b>	
	
<b>PAT MCNALLY, P. ENG. EXECUTIVE DIRECTOR, PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES DEPARTMENT</b>	

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Attachments: Appendix 'A': Executive Summary

- c: P. McNally, P. Eng.
- J. Braam, P. Eng.
- J. Smolders, Dillon Consulting

**City of London Built and Natural Environment Committee  
Clare Bridge Replacement Class Environmental Assessment  
Executive Summary**

Clare Bridge is a temporary Bailey Bridge carrying Old Victoria Road (a Rural Arterial roadway) over Dingman Creek in the agricultural area of the City. The bridge has low traffic volumes and is primarily used for local and agricultural related traffic. The original bridge was built in 1927 (Moore Drain Bridge) and collapsed in 1999 under the passage of a truck that exceeded the load limit (the bridge had been subject to a load limit for several years prior to its collapse in 1999). Installed in 1999, the Bailey Bridge was intended as a temporary solution to last for about five years.

With its 10 tonne load limit and narrow width, the existing bridge cannot accommodate heavy or wide farm vehicles. Since the early 1990s when a load limit was placed on the original bridge, these vehicles have had to use Highbury Avenue and Westchester Bourne as alternative routes. Using these high volume Arterial Roads as alternative routes has caused significant out-of-the-way travel (up to 8 km) and increased operating costs for local farmers and safety concerns about conflicts between Arterial Road traffic and slow moving farm vehicles.

The bridge was temporarily closed for structural repairs in 2005 during harvest time, significantly affecting farming in the area. On September 12, 2005, local farmers appeared before the City's Environment and Transportation Committee (ETC) to request that the existing bridge be replaced with a bridge that could accommodate all farm vehicles. An October 17, 2005, staff report to the ETC concluded that the bridge over Dingman Creek is an important crossing in the southeast London rural community and a Class EA be initiated for a new bridge. The bridge was also closed in January 2010 for an extended period of time when an overload condition resulted in failure of part of the deck and a number of floor beams.

In 2006, Dillon was retained to identify and evaluate long-term solutions for Clare Bridge and prepare a business case for a new bridge. An Economic Assessment prepared by Navigant Consulting Inc., December 17, 2007, concluded that the best long-term solution was to replace the existing bridge with no restrictions for heavy or wide farm vehicles. The findings of the report were presented to the ETC on January 25, 2010.

To implement the 2007 study's recommendations, the City retained Dillon in 2010 to prepare a Class EA and Preliminary Design of a new bridge. Completed as a Schedule 'B' project under the Municipal Class EA, the major findings of the Class EA process were:

- Phase 1 of the Class EA process, "Problem/Opportunity Identification", concluded that continued expenditures on maintenance and repairs to a substandard bridge is no longer reasonable or appropriate
- Phase 2, "Alternative Solutions", concluded that replacing the existing bridge with an unrestricted bridge is the preferred solution with respect to engineering

and traffic considerations and has economic benefits for the surrounding farm community.

- Dillon evaluated three structural design options for a new bridge. A Quickspan Precast Culvert (Option 1) was recommended since it more durable, takes the least time to construct, can easily be widened in the future and is less prone to icing
- Three design options for the road improvements were evaluated, including a 20, 30 and 36 metre road right-of-way widths. The 20 metre road right-of-way width (Option 1) was recommended since it meets existing transportation needs, can be easily widened in the future, it requires no property, has minimal impacts on the natural environment and results in the shortest duration detour around the site during construction (four months or less). Required approvals prior to construction include archaeological clearance from the Ministry of Tourism and Culture and approval from UTRCA for construction in a regulated area.

A Public Information Centre was held on September 14, 2011, to obtain public and agency input on the recommended design. The PIC was attended by local farmers, all of whom support the bridge replacement. No significant agency concerns were expressed throughout the Class EA process.

Dillon Consulting Limited  
October 28, 2011