

Kirkhams Road Bridge over the Rouge River Class Environmental Assessment Study

Date:	August 14, 2007
To:	Public Works and Infrastructure Committee
From:	General Manager, Transportation Services
Wards:	Ward 42 Scarborough – Rouge River
Reference Number:	P:\2007\ClusterB\tra\tim\pw07025tim

SUMMARY

A Class Environmental Assessment study was undertaken to address the deteriorated condition of the Kirkhams Road bridge over the Rouge River. The evaluation of a reasonable range of alternative solutions, which included consultation with the public and review agencies, resulted in the following Recommended Design:

- Removal of the existing Kirkhams Road bridge, including the removal of the deck, pier, and abutments to the level of the footings;
- Re-grading of the approaches of the bridge to match the adjacent Rouge River valley topography;
- Replacement of the existing 400 mm watermain suspended from the Kirkhams Road bridge with two 300 mm watermains under the Rouge River using trenchless technology;
- Provision of culs-de-sac on the north and south sides of the Rouge River to facilitate the turning of vehicles; and
- Provision of a gate on Kirkhams Road at Meadowvale Road to restrict access to the portion of Kirkhams Road south of the Rouge River for maintenance vehicles only.

A Notice of Study Completion must now be issued and the Environmental Study Report filed in the public record for a 30-day review period in accordance with the requirements of the Municipal Class Environmental Assessment.

RECOMMENDATION

The Transportation Services Division recommends that:

1. authority be granted to the General Manager of Transportation Services to issue a Notice of Completion and to file the Environmental Study Report for the Kirkhams Road Bridge over the Rouge River Class Environmental Assessment Study in the public record for 30 days in accordance with the requirements of the Municipal Class Environmental Assessment.

Financial Impact

There is no immediate financial impact resulting from the recommendations contained in this report. A more detailed financial estimate will be presented upon the award of a contract to perform the works.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

ISSUE BACKGROUND

The existing Kirkhams Road bridge crossing of the Rouge River is located in the north-east part of the City of Toronto near the Toronto Zoo. While this facility was used more extensively prior to the construction of Meadowvale Road in 1974, the principal function of Kirkhams Road today is access to four residences north of the river and access for utility maintenance vehicles south of the river. The bridge also carries a 400 mm watermain which provides the only source of potable water for the Toronto Zoo and residents of Kirkhams Road.

Kirkhams Road is located within the Rouge Park, in a natural area with high environmental sensitivity. The bridge site is visible from the Meadowvale Road bridge and is a prominent visual feature for recreational users of the Rouge River Valley. The bridge was built in 1955, and has experienced severe deterioration in recent years.

The results of a limited condition bridge survey (structural inspection) completed in May 2005 identified immediate concerns related to public safety and bridge integrity as follows:

- severely deteriorated timber curbs and rusted supports of the bridge railings;
- extensively delaminated abutment walls with large spalled areas to the face;
- disintegrated northeast bearing seat; and
- severely rusted steel girders and diaphragms at abutments and pier.

Staff considered options for repair, and concluded that the extent of immediate repair required was too costly should a later decision be made to make major modifications to the structure. It was also recognized that any major modifications would require environmental assessment approval since the bridge is more than 40 years old. As a

result, Transportation Services staff performed an emergency closure of the bridge to all users in August 2005. A Class Environmental Assessment Study was subsequently initiated to evaluate a range of options for addressing the deteriorated condition of the bridge. Access to the four residences north of the Rouge River is being maintained via the connection to the Zoo Access Road.

COMMENTS

Study Process

The Kirkhams Road Bridge over the Rouge River Class Environmental Assessment Study has been completed according to the requirements for a Schedule 'C' project under the Municipal Class Environmental Assessment (the Class EA). As a requirement of Schedule 'C' projects, if City Council endorses the recommendations of this Study, the Environmental Study Report (ESR) will be filed in the public record for a minimum 30-day review period. During this period, members of the public, and any other interested individual, interest group, or government agency, may request that a Part II Order be issued. A Part II Order, if granted by the Minister of Environment, elevates the status of the project from a Class EA Study to an Individual Environmental Assessment. If this occurs, the project cannot proceed until the proponent completes an Individual Environmental Assessment Study and receives approval from the Minister. If a Part II Order is not granted or if no requests or objections are received during the filing period, the project is approved under the Environmental Assessment Act and may proceed.

The ESR describes in detail the first three phases of the five-phase environmental planning process set out by the Class EA:

Phase 1 – identification of the problem or opportunity;

Phase 2 – identification and evaluation of alternative solutions; and

Phase 3 – identification and evaluation of alternative design concepts for the preferred solution.

The preparation of the ESR itself and the filing of the document in the public record constitute Phase 4 of the environmental planning process. Phase 5 is the construction and operation or implementation of the project, and monitoring of impacts, in accordance with the terms of the EA approval. The Kirkhams Road Bridge over the Rouge River Class Environmental Assessment Study is currently at Phase 4 of the process.

The Class EA Study was carried out with the assistance of technical consultants and supported by a Technical Advisory Committee comprised of staff from Transportation Services, Technical Services, Toronto Water, and the Toronto and Region Conservation Authority (TRCA).

Public Consultation

Public involvement is an integral and ongoing part of the study process for the Kirkhams Road Bridge over the Rouge River Class EA Study. The public consultation requirements of the Class EA were met and surpassed. A Notice of Study Commencement appeared in two issues of the Scarborough Mirror in July 2006 and was also directly mailed to Kirkhams Road residents and relevant review agencies. This notice announced the initiation of the Class EA study and invited interested stakeholders to participate. Two public information centres (PIC) were held at key decision points during the study.

The first PIC was held on Thursday, November 23, 2006 to review the problem statement, and the evaluation of alternative solutions. Notices were mailed to residents on Kirkhams Road, relevant external agencies, interest groups and members of the public who had requested to be placed on the study mailing list. Also, notices were placed in the Scarborough Mirror on Wednesday November 15, 2006 and Sunday November 19, 2006. Seventeen (17) members of the public attended this meeting. Generally, Kirkhams Road residents expressed their strong desire to reopen the bridge to all traffic.

Following the first PIC, a revised evaluation of an expanded list of alternative solutions was prepared based on the comments received from the public stakeholders. This information, and the evaluation of alternative designs for the preliminary preferred solution, was presented at the second PIC, which was held on Thursday April 19, 2007. Notices were distributed to all properties in the area approximately bounded by Boydwood Lane to the east, East Metro Avenue to the west, Highway No. 401 to the south, and Hedge End Road to the north. In addition, notices were placed in the Scarborough Mirror on April 13 and April 15, 2007 and were also mailed directly to individuals who asked to be placed on the study mailing list. There were 19 members of the public who attended the second PIC. Similar to the first PIC, the general consensus among the attendees of this meeting was that the bridge should be repaired or replaced with a new bridge for all traffic.

A full description of the public consultation program can be found in Chapter 3 as well as Appendices A and B of the ESR. A discussion of the main issues raised and proposed mitigating measures is also provided later in this report.

Environmental Assessment Findings

(1) Identification of the Problem or Opportunity

The Study Area, illustrated in Exhibit 1-3 of the ESR, extends from Meadowvale Road westerly to approximately 200 metres west of Kirkhams Road and from Sheppard Avenue East northerly to Old Finch Avenue. The following summarizes the results of an analysis of existing and projected future conditions in the study area:

- The existing bridge is inadequate to support the posted vehicle loading of 15 tonnes, which is a reduction from the standard bridge loading of 62.5 tonnes;
- Traffic counts conducted in October 2004, prior to the emergency closure of the bridge, revealed total traffic volumes on Kirkhams Road were 6 vehicles in the morning peak hour, 12 vehicles in the afternoon peak hour, and 66 vehicles over 24 hours. There are no expected changes to population and employment in the immediate area based on the Official Plan and Green Belt designations. Growth in traffic volumes to the Toronto Zoo is not expected to be significant as attendance has been stable in recent years. Therefore, traffic volumes in the Study Area are expected to remain stable;
- On peak Toronto Zoo attendance days, traffic queues occur on the northbound Meadowvale Road access ramp to Zoo Access Road, and on Zoo Access Road. While peak attendance days are infrequent, such queues can adversely affect access to Kirkhams Road. Toronto Zoo staff have recently implemented measures to mitigate the queuing problem which include the following:
 - Replacing existing pay parking kiosk with a new parking payment strategy that allows patrons to park first and then process payment; and
 - Improved marking and signage on Zoo Access Road to direct patrons to overflow parking lots when the main lot is full;
- The Toronto Police Service, Fire Services and Emergency Medical Services did not identify any concerns with the emergency road closure and indicate that satisfactory access for emergency response is available to Kirkhams Road from the Zoo Access Road;
- A 400 mm watermain crossing the structure is the only source of potable water for the Toronto Zoo and local residents on Kirkhams Road, and therefore must be maintained; and
- The TRCA has not indicated any preference to address the condition of the Kirkhams Road bridge, but has indicated there could be benefits to the Rouge Valley either by removing the bridge or by replacing it with a new, larger structure that would span the meander belt of the Rouge River.

A full description of the analysis of existing and projected future conditions can be found in Chapter 4 of the ESR.

(2) Identification and Evaluation of Alternative Solutions

To address the problems described above, five alternatives were generated and evaluated. A brief description of these alternatives and the results of the evaluation are provided below.

Alternative 1: Do Nothing

The “Do Nothing” alternative was included as a benchmark for the assessment of the other planning alternatives. As the name suggests, the “Do Nothing” alternative involves leaving the bridge closed and the watermain attached to the bridge.

Alternative 2: Remove the Bridge, close Kirkhams Road from the Rouge River south to Meadowvale Road and relocate the watermain

This alternative solution involves the removal of the bridge and the closure Kirkhams Road from the Rouge River south to Meadowvale Road. This alternative requires the relocation of the existing watermain.

Alternative 3: Rehabilitate the Existing Bridge

This alternative solution includes the rehabilitation of the existing bridge to current safety and operational standards, then reopening it to auto and pedestrian traffic. The watermain could be left suspended from the rehabilitated bridge or relocated.

Alternative 4: Replace the Existing Bridge

This alternative solution requires the bridge to be replaced with a new bridge for vehicles and pedestrians. The new bridge would be significantly longer so that the structure would span the meander belt of the Rouge River. The watermain could be suspended from the new bridge or relocated.

Alternative 5: Pedestrian Bridge

This alternative solution replaces the existing bridge with a new pedestrian bridge, complying with acceptable design standards. The watermain could be suspended from the new pedestrian bridge or relocated.

Each alternative was analyzed and evaluated in detail utilizing five criteria groups:

- Transportation: this criteria considered accessibility, safety, traffic operations and capacity, transit operations and traffic patterns;
- Natural Environment: this criteria considered watercourses/fisheries, vegetation/woodlots, wildlife and water resources, surface drainage and stormwater management;
- Social Environment: this criteria considered property impacts, accessibility, aesthetics and recreational access;
- Cultural Environment: this criteria considered impacts on industrial/commercial development and the effect on archaeology and heritage;
- Engineering: this criteria considered construction costs and impacts to utilities and major services.

Based on the results of the analysis and evaluation, Alternative 2, the removal of the Kirkhams Road Bridge and relocation of the watermain, is the preferred solution. This solution offers significant potential to improve the natural environment while limiting potential cultural environmental impacts. In terms of transportation impacts, removal of the bridge will not significantly impact the transportation network or resident accessibility, especially when combined with the new parking payment system at the Toronto Zoo that is designed to reduce the occasional instances of queuing on the Zoo Access Road and Meadowvale Road off-ramp to the Zoo Access Road.

A full description of the evaluation of the alternative solutions can be found in Chapter 6 of the ESR.

(3) Identification and Evaluation of Alternative Design Concepts for the Preferred Solution

The development and evaluation of alternative designs for the removal of the bridge and the relocation of the watermain were conducted independently. The results of each of these exercises are described below.

Two main design alternatives were considered for the preferred solution of removing the Kirkhams Road Bridge. These are:

- Alternative 1: Remove only the deck and leave the abutments and pier as is; and
- Alternative 2: Remove the deck, pier, and abutments to the footing level and re-grade the bridge approaches to meet the adjacent Rouge River valley topography.

The assessment criteria for these alternative designs were limited to natural, social and cultural environment impacts and costs. The results of the evaluation indicated that, although it is the higher cost option and has more short term impacts, Alternative 2 is preferred for the following reasons:

- It allows for natural reinstatement of the river valley, improving the immediate area as a wildlife migration corridor;
- It prevents further structural deterioration and potential contamination of the Rouge River; and
- It improves the hydraulic capacity of the river, reducing the potential for erosion/improving the potential for bank stabilization.

Three design alternatives were considered for the relocation of the 400 mm watermain currently attached to the Kirkhams Road bridge. These included:

- Suspend the watermain on a new utility bridge;
- Relocate (bury) the watermain under the Rouge River using trenchless technology; and
- Re-route the watermain to follow Meadowvale Road.

Using the same criteria used for the assessment of bridge removal options, relocating the watermain using trenchless technology was selected as the preferred design, based on its lesser impacts to valley wildlife and water resources, and lower overall costs.

A detailed description of the evaluation of alternative designs for the preferred solution is provided in Chapter 7 of the ESR.

Recommended Design

The Recommended Design, illustrated in plan and in profile respectively on Exhibit Nos. 9-1 and 9-2 of the ESR, includes the following elements:

- Removal of the existing Kirkhams Road bridge, including the removal of the deck, pier, and abutments to the level of the footings;
- Re-grading of the approaches of the bridge to match the adjacent Rouge River valley topography;
- Replacement of the existing 400 mm watermain suspended from the Kirkhams Road bridge with two 300 mm watermains under the Rouge River using trenchless technology;
- Provision of culs-de-sac on the north and south sides of the Rouge River to facilitate the turning of vehicles; and
- Provision of a gate on Kirkhams Road at Meadowvale Road to restrict access to the portion of Kirkhams Road south of the Rouge River for maintenance vehicles only.

The estimated cost of the recommended design is approximately \$1.06 million. These costs will be shared by Transportation Services and Toronto Water, and funding will be included in the respective divisions' 2008 Capital Works Programs.

Public/Agency Concerns

Throughout the public consultation process a wide variety of valuable comments were received from the general public, adjacent property owners and review agencies which assisted in the development and evaluation of the alternatives. The primary concerns identified through the consultation process and our responses are summarized below:

1. Acceptable access to/from Kirkhams Road

At the first PIC the Kirkhams Road residents raised concerns that the option of removing the bridge didn't provide adequate access to/from their homes for themselves or for emergency services. In addition, Toronto Zoo staff indicated their preference to maintain the bridge for the use of Kirkhams Road residents and occasional usage for Zoo purposes.

In consultation with Toronto Police Services, Fire Services and Emergency Medical Services there was no objection to the emergency closure of the bridge nor the technically preferred option to remove the bridge and permanently close the southern leg of Kirkhams Road at Meadowvale Road. Adequate service will be provided by access from the Zoo Access Road under any conditions. The technically preferred option includes building a cul-de-sac at the end of the north leg of Kirkhams Road to facilitate the turning of the largest Fire trucks.

The Kirkhams Road residents and Toronto Zoo staff were concerned about access during the peak attendance times for the Toronto Zoo. In the past, significant congestion has occurred on the Zoo Access Road and the northbound Meadowvale off-ramp to the Zoo Access Road. The parking changes recently implemented at the Toronto Zoo were specifically designed to address this issue. Early indications are that these measures have improved operations, and this situation will be monitored and additional measures considered if warranted.

2. Dumping of garbage/illegal activity

The technically preferred option includes the installation of a locked gate at the Kirkhams Road and Meadowvale Road intersection to restrict access to the south side of the river to maintenance vehicles only. On the north side of river, there currently is no street lighting and the bridge is relatively secluded. The proposed new cul-de-sac will include street lighting and will be closer to the residences on Kirkhams Road, making the end of the road more visible. This should help discourage illegal activity. In addition, the area will be monitored on an on-going basis by Transportation Services staff to address the concern for potential dumping.

3. Access to the Rouge River Valley (Park) at the Kirkhams Road river crossing

The Toronto Pedestrian Committee would like to maintain a recreational/non-vehicular crossing on the bridge and the Madonna Cycling Club has also indicated their preference for a crossing to allow for use of the bridge as part of their cycling route.

Currently there are no designated pedestrian or cycling trails on Kirkhams Road and there are no existing amenities to encourage such activities. The Rouge Park Alliance has indicated that the bridge is not strategic to its future plans and prefer there be no public access to this part of the Rouge River Valley as this part of the Park is designated a Natural Reserve. They further indicated that this part of the Park does not have any official trails nor do they anticipate constructing trails in the vicinity of the bridge.

4. Tipping fees from former Beare Road Landfill

Kirkhams Road residents indicated that they were aware of an agreement that tipping fees from the former Beare Road Landfill were to be reserved for the maintenance of the Kirkhams Road Bridge. The Beare Road Landfill received municipal solid waste from 1968 to 1983. During the early years of operation, the former Municipality of Metropolitan Toronto had agreed with the Borough of Scarborough to upgrade Kirkhams Road by widening and paving it. During this time the bridge was deemed to be in good repair. Solid Waste Services staff were not able to find any information on funds reserved for repairs to the Kirkhams Road Bridge.

Property Impacts

There are no requirements to acquire private property for this project. Some permanent property acquisition is required from TRCA to construct the cul-de-sac on the north leg of Kirkhams Road. TRCA staff has reviewed the ESR and have no objections to the preferred solution.

Next Steps

Pending approval of this report by City Council, the ESR will be filed in the public record for a minimum 30-day period. Once EA approval is received, design and construction of the Recommended Design may proceed, and is currently planned to occur in 2008.

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ATTACHMENTS

Kirkhams Road Bridge over the Rouge River Class Environmental Assessment Study
Environmental Study Report