Maintaining Existing Walterdale Bridge

Recommendation:
That the November 15, 2011, Transportation Services report 2011TS8296 be received for information.

Report Summary

This report provides additional information related to maintaining the old Walterdale Bridge.

Previous Council/Committee Action

At the September 20, 2011, Transportation and Infrastructure Committee meeting, the following motion was passed:

> That Administration provide a report to Transportation and Infrastructure Committee with respect to maintaining the existing Walterdale Bridge in its current place as a pedestrian and cycling bridge regarding the following:
>
> a. design options, including bridge covering
> b. options for integration into the river valley trail system and the greater Rossdale area plans
> c. possibilities for additional uses such as pedestrian plaza and outdoor vendors/markets
> d. options for funding and costs of relocating the utilities to the new bridge, as well as information regarding potential cost savings of retaining the Walterdale bridge

Report

a. Design Options, Including Bridge Covering

<u>Deck</u>

- If the old Walterdale Bridge is maintained, the open grate steel deck will be replaced with a new structural wood deck, similar to the decking used for many of the pedestrian bridges in the city. This is illustrated in Attachment 1.
- Wood decking tends to be bumpy for cyclists and can be slippery for pedestrians and cyclists during near-freezing temperatures. A new conventional concrete deck could be considered, but the existing trusses would need to be strengthened to accommodate the additional weight. The use of a concrete deck would increase bridge rehabilitation cost upward to approximately $20 million.
- The existing sidewalks on the outside of the trusses would be closed for public access. The west side sidewalk could remain open for maintenance and utility servicing. However, all or part of the east sidewalk would need to be removed due to its close proximity to the new bridge.

<u>Railings</u>

- Railings for pedestrians and cyclists will need to be added at the interior edge for safety and code compliance. The railings would be installed with enough space away from the bridge trusses to discourage people from climbing on the trusses. The truss latticework characterized by the old bridge is easier to climb than the more conventional hollow tube shapes used for other pedestrian truss bridges in the city. Railings would be

installed at a 1 metre distance from the trusses. Maintenance of this space will be a challenge. These features would result in a total available width on the bridge of 6 metres for programming purposes, a decrease from the 7.2 metres driving surface today. The railings are illustrated in Attachment 2.

Old Bridge Configuration Options

- All three spans of the old bridge can be maintained, or two spans can be demolished and one span can be maintained at the south bank. The three span option may allow some utilities to remain on the bridge for 25 to 50 years, and would allow pedestrians to cross the river away from the traffic of the new bridge. However, the view from the old bridge is currently obscured by the utilities on the structure and will be further obstructed by the trusses as the walking surface would be along the interior area. This is illustrated in Attachment 3. In addition, views from the old bridge to the repurposed Rossdale area will also be restricted with the proposed bridge set in between.
- If only the south span of the bridge is maintained, it could be used as a plaza or lookout. This is illustrated in Attachment 4. The north pier could remain and be used to display public art. Public art on an isolated pier could be possible, but would have challenges from an installation and maintenance perspective. In addition, keeping the old pier will likely be looked upon less favourably through the federal environmental approval process.
- Whether or not the old bridge remains in place for pedestrian usage, the new bridge should be designed to fully accommodate pedestrian and shared use path facilities. The new bridge must be designed and constructed to stand the test of time and to provide a permanent and reliable pedestrian connection in the instance that the old bridge is closed for any reason (utilities, maintenance, etc).

b. Options for Integration into the River Valley Trail System and the Rossdale Area Plans

- The new Walterdale Bridge provides excellent opportunity for connectivity for the area trails. The new bridge design aligns with the West Rossdale Redevelopment Plan which focuses the activity node on the riverfront with a northbank promenade. This includes a waterfront activity area and a 105 Street entranceway garden feature near the waterfront that incorporates the new bridge alignment. The West Rossdale Plan does not make provision for the old bridge alignment and north approach. The northbank activity node and the Rossdale Generating Station repurposing site will be integrated with the north-south connections provided by the new bridge.
- Maintaining the old bridge connection to the north bank would conflict with the proposed North Bank “Touch the Water” promenade.
- Attachment 5 illustrates a comparison table outlining the advantages and disadvantages associated with retaining or

removing from a trail and pedestrian perspective.
- In addition to the trail integration considerations, retaining the existing bridge will require additional budget and time to accommodate bridge rehabilitation planning, design, and construction and will push the project schedule back at least one year.

c. Possibilities for Additional Uses, Such as Pedestrian Plaza and Outdoor Vendors/Markets

- The old bridge could be used as a casual gathering area and could accommodate street vendors or a farmer's market in the summer time. A rendering of this is provided in Attachment 1.
- With an effective clear width of 6 metres between the railings, the old bridge may be too narrow for a comfortable open-air market. The Downtown farmer's market on 104 Street is located on a street that has a clear width of about 12 metres available for use (excluding sidewalks). As another example, the Taste of Edmonton utilizes 99 Street which has a width of 12.5 metres.
- If the old bridge is used as a farmer's market or a festival event, it is likely that at minimum, water and power services will need to be provided on the bridge.
- The repurposed Rossdale Generating Station is planned to be the area's gathering place, since it will have shelter (existing power generating buildings) and more natural open spaces. The bridge corridor is intended to complement this north bank activity node by functioning as a north-south connection to cross the river and access the site. If the intent is to make the old bridge a gathering area also, the two areas may compete with rather than complement each other.
- Throughout the concept planning study and into preliminary design, several ideas are being generated for re-use of the old bridge in other ways than a transportation facility. Elements of the old bridge can be incorporated into the design of the area in innovative ways. To maintain the heritage of the site and respect the historical significance of the bridge, Administration is looking into uses of the bridge components within or near the site. Some examples include using the steel truss components as part of a terrace wall within the hard landscaping, creating an art piece to be placed on site, or even providing these steel truss components to nearby businesses such as restaurants for innovative use within those facilities.

d. Options for Funding and Costs of Relocating the Utilities to the New Bridge, as well as Information Regarding Potential Cost Savings of Retaining the Old Walterdale Bridge

<u>Relocation of Utilities</u>

- The City is not obligated to maintain or relocate the existing utilities. All are governed by various franchise agreements that include relocation provisions should the City undertake roadway or bridge construction. Some of the utilities that are currently located on the bridge include:
  - ATCO (Gas)

- EPCOR (Water and Power)
- Telus
- Shaw
- Bell

- There are utilities on both sides of and underneath the old bridge, on cable trays and suspended supports. These utilities make the old truss bridge look cluttered and closed in. For walking and cycling on the old bridge to be a more open and pleasurable experience, utilities above deck level should be removed or relocated.
- Several utilities are supported on the existing sidewalks, which are higher than the existing traffic deck. If these utilities and the sidewalks remain on either side of an intended central pedestrian corridor, they will be a visual impediment to users of this bridge.
- It is important to note that all or part of the existing sidewalk on the east side of the old bridge will need to be removed to accommodate construction of the new bridge due to the extreme proximity of the proposed bridge to the existing north bridge abutment.
- The close proximity of the old and proposed bridges at the north bank will cause conflicts where utilities "land." Utilities on the east side of the old bridge cannot remain as it will overlap with the construction of the north abutment for the new bridge. Utilities will, at a minimum, need to be temporarily realigned to facilitate construction.
- Administration does not support the relocation of utilities to the new bridge. From a safety and security perspective, public roadway bridges built today are not accommodating natural gas lines.

<u>Cost Comparison of Retaining or Removing the Old Bridge</u>

- If the old bridge is retained and a multi-use trail on the proposed bridge is deferred until the old bridge is removed (in approximately 25-50 years), $13 million may be saved in the initial construction cost. The initial savings estimate is based on a decrease in the overall area on a square metre basis. The actual cost savings may be less because upfront costs (mobilization, permitting, traffic accommodation, etc.) will not decrease. The new bridge would be designed to include a provision for a multi-use trail in the future. The cost to add a trail in the future may be up to 50% more than the initial construction cost savings due to new upfront costs. (Upfront costs can be up to 20% of the contract cost). As noted previously, Administration does not recommend this strategy.
- The demolition of the old bridge can be deferred for a $3.7 million cost savings.
- Attachment 8 illustrates the comparison of costs for retaining and removing the old bridge.

<u>Design and Scheduling Implications Created By Uncertainty About the Old Bridge</u>

- The preliminary design phase is underway based on the approved concept plan and is scheduled for completion in January of 2012. The design schedule is tight and maintaining the desired schedule is

important toward constructing the new signature bridge and related utility and roadwork during 2013 and 2014.

- Preliminary design is proceeding on the basis of removing the old Walterdale Bridge and replacing it with a new arch style structure. The new bridge will initially carry three northbound traffic lanes width. The deck width can provide for a possible fourth northbound lane should the need for additional traffic capacity arise. The bridge will also provide for a sidewalk on one side of the bridge and a wider multi-use trail/promenade on the other side.
- Due to the constraints of the existing cemetery and burial grounds on the north side of the river, the north end of the new bridge is in very close proximity to the north foundation of the old bridge. The two bridges can co-exist for a short period of time to allow vehicular traffic, cyclists, and pedestrians to continue to cross the river on the old bridge while the new bridge is under construction. There will be a requirement to close the east sidewalk along the old bridge as well as modify or eliminate the utilities that exist along and beneath this east sidewalk.
- Retaining the existing bridge is contrary to the City Council approved concept plan and would have significant impacts on the design and construction schedule as a result of the associated need to modify the new design. The associated delays would present project risks with respect to escalating construction costs and the need to expend further funds to keep the existing bridge in serviceable and safe condition. Keeping the existing bridge would also alter and complicate the strategy for dealing with federal and provincial environmental and navigation regulators. This presents further project risks with respect to obtaining the mandatory regulatory approvals in advance of project tendering in late 2012. The end result from a schedule perspective is predicted to be a one-year delay in construction completion.
- Administration does not recommend retaining the old Walterdale Bridge.

Corporate Outcomes

- Edmonton has sustainable infrastructure that fosters and supports civic and community needs.
- The City has well managed and sustainable assets and services.
- Citizens use City infrastructure and participate in services and programs that provide enjoyment and personal health benefits.
- Attractive and compact physical design with diverse neighbourhoods, amenities, and public open spaces.
- Citizens use public transit and active modes of transportation.

Attachments

1. Wood Deck and Market on Old Bridge
2. Pedestrian Railing
3. Pedestrian Level View Showing Truss and Utility Obstructions
4. Walterdale Bridge – View From East Maintaining South Span of Old Bridge
5. Integration Comparison – Retaining vs. Removing Old Bridge
6. Multi-Use Trail Integration and Alignments Maintaining Existing Bridge

7. Multi-Use Trail Integration and Alignments Proposed Bridge
8. Cost Comparison – Retaining vs. Removing Old Bridge

Others Reviewing this Report

1. R. G. Klassen, General Manager, Sustainable Development
2. L. Cochrane, General Manager, Community Services