

**E) Traffic Bridge Needs Assessment and  
Functional Planning Study Final Report  
(File: CK. 6050 – 8; IS. 6332 – 24; and IS. 6050 – 2)**

- RECOMMENDATION:**
- 1) that the new Traffic Bridge be constructed with a 3.7 metre wide driving lanes;
  - 2) that the new bridge include two 3.0 metre wide shared-use pathways to accommodate both pedestrians and cyclists;
  - 3) that the centre of each driving lane on the new bridge be painted with sharrows to encourage cyclists to use the bridge deck rather than the shared-use pathway and to advise motorists that bicycles are allowed.

**BACKGROUND**

At its meeting on December 6, 2010, City Council considered a report of the General Manager, Infrastructure Services Department, dated November 17, 2010, regarding the Traffic Bridge Needs Assessment and Functional Planning Study Final Report, and resolved, in part:

- “6) that the Administration report to the next meeting on the question of the width of the proposed driving lanes and specifically the merits or problems of whether they should be 3.7 meters wide or 3.3 meters wide; and
- 7) that the Administration report further on the pros and cons of a multi-use pathway on both sides of the bridge vs. a pedestrian-only and cyclist-only pathway.”

**REPORT:**

**Lane Widths**

Studies have shown that although narrow lane widths may reduce speed, there is a wide variability between sites, which suggests that reduction in speed is not due to width alone. Although drivers are typically more comfortable and confident in wider lanes, which could lead to higher speeds, the use of a bridge as a traffic calming measure may not be cost-effective. More effective traffic calming measures include roundabouts, which have proven to be an effective traffic calming measure in Saskatoon. There is currently a roundabout located at Spadina Crescent and 3<sup>rd</sup> Avenue (the north approach to the bridge). To ensure traffic calming, the Administration will investigate the feasibility of constructing a second roundabout on the south approach, assuming the first span of the existing bridge is eliminated during the design process.

The narrow lane widths of the existing Traffic Bridge have been shown to increase the frequency of side-swipes and fixed-object collisions. Although narrow lanes exist on both the Broadway and University Bridges (3.3 metres and 3.4 metres respectively) they are compensated for by the

presence of additional lanes. Therefore, the consequence of an errant vehicle leaving its lane is significantly reduced.

The trusses of the Traffic Bridge have an important psychological impact on drivers, which is not present on any of the other bridges in the city. The “tunnel walls” focus drivers’ attention, causing them to shy away from the outside of the lane. Oncoming vehicles have exactly the same effect which results in them “pushing” drivers closer to the guardrail, occasionally leading to sideswipes. Without shoulders, this will remain a problem on the new Traffic Bridge, especially if the lanes are maintained at 3.3 metres.

An ongoing concern on the existing Traffic Bridge is lane straddling by larger vehicles. Narrow lanes also cause navigation problems, particularly for larger vehicles, at the approaches to a bridge where vehicles need to turn into the lanes. With its increased load capacity, the new bridge may need to accommodate transit vehicles and, on occasion, emergency vehicles, compounding the concerns with narrow lanes.

The Administration is, therefore, recommending that the new bridge be constructed with 3.7 metre driving lane widths.

A minimum 3.7 metre driving lane would allow for the following separation from the guardrail:

- Passenger cars - 0.85 metres (approximately 2¾ feet);
- Transit buses - 0.55 metres (less than 2 feet); and
- Emergency vehicles - 0.25 metres (approximately 10 inches).

Attachment 1 shows the scale of various designs of vehicles which would be using the Traffic Bridge with 3.7 metre driving lanes. Even at relatively low speeds, the bridge will be fairly demanding of driver attention, and punitive for even short lapses of attention.

#### Pedestrian and Cycling Accommodation

The Administration reviewed various options for the accommodation of pedestrians and cyclists on the new bridge and reviewed the options with the Cycling Advisory Group. A conceptual review was completed, with the comments from the Cycling Advisory Group included, to evaluate the merits of each option.

Attachment 2 shows the operation of dedicated walkways, with the east side restricted to bicycles only and the west side restricted to pedestrians only. In this configuration, northbound cyclists would be able to choose to remain on the bridge deck or use the 3.0 metre bicycle-only lane.

The Administration does not recommend this option for the following reasons:

- To use the bicycle-only pathway, southbound cyclists would need to cross the roadway completely and they would then need to re-cross the roadway at the other end to re-enter the driving lane;

- Approximately half of the pedestrians using the bridge would be forced to cross the road twice, resulting in complexity and safety concerns for non-vehicular users;
- The heavy demands at the crosswalks on both ends of the bridge would severely reduce the through capacity for vehicle use;
- Good compliance cannot be achieved;
- It would not allow any flexibility for users. For example, the entire east side of the bridge would be unavailable for pedestrians);
- This design would create a zone of conflict between motorists, cyclists and pedestrians at both ends of the bridges.

Attachment 3 shows the operation of one-way exclusive-use bike lanes operating adjacent to the pedestrian walkways. In this configuration, confident cyclists will be able to travel in the driving lanes of the bridge; while less-confident cyclists may leave the road and use one-way exclusive use bike lanes immediately adjacent to the steel trusses. These 1.2 metre wide lanes would be painted a solid colour throughout their length, and marked with a “diamond” to indicate that they are exclusively for bike use. Pedestrians would be able to use the remaining 1.8 metres of the walkway. No physical barrier would separate cyclists from pedestrians, and both would need to be aware and cautious.

The Administration is not recommending this option at this time for the following reasons:

- Good compliance cannot be achieved;
- The operation of the pathways would be inconsistent with the other bridges; and
- This design does not allow any flexibility for cyclists. For example, all the southbound movements are provided on the west side of the bridge.

The Administration is recommending that the new Traffic Bridge be constructed with 3.0 metre-wide shared-use pathways, as shown in Attachment 4. Signs advising pedestrians and cyclists that the pathway is shared would be posted. This is similar to what was used on the current Traffic Bridge and what is used on all the other bridges in Saskatoon. Operationally, this is the least complex of all options, and also the most familiar to current users of the road, path and trail systems.

- The operation of the pathways would be consistent with the other bridges;
- The operation allows the most flexibility for pedestrians and cyclists. For example, all movements are provided on both sides of the bridge; and
- Cyclists’ yielding to pedestrians on the walkways remains the safest operation.

For comparison purposes, the table below details the width of the bridge pathways in the city.

<b>Bridge</b>	<b>Number of Pathways</b>	<b>Pathway Width (metres)</b>
Sid Buckwold Bridge	1	1.8
Existing Traffic Bridge	1	1.4
Proposed New Traffic Bridge	2	3.0
Broadway Bridge	2	1.9 <sup>1</sup>
University Bridge	2	2.2 <sup>1</sup>
Circle Drive Bridge	1	3.0

<sup>1</sup>The clearzone of the pathway is reduced by 0.6m bases for overhead structures.

The Administration is also recommending that each driving lane on the new Traffic Bridge be marked with sharrows to encourage confident cyclists to use the bridge deck instead of the multi-use pathways, and to advise motorists that bicycles are allowed.

### **ENVIRONMENTAL IMPLICATIONS**

There are no environmental implications.

### **PUBLIC NOTICE**

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

### **ATTACHMENTS**

1. Recommended Vertical & Horizontal Clearances;
2. Operation & Signing of Exclusive-Use Pathways;
3. Operation & Signing of One-Way Exclusive-Use Bike Lanes; and
4. Operation & Signing of Shared-Use Pathways

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