

Transit Operator Barrier Retrofit and Addition to Bus Specifications

ISSUE

What are the benefits, issues, estimated costs, and funding source options to retrofit Saskatoon Transit's existing conventional fleet with operator safety barriers and include these barriers in future bus purchases?

BACKGROUND

The Governance and Priorities Committee, at its meeting held on August 24, 2020, considered The Use of Non-Medical Face Masks and Public Access to City Services report, and resolved:

“That the Administration report back, in time for the next budget discussions in 2020, on the benefits, issues, estimated costs, and funding source options to both retrofit the existing fleet with operator safety barriers and include these barriers in future bus purchases.”

CURRENT STATUS

A transit operator safety barrier is a rigid shield installed between the driver compartment and the passenger area, which effectively protects the operator from physical attack. Saskatoon Transit does not currently have permanent operator barriers in its fleet of buses.

With the onset of COVID-19, Saskatoon Transit installed vinyl barriers, as an engineered control, to provide operators with a measure of protection from possible exposure to COVID-19. These barriers have become the norm in the transit industry over the last several months. While these barriers protect the operator from the transmission of COVID-19, they can be bypassed physically.

There has been a total of 28 assaults on operators in the driver compartment over the last three years at Saskatoon Transit.

DISCUSSION/ANALYSIS

Saskatoon Transit investigates all incidents to determine root causes and necessary corrective actions. As part of this process, on-bus video surveillance is viewed, and witnesses provide statements. The goal is to determine what, if anything, could have been done to prevent the incident from occurring.

The 28 assaults on an operator in their compartment since 2017 represent 0.89 assaults per million customer interactions, based on the 31.3 million rides recorded in Farebox since January 2017 to current. This low rate is a testament to the professionalism and high quality of customer service provided by the operators at Saskatoon Transit. A review of these 28 assaults indicates that the majority were related to fare or rule enforcement. Transit properties who do not use physical barriers,

including Saskatoon Transit, focus on operator de-escalation training as the primary mitigation strategy. Although many of these 28 incidents could have been prevented had a different approach to rule enforcement been used, not all violent encounters can be avoided. A combination of a consistent de-escalation approach combined with the use of a safety barrier would have prevented all 28 incidences.

Advantages:

- Bus operator perspective – increased security and management support for operator’s safety and security.
- Customer perspective – lets the customer know the agency is serious about safety and security.
- Will prevent most physical injuries to operators due to assault.
- Does not require significant investments in security personnel.
- May assist with exposure control for COVID-19 and other viruses, but further research is required on availability and cost of barriers that could meet the occupational health and safety requirements as an engineered control for COVID-19 and other viruses.

Disadvantages:

- May encourage other violent acts such as throwing of items, spitting and banging on the barrier.
- May be seen by customers as an indicator that the overall system is not safe.
- Systems that have already adopted barriers as a security measure have noted concerns about customer service, and operator comfort issues such as claustrophobia, glare and reflection, and noise.

Alternatives:

- Plexi-glass barrier:
Some transit agencies have used a plexi-glass barrier as a cost-effective solution to a purpose-built barrier. There are several issues with these including how the barrier is fastened and the material used. The plexi-glass material is not Canadian Motor Vehicle Safety Standards (CMVSS) compliant, and therefore SGI will not allow it to be used in Saskatoon Transit buses.
- Further de-escalation training:
A physical barrier can provide an additional safety control to mitigate the impact of negative interactions; however, options such as additional de-escalation training can strengthen an operator’s skill set in working with the public. Professional de-escalation and conflict avoidance training helps operators identify potentially negative interactions and understand how these trigger an escalated response. In addition to helping operators identify the risk, operators will be better able to deliver a service with a higher focus on customer service.
- Strengthen relationships with the public:
Saskatoon Transit can work to bolster educational outreach with institutions and provide more community outreach opportunities.
- Increase media campaigns to target behaviour on buses:

This could include posters, signage and media events.

FINANCIAL IMPLICATIONS

The total cost per bus to retrofit would be approximately \$7,000 to \$21,000 per unit, including installation, depending on the style of barrier selected. The cost to retrofit Saskatoon Transit's fleet of 140 buses, would therefore range between \$980,000 and \$2.9M.

In addition to the above costs, the heating and cooling of the driver compartment would need to be addressed. Heating the area isn't a major issue but cooling the driver compartment in the summer months has been problematic for other systems, most recently with the Edmonton Transit Service. With the addition of the barrier, the air flow through the driver compartment is dramatically reduced and can cause a greenhouse effect. Some transit agencies have had to install air conditioning units solely for the driver compartment and these units cost approximately \$6,000 plus installation of approximately \$2,000, for a total of approximately \$8,000 per bus. To retrofit the fleet with this option would cost approximately \$1,120,000.

Transit's research to date has shown that mid-range barriers would almost certainly prove effective from both a value, driver comfort, and effectiveness perspective. As such, and assuming all buses require additional cooling units for the driver compartment, the total estimated capital requirement would be approximately \$2,926,000.

As an option to fund approximately 24 buses under a pilot program in 2021, \$500,000 of reallocated federal gas tax dollars could be provided from the gas tax contingency fund. Proceeding with a pilot program would provide an opportunity to obtain feedback from operators and mechanics on the performance, driver comfort and effectiveness.

Before retrofitting the entire fleet, if the City proceeded in this direction, feedback and findings from the pilot program and further research would be included in a program to start retrofitting buses slowly. Working with operators and mechanics on the best solution per bus type will result in the most effective long-term solution. Once the best retrofit solutions are solidified, the retrofit process could proceed relatively quickly after that. If the pilot program is initiated, Administration could report back with the findings of the pilot program with options and funding sources for retrofitting the remaining fleet for consideration in the 2022 budget deliberations.

Ongoing maintenance of the installed barriers would have a minimal impact on maintenance and future bus purchases could be budgeted for with the required installation and reported during the appropriate business plan and budget deliberations.

The two main Canadian manufacturers of transit buses are New Flyer and Nova Bus. They can supply a factory installed physical barrier as a part of the bus order. To have these barriers added to Saskatoon Transits bus specifications, and be included in the

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build of the bus, will increase the purchase price by approximately the same amount as the retrofit cost per bus.

NEXT STEPS

Considering the pandemic, Saskatoon Transit will continue to use the vinyl barriers that act as an engineered control against the spread of COVID-19.

Transit will continue to monitor industry trends related to changes due to COVID-19 and the effectiveness of a fixed barrier for operator protection.

Saskatoon Transit will continue using a range of methods including operator training in incident de-escalation, targeted media campaigns, and internal fare enforcement policies to protect Saskatoon Transit bus operators from passenger assault.

Report Approval

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