



Benefits of Side-Entry Accessible Taxicabs in Toronto

Date: June 12, 2018
To: TTC Board
From: Chief Service Officer

Summary

The purpose of this report is to demonstrate the benefits of side-entry accessible taxicabs relative to rear-entry accessible taxicabs. The TTC has exclusively contracted to companies providing drivers with side-entry accessible taxicabs since the 1990s. In the last 10 years, rear-entry accessible taxicabs have become more prevalent in the marketplace as they were a less expensive alternative to side-entry.

Staff's recommendation is that side-entry accessible taxicabs are more appropriate for the Wheel-Trans operation in the City of Toronto – the high density and busy, predominantly two-way, street network poses significant challenges for rear-entry taxicabs due to the limited availability and access to curb cuts to escort customers using a mobility device on and off sidewalks. Side-entry vehicles offer greater customer and driver safety levels as customers are boarded and disembarked onto a sidewalk rather than on a roadway in on-coming traffic.

TTC's analysis included detailed discussions with paratransit managers from New York MTA, Milton Transit, York Region Transit and Ottawa's OC Transpo; results from a study conducted by Stantec Consulting (Stantec), which included a review of three engineering conversion manufacturers and a survey across 23 transit properties; and an accident rate review from the Toronto Police Service. The TTC compared the results from the various transit properties, specifically their operational environments, and compared them to the operating environment in Toronto including geographic layout, operational, customer and safety requirements. Based on its analysis and the results of the study staff continues to recommend the exclusive use of side-entry accessible taxicabs for its accessible taxi services contracts. At its meeting on July 12, 2017 the Board requested staff to report back on the benefits of side-entry accessible taxicabs relative to rear-entry accessible vehicles.

Recommendations

It is recommended that the Board;

1. Receive this report for information.

Financial Summary

This report has no financial impact beyond what has been approved in the current year's budget.

Equity/Accessibility Matters

The type of vehicle used in the provision of specialized transit service has a direct impact on accessibility. Both side-entry and rear-entry taxicabs have positive and negative attributes which must be considered when making procurement decisions on the next set of service contracts. See Tables 2 and 3 in the Appendix for the list of taxicab attributes.

Decision History

At its meeting on July 12, 2017 the Board requested staff to report back on the benefits of side-entry accessible vehicles relative to rear-entry accessible taxicabs.

[Minutes of the Previous Meeting](#)

Issue Background

TTC Wheel-Trans manages various service contracts with third party taxi brokerages to supplement bus service in the provision of specialized accessible transit services. Approximately 62 percent of all Wheel-Trans trips are delivered by licensed contracted taxis and drivers through accessible taxicabs or sedan taxicabs. For 2018, Wheel-Trans forecasted a demand to accommodate approximately 4.4 million trips for customers. This demand will be met by the TTC operated fleet of approximately 218 buses, 335 accessible taxicabs and over 2,500 sedan taxicabs.

An accessible taxicab is defined by the City of Toronto as “any vehicle equipped to transport a person in a wheelchair that is D409 compliant. Accessible taxicabs can be factory purpose-built or converted minivans and must be on the Municipal Licensing & Standards approved taxicab vehicle list.” In the early 1990s Wheel-Trans operation first began to only use side-entry accessible taxicabs and based on its experience, input from the Advisory Committee on Accessible Transit and rider surveys, Wheel-Trans has continued to do so. The cost for an accessible side-entry taxicab is approximately \$48,000 and the rear-entry taxicab is approximately \$40,000 (Model: 2017 Dodge

Caravan). Previously when MV1 taxicabs were in production for sale the cost was approximately \$68,000 however these taxicabs are no longer in production.

Wheel-Trans purchased buses from ProMaster that have both a side and rear entry access in order to allow more passenger capacity and multiple customers using mobility devices to be accommodated and operationally assists in quicker disembarking in emergency situation. Buses allow for multiple configurable options for rider accommodations: The larger Wheel-Trans Ford (Friendly) buses can accommodate four customers using a mobility device and eight ambulatory customers while the slightly smaller Dodge Pro-Master provides a configuration of two customers using a mobility device and six ambulatory customers. The accessible taxicab currently in use by our contractors can accommodate one customer using a mobility device and two ambulatory customers.

Comments

TTC's experience is that side-entry accessible taxicabs are the most suitable and appropriate for Toronto due to the space constraints of operating in a dense urban environment where parking and boarding taxicabs can be challenging. Taxicabs with rear-entry ramps require a larger footprint and can be deployed only when sufficient parking space behind the taxicab is available or else rear-entry vehicles must board customers directly into a live lane of traffic. As well, if snow is not sufficiently cleared from curb cuts, customers can have difficulty navigating from the street onto the sidewalk. Side-entry vehicles enhance both the driver's and customer's safety as customers do not have to exit onto an active roadway and neither driver nor customer are positioned at the rear of the taxicab for a long period of time.

Staff held detailed discussions with New York City MTA Access-A-Ride, York Region Transit Mobility Plus, Milton Transit Milton Access+ and Ottawa's OC Transpo Para Transpo to confirm and validate TTC's decision to exclusively utilize side-entry accessible taxicabs. Details are provided in Appendix 1.

As part of a safety analysis, TTC staff undertook its own review of Toronto Police Service incident reports from their KSI dataset (Killed or Seriously Injured) for 2016 and 2017 to determine the frequency of side versus rear vehicle collisions. The data reported reveals that rear end taxicab collisions occur three times more often than side collisions in both years. See Table 1 below.

Table 1: Toronto Police Incident Type for Years 2016 and 2017

Type of incident	2016	2017
Rear End	77	76
Sideswipe	21	26

Staff engaged a consultant, Stantec, to undertake an evidence-based review to clarify and validate the benefits of side-entry accessible taxicabs relative to rear-entry taxicabs. Stantec worked with the Canadian Urban Transit Association as well as accessible

transportation academics from the IDeA Center at the University of Buffalo. Information was gathered using three sources: peer agency (Canadian, US) surveys and outreach, taxicab outfitter outreach and literature review.

Based on the results of its survey and literature review, Stantec compiled a list of positive and negative attributes for both side-entry and rear-entry accessible taxicabs. See Appendix 2.

Of the 23 Canadian transit properties surveyed, 19 use side-entry taxicabs. Reasons for this high usage rate included increased levels of safety for passenger and operator and ease of passenger device loading and unloading. All four transit properties contacted in the United States use side-entry. A list of all the properties surveyed can be found in Appendix 3 and 4.

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APPENDIX 1 – DISCUSSIONS WITH TRANSIT AGENCIES

New York City MTA's Access-A-Ride utilizes 449 side-entry accessible taxicabs for the provision of accessible services for the following reasons including: the City's congestion and limited parking; space requirement for rear-entry taxicabs is difficult to find or not available at all; and side-entry taxicabs can support accommodating larger mobility devices and can accommodate two customers using a small size wheel-chairs at a time. The customer experience is also improved as the customer is seated nearer to the driver as well being in the middle of the taxicab versus the very rear of the taxicab and securement is easier.

York Region Transit (YRT)'s Mobility Plus utilizes approximately 50 side-entry taxicabs. Like New York City, YRT included in its reasons the smaller parking space required to board / de-board the customer with a mobility device. Safety was also cited as an important factor: drivers and customers feel safer operationally to board / de-board from the sidewalk rather than the curb lane which may have live traffic flow. Side-entry taxicabs can support smaller mobility devices and the customer positioning within the taxicab provides a more dignified customer experience and allows for increased communication of information. As well, the fire suppressant system in the rear compartment area of the taxicab (that deploys automatically in case of engine fires) must be located in the rear of the vehicle preventing a rear-entry position.

Ottawa's Para Transpo (OC Transpo), utilizes approximately 35 rear-entry taxicabs. Given the city's layout (e.g., many one-way streets) and parking rules (e.g., curb lane designated for transit use), substantially more space is available for customers boarding / de-boarding and this satisfies their operational requirement. As well, Ottawa cited that their customers prefer rear-entry taxicabs. Ottawa cites on their website that bus stops aren't fully accessible due to the lack of curb cut-outs which makes it challenging for the driver to assist the customer onto the sidewalk and its downtown, one-way street network system includes dedicated bus lanes in the curb lane which prevents the stopping of taxicabs in the bus lane.

Milton Transit utilizes one rear-entry accessible taxicab. Due to the limited demand for accessible taxi services, the more expensive side-entry vehicle was difficult to justify for a contractor. Currently, Milton is operating with no accessible taxicab as its sole taxicab was rear-ended in a collision recently.

APPENDIX 2 – POSITIVE AND NEGATIVE ATTRIBUTES OF SIDE-ENTRY ACCESSIBLE TAXICABS AS IDENTIFIED BY 23 SURVEYED TRANSIT PROPERTIES

Positive Attribute of Side-Entry	Negative Attributes of Side-Entry
Fully compliant with D409 and MTO HTA Section 629	Higher conversion cost (20-25% more) (\$26,000 for side conversion vs \$18,000 for rear conversion)
Minimum exposure to traffic as the driver boards and disembarks the customer directly onto the sidewalk	Not ideal if there is limited sidewalk space
Taxicab configuration allows for Fire Suppression System that can extinguish a fire in the engine area	Passengers are required to turn 90 degrees when boarding and alighting
More options for mobility device securement locations - configuration can support two mobility devices (wheel-chairs)	Securement process can be more awkward
More dignified taxicab access for customers	Reduced clearance due to lower floor
Service animals can be positioned next to customers	Not ideal for one-way streets
Ramp is less susceptible to damage during rear-end collisions	Challenging if snowbanks exist on sidewalks
In-floor ramps easier to operate	Not ideal where cross-slopes exist
Increased vertical space	Passenger tendency to break the boarding mechanism (ramp)
Easier for driver to engage with customers	Passengers sit next to wet/snowy ramp if in-floor ramp is not specified

Table 3: Positive and Negative Attributes of Rear-Entry Accessible Taxicabs. Limitations identified reinforce TTC's decision to utilize side-entry taxicabs.

Positive Attribute of Rear-Entry	Negative Attributes of Rear-Entry
Lower capital cost (30-40% less)	Partly compliant with D409 and MTO HTA Section 629; exempted from need for secondary emergency exit in bona fide licensed taxis

Positive Attribute of Rear-Entry	Negative Attributes of Rear-Entry
Easier for boarding individuals using large mobility devices	Lacks secondary emergency exit due to rear bench
Convenient for side-by-side parking	Exposure of driver and passenger to ramp usage in traffic
Efficient passenger boarding in areas with lots of space	Mobility aid user must reverse out of taxicab
Quick and convenient securement process	Service animal cannot sit next to customer using a mobility device
Maximizes rider capacity when including ambulatory	Incremental longitudinal road space requirements for parking
Opportunity to install power winch	Designated storage area is lost
	Manual process to deploy ramp
	Difficult if curb cuts are insufficient
	Challenging if roads are not cleared of snow or not ideal in hilly terrain
	Difficult for passengers not using a mobility device to enter the high step into the mini-van
	More exposure to direct exhaust fumes
	Customer not able to transfer to a seat safely from the mobility device

APPENDIX 3 – LIST OF CANADIAN TRANSIT PROPERTIES SURVEYED AND THEIR USE OF SIDE VS. REAR ENTRY ACCESSIBLE TAXICABS: OF THE 23 PROPERTIES SURVEYED, 19 USE SIDE-ENTRY ACCESSIBLE TAXICABS

Name / Province	Side or Rear Entry	Name / Province	Side or Rear Entry
Belleville Transit (ON)	Side	Regional Municipality of Peel (ON)	Rear
Brantford Lift (ON)	Side	RMWB Transit (AB)	Side
City of Barrie (ON)	Side	Rocky View Regional Handibus (AB)	Rear
City of Medicine Hat (AB)	Side	Sarnia Transit (ON)	Side
City of Whitehorse (Yukon)	Side	SMART (AB)	Side
Cornwall Transit (ON)	Side	Stratford Transit (ON)	Side
Grand River Transit (ON)	Side	Sunshine Coach Service (ON)	Side
Guelph Transit (ON)	Side	Town of Halton Hills (ON)	Side
Handi-Transit Windsor (ON)	Side	TransLink (BC)	Rear
Milton Transit (ON)	Rear	Winnipeg Handi-Transit (MB)	Side
Peterborough Transit (ON)	Side	YRT Mobility Plus (ON)	Side
Regina Transit (SK)	Side		

APPENDIX 4 – LIST OF USA TRANSIT PROPERTIES INTERVIEWED AND THEIR USE OF SIDE VS. REAR ENTRY ACCESSIBLE TAXICABS: ALL PROVIDERS USE SIDE-ENTRY TAXICABS

Name / State	Side or Rear Entry	Name / State	Side or Rear Entry
Greater Glens Falls Transit (NY)	Side	MTA Access-A-Ride (NY)	Side
Knoxville Area Transit (TN)	Side	Rockford Mass Transit District (IL)	Side