



Wheel-Trans Cross-Border Travel Study

Date: October 24, 2019

To: TTC Board

From: Deputy Chief Executive Officer – Operations

Summary

This report is in response to a motion of the Board directing TTC staff to undertake a comprehensive review of cross-border Wheel-Trans service for customers travelling outside the city of Toronto and to report back with recommendations on how to improve cross-border Wheel-Trans service for riders travelling outside the city of Toronto. The motion required TTC staff to include a review of:

- 1) Ridership data;
- 2) Transfer wait times;
- 3) Potential for third-party service providers using PRESTO fare collection to offer integrated cross-border services; and
- 4) Potential for cost-sharing between municipalities.

The TTC retained the services of a third-party consultant to review ridership data, cross boundary policies of neighbouring regions and related costs. In summary, the TTC currently provides pick-up and drop-off to customers within a 1 km boundary to the city of Toronto. With some limited exceptions, York, Durham and Peel region transit providers all have a policy of not going beyond their boundaries. All transit providers use established transfer points for customers who transfer from Wheel-Trans to their specialized service.

There are approximately 84,000 Wheel-Trans trips that have an origin or destination outside of the city of Toronto. This is approximately 2% of all Wheel-Trans trips. For cross-border trips that require transfers to neighbouring service providers, the average wait time at transfer points is approximately one hour. While some customers purposely book a longer wait time at the transfer point, the TTC recognizes that there needs to be significant improvement in the wait times, and is working with the neighbouring transit properties to implement improvements.

There is currently no solution available on PRESTO to support a seamless cross-boundary trip with respect to fare payment. Similarly, there are no current proposals by any of the transit agencies to implement fare integration to support one fare payment or one trip across boundaries.

The potential for cost sharing requires further discussion with the regional transit properties. These discussions have started with Durham Transit. However, any proposal must be fully costed to ensure the TTC does not add costs to its current operations.

Recommendations

1. The Board endorse the current policy to provide customer pick up and drop off within 1 km boundary of the city of Toronto.
2. The Board direct TTC staff to continue discussions with the regional transit providers to improve the transfer locations and wait times and to report back to the Board in Q2 2020.
3. The Board direct TTC staff to continue discussions with the regional transit providers to explore opportunities to cost share on cross-border trips and to report back to the Board in Q2 2020.

Financial Summary

The current TTC policy for cross-border travel is to provide pick-up and drop-off to customers within a 1 km boundary to the city of Toronto. Annually, there are approximately 84,000 Wheel-Trans trips that are provided under the policy. This is approximately 2% of all Wheel-Trans trips. The annual cost for these trips is \$374,000.

On average, the incremental cost per kilometre for Wheel-Trans in-house service, contracted accessible taxis and contracted sedan taxis is \$6.68 per km, \$3.58 per km and \$2.19 per km, respectively. The annual operating costs were calculated based on the existing Wheel-Trans and contracted vehicle split for cross-border trips, which is approximately 20% Wheel-Trans and 80% contracted vehicles.

Based on the current ridership levels and vehicle split for cross border trips, annual variable costs would increase by approximately \$76,000 if the Wheel-Trans border was expanded to 3 km; \$130,000 if expanded to 5 km and \$409,000 if expanded to 10 km. This does not include the additional costs associated with:

- Scheduling system upgrades;
- Additional labour resources required;
- Potential increase in trip requests resulting from added convenience of a service area expansion; and
- Assumes the current contractual agreement with third-party providers is maintained where contractors are not compensated for deadhead travel time.

A small subset of trips made within 1 km of the Toronto border do not start or end in Toronto. While these trips accounts for a small number of trips, this represents a wrongful use of Wheel-Trans service. Updates to the trip booking system will be implemented by Wheel-Trans. As a result, approximately \$31,000 in annual cost savings will be realized.

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

Equity/Accessibility Matters

Like customers using the TTC conventional system, Wheel-Trans customers travel across the boundaries of Peel, York and Durham. A long-standing Wheel-Trans policy has been to accommodate pick up and drop off within a 1 km boundary of the border of the city of Toronto. Approximately 2% (or 84,000 annually) of all Wheel Trans trips are picked up or dropped off within the 1 km boundary. Customers travelling beyond the 1 km boundary using a regional transit provider in Peel, York or Durham will change transit providers at established transfer points. The average wait time at these transfer points is approximately one hour. This extensive wait time negatively impacts accessibility, and as outlined in this report, must be improved in co-operation with the regional transit providers. Those efforts are ongoing, including exploring solutions with the new scheduling system to reduce wait times, developing regional standards for consistent trip delivery and greater regional co-ordination for cross-border trip scheduling. The goal is to make cross border travel more accessible, equitable and efficient for existing and future customers who may require cross-border travel.

Decision History

The TTC Board, at its meeting on May 8, 2019, received the Wheel-Trans 10-Year Strategy (May 2019 update) for information. The link to that report can be found here:

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2019/May 8/Reports/7 Wheel-Trans 10 Year Strategy May 2019 Update.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2019/May%208/Reports/7%20Wheel-Trans%2010%20Year%20Strategy%20May%202019%20Update.pdf)

At the May 2018 Board meeting, the TTC Board directed staff to undertake a comprehensive review of cross-border Wheel-Trans service for customers travelling outside the city of Toronto and report back to the TTC Board with recommendations on how to improve cross-border Wheel-Trans service for customers travelling outside the city of Toronto.

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2019/May 8/Reports/Decisions/7 Wheel Trans 10 Year Strategy May 2019 Update Decision.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2019/May%208/Reports/Decisions/7%20Wheel%20Trans%2010%20Year%20Strategy%20May%202019%20Update%20Decision.pdf)

Issue Background

The TTC Board, at its meeting on May 8, 2019, received the Wheel-Trans 10-Year Strategy (May 2019 update) for information. The TTC Board directed staff to undertake a comprehensive review of cross-border Wheel-Trans service for customers travelling outside the city of Toronto and report back to the TTC Board with recommendations on how to improve cross-border Wheel-Trans service for customers travelling outside the city of Toronto. The TTC retained the services of a third party consultant to review ridership data, cross boundary policies of neighbouring regions and related costs.

ACCOMPLISHMENTS

The third party review is part of the larger efforts of the Wheel-Trans 10-Year Strategy. As part of the strategy, a number of milestones have been accomplished including:

- Implemented 13 new customer-centric policies [Q2 – Q4 2018];
- Held additional public meetings to engage and receive customer input [Q2 2018];
- Launched a Travel Training Pilot for Wheel-Trans customers interested in using accessible buses, streetcars and subways [Q2 – Q4 2018];
- Introduced new technology - Telephone system upgrade, and migration to the TTC standard Customer Relationship Management system [Q2 – Q3 2018];
- Scheduling System - Implemented the first phase of the scheduling system redesign, including initial automation of Family of Services trip booking [Q4 2018];
- Family of Services - Completed the Family of Services pilot, which included five surface conventional routes and 45 accessible stations [Q4 2018];
- Family of Services - Began the process of FOS expansion by identifying an additional 14 surface routes and 82 bus stops to transfer customers to and from the conventional TTC system [Q2 – Q4 2018];
- Full Trip Diversion - Conducted a survey from January to April 2019 that asked Wheel-Trans customers to report on the modes they used; 18% of customers indicated that they travelled entirely on the conventional TTC system.

It is also important to note that significant improvements have been made by all GTA transit agencies to improve accessibility. The Greater Toronto Hamilton Area (GTHA) Specialized Transit Working Group consists of representatives from GTHA transit properties. Improvements include:

- In July 2015, the Call One Call Centre was created where York Region provided a single contact point for cross-border trip booking across the GTHA during the Pan Am/Parapan Am Games resulting in enhanced communication, customer convenience and operational efficiencies.
- In April 2016, York Region began booking both legs of cross-border trips between York Region and Toronto, Peel Region and Durham Region.
- In 2017, a Memorandum of Understanding (MOU) came into effect harmonizing processes and policies between specialized transit service providers in the GTHA.

- A focus has been placed on reducing wait times, improving communications with contractors, aligning policies and identifying opportunities to improve customer experiences. Specifically, a working group meeting was held where dispatchers and schedulers from each agency were invited to participate and discuss individual challenges, successes and opportunities for improvement.

Highlights from 2019 include:

- Sharing dispatch phone numbers between agencies to allow for information sharing for real-time resolutions.
- Working to reduce dwell times to between 15-30 minutes.
- PRESTO information workshop on Support Person solution (May 2019).
- Travel Training workshop (August 2019).
- Developing communications materials (how-to videos) to aid customers with cross-border travel (ongoing).

TRANSIT AGENCY CROSS BORDER POLICIES

A review of GTA cross-border practices shows a trend in maintaining municipal borders and leveraging transfer locations to deliver cross-border trips. Additionally, in alignment with the Accessibility for Ontarians with Disabilities Act (AODA), GTA agencies are moving towards an Family of Services (FOS) trip delivery that offers additional service integration and greater productivity for cross-border trips, including the use of FOS trips to reduce wait times and overall travel times for these trips.

The existing cross-border practices between Toronto and neighbouring GTA transit agencies are detailed below.

Wheel-Trans

Wheel-Trans' current policy is to travel up to 1 km (as the crow flies) outside the TTC service area border (Toronto border). When a Wheel-Trans customer books a cross-border trip they will input their origin and destination. Presuming that one of those locations is outside of Toronto, one of two things will occur:

1. The trip starts or ends up to 1 km outside of the Toronto border: In this case Wheel-Trans will deliver the entire trip as this is within its service area; or
2. The trip starts or ends beyond 1 km outside of the Toronto border: The customer will book a Wheel-Trans trip to the nearest designated transfer location (locations noted below). The customer will then book the second segment of their trip that occurs outside the Wheel-Trans service area with the appropriate service provider to their destination (Peel TransHelp, York Region Transit Mobility On-Request or Durham Specialized Transit).

Currently, Wheel-Trans customers are required to book both legs of their cross-border trips. This involves customers providing desired pickup times with each agency for the respective leg of the trip while accounting for adequate buffer times between transfers.

Given the separate contact points, apart from YRT, there is little opportunity for co-ordination between agencies to reduce wait time windows if customers have intentionally scheduled a significant buffer time between transfers. Wheel-Trans is currently developing a separate portal for GTA agencies to access the Wheel-Trans booking system to book and track both segments of a cross-border trip, which will provide a formal channel for seamless trip booking.

Furthermore, separate transit fares are required for each service provider used on a cross-border trip. With participation from the GTHA agencies, and with Metrolinx sponsorship, a Fare Integration Forum (FIF) was established to revisit Fare and Service Integration in the GTHA. As the details become more apparent, the impacts to Wheel-Trans service will need to be reviewed.

York Region (Mobility On-Request)

As of 2018, York Region Transit Mobility On-Request (YRT) does not travel into Toronto, stopping at the existing regional border between Toronto and York Region (0 km border), along Steeles Avenue East/West. There are currently four designated transfer locations detailed in Table 1.

As a convenience to its customers, YRT books both the YRT and TTC segments of cross-border trips. In 2018, YRT booked 4,470 of these trips for their customers travelling cross-border and have booked more than 3,668 as of October 2019. Separate YRT and TTC transit fares are required for each trip segment.

Prior to 2018, YRT travelled to a number of designated points across its regional border. A significant reason for the 0 km border change was to provide equivalent service for all specialized transit customers as mandated under the AODA. Taking certain customers across the regional border for a single fare (to designated locations) while requiring others to transfer to another service provider using two fares raises equity concerns. Providing a border that aligns with the regional border for all specialized transit trips complies with the AODA, creating a strong justification for this policy change.

A number of successful strategies were used to make this service change:

- The border change was made gradually over a few months with various locations removed – avoiding the school year to minimize disruptions to students travelling to school or day programs.
- All customers were contacted individually to advise them of these service changes and what their available options were.
- Travel training was used as a critical piece to provide customers with the knowledge to make cross-border trips. YRT has also travel trained a number of Wheel-Trans customers who made cross-border trips between Toronto and York Region. This has been tracked to avoid duplication of training.
- YRT met with each councillor and their executive assistants to make them aware of the FOS service model and explain the reasoning for the service updates. This was a helpful way to disseminate information to customers who reached out to their councillors to understand the service changes.

- YRT set up a customer hotline that bypasses the queue for trip booking to address real-time changes to scheduling that are required.
- Lastly, YRT has focused on enhancing transfer locations along the border. They have highlighted the importance of strong partnerships to allocate space and infrastructure for convenient transfers.

Peel Region (TransHelp)

As of 2017, Peel Region TransHelp adopted a policy of a 0 km border and has been slowly cutting back on cross-border service delivery. Prior to 2017, there was no official cross-border policy, and approximately 300 Toronto destinations (all within five kilometres of the border) were serviced by TransHelp, but this has since been grandfathered with the introduction of the 0 km policy. Today, 72 out of these 300 destinations are still serviced. However, Peel Region continues to re-evaluate these destinations and cut back on cross-border service. Otherwise, TransHelp will not travel outside of the Peel Region border except to connect with other specialized transit providers at designated transfer locations.

It is understood that Peel Region is currently in the process of reviewing its cross-border policy, including the service area border. Kipling Station is one of the Toronto destinations still serviced, with over 1,000 trips made there annually by TransHelp. This presents an opportunity to provide some of these cross-border trips via FOS delivery.

Prior to using a 0 km border, Peel would travel 5 km into Toronto. Currently, customers are required to book each part of their trip with the respective service provider. Two transfer points are utilized between Toronto and Peel Region as detailed in Table 1. Separate TransHelp and TTC fares are required for each trip segment.

Durham Region (Specialized Transit)

Durham Region Specialized Transit has a legacy policy whereby service does not extend past the border (0 km) except to provide service to designated transfer points for cross-border trips. There is one transfer point between the Toronto and Durham Region border as detailed in Table 1, and the legacy policy with Wheel-Trans enables trips to be transferred at this designated transfer point. Durham Region does not travel into Toronto apart from accessing the designated McDonald's transfer point and the Scarborough Hospital. Durham Transit and Wheel-Trans are currently investigating additional transfer points that will facilitate more convenient transfers, including University of Toronto (Scarborough Campus), which provides access to TTC and Durham Transit service.

Customers are required to book all parts of their cross-border trip with the respective service provider. Separate Durham Transit and TTC fares are required for each trip segment. Additionally, Durham Transit is upgrading their booking system. They currently offer online booking and are developing a mobile application to improve the convenience of trip booking. Notably, Durham Transit was recently experiencing issues with high wait times (illustrated in the data analysis below) due to an underperformance of a subcontractor. With that now rectified, improvements to the wait times for cross-border trips between Toronto and Durham are anticipated.

Metrolinx/GO Transit

GO Transit provides interregional transit service throughout the GTHA via bus and train. All GO service is accessible, with several local transit routes connecting to GO stations around the GTHA. Customers are not required to book a trip with GO Transit.

Therefore, Wheel-Trans will take customers to any GO location within the Wheel-Trans service area when requested for them to continue their journey in and out of Toronto using GO Transit.

Wheel-Trans has pre-established transfer points with GO at the following GO terminals: Union Station, Finch GO, Rouge Hill GO, Scarborough Centre Bus Terminal and Kipling GO. These transfer points are currently not intended for transfers between Wheel-Trans and YRT, Peel Transit or Durham Transit. Wheel-Trans does not document the purpose of trips; therefore, it can not be confirmed if trips completed to these locations are to continue their journey on GO Transit or used for another purpose. Presumably, a portion of these trips continue on the GO Transit network.

There are currently limited connections to GO service from the existing Wheel-Trans cross-border transfer points noted in Table 1. GO bus service can be accessed a short distance from the McDonald's transfer point close to the Durham Region border and at Centrepont Mall near the York Region border. However, these stops are not located at the transfer points making a potential connection less convenient. Additionally, these buses have varying frequencies that may impact wait times if transfers were to occur.

Designated Transfer Locations

Currently, there are seven designated transfer locations in Toronto that serve as connecting points between Wheel-Trans and transit service in York, Peel and Durham regions.

Table 1: Designated GTA transfer locations

Location	Agency	Address
McDonald's	Durham	7431 Kingston Road, Toronto
Centrepont Mall (Pickle Barrel)	YRT	6464 Yonge Street, Toronto
Shops on Steeles (Food Basics or Tim Hortons)	YRT	2900 Steeles Avenue East, Markham/2890 Steeles Avenue East, Markham
Tim Hortons	YRT	5641 Steeles Avenue East, Toronto
Tim Hortons/McDonald's	YRT	3310 Steeles Avenue West, Vaughan/3320 Steeles Avenue West, Vaughan
Queensway (Trillium) Hospital/Tim Hortons*	Peel	150 Sherway Drive (Queensway Hospital), Toronto/ 200 Sherway Drive (Tim Hortons), Toronto
Woodbine Racetrack	Peel	555 Rexdale Boulevard, Toronto

* used as the transfer location after 9 p.m.

REVIEW OF RIDERSHIP DATA

Over the past three years (January to June, 2017-2019), a growth in ridership is seen in trips to/from the Durham Region and Peel Region transfer points whereas a decrease in trips to/from York Region transfer points is observed.

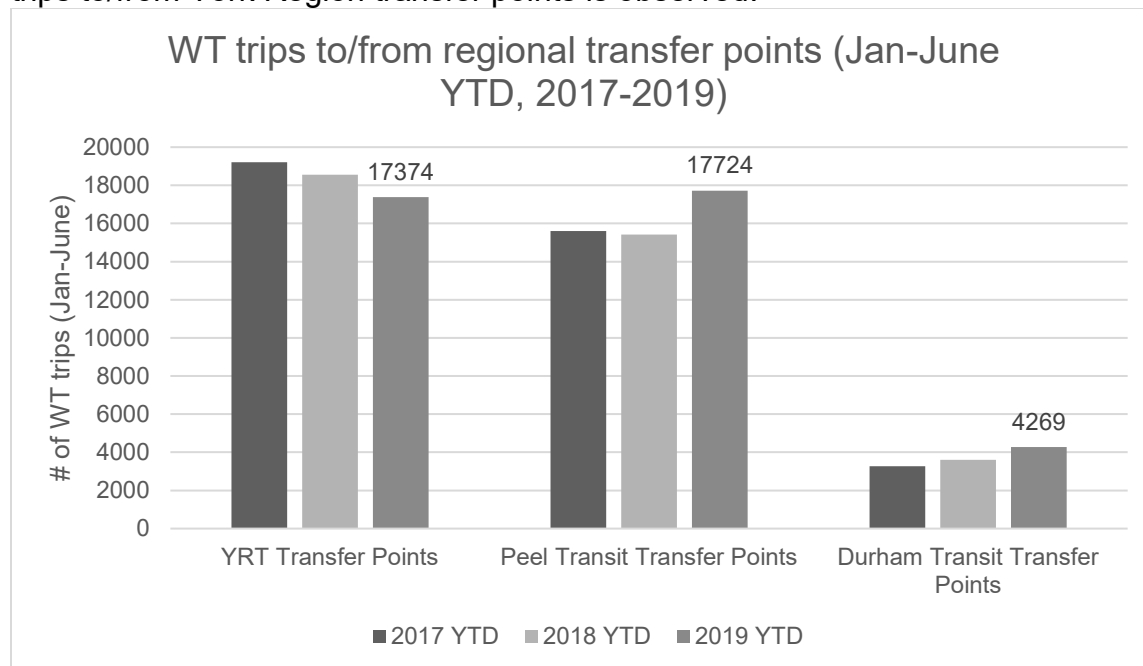


Figure 1: Wheel-Trans trips to/from regional transfer points, January to June (2017-2019)

Based on cross-border trips made by all four GTA service providers to and from designated transfer points utilized by Wheel-Trans between July-December 2018, the majority of cross-border trips (pick-ups and drop-offs) occur between Wheel-Trans and York Region (49%), followed by Wheel-Trans and Peel Region (40%) and the lowest percentage of cross-border trips occur between Wheel-Trans and Durham Region (11%).

The average driving distances from each transfer point was measured considering both Wheel-Trans and non-Wheel-Trans trips:

- The majority of the trips made to and from the Durham Region/Toronto transfer point are greater than 10 km from the transfer point (77%) with 0.5% of trips within 5 km of the transfer point.
- Trips made to and from the Peel Region/Toronto transfer points are primarily over 10 km, with approximately 5% of trips found to be within 5 km of the transfer point.
- Trips made between the transfer points connecting to York Region indicate that more trips fall within the 5-10 km radius.

This analysis indicates that a service area extension up to 5 km outside the Toronto border would capture an insignificant percentage of trips. However, a spatial analysis detailed below provides a deeper understanding of the Peel Region, Durham Region, and York Region trip segments.

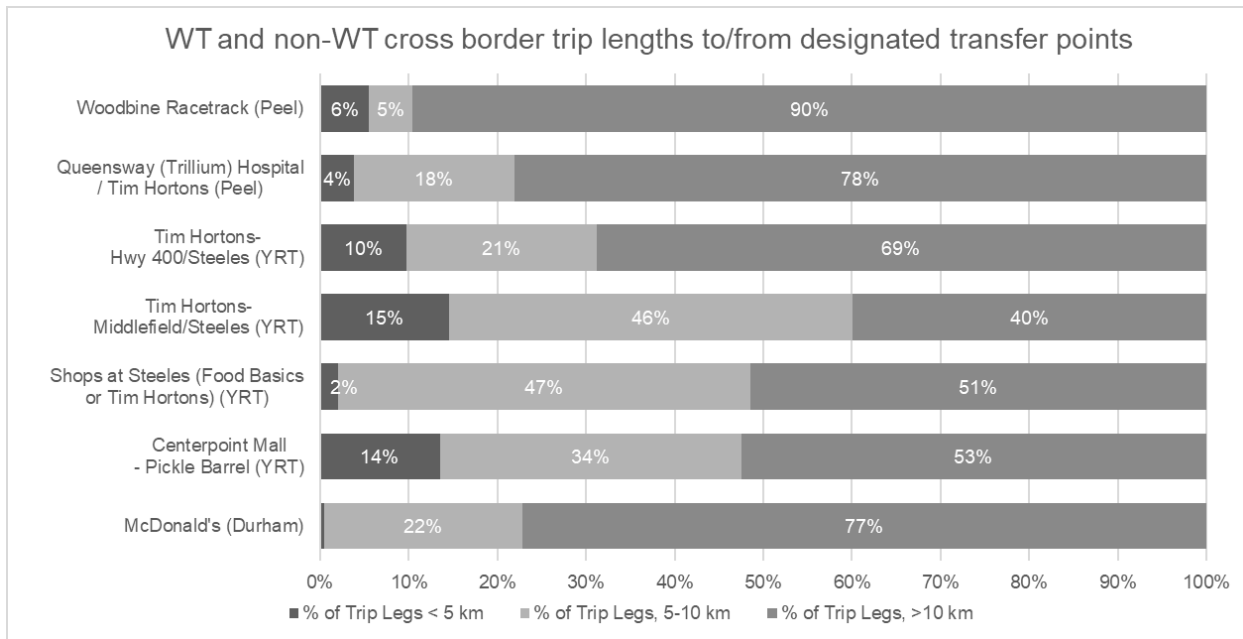


Figure 2: Breakdown of trip distances to/from designated transfer points

The cross-border trip analysis reveals that many trips occurring to the east (Durham Region) or west (Peel Region) are well beyond a 5 km driving distance from the Toronto border and therefore, in the immediate term, additional strategies should be investigated to improve cross-border travel.

Potential Implications of Change to Wheel-Trans Policy

An analysis was completed to understand the effect of altering the cross-border policy and the applicable cost implications to Wheel-Trans. This analysis supplements the analysis shown in Figure 2 that considers trip distances (driving distance) from transfer points. This spatial analysis considers trips that fall within the radial distance of various borders; that is, the straight-line distance from the border, which yields conservative estimates, rather than the driving distance, which would yield aggressive estimates. Together, both analyses help to paint a picture of cross-border travel throughout the GTA.

Maintain the 1 KM Border

Between July 2018 and December 2018, just over 42,000 trips were made within 1 km of the Toronto border, representing 2.6% of all Wheel-Trans trips occurring over this period. The majority of trips that cross the border by ≤ 1 km are to/from York Region, representing 82% of trips. This is followed by 16% of trips made to/from Peel Region and 0.2% of trips made to/from Durham Region. This suggests that majority of cross-border trips made to Durham and Peel Regions are likely greater than 1 km over the border and therefore more often require a transfer of service providers. The impacts redirecting these trips are discussed below in the 0 km border scenario.

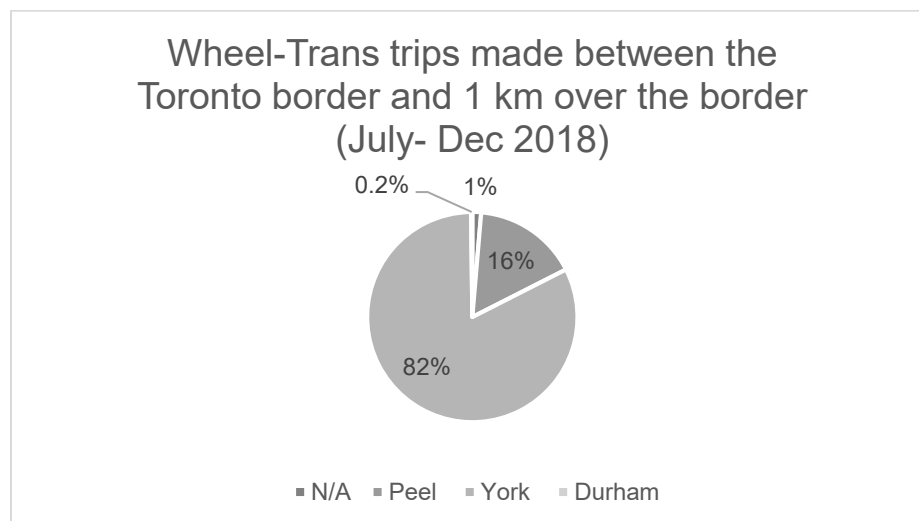
Reduce border to 0 KM (city of Toronto border)

As noted in the point above, this would require a redirection of approximately 42,000 Wheel-Trans trips over six months, or 84,000 Wheel-Trans trips annually to transfer points throughout Toronto. These trips are made by 3,610 customers. This is in addition to the 1,041 customers who travelled to or from designated transfer points within the same six-month period.

Ideally, reducing the border to 0 km could free up resources to be redeployed in helping decrease waiting times at transfer points and improve service productivity. Increased schedule co-ordination would be required if the border were reduced to minimize customer impact. As GTHA agencies move towards more integrated travel, an eventual border reduction could be considered. Additionally, FOS trips can be leveraged to transport customers inter-regionally in the most direct, convenient and efficient way possible, while still providing door-to-door service for customers who require that level of service.

The majority of trips that cross the border by ≤ 1 km are to/from York Region, representing 82% of trips. This is followed by 16% of trips made to/from Peel Region and 0.2% of trips made to/from Durham Region.

Additionally, 1% of trips (575 trips) are made within 1 km of the Toronto border. However, they neither start nor end within the Toronto border. This represents a wrongful use of Wheel-Trans service as the 1 km buffer is not intended to serve trips completely outside of the TTC service area. Updates to the trip booking system will be implemented by the Wheel-Trans team to address this concern.



* N/A refers to trips that do not start or end in Toronto

Figure 3: WT trips made between the Toronto border and 1 km over the border (July-December 2018)

A further breakdown of these trips occurring between 0 km and 1 km beyond the Toronto border suggests that most of the trips to York Region and Durham Region are two-way trips meaning Wheel-Trans performs the trip to these regions and back. There are slightly more drop-off trips made to Peel Region, suggesting that customers are using different means of transport on their trips into Toronto.

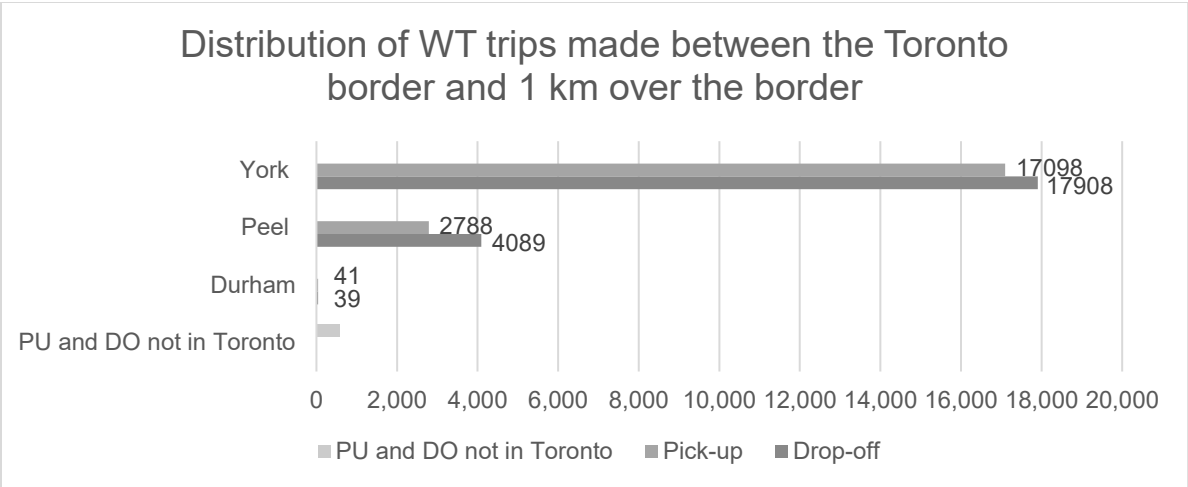


Figure 4: Distribution of WT trips made between the Toronto border and 1 km over the border¹

Additionally, the distance and duration of the current trips made between the Toronto border and 1 km over the border were examined by region. On average, the Wheel-Trans trips occurring to and from Durham Region tend to be longer, similar to what was observed for the trips to and from the designated McDonald's transfer locations by both Wheel-Trans and Durham Transit. Trips to Peel Region are similar in distance to Durham Region, but are slightly shorter. Trips made to and from York Region tend to be the shortest and the quickest, suggesting that these trips start and end closer to the northern border along Steeles Avenue East/West.

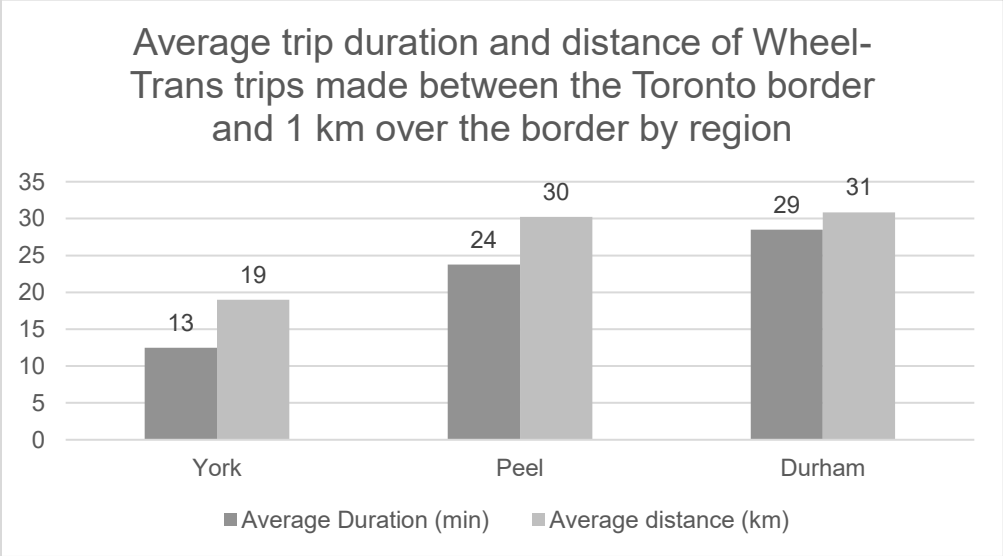


Figure 5: Average duration and distance of Wheel-Trans trips made between the Toronto border and 1 km over the border by region

The eligibility type of these customers who travel between 0 km and 1 km over the Toronto border was considered to determine the feasibility of delivering these cross-border trips with FOS trips. Overall, 22% of trips are made by conditional customers,

¹ This does not include trips to/from regional transfer points. These trips represent trips fully completed by WT that start or end between 0-1 km from the Toronto border.

with 73% of trips made by unconditional customers and 5% of trips made by temporary customers. This illustrates that a significant portion of these trips can be delivered through FOS, approximately 18,000 trips annually.

Table 2: Wheel-Trans eligibility of customers traveling between 0 km and 1 km over the Toronto border (July-Dec 2018)

Eligibility Type	Customers (6 months)	Number of Trips (6 months)	% of Trips
Unconditional	2678	31087	73%
Conditional	790	9272	22%
Temporary	141	2177	5%

Expand border to 3 KM

Approximately 17% of Durham cross-border trips, 15% of Peel cross-border trips and 54% of York cross-border trips would be captured within a 3 km buffer from the Toronto border.

Expand border to 5 km or greater

Approximately 55% of Durham cross-border trips, 24% of Peel cross-border trips and 64% of York cross-border trips would be captured within a 5 km border. If a 10 km border was considered, this would capture the majority of cross-border trips, specifically 88% of Durham trips, 65% of Peel trips and 92% of York trips. While this would reduce the transfer wait times, a border expansion this great would not be feasible or sustainable for Wheel-Trans to solely operate.

Cost Implications to Wheel-Trans

The average Wheel-Trans trip is 8 km as shown in Table 3. This is shorter than the average Wheel-Trans trip made to designated transfer locations for cross-border trips, which was found to be 18 km through this review. Therefore, while cross-border trips make up less than 5% of total Wheel-Trans trips, the impact and resource utilization of cross-border travel is greater than typical Wheel-Trans trips. On average, 80% of Wheel-Trans trips made to or from designated transfer locations near the Toronto border are completed via contracted services. This is not representative of all Wheel-Trans trips, as a much greater percentage of trips conducted within the city of Toronto are made by Wheel-Trans vehicles. On average, the cost per kilometre for Wheel-Trans in-house service, contracted accessible taxis, and contracted sedan taxis is \$6.68 per km, \$3.58 per km and \$2.19 per km, respectively.

While it could not be substantiated quantitatively due to data availability limitations, currently many trips made either to the designated transfer points or within a 1 km buffer of the city limit are returning back to the city with no returning passengers, accumulating significant deadheading costs. As such, when considering cross-border policy changes, the scheduling software capabilities will need to be evaluated and optimized to minimize these unproductive trips.

Table 3: Average Wheel-Trans trip lengths and cost (July-December 2018)

	Wheel-Trans (WT) Vehicle	Contracted Accessible Taxi	Contracted Sedan Taxi
Average Trip Length (km)	7.98	7.82	9.13
Average cost per km	\$6.68	\$3.58	\$2.19
WT trips to transfer points	18%	82%	
WT trips 1km beyond the Toronto border	15%	85%	

Currently, cross-border customers pay separate fares when they transfer between Wheel-Trans and another GTA accessible service program. Through discussions with PRESTO regarding fare payment and revenue collection, it was discovered that the Next Generation PRESTO system proposes to be a seamless, interoperable fare payment system based upon open software and non-proprietary hardware. Most importantly for accessible cross-border travel, the system envisioned by PRESTO and its parent agency, Metrolinx, will include Open Payments, Mobile Payments and

Account-Based fare payment and revenue collection platforms. These are all fare payment solutions that have been used in other accessible service programs with success. The Next Generation PRESTO system has an expected delivery date between 2022 and 2025.

The cost implication of each cross-border policy change above was calculated based on the cost per kilometre of a Wheel-Trans trip, using the existing vehicle split of approximately 80% contracted vehicles and 20% Wheel-Trans vehicles. Overall, annual operational costs would see an increase of \$76,000 if the Wheel-Trans border was expanded to 3 km, \$130,000 if the border was extended to 5 km and \$409,000 if the border was expanded to 10 km. These costs would likely be greater given the additional costs to the program listed in the financial summary and are not included in the calculation.

Contrastingly, with a border reduction to 0 km, a savings of \$374,000 could be realized and reinvested elsewhere into Wheel-Trans (i.e. providing more direct travel with shorter wait times at the border). However, for the 84,000 trips per year that are currently being delivered between 0 km and 1 km past the city of Toronto border, travel times could increase significantly as these people will be required to transfer to the neighbouring service provider, which was previously a one-seat ride. While the cost savings do not account for the additional service kilometres required to re-route these trips to transfer points, it is presumed that it will be partially or fully offset by the saved kilometres from increasing trip grouping capabilities. While a 10 km border expansion would eliminate transfers for a significant number of cross-border trips, the cost implications to Wheel-Trans are not feasible or sustainable. Additionally, the analysis shown in Figure 2 suggests that fewer trips would be captured through a border expansion if driving distances were considered.

Furthermore, a small subset of trips made within 1 km of the Toronto border do not start or end in Toronto. These trips should be booked with the appropriate GTA specialized transit provider in the area. Although only a small number of trips, this represents a

wrongful use of Wheel-Trans service. Once updates to the Wheel-Trans trip booking system are made, a savings of approximately \$31,000 annually will be realized.

These findings show merit in an eventual regional delivery of specialized transit trips where municipal borders are not considered and one service provider could deliver cross-border trips. However, this is a long-term prospect where interim steps would be required. The cost savings of removing the 1 km buffer over the Toronto border are great, although the inconvenience to customers and immediate impacts, including equity impacts, should be considered. A 0 km border alteration will allow Wheel-Trans to align with neighbouring GTA agency practices to uphold a consistent cross-border policy across the region. The cost and resources saved could be redeployed to further improve schedule co-ordination and ultimately decrease wait times for cross-border trips.

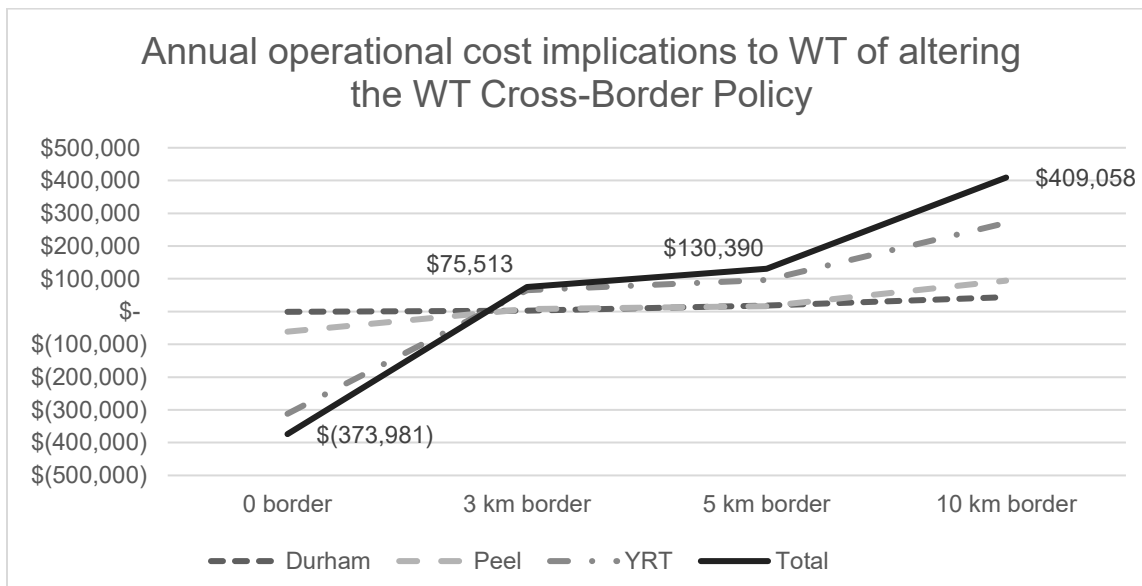


Figure 6: Annual operational cost implications of altering the Wheel-Trans Cross-Border Policy

Sensitivity Analysis (Cost Implications to Wheel-Trans)

A sensitivity analysis was conducted to understand the impact of an increased number of cross-border trips as a result of expanding the Wheel-Trans service border (3 km, 5 km and 10 km) as well as changes to the Wheel-Trans vehicle and contracted vehicle split, which is approximately 80% contractor and 20% Wheel-Trans vehicles for trips to and from transfer points. The split is 85% contractor and 15% Wheel-Trans vehicles for trips that occur between the Toronto border and 1 km beyond the border. The results are identified in Figure 7.

A number of scenarios were evaluated in terms of average (weighted) cost per kilometre, ranging from 15%/85% to a 50%/50% contractor and Wheel-Trans vehicle split. Additionally, a growth in trip demand was considered, ranging from no change to a 15% growth in demand due to increasing the service area. The highlighted costs in Figure 7 reflect what is shown in Figure 6 above, which conservatively suggests no change in trip demand and a vehicle split of 20% Wheel-Trans and 80% contractor. Notably, the increased cost due to the increased trip demand only calculates the additional cost to deliver these trips over the border. It does not account for the

additional distance Wheel-Trans will travel within Toronto, which would add additional costs depending on where trips are requested.

This analysis indicates how the cost implications can vary if the vehicle splits were to change, or trip demand were to grow, as a result of expanding the service area. In the worst case scenario where an even split of Wheel-Trans and contracted vehicles are considered with a trip growth of 15%, the annual cost implications would be approximately \$142,000, \$245,000 and \$767,000 for an expansion of service area to 3 km, 5 km and 10 km beyond the Toronto border.

Weighted average cost per km (WT/contractor vehicle split)							
Increase in trips due to policy changes		\$3.45 (15%/85%)	\$3.64 (20%/80%)	\$3.83 (25%/75%)	\$4.02 (30%/70%)	\$4.40 (40%/60%)	4.78 50%/50%)
	3KM (no change)	\$67,572	\$75,513	\$83,455	\$91,396	\$107,278	\$123,161
	3KM + 5%	\$70,951	\$79,289	\$87,627	\$95,966	\$112,642	\$129,319
	3KM +7%	\$72,302	\$80,799	\$89,296	\$97,793	\$114,788	\$131,782
	3KM +10%	\$74,329	\$83,065	\$91,800	\$100,535	\$118,006	\$135,477
	3KM +15%	\$77,708	\$86,840	\$95,973	\$105,105	\$123,370	\$141,635
	5KM (no change)	\$116,678	\$130,390	\$144,103	\$157,815	\$185,240	\$212,664
	5KM + 5%	\$122,512	\$136,910	\$151,308	\$165,706	\$194,502	\$223,298
	5KM +7%	\$124,845	\$139,518	\$154,190	\$168,862	\$198,207	\$227,551
	5KM +10%	\$128,346	\$143,429	\$158,513	\$173,597	\$203,764	\$233,931
	5KM +15%	\$134,180	\$149,949	\$165,718	\$181,487	\$213,026	\$244,564
	10KM (no change)	\$366,040	\$409,058	\$452,076	\$495,095	\$581,131	\$667,167
	10KM + 5%	\$384,342	\$429,511	\$474,680	\$519,849	\$610,188	\$700,526
	10KM +7%	\$391,663	\$437,692	\$483,722	\$529,751	\$621,810	\$713,869
	10KM +10%	\$402,644	\$449,964	\$497,284	\$544,604	\$639,244	\$733,884
10KM +15%	\$420,946	\$470,417	\$519,888	\$569,359	\$668,301	\$767,242	

Figure 7: Sensitivity analysis for the cost implications of a Wheel-Trans cross-border policy change – considering changes in trip demand and cost per km (due to Wheel-Trans/contractor vehicle splits)

WAIT TIMES AT TRANSFER POINTS

The average wait time was found to be approximately one hour at the transfer points for Wheel-Trans and neighbouring services. Overall, only 25% of trips fall within Wheel-Trans target wait time of 30 minutes or less. While these wait times suggest improvements are required, a number of considerations are not seen within this data. This includes:

- Customer-induced wait times: while further study is required, customers may be booking intentionally longer wait times at certain transfer points for other purposes (food, shopping, etc.). GTA agencies have reviewed these cross-border trips and found that many wait times were scheduled by the customer.

YRT, who books both legs of a trip noted that many customers ask to be taken to specific transfer points with larger wait times to allow for other activities. While there is nothing wrong with this practice, it is difficult to determine true wait times that result from cross-border scheduling. As such, moving forward, YRT will be tracking cross-border trips with customer-induced wait times as two separate trips. Wait times can be monitored over the next few months to observe the change.

- Contractor performance: As noted above, Durham Transit previously had issues with subcontractor performance that increased wait times. This has now been rectified and should result in improved wait times between Wheel-Trans and Durham Transit.
- Travel training: YRT has noted that additional buffer time (approximately 10 minutes) is typically factored into travel training trips, which would affect wait times.
- Lower wait times for FOS cross-border trips: Currently there are cross-border FOS trips occurring, specifically between York Region and Toronto. As of October 2019, 1,158 YRT customers transfer at TTC subway stations in 2019, including Pioneer Village, Highway 407, Vaughan Metropolitan Centre and Finch Station. In the opposite direction, 107 Wheel-Trans customers have transferred at these stations. The wait times between these transfers would be under five minutes given the frequency of TTC Line 1 service, which further highlights the success of delivering FOS trips.

Due to the above noted factors, the wait times from this analysis may be higher than reality. Regardless, the TTC must work together with the GTA agencies to improve schedule co-ordination, transfer locations and customer communications.

Moving forward, wait times will be monitored (noting when possible if these are due to customer scheduling) to provide a more accurate picture of wait times. Additionally, a number of considerations to continue to reduce wait times include further optimization of the scheduling system (such as grouping trips) and increasing operator wait times to accommodate any delays in the initial trip leg, which are being explored by Wheel-Trans.

Other considerations include providing neighbouring agencies access to the Wheel-Trans booking system to book both trip legs, which are currently being developed, and creating regional standards for consistent trip delivery.

Table 4: Wait times at Wheel-Trans transfer locations with Durham, YRT and Peel – July-Dec 2018

Transfer Point Region	Average Wait time (min)	% within 30 minutes	% within 60 minutes	Average Wait Time (min) WT pickup	Average Wait Time (min) non-WT pickup
York	56	27.6%	61.5%	64	48
Peel	67	15.9%	44.3%	49	82
Durham	44	35.8%	75.0%	49	39
Average	58	25.5%	57.6%	59	57

Assessment of Transfer Points

The existing transfer points used to transfer between Wheel-Trans and neighbouring GTA service providers were selected based on specific criteria agreed to by all regional service providers. These relate to location and scheduling, including minimizing deadheading and allowing for efficient scheduling, aligning pick-ups and drop-offs of customers.

Additionally, safety and security was considered, including weather protection, barrier-free paths, direct vehicle-to-vehicle transfers, lighting, sightlines and appropriate signage. Lastly, accessibility and amenities were considered, including appropriate amenities based on customer needs, designated stop(s) specifically for paratransit vehicles, limited walking distances, prompt snow removal, seating and paths that can accommodate the size and turning radius of Wheel-Trans and neighbouring agency vehicles.

The TTC and GO services available in Toronto are illustrated in Appendix 1 at the end of this report. A base map created by Metrolinx was used that represents the Toronto transit service available in 2025. The map highlights existing regional transfer points, existing access hubs and future access hubs. The map focuses on subway, LRT, UP Express and GO Train service. In addition, it is important to consider that there are also bus and streetcar routes that will provide frequent and accessible service. As GTHA fare integration strategies become further developed, this will help to reduce cost and fare integration barriers between local and regional transit service in the GTHA. To provide equitable service, a discounted fare to utilize local transit and GO Transit will be required if a shift to regional FOS trips will be done.

Closer to Durham Region, the existing transfer point for cross-border trips is less than 3 km north of the Meadowvale Loop, which is an existing access hub connecting to the 85 Sheppard East and 86 Scarborough bus routes. Durham Transit and Wheel-Trans are currently exploring opportunities for additional transfer points that offer greater customer convenience and connections to accessible transit. The University of Toronto (Scarborough Campus) loop is being considered. It provides connection to TTC service and Durham Pulse (BRT) service. The Pulse service is accessible and has operating frequencies between 7.5-15 minutes. Additionally, directly south of the transfer point is the Rouge Hill GO Station, which will be a part of the future 15 minute or better all-day GO service. Durham Transit has indicated that approximately 95% of its specialized transit customers have conditional eligibility, providing an opportunity to offer FOS trips between Toronto and Durham Region leveraging these key connections.

With respect to Peel Region, in addition to the two designated transfer points, an existing access hub is located at Humber College, which can augment the Woodbine Racetrack as an additional transfer point for FOS trips. Additionally, the Long Branch Loop, a future access hub that also connects to the Long Branch GO Station, can facilitate FOS trips.

In York Region, there are two future access hubs located along Steeles Avenue intersecting Yonge Street and Don Mills Road that are the same intersections as two existing transfer points. This will allow for door-to-door and FOS cross-border trips to

occur through the same locations. YRT also provides connection to TTC subway stations in York Region, including Pioneer Village, Highway 407 and Vaughan Metropolitan Centre. Given the accessible transit connections available, the trip distances and the YRT service model, the delivery of cross-border trips between Toronto and York Region offers the greatest potential for FOS trip delivery.

Based on the analysis, key considerations for additional transfer location requirements include:

- Identify transfer points that will serve FOS and door-to-door cross-border trips;
- Identify the number of accessible transit modes and service providers available from a transfer point;
- Ensure clear wayfinding and signage is present;
- Implement a unified late-time window for transfers whereby all agency operators will wait at transfer points up to a certain number of minutes; and
- Identify transfer points by analysis of trip data and utilize as many popular destination locations as possible.

Travel Time Differences

A critical component to cross-border travel on specialized transit within the GTA is to provide equivalent service to what is offered on conventional transit. To visualize the difference in travel time for cross-border trips between specialized and conventional transit, a sample trip was considered to and from a common destination. A significant number of cross-border trips into Toronto are to medical institutions. A sample trip is shown below between a residence in Mississauga and St. Michael's Hospital in Toronto.

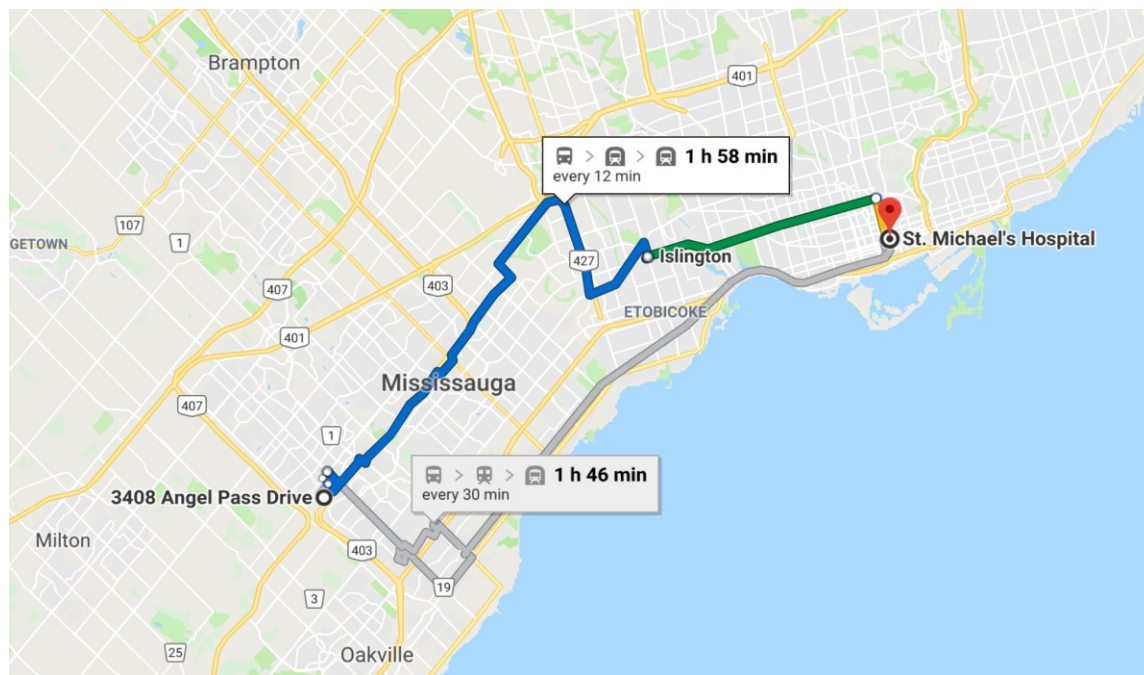
On conventional transit, considering only local transit service (excluding GO), this trip would take approximately one hour and 58 minutes according to the Google trip-planning tool. Based on trip data, this trip took just under three hours using Wheel-Trans and Peel TransHelp, which consisted of an 88 minute wait time, making the entire trip 48% longer on specialized transit compared to conventional transit. If wait times were maintained at the current standard of 30 minutes, this cross-border trip would be equivalent using specialized transit compared to conventional transit (reduced to 117 minutes on specialized transit). Striving to provide equivalent conventional and specialized transit service, efforts are required to reduce the wait times, and as a result, the travel times of cross-border trips.

One possibility of a combined conventional and door-to-door service trip would be a door-to-door trip from the residential address in Mississauga to Kipling Station via Peel TransHelp, then accessing TTC Line 2 and transferring at St George Station to TTC Line 1 to access St. Michael's Hospital via Queen Station. This trip would take approximately 25 minutes to drive to Kipling Station and 41 minutes to travel on the TTC subway. Assuming a five-minute wait time for each train transfer, this trip would take a total of 76 minutes resulting in the shortest trip time. While this serves as just one trip, this exemplifies the difference in travel time between conventional and specialized cross-border travel. It also highlights the opportunity to leverage FOS trips to provide additional time savings for customers.

Table 5: Travel time difference for a cross-border trip on Family-of-Services versus specialized transit

Trip Type	Origin	Transfer Point	Destination	Service Provider	Trip Duration (mins)
Conventional transit	3408 Angel Pass Drive	-	St Michael's Hospital (30 Bond Street)	MiWay/ TTC	118
Specialized transit (with transfer)	3408 Angel Pass Drive	Queensway Hospital	St Michael's Hospital (30 Bond Street)	TransHelp/ WT	175
FOS Trip¹	3408 Angel Pass Drive	Kipling Station	St Michael's Hospital (30 Bond Street)	TransHelp/ TTC	76

¹ This assumes that Peel TransHelp will deliver a door-to-door trip to Kipling Station. If accessible conventional transit were to be used to access Kipling Station, then the trip duration would be different. This is intended to represent one of several possible FOS trips.



Source: Google trip planning tool

Figure 8: Example of a cross-border trip using Family-of-Services (Peel Region to Toronto)

CUSTOMER FEEDBACK

Wheel-Trans Customer Profile

A profile of Wheel-Trans cross-border customers has been developed to better distinguish the needs of these travellers. This considers customers who made trips to or from the designated transfer points within the six-month dataset. Considerations include customer demographics, mobility needs, eligibility types and travel patterns. Key findings include:

- The average customer age is 65, with 59% of customers over the age of 65 and 9.5% over the age of 85;
- The majority of customers have specific mobility limitation(s) due to non-communicable chronic conditions with the most common limitations noted to be arthritis, spinal and joint issues, stroke patients and sensory deficiencies;
- Interregional travel into Toronto is primarily to medical institutions;
- Peak travel is Wednesday, bulk of travel is mid-day from Tuesday-to-Thursday with much lighter service on holidays and weekends;
- Over 80% of trips to/from transfer points are delivered using taxis (contracted services) with the remainder on Wheel-Trans buses;
- While internet booking adoption rates continue to trend higher, 30% of customers continue to manage their travel exclusively by phone through an agent;
- Approximately 35% of Wheel-Trans cross-border customers identified in a six-month dataset of trips to or from the designated transfer points (July to December 2018) have been assigned conditional eligibility status, as of July 31, 2019;
- 2016 census data reveals that specialized transit needs are driven higher in Toronto considering the higher prevalence of senior, low-income and single-person households; and
- The population in the neighbouring Toronto regions are growing more rapidly, including their senior population, which represents a large portion of Wheel-Trans customers.

Wheel-Trans and GTA agency customers that make regular cross-border trips were consulted to provide insight on their experience with cross-border travel. Additionally, customer complaints regarding cross-border travel were reviewed. Survey details and methods are outlined in Appendix 2. In summary:

- Customers identified that service in the spring and summer seasons was better relative to the fall or winter;
- Respondents raised concerns about wait times. They believed that 15-to-30 minutes was a reasonable wait time, but wait times of 45-to-60 minutes were too long;
- Cross-border customers did not find a significant difference in the quality of service from one accessible service provider to another;
- Customer priorities at transfer points include protection from the elements;
- Transfer locations had issues in the winter with the removal of snow and ice;
- The existing locations were considered to be safe locations, although waiting at night for a transfer was less appealing; and
- Respondents agreed that the most direct way to improve their cross-border travel was for the accessible service providers to issue updates more directly and frequently.

LEVERAGING PRESTO

The Board asked TTC staff to consider the potential for third party service provider using PRESTO to offer integrated cross border travel. Currently, there is no solution available on PRESTO for third party service providers to collect both fare payments. As

Metrolinx develops open payment and discussions for fare integration progress, the TTC will ensure that opportunities for seamless travel for Wheel-Trans customers travelling across regional boundaries are considered.

COST SHARING WITH MUNICIPALITIES

The Board asked TTC staff to consider the potential for cost-sharing between municipalities. The TTC has engaged with Durham Region Specialized Transit to discuss possible cost sharing arrangements. However, these discussions are preliminary at this point and require further discussion and full analysis, including costing. TTC staff will report back to the Board with the proposals, analysis and recommendation.

Comments

The TTC currently provides pick up and drop off for Wheel Trans trips within a 1 km boundary of the city of Toronto border. Approximately 84,000 Wheel-Trans trips have an origin or destination outside of the city of Toronto. This is approximately 2% of Wheel-Trans total ridership. For cross-border trips the require transfers to neighbouring service providers, the average wait time at established transfer points is approximately one hour. This is excessive and requires the TTC to continue to work with the regional transit agencies to improve scheduling to better align pick-ups and drop-offs, focus on using Family of Services for more connections, identify more transfer points for more seamless trips using trip data, improve wayfinding and amenities at transfer point and implement a unified late-time window for transfers for all agencies.

With respect to any potential for cost sharing with other municipalities, preliminary discussions have begun with Durham Region Specialized Transit. The TTC will bring back analysis, costing and recommendations to a future Board meeting.

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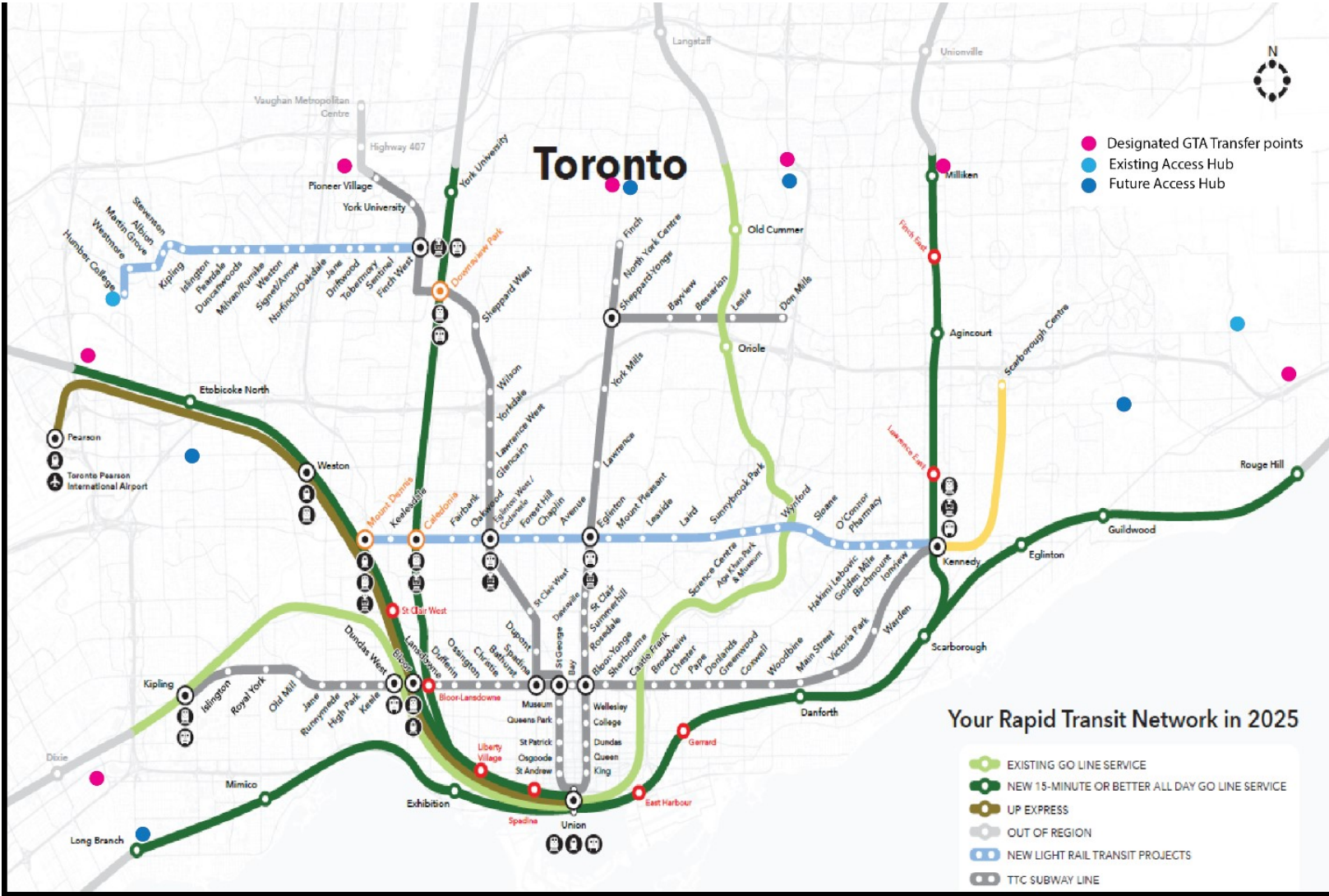
Signature

Kirsten Watson
Deputy Chief Executive Officer – Operations

Attachments

Appendix 1 – Map of future GO/TTC conventional rapid transit network
Appendix 2 – Wheel-Trans Telephone Survey Details

Appendix 1: Future GO/TTC conventional rapid transit network, modified with Wheel-Trans transfer points and access hubs



Source: Metrolinx (modified)

Appendix 2: Wheel-Trans Telephone Survey Details

The third party consultant chose to supplement its technical analysis of cross-border Wheel-Trans travel with telephone interviews with a number of Wheel-Trans customers that make frequent cross-border trips.

These telephone interviews were to allow cross-border customers to provide open and frank opinions of the quality of service they receive. The questions asked of the respondents focused on the neighbouring service they connected to, their frequency of cross border travel, rating of the transfer locations and their satisfaction with both Wheel-Trans and the connecting neighbouring service.

Based on available customer information from the Wheel-Trans Program, the consultant developed a list of 20 frequent cross-border travellers. The list was determined to be representative of Wheel-Trans customers based on available information. Based upon the consultant's previous experience conducting research for accessible service programs for seniors and people with disabilities, telephone surveys were the most effective method to reach users. The consultant made numerous calls to the 20 customers. However, many on the list did not answer their phones and many did not wish to participate in the survey for privacy or other reasons.

With a short time-frame to complete the surveys, the consultant was able to complete only four surveys. These surveys intend to provide qualitative research regarding how customers experience cross-border travel in the GTA to supplement and enhance the quantitative data analysis completed. Given the sample size these survey results are not intended to serve as a comprehensive customer outreach, and as such the insights learned from these surveys have been appropriately considered in the analysis.