

TORONTO TRANSIT COMMISSION REPORT NO.

MEETING DATE: January 28, 2014

SUBJECT: Time-Based Transfers -- Update

ACTION ITEM

RECOMMENDATIONS

It is recommended that the Board:

1. note that:

- It is feasible to convert the TTC's existing "continuous trip" transfer system to a "time-based transfer" system where transfers are valid for a set time limit after entering the system;
- There would be a net revenue loss to the TTC with a time-based transfer approach. Even though time-based transfers could be expected to attract some new customers to transit, many more customers who currently pay two fares within a short time period would no longer be required to do so;
- It is estimated that an "unrestricted use" time based transfer that is valid for 120 minutes would result in \$20 million of lost revenue annually, and a 90 minute interval would result in \$12 million in lost revenue annually (99% of all transferring customers on the TTC do so within 90 minutes of their first boarding, and all transfers are made within 2 hours);
- With the exception of this revenue loss, all other aspects of a time-based transfer system would appear to be positive for both customers and employees.
- There are ways of restricting the use of a time-based transfer to reduce revenue losses. For example the transfer could be restricted such that customers are not allowed to use the transfer to re-board the route on which it was issued. This type of restriction would make the approach less attractive to customers and be more complex to explain and enforce than an "unrestricted" approach;
- The approach has been requested frequently by customers to aid them in making stop-over transit trips (for daycare, dry cleaning, etc.) and for short return trips (eg out and back to lunch) typically at off-peak times. A time-based transfer would undoubtedly increase the number of customer journeys. Depending upon the split between peak and off-peak journeys, this increase would both increase revenue but also require increased service. This increased service would likely require some degree of increase subsidy;
- Time-based transfers are used by most other transit properties both locally and internationally.
- All time-based transfer options create an enforcement/security issue at subway stations as transfer-issuing machines are unattended and the withdrawal of multiple transfers (particularly at unattended entrances) will be an enforcement issue. This risk can be mitigated by not accepting transfers that have been issued at that station or on connecting routes (as is done today);

- When the PRESTO Farecard system replaces the TTC other fare media, it will provide an opportunity to efficiently convert the TTC's transfer system to being time-based if desired. Until that time, implementation would require temporary arrangements that would be difficult to implement and confusing to customers and;
 - Implementing a time-based transfer system will make the implementation of a transfer system easier for PRESTO and therefore save development costs and ease implementation.
2. Direct staff to:
- Further refine the business case for moving to a time-based transfer system;
 - Consider the implementation of a time-based transfer system as part of the 2015 TTC operating budget options;
 - End the trial of the time-based transfers on the 512 ST CLAIR route if the implementation of a time-based transfer across all of the TTC is not implemented as part of the 2015 TTC operating budget and;
 - Define a policy for the use of time-based transfers during times of significant disruption as a result of new transit construction.

FUNDING

This report has no effect on the TTC's current Operating or Capital budgets. For the avoidance of doubt the roll-out of a time-based transfer would require additional operating subsidy.

BACKGROUND

At its meeting of December 19, 2013 the TTC Board passed the following motion:

"The TTC's transfer policy has remained unchanged for decades and although relatively simple in concept the details can sometimes confuse customers. Many cities around the world have a transfer policy that allows unlimited travel during a particular time period (90 or 120 minutes) which has benefits for customers

As part of our customer-centred focus and the introduction of the PRESTO fare card system at the TTC, we have the opportunity to review our transfer policy and the implementation of a time-based transfer system. Considering this, staff is requested to report back in January on the relative costs and benefits of moving to a time based transfer policy and the best way to make such a change should it be adopted."

This report responds to that request.

TTC's Existing Paper Transfer System

More than half of TTC's current riders use passes and do not need to use the TTC's paper transfer system. In addition, customers making a trip that only involves one route or interconnecting route where no fare transaction or checking is required also do not need to make use of the TTC's paper transfer system. Approximately 10% of all passenger trips require the use of a paper transfer.

The present paper transfer system is simple but in practice is poorly-understood. Customers who require a paper transfer are required to request, or obtain, a paper transfer at the location where they pay their fare. A transfer is valid for one continuous trip, without stopovers and with no backtracking. At the first possible transfer location, a customer must board the next connecting vehicle. There is no specific time limit to the transfer. As shown in Exhibit 1, the actual transfer design is intended to be read and understood by the TTC Operator or Collector, not by the customer. TTC staff use the time displayed on the transfer, and the issuing station or issuing route and direction, to judge whether the customer has followed the rules.

Exhibit 1 – Surface and Subway transfers



Because of the amount of interpretation required, and because the transfer must be used at recognized transfer locations only, conflicts can arise between customers and Operators/Collectors, which can result in delays and, on occasion, assaults on Operators/Collectors.

DISCUSSION

Transfers are currently the single biggest contributor to fare evasion on the TTC. The table below, from the 2011 Fare Evasion report, shows that the rate of measured fare evasion is highest for transfers. This is calculated by sampling transfers presented to Operators/Collectors, and noting the number that are not valid because of time, date, route, or direction. The relatively high sampled rate of evasion for transfers is likely partly related to the complexity and uniqueness of the TTC's transfer rules. The introduction of a time-based transfer system would not eliminate this form of fare evasion but it would make it easier for operators and collectors to recognise.

FARE EVASION TYPE	2011 EVASION RATE %	2010 EVASION RATE %	DIFFERENCE %	LOST FARES #	LOST REVENUE \$
P.O.P. PROGRAM	5.4	5.1	0.3	745,482	1,453,690
ILLEGAL ENTRY	0.49	0.45	0.04	471,039	918,526
TRANSFERS	5.0	5.9	(0.9)	7,588,639	14,797,846
METROPASS	0.47	0.63	(0.16)	920,624	1,795,216
DAY PASS	0.54	0.62	(0.08)	57,308	111,751
SPURIOUS RECEIPTS	0.39	0.34	0.05	750,082	1,462,660
TOTAL	1.4	1.6	(0.2)	10,533,175	20,539,689

Overview of time-based transfer concept

A time-based transfer differs from the TTC's existing transfer policy by changing the transfer to a document that displays a clear time-validity. The time-based transfer is valid for boarding a vehicle or entering a station until the time indicated. The time must be clearly indicated on the transfer and understood by the customer and by the Operator/Collector.

Previous assessments of the concept at the TTC

A report on time-based transfers was presented to the Commission in May 2005 (see Appendix 1). This report was in response to a specific request to consider a test of time based transfers on the 512 ST CLAIR and 501 QUEEN routes. The report outlined the concept and issues related to time based transfers, and recommended a trial implementation on the 512 ST CLAIR route as part of an offsetting "compensation" in construction disruption during the right-of-way project.

As part of the study of Proof-of-Payment (POP) fares on the new streetcars undertaken in 2009, the issue of time based transfers was considered in reports prepared by McCormick Rankin and the APTA Peer Review team. As shown in Appendix 2 and 3, in both reports the authors recommended that the TTC move to a time-based transfer system as a convenience to customers. Both of these

reports were developed as part of the fare collection plan for the TTC’s new streetcars. With these new streetcars, all-door boarding with Proof of Payment fare enforcement will be used, and the Operator will have no role in fare collection or enforcement. Enforcement will be carried out by roving POP staff. Single and concession fares will be available for purchase from wayside and on board fare vending machines, and PRESTO cards will be validated on board.

Use elsewhere of time based transfers

As noted in the APTA Peer review, the use of time-based transfers is common internationally. Most Canadian transit properties also use some form of time-based transfer although Montreal has a transfer system which is substantially the same as the TTC’s current one.

City	Time based transfer?	Restrictions on Use
Edmonton	90 min	No restrictions
Regina	60 min	No restrictions
Winnipeg	75 min	No restrictions
Halifax	90 min	No restrictions
London	90 min	No restrictions
Ottawa	90 min	No restrictions (valid for 105 min after 18:00 on Sunday)
Brampton	120 min	No restrictions
York Region	120 min	No restrictions
Burlington	120 min	No restrictions
Oakville	120 min	No restrictions
Durham Region	120 min	No restrictions
Hamilton	120 min	No restrictions
Mississauga	120 min	No restrictions
Vancouver	90 min	Stopovers permitted
Calgary	90 min	Stopovers permitted
Montreal	120 min	No return trips, no stopovers, no re-boarding same route
Quebec	120 min	No re-boarding same route
St John’s	No	Must board next vehicle at transfer point, not valid on same route, no stopovers
TTC	No	Must board next vehicle at transfer point, one-way continuous trip only, no stopovers

Options to restrict the use of time-based transfers

There are variations possible with time-based transfers. The simplest is to make it essentially an unrestricted period pass – it is valid on any route, at any stop, in any direction, until the time shown. Operators/Collectors would treat it the same as they treat a Day Pass, weekly pass, or monthly Metropass. This design provides the greatest convenience and flexibility for customers. It reduces, as much as possible, potential conflict between customers and Operators/Collectors as enforcement staff must only scan for time validity. It allows the physical design of the transfer to be as simple as possible, as no issuing route or station needs to be marked on the pass and the printed conditions are simpler. However, this option results in the highest level of lost revenue, compared to the present transfer system, as it will result in the highest number of trips being made without additional fare revenue.

A time-based transfer system with more restrictions will reduce the lost fare revenue, compared to the any route, any stop version, but will also be more complicated and more prone to customer/staff conflict. In these limited-use versions, restrictions on use reduce the number of new trips made without additional fare revenue. This could be done by a combination of:

- prohibiting the use of a bus or streetcar transfer on the route from which it is issued,
- prohibiting the use of a subway-issued transfer for re-entry into the subway.

The usefulness and flexibility for customers of a limited-use timed transfer would be slightly greater than our present transfer system, but would be less than an unlimited any route any stop version.

Transit agencies that use time-based transfers use between 60 and 120 minutes. The longer the time, the higher the revenue loss, as a larger number of new trips would be made without payment of a fare. TTS survey data indicates that:

- 92% of TTC trips take 60 minutes or less
- 99% of TTC trips take 90 minutes or less
- Almost 100% of TTC trips take 120 minutes or less

With our present system, customers face no specific time limit on completing their one-way trip. This would change with time-based transfers, but the number of customers who would have to pay twice for trips they now make on one fare would be very small.

Details and challenges of issuing time based transfers

1) Subway station transfers

The TTC's subway station transfers are currently printed on demand by customers at machines that are located inside the fare paid area of station. With time-based transfers, these machines would essentially permit any customers to take a number of two-hour passes at any time. Alternatives would be to restrict the availability of the machines (removing them, for example, from unattended entrances); have Collectors issue transfers from the Collectors booth (this would be inconvenient and slow for customers who pay by token in a turnstile, and would require facility modifications); or accept the resulting revenue loss before PRESTO fully replaces current TTC fare media. It should be noted that some of this risk exists today and although the level of misuse is not clear it can be assumed that this risk would increase.

2) Bus and streetcar transfers

The best way to issue timed-based transfers, in advance of full conversion to PRESTO, would be to print them on the spot, clearly displaying the expiry time (i.e. a two hour transfer issued at 3:36 p.m. would say "Valid until 5:36 p.m."). This would require mobile printers on buses and streetcars.

A second-best option would be to continue to use pre-printed daily transfer stock and our existing transfer cutters. The cutter would have to be manually set by the Operator as is done today.

Expected revenue loss

Overall, the highest estimated net revenue loss would come from a two hour time-based transfer that would be valid at any stop on any route. It is projected that approximately 4.5% of non-pass fares would be lost, offset by a net gain of 0.4% from customers attracted by the new approach to transfers. This would result in a net annual revenue loss of \$20 million. Shortening the time period to 90 minutes would reduce the net revenue loss to \$12 million per year.

Restricting the use of the transfer to not allow return trips would reduce the revenue loss for a 90-minute timed-transfer to \$5 million per year. This approach would, however, be difficult to explain to customers and would be difficult to enforce.

Fare evasion and other issues

A time-based transfer would reduce fare evasion, generally, compared to our current transfer system. A time-based transfer reduces the ambiguity of our present system by clearly indicating when the transfer is valid. Operators/collectors will be more easily able to determine if a transfer is valid, and the instances of staff not bothering to check transfers would be reduced.

As noted above, in advance of full conversion of TTC fares to PRESTO, unrestricted access to time-based transfer-issuing machines within the subway system poses a risk to increased fare evasion. The potential revenue loss associated with this has not been estimated.

Also, because unexpired time based transfers would now have a value, unlike our current system, we may be faced with issues of ticket touting, where people solicit for transfers from customers leaving the system, and attempt to sell transfers with time remaining. This would require additional enforcement efforts.

Time-Based Transfers and PRESTO

The PRESTO system has been designed, and is being delivered elsewhere, based on a time-based transfer system. A time-based system is much easier to accommodate in the computer systems required to support smartcard operations, and is the industry standard. TTC's agreement with PRESTO includes a requirement that the PRESTO system accommodate the TTC's current "continuous-trip" transfer system in the version of PRESTO that will be used at the TTC. The current plan is for the system to incorporate transfer tables which show every valid possible transfer in the TTC system to allow the validity of transfers to be checked continuously, as required, by the system. This approach has been used elsewhere (notably New York) but it is time-consuming to develop and maintain the large input files required to maintain the system. Any move by the TTC to convert the current transfer system to a time-based transfer system would simplify the introduction of PRESTO. Equal simplification and ease of PRESTO introduction can be achieved via defining the kinds of transfers that are not allowed (eg same route etc.) without incurring the same scale of revenue loss as a time-based transfer.

Summary

Time-based transfers would have benefits for the many TTC customers who currently use paper transfers. The transfer system would be simpler to understand for both customers and staff. Assaults on staff and fare evasion resulting from transfer disputes could be reduced. The move to a time-based transfer would also facilitate the introduction of PRESTO at the TTC. Even following the full implementation of PRESTO the loss of revenue would, however, continue on an annual basis.

There would be, however, an associated revenue loss of up to \$20-million per year and would require ongoing subsidy to make up for these losses.

11-31-47
January 10, 2014

Appendix 1: Commission Report from May, 2005 Meeting

Time-Based Transfer Concept

Meeting Date: May 11, 2005

Subject: Time-Based Transfer Concept

1 Recommendation

It is recommended that the Commission approve a pilot of time-based transfers on the 512 ST CLAIR streetcar route, beginning with the start of streetcar track construction in the summer of 2005 and continuing until the end of streetcar track construction in late 2006. The trial will help to further understand the financial and operational impacts of changing the current TTC system of transfers to a time-based approach.

2 Funding

It is expected that the pilot will generate some incremental ridership but will also result in the loss of fare revenue. Although it is not possible to accurately quantify the impact of the time-based transfer pilot in 2005 or 2006, preliminary analysis indicates that the net fare revenue loss could be in the range of \$300,000 to \$500,000 over the duration of the pilot on St Clair Avenue. The results of this pilot project will be used to further refine both revenue and ridership effects. Additional material, training and customer information costs for the pilot time-based transfer on St. Clair Avenue are estimated at less than \$150,000 for the duration of the project. These additional costs can be accommodated within the approved 2005 Operating Budget.

3 Background

The initial impetus to examine the existing TTC transfer approach from a system-wide perspective arose from analysis completed by the Operator Assault Taskforce which highlighted a link between assaults on operators and fare disputes, specifically disputes relating to the use and acceptance of transfers. Subsequent to that initial work, the Commission requested at the September 22, 2004 Commission Meeting that staff examine the feasibility of implementing time-based transfers on a system-wide basis, as well as on the 512 ST CLAIR route during the planned streetcar track reconstruction in 2005 and 2006.

At the February 2005 Committee of the Whole meeting, the Commission supported the recommendations of the Operator Assault Task Force including the introduction of a time-based transfer pilot on the 512 ST CLAIR route. At the same meeting, the Commission also passed a motion for staff to examine the feasibility of a second time-based transfer pilot on the 501 QUEEN route.

4 Discussion

Current transfer rules

The ability to pay one fare and then transfer as needed between buses, streetcars and subway trains has always been an integral part of the TTC transit system. The majority of TTC customers transfer at least once per journey. The TTC currently issues paper transfers to riders who pay their fares with cash, tickets, or tokens and whose trip requires a change of vehicle or mode at a non-fare paid transfer location. The existing transfer policy is purposely limited - transfers are only valid for a continuous one-way trip. Transfers must be used to transfer to the next available train or vehicle from a valid transfer point, which is usually a subway station or an on-street bus or streetcar stop at an intersecting route. Stopovers or return trips are not permitted, and the transfer can only be used by the passenger to which it was issued and on the day that it was issued. Customers who transfer at subway stations with fare-paid surface routes do not require a paper transfer. The current terms and conditions for subway and surface transfers are summarized in Attachment A.

Current transfer design

The existing TTC transfer is paper and is available from automatic transfer dispensing machines in subway stations or from operators after boarding surface vehicles. Samples of a subway and surface transfer are provided in Attachment B. Subway transfers are printed when the customer presses the button on the transfer machine and show the date, station and time of issue. There is no direct supervision of the machines and no means to stop riders from obtaining multiple transfers. Surface transfers are issued on request to customers when they board the bus or streetcar and pay their fare. The operator tears the transfer from a pad of transfers mounted on a transfer cutter. The design of the cutter is such that an issued transfer shows the route, date, time (in ten minute increments) and the direction of the bus or streetcar. The time is set at the time that the vehicle began its trip, and is not changed until the vehicle starts its trip in the opposite direction.

The design of subway transfers was modified in the 1990s when new issuing machines replaced older equipment. The design of the surface transfer has remained basically unchanged for many decades. In both cases, the information on the transfer is intended for interpretation by TTC personnel, and not by customers. The TTC's transfer rules do not require the customer to know at what time the transfer was issued or if it is still valid. The customer only has to know that they must use the transfer to board the next available vehicle at a transfer location.

Problems with the current transfer system

Interviews with operators and feedback from riders highlighted a number of core issues with the existing TTC transfer system. The key issues are summarized below:

- With the number, complexity and length of TTC routes, it can be very difficult for Operators, Route Supervisors and Special Constables to determine whether a transfer is being used properly by a customer. This negatively impacts schedule adherence and fare enforcement;

- The difficulty in interpretation can lead to fare disputes and operator assaults, and results in further disruptions to service; and
- The lack of stopover flexibility does not allow customers to conduct errands or other personal business especially when traveling home after work. This is currently one of the key advantages of either the Metropass and the Day Pass compared to cash, ticket and token fares.

Possible changes to the existing transfer system

In assessing other transfer models/approaches for suitability of use at the TTC, the following criteria and objectives were used as a framework for analysis:

- Reduce operator assaults;
- Minimize fare revenue loss;
- Minimize changes to existing operations and infrastructure;
- Be fair and equitable to all riders; and
- Simplify the process.

The following options were assessed, and it was determined that the time-based approach may be an appropriate model for the TTC although the loss of fare revenue could be significant - the magnitude of the loss requires further data which can only be obtained through the conduct of a pilot on a suitable route. An overview of the time-based transfer approach is provided in Attachment C.

- Status quo;
- Charge for transfers;
- Eliminate transfers and adjust regular fare; and
- Time-based transfers.

Attachment D provides a summary of transfer practices at major and local Canadian transit properties. Of the seven largest transit properties in Canada after the TTC, only Halifax does not allow stopovers or returns on a transfer. Thirteen local properties were surveyed on this issue: eight do not allow either stopovers or return trips, four allow both stopovers and returns, while one allows stopovers but not return trips.

Staff from the Canadian properties indicated that the following were the key reasons for implementing time-based transfers with stopover and return privileges:

- Reduce potential for disputes between operators and riders;
- Increase market share of short duration trips;
- Make transit more competitive;
- Depending on complexity of network, it was difficult for operators to determine whether transfers were being used properly;
- Use as a “sweetener” at the time of a fare increase;
- Increase demand in off-peak periods;
- Gain ridership with minimal revenue impact (no properties have been able to show whether this actually occurred);
- Provide valid option to replace automobile trips; and
- Part of revised fare pricing strategy to encourage the use of pre-paid fare media.

System-wide effects of time-based transfers

Estimates of the system-wide revenue and ridership impact of the TTC implementing time-based transfers under a variety of assumptions is provided in Attachment E. The preliminary estimates are based on trip-making and journey time data from the 2001 Transportation Tomorrow Survey. The initial analysis indicates that the system-wide revenue loss varies directly with the time window, although even under the shortest time period, the annual estimated revenue loss is still significant. The estimated annual revenue loss is also impacted by whether or not return trips are allowed using the same transfer. The annual number of rides generated by new users as the result of introducing time-based transfers is estimated at 200,000 to 1,500,000.

Route-specific time-based transfer pilot project

Attachment F provides a summary of the 512 ST CLAIR and 501 QUEEN routes in terms of suitability for a time-based transfer pilot. The analysis indicates that the 512 ST CLAIR route is an appropriate candidate to assess the time-based transfer concept, while the 501 QUEEN route does not possess the necessary characteristics to provide an appropriate environment to conduct a time-based transfer pilot.

The key operational features and aspects of the pilot on the 512 ST CLAIR route are summarized below:

- Simple and uncomplicated, as the pilot will be limited to one route along one corridor only;
- Valid for two hours from the time the 512 ST CLAIR vehicle begins each one-way trip;

- Easily identified, unique fare media product, as the route-specific transfers for the 512 ST CLAIR route will be redesigned to clearly show customers and TTC personnel the expiry time of the transfer. Attachment G provides a draft format of the time-based transfer for the 512 ST CLAIR pilot;

Stopovers and return trips allowed at any stop on the 512 ST CLAIR route. This will effectively make the time-based transfer a two-hour pass for use anywhere along the 512 ST CLAIR corridor;

- Stopovers and return trips allowed at transfer points outside the St Clair route;
- Customer participation is discretionary only when boarding (traditional non-timed transfer can be retained or exchanged);
- Use of ‘regular’ transfer to move into/through St Clair continues unchanged; the time-based transfer pilot would be totally transparent to customers who do not wish to participate; and
- The time-based trial would be implemented in conjunction with the planned reconstruction of the streetcar tracks on St. Clair Avenue. This would provide the communities along St. Clair with the customer benefits of the time-based transfer during a period when their normal transit service will be disrupted by construction. During this time, some or all of the streetcar service would be replaced by temporary bus service. The time-based transfers will be issued and will be valid on both buses and streetcars operating on the 512 ST CLAIR route.

It is recommended that the time limit for the time-based transfer pilot project on St. Clair Avenue be set at two hours, as this time will provide a sufficient time period for stopovers and short return trips. The limitations of the TTC’s manual transfer cutters mean that it is not possible for Operators to constantly update the time shown on the transfers as the vehicle travels along the route. Because the maximum one-way travel time of a 512 ST CLAIR streetcar is approximately 30 minutes, customers boarding the streetcar near the end of its trip will receive a time-based transfer which is still valid for at least 90 minutes. This time is long enough that customers can still complete their trip to virtually any point in the TTC system within the 90 minute period.

As part of the 512 ST CLAIR pilot, a detailed marketing and communications plan will be prepared that educates riders on both the intention of the pilot, as well as how the pilot will work and the key rules and regulations. During the pilot, ridership counts will be conducted and market research will be undertaken to determine ridership patterns and estimate ridership and revenue impacts. Any significant changes to the timing or scope of the St. Clair streetcar construction project may require a reassessment of the proposed pilot, and refinements made to the core elements of the pilot outlined above.

5 Justification

The preliminary analysis indicates that the implementation of time-based transfers on a system-wide basis could result in significant fare revenue losses. The testing of the time-based transfer concept in a pilot on the 512 ST CLAIR route will provide additional information on the following

items and be extremely important in terms of refining the assessment of the time-based transfer approach on a system-wide basis:

- Customer feedback and acceptance;
- Ridership and revenue impacts;
- Key operating procedures and issues and refinements to the operating model: and
- Infrastructure requirements and capital costs.

April 25, 2005

3-16-16

Appendix 2 – Excerpt from MRC Report on Proof-of-Payment, September 2009

1.2 Transfer Policy

There are two issues related to transfers that are relevant to this study. The first is the current ‘one-way continuous trip’ transfer policy across the system and the second is the current practice of “free-body” transfers between surface routes and the subway at some subway stations.

1.2.1 One-Way Continuous Trip

The TTC’s current transfer policy allows for free transfers between vehicles for continuous one-way trips. The strong message from the case studies is that a simple fare system is an important ingredient in a successful POP system. The idea of adopting a time-based transfer is one that would make the TTC’s fare system more straight-forward and would also make TTC’s transition to a smartcard fare system less complex and costly, although there may be associated revenue losses.

Experience with transfer policy was discussed with each transit system as part of the case study research and, based on this, the pros and cons are summarized in **Table 4-1**. In addition the transfer policies in effect in the eight transit properties covered are shown in **Table 4-2**. The only case study example in which a change in transfer policy from continuous one-way trip to time-based had been implemented was in Ottawa where this change was successfully implemented in 1999 with no measurable impact on revenue. The change in the transfer policy resulted in significant benefits in terms of perceived equity in the fare system and reduced conflict between front-line staff and customers.

Table 4-1: Pros and Cons of Continuous Trip and Time-Based Transfer Approach

	One-Way Continuous	Time Based Unlimited
User Convenience	Higher learning curve for new users or choice users; increases potential for customer-staff confrontation.	Simple, easy to understand for all users; reduces potential for customer-staff confrontation; increases fairness in flat fare system.
Enforcement	More difficult to enforce.	Easier to enforce.
Ridership	Discourages choice users from taking transit.	Encourages more people to take transit.
Revenue	Fare paid for every one-way continuous trip made.	Revenue loss (compared to one-way continuous) from each additional trip made before time expires. Revenue gain from new trips that otherwise wouldn’t have been made on the TTC (transit-trip generation).

Table 4-2: Transfer Policies in Case Study Transit Systems

System	One-Way Continuous	Time Based Unlimited	Entire Transit System?
Portland MAX		2 Hours	✓
Portland Streetcar		All Day	✓
San Francisco		90 Minutes	✓
Ottawa		90 Minutes to 2 Hours	✓
York Region		2 Hours	✓
Brussels		1 Hour	✓
Zurich		30 Minutes to 2 Hours	✓
Vienna	✓		✓
Melbourne		2 Hours	✓

Service Planning staff members have recently updated an analysis that was done several years ago to assess the revenue implications of changing to a time-based transfer policy. Their current estimate, based on data from the 2006 Transportation Tomorrow survey, is that changing to a 90-minute time-based transfer would result in a \$15 million annual revenue loss while a 2-hour time period would increase this to \$20 million.

The issue was also discussed in detail at two workshops held with a broad cross-section of TTC staff. Apart from some concerns that a time-based transfer may result in lost revenue there was a strong consensus that a time-based transfer would be appreciated by customers, be simpler to administer and reduce confrontations between customers and operators.

Appendix 3 - Excerpt from APTA Peer Review of POP, October 2009

5.2.2 Fare Policy

The panel made note of the impact fare policy has on the overall design of the fare collection system and encouraged considerable evaluation of current fare policies. The panel noted that acceptance of concession fare tickets in the new streetcar line prior to PRESTO would require additional investment in short-term validation equipment, not likely to migrate to PRESTO, and such specialized validation equipment is not worth the investment.

Similarly, it is noted that administering the one-way continuous transfer will lead to added confusion when migrating to PRESTO because of the difficulty in providing continuous transfer products using a smart card. The TTC has indicated that it plans eventually to migrate away from a one-way continuous transfer to a timed-based one, once PRESTO has been implemented. The panel agrees with this direction, but suggests that the TTC consider implementing the policy sooner to ease the transition towards the new fare system and proof of payment. However, the panel learned from the TTC that the general thinking seems to suggest that going to a time-based transfer would result in a \$15M annual revenue loss.

The panel recognizes that a time-based transfer policy could result in reduced revenues, despite ridership gains, and is sensitive to the fact that TTC's operating budget constraints may result in a delay in instituting this policy. Nevertheless, it was not convinced that the magnitude of the revenue loss would be \$15 million annually. In countering this estimate, the panel noted how a timed-based transfer policy might induce significant ridership and revenue through a simple lunch time example. In this example, a customer would not be as likely to spend \$5.50 for a round-trip fare (under one-way continuous transfer limitation) to purchase an average \$8 lunch, and so would choose a local restaurant or take the car – a ridership loss. However, with no restriction on direction and a time-based transfer of sufficient length, the patron may instead take the streetcar to that favourite restaurant – a ridership gain. This might also easily apply to shopping excursions. With the added flexibility, patrons might be further encouraged to use transit.