Report

Fare Structure and Strategy Review

V1.1

Prepared for Transit Windsor
by IBI Group

October 4, 2018

Document Control Page

CLIENT:	Transit Windsor
PROJECT NAME:	Windsor Fare Structure Review
REPORT TITLE:	Fare Structure and Strategy Review
IBI REFERENCE:	109943
VERSION:	1.1
DIGITAL MASTER:	J:\109943_WindsorFare\10.0 Reports\T3\2018-10 revised\TTR_final_report_jrn_2018-10-04.docx
ORIGINATOR:	Adam Wenneman, Michael Mandelzys, Jaspreet Dhillon, Seth McDermott
REVIEWER:	Chris Prentice, J. Richard Nelson
AUTHORIZATION:	Doug Parker
CIRCULATION LIST:	Tim O'Neil
HISTORY:	June 11/18: V0.1 – Initial draft for client review August 24/18: V1.0 – Revised draft according to client comments Oct. 4/18: V1.1 – Revised according to client comments

Table of Contents

List of Exhibits

Table of Contents (continued)

List of Appendices

1 Introduction

This Fare Structure and Strategy Review report is the capstone of the Transit Windsor Fare Structure study. It provides clear recommendations that stem from a review of current policy, a best-practices review of peer agencies, and an impact assessment of three decision packages made up of selected policy modifications.

Section 2 of this report provides a summary of existing fare structure and policy, to give context to the recommendations for change.

Section 3 presents alternatives for modifying fare levels and structure, fare policy, and fare payment technologies, as well as the likely impacts of adjustments in each of these areas.

Section 4 selects from the fare structure and policy modifications introduced in Section 3, presenting three fare structure alternatives based on varying priorities. This section also includes a comparative evaluation of the impact of each package on system revenue and ridership.

Section 5 discusses the rationale for the recommended fare strategy and outlines implementation. This section includes fare structure recommendations for the smartcard system and the introduction of mobile ticketing. A work plan for implementation, together with timeframes and costs, will be the outcome of a later task.

We have included four appendixes:

- A review of Transit Windsor's current fare structure (Appendix A);
- A review of the fare structures, media, and technologies for six peer agencies—Halifax, London, Mississauga, Oakville, Saskatoon, and Victoria (Appendix B);
- A white paper on fare policies enabled by smartcards (Appendix C); and
- A white paper on fare policies enabled by mobile ticketing applications (Appendix D).

2 Existing Fare Policy

The existing fare structure for Transit Windsor was reviewed as part of Task 1 of this study, which can be found attached in Appendix A. A summary table describing the fare classes and costs is shown in Exhibit 2-1. Under the current fare policy:

- Seniors (age 60 and older) are offered reduced prices on tickets and monthly passes;
- Children under 5 ride free when accompanied by a fare-paying adult, while children 5 and older pay the Student fare for either tickets or monthly passes if they are attending an accredited elementary, secondary, or post-secondary school on a full-time basis;
- The Student fare applies to persons age 5 and older who are registered at and attending full-time an accredited educational institution up to and including the age of 19. This fare category is not available to students attending part-time, or university or college students covered by a U-Pass agreement with Transit Windsor.
- University of Windsor students are provided with an annual student pass paid for through their tuition. The pass is valid from September 1 through April 30. University students may purchase, as an option, a summer pass valid from May 1 through August 31.
- Recipients of the Ontario Disability Support Program (ODSP) or Ontario Works (OW), and individuals with income below the Low Income Cut-off (LICO) as defined by Statistics Canada may apply for the Affordable Pass Program (APP), which allows them to purchase a monthly pass at a reduced rate;
- Tunnel service carries a $2.00 premium over the local transit adult fare while the monthly pass rate for tunnel service is the same as the local transit monthly pass;
- Combination local and tunnel monthly passes are available for a $34 discount on the combined price of these passes if purchased separately; and
- Riders can transfer to any other route in any direction within 2 hours of their initial boarding using a printed transfer issued by the bus operator.

Exhibit 2-1: Existing Fare Levels and Structure

Fare Class	Fare Products			
	Cash	Ticket *(ea.)*	Daily	Monthly
Adult	$ 3.00	$ 2.53	$ 9.00	$ 95.70
Senior	$ 3.00	$ 1.98	$ 9.00	$ 48.40
Student	$ 3.00	$ 1.98	$ 9.00	$ 66.00
APP *(Affordable Pass Program)*	$ -	$ -	$ -	$ 48.40
USA Tunnel Service	$ 5.00	$ -	$ -	$ 95.70
Combination *(Tunnel & Local)*	$ -	$ -	$ -	$ 157.00
Summer Saver	$ -	$ -	$ -	$ 105.50
Restricted Monthly	$ -	$ -	$ -	$ 44.00
Restricted Semester	$ -	$ -	$ -	$ 220.00

Transit Windsor makes limited use of smartcards for certain groups of users such as Student Transportation Services, Corporate Pass holders, and U-Pass holders. Each group of users is priced individually dependent upon a negotiated contract. An EZV36 farebox system upgrade (by vendor Trapeze) is currently being implemented. The farebox upgrade will include an optical

reader for scanning matrix barcodes (as will be discussed further, this could enable options including automated validation for mobile ticketing).

The remainder of this report focuses on:

- Potential modifications to current fare structure and policies, in the context of the intended changes to payment systems;
- Proposed alternative fare structure and policies that Transit Windsor should consider implementing; and
- Assessing the likely impacts of these fare structure and policy adjustments.

3 Alternative Fare Structures, Policies, and Technologies

Fare structure, fare policies, and payment technologies are three variables under the control of Transit Windsor that have significant impact on ridership, revenue, and the overall relationship between the transit service provider and riders. Policies that change these areas will impact transit riders, and will likely be heavily scrutinized. Accordingly, to make an informed and defensible decision regarding policy in any of these areas, it is important to have a clear view of the likely impacts for modifications in any of these areas.

The following sections discuss alternative fare structures, policies, and payment technologies and their overall impacts.

3.1 Fare Structure

The fare structure is a listing of the various fare rates applicable to defined transit rider categories and is adjusted periodically as necessary and approved by City Council. The structure is based on the price for a single base (adult) trip and how this price changes for each type of fare category offered.

As an example, Transit Windsor's current adult single ride fare is $3.00. A sheet of five tickets is available for $12.65, which represents $2.53 per ride or an approximate 15% discount on the single cash fare. The daily and monthly passes offer further cost savings which increase according to the number of trips taken within the specified time period. The price of the daily and monthly passes is based on a multiplier between the base cash fare and a specific number of trips. For example, the $9.00 adult daily pass is three times the single ride base cash fare while the adult monthly pass is approximately 32 times the single ride base cash fare.

3.1.1 Impacts of Fare Changes

When modifying the fare structure, changes can be made to each fare class and product separately. This approach can separately modify the discount available through various fare products and the multipliers used between the adult single ride fare and time-based passes, which can have the effect of shifting which fare products are more attractive to transit riders. Alternately, the fare rates within the fare structure can be made so as to maintain the relative multipliers between fare products by applying either across-the-board percentage increases, or individual changes to each rate.

Across-the-board fare increases are typically accompanied by corresponding decreases in overall ridership especially if the increases are high (10% or more). Conversely, an overall fare decrease could increase overall ridership although to a limited amount. Transit users typically respond more to service improvements, compared to fare decreases. As well, transit use can increase at the time of a fare increase if the increase coincides with service improvements.

Fare increases are necessary to maintain a sustainable revenue stream and provide adequate funding for maintaining service levels as well as the transit infrastructure maintenance. As such, if fares were to remain flat for a long period of time without additional funds to cover inflationary cost increases contributed from other funding sources, transit agencies can be forced to reduce expenditures. This could include cutting important capital upgrades, maintenance budgets, or even transit service. These cuts can result in a transit agency becoming less efficient and effective at delivering quality transit service to riders.

Increasing or decreasing fares for particular fare classes and products can mitigate the negative ridership impact of a fare increase. For example, if an agency increases the price of monthly passes while maintaining the price of the single fare it may find a smaller drop in ridership than

typically expected in comparison to increasing prices a smaller amount across the board. This is due partially to frequent riders, such as those using transit for their work commute, tending to be less willing to change their travel patterns in response to price changes as compared to the occasional riders who typically purchase single fares.

However, there is a limit to the capacity for fare increases on frequent riders. If the multiplier between a single fare and the monthly pass increases to a point that frequent riders and commuters would find savings by instead purchasing tickets or single ride fares, an agency could see a larger than expected decline in ridership as former pass holders that switch to single fares could end up paying less than the monthly pass price depending on their actual number of transit trips. There could also be an impact on the relationship between the transit agency and frequent riders, who may feel that they are the best customers of the transit agency and are being penalized for it. This introduces the risk of a mode shift among regular commute riders to an alternative non-transit travel method.

Alternatively, prices for frequent riders may be decreased in an effort to shift semi-frequent riders from purchasing single fares or tickets to monthly passes. Once a rider owns a time-based unlimited use pass, they are more likely to use transit for additional discretionary trips thereby increasing overall transit ridership.

3.2 Concession Fares

Concession fares are discounts provided to defined groups, generally those with low personal incomes, people with disabilities or mobility limitations, children under a certain age, students, and seniors. The purpose of providing discounted fares varies by group.

Low-income riders: Transit riders with low personal incomes are frequently reliant on public transit as their main source of mobility. Having access to transit can be the biggest factor in being able to reliably get to work on time to maintain a job. At the same time, due to their limited income, to maintain this mobility these riders spend a larger proportion of their income on transportation than the average rider. After housing costs and transportation costs, this can leave these riders with little remaining income to get ahead or save for the future. Providing discounted fares can be a significant benefit and result in more positive outcomes for these riders and the community as a whole.

Disabled passengers: Riders with disabilities or mobility limitations can similarly face obstacles in that they frequently rely on transit for personal mobility and can often be living on limited incomes. Providing discounted fares to these riders can help mitigate the negative impact of their disability and provide an affordable way to access important social services.

Children: Free or significantly discounted rides for children under a certain age (currently 5 years old for Transit Windsor) are a way to reduce the cost of transit for parents travelling with their children. Whether it's a trip to the grocery store, doctor's office, or anywhere else, paying an additional full fare for a child can often result in the trip being made by private car or not made at all. Riding transit as a child can also help create lifetime customers, as children learn how and where transit operates, how to access it, and how convenient it can be. As they grow up, these children may ride transit more frequently than children who have never taken transit before.

Students: Discounted rides for students can also be a way to build future ridership, whether enrolled in elementary, secondary, or post-secondary institutions. Similar to the policy for children, students who become familiar and comfortable with taking transit may take transit more frequently even after they no longer qualify for student discounts. Students frequently also are living on limited incomes, many with no access to alternative modes of travel, making them reliant on transit for personal mobility.

Seniors: Lastly, the policy of providing significantly discounted fares to senior citizens is generally intended to improve the mobility of seniors no longer able to safely drive themselves

and to reduce costs for seniors on fixed incomes. Senior fares are also frequently tied to travel in off-peak periods when crowding is minimal and there is little to no additional cost to provide these rides, as no additional transit service is added to accommodate the demand.

While providing discounts to each of these groups can result in significant costs, these are typically considered as outweighed by the societal benefits. However, these societal benefits do not accrue directly to the transit agency so it is common for transit agencies providing these benefits to recoup at least a portion of the costs for a discount from other agencies with a mandate to provide aid and benefits for that group.

3.3 Payment Technologies

Several emerging payment technology options are available, with such technologies rapidly evolving from system suppliers and the financial industry. Considering the capabilities of the current Trapeze system, a logical next step would be for Transit Windsor to expand the use of smartcards and introduce mobile ticketing and it is our understanding that Transit Windsor is intending to do so.

A key issue is deciding what fare products will continue to be offered using methods other than these new payment technologies, and at what pace any changes to conventional fare media options will be made. Withdrawing the paper formats for various fare products such as passes, tickets, and transfers can influence regular riders to adopt use of the new fare technologies.

But such changes can also be controversial, in particular for supporting rare or one-time users and among rider classes who can contend that the new technologies are problematic for them to adopt (e.g., not having a credit card, difficulty accessing reload infrastructure). If cash use for fare payment can be highly reduced an agency might even consider eliminating cash acceptance, but this would typically also similarly result in equity concerns from riders who feel cash is their necessary or preferred option.

3.3.1 Smartcards

Smartcards are a form of contactless fare media that can bring several benefits to transit agencies and customers, such as reduced fare transaction (and thus dwell) times during boarding.

Smartcard systems operate under one of two fundamental architectures: “card-based” and “account-based”. In card-based systems, user and account information is stored on the smartcard. In account-based systems, the card serves as an account identifier and the account information is stored in the back office. Transit Windsor’s current farebox supports smartcards using a card-based architecture.

Regardless of the system architecture, smartcard systems can enable attractive functionality for customers, and simplify data reconciliation and financial operations. Customers can purchase fare products online or over the phone and have these added directly to their smartcard. This reduces costs associated with printing conventional paper fare media and dealing with processing cash from fares, while allowing customers the convenience to buy fare products remotely. Add-value machines can also be deployed to support the issuance of smartcards and loading fare products onto smartcards at convenient locations.

Multiple fare products can be made available for use on a smartcard. Typically smartcards can be loaded depending on the system capabilities and how the system is configured with some combination of concession fare eligibility, stored value, single-ride tickets, and varying types of period passes (e.g. daily pass, monthly pass, 7-day or 30-day rolling pass). User accounts can also be configured for a pre-arranged recurring purchase of stored value or other fare products based on a calendar interval for dropping below a balance threshold.

Transit Windsor's current fare system supports smartcards using a card-based architecture but not supporting stored value, with smartcard-based passes already in use by selected ridership classes. Refer to Appendix C for a further discussion of fare policy considerations for smartcard systems.

3.3.2 Mobile Ticketing

Mobile ticketing involves purchasing transit fare products through a mobile device, thus leveraging the existing population of mobile phones to serve as both the fare medium and a method to purchase fare products. The devices needed to use mobile ticketing are already in the hands of many customers, and the mobile-ticketing vendor provides the app, supporting software, and sometimes onboard and central hardware

Transit Windsor's fareboxes can read linear or matrix barcodes and thus can support mobile ticketing products that use supported barcode formats. In particular, the farebox vendor, Trapeze, offers a mobile ticketing product that could be implemented readily.

Mobile ticketing software is operated and maintained by the vendor as a hosted solution that is enabled with a customer-facing application. The app and hosted software enable customer fare media purchase/display. There is a potential role for onboard hardware to support fare media validation; otherwise, the operator has to validate the fare visually. The hosted software also provides agencies with data and reports, and also configuration capabilities to manage transactions and payment options.

Online purchases (for stored value, tickets and passes) transfer value over secure internet connections from linked accounts (e.g., credit card, PayPal). This "purchase anywhere" feature is especially important component of adding mobile ticketing to the fare collection system: to avoid fare purchases being limited to fixed locations, and reduce the amount of physical point-of-sale infrastructure needed.

Mobile ticketing can be configured to support multiple fare product options including stored value, single-ride tickets, "rolling activate on first use" passes, and "calendar" passes (e.g. daily, monthly). Accounts may also be setup to make recurring purchases at a set calendar interval (e.g. automatic purchase of the next weekly or monthly pass on set dates) or to purchase a set amount of stored value whenever the stored value balance drops below a set threshold.

Refer to Appendix D for further discussion of mobile ticketing.

4 Fare Strategy Decision Packages and Estimated Impacts

The subsections below describe the three fare strategy decision packages developed for evaluation as part of this study. These packages include varying fare levels, fare structures, modifications to concession fares, and how to apply these using the fare payment technologies. Following the description of each decision package, this section also details the impact on system level ridership and revenue for each package.

4.1 Decision Packages

While an infinite number of decision packages could be created with minor variations in fare levels, the resulting difference in impact between each of the scenarios would be minimal. Instead, three decision packages have been developed with variations that represent a range of reasonable fare strategies based on industry trends, best practices, and a review of peer agency policies.

Some elements are common between all three packages, where there is clear evidence for the policy. These common features are included in each decision package because their exclusion from any package would be detrimental. These common features include:

- **Raising the age limit for free rides for children**. The existing Transit Windsor policy caps free rides for children at 4 years old, meaning a 5 year old travelling with a parent to or from their kindergarten class would be subject to the full $3.00 fare if paying cash, or $1.98 if they purchase a sheet of tickets. The impact of this policy is that existing riders with young children are more likely to shift to driving for such trips to avoid this additional cost.

  Through the peer review it was found that London has adopted a policy of allowing kids up to 12 years old to ride free, without the need to be accompanied by an adult, while Halifax provides a discounted fare for kids up to 15 at a cheaper rate than that for students.

  By increasing the age limit for free rides for kids when accompanied by a parent from 5 to 12, Transit Windsor could keep more transit-riding parents from switching to driving their kids, which create more potential lifetime riders through getting more kids to ride transit more frequently.

  This change would have a small impact on fare revenue and no impact on system costs. In 2016, recorded child trips totalled 146,000, or 2.3% of the system total. From a cost perspective, given that the majority of trips by children fall outside of the traditional peak-periods, even a doubling of these trips would likely be accommodated with little or no change in the amount of transit service needed to appropriately serve ridership demand.

  The expansion of the current kids ride free policy without additional dedicated funding could result in an erosion of fare revenues. Given a fixed operating budget and target farebox recovery ratio, this potential reduction in fare revenue could negatively impact the ability of Transit Windsor to provide transit service. To avoid these negative impacts, it is important to have a separate guaranteed fund from the City to cover any potential loss in fare revenue by Transit Windsor.

  A mechanism to count the number of free rides provided may also be necessary to estimate the revenue loss. This could be accomplished by a number of methods including distributing electronic fobs to children as in London, semi-regular passenger counts, or direct recording by operators.

- **Modifying the current student fare to apply only to secondary students**. As currently implemented the student fare applies to both secondary and post-secondary students. However, with the creation of the U-Pass pilot program all full-time post-secondary students at the University of Windsor have unlimited access to Transit Windsor buses. Based on the positive experience Transit Windsor has had to-date with the U-Pass program and the ridership growth it has driven, we recommend further expanding this program to include full-time post-secondary students at St. Clair College. Eliminating the existing student fare discount for post-secondary students will likely encourage the student associations at the University of Windsor to renew and at St. Clair College to enter into an unlimited pass program.

  As discussed in the Task 2 report on Peer Agency Fare Structures (Appendix B), this is a common adjustment to fare policy being made by transit agencies across Canada. By eliminating student fares for post-secondary students, Transit Windsor can simplify the procedures surrounding student passes with minimal impact on post-secondary students. Due to the implementation of the U-Pass, this change is not expected to have a significant impact on fare revenue or transit service costs.

- **Adding single-ride and daily pass options to the APP**. The existing Transit Windsor policy limits APP riders to monthly passes. While these passes are made more affordable thanks to the concession fare offered, the $50 price can be a burden if paid all at once. Some users may also not need to use transit for the whole month, but would be reliant on transit for some proportion of the month.

  Once a customer was qualified for the Affordable Pass Program, their farecard would be set appropriately (like any other concession card), and could be loaded with the products the customer wants: the monthly pass, or the proposed single-ride fares or daily pass.

  APP users may find that single-ride and daily pass offerings can help reduce the burden of the higher one-time cost of the monthly pass and allow them more flexibility in managing their cash flow and transportation needs. This improvement requires the use of electronic fare media and associated fareboxes which are discussed further in Section 3.3. Due to the small portion of total riders represented by APP holders and the existing availability of the APP monthly pass, this change is not expected to have a significant impact on fare revenue or transit service costs.

- **Maintaining time-based transfers.** Many transit agencies, including Victoria Regional Transit as discussed in the Peer Review completed in Task 2 of this study (Appendix B), have recently investigated or adopted the policy of eliminating transfers from their systems. The arguments for eliminating transfers are that administering transfers can be a distraction for bus operators, complicate the boarding process, and are potentially abused by those looking to game the system.

  However, by charging for transfers transit agencies are penalizing riders for the agency's inability to provide direct connections between a desired origin and destination (OD) pair. Even where it possible to provide a direct service between all major OD pairs, the costs would be exorbitant and service relatively infrequent. Instead, by designing self-supportive grid-based networks and allowing passengers to board connecting buses for no additional charge, transit agencies can use these networks to approximate direct connections between all origins and destinations. Transit Windsor is currently conducting a service delivery review, which may alter its network, and thus affect the number of transfers. As this recommendation is to continue current practice, this policy is not expected to have an impact on fare revenue or transit service.

- **Replacing monthly passes with rolling 30-day passes.** This change is intended to improve customer convenience by eliminating the need to purchase a pass for each calendar month during the first few days of each month. Instead, riders may purchase a pass at any time which is valid for travel for 30 days from the date of the first trip taken with the pass. This change allows for increased flexibility for riders in determining whether a frequent rider pass makes sense for them based on their schedule instead of based on the calendar. This type of pass requires the use of electronic fare media and associated fareboxes, both of which are discussed in Section 3.3. Moving to a rolling time-based pass will also help alleviate the long lines that typically occur during the first few days of the month when frequent riders purchase their new monthly passes. As this change is aimed at improving customer convenience, it is not expected to significantly impact fare revenue or transit service costs.
- **Eliminating single-ride tickets and passes in favour of equivalent products carried on smartcards and mobile ticketing**. This is a forward looking policy intended to modernize the Transit Windsor fare media options. As this is also a customer convenience improvement, it is not expected to significantly impact fare revenue or transit service costs, excluding capital costs to develop and deploy the system. See Section 3.3 for further discussion. Elimination of the legacy fare products should only be done once their equivalent availability through electronic fare media is seen by the public as sufficiently available and reliable.
- **Provide no further discount to senior fares**. As discussed in Section 3.2, senior discounts are provided to riders over 60 years of age and are generally intended to improve mobility and reduce costs for those no longer able to drive themselves or those living on fixed incomes.

  Through the course of this study the idea of free fares for seniors has been raised. We estimate the revenue loss of such a plan to be between approximately $750,000 and $1,000,000 annually over the next five years. This represents a loss of approximately 8% of annual operating revenue while serving only approximately 10% of Transit Windsor riders.

  The peer review found that the cities of London, Saskatoon, and Victoria currently have eliminated senior-specific discounts on some or all fare products. Further details on the peer review may be found in Appendix B. Increasing the quantity of transit service provided has generally been found to have a much greater impact on ridership and perception of service quality than reducing fares. Given that Transit Windsor already offers substantial discounts to seniors both in terms of age qualification and fares for Daily and Monthly passes, it is our recommendation that the existing senior fare not be further reduced.

4.1.2 Strategy 1: Inflation Adjusted Fares

The first decision package is referred to as the Inflation Adjusted Fares package, with the fare levels in this package set such that they keep pace with the expected rate of inflation (approximately 2% per year). A summary of the existing fare structure, the resulting fare structure in 2023, and the change in fare structure as a result of adopting this decision package are shown in Exhibit 4-1.

Exhibit 4-1: Inflation Adjusted Fares (Strategy 1) Fare Levels and Structure

Fare Class	Existing Fares				2023				Fare Increase (%Increase)			
	Cash	Ticket *(each)*	Daily Pass	Monthly Pass	Cash	Single Fare**	Daily Pass	30-Day Pass***	Cash	Single Fare	Daily Pass	30-Day Pass
Adult	$ 3.00	$ 2.53	$ 9.00	$ 95.70	$ 3.30	$ 2.79	$ 9.95	$ 105.66	$ 0.30 (10%)	$ 0.26 (10%)	$ 0.95 (11%)	$ 9.96 (10%)
Senior	$ 3.00	$ 1.98	$ 9.00	$ 48.40	$ 3.30	$ 2.19	$ 9.95	$ 53.44	$ 0.30 (10%)	$ 0.21 (10%)	$ 0.95 (11%)	$ 5.04 (10%)
Youth *(13 to 19 years)*	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ 3.30	$ 2.19	$ 9.95	$ 72.87	$ 0.30 (10%)	$ 0.21 (10%)	$ 0.95 (11%)	$ 6.87 (10%)
Student	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ 3.30	$ 2.79	$ 9.95	$ 105.66	$ 0.30 (10%)	$ 0.81 (41%)	$ 0.95 (11%)	$ 39.66 (60%)
Child *(5 to 12 years)*	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ -	$ -	$ -	$ -	$ -3.00 (-100%)	$ -1.98 (-100%)	$ -9.00 (-100%)	$ -66.00 (-100%)
APP *(Affordable Pass Program)*	$ -	$ -	$ -	$ 48.40	$ -	$ 1.41	$ 5.00	$ 53.44	-	-	-	$ 5.04 (10%)

** Post-secondary student passes are included in tuition costs*
*** Smart card or mobile payment to replace tickets*
**** Rolling 30-Day Pass to replace existing Monthly Pass*

As shown in Exhibit 4-1, this strategy:

- Maintains current discounts for senior fares;
- Maintains student discounts on fares and passes, renames the category to 'Youth', and limits availability to those between the ages of 13 and 19;
- Eliminates discounts for post-secondary student fares (replaced by U-Pass for UWindsor students);
- Extends the kids-ride-free policy for up to and including 12 year olds when accompanied by an adult;
- Replaces paper tickets and passes with equivalents carried on the smartcards and mobile ticketing;
- Replaces the monthly pass with a rolling 30-day pass;
- Introduces single-ride and daily pass options to APP;
- Increases the cost of all fare products by 2% per year over 5 years.

4.1.4 Strategy 2: Fare Freeze

The second decision package is referred to as the Fare Freeze package, as the fare levels in this package are maintained at existing levels. A summary of the existing fare structure, the resulting fare structure in 2023, and the change in fare structure as a result of adopting this decision package are shown in Exhibit 4-2.

Exhibit 4-2: Fare Freeze (Strategy 2) Fare Levels and Structure

Fare Class	Existing Fares				2023				Fare Increase (%Increase)			
	Cash	Ticket *(each)*	Daily Pass	Monthly Pass	Cash	Single Fare**	Daily Pass	30-Day Pass***	Cash	Single Fare	Daily Pass	30-Day Pass
Adult	$ 3.00	$ 2.53	$ 9.00	$ 95.70	$ 3.00	$ 2.53	$ 9.00	$ 95.70	$ 0.00 (0%)	$ 0.00 (0%)	$ 0.00 (0%)	$ 0.00 (0%)
Senior	$ 3.00	$ 1.98	$ 9.00	$ 48.40	$ 3.00	$ 1.98	$ 9.00	$ 48.40	$ 0.00 (0%)	$ 0.00 (0%)	$ 0.00 (0%)	$ 0.00 (0%)
Youth *(13 to 19 years)*	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ 0.00 (0%)	$ 0.00 (0%)	$ 0.00 (0%)	$ 0.00 (0%)
Student	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ 3.00	$ 2.53	$ 9.00	$ 95.70	$ 0.00 (0%)	$ 0.55 (28%)	$ 0.00 (0%)	$ 29.70 (45%)
Child *(5 to 12 years)*	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ -	$ -	$ -	$ -	$ -3.00 (-100%)	$ -1.98 (-100%)	$ -9.00 (-100%)	$ -66.00 (-100%)
APP *(Affordable Pass Program)*	$ -	$ -	$ -	$ 48.40	$ -	$ 1.28	$ 4.55	$ 48.40	-	-	-	$ 0.00 (0%)

** Post-secondary student passes are included in tuition costs*

*** Smart card or mobile payment to replace tickets*

**** Rolling 30-Day Pass to replace existing Monthly Pass*

As shown in Exhibit 4-2, this strategy:

- Maintains current discounts for senior fares;
- Maintains student discounts on fares and passes, renames the category to 'Youth', and limits availability to those between the ages of 13 and 19;
- Eliminates discounts for post-secondary student fares (replaced by U-Pass for UWindsor students);
- Extends the kids-ride-free policy for up to and including 12 year olds when accompanied by an adult;
- Replaces paper tickets and passes with equivalents carried on the smartcards and mobile ticketing;
- Replaces the monthly pass with a rolling 30-day pass;
- Introduces single-ride and daily pass options to APP;
- Freezes the costs of all fare products at 2018 levels.

4.1.6 Strategy 3: Frequent Rider Discount

The third and final decision package is referred to as the Frequent Rider Incentive package, as the fare levels in this package are adjusted such that the cost of the monthly pass is maintained at current levels while all other fare products are increased at the rate of inflation. A summary of the existing fare structure, the resulting fare structure in 2023, and the change in fare structure as a result of adopting this decision package are shown in Exhibit 4-3.

Exhibit 4-3: Frequent Rider Incentives (Strategy 3) Fare Levels and Structure

Fare Class	Existing Fares				2023				Fare Increase (%Increase)			
	Cash	Ticket *(each)*	Daily Pass	Monthly Pass	Cash	Single Fare**	Daily Pass	30-Day Pass***	Cash	Single Fare	Daily Pass	30-Day Pass
Adult	$ 3.00	$ 2.53	$ 9.00	$ 95.70	$ 3.30	$ 2.79	$ 9.95	$ 95.70	$ 0.30 (10%)	$ 0.26 (10%)	$ 0.95 (11%)	$ 0.00 (0%)
Senior	$ 3.00	$ 1.98	$ 9.00	$ 48.40	$ 3.30	$ 2.19	$ 9.95	$ 48.40	$ 0.30 (10%)	$ 0.21 (10%)	$ 0.95 (11%)	$ 0.00 (0%)
Youth *(13 to 19 years)*	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ 3.30	$ 2.19	$ 9.95	$ 66.00	$ 0.30 (10%)	$ 0.21 (10%)	$ 0.95 (11%)	$ 0.00 (0%)
Student	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ 3.30	$ 2.79	$ 9.95	$ 95.70	$ 0.30 (10%)	$ 0.81 (41%)	$ 0.95 (11%)	$ 29.70 (45%)
Child *(5 to 12 years)*	$ 3.00	$ 1.98	$ 9.00	$ 66.00	$ -	$ -	$ -	$ -	$ -3.00 (-100%)	$ -1.98 (-100%)	$ -9.00 (-100%)	$ -66.00 (-100%)
APP *(Affordable Pass Program)*	$ -	$ -	$ -	$ 48.40	$ -	$ 1.41	$ 5.00	$ 48.40	-	-	-	$ 0.00 (0%)

** Post-secondary student passes are included in tuition costs*

*** Smart card or mobile payment to replace tickets*

**** Rolling 30-Day Pass to replace existing Monthly Pass*

As shown in Exhibit 4-3, this strategy:

- Maintains current discounts for senior fares;
- Eliminates discounts for post-secondary student fares (replaced by U-Pass for UWindsor students);
- Eliminates discounts for post-secondary student fares (replaced by U-Pass);
- Extends the kids-ride-free policy for up to and including 12 year olds when accompanied by an adult;
- Replaces paper tickets and passes with equivalents carried on the smartcards and mobile ticketing;
- Replaces the monthly pass with a rolling 30-day pass;
- Introduces single-ride and daily pass options to APP;
- Freezes the cost of the monthly pass at 2018 levels; and
- Increases the cost of all other fare products by 2% per year over 5 years.

4.3 Comparative Impacts

Ridership impacts resulting from fare structure changes are calculated using an elasticity based approach, while revenue estimates are based on average fare prices. Elasticities are a way to calculate a change in demand of a good relative to the change in its price. The general equation used to calculate a change in demand is shown in **Equation 1**.

$$\frac{\Delta D}{D_1} = e_D \cdot \frac{\Delta P}{P_1} \qquad \textbf{Eq. 1}$$

Where:

ΔD = Change in demand

D_1 = Original quantity demanded

e_D = Elasticity of demand

ΔP = Change in price

P_1 = Original price for pre-defined quantity

Several factors can impact elasticity values including trip type, time of trip, passenger income, and many other variables. For the purposes of this study a value of -0.43 is used.[1] This would mean that for every unit of price increase there would be a demand decrease of 0.43. This value represents an average for all hours appropriate for cities with population under 1,000,000 and has been used widely in similar applications throughout North America.

Exhibits 4-4 through 4-9 below summarize the estimated ridership and revenue impacts resulting from adopting the various decision packages discussed in Section 4.1. Note that comparisons made to 2016 values exclude ridership and revenue projections for children and APP riders. These categories are excluded because the APP ridership data and child revenue data were not available. The impact of the exclusion of these categories on this process is expected to be minimal, as they represent only a small percentage of total riders and revenue and are treated the same under all three decision packages.

Exhibit 4-4: Strategy 1 System Ridership Impacts

Fare Class	Cash	Ticket	Pass	Total
Adult	935,600	334,100	1,405,600	2,675,300
Senior	198,500	117,500	452,400	768,400
Youth *(13 to 19 years)*	938,300	579,700	852,100	2,370,100
Post-Secondary Student	13,200	-	346,000	359,200
Other *(E.g. Tunnel, Combo, Auto Show)*	164,900	-	31,100	196,000
Total	**2,250,500**	**1,031,300**	**3,087,200**	**6,369,000**
(Ratio to 2016)	***(1.00)***	***(1.00)***	***(1.00)***	***(1.00)***

[1] Todd Litman, “Transportation Elasticities”, http://www.vtpi.org/tdm/tdm11.htm (January 2, 2017)

Exhibit 4-5: Strategy 1 System Revenue Impacts

Fare Class	Cash	Ticket	Pass	Total
Adult	$ 4,006,400	$ 933,200	$ 958,400	$ 5,898,000
Senior	$ -	$ 256,800	$ 549,000	$ 805,800
Youth *(13 to 19 years)*	$ -	$ 1,267,200	$ 1,639,500	$ 2,906,700
Post-Secondary Student	$ -	$ -	$ 820,100	$ 820,100
Other *(E.g. Tunnel, Combo, Auto Show)*	$ -	$ 698,700	$ 2,247,900	$ 2,946,600
Total	**$ 4,006,400**	**$ 3,155,900**	**$ 6,214,900**	**$ 13,377,200**
(Ratio to 2016)	***(1.10)***	***(1.08)***	***(1.06)***	***(1.08)***

As shown in Exhibits 4-4 and 4-5, this scenario is expected to maintain current ridership levels while increasing revenues by 9% overall. Ridership is flat due to the 2% year-to-year fare increase, which is what drives the increase in revenue.

Exhibit 4-6: Strategy 2 System Ridership Impacts

Fare Class	Cash	Ticket	Pass	Total
Adult	972,300	347,600	1,462,600	2,782,500
Senior	206,200	122,200	470,700	799,100
Youth *(13 to 19 years)*	937,300	579,700	886,600	2,403,600
Post-Secondary Student	13,200	-	360,000	373,200
Other *(E.g. Tunnel, Combo, Auto Show)*	164,900	-	31,100	196,000
Total	**2,293,900**	**1,049,500**	**3,211,000**	**6,554,400**
(Ratio to 2016)	***(1.02)***	***(1.02)***	***(1.04)***	***(1.03)***

Exhibit 4-7: Strategy 2 System Revenue Impacts

Fare Class	Cash	Ticket	Pass	Total
Adult	$ 3,782,300	$ 879,500	$ 903,200	$ 5,565,000
Senior	$ -	$ 242,000	$ 517,400	$ 759,400
Youth *(13 to 19 years)*	$ -	$ 1,147,800	$ 1,545,100	$ 2,692,900
Post-Secondary Student	$ -	$ -	$ 742,700	$ 742,700
Other *(E.g. Tunnel, Combo, Auto Show)*	$ -	$ 698,700	$ 2,247,900	$ 2,946,600
Total	**$ 3,782,300**	**$ 2,968,000**	**$ 5,956,300**	**$ 12,706,600**
(Ratio to 2016)	***(1.04)***	***(1.01)***	***(1.02)***	***(1.02)***

As shown in Exhibits 4-6 and 4-7, this scenario is expected to provide minor increases to both overall ridership and fare revenue. Freezing fares at 2018 levels results in increased ridership across all fare classes, which in turn increases total revenues. This increase in ridership may require future service improvements if current loading conditions are to be maintained. However, it is likely that the additional ridership observed in this scenario could be accommodated by existing transit service.

Exhibit 4-8: Strategy 3 System Ridership Impacts

Fare Class	Cash	Ticket	Pass	Total
Adult	935,600	334,100	1,462,600	2,732,300
Senior	198,500	117,500	467,200	783,200
Youth *(13 to 19 years)*	938,300	579,700	886,600	2,404,600
Post-Secondary Student	13,200	-	346,000	359,200
Other *(E.g. Tunnel, Combo, Auto Show)*	164,900	-	31,100	196,000
Total	**2,250,500**	**1,031,300**	**3,193,500**	**6,475,300**
(Ratio to 2016)	***(1.00)***	***(1.00)***	***(1.03)***	***(1.02)***

Exhibit 4-9: Strategy 3 System Revenue Impacts

Fare Class	Cash	Ticket	Pass	Total
Adult	$ 4,006,400	$ 933,200	$ 903,200	$ 5,842,800
Senior	$ -	$ 256,800	$ 523,800	$ 780,600
Youth *(13 to 19 years)*	$ -	$ 1,267,200	$ 1,545,100	$ 2,812,300
Post-Secondary Student	$ -	$ -	$ 820,100	$ 820,100
Other *(E.g. Tunnel, Combo, Auto Show)*	$ -	$ 698,700	$ 2,247,900	$ 2,946,600
Total	**$ 4,006,400**	**$ 3,155,900**	**$ 6,040,100**	**$ 13,202,400**
(Ratio to 2016)	***(1.10)***	***(1.08)***	***(1.03)***	***(1.06)***

As shown in Exhibits 4-8 and 4-9, this scenario is expected to provide a minor increase to overall ridership and a somewhat larger increase to total revenue. Raising cash and ticket fares 2% year-to-year maintains existing ridership levels but results in increased revenue from these categories. Freezing fares for the rolling 30-day Pass at 2018 levels results in increased ridership, which in turn increases revenues for that category. This increase in ridership is smaller than the increase observed in Strategy 2 and therefore less likely to require additional service to accommodate the additional riders.

5 Recommended Strategy and Implementation

The following subsections detail our recommendations to Transit Windsor on fare structure and strategy, and how to implement them.

5.1 Fare Structure Recommendations for Smartcards and Mobile Ticketing

It is recommended that Transit Windsor expand the use of smartcards in their fare management system and introduce mobile ticketing as an additional payment option for customers.

The initial expanded use of smartcard should leverage the current smartcard system through configuration changes to add support for additional fare products and to establish additional revaluing infrastructure.

Transit Windsor should undertake a pilot with the mobile ticketing solution offered by Trapeze, and use observations and rider feedback during this pilot to more firmly establish mobile ticketing business and technical requirements. After the pilot period, there could be an assessment of whether to extend beyond the pilot period with Trapeze or conduct a competitive procurement.

Some or all of the legacy paper fare products could eventually be eliminated once the electronic fare media are seen as sufficiently reliable and available. This can help maximize electronic fare media usage levels, since the outcome would be that most regular riders would adopt electronic fare media.

5.1.1 Fare Products

Initially smartcards and mobile ticketing will be used to mirror existing fare products, subject to:

- The limitations of Transit Windsor's existing Trapeze solution (e.g., capability to support stored value on smart cards); and
- The desire to replace the monthly pass with a 30-day rolling pass.

Since mobile ticketing is initially proposed as a pilot, and there is significant logistical complexity in supporting concession fares with mobile ticketing, it is recommended that only standard fares be supported using mobile ticketing at first. Exhibit 5.1 indicates initial fare products to be made available for purchase for both smartcards and mobile ticketing.

Exhibit 5-1: Summary of Recommended Initial Fare Products

Fare Product	Smartcard - Adult	Smartcard - Concession	Mobile Ticketing - Adult
Single-ride (with 2hr. transfer window)	✓	✓	✓
Daily pass	✓	✓	✓
30-day rolling pass (for unlimited travel from day of first use)	✓	✓	✓

5.1.2 Fare Policy/Products

A variety of fare products and policy innovations could be conveniently supported using the smartcard and mobile ticketing technology, as shown in Exhibit 5-2 below. It is recommended that Transit Windsor consider these products and policies for future implementation, as appropriate, to supplement the flat fares and passes provided under the current fare structure and those initially deployed on electronic fare media. These additional fare policies and products would not require additional infrastructure or the use of conventional fare media since they would only be offered for smartcard and mobile ticketing purchases. All that would be required would be adjustments to the fare calculation logic in the system back office. In addition to the new options available to riders, these would also be an additional incentive for riders to adopt use of the electronic fare media.

Exhibit 5-2: Summary of Some Potential Fare Policies/ Products for Electronic Fare Media Only

Fare Policy Category	Fare Policy Type	Complexity	Examples
Loyalty Programs	Other Rolling Passes	Low-Medium	• Beyond the monthly rolling pass, other rolling period passes could be considered (e.g., *x* hours, daily, weekly)
	Bonus Fares	Medium	• 1 free trip for every 10 paid trips • $1 “refund” for every $10 loaded in stored value
	Fare Capping	High	• Pay multiple single-ride fares until daily/weekly/monthly cap is met, then all subsequent fares made in that time period are free
Differential Pricing	Fare Differential	Low	• Discount single-ride fare for customers using smartcard instead of cash
	Service-Based	Medium	• Charge discounted fares on non-express routes
	Peak/Off-Peak	Medium	• Charge discounted fares for trips during off-peak periods

5.1.3 Sales Channels

To accommodate the intended growth in smartcard usage, additional sales channels would benefit Transit Windsor and its customers. The degree of rider uptake in mobile ticketing could serve to moderate the extent of what is needed (i.e., part of the inherent role of mobile ticketing is as a sales channel), as such, it is recommended that additional sales channels be phased in over time. A summary is provided in Exhibit 5-3 below.

Exhibit 5-3: Summary of Recommended Sales Channels

Sales Channel	Supports Cash Payment	Supports Concession Fares
Customer Service Centre	✓	✓
Call Centre		✓
Website		✓
Mobile Application		
Retail Partner Locations	✓	✓

In addition, Transit Windsor could work with their vendor to distribute unattended add-value machines to support smartcard users.

5.2 Recommended Fare Strategy

It is recommended that Transit Windsor adopt the Strategy 3—Frequent Rider Discount decision package. In this Strategy, the cost of the rolling 30-day pass (replacing the existing monthly pass) will be held constant at 2018 levels while the cost of all other fare products would increase by 2% per year over the next 5 years. This strategy also includes:

- Providing no further discount on Senior fares;
- Maintaining student discounts on fares and passes, renaming the category to Youth, and limiting the availability to those between the ages of 13 and 19;
- Introducing a single-pass option to the APP, in co-ordination with the introduction of a smartcard or mobile ticketing system;
- Eliminating discounts for post-secondary student fares (replaced by U-Pass for UWindsor students);
- Extension of the current policy allowing children up to 12 years of age to ride free with a parent.
- Replacing paper tickets and passes with equivalents carried on the smartcards and mobile ticketing;
- Replacing the monthly pass with a rolling 30-day pass; and
- Introducing single-ride and daily pass options to APP.

As presented in Exhibits 4.4 through 4.9, this strategy is projected to maintain steady ridership levels along with a slight increase in fare revenue in comparison to the existing fare structure and policies.

This strategy offers a balance between maintaining and encouraging ridership through constant or discounted fare rates while maintaining a sustainable revenue stream. Importantly, this approach will maintain the City's financial investment in its transit service at a moderate rate of increase thereby allowing Transit Windsor to be proactive in improving transit service levels and maintaining a state of good repair.

As noted in Section 4.1 a number of these modifications, including expanding the APP and expanding the kids-ride-free program to include kids up to 12 years old, will likely result in a reduction in fare revenue. Given a fixed operating budget and target farebox recovery ratio, this potential reduction in revenue could negatively impact the ability of Transit Windsor to provide

transit service. To avoid these negative impacts, it is important to have a separate guaranteed fund from the City to cover any potential loss in fare revenue by Transit Windsor.

It should be noted that the ridership and fare revenue projections associated with the recommended fare policy are independent of any future changes to transit service levels, transit service quality and positive promotion of transit use in the city. Transit Windsor's current service delivery review is expected to alter service levels, and thus transit use, independent of fare structure changes. Transit ridership, and accordingly fare revenues, typically react negatively to transit service reductions, and large fare increases. They may also be influenced by negative attitudes towards the transit service in the community.

5.3 Implementation Recommendations

Implementing changes to the fare management system should limit inconvenience to customers and provide a smooth transition from their current Transit Windsor experience. New features should also be communicated to the public effectively, in advance of changes taking affect.

The upgraded Trapeze EZV36 fareboxes will support existing smartcards used in the Transit Windsor system, as well as mobile ticketing through a matrix code reader. Mobile ticketing is available as an option from Trapeze for an additional charge. Transit Windsor also has the option to at any point procure a mobile ticketing solution from another vendor.

We recommend offering all current fare products that are supported by Transit Windsor's existing Trapeze fare system on smartcards, and pursuing a pilot that includes all current fare products that are supported by the Trapeze mobile ticketing solution. Transit Windsor should consider leveraging the configurability of these systems to support additional fare products and discount/loyalty policies in the future. Since these would not be available except through these electronic fare media, this would also serve to increase their appeal.

Transit Windsor will use the pilot results to refine their mobile ticketing requirements, and for assessing options for continuing beyond the pilot. Such post-pilot options could include a competitive mobile ticketing procurement or refinement of the Trapeze initial deployment.

In summary, the following staged action plan is recommended:

- Introduce mobile ticketing pilot using Trapeze product and expand use of smartcards, with both configured for all current fare products.
- After the mobile ticketing pilot period, evaluate to decide whether to continue post-pilot and if so whether through continuation/improvements with Trapeze or a competitive procurement.

Appendix A – Review of Current Fare Policies and Practices

IBI GROUP
7th Floor – 55 St. Clair Avenue West
Toronto ON M4V 2Y7 Canada
tel 416 596 1930 fax 416 596 0644
ibigroup.com

Memorandum

To/Attention	Transit Windsor	**Date**	November 22, 2017
From	Chris Prentice	**Project No**	109943
cc	Doug Parker, J. Richard Nelson		
Subject	**Task 1—Review of Current Fare Policies and Practices**		

This memorandum presents an overview and summary of Transit Windsor's current fare policies, structure, rates and practices. This will serve as background to identifying and assessing potential fare structure and policy changes as part of the fare study.

Context

Transit Windsor is the corporate name for the conventional public transit service in the City of Windsor, serving a population of 217,188. The service is operated as a division of the municipal Office of the City Engineer and has 263 employees and 112 buses. The transit system has 14 fixed routes, which operated 263,905 revenue hours of service and carried 6,512,338 passengers in 2016. Operating expenditures totalled $29,904,611 and revenues $13,183,042. The net municipal investment was $13,436,182. The specialized transit service, Handi-Transit, is provided by a private non-profit organization under contract to the City. 54,077 trips were taken on the service in 2015 which is provided by 23 full and part-time employees using 13 small buses and an annual operating expenditure of approximately $1.3 million.

Transit Windsor operates services into the City of Detroit in the United States (including service to Comerica Park, Little Caesars Arena, and Ford Field) via the Detroit-Windsor Tunnel.

Current Fare Structure

The current fare structure is summarized in Exhibit 1. It is based on the "exact fare" payment principle in that users must pay the exact cash fare at the time of boarding, or present a valid pass, ticket or transfer. For people paying by cash, no reimbursement is provided for over-payment of the fare.

The fare structure consists of user categories, along with a range of options with prices for purchasing and paying for the use of transit services. This structure applies to both the conventional transit service and the special events services. Payment options include cash, tickets (sold in strips of five), passes and smart cards. The fares were last adjusted on July 1, 2016. Note, children under age 5 ride free when accompanied by a full paying passenger.

Exhibit 1: Current Transit Windsor Fare Structure

Category	Fare Payment Method			
	Cash	Monthly Pass	Day Pass	Trip Tickets (5/each)
Adult	$3.00	$95.70		$12.65($2.53)
Student	$3.00	$66.00		$9.90 ($1.98)
Senior	$3.00	$48.40		$9.90 ($1.98)
Child (> age 5)	$3.00	$66.00		
Affordable Pass Program (APP)		$48.40		
Post-Secondary		$66.00		
Summer Saver		$105.50		
Combo		$157.00		
Restricted Monthly		$44.00		
Restricted Semester		$220.00		
Individual			$9.00	
Family			$9.00	
Tunnel Service	$5.00	$95.70		

Transfers

As part of the fare payment system for conventional service, transfer slips (“transfers”) are issued to users upon payment of a fare on the first bus they board when requested. This allows use of more than one route to complete their trip. They are a form of “proof of payment” to indicate to the bus operator on the connecting route that the user has already paid a fare. Transfers are not issued to holders of passes (day or monthly). Transfers do not apply to connections between regular Transit Windsor routes and the Tunnel route to Detroit.

Current Transit Windsor policy is that transfers are valid for two hours after issuance and allow users to make a stopover, that is, get off the first bus and board a second bus on the same or a different route, provided they re-board within two hours. Users may make a return trip on the transfer also within the two-hour “window”. In effect, the transfer serves as equivalent to a two-hour period pass beginning from the time of issuance.

Passes

Monthly, Day, and Family passes are available for pre-purchase. Monthly passes are sold by the calendar month, not on the basis of a 30-day validity period. Purchasers must obtain a Transit Windsor issued photo identification card in advance of purchasing a monthly pass, at a cost of $5.00. This identification card is numbered, and both it and the pass must be presented for inspection by the bus operator when boarding a bus.

A Day Pass is available for unlimited travel within one day and must be purchased on the bus on the day of use. Users deposit the value of the pass into the farebox and the bus operator then issues the pass as a form of "transfer."

A Family Pass, valid for either (1) two adults and up to three children, or (2) one adult and up four children, is available and may be purchased in the same way as a Day Pass. Eligible "children" must be between 5 and 12 years of age. Children cannot purchase and use the Family Pass without a full-paying passenger (adult).

Tickets

Tickets in strips of 5, are available at "Adult" and combined "Student/Senior" rates. Each are priced at a savings compared to the cash fare. They are sold through fare media outlets and are good for one ride. Students must present a valid student card when using student tickets.

Smart Media

Smart media is issued to certain groups of users such as Student Transportation, Corporate Passes and UPASS. Each group of users is priced individually dependent upon the contract negotiated with each group.

Fare Category Eligibility

Seniors are defined as age 60 and older. A student is anyone (any age) attending an elementary, secondary or post-secondary accredited school on a full-time basis. Children are defined as age 5 to 12 inclusive.

Policy Background

The structure of fare categories and rates forms the basis for the amount that users contribute towards the cost of the service. This reflects local municipal priorities as well as the user market and demographics being served by the transit service.

In principle, transit service is a core municipal service that is important for the growth and vitality of the city so the cost to provide the service is shared between (1) all transit stakeholders (residents and businesses) through property taxes, as an investment in the city, and (2) users of the service in the form of fees (fares) and resulting revenues. The share, or split, between the municipal investment and fares is represented by the revenue/cost (R/C) ratio—the proportion of costs covered by fare revenues. Transit Windsor's 2016 R/C ratio was 46.4%. After allowance for provincial gas tax, the municipality invested approximately 45% towards the cost beyond fare revenues for providing transit service in 2016.

Establishing a fare policy and corresponding rates requires a balance between (1) the competing demands for the portion that transit users pay (fares) relative to the amount other transit stakeholders in the community invest in transit through the municipal budget, and (2) pricing transit fares such that transit is affordable while perceived as having a "value".

Within this context a number of key principles apply to setting fares, based on experience in the industry:

1. Fares should be reviewed and adjusted at least every two years but preferably annually. Based on industry experience, small regular adjustments are more

acceptable to stakeholders (users and non-users) than less frequent larger adjustments and result in less negative impact on ridership;

2. Because public transit benefits the community as a whole, it is appropriate that the community financially supports transit;
3. Transit fares should provide an incentive to using transit through the availability of fare media that offer discounts for more frequent use;
4. Cash fares should be permitted (as opposed to requiring all users to pre-purchase transit fares ahead of time) in consideration of infrequent users and visitors as well as the generally limited number of places available to pre-purchase transit fare media; and
5. Transit users are more supportive of an increase in fares if it is understood that the alternative is that transit services would be reduced.

The current fare policy rewards frequent users, which is good policy. However, the level of discounts offered through tickets and passes is high, which decreases the amount of fare revenue generated and the R/C ratio. The goal of a new fare policy is to maintain the fairness of the fare structure as the system is expanded in the future.

Transit fare rates should be regularly adjusted to maintain a reasonable revenue-cost fare recovery ratio (R/C ratio), and to optimize the municipality's investment in its public transit service. If fare revenue is not increased progressively then in periods of financial restraint increased pressure will be placed on transit service levels, with the result that transit services may either be curtailed or needed improvements deferred. This situation can have a long term negative impact on the municipality's transit service as well as its overall transportation system by further increasing dependence on the automobile through inhibited transit service levels.

Analysis of Ridership and Revenue

Based on 2016 data, the Exhibit 2 presents a summary of ridership and fare revenue by fare category and method of fare payment. Note that users using tickets are recorded as "cash" ridership.

Overall, transit users paying by cash and ticket represent 36.6% of total ridership, while those paying by pass are the remaining 63.4%. Over the past few years, the percentage split between cash and pass ridership has been shifting towards increasing pass use. For example, in 2015 the split was 38.6% versus 61.4% - a two percentage point change.

In terms of the percentage breakdown of ridership by fare category, full fare (adult) ridership is 41.1%, student 41.9%, senior 11.8%, and child 2.2%. Student ridership in total and as a percentage of ridership has increased significantly over the past two years with the introduction of the U-Pass.

In terms of the percentage breakdown of ridership by method of fare payment (cash and pass), the percentage is relatively consistent for adults and students. For seniors, however, a higher proportion pay by pass than by cash (13.8% versus 8.3%). In contrast, a smaller percentage of child fare payment is by pass (0.3%) versus cash (5.6%). Similarly with the Tunnel service ridership, a greater percentage pay by cash (6.9%) than pass (0.8%) which likely reflects the nature of the service since it is oriented towards occasional ridership for special events.

Exhibit 2: Summary of Ridership and Fare Revenue by Fare Category

Fare Category	Ridership				Revenue					Total
	Cash	%	Pass	%	Cash	Ticket	Pass	Ridership	%	Revenue
Adult	934,410	39.2	1,739,737	42.1	$2,926,347	$2,924,323	$898,027	2,674,147	41.1	$6,748,697
Student	950,315	40.0	1,777,768	43.0	$10,696	-	$2,481,856	2,728,083	41.9	$2,492,552
Senior	198,208	8.3	569,860	13.8	$1,550	-	$497,275	768,068	11.8	$498,825
Child	133,444	5.6	-	-	-	-	-	133,444	2.0	-
Family Pass Child	-	-	12,602	0.3	$527	-	-	12,602	0.2	$527
Tunnel	164,852	6.9	31,142	0.8	$167,495	-	$77,005	195,994	3.0	$244,500
Misc (photos, Exchange rate)	-	-	-	-	$157,171	-	$2,117,844	-	-	$2,275,015
Total	**2,381,229**	**36.6**	**4,131,109**	**63.4**	**$3,263,786**	**$2,924,323**	**$6,072,007**	**6,512,338**	**-**	**$12,266,251**

Transfer use data is collected by Transit Windsor for its conventional service and indicates a 2016 transfer rate of 40.2% (percent of cash riders who transfer), keeping in mind transfers are only issued to riders paying by cash.

Transit Windsor offers 16 different rates, for a range of fare payment methods (cash and pass) and fare categories. While this appears high, Transit Windsor has been working to simplify its fare structure since 2008 by (1) setting one cash fare and one trip ticket rate and, (2) consolidating the post-secondary and student categories into one, and eliminating the SS Blended Rate and ticket option for the Tunnel service. At the same time, however, one new category, Affordable Pass Program (APP) has been introduced which offers qualified persons an almost 50% reduction on the regular monthly pass rate with Transit being credited with the difference by the Social Services department. There are, however, still an extensive range of categories and rates within the monthly pass payment method (i.e., 9 different rates).

Another recent fare policy change was with regard to transfers and introduction of the two-hour "window" allowing transfer use for stopovers and return trips. The intent of this policy change was to provide more flexibility for travellers to use transit, and to encourage more short trips by reducing their cost with the expectation of a resulting increase in ridership. Generally, experience in other jurisdictions shows such measures tend to lead to a modest increase in transit use but not to the extent that offsets the revenue loss – thereby resulting in a net revenue loss.

Pricing of Fare Media

In pricing its fare media options compared to cash fares, the following ratios apply for primary categories:

- Monthly Pass – 31.9 times the cash fare
- Trip Tickets (5):
  - Adults – 84.3% of the cash fare (15% reduction)
  - Senior/Student – 66.0% of cash fare (33% reduction)
- Senior Pass – 50.5% of the adult pass rate
- Child Pass – approximately 69% of the adult pass rate

The basis for the combo pass and restricted (elementary, monthly, semester) pass rate calculations seem less clear, but appear to be based on annual percentage increases from rates set in previous years.

Average Fare

The 2016 system average fare is $1.94, or 64.6% of the full cash fare rate. This is a reasonable average rate that indicates the fare rates are generally priced consistent with use. A growing issue, however, is the desire to provide fare reductions to people with lower income levels or other factors. This is a strong trend in the United States in particular, and is seen in Transit Windsor fare policy in the form of the APP introduction in 2011. Offering a lower rate for people with lower incomes may be consistent with the traditional practice of fare reduction rates (compared to Adult or Full Fare rates) provided for seniors, students and children. But for the different rationale of being income-based. A proliferation of such rates though would serve to

undermine the financial performance of the transit system without any guaranteed increase in transit use. Instead, such fare reductions represent a form of “income supplement” the funding of which should not be the responsibility of the transit system. Rather, it is a social issue. And encouraging more extensive transit service use by people with lower incomes can also serve to perpetuate stereotypes among the general public that associate transit use with not having other transportation options.

Student Transportation Services

The City, through Transit Windsor, has an agreement with the local school board (public and separate) transportation services department (STS) to provide bulk-rate special restricted monthly passes to high school students, to use transit services for travel to and from school instead of yellow buses. The arrangement dates back several years. The passes are issued to all students eligible to be transported to school, based on the school board criteria of a walk distance greater than 3.2 kilometres. The passes are currently priced at $44.00 per month or $220.00 for a five month semester, and are based on the assumption that all students receiving the pass will use Transit Windsor services. This is in essence guaranteed revenue for Transit Windsor. STS controls and validates eligibility for the passes, with Transit Windsor invoicing STS on the basis of the number of passes issued.

This program is used in other jurisdictions and represents an effective use of local transit services in lieu of duplicative yellow school bus services.

Low Income Bus Pass/Ontario Works and ODSP/APP

The Affordable Pass Program (APP) allows residents to purchase a discounted adult or student monthly transit pass provided they meet income eligibility requirements. The reduction is to approximately 50% of the full cost of a monthly pass ($48.40 versus $95.70). It is a City program available to residents of Windsor and Essex County. The program has its origins in a prior program funded through the Ontario Social Services Department, which had been discontinued.

Eligibility is determined in one of three ways:

1. Recipients of the Ontario Disability Support Program (ODSP).
2. Recipients of Ontario Works (OW).
3. Members of a household whose combined income is less than Statistics Canada - Low Income Cut-off (LICO).

The cost of the differential between the full-cost of the monthly pass (currently $95.70) and the reduced rate ($48.40) is funded by the City’s Social Services Department with Transit receiving full revenue credit for every pass issued. This is an important principle in the program such that the financing arrangements recognize that the program is a social service-based program and not a transit-based program. Stated otherwise, because transit is measured by its overall revenue ratio and net cost within the City budget, transit is not penalized for any potential loss of revenue through the program.

The program is administered by Transit Windsor, rather than the Social Services Department, which provides for more transparency in management of the program with the financial transfer and revenue credits handled internally within the City.

Corporate ValuPass

The transit ValuPass program is intended to encourage local companies to actively support increased transit use by offering their employees a reduction in the cost of purchasing a monthly pass in partnership with Transit Windsor. Once enrolled, an employee receives a 15% discount on a monthly pass with payment made through payroll deduction. A ValuPass costs $81.35 a month compared to the regular rate of $95.70. The employee would still be required to obtain a transit pass photo ID which is issued at the Windsor International Transit Terminal (WITT) downtown.

A company of any size can join the program. However, a guaranteed enrolment of a minimum of 50 employees for a period of at least six (6) months is required, to minimize administration but also to encourage longer term commitment to transit use.

Once a company enrolls, it usually assigns a staff coordinator to work with Transit Windsor. The program can be customized to suit individual companies. Once the employee has their photo ID, the smart cards are picked up at Transit – WITT and paid through payroll deduction.

This is a significantly important program as it seeks to involve the business community in actively promoting transit use in partnership with the City and Transit Windsor. Several other jurisdictions seek to emulate this program.

University Transit Pass

After much effort and work with the University of Windsor, Transit Windsor successfully negotiated and received endorsement from the University Student Alliance to implement a transit pass for all students (although with some opt-out ability). As with U-Passes (smart cards) in other jurisdictions (e.g., London, Hamilton, Kingston, Ottawa) the cost of the pass is included in the student's tuition. Transit Windsor costed the pass on the basis of projected additional service commitments required to meet student needs and its overall revenue projections as follows:.

- Estimated enrolment at the U of W based on past years.
- Reduction of 25% enrolment for the opt-out clause for students who live outside the Transit Windsor service area.
- Estimated ridership and revenue loss for students (cash, tickets and passes) who were already using transit and purchasing fare media prior to UPass implementation.
- Approximately $250,000 for required annual service enhancements/technology to address increased ridership and attracting students to use transit.
- Program supply costs and administration.
- Additional service enhancements for U of W students, i.e. – direct bus to VIA station on Friday and Sunday nights, and late night service Thursdays to Saturdays from Downtown to U of W Campus

The U-Pass, introduced in September 2016, has been well-received by students and is resulting in significantly increased ridership levels across the system. January to June 2017 saw a 3.47% increase over the same period in 2016 before the introduction of the UPass. Year-to-date for 2017, ridership is up 5.04% over the same period in 2016.

Use of the pass applies to not only Transit Windsor services within Windsor, but also to any services into neighbouring municipalities such as the City of LaSalle (which has recently contracted with Transit Windsor to operate their newly implemented local transit service).

Fare Payment and Policy Trends – Smart Card

Going forward, Transit Windsor and the City are preparing to expand the role of smart cards to include additional fare products and also to upgrade the existing fareboxes to support a mobile ticketing smart phone app.

Smart cards offer the opportunity to replace most non-cash fare media such as passes and tickets. Prepaid fare media are inherently oriented to regular riders, who can be expected to readily adopt a smart card alternative if the card issuance and revaluing is made convenient enough (usually the legacy fare media are also withdrawn after a transitional period, to further encourage smart card adoption).

The mobile ticketing app is intended to complement an ongoing option for riders to pay the fare using cash and availability of selected fare products on smart card. Its role is largely expected to be oriented to (1) appealing to riders that have a smartphone and like to use services that allow them to use smart phone apps, (2) making transit use more appealing to visitors who are not familiar with the Transit Windsor fare policy/structure.

Some other related fare structure changes that will also be considered associated with these changes include:

- a review of the eligibility and definition of “Student” (should it be age-based?)
- elimination of photo ID, and
- whether the transfer “window” period should be adjusted. Any potential change in the transfer window should be influenced by future transit service levels and travel times.

Appendix B – Peer Agencies' Fare Structures and Technology

Technical Memorandum

Peer Agencies' Fare Structures and Technology

Prepared for Corporation of the City of Windsor
by IBI Group

June 11, 2018

Document Control Page

CLIENT:	Corporation of the City of Windsor
PROJECT NAME:	Transit Windsor Fare Structure Review
REPORT TITLE:	Peer Agencies' Fare Structures and Technology
IBI REFERENCE:	109943
VERSION:	1
DIGITAL MASTER:	J:\109943_WindsorFare\5.0 Design (Work) Phase\Task 2\STR_peer_fare_structures_and_technology_jrn_2018-03-27.docx
ORIGINATOR:	Mais Sawaf, Richard Nelson
REVIEWER:	Doug Parker, Chris Prentice
AUTHORIZATION:	Doug Parker
CIRCULATION LIST:	
HISTORY:	v. 1 created Nov. 13/17, based on earlier working documents

Table of Contents

List of Tables

1 Introduction

As part of our Fare Structure Review for Transit Windsor, we reviewed peer transit agencies published fare information and conducted follow-up interviews in October 2017 with:

- Halifax Transit
- London Transit
- MiWay (Mississauga Transit)
- Oakville Transit
- Saskatoon Transit
- Victoria Regional Transit (B.C. Transit)

Although we reviewed the published fare information of Hamilton Street Railway Company and Niagara Falls Transit; we were unable to set up follow-up interviews with. Thus, we have excluded them from this review.

The review and interviews covered these topics:

- Fare Products and Rates including: cash-fare rates, ticket or multi-fare rates, and pass types and rates;
- Fare Media Types
- How the fare media maps to the various fare products;
- How fares can be purchased;
- Concession rules (ages, policies, identification);
- Transfers within the agency's system;
- External transfers, i.e., to other agencies' systems;
- High-level qualitative descriptions of fare policy challenges the agency has faced (if any);
- Qualitative descriptions of what fare structure/policy changes they envision at their agency in the next 3-5 years;
- Fare equipment the agency uses;
- High-level qualitative description of fare equipment/media challenges the agency has faced (if any); and
- Qualitative description of what media/fare equipment changes they envision at their agency in the next 3-5 years.

MiWay and Oakville Transit are both participants in the PRESTO fare system, which we describe in the next section.

2 PRESTO Fare System

- PRESTO is an electronic fare collection system operated by Metrolinx. It uses a contactless smart card for payment.
- It is used by every transit agency in the Greater Toronto and Hamilton Area except Milton Transit, and also by OC Transpo. The Toronto Transit Commission is phasing in PRESTO. Except for the TTC every agency accepts only cash or PRESTO for payment.
- Agencies that operate proof-of-payment (e.g., GO Rail) have inspectors that use portable fare-media validators to confirm that a customer's PRESTO card shows that a valid fare was paid. Customers who want to purchase a fare using cash would purchase a paper ticket, usually at a machine, before boarding if they are not using PRESTO.
- PRESTO is moving toward introducing limited-use media (LUM), basically stiff paper with an embedded chip. This can carry PRESTO fares, but is intended for only a few uses. These will be available for sale on fare vending machines, and are intended to replace tickets and tokens.
- Customers can reload their card online using a credit card, or at certain attended customer service locations primarily operated by transit agencies. Unattended reload machines that accept cash and credit/debit cards are being introduced at GO Rail stations and at TTC stations (initially focused on the new Toronto-York Spadina Subway Extension). The obvious challenge is for customers without a credit/debit card who are not near a customer service location or cash accepting device.

3 Comparison of Fare Classes and Prices among Peers

The following tables compare age-based fare classes and the prices for typical products in those classes among the agencies we surveyed, together with Transit Windsor. (We have included each agency's revenue/cost ratio, as reported to CUTA for 2016.)

Table 1: Maximum age for each fare class (minimum age for seniors)

category	Windsor	Halifax	London	Mississauga	Oakville	Saskatoon	Victoria
free carriage	5	0	12	5	5	4	5
child	no such category	15	no such category	12	no such category	Grade 8	no such category
youth/student	through post-secondary education	with valid student ID	through Grade 12	19	19	through Grade 12	through Grade 12
senior	60	65	no such category	65	65	65	65

- Since our interview Halifax Transit has raised the maximum age for free carriage to 4.

Table 2: Fare prices

category		Windsor	Halifax	London	Mississauga	Oakville	Saskatoon	Victoria
child	cash		1.75		n/a		2.25	
	ticket		1.45		1.65		1.60	
	monthly pass		n/a		n/a		50.00	
youth/student	cash	n/a	n/a	n/a	n/a	n/a	2.75	n/a
	ticket	1.98	n/a	1.54	2.25	2.25	2.10	n/a
	monthly pass	66.00	70.00	n/a	n/a	75.00	59.00	45.00
adult	cash	3.00	2.50	2.75	3.50	3.75	3.00	2.50
	ticket	2.53	2.00	1.90	3.10	2.95	2.50	2.25
	monthly pass	95.70	78.00	81.00	130.00	120.00	83.00	85.00
	affordable pass	48.40	[no data]	52.00	65.00	60.00	66.40	[no data]
senior	cash	n/a	1.75		n/a	n/a	n/a	n/a
	ticket	1.98	1.45		2.10	1.85	n/a	n/a
	monthly pass	48.40	58.00		61.00	55.00	29.00	45.00
R/C ratio (2016)		46%	35%	52%	48%	30%	35%	46%

- Some of the agencies' fares have changed since our survey.
- Blank cells indicate that the fare category doesn't exit.
- *n/a* indicates that this fare product isn't offered in this category. It typically means that a cash-paying passenger in this category pays adult fare.
- The distinction between *child* and *youth* is arbitrary. Not every agency has two classes younger than adults.
- The *ticket* price is the per-ticket cost for largest book of tickets. If paper media not offered, it's the single-ride smartcard fare.
- There are many factors to each agency's revenue and cost other than fare prices and fare categories.

4 Halifax Transit

Interviewee: Marc Santilli

Table 3: Halifax Transit Fare Products

		Fare Products and Rates ($)						
		"Conventional" services			MetroLink		MetroX	
Fare Category	Eligibility	Cash (single ride)	10 Tickets	Monthly pass	Cash (single ride)	Monthly Pass	Cash (single ride)	Monthly Pass
Child	Age 0-15 years	1.75	14.50	58.00	2.25	n/a	2.75	n/a
Student	Age 16+ with valid student ID	2.50	20.00	70.00	3.00	n/a	3.50	n/a
Senior	Age 65+	1.75	14.50	58.00	2.25	n/a	2.75	n/a
Adult		2.50	20.00	78.00	3.00	94.50	3.50	111.00

- Halifax Transit operates three services with different fare prices:
  - "Conventional" bus and ferry, and Access-a-Bus (paratransit);
  - MetroLink, "a direct, limited-stop, fully-accessible commuting option for commuters in the Portland Hills and Sackville areas"; and
  - MetroX, "limited-stop routes that transport passengers to and from the downtown areas of Halifax".
- Passes:
  - Epass: for employers to subsidize monthly passes to employees; the transit discounted it to the employers; employers pays a portion too
  - UPass: included in cost of tuition; a university student shows their student ID to ride transit.
  - Low-income transit pass: currently capped at 1000 individuals; but Council looking at removing the cap.
  - Welcome to Halifax program: any refugee gets a year free for transit; requires a specific ID.
  - Halifax Transit is considering a day pass or three-day pass based on tourism needs; waiting on the smartcard system (see below).
- Seniors travel for free on Tuesdays between 10:00 a.m. and 3:30 p.m., and after 6:00 p.m.

- Transfers:
  - Conventional-to-conventional: paper transfer, valid for 90 minutes from the beginning of the first trip, on any route in any direction. They are considering extending the duration of this.
  - Conventional-to-MetroLink: fare medium (e.g., transfer for cash customer; flash pass for others) + cash payment of 50¢; this includes from UPass.
  - Conventional-to-MetroX: fare medium (e.g., transfer for cash customer; flash pass for others) + cash payment of $1.00; this includes from UPass.
  - MetroLink-to-MetroX: fare medium + cash payment of 50¢.
- All passes currently flash passes.
- They are in the midst of implementing a Trapeze smart card system.

5 London Transit

Interviewee: John Ford

Table 4: London Transit Fare Products

Fare Category	Eligibility	Fare Products and Rates ($) Cash (single ride)	Five Tickets	Monthly Pass	Low-Income Pass[1]	Weekday Monthly Pass (smart card)	Western/ Fanshawe Pass	Student Summer Pass[4]	CNIB Pass	Convention Pass[2]	Park and Ride Pass [3]
Child	Aged 0-12 years, inclusive; need not be accompanied	Free	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Secondary Student	Requires a student card. A passenger 13 and older without a card pays the Adult fare; conversely, an adult with a card pays the Student fare.	n/a	7.70	n/a	n/a	n/a	n/a	81.00	n/a	n/a	n/a
Other Post-Secondary Student	Full-time students only. Requires a student card from a recognized institution. Student at Western U. or Fanshawe College can load an academic-year pass on their smart card.	n/a	9.15	70.00	n/a	n/a	227.18	n/a	n/a	n/a	n/a
Adult		2.75	9.50	81.00	52.00	69.00	n/a	n/a	Free	Free	60.00
Senior	Fare category withdrawn.										

- Fare amounts have not changed since 2008.
- London Transit will soon be conducting their own fare structure review.
- Senior fares will soon be withdrawn and a low-income pass introduced. We have put these in the table as if they were currently in force.
- Fanshawe College and Western University include the costs of transit passes in the tuition. This is the result of a collective negotiation with the three relevant student unions.
- London Transit does not currently offer a day pass.
- Transfers:
    - Paper transfers are valid for 90 minutes from first boarding, on any route in any direction.

Notes:

1. City determines eligibility based on income. Uses smart card. City pays the difference from the adult monthly pass.
2. The Student Summer Pass is a two month pass to be used for the months of July and August by students from Grade VII to XII only. It rides on the smart card.
3. Convention Pass is a paper pass provided for convention attendants, for conventions with duration of more than one day and registered with Tourism London.
4. Park and Ride Pass allows riders to park their car at a designated location and ride LTC along Dundas Street between English and Ridout Street on routes 2 and 7.
    - Smart cards are currently used for the passes. The stored-value functionality on smart cards has not been deployed yet.
    - Transfers are cut from a transfer cutter, with the operator advancing the cut every 15 minutes.

6 MiWay (Mississauga Transit)

MiWay is the operating name of the transit service for the City of Mississauga.

Interviewee: Geoff Marinoff

Table 5: MiWay Fare Products

Fare Products and Rates ($)										
Fare Category	**Eligibility**	**Cash (single ride)**	**Tickets (5)**	**Ticket (10)**	**Smart Card (single ride)**	**Smart Card (monthly pass)**	**GTA Weekly Pass**	**Freedom Pass (July 1 – Aug 31)**	**CNIB Pass**	**U-Pass**
Pre-school Child	Under 6 years.	Free								
Child	Ages 6 - 12 years inclusive.	3.50	8.25	16.50	1.65	-		Free (12 years)	Free	
Youth	Ages 13 - 19 years inclusive	3.50	11.25	22.50	2.25	-		Free (13 – 14 years)	Free	
Senior		3.50	10.50	21.00	2.00	61.00	-	-	Free	Free
Adult		3.50	15.50	31.00	3.00	130.00	63.00		Free	

- MiWay participates in the PRESTO fare system. Available fare media are:
  - cash;
  - Tickets; and
  - Passes on PRESTO cards.
- MiWay used to offer weekly passes prior to the introduction of PRESTO cards. When PRESTO was in effect, weekly passes were not supported by the PRESTO system. To continue the support of weekly passes MiWay offers free carriage after the 12th Presto ride in a calendar week (i.e., 7 days starting 12 a.m. Monday).
  - MiWay would have rather continued offering a weekly pass as they did prior to the introduction of PRESTO as:
    - Monthly passes sales decline in July, August, and December; and,
    - There are high sales volumes for monthly passes at the end of each month

- Main challenge with PRESTO is the limited support available for offline reloading. There's no device MiWay can provide for this to third parties (e.g., drug stores); offline reloading *within the municipality* is currently possible only at city facilities and community centres. PRESTO's main benefit is that it has reduced use of cash fare from 30% of rides to 18%.
- MiWay's *Youth* fare category is based on age, not school registration.
- Seniors:
    - A pilot study is currently being conducted: seniors taking MiWay between 9:30 a.m.–3:30 p.m. or after 7:00 p.m. on weekdays and any time on weekends pay a reduced fare of $1.00.
    - The Senior photo ID costs $5.00
- Fares will go up on Jan. 28. shows current (late 2017) levels.
- Passes:
    - Freedom Pass (flash pass): in partnership with Community Services; gives free carriage on transit, and free access to community centres and pools for 12- to 14-year-olds in July and August. The goal is to encourage use of the transit system and independent travel; from the community point of view is to provide physical fitness and discourage mischief. The customer has to go to a community centre and apply with their guardian.
    - UPass is for students at University of Toronto Mississauga only. Because Sheridan College has campuses in three different municipalities, an agreement hasn't been reached with them.
    - Affordable Transit Program: This enables an eligible customer to purchase a monthly pass at half the usual adult price. The City of Mississauga provided a pilot for two years and made it permanent this year. The Region of Peel (which is responsible for social services) covers the 50% discount. The customer is given a specially configured Presto card that allows them to purchase this discounted pass; thus the bus operator and others won't know that the customer is using this program. The customer has to reapply every 12 months because eligibility based on their income per the Notice of Assessment from CRA.
- A disabled passenger pays their appropriate full fare, but their support person can travel for free.
- Transfer:
    - Within the MiWay system: Two hours from first boarding, on any route in any direction. MiWay believes this helps make transit competitive with other modes. This window has been in effect for more than ten years.
    - From Hamilton, Burlington, Oakville, Brampton, or York system to MiWay: free of charge within two hours of first boarding. Passenger needs to present a paper transfer. In theory this applies as well to passengers whose first boarding was on Durham Region Transit. This interoperability is part of the Presto agreement.
- Transferring to TTC routes: Customers transferring from MiWay to TTC routes need to obtain a paper transfer to present it on the TTC vehicle regardless if fare payment was completed using PRESTO or not. This transfer process ensures a

customer is not charged when transferring to TTC as the PRESTO system is not configured to support Miway fare payment when operating within Mississauga.

- Future Products
  - In the near term, MiWay expects to move away from operating card reloading infrastructure directly, leaving this to the options directly operated by PRESTO or available from GO Transit.
  - In the longer term, MiWay plans to move to open payment using financial cards.
- GFI registering farebox
- PRESTO equipment for electronic fare payment

7 Oakville Transit

Interviewee: Barry Cole

Table 6: Oakville Transit Fare Products

		Fare Products and Rates ($)			
Fare Category	**Eligibility**	**Cash (single ride)**	**PRESTO (single ride)**	**PRESTO (monthly pass)**	**Youth Freedom Monthly Pass**
Child	Children between ages 0 and 5 years, inclusive	Free	-	-	-
Youth	Passengers between ages 6 and 19 years inclusive.	3.75	2.25	75.00	15.00
Senior	Passengers at the age of 65 and older	3.75 (free on Monday)	1.85 (free on Monday)	55.00	-
Support Person		Free	-	-	-
Visually impaired patron		Free with CNIB card	-	-	-
Adult		3.75	2.95	120.00	-

- Oakville Transit participates in the PRESTO fare system; refer to section 2 PRESTO Fare System.
- Available fare media are: cash and PRESTO cards. Oakville Transit does not use general-purpose paper tickets.
- Special purpose pass/ticket (for visual validation only, not machine-readable): value of single ride or monthly pass same as PRESTO (for example students at English as second language classes) or for people with special needs
- Specialized transit charges the same fares.
- Transfer:
  - Within the Oakville Transit system: 2 hours from first boarding, on any route in any direction. This window has been in effect for more than ten years. If the customer pays cash, the operator can print a transfer on the Presto printer.

- From Hamilton, Burlington, Brampton, or Mississauga system to Oakville Transit: free of charge within two hours of first boarding. Passenger needs to present a paper transfer. In theory this applies as well to passengers whose first boarding was on York or Durham Region Transit. This interoperability is part of the PRESTO agreement.

- Special Products and Considerations
  - Oakville Transit offers a "freedom pass" for Youth in July and August. This offers unlimited rides after 4 p.m. on weekdays and all day on weekends for the calendar months of July and August.
  - Seniors ride free Monday.
  - SPLIT (Subsidized Passes for Low Income Transit) program: eligible customers (see below) have entitled fare cut by 50%. The Halton Region Social and Community Services Department determines eligibility and compensates Oakville Transit for the lost revenue. A customer is eligible if:
    - their Notice of Assessment shows their income is below the Low Income Cutoff;
    - they're enrolled in the Ontario Disability Support Program (ODSP);
    - they receive Ontario Works payments; or
    - they are a Syrian refugee.
  - Youth Freedom Monthly Pass is loaded on the PRESTO card. It permits unlimited travel in July and August.
- Go Transit/Metrolinx subsidizes the Oakville transit fare for users who transfer between the GO and Oakville transit.
- All PRESTO-related equipment does not support all capabilities currently being implemented by PRESTO for TTC, and will need to be replaced to make most newer features available.

8 Saskatoon Transit

Interviewee: Bev Stanley

8.1 Fare Structure

Table 7: Saskatoon Transit Fare Products

Fare Products and Rates ($)											
Fare Type ($)	**Eligibility**	**Cash (single ride)**	**Smart Card (10 rides)**	**Monthly Pass/ Smart card**	**Semester Pass**	**Senior - 3 Month Pass (increase)**	**Senior- 6 Month Pass**	**Annual Pass**	**Day Pass**	**Weekend Family Day Pass**	**Low income**
Child	Children between ages 0 and 4 years, inclusive	Free	-	-		-	-	-			
Elementary	Children from the age of 5 till grade 8, inclusive.	2.25	16.00	50.00		-	-	550.00			40.00
High School	Secondary school students (Grade 9 to 12). A student ID is requires	2.75	21.00	59.00		-	-	649.00			47.20
Post-Secondary		3.00	25.00		272.00						
Senior	65 years and above. Proof of age required while purchasing media	3.00	25.00	29.00		87.00	168.00	313.30			
Adult		3.00	25.00	83.00		-	-	913.00	8.50	8.50	66.40

- All non-cash fare products on the Go Pass smart card, whether a permanent or disposable (limited-use) card.

- Post-Secondary fares:
  - Undergraduate students at the University of Saskatchewan get a 6-month pass, called U-PASS, as part of their enrollment. They get an RFID sticker for their student cards.
  - Students at other institutions can buy Post-Secondary products ("tickets" or semester pass) with proof of enrollment. The eligible institutions are defined by Saskatoon Transit.
- Special-needs customers can buy 20 rides at a time, including on the vehicle.
- The day pass permits unlimited travel in a service day. On weekends, it's styled the Weekend Family Day Pass, and permits unlimited travel by one or two adults and as many as three children.
- Subsidized passes: Saskatoon Transit discounts passes for eligible adult, elementary, or high school customers by 15%. The City of Saskatoon determines eligibility, based on family income. The Transit department is not compensated for the loss of revenue.
- Transfers: any direction, any route, 90 minutes from first boarding. Cash customers get printed transfers that include bar codes; otherwise the Go-Pass acts as the transfer.
- An employer can sign up to the Eco Pass Program. The employer pays 20% of the cost of passes, and Saskatoon Transit further discounts the pass 20%, yielding a 40% discount to the customer.
- City employees are eligible for discounted passes.
- Potential Fare Products
  - The City of Saskatoon considered, but did not implement, a Senior pass product where Transit would pay a third, Social Services a third, and the customer a third.
  - They are considering a weekly pass.

8.2 Fare Technology

- Saskatoon Transit no longer uses paper fare media. A customer can buy ten (or any multiple of ten) fares at a discount from cash, and put them on a smart card, either a permanent one or a limited-use card.
- They use a farebox integrated with a smart card reader, from BEA Transit Technologies.

9 Victoria Regional Transit System

Interviewee: Ryan Dennis

Table 8: Victoria Regional Transit Fare Products

		Fare Products and Rates ($)					
Fare Type ($)	**Eligibility**	**Cash (Single Ride)**	**10 tickets**	**DayPASS**	**Monthly Pass**	**U-Pass**	**ProPass (annual)**
Child	Children between the age of 0 and 5 years, inclusive.	Free	-	-	-	-	-
Youth	Passengers between the age of 6 and 18 years.	2.50	22.50	5.00	45.00	-	-
Senior (65+)	Passengers at age of 65 and above.	2.50	22.50	5.00	45.00	-	-
Adult		2.50	22.50	5.00	85.00	-	875.50

- Since April 1, 2016, Victoria Regional Transit does not provide transfers for cash or ticket customers. Customers are encouraged to purchase a DayPASS instead. From their web site: "Eliminating transfers … supports a safer work environment for transit operators and customers, as disputes between operators and passengers often involve transfers."
- The DayPASS can only be purchased on the bus. The customer can pay cash, or two tickets.
- Students at the University of Victoria, Camosun College, and Royal Roads University get a 4-month U-PASS as part of their enrollment. Authorized post-secondary institutions can sell discounted Adult Monthly Passes to their full-time students.
- ProPass is an annual bus pass purchased by employees of participating businesses. The cost of the pass is deducted from the employee's pay.
- The BC Bus Pass is for low-income seniors and persons with disabilities.
- The Monthly Pass, U-PASS, and ProPASS products use a mag-stripe card. The DayPASS and tickets are on paper.
- They have issued an RFI for electronic fare collection, and are working on a business case.
- Tickets are serial-coded.

Appendix C – Review of Fare Policy Considerations for Smartcard Systems

IBI GROUP
7th Floor – 55 St. Clair Avenue West
Toronto ON M4V 2Y7 Canada
tel 416 596 1930 fax 416 596 0644
ibigroup.com

Memorandum

To/Attention	Transit Windsor	**Date**	August 23, 2018
From	J. Richard Nelson	**Project No**	109943
cc			
Subject	**Review of fare policy considerations for smart card systems**		

This memo reviews how new fare policies can be enabled by smartcards. The discussion covers the technology and technology-enabled policies across the industry. Transit Windsor's current smartcard implementation cannot offer some products, e.g., stored value.

Pricing Incentives

As can also be done with traditional fare media, pricing incentives using electronic media provide value for the customer by lowering their per-trip costs through approaches that could include some combination of:

- Period passes;
- Stored value specific fares;
- Fare capping;
- Point of sale discounts; and
- Partner discounts.

Period Passes

Period passes provide unlimited travel, at least for a certain class of service, for a period of time corresponding to calendar periods (e.g. week, month, semester) or for a rolling period from its initial use (e.g. 1 day, 7 days, 30 days).

Both calendar and rolling period passes (but especially those based on a calendar) lose some of their value proposition because the customer risks that they will not ride enough during the period to bring their per trip cost below the cost of single rides or decrementing media.

Stored Value Discounts

With stored value payment, a customer uses prepayment to load a dollar value of their choice on the card. The agency can set minimum and maximum values for each load transaction and for the final card balance. The agency usually permits and even encourages card registration and balance protection. Every time the customer presents the card for passage, the value of the fare is removed from the value stored on the card and a time-sensitive transfer credit is set. Transfer credits may entitle the customer to free further boardings within the agency's specified time window, and/or discounted inter-agency co-fares (typically subject to both partner agencies adopting a common smartcard technology). There is also typically an anti-passback feature that

within a time window would refuse a transfer presented at the same vehicle/station of the original fare transaction, the intent being to prevent a later second customer from fraudulently using the transfer for their fare.

When transitioning away from traditional media, the fare when paying by stored value is often the same as a typical legacy non-cash “prepaid bulk” fare, such as a ticket from a 5-ticket book.

Fare Capping

Fare capping can be either absolute or progressive. For absolute (“hard”) fare capping, free passage is given to the cardholder after a set number of uses in a period (calendar or rolling). Progressive (“soft”) fare capping involves gradually discounting per-ride fares after a given number of uses within a calendar or rolling period (e.g. daily, weekly, and/or monthly). A comprehensive fare capping scheme can effectively replace an agency’s suite of period passes by offering similar, progressively steeper, discounts for more regular users.

The value and appeal to riders is access to period pass discount without needing to decide whether or not to purchase a pass at the beginning of the period. As an appealing feature, this has some potential to attract new riders to transit. Some riders may take fewer rides and pay less than they would have if they had purchased a pass (i.e., trying to keep their cost to under the cap price).

Point of Sale Discounts

With point of sale discounts, travellers can receive upfront discounts for bulk fare purchases (e.g. loading stored value equivalent to 40 fares would cost 90% of the full value). This is analogous to conventional options to purchase prepaid fare media such as tickets or tokens in bulk for a discount, with the primary difference being the potential to offer a wider range of such options (as well as not needing to support the distribution and onboard validation of the prepaid fare media. Stored value refunds (usually offered as a feature with purchase protection) would have to align with the discount provided to the customer.

Partner Discounts

Although less common, some agencies enter into partner relationships that offer promotional credits for third-party partners (e.g. major local retailers), to reward customers proportional to ridership. This would be a form of what is commonly known as a loyalty program. Typically this would require the card to be registered so that the customer can receive some form of voucher.

Concession Fare Management

Many agencies leverage the card registration and account management tools of their smartcard system to help enforce concession fare eligibility requirements at the time of purchase. For example, this can involve requiring that the card be registered to an account along with personal information relevant to the concession fare eligibility, and only approving the registration if such qualifying documentation is provided.

To authenticate concession fares on smartcards at the time of use, some agencies print the user’s photo and/or name on the smartcard itself. Some other agencies require that customers carry a physically separate qualifying ID, which may or may not be issued by the transit agency. At minimum, the card should be visibly identifiable as for a concession fare and/or the farebox

should indicate when the transaction was with a concession smart card (i.e., to help enable the operator to spot instances where the cardholder is clearly not entitled to that concession fare).

Validation of Third Party Cards

If so configured, a smartcard system can read cards issued by approved organizations other than the transit agency itself. Third-party cards commonly authenticated by smartcard systems include credential cards issued by local post-secondary institutions and large corporate partners. This needs to be supported by an ongoing collaboration between such organizations and the transit agency, to maintain current information on which cards are eligible. The primary benefits are more precise and reliable management of eligibility criteria, since the third-party organization has the direct access to eligibility data. (e.g. so that a university can restrict pass eligibility to current students, and avoid alumni continuing to use old student cards as flash passes). An important benefit to these users is not needing an additional card for transit, which can help make transit use easier and more appealing.

An option gaining popularity is the ability to pay transit fare using a tap-to-pay contactless debit or credit card. A conventional smart card system would simply complete a fare payment transaction for that financial institution card, either for every fare individually or for an aggregated batch of such transactions. And with a newer-generation “account-based” smart card system, all smart cards would present only their ID number rather than storing any data on the card. The central system determines the overall fare based on the overall sequence of transactions from that card (i.e., considering all fare policy rules such as for transfers, period passes, etc). With such an account-based type of system, a financial institution card can then be simply treated as another type of such ID.

Pricing Structure Options

Smartcard-based fare payment allows agencies to implement a complex set of fare product options without need to produce and distribute distinct physical fare media for each fare product (avoiding risks such as producing a surplus supply). From the customer perspective, there will be no need to purchase distinct physical fare media in advance. And some additional fare product options would become possible, such as zone/distance pricing based on where riders tap at boarding and alighting. Another option is easier implementation for premium fares on given routes (e.g. express buses, rapid transit) without need to produce distinct prepaid physical fare media for each.

Offboard Payment and Proof-of-Payment Inspection

Smartcards offer the ability to use proof-of-payment inspection to validate past fare transactions (i.e., inspector uses a handheld card reader programmed for this purpose). Proof-of-payment fare inspection can be used to enable offboard advance payment for all-doors boarding on selected routes, and on high-volume routes this can significantly decrease the dwell time at stops. Such advance offboard payment would require smartcard readers be available at the stops involved.

Appendix D – Review of Mobile Ticketing

IBI GROUP
7th Floor – 55 St. Clair Avenue West
Toronto ON M4V 2Y7 Canada
tel 416 596 1930 fax 416 596 0644
ibigroup.com

Memorandum

To/Attention	Transit Windsor	**Date**	April 17, 2018
From	J. Richard Nelson	**Project No**	109943
cc			
Subject	**Review of mobile ticketing**		

Mobile ticketing is, for this discussion, the payment of transit fares through an application on a smartphone that carries the electronic equivalent of an agency prepaid fare media. Considering that Trapeze as the current Transit Windsor farebox vendor is offering a mobile ticketing product as an optional extension for its EZV36 farebox system, it is understood that Transit Windsor is interested in conducting a trial deployment of mobile ticketing.

Constraints to the Transit Agency

A mobile ticketing app can present a kind of **flash pass** to the bus operator, carrying any prepaid fare product from any period pass through to a single fare ("transfer equivalent"). These have the same general limitations as flash period passes and transfers (e.g., rely on operator validation, less accurate ridership data), though with the potential to incorporate certain mechanisms to discourage counterfeiting into what the app displays (daily codes, app-specific animations).

Alternately the app can leverage a smartphone to provide a type of **electronic fare medium**. The farebox or a separate validator device would use an optical reader to scan a QR code displayed by the app or Near Field Communication (NFC). The EZV36 farebox upgrade recently acquired by Transit Windsor from Trapeze includes such an optical reader, and Trapeze offers a mobile ticketing app as an option.

Finally, mobile ticketing and related electronic fare media technology that targets market segments favouring smartphone and financial card use are fast evolving. An overall effect that the future role is unclear of mobile ticketing as offered today, relative to emerging options (i.e., current mobile ticketing products may or may not continue to be available from proven vendors):

- Closed systems (for fare payment with transit agency prepaid products or stored value) are migrating towards using a smartphone app that communicates with fare system equipment equivalent to the smart cards (i.e., "smart card on phone").
- Account-based systems involve the customer presenting an identification token associated with the payment system account that is read by the fare equipment, with all fare calculations completed in the central system (e.g., concessions discount, transfer/pass discount).
- Open payment options (for payment using a financial institution issued card) are being introduced by enabling the fare equipment to complete transactions with contactless financial cards or smartphone apps that enable such transactions (e.g., Apple Pay, Google Pay).

Constraints to the Customer

Mobile ticketing requires that the customer have a smartphone with access to data, usually meaning a data plan. Some apps can be used by downloading fare products over Wi-Fi, but that reduces the attractiveness and usefulness of the app. Most current generation mobile ticketing apps assume the availability of wide-area data connectivity. And some powerful tools such as Location Services are unavailable if the phone doesn't have a data connection when being used.

Growth of smartphone penetration is levelling off in Canada, somewhere near 80% for the near term. But this masks large differences by age cohort. Under-35s have a penetration of effectively 100%; but over-65s have only 25% penetration in 2018 (although growing rapidly). Further, U.S. data supports the view that smartphone penetration is highly skewed by income. Although we haven't seen data stratified this way, it's reasonable to assume that transit-dependent populations (with one key exception – secondary and post-secondary students) have relatively lower penetration for smartphones.

A further constraint is the concerns of some customers over privacy. Using a mobile ticketing app reveals information to the provider and agency on fares purchased/used, and often on where used and how. Some customers will as a result not be willing to use the application even if they have a smartphone with suitable data plan.

Prime User Communities

The constraints discussed above lead to several conclusions on the prime user communities that could find mobile ticketing of interest (based on the underlying concept that the prime role for mobile ticketing could focus on better attracting usage by these market segments). Mobile ticketing cannot replace all the functionality of any current fare medium (this is discussed in some detail below), so it can only be considered a supplementary product. Nonetheless, we can identify four types of customers that could find mobile ticketing attractive:

Casual users: An irregular user of agency services may find exact change not on hand, or physical media inconvenient to purchase. Those that own smartphones may find downloading and using an app to buy a fare product attractive and useful.

Tourists: A subset of casual users are users from out of town, particularly attendees at, e.g., a convention. All such attendees might be given the opportunity to load a pass on their phones. (Not all mobile ticketing apps offer this feature to agencies. Note that this usage uniquely could completely replace a fare medium such as a short period convention pass.) Such a feature could be integrated with a smartphone app associated with the event.

Students: As noted above, nearly 100% of secondary and post-secondary students have smartphones. Market data suggests that most are heavy data users, with the small amount of data needed for using a transit mobile ticketing app being unlikely to discourage them. As heavy smartphone users, we could expect high uptake of a mobile ticketing app. Depending on how it was implemented this could replace swipe cards or flash passes completely, as long as options remained for a student without a smartphone. Transit Windsor post-secondary students are now generally U-Pass participants. So a mobile ticketing app that incorporates a U-Pass could help Transit Windsor and the educational institutions with challenges surrounding the management of U-Pass distribution and eligibility.

Regular customers: The agency's mainstream adult or senior customers include many moderate to heavy users of smartphones. Many of these customers would certainly use a mobile ticketing app to replace their legacy fare media, in particular those that prefer to use their smartphone for any supported function.

Fare Types

The choice of which fare types to offer on mobile ticketing is influenced by both the technical features of the system and the user communities being targeted.

From a technical perspective, mobile ticketing apps can support most fare types currently offered to customers by Transit Windsor. The validation method employed (visual vs. electronic) can constrain the complexity of the transaction that can be facilitated via mobile ticketing. For example, visual validation can be less practical for systems that rely on zone- or distance-based fare calculations, or that offer more complex discounts such as fare capping and co-fares, since it would not support electronic fare calculation or using information about previous validations. Similar to other forms of ticketing, the setting and manner of inspection (on-board by driver vs. off-board or on-board without driver involvement) adds an operational dimension to this decision, related to the amount of detail that a driver can process on a phone screen and the length of time required to authenticate each pass.

When targeting mobile ticketing at certain user communities, an agency should consider whether short-term or regular users are the primary audience and adjust the suite of fare products offering via mobile ticketing accordingly. If mobile ticketing is primarily targeted at short-term and irregular users, then short-term passes and single-ride purchases are of key importance, while features such as concession fares could be dropped. Conversely, if regular users are the target, then longer-term, higher value, and concession fare products should be incorporated and prioritized.

Cost and Financing

Mobile ticketing systems are typically procured using Software-as-a-Service agreements with a vendor, who provides at minimum the ongoing programming and technical support. This is largely driven by the open nature of mobile ticketing systems, which are offered to customers via the open app market, and must be supported on a range of consumer devices. Transit agencies typically do not have the capacity or mandate to employ dedicated staff to maintain a mobile ticketing platform.

Common financing models for mobile ticketing include up-front development costs and an ongoing subscription payment for access to version updates. Due to the nature of mobile ticketing as an open-market medium and one that rarely exists without more traditional fare media in parallel use, transit agencies may perceive a higher financial risk in paying for a solution that is not guaranteed to be adopted by customers. In order to attract clients, many mobile ticketing vendors opt to charge lower up-front costs in exchange for a small commission on the fare revenue generated through the app. This represents a market-driven incentive for the vendor to make the app appealing and customer-friendly, while lowering the agency’s initial investment risk.

Other Considerations

Participation in Smartphone App Initiatives of Others

There could be opportunities to add transit mobile ticketing to smartphone apps offered by others. For example, if the University of Windsor made a general-purpose smartphone app for its students and faculty (covering things they might use a student card for, like course management or library access), then mobile ticketing including the U-pass makes a lot of sense, even if it

doesn’t replace all media for that sub-community. Other possible partners could include the City of Windsor or a casino.

Pilot Program

Transit Windsor might consider implementing mobile ticketing as a pilot program to gain experience with how to best benefit from incorporating smartphone technology into fare payment. Especially if Transit Windsor’s fare systems vendor (Trapeze) would offer such an app inexpensively on a promotional basis because the farebox includes a QR Reader peripheral.

The potential of mobile ticketing to drive ridership seems focused on the specific market segments that may find its use appealing. But other customers and even non-riding citizens may see the availability of options like mobile ticketing as signifying a forward-thinking, progressive transit agency. In that context, an implementation could be attractive if available at relatively low-cost and targeted in the fare products offered to complement other options such as the smart card.

Next Steps

It is recommended that Transit Windsor determine their business needs for a mobile ticketing system and any specific requirements of that system. Further investigation into procuring the system, potentially through partnerships or a pilot program, can then be initiated.