

Final Report – Winnipeg Transit Fare Policy and System Upgrade Plan

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To the attention of:
Winnipeg Transit
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TABLE OF CONTENTS

Part 1: Executive Summary 1

1 Introduction 1

2 Key Findings 1

3 Key Recommendations 2

4 Action Plan 5

Part 2: Detailed Analysis and Recommendations 6

1 Introduction 6

1.1 Project Approach and Methodology 7

1.2 Report Structure 7

1.3 Living Documents 8

2 Current State Assessment 9

2.1 Assessment Methodology 9

2.2 Overview of the Current System and Policies 9

2.3 Key Findings and Limitations 10

2.3.1 System Deficiencies 10

2.3.2 Policy and Operational Challenges 11

2.3.3 Data-Driven Insights 11

2.4 Conclusion 13

3 Peer Review and Benchmarking 13

4 Fare Policy Review and Recommendations 19

4.1 Existing Fare Policy Landscape 19

4.2 Recommended Fare Policy Goals 20

4.3 Specific Recommendations 20

4.4 Justification and Benefits 24

5 Proposed System Architecture and Requirements 25

5.1 Core Concept: Modernizing Fare Collection 25

5.2 Key Functional Requirements 25

5.3 Key Decision Points and Alternative Approaches 27

5.3.1 Extent of Physical Contactless Card Use 27

5.3.2 Fare Vending Machine (FVM) Deployment 28
5.3.3 Farebox Replacement Strategy 28
5.3.4 Cash Acceptance Policy 29
6 Implementation Plan 30
6.1 Implementation Phases and Activities 30
6.2 Risk Management 31
6.3 Resource Requirements 32
6.4 Project Timeline 32
7 Financial Analysis 33
7.1 Project Option Overview and Feature Comparison 33
7.2 Class III Cost Estimates 34
7.3 Project Option 36
8 Conclusion 39

Part 1: Executive Summary

1 Introduction

Winnipeg Transit is undertaking a comprehensive project to modernize its fare collection system and update its fare policies. This project is driven by the need to address the significant limitations and operational inefficiencies of the current *peggo* system, along with its continued reliance on cash and paper-based fare options. The existing infrastructure suffers from unreliability, limited payment choices, poor data collection, operational inefficiency, and increasing customer dissatisfaction. This project also addresses long-term goals of updating fare policies and improving customer service and rider experience.

This report summarizes the findings and recommendations of the Winnipeg Transit Fare Policy and System Upgrade Plan, outlining a clear path forward to create a more convenient, affordable, equitable, and data-driven fare system for the city. The overarching goal is to implement a modern fare collection system that meets the evolving needs of both riders and Winnipeg Transit, while aligning with industry best practices and positioning the agency for future growth and innovation.

This report summarizes the findings and recommendations of the Winnipeg Transit Fare Policy and System Upgrade Plan, outlining a clear path forward to create a more convenient, affordable, equitable, and data-driven fare system for the city. The overarching goal is to implement a modern fare collection system that meets the evolving needs of both riders and Winnipeg Transit, while aligning with industry best practices and positioning the agency for future growth and innovation.

2 Key Findings

Extensive analysis of the current fare system, including detailed current state assessment(s), a peer review and benchmarking study, and a data analysis, revealed the following critical findings below.

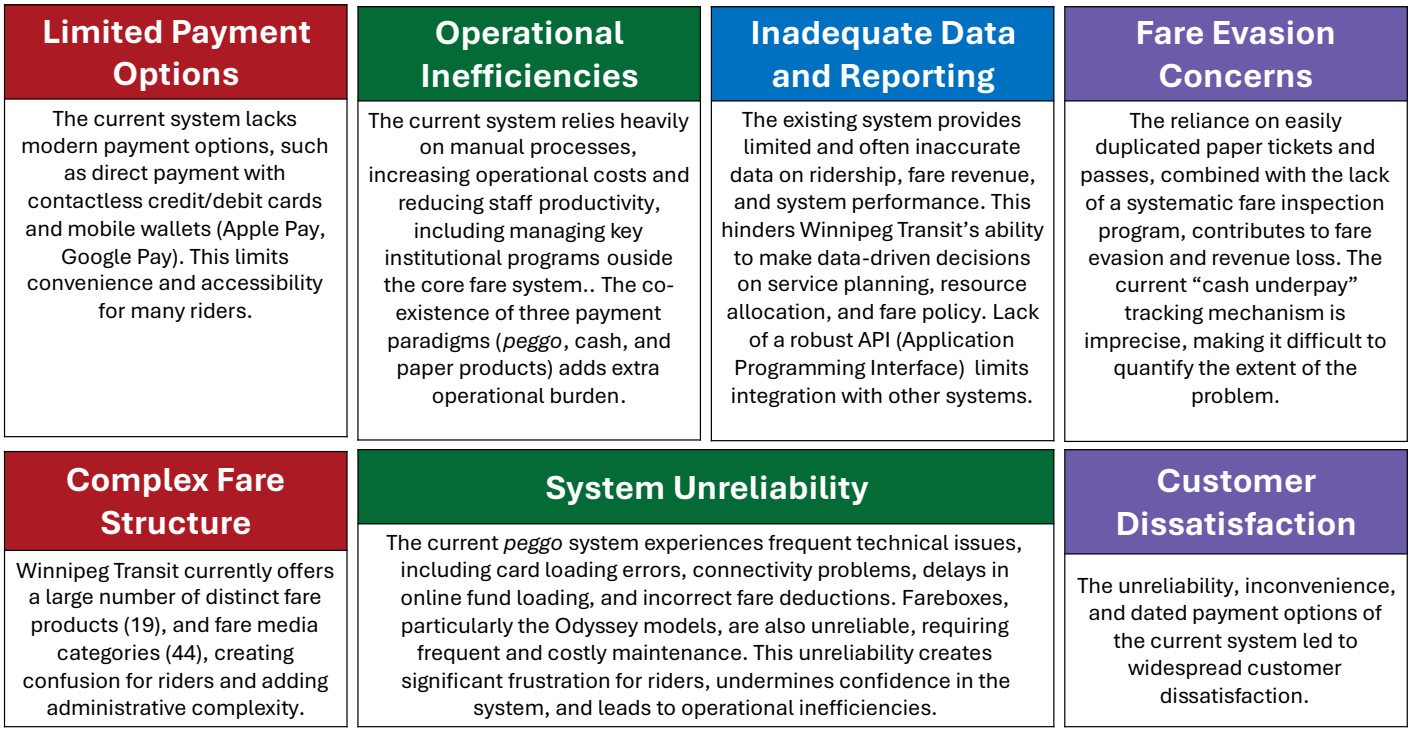


Figure 1. Current State Key Findings

The *Peer Review and Benchmarking* study further highlighted that many peer transit agencies have successfully implemented modern, account-based fare collection systems with open payment capabilities, simplified fare structures, and fare capping (where riders are charged a maximum fare within a specific time period and after reaching that limit, all subsequent trips are free). These implementations have resulted in an improved customer experience, increased efficiency, and better data collection.

3 Key Recommendations

These recommendations, based on industry best practices, peer review and benchmarking, and data analysis are designed to create a modern, efficient, and equitable fare policy and corresponding fare system that benefits both riders and Winnipeg Transit. The expected benefits include:

- **Improved Customer Experience:** More convenient payment options, easier account management, and a more reliable system.
- **Increased Operational Efficiency:** Automated processes, reduced manual effort, and streamlined workflows.
- **Better Data:** Comprehensive data for informed decision making and service optimization.
- **Increased Revenue:** Reduced fare evasion and potentially increased ridership due to improved convenience.

Based on the comprehensive analysis and findings, this report recommends the following key actions below.

Fare Policy Recommendations

Simplify the Fare Structure
Winnipeg Transit currently offers 44 fare products. It is recommended that Winnipeg Transit reduce the number of fare products, eliminating redundant or underutilized options. Focus should be on a streamlined set of fare types, including single-ride fares and capped fares.

Transition to Needs-Based Concession Fares
Shift the focus of concession fares (discounts) towards demonstrated financial need, aligning with the recommendations of the Winnipeg Transit Master Plan (WTMP). This involves prioritizing and expanding the WINNPass program and potentially phasing out general age-based discounts on cash fares and day passes.

Develop and Implement a Fare Payment and Enforcement Policy
Implement a clear and consistent fare payment and enforcement policy. Enhance fare payment compliance through a combination of increased education and randomized fare checks and potentially explore legislative changes to designate buses as “fare paid zones”.

Implement Fare Capping
Introduce fare capping (daily, monthly, and potentially weekly) to ensure that riders always pay the lowest possible fare based on their usage. This promotes affordability and encourages ridership.

Figure 2. Key Fare Policy Recommendations

Fare System Recommendations

Procure and Implement a New Fare Collection System
Winnipeg Transit should procure and implement a *new, cloud-native, account-based fare collection system with open payment capabilities*. The new system must be reliable, secure, user-friendly, and capable of providing comprehensive data for analysis and reporting.

De-emphasize Physical Fare Cards
While still supporting contactless cards for riders who need them, prioritize mobile ticketing (via a dedicated app) and open payment as the primary fare media. This reduces reliance on physical card infrastructure and simplifies the system.

Integrate with Existing Systems
Ensure seamless integration of the new system with existing Winnipeg Transit systems or data sets, including financial systems and the Winnipeg Transit Plus booking system, while preparing for potential integration with an updated iBus system.

Phase Out / Simplify Existing Fareboxes
Integrate with the existing fareboxes during a transition period, but plan for their eventual replacement with simpler devices (primarily for cash reporting).

Phase out Paper Tickets and Passes
As the new system is implemented and adoption of alternate payment methods grows, a plan should be implemented to eliminate the use of paper products.

Figure 3. Key Fare System Recommendations

4 Action Plan

For Winnipeg Transit to achieve the vision recommended in this report, we also recommend a series of sequential efforts, including:

- **Development of a Fare Enforcement Policy:** Numerous steps need to be undertaken to begin onboard fare enforcement, including designating transit buses as fare paid zones, formalizing a fare enforcement policy, and onboarding fare inspectors.
- **Fare Policy Refinement:** While we have recommended a simpler structure and a pivot to needs-based concession fares, the exact price of specific fare types, and specific policies should be determined using Winnipeg-specific data generated by the new system.

The action items for the system upgrade portion of the project are summarized below.

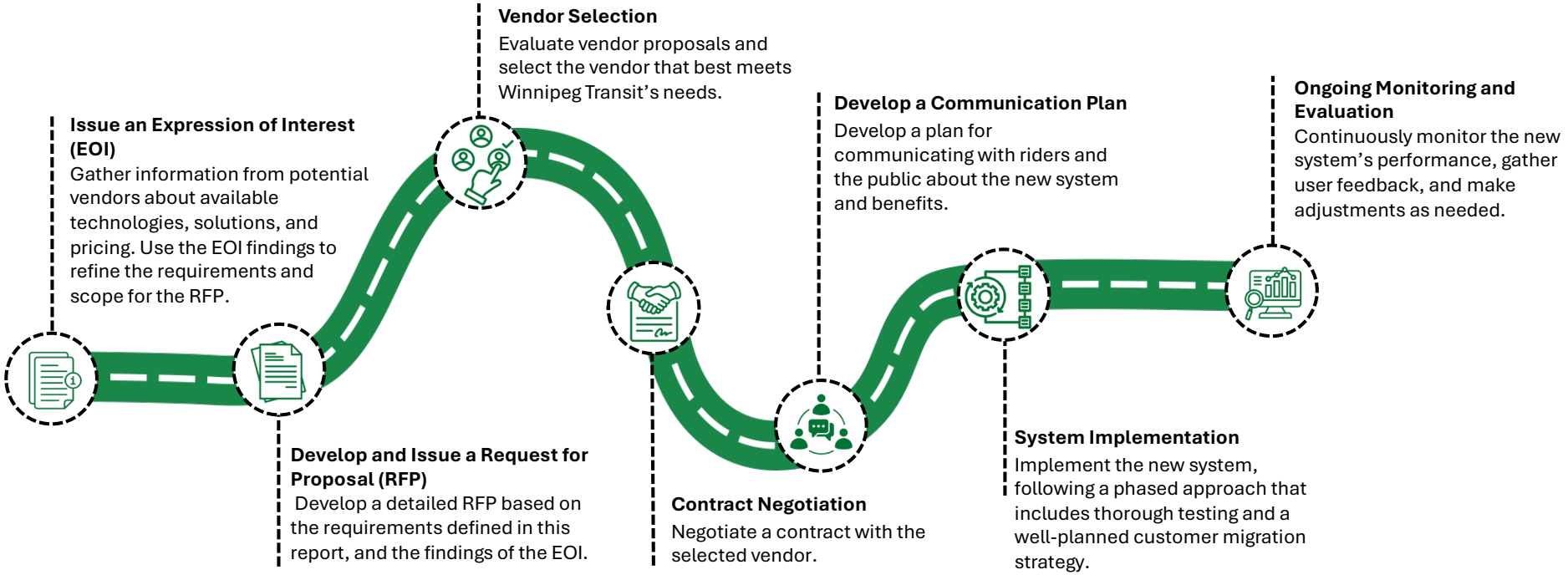


Figure 4. Next Steps for Winnipeg Transit's Fare Collection System Upgrade

The successful implementation of this project will transform Winnipeg Transit's fare collection system, creating a more modern, efficient, and user-friendly experience for all.

Part 2: Detailed Analysis and Recommendations

1 Introduction

This report presents the findings, analysis, and recommendations of the Winnipeg Transit Fare Policy and System Upgrade Plan, a comprehensive project undertaken to modernize the City's fare collection system and update its associated fare policies. Winnipeg Transit, like many transit agencies across North America, is facing the challenges of evolving rider expectations, rapid technological advancements, and the need for greater operational efficiency and financial sustainability. The current fare collection system, primarily based on the *peggo* contactless smart card system introduced in 2016, along with continued reliance on cash and paper-based fare options, has proven inadequate to meet these challenges.

The existing *peggo* system suffers from technical issues, including card reading errors, connectivity problems, and delays in online fund loading. These reliability problems, coupled with limited payment options, a complex fare structure, and inadequate data collection, have led to decreased operational efficiency, customer dissatisfaction, and lost revenue opportunities. Furthermore, the system's lack of integration with other key systems (such as the U-Pass program for post-secondary students and Winnipeg Transit Plus for paratransit services) creates additional inefficiencies and hinders seamless service delivery.

Recognizing these challenges, the City of Winnipeg, in partnership with Left Turn Right Turn Ltd. (LTRT), initiated this project to develop a strategic plan for a new fare collection system and updated fare policies. The project's overarching goal is to transition Winnipeg Transit to a modern, efficient, equitable, and data-driven fare system that:

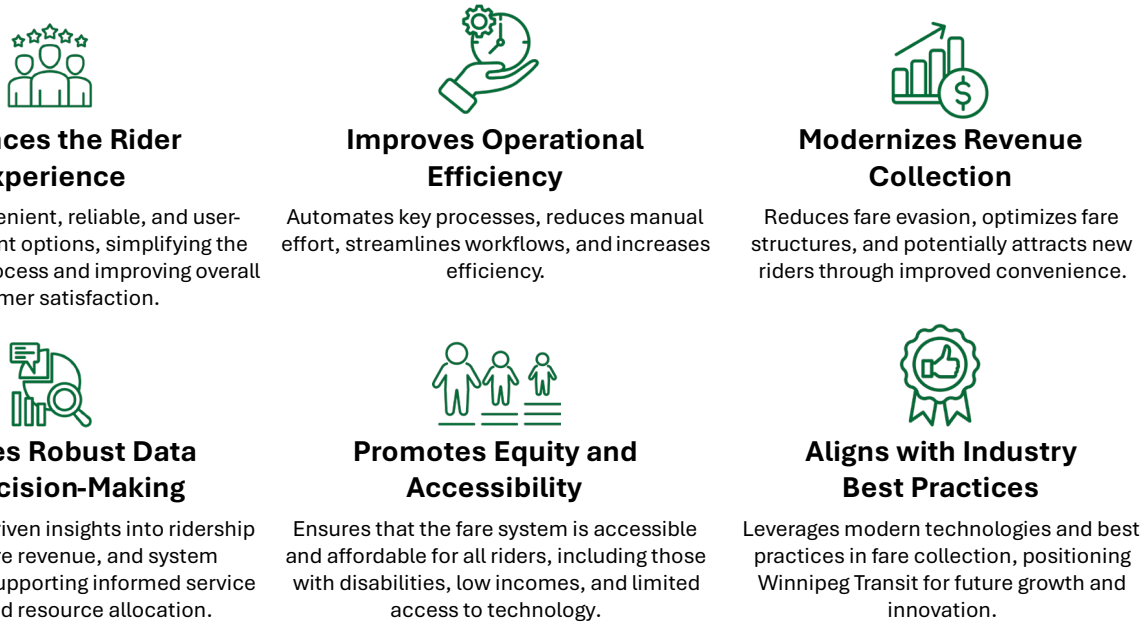


Figure 5. Project Goal Drivers

1.1 Project Approach and Methodology

This project followed a structured, multi-phased approach, incorporating extensive research, analysis, and stakeholder engagement. Core project tasks are summarized below.

Discovery and Current State Assessment

A thorough assessment of the existing fare collection system and policies was conducted, involving document reviews, stakeholder interviews, and data analysis. This phase identified the key problems, limitations, and operational inefficiencie s of the current system.

Fare Policy Review

Existing fare policies were reviewed, and best practices from peer transit agencies were examined. This led to the development of a set of recommended fare policy goals and specific recommendations for fare structure simplification, concession programs, and fare payment options .

Peer Review and Benchmarking

A detailed study of fare collection systems and policies at six peer transit agencies across North America was conducted to identify best practices, technological trends, and lessons learned .

System Requirements Definition

Based on the findings of the previous phases, detailed system architecture and functional requirements were developed for the new fare collection system.

Implementation Planning

A high-level implementation plan was created, outlining the key steps, activities, timelines, and resource requirements for procuring and implementing the new system.

Financial Analysis

A preliminary financial analysis was conducted, estimating the project costs and potential benefits (cost savings and revenue enhancements).

Figure 6. Core Project Tasks

1.2 Report Structure

This report is organized into eight main parts:

1. **Introduction:** Introduces the document, describes the project approach.
2. **Current State Assessment:** Summarizes the key findings of the current assessment of Winnipeg Transit's fare policies and *peggo* system.
3. **Fare Policy Review and Recommendations:** Details the recommended fare policy goals and specific recommendations for fare structure, concession programs, and payment options.
4. **Proposed System Architecture and Requirements:** Outlines the core concept of the proposed new system and its key functional requirements.

5. **Peer Review and Benchmarking:** Summarizes the key findings and lessons learned from the peer review.
6. **Implementation Plan:** Presents a high-level overview of the implementation plan, including key phases, activities, and resource requirements.
7. **Financial Analysis:** Provides a preliminary assessment of the project's costs and benefits
8. **Conclusion:** Summarizes the key findings and recommendations and reiterates the importance of moving forward with the project.

The report also includes a series of appendices that provide supporting documentation and detailed analysis. These deliverables represent the detailed body of work performed in support of this project.

1.3 Living Documents

It is important to note that several key deliverables within this project are considered "**living documents**". This means that they are not intended to be static, finalized documents, but rather, evolving frameworks that will be updated and refined as the project progresses and new information becomes available. Key milestones that will trigger updates to these documents include:

- **Response to the Expression of Interest (EOI):** Information gathered from potential vendors during the EOI process will provide valuable insights into available technologies, pricing, and implementation approaches. This information will be used to refine the cost estimates, implementation timelines, and potentially some aspects of the system design.
- **Vendor Selection:** Once a vendor is selected through the Request for Proposals (RFP) process, the project team will work closely with the vendor to develop a detailed system design, implementation plan, and cost breakdown. This will necessitate updates to the living documents to reflect the specifics of the chosen solution.
- **System Implementation:** As the system is implemented, tested, and deployed, new information and lessons learned will inevitably emerge. The living documents will be updated to reflect any changes in scope, timelines, or costs.
- **Ongoing Monitoring and Evaluation:** After the system is launched, ongoing monitoring and evaluation will provide data on system performance, customer adoption, and operational efficiency. This data will be used to make further adjustments and refinements to the system and its associated policies.

This iterative approach ensures that the project remains flexible and adaptable, allowing Winnipeg Transit to make informed decisions based on the best available information at each stage. The living documents will serve as a dynamic record of the project's evolution, providing a valuable resource for ongoing management and future planning.

2 Current State Assessment

This section summarizes the findings of a comprehensive assessment of Winnipeg Transit's existing fare collection system and associated fare policies. The assessment reveals significant challenges and limitations that necessitate a modernized approach to fare collection. These issues impact operational efficiency, rider experience, revenue generation, and Winnipeg Transit's ability to make data-driven decisions.

2.1 Assessment Methodology

The current state assessment was conducted through a multi-faceted approach, combining document reviews, stakeholder interviews, and data analysis. Key activities included:

1. **Document Review:** An extensive review of the available and provided documentation related to the *peggo* system, fare policies, and operational procedures. This included technical manuals, project close-out reports, training materials, and internal reports.
2. **Stakeholder Interviews:** In-person interviews were conducted with Winnipeg Transit staff across various divisions, including Executive Leadership, Finance and Administration, Client Services, IT, Operations, Plant & Equipment, and Service Development. These interviews provided valuable insights into the day-to-day realities of operating and managing the current system, as well as the perspectives of different user groups.
3. **Data Analysis:** Available data on ridership, fare revenue, fare product usage, customer service interactions, and system performance was analyzed to identify trends, patterns, and areas of concern

2.2 Overview of the Current System and Policies

Winnipeg Transit currently employs a hybrid fare collection system consisting of three primary payment methods: the *peggo* contactless smart card system, cash payments, and paper tickets/passes. This multi-system approach, while intended to provide flexibility, creates significant operational complexities and inefficiencies.

The *peggo* System: Introduced in 2016, *peggo* was intended to modernize fare collection by replacing paper-based media with reloadable smart cards. Riders can load “e-cash” (stored value), or period passes (e.g. 24-hour, 7-day, monthly) onto their *peggo* cards. These cards are then tapped on validators located on buses. The system includes fareboxes with integrated validators, garage servers, a central database, and an e-commerce website (E-Fare) for online account management. The operational flow involves riders tapping their cards, the validator deducting the fare or verifying a pass, and the data being transmitted to the central system. However, the *peggo* system has experienced technical issues and has not fully achieved its intended objectives.

Fare Structure and Products: Winnipeg Transit offers a complex fare structure with 19 different fare product options and 44 different products, spanning both *peggo* (e-cash and e-passes), and various types of paper tickets and passes. Discounted, or “concession” fares are offered to seniors, youth, and via a low-

income program (WINNpass). This large number of fare products can confuse riders, as they will need to determine which is appropriate.

Cash and Paper: Alongside *peggo*, Winnipeg Transit continues to accept cash (coins only) and a variety of paper tickets and passes. Cash is deposited into fareboxes, which are not equipped to handle bills. Paper tickets are deposited into the farebox and passes are visually inspected by operators. This reliance on manual processes contributes to operational inefficiencies and fare evasion.

2.3 Key Findings and Limitations

2.3.1 System Deficiencies

The *peggo* system, despite its intended modernization, suffers from fundamental technical problems:

Unreliability: The system experiences frequent card read/write errors, connectivity issues between fareboxes and servers, delays in online fund loading (at times exceeding the advertised 24-48 hours), and incorrect fare deductions stemming from transfer validation errors. The Odyssey fareboxes themselves are reportedly less reliable than previous models, requiring frequent maintenance. This unreliability is a major source of rider frustration and undermines confidence in the system.

Outdated Technology: The underlying technology of the *peggo* system is outdated, with online functionality added as a workaround. This limits its ability to support modern payment methods (like open payment with contactless bank cards and mobile wallets), and creates security vulnerabilities.

Functionality Gaps Requiring Custom Workarounds: The *peggo* system lacks the built-in capability to effectively manage essential programs like the U-Pass for post-secondary students. This gap necessitated the creation of separate, internal systems like U-Fare, simply to provide required functionality. While a necessary workaround, U-Fare itself introduces administrative overhead, potential data inconsistencies, and highlights the core system's limitations.

Poor Integration: The system is poorly integrated with other key systems, including:

- **Accounting Systems:** Limited integration with Winnipeg Transit's accounting system requires extensive manual data entry and reconciliation.
- **Winnipeg Transit Plus:** Lack of integration with the Winnipeg Transit Plus system creates barriers to seamless transfers between fixed route and paratransit services.

Inadequate Data and Reporting: The system provides limited and often inaccurate data on ridership, fare revenue, and system performance. This hinders data-driven decision-making and makes it difficult to optimize service planning, fare policies, and resource allocation. Furthermore, custom built interfaces like TALES have been developed as work-around solutions.

High Maintenance Costs: The Odyssey fareboxes in particular have proven unreliable, resulting in substantial maintenance costs.

2.3.2 Policy and Operational Challenges

The current fare policies and operational practices, in conjunction with the system's limitations, create further challenges:

Fare Evasion: The reliance on operator-validated flash passes and easily duplicated paper tickets, combined with a lack of a systematic fare inspection program, contributes to fare evasion. The "cash underpay" tracking mechanism is imprecise, making it difficult to quantify revenue loss accurately.

Complex Fare Structure: The large number of fare products (19) and fare media categories (44) creates confusion for riders and adds administrative complexity. This complexity is increased by the need for separate, often manual, processes to administer major institutional and concessionary programs like UPass, EcoPass, and WINNpass, which constitute a large portion of ridership and revenue.

Limited Customer Self-Service: The *peggo* system's online account management features are limited and unreliable, forcing many riders to rely on in-person or phone-based customer service for basic tasks.

Equity Concerns: While concession fares exist, the system's complexity and the limitations of *peggo* make it difficult for some riders, particularly those with limited access to technology or banking services, to fully benefit from these programs. The current policy of charging attendants for Winnipeg Transit Plus customers introduces a further inequity, but this will be addressed through the adoption of the Accessible Transportation Standard Regulations (ATSR).

2.3.3 Data-Driven Insights

Data analysis further highlights the need for change:

- **Fare Evasion Estimates:** While precise figures are impossible to ascertain, estimates based on "cash underpay" data suggest a potential annual revenue loss in the millions of dollars. This underscores the financial impact of fare evasion. Peer agencies vary in their estimates of fare evasion – TransLink estimates fare evasion at 7%, ETS estimates their fare evasion rate to be approximately 5%, while RTD-Denver does not quantify fare evasion due to difficulties obtaining the data.
- **Fare Product Usage:** Despite the large number of fare products, nearly 50% of fares are paid using only four products: Full Fare Transit Tickets (13%), Full Fare Monthly Passes (14%), cash (10%), and e-cash (11%). This suggests significant opportunities for simplification. There has been a year over year decrease in some *peggo* products, as well, such as the 5-day pass. See the figure below for additional details.

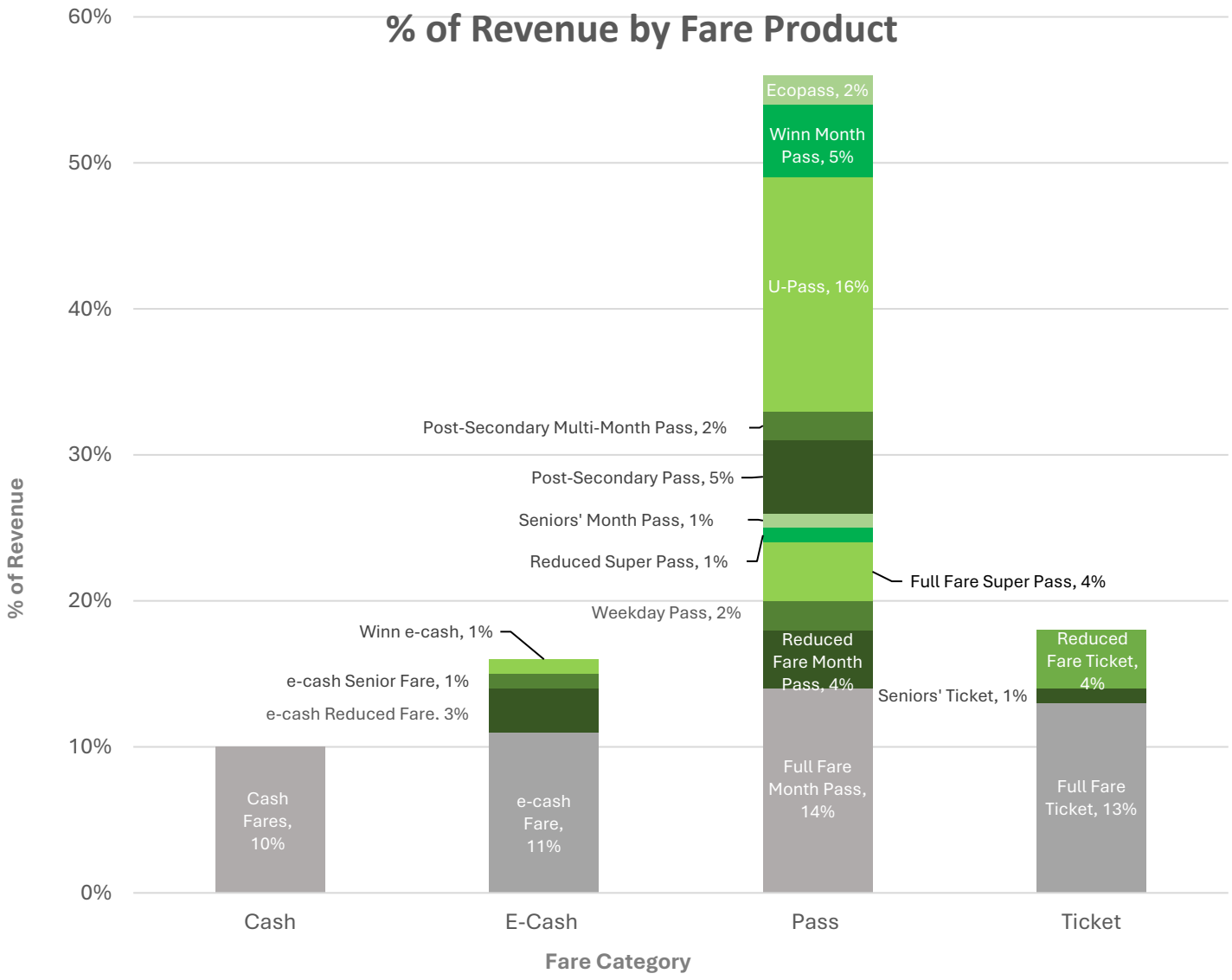


Figure 7.% of Revenue by Fare Product Use

- **Card Failure Rates:** *peggo* card failure rates have tracked as high as 15%, much of which can be attributed to the write function. In controlled conditions, the cards in use (MIFARE Ultralight-C), have reported failure rates below 1%.
- **Customer Interactions:** Resolving *peggo* product errors accounted for 30% of all customer service interactions with riders in 2023, and 32% in 2024.
- **Maintenance:** The total hardware and labour costs associated with rebuilding Winnipeg Transit fareboxes to extend their service life has averaged $325,000 per year over the last five years. The system component requiring the most time is the Barcode Print/Scanner at more than 1,250 labour hours per year.

2.4 Conclusion

The current state assessment clearly demonstrates that Winnipeg Transit's fare collection system and related policies are not meeting the needs of the agency or its riders. The system's technical limitations, operational efficiencies, and policy shortcomings create a compelling case for a comprehensive modernization effort. The proposed new system, as detailed in subsequent sections of this report, is designed to directly address these challenges and create a more reliable, efficient, equitable, and data-driven fare collection system for Winnipeg Transit.

3 Peer Review and Benchmarking

The Peer Review and Benchmarking examines fare collection systems and policies across six North American transit agencies. These agencies were selected on the basis of service similarity, varying approaches to fare policy, varying stages of system maturity, and through discussion with Winnipeg Transit staff. Review for the agencies consisted of examination of agency websites, public facing documents, data reporting and peer interviews. The six (6) peer transit agencies selected for review operate various forms of transit across North America, agencies interviewed are included below.

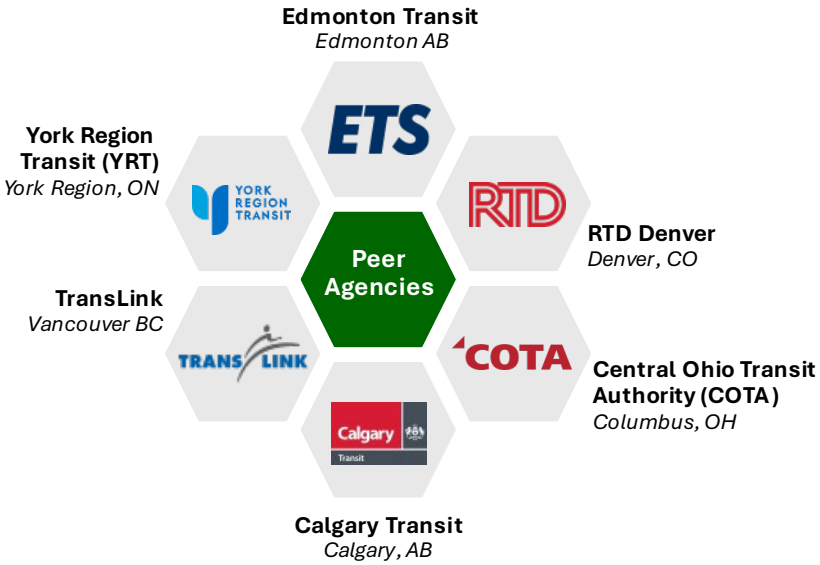


Figure 8. Peer Agencies Selected for Review

The analysis revealed several key trends and challenges that Winnipeg Transit should consider when developing its own fare system.

Fare Structure

Of the six agencies interviewed, four agencies have implemented fare capping. These include York Region Transit, Edmonton Transit Services, Central Ohio Transit Authority and Denver Regional Transportation District. Agencies that have implemented fare capping highlighted key drivers such as equity, affordability, and simplicity for riders by using fare capping to replace other fare products like monthly passes. The following table summarizes the peer capping thresholds.

Table 1. Peer Capping Thresholds

Peer Capping Thresholds		
Agency	**Daily**	**Monthly**
Calgary Transit	N/A	N/A
Central Ohio Transit Authority (COTA)	2.25 rides ($4.50 USD)	31 rides ($62 USD)
Edmonton Transit Service (ETS)	3.5 rides ($10.50)	Adult: 34 rides ($102) Youth: 22 rides ($66) Senior: 12 rides ($36)
RTD-Denver	2 rides ($5.50 USD)	32 rides ($88 USD)
TransLink	N/A	N/A
York Region Transit	N/A	Adult: 40 trips ($160) Youth: 39 trips ($120.90) Senior/Child: 28 trips ($68.60)

Fare capping is gaining popularity as a way to ensure affordability and encourage ridership. While some agencies implement daily fare capping (COTA, ETS, and RTD-Denver), monthly fare capping is more common. Likewise, while none of the peer agencies interviewed offer weekly fare capping, some larger agencies such as STM, CTA, LA Metro, and MBTA do.

As fare policy evolves, YRT focuses on simplicity and meeting rider needs. Fare capping became a key consideration due to declining monthly pass sales since 2015. The 2024 implementation of fare capping used a monthly trip multiplier based on the previous monthly pass cost, enabling the removal of monthly passes while providing more equitable and accessible options. The transition from monthly passes to fare capping also allowed YRT to collect more ridership data, as monthly passes only needed to be tapped to be activated, meanwhile fare capping requires riders to tap each time. TransLink is also revisiting a Fare Capping Program, potentially in conjunction with the planned Compass 2.0 system upgrade. While technically feasible, fare capping has not yet been implemented due to concerns about potential revenue loss from the sales in monthly passes.

YRT's implementation of fare capping provided opportunities for riders to benefit from the perks of a monthly pass without having to pay the monthly pass upfront. YRT's experience could provide valuable insights for Winnipeg Transit as they consider fare modernization options, particularly if Winnipeg were to explore the feasibility of implementing fare capping to improve equity and affordability for frequent riders. TransLink concerns about potential revenue loss from the sales in monthly passes, highlights the challenge of balancing equity with revenue generation.

In recent years, many agencies have evaluated changes to fare policy considering other goals including simplifying the customer experience. Agencies have worked to simplify their fare structures by eliminating multiple fare options (i.e., monthly passes) introducing flat fares and eliminating express route surcharges.

YRT's move towards a simplified fare structure, including a flat fare and the elimination of express surcharges, improved customer experience and reduced the complexity of fare payment. In recent years COTA has made several key policy changes including introducing a simplified fare structure including the shift to flat fares and transfers and eliminating express route surcharges. The Flat Fare Rate, eliminated the $0.75 upcharge on rush hour lines, making the standard fare $2.00 on all lines. Simplified transfers allow

customers to move away from the one trip restriction, allowing customers to make unlimited trips within 120 minutes for any fare paid. At RTD, driven by the goals of equity, affordability and simplicity, a new fare structure lowered fares for all customers and community members. Fares were simplified by combining the Local and Regional fares into one Standard fare. Winnipeg Transit, which currently offers many different fare types, could benefit from a similar consolidated approach to simplify customer understanding and ease of use.

Key Lessons Learned

- **Promoting Affordability:** The implementation of fare capping ensures that riders pay no more than the cost of a monthly pass and eliminates the need to pay for the monthly pass upfront. This enhances affordability for frequent riders.
- **Data Collection and Improved Insight:** By removing the month pass to fare capping, YRT was able to better collect ridership data. Fare capping enabled the tracking of individual trips rather than the tap of a monthly pass (for activation) only done once.
- **Simplifying Fare Structure:** Agencies like YRT and COTA have focused on simplifying their fare structures by eliminating multiple fare options, such as monthly passes and express surcharges. This reduces the complexity of the fare system, making fare payment easier for customers. Combining different fare categories into a single, standard fare, like RTD's integration of Local and Regional fares, helps streamline the fare system, making it easier for customers to understand.
- **Balancing Equity and Revenue:** Transitioning to a fare structure like fare capping, requires balancing the need for fare revenue generation, with the goal of also making transit more affordable. This balance can be difficult, this was seen in TransLink's concerns about potential revenue loss.

Concession Fares

While all agencies reviewed whether or not to continue offering concession-based discounts (for youth, seniors, and children), some have implemented policies that require passengers paying with cash or open payment methods (contactless payment cards) to pay a flat fare. At YRT, seniors, youth, and children receive discounted single-ride fares who pay using PRESTO; however, the full adult fare is charged to all customers using contactless open payment (credit/debit) or cash. Similarly, at TransLink, customers using contactless payment cards at the fare gates or on board the bus are not eligible for concession fares and will be charged the adult fare. At ETS, all riders paying with cash are charged a flat fare.

A needs-based concession fare is a pricing structure for public transportation where discounts or reduced fares are offered based on the specific financial or social needs of the passenger, rather than a fixed category (such as age). In addition to standard concession fares, some transit agencies provide additional discounts for low-income or vulnerable groups, these are summarized below.

- YRT: The Transit Assistance Program (TAP) offers low-income residents aged 18-64 a reduced fare. In 2021 TAP switched to fare capping, with participants paying half-price for single rides using PRESTO and receiving free rides after 40 trips per calendar month.
- ETS: The Ride Transit Program offers different fare caps for low-income riders.

- COTA: The Income Assistance Program offers a 50% discount on fares through an income-based fare discount program.
- RTD: the LiVE program gives a 50% discount for low-income riders.
- Calgary Transit: Low-income monthly passes are available in three different income bands. With financial support from the Province, those earning the least will pay the lowest fare and those earning a bit more will pay higher fares, but all who quality receives a discount. The price bands for 2025 are $5.90, $41.30 and $59.00.

These needs-based fare structures create transparency about how concession fares are developed and specifically how they assist those that are in financial need

Key Lessons Learned

- **Flat Fares for Cash and Open Payment Users**: Some agencies have adopted policies where passengers using cash or open payment methods (e.g., contactless cards) pay a flat adult fare, regardless of age or concession status. This helps simplify fare collection.
- **Needs-Based Discounts**: Needs-based fare structures allow agencies to offer further discounts to low-income or vulnerable passengers, beyond standard age-based concessions. These programs increase fairness by ensuring that people in financial need receive appropriate support. YRT, ETS, COTA, RTD, and Calgary Transit currently have implemented a needs-based program for low-income riders.
- **Diverse Fare Options for Low-Income Riders**: Offering multiple fare options, such as tiered pricing or income bands (e.g., Calgary Transit), allows for greater flexibility and ensures that discounts are aligned with the rider's ability to pay, supporting a more equitable fare structure. Some agencies receive government support to offer these options.

Modernizing Customer Experience

In recent years, many agencies have focused on improving the customer experience, particularly through the modernization and simplicity of fare payment methods. These updates aim to enhance customer convenience, simplify usage and improve the overall efficiency of the system. As part of the modernization, some agencies have transitioned towards account-based ticketing systems, allowing customers to set up accounts, load funds and use a variety of payment methods to re load accounts. In some systems, account-based systems have introduced fare capping, offering greater benefits to riders and simplifying fare structures.

Since 2022, ETS has been rolling out the Arc system in a phased approach. The Arc system lets riders set up a digital account that they can preload with funds online, by phone and at transit facilities. As part of the City's ongoing transition to the Arc system, ETS stopped selling paper tickets in 2023 but continued to accept them for another year to transition customers to the new payment system. ETS continues to encourage the use of the Arc card. Arc adoption rates by transit riders have been gradually increasing since its launch, reflecting a phased implementation approach as more riders transition to Arc. In 2023, Arc revenue comprised approximately 40% of overall fare revenue; this includes revenue from standard adult

fares, U-Pass, youth and student fares. When Arc cards were introduced, ETS released the Arc information guide to help customers get started with Arc. To help riders transition to the new system, ETS offered drop-in information sessions over three months during initial implementation, at City of Edmonton recreation centres and the Edmonton Service Centre.

In recent years COTA has made several key policy changes including introducing a simplified fare structure including the shift to flat fares and transfers, the introduction of fare capping, eliminating express route surcharges and adjustments made to child concession discounts. In 2021, COTA's Board of Trustees approved a new fare structure, aimed at improving affordability, and simplifying the payment process for all customers. COTA's customer research data confirmed that customers who can only afford to pay by the trip were paying more than those who can afford to purchase a monthly pass. This new fare structure was implemented with the launch of COTA's user account-based ticketing system. The objectives driving these changes were to simplify the fare structure, improve equity and slowly move towards a less cash-based system. COTA encouraged customers to try its new fare system by offering $4.50 credits to registered accounts during the first two months after system launch. COTA also hosted pop-up events, which started on the first day of launch at the Customer Experience Center, where riders were able to learn more about the new system and set up accounts. Additionally, COTA ambassadors were available to assist customers with account setup while traveling on various transit routes throughout the first month of launch to meet customers where they were.

To make paying for transit more convenient, the implementation of payment methods that customers already use has led to further modernization of fare payment options through the introduction of open payment. Of the peers interviewed, YRT and TransLink currently offer open payment options for customers. These fares are offered at the same price as a cash fare where no concession discounts can be applied. At ETS, the final implementation phase for Arc will include an open payment system. This phase is targeted for implementation in 2025.

Key Lessons Learned

- **Phased Implementation**: Gradually introducing the new system allows for smoother transitions. Both ETS and COTA adopted phased approaches, starting with limited features and expanding over time to minimize disruption and give riders time to adjust.
- **Clear Communication and Support**: Providing resources for customers such as information guides, pop-up events, and customer ambassadors helped riders understand and adopt the new system.
- I**ncentives to Encourage Adoption**: Offering incentives, like credits or discounts, can motivate customers to try the new system and transition from cash-based to account-based payment.
- **Maintaining Legacy Systems During Transition**: Continuing to accept the old payment methods (e.g., paper tickets) during the transition period, as ETS did, ensures that customers who are not yet ready for the new system can still use transit without disruptions.
- **Open Payment Parity:** Agencies such as YRT and TransLink offer open payment options, but at the same price as a cash fare. If fare capping on open payment is to be provided through this project, Winnipeg should further investigate aligning the fare for contactless payments with the stored value

fare to encourage use, maintain a simpler fare structure, and reduce reliance on physical cards, if reasonable considering a change in transaction fees.

Fare Compliance

Many transit agencies are currently revising or considering changes to their fare policies in response to challenges they are facing including fare evasion. Many transit agencies including YRT, RTD, Calgary Transit, ETS and TransLink face challenges with fare evasion. This issue is especially evident in systems using off-board fare collection or in areas without gated fare systems. Agencies are recognizing the need to adjust their fare policies and enforcement methods to address these challenges.

At YRT, fare evasion has been an issue, especially evident on the BRT system, which uses off-board fare payment collection. The fare evasion rate on BRT has been calculated at 4.59% (percentage of trips). To address this, Transit Enforcement Officers conduct random fare checks, through a proof-of-payment system. Similarly, on RTD failure to present a valid proof-of-payment could lead to fines. Randomized fare inspections are conducted at stations or stops, where passengers must be able to present proof-of-payment. At RTD, holders of discounted tickets or passes must show proof of eligibility. On Calgary Transit, all passengers aged 13 and older are required to have a ticket, pass, or transfer in fare-restricted areas. Transit Peace Officers will conduct random checks to ensure compliance. Fines are set out in the municipal bylaw of Calgary.

Calgary Transit analyzes fare revenue and challenges on an annual basis. The Transit Public Safety Strategy (2023) has increased the number of Peace Officers to 200, organized across different districts. In September 2024, a Transit Bylaw review was done to improve rider safety and support the physical and mental well-being of transit operators. Calgary Transit employs more than 2500 operators. Administration has heard from more than 800 operators that personal safety is a primary concern. Updates to the bylaw will help to address specific behaviours around loitering, non-destination use of transit and fare abuse. Updates will also address harassment and threats to Calgary Transit operators, peace officers, riders, Calgarians accessing transit and City of Calgary staff.

ETS acknowledges fare evasion as an ongoing challenge, noting an increase since the Covid-19 Pandemic, and has implemented measures to reduce it, including fare inspections and public awareness campaigns. Transit Peace Officers conduct random fare inspections to monitor compliance with proof of payment bylaw requirements on both the LRT and bus services. Fines are set out by a bylaw of the City of Edmonton. The fine for fare evasion is $150.00. When Transit Peace Officers encounter someone who has not complied with the fare requirement, they are to begin their interactions by educating the rider about the requirements, informing them of fare payment options, advising on how to access fares and moving to enforcement as the last step. Similarly, TransLink faces challenges with fare evasion. To address this, TransLink is increasing fare enforcement patrols across the transit system to reduce fare evasion, educate riders, and improve safety. TransLink found that the introduction of the fare gates reduced fare evasion, where they found both ridership and revenue to grow significantly. Because fare evasion is more common on the bus that it is on gated systems like SkyTrain and SeaBus, TransLink is prioritising fare enforcement on buses.

Key Lessons Learned

- **Random Fare Inspection:** Random fare inspections are a common tool used by agencies such as YRT, RTD, Calgary Transit and ETS to ensure passengers comply with fare requirements. This allows for flexible checks and can help catch instances of fare evasion. Randomized checks can be an effective strategy for increasing compliance.
- **Addressing Customer and Staff Safety:** Agencies are recognizing the link between safety concerns of operators and customers and the overall safety of the system. In response to this, agencies including Calgary Transit have increased the number of Peace Officers and are addressing safety issues through updates to the Transit Bylaw. These updates also address behaviours like fare evasion.
- **Customer Education and Awareness:** ETS and other agencies like TransLink emphasize educating passengers about fare requirements before moving to enforcement. This includes informing riders about payment options, and how to access fares. This educational approach improves compliance while maintaining a positive interaction between enforcement officers and passengers.

4 Fare Policy Review and Recommendations

This section summarizes the recommended changes to Winnipeg Transit's fare policies, aligning them with the goals of modernization, customer convenience, equity, and financial sustainability. These recommendations are informed by the current state assessment performed, our peer review, and best practices in the transit industry.

4.1 Existing Fare Policy Landscape

Winnipeg Transit's current fare policies are not consolidated in a single, comprehensive document. Information on fare structures, pricing, concession programs, and operational procedures is dispersed across various sources, including:

- **2013 Memorandum**: This document, approved by City Council, outlines the fare structure multipliers.
- **By-Law No. 89/2014 (Public Transit By-Law):** This by-law provides the legal framework for fare collection and enforcement, granting the Director of Winnipeg Transit authority to set fares and implement related measures.
- **Administrative Reports and Presentations:** Various administrative documents and presentations provide additional details on fare policies and procedures.
- **Operational practices:** Including "pay double next time" and the ability for operators to override and allow expired transfers.

This fragmented fare structure, having evolved over time with the addition of new programs and changes to fare offerings is now difficult to understand, and get a complete view of the current fare policies and assess their effectiveness.

In order to develop a comprehensive fare policy, we are recommending a consolidated fare policy that defines the goals of the fare policy and aligns with specific actions that can be taken to implement that goal.

Fare policies are often written with guiding principles or goals and that is the approach that the LTRT team has taken with Winnipeg Transit.

4.2 Recommended Fare Policy Goals

The work performed establishes six core goals to guide the development of a modernized and effective fare policy. These are summarized below.

Ensure Every Rider Pays the Lowest Fare

Simplify the fare structure and implement mechanisms (like fare capping) to automatically provide the most cost-effective fare option for each rider, regardless of their payment method.

Support Needs-Based Concession Fares

Transition towards a system where concession fares (discounts) are primarily based on demonstrated financial need, rather than solely on age or other demographic factors.

Modernize the Customer Experience

Offer a variety of convenient and reliable payment options, including open payment (contactless bank cards and mobile wallets) and a user-friendly mobile app.

Parity For All Users

Ensure equal access to the transit system for all riders, regardless of ability, including seamless integration between fixed-route and paratransit services (Winnipeg Transit Plus).

Improve Fare Payment Compliance

Implement a clear and consistent fare payment and enforcement policy, focusing on education, prevention, and non-confrontational enforcement techniques.

Support Economic Elevation and Development

Design fare policies that promote transit ridership, reduce transportation costs for residents, and contribute to the economic vitality of the city.

Figure 9. Recommended Fare Policy Goals

4.3 Specific Recommendations

Goal 1: Ensure Every Rider Pays The Lowest Fare:

- **Simplify the Fare Structure:** Reduce the number of fare products offered, eliminating redundant or underutilized options. Focus on a streamlined set of fare types, such as single-ride fares and capped fares. This will make it easier for riders to understand their options and choose the most cost-effective fare. Analysis of current fare product usage indicates that a small number of fare products account for the majority of ridership, supporting this simplification.

- **Implement Fare Capping:** Introduce daily and monthly fare capping, in parallel with the introduction of a new fare system. Evaluate introducing weekly fare capping based on analysis of the data generated by the new system. This will automatically limit the total amount a rider pays within a given period, ensuring they always receive the best possible fare based on their actual usage. Fare capping eliminates the need for riders to pre-purchase passes that may not be the most economical choice, based on their actual riding patterns.
- **Evaluate Eliminating Paper Products:** Develop and implement a plan to phase out paper tickets and passes entirely over time in favour of digital accounts (cards or mobile) and cash. *This should occur after the successful implementation and adoption of the new system*.
- **Evaluate the Transfer Policy:** Winnipeg Transit currently allows transfers up to 75 minutes from when the transfer was obtained. The peer agencies reviewed offer 90 and 120 minute windows, and generally, this is most common. In the long term, the transfer policy should be guided by more robust rider data generated by the new system. We recommend increasing the transfer policy to 90 minutes to align with industry standard practices.

This suite of changes offers Winnipeg Transit the opportunity to ensure every rider pays the lowest fares while having access to fare products that support how and when they ride.

Goal 2: Support Needs-Based Concession Fares

- **Prioritize and Expand the WINNPass Program**: Focus on the existing WINNPass program as the primary mechanism for providing fare assistance to low-income riders. Explore ways to expand program eligibility, including to other vulnerable groups in addition to income-based eligibility, and manage WINNPass with the future account-based fare system.
- **Eliminate Cash and Day Pass Concessions:** Phase out the general Youth and Senior discounts on cash fares and single-day passes. This encourages the use of electronic fare media (where discounts can be more effectively targeted) and simplifies the fare structure.
- **Consolidate Youth and Senior Fares:** Combine the remaining Youth and Senior fare categories (for electronic fare media) into a single concession fare, set at the current Youth fare level, to promote parity.
- **Evaluate Eliminating the General Age-Based Discount:** Using data generated from the new system as support, evaluate phasing out the general age-based discount, offering reduced fares only to riders who qualify for the WINNPass program (based on income).

Goal 3: Modernize Customer Experience

A modernized customer experience includes a fare collection system that offers a variety of payment options reflecting those used in riders' everyday lives. A well-designed system that embraces today's advancing contactless solutions, such as mobile payments and open payments with debit and credit cards, is crucial for modernizing the transit experience.

- **Replace *peggo*:** Based on our comprehensive analysis of both fare policy and the existing fare system, we recommend replacement of *peggo*. *peggo*'s unreliability has led to Winnipeg Transit

offering multiple payment media: cash, paper, and digital. The WTMP recommended phasing out physical fare media in favour of digital payment methods and *peggo* simply hasn't allowed this. While cash acceptance will continue for the foreseeable future, replacing *peggo* with a new account-based, digital system is essential to modernizing the customer experience.

- **Upgrade the fare collection system to an account-based system:** In a world where smartphones are ubiquitous, customers expect to manage their accounts and resolve issues independently, with minimal need for direct customer service interaction. Account-based systems with digital payment options enable a host of self-service features with minimal need for customer service interaction.
- **Introduce Account Management Systems for Employers and Institutions:** Partner Universities, students, and employers should be able to self-administer their accounts once agreements are in place.
- **Implement Open Payment:** Allow riders to pay directly with contactless credit/debit cards and mobile wallets (e.g., Apple Pay, Google Pay) to pay for single rides. This is a crucial step in modernizing the payment experience and aligning with consumer expectations. A new fare collection system can potentially support fare capping with open payment methods if the system is designed and permitted to securely retain the necessary payment information within the user's account.
- **De-emphasize Physical Fare Cards:** While continuing to support contactless cards for riders who need them, prioritize open payment and mobile ticketing as the primary fare media.

These tactics will help Winnipeg Transit procure and implement a modern, reliable payment system that allows people to pay with a credit or debit card, mobile application, or account-based card. A modern system will be reliable and allow users to pay with options they are accustomed to using to pay for goods and services.

Goal 4: Parity for All Users

When making changes to the fare policy and supporting systems, it is essential to maintain the principle of equal access to the family of services for all riders, regardless of ability. Winnipeg Transit currently maintains fare parity, meaning that users of Winnipeg Transit Plus pay the same fare as those using conventional transit services. However, there are specific operational nuances related to Winnipeg Transit Plus that create additional burdens on riders, which are discussed below.

- **Integrate with Winnipeg Transit Plus Booking System:** The Accessible Transportation Standard Regulation (ATSR) deadline is approaching. By January 1, 2027, Winnipeg Transit will be required to comply with several regulations, including the general requirement to "establish and implement measures, policies and practices on accessible transportation." Implementing fare parity including cross system accessibility is key to removing barriers between cross-system travel. For example, a rider using Winnipeg Transit Plus needs a transfer to the fixed route system. Winnipeg Transit team members provide a "workaround" to make this happen, meaning that the rider must know they are transferring to the fixed route system when they book their trip. While existing "work arounds" could be maintained, a primary consideration for a new fare collection system should be its ability to integrate with the Winnipeg Transit Plus Booking System.

- **Eliminate Cost for Attendants:** an attendant that rides with a customer with a disability is currently required to pay. The new fare policy should **eliminate the cost for the attendant to ride** so that there is fare parity. Attendants are often required and not an optional companion. Implementing this complies with the AMA.

These actions will create system parity for those using Winnipeg Transit Plus and ensure compliance with the AMA.

Goal 5: Improve Fare Payment Compliance

Winnipeg Transit does not have a comprehensive fare payment and enforcement policy. We recommend that Winnipeg Transit develop a comprehensive fare payment and enforcement policy. Crucially, the policy should avoid criminalizing fare evasion. Furthermore, the current "pay double next time" policy should be eliminated and replaced with clear, documented procedures for de-escalating potentially confrontational situations. We recommend Winnipeg Transit:

- **Explore "Fare Paid Zones":** Investigate legislative options to designate buses as "fare paid zones," potentially enhancing enforcement capabilities.
- **Develop a Comprehensive Fare Payment and Enforcement Policy**: Create a clear, documented policy that prioritizes education and prevention, utilizes non-confrontational enforcement techniques, and is a civil violation, rather than a criminal violation.
- **Promote a Culture of Compliance:** Launch a public awareness campaign to educate riders about fare payment rules, the benefits of compliance, and the consequences of fare evasion. This campaign should incorporate educational components designed to:
    1. Build trust in the system
    2. Reward compliance – essentially this would function like a rewards program or a prize drawing
    3. Raise awareness about the importance of paying fares to support the transit system*
    4. Communicate and educate riders about the new fare policy including enforcement
    5. Highlight penalties for fare evasion alongside the benefits of compliance such as improved services*

  *Generally, focuses on prevention over punishment; however, many agencies like YRT, TransLink, & ETS have a fine

- **Consider Implementing Random Fare Inspections:** Deploy trained personnel (transit ambassadors or security officers) to conduct random fare inspections on buses, once a new fare system has been introduced.

Improving fare compliance is essential to maximizing fairness for all riders, improving revenue collection at the fare box, and supporting Winnipeg Transit operations long term.

Goal 6: Support Economic Elevation and Development

Choosing public transit over single-occupancy vehicles for commuting to Downtown Winnipeg and other areas inherently reduces transportation costs for individuals and households. Furthermore, implementing a

well-structured fare policy, one that ensures riders always pay the lowest fare, can significantly contribute to the economic advancement of residents and foster economic development for the City of Winnipeg.

- **Evaluate and Revitalize the EcoPass Program:** Since the pandemic, EcoPass usage has shown steady recovery. However, demand remains primarily concentrated among employers where remote work is not feasible. Businesses with significantly altered commuting patterns, particularly those where employees are no longer commuting to the office five days a week as was common pre-pandemic, have shown slower EcoPass recovery. To address this, Winnipeg Transit should conduct a survey of past EcoPass users (businesses and/or riders). This survey should explore the reasons for discontinued use and ascertain current commuting patterns (e.g. frequency of in-office work – two days, three days, or none).
- **Implement a Bulk Purchase Discount:** Consider offering a bulk purchase discount on fares for small businesses and social service agencies, providing an additional mechanism to support affordable transit access. The inherent limitations of the EcoPass program in addressing the full spectrum of commuter needs suggest this additional option. While the bulk-purchase discount could be offered alongside or in place of the EcoPass, its primary function would be two-fold: first, to assist social service agencies in providing fare access to individuals facing financial barriers; and second, to incentivize businesses who permit hybrid or work-from-home arrangements to incentivize their employees to use transit also.

These tactics will help support the economic growth of small businesses and the economic elevation of those that rely on transit to work, live, and play.

4.4 Justification and Benefits

These recommendations are directly linked to addressing the problems identified earlier and aligning with industry best practices identified by our peers and the industry. By implementing these changes, Winnipeg Transit can expect to achieve:

1. **Increased Operational Efficiency:** Through automation, streamlined processes, and reduced reliance on manual tasks.
2. **Improved Customer Satisfaction:** Through more convenient payment options, a more reliable system, and a simplified fare structure.
3. **Greater Equity:** Through a focus on needs-based concession fares and improved accessibility.
4. **Enhanced Data Collection and Analysis:** Providing the information needed for informed decision-making and service optimization.

5 Proposed System Architecture and Requirements

This section outlines the proposed architecture and key functional requirements for Winnipeg Transit's new fare collection system. The proposed system is designed to address the limitations of the current *peggo* system and its associated cash/paper options, aligning with industry best practices and the goals of the Fare Policy and System Upgrade Plan.

5.1 Core Concept: Modernizing Fare Collection

The core concept driving the new system is a transition to a cloud-native, account-based fare collection system with open payment capabilities. This represents a fundamental shift from the current infrastructure and offers significant advantages:

Cloud-Native Architecture: The system's central software and data will be hosted in a secure, enterprise-grade cloud environment (e.g. Microsoft Azure, Amazon Web Services, Google Cloud Platform) managed by the selected vendor. This eliminates the need for Winnipeg Transit to maintain and upgrade on-site servers, reducing IT overhead and improving system reliability and scalability.

Account-Based System: All fare media – whether open payment (contactless bank cards / mobile wallets), a mobile app, or a limited-use contactless transit card – will be linked to a central user account (though account creation will be optional for some payment methods). This enables features like stored value, auto-reload, fare capping, and online account management, significantly enhancing customer experience and providing valuable data insights.

Open Payment: Riders will be able to pay their fares directly by tapping a contactless credit card, debit card, or mobile wallet (e.g. Apple Pay, Google Pay) on a validator. This eliminates the need for a separate transit card for many riders, simplifying the payment process and aligning with modern consumer payment preferences.

5.2 Key Functional Requirements

The new system must provide a comprehensive set of functionalities to meet the needs of riders, operators, and administrative staff. The key functional requirements are summarized below:

Fare Media and Payment Options:

- **Open Payment:** Support for contactless credit/debit cards and mobile wallets.
- **Mobile Ticketing:** A vendor-provided mobile app (white-labeled or branded for Winnipeg Transit) for purchasing fares, managing accounts, and displaying mobile tickets (e.g. QR codes).
- **Contactless Cards (Limited Use):** Support for reusable contactless cards, but with a *de-emphasis* on their use compared to open payment and mobile ticketing. Distribution of these cards will be strategically managed.
- **Reporting of Cash Payments:** A mechanism for operators to record cash fare payments, distinguishing between full fare, underpayment, and overpayment.

Fare Structure and Fare Calculation:

- **Flexible Fare Structures:** Support for a variety of fare types (single ride, daily/weekly/monthly passes, concession fares) and the potential for future distance-based pricing.
- **Automated Fare Calculation:** Accurate and automatic calculation of fares based on the applicable fare structure, time of day (if applicable), distance traveled (if applicable), and any applicable discounts or concessions.
- **Fare Capping:** Implementation of fare capping over configurable time periods (daily, weekly, monthly) to ensure riders always pay the lowest possible fare.
- **Transfer Handling:** Seamless electronic transfer management within the system.
- **Fare Table Management:** A user-friendly interface for Winnipeg Transit staff to define, modify, and schedule fare structures.

Rider Accounts and Management:

- **Online / Mobile Account Management:** Riders can create and manage accounts (optional for some payment methods) through a secure web portal or mobile app.
- **Real-Time Balance and History:** Riders can view their account balance, transaction history, and pass expiry dates in real-time.
- **Online Top-Up:** Riders can add funds to their accounts using various payment methods (credit / debit cards, Interac).
- **Auto-Reload:** An optional auto-reload function to automatically replenish account balances.
- **Lost / Stolen Card Management:** Ability to report lost/stolen cards and transfer balances.
- **Affinity Group Management:** A portal should allow designated affinity groups to self-manage program eligibility.

System Integration and Data Management:

- **RESTful API:** A well-documented RESTful API for integration with other systems.
- **PeopleSoft Integration:** Integration with PeopleSoft for financial reconciliation and reporting.
- **Winnipeg Transit Plus Integration:** Interoperability with the platform used for Winnipeg Transit Plus.
- **Farebox Integration:** Integration with the *existing* fareboxes during a transition period, if reasonable to do so, primarily for cash fare reporting and to limit account reconciliation effort.
- **Data Security:** Robust security measures, including data encryption and compliance with PCI DSS standards, to protect credit card and other sensitive rider information.
- **Data Ownership:** Winnipeg Transit will own all data generated by the system.

Reporting:

- **Comprehensive Reporting:** The system must provide a comprehensive suite of standard and customizable reports on ridership, fare revenue, system performance, and other key metrics.

- **Data Extractability:** Data must be easily extractable for analysis and integration with Winnipeg Transit's data lake.

Accessibility and Usability:

- **Accessibility Compliance:** Full compliance with the Accessibility for Manitobans Act (AMA), ensuring usability for riders with disabilities.
- **Multilingual Support:** Support for multiple languages (English and French, at a minimum).
- **User-Friendly Interface:** Intuitive and easy-to-use interfaces for all system components (validators, mobile app, web portal, back-office system).

Customer Service and Support:

- **Multiple Support Channels:** Customer support via phone, email, online resources, and in-app chat.
- **Efficient Issue Resolution:** Tools for customer service representatives to quickly access rider account information and resolve issues.

System Support:

- **Vendor-Provided Training:** A training program for customer service, technical, and other staff.

Security and Fraud Prevention:

- **Data Protection:** Encryption of sensitive data.
- **PCI Compliance:** Full compliance with Payment Card Industry Data Security Standard (PCI DSS)
- **Fare Evasion Prevention:** Support for random fare inspections using mobile devices.
- **Fraud Management:** Tools to identify and manage potentially fraudulent transactions.

5.3 Key Decision Points and Alternative Approaches

Within the overall framework of the proposed system, several key decision points require careful consideration:

5.3.1 Extent of Physical Contactless Card Use

Decision Point: While the new system *will* support contactless cards, the extent of their use and distribution needs to be determined. Should they be widely available, or a limited option for specific rider groups?

Alternatives:

- **Option A (Recommended):** De-emphasize physical cards. Focus on open payment and mobile ticketing as the primary fare media. Offer contactless cards as a *limited* option, primarily for riders without access to smartphones or bank cards, or those who strongly prefer a physical card.

- **Option B:** Continue to offer and widely distribute contactless cards, alongside open payment and mobile ticketing.

Justification for Recommendation (Option A): Minimizing the use of physical cards reduces operational costs (card production, distribution, inventory management), simplifies the system, and aligns with the trend towards digital payment methods. However, completely eliminating cards would exclude some riders, so a limited option is necessary for equity.

5.3.2 Fare Vending Machine (FVM) Deployment

Decision Point: Should Winnipeg Transit deploy new Fare Vending Machines (FVMs) or rely primarily on online/mobile account loading and a limited retail network for cash top-ups (if cash top-ups are supported)?

Alternatives:

- **Option A (Recommended):** Minimize or eliminate the deployment of new FVMs. Focus on online/mobile account loading and potentially partner with a limited, carefully managed retail network for cash top-ups (if supported).
- **Option B:** Deploy FVMs at key locations (e.g. BRT stations, airport, major transit hubs) to provide options for purchasing cards (if offered) and loading value.

Justification for Recommendation (Option A): FVMs are expensive to purchase, install, and maintain. They are also vulnerable to vandalism and require cash handling. The project's emphasis on open payment and mobile ticketing reduces the need for FVMs. A carefully managed retail network, combined with online/mobile options, can provide sufficient access for those who need to load value using cash.

5.3.3 Farebox Replacement Strategy

Decision Point: How should Winnipeg Transit transition away from existing and unreliable fareboxes?

Alternatives:

- **Option A (Recommended):** Integrate the new system with the *existing* fareboxes *initially*, if reasonable to do so, primarily for cash fare reporting. Phase out the complex fareboxes over time, potentially replacing them with simpler "gravity" fareboxes (for coin collection only), or eliminating them entirely as cash usage declines.
- **Option B:** Immediately replace all existing fareboxes with new, simpler fareboxes.

Justification for Recommendation (Option A): A phased approach allows for a smoother transition, minimizes disruption, and leverages the existing farebox infrastructure during the initial implementation period. It also provides time to assess the long-term need for fareboxes as open payment and mobile ticketing adoption increases.

5.3.4 Cash Acceptance Policy

Decision Point: Should Winnipeg Transit *continue* accepting cash fares, or should it transition to a fully cashless system?

- **Option A (Recommended):** Continue to allow cash fares to be paid onboard the bus.
- **Option B:** Eliminate cash fares.

Justification for Recommendation (Option A): While many systems are moving away from cash acceptance, our work highlighted the equity concerns of eliminating cash, particularly for unbanked or underbanked riders.

These decision points represent key strategic choices that will shape the final implementation of the new fare system. The recommended approaches prioritize modernization, efficiency, customer convenience and equity, while acknowledging the need for a pragmatic transition. The detailed functional requirements provide the technical framework for implementing these chosen approaches.

6 Implementation Plan

The implementation plan serves as a comprehensive project roadmap. It is designed to be a dynamic, "living" document, subject to regular review and updates as the project progresses. This ensures adaptability to changing circumstances and allows for incorporation of new information and lessons learned. The plan focuses on achieving a successful deployment while minimizing disruption to riders and ensuring alignment with Winnipeg Transit's strategic objectives.

6.1 Implementation Phases and Activities

The implementation journey is structured into several key, interconnected phases, each with specific activities. The ***Procurement*** phase begins with an Expression of Interest (EOI). This crucial step is not a formal bid solicitation, but rather an information-gathering exercise. It allows Winnipeg Transit to explore the market, understand available technologies, and refine the project's requirements based on real-world solutions. The EOI will specifically explore emerging features. For example, we will ask how various vendors handle complex functionalities such as fare capping with open payments and transfers.

Following the EOI, a Request for Proposals (RFP) is issued. This is the formal solicitation process, inviting detailed proposals from qualified vendors. The RFP provides detailed specifications, requirements, and evaluation criteria, ensuring a transparent and objective vendor selection process. The RFP phase culminates in vendor selection, contract negotiation, and ultimately, the formal awarding of the contract. A detailed Statement of Work (SOW) is then developed, collaboratively, to provide a specific blueprint for the installation and testing phases.

The ***System Installation and Testing*** phase represents the core of the technical implementation. It begins with a formal project kickoff meeting, bringing together all key stakeholders from Winnipeg Transit and the selected vendor. This phase includes detailed system design, where high-level requirements are translated into concrete technical specifications. This covers system architecture, data models, interface designs, security protocols, and user interfaces. The vendor the proceeds with development and configuration, including software development, hardware procurement, cloud environment setup, and overall system configuration.

Rigorous testing is a critical component of this phase, ensuring the quality, reliability, and security of the new system. This encompasses unit testing (of individual components), integration testing (verifying interaction between components and external systems), system testing (validating the entire system against requirements), user acceptance testing (UAT, involving Winnipeg Transit staff to validate usability and functionality), performance testing (ensuring the system can handle expected transaction volumes), and security testing (identifying and addressing vulnerabilities).

The ***Customer Migration Strategy*** is a carefully planned, phased approach to transitioning riders from the legacy *peggo* system to the new platform. A key element is *parallel operation*, where both the old and new systems operate concurrently for a defined period (3-6 months). This allows riders to transition at their own pace, minimizing disruption. During this period, a clear process will be in place for managing existing *peggo*

cards, including options for transferring remaining balances and a phased deactivation schedule. Similarly, paper tickets and passes will be gradually phased out.

Throughout all phases, a robust ***Communication Plan*** is essential. This plan will utilize multiple channels (website, social media, on-bus advertising, email, public service announcements) to keep riders informed, manage expectations, and address any concerns. On-board ambassadors will provide hands-on assistance during the rollout.

Training is another crucial element, ensuring that Winnipeg Transit staff are fully prepared to operate and support the new system. This includes comprehensive training for operators, customer service representatives, and IT staff, often using a "train-the-trainer" approach.

Finally, ***Ongoing Monitoring and Evaluation*** is built into the plan. This involves continuous tracking of key metrics, such as system performance, customer adoption rates, customer service inquiries, and fare evasion rates. This data-driven approach allows for adjustments to the migration strategy and ensures the project remains on track.

6.2 Risk Management

The project recognizes and proactively addresses potential risks. A formal risk management process will be in place, including risk identification, assessment, mitigation, and monitoring. A Risk Register is maintained as a living document, tracking identified risks, their likelihood and impact, mitigation strategies, and responsible parties.

Table 2. Risk Identification

Risk Category	Potential Risk	Mitigation Strategy
Vendor-Related	Delays, cost overruns, system not meeting requirements, inadequate support.	Thorough vendor evaluation, clear contract terms, strong project management, site visits to other transit agencies using the vendor's products.
Technology-Related	Integration issues, performance issues, security vulnerabilities.	Detailed interface specifications, rigorous testing (including integration, performance, and security testing), close collaboration with existing system providers.
Operational	Resistance to change, increased customer service inquiries, fare evasion.	Comprehensive change management strategy, proactive communication, staff training, clear signage, on-board ambassadors, and monitoring of fare evasion rates.
Financial	Budget overruns, unexpected costs.	Detailed cost estimation, contingency planning, close monitoring of expenditures.
Stakeholder	Lack of buy-in	Proactive communication, engagement and training.

6.3 Resource Requirements

Successful implementation necessitates both internal and external resources. Internally, a dedicated Project Team is crucial, comprised of individuals representing the IT and Finance and Administration divisions, including at minimum:

- **Project Manager**,
- **Systems Analyst,**
- **Technical Lead**,
- **Business Analyst**,
- **Training and Change Management Lead**,
- **Marketing and Customer Experience Lead,** and an
- **Installation Team.**

Ongoing involvement is also required from the IT division (for system integration, network administration, and ongoing support), Finance and Administration (as the primary business user), and Plant and Equipment (for ongoing maintenance). External resources primarily consist of the selected vendor's staff, providing project management, implementation services, training and ongoing support.

To mitigate project risks and leverage industry best practices, peer agencies interviewed hired **consultants** on similar upgrade projects. To that effect, third-party support with specialized expertise has been provisioned.

The question of adequate staffing is crucial; it is not certain if current staffing levels are appropriate and the project may need to consider using temporary staffing to meet project goals.

6.4 Project Timeline

The full project timeline, inclusive of customer migration (with the critical parallel operation period), is estimated at 12-18 months after project award. Key milestones include procurement completion, system design and development, various testing phases, the pilot program, parallel system operation, and full system deployment. The exact timing of the customer migration and the phasing out of old fare media will be data-driven, based on adoption rates and user feedback.

Key decision points that will affect the timeline and project overall include:

- Choosing the method of installing the validators.
- Deciding the installation schedule.
- The official start of operating the new system.
- The date to stop accepting *peggo* cards.

7 Financial Analysis

This section presents a Class III financial analysis (-20% to +30% accuracy) of three distinct project options for modernizing Winnipeg Transit's fare collection system: Bronze, Silver (Recommended), and Gold. These options differ in their feature sets, implementation approaches, and associated costs.

7.1 Project Option Overview and Feature Comparison

The following table outlines the key features and characteristics of each project option, using Harvey Balls to indicate the level of inclusion for each feature:

Feature / Characteristic	Bronze	Silver (Recommended)	Gold
Core System Features			
Account-Based System	●	●	●
NFC Payment (Cards/Mobile)	○	●	●
QR Code Ticketing	●	○	●
Web/Mobile App	●	●	●
Enhanced Features			
Open Payment (Contactless EMV)	○	●	●
Fare Capping	◑ (cards only)	◑ (no credit/debit)	● (all digital)
Mobile Inspection Devices	○	◑ (supported)	● (50)
Institutional Portal	○	●	●
Third-Party App Integration	○	◑ (Existing Partners)	● (Open API)
Implementation			
Number of Validators	700	775 (includes WTP)	775 (includes WTP)
Fare Vending Machines	○	○	●
System Integration	○	◑	●

Bronze: The most basic option, focusing on core account-based functionality using physical proximity cards with QR code payment for mobile devices. It minimizes upfront costs by relying on self-installation and excluding features like open payment and comprehensive system integration. This is a minimum viable product (MVP) approach.

Silver (Recommended): A balanced approach, providing a modern, user-friendly, and operationally efficient system. It includes open payment, comprehensive system integration, support for mobile

inspection devices, and fare capping across all digital transit fare media (excluding debit/credit). This approach includes validators on all vehicles including Winnipeg Transit Plus. Integration to the existing farebox for data collection is enabled by this option. While not including any mobile inspection devices for fare enforcement, this option does protect for future roll-out by ensuring the functionality is scoped and supported by the system. This allows for flexibility of fare enforcement practices as the agency carefully determines its next steps forward. This option offers the best value for Winnipeg Transit, balancing functionality, rider experience, and cost-effectiveness.

Gold: The most feature rich option, offering both NFC and QR code ticketing, fare capping on open payment, an open API to third party ticketing services, validators on all vehicles including Winnipeg Transit Plus, and system integration with all onboard systems, such as fareboxes, CAD/AVL, Mobile Router, and Automatic Passenger Counters. Anticipating a robust fare enforcement process, this option does include procurement of mobile inspection devices.

7.2 Class III Cost Estimates

Section 7.3 presents Class III cost estimates (-20% to +30% accuracy) for each project option. These estimates include:

Project Capital Expenses (CAPEX):

Vendor:

- **System Hardware:** Estimated costs for all project-related hardware, including devices, mounting hardware, cabling, and peripherals.
- **System Software:** Estimated licensing and setup costs for all software.
- **Project Management:** Vendor labour costs for all project management activities, including design, engineering, configuration, and implementation.
- **System Integration:** Design and implementation costs associated with ensuring interoperability between the delivered system and existing Winnipeg Transit hardware and software.

Winnipeg Transit:

- **Staffing Costs:** Estimated staffing costs for Winnipeg Transit personnel supporting the project during implementation.
- **Consulting Fees (Optional):** Fees for external consultants providing specialized expertise, support, or experience to the Winnipeg Transit Project team.

Annual Operating Expense (OPEX):

Vendor:

- **Software Licensing:** Estimated annual cost of all software updates, software management, hosting costs, escrow, and all other annual fees related to the ongoing use of the software.
- **Support:** Estimated costs for vendor support services, ensuring compliance with all contractual support obligations, including response times, system uptime, maintenance, monitoring, and reporting.

Winnipeg Transit:

- **Staffing Costs:** Estimated staffing costs for new personnel required to support the operational system.

Importantly, these estimates are based on a traditional Software-as-a-Service model, where Winnipeg Transit would purchase hardware upfront.

7.3 Project Option

The total project cost is divided into two main categories: project costs, and ongoing annual costs. An exchange rate of $1.40CAD to $1.00USD was used to convert projects from USD, where USD project comparables were available.

Table 3: Pricing Summary – Silver (Recommended)

Cost Category	Total
Project Costs – Vendor	$7,350,000
Project Costs – Internal	$1,500,000
Consulting Support (Optional)	$650,000
TOTAL PROJECT COSTS	**$9,500,000**
Annual Costs – Vendor	$2,100,000
Annual Costs - Internal	$250,000
TOTAL ANNUAL COSTS	**$2,350,000**

**Note: All values rounded to nearest $50,000.*

Project Costs (CAPEX):

Table 4: Project Costs - Vendor

Cost Category	Bronze	Silver (Recommended)	Gold
System Hardware	$2,450,000	$3,850,000	$5,600,000
System Software	$750,000	$1,700,000	$2,500,000
Project Management / Implementation Services	$700,000	$1,400,000	$2,100,000
System Integration		$400,000	$750,000
TOTAL	**$3,900,000**	**$7,350,000**	**$10,950,000**

Table 5: Project Costs – Internal

The project will be delivered by 7.2 FTE (Full-Time Equivalents), in eleven roles, regardless of the project selected.

Role	Duration (months)	Utilization	Annual Rate	Total
Project Manager	24	100%	$140,000	$280,000
Systems Analyst	24	100%	$115,000	$230,000
Technical Lead	18	100%	$115,000	$172,500
Business Analyst	24	100%	$115,000	$230,000
Training and Change Management	24	50%	$130,000	$130,000
Marketing and Customer Experience	24	100%	$115,000	$230,000
Device Installation (3)	3x12	100%	$80,000	$240,000
TOTAL				**$1,512,500**
Optional – Consultant Support	*24*	*100%*	*325,000*	*$650,000*

Annual Operating Costs (OPEX):

Table 6: Annual Costs - Vendor

Cost Category	Bronze	Silver (Recommended)	Gold
Software Licensing	$700,000	$1,200,000	$1,500,000
Ongoing Support	$700,000	$900,000	$1,200,000
TOTAL	**$1,400,000**	**$2,100,000**	**$2,700,000**

***Note:** Annual vendor costs vary widely by service level agreements, licensing model, feature set, and contract structure. These estimates represent the expected mean value for similar projects of this size, independent of the above variables.

Table 7: Annual Costs - Internal

Role	Duration (months)	Utilization	Annual Rate	Total
System Manager	Ongoing	100%	$140,000	$140,000
Change Manager	Ongoing	50%	$115,000	$57,500
Functional Analyst	Ongoing	50%	$115,000	$57,500
TOTAL				**$255,000**

Key Cost Drivers:

- **Vendor Selection:** The choice of vendor and their pricing model will have the largest impact on costs. Different vendors have different pricing models (e.g. software-as-a-service, transaction fees, upfront hardware costs).
- **System Complexity:** The number of features and the level of customization required will influence development and implementation costs.
- **Integration Requirements:** The complexity of integrating with existing systems could be a significant cost factor.
- **Hardware Choices:** The type and quantity of validators and mobile devices will affect hardware costs.
- **Fare Media Strategy:** Costs for contactless card media, and the extent to which these cards are used.
- **Internal Resource Allocation:** The level of involvement of Winnipeg Transit staff (and conversely, how many of these roles are externally contracted), will affect internal labour costs.
- **Political Environment:** The performance of the Canadian dollar vs. other currencies and foreign policies such as tariffs can impact the price, as many vendors are headquartered in the United States and manufacturing often occurs in the United States, China, or other countries.

8 Conclusion

This report has presented a comprehensive analysis of Winnipeg Transit's current fare collection system and associated policies, identified critical shortcomings, and proposed a detailed plan for modernization. The recommended changes, encompassing both fare policy reforms and the implementation of a new, technologically advanced fare collection system, are essential for the long-term sustainability and success of Winnipeg Transit.

The existing *peggo* system, along with the continued reliance on cash and paper-based fares, has proven to be unreliable, inefficient, and increasingly out of step with the needs of a modern transit agency. Technical issues, limited payment options, inadequate data collection, and a complex fare structure have created operational challenges, frustrated riders, and hindered Winnipeg Transit's ability to effectively manage its resources and plan for the future.

The proposed new system, based on a cloud-native, account-based architecture with open payment capabilities, directly addresses these deficiencies. Key features of the proposed system are in the figure below.

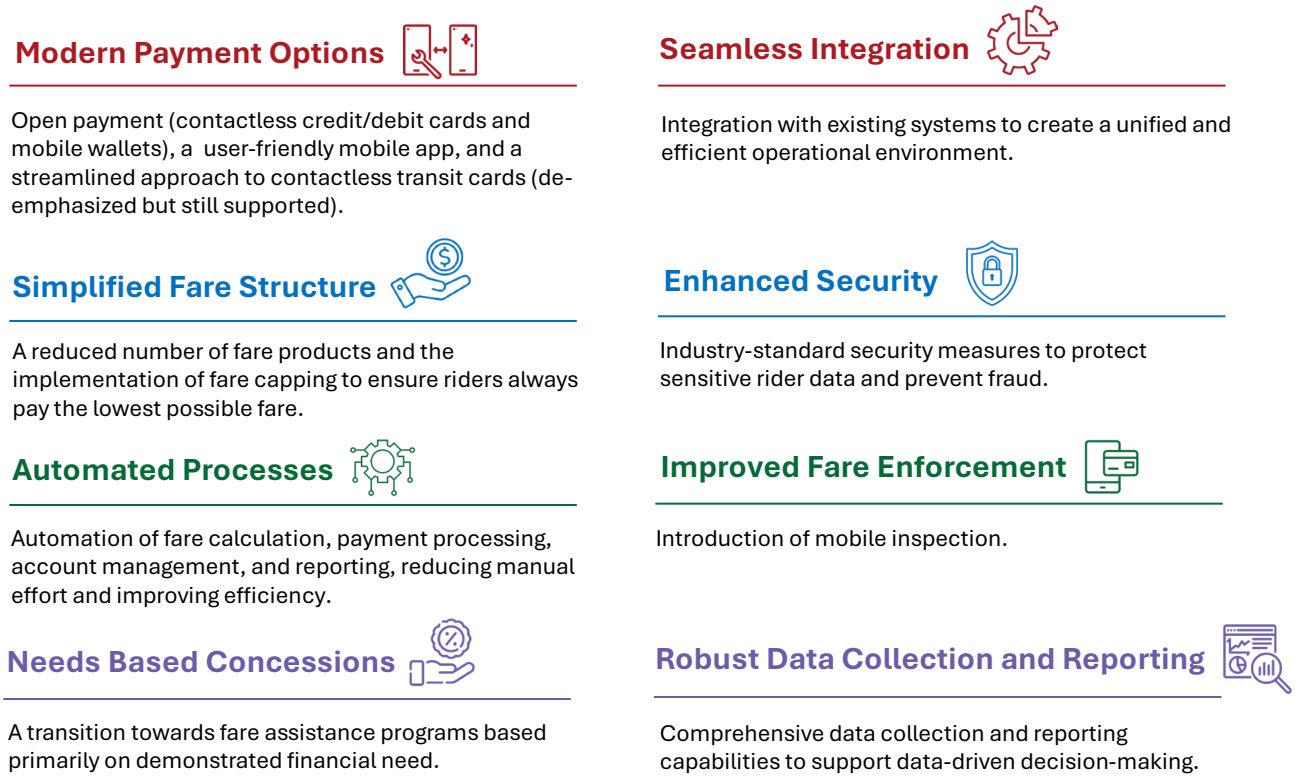


Figure 10. Key Features of the Proposed System

The recommended fare policy changes, aligned with the new system's capabilities, will further enhance the rider experience, promote equity, and improve operational efficiency. These changes include simplifying the fare structure, transitioning to needs-based concessions, improving fare payment compliance and supporting economic development through transit.

The benefits of this transformation are substantial:

Improved Customer Satisfaction: A more convenient, reliable, and user-friendly fare system will enhance the overall rider experience and increase customer satisfaction.

Increased Operational Efficiency: Automation, streamlined processes, and reduced reliance on manual tasks will free up staff time and resources.

Opportunities to Increase Revenue: Reduced fare evasion and potentially increased ridership (due to improved convenience) may enhance revenue generation.

Data-Driven Decision-Making: Comprehensive data and reporting will empower Winnipeg Transit to make informed decisions about service planning, resource allocation, and fare policy adjustments.

Enhanced Equity: A focus on needs-based concession fares and accessible payment options will promote equity and ensure that transit is affordable for all.

Modernized Image: A modern, technologically advanced fare system will enhance Winnipeg Transit's image and position it as a leader in public transportation.

The Next Steps:

The next critical phase of this project is the procurement and implementation of the new fare collection system. This will involve:

Developing an Updated Fare Policy: Using the recommendations provided here to explore, refine, and develop a new fare policy.

Creating a Fare Enforcement Strategy: Legal considerations, program staffing, and procedures need to be developed to support ongoing fare enforcement.

Issuing a Expression of Interest (EOI): Gathering information from potential vendors to refine the system requirements and cost estimates.

Developing and Issuing a Request for Proposals (RFP): Soliciting detailed proposals from qualified vendors.

Vendor Evaluation and Selection: Thoroughly evaluating vendor proposals and selecting the best solution.

Contract Negotiation: Negotiating a contract with the selected vendor.

System Configuration, Refinement, and Testing: Working closely with the vendor to design, configure, and rigorously test the new system.

Phased Implementation: Implementing the system in a phased approach to minimize disruption and ensure a smooth transition.

Customer Communication and Education: Informing riders about the new system and its benefits.

Ongoing Monitoring and Evaluation: Continuously monitoring the system's performance and making adjustments as needed.

This project represents a significant investment in the future of Winnipeg Transit. The current system is unsustainable and cannot meet the evolving needs of a growing city. The proposed new system, with its modern technology, streamlined processes, and focus on customer convenience, will transform the way people pay for transit in Winnipeg, creating a more efficient, equitable, and enjoyable experience for all. It is essential that Winnipeg Transit move forward with this project expeditiously to realize these benefits and ensure the long-term success of its public transportation system. The status quo is no longer a viable option.