Bangor Area Comprehensive Transportation System

Review of Alternatives

Community Connector Fare Structure Assessment

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Prepared by:

Foursquare ITP

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Figures

Tables

Executive Summary

This report presents the findings of an impact analysis evaluating two alternative scenarios for changes to fares and fare media of the City of Bangor's Community Connector transit system. Through staff input and engagement with the technical committee of the Bangor Area Comprehensive Transportation System (BACTS), three fare policy goals emerged to guide the development of alternatives and align with Community Connector's priorities. They are:

GOAL 1	GOAL 2	GOAL 3
Increase Fare Revenue	Decrease Fare Collection Burden and Inefficiencies	Consider the Impact on Riders

Building upon these goals and peer agency and industry research, the study team developed two fare alternatives for detailed evaluation:

- **Scenario 1** introduces a mobile app for fare payment while maintaining existing fare product prices. It does not require new onboard equipment, relying instead on visual validation or rider interaction with QR codes.
- **Scenario 2** implements both a mobile app and a reloadable smart card, along with fare product price increases. This scenario also includes the installation of onboard equipment for validating QR codes and smart cards.

Both scenarios implement fare capping, ensuring riders never pay more than the equivalent of a monthly pass, and phase out paper tickets, passes, and transfer slips, reducing the burden of fare collection and supporting a modernized, streamlined fare system. Free transfers require the use of new fare media.

KEY PEER COMPARISON AND IMPACT ANALYSIS FINDINGS

- Many peer agencies have already implemented new fare collection technologies: Six out of nine peer systems reviewed currently offer mobile fare payment, and several also support smart cards, suggesting Community Connector is well-positioned to modernize its system in line with industry trends.
- The impact analysis was guided by a consistent set of assumptions related to ridership growth rates, fare elasticity impacts (e.g., ridership declines in response to fare increases), and a gradual adoption of new media, especially among frequent riders and riders using electronic payment methods today.
- Based on these assumptions, ridership is expected to temporarily dip due to policy changes, particularly the elimination of free transfers for cash riders. However, higher adoption of mobile app or smart card payments leads to greater retention of riders. While this drop varies between scenarios, a scenario with smart cards demonstrates stronger long-term recovery.
- Both scenarios show potential for increased revenue, with Scenario 2 outperforming Scenario 1 due to higher fare levels and broader adoption of payment technology. Notably, higher adoption leads to lower cash usage and fewer riders lost to fare structure changes, reinforcing the importance of robust communication and outreach to drive adoption.
- Fare collection operating costs vary by scenario and represent between 6 and 12 percent of the fare revenue, depending on the scenario and adoption rate assumptions.
- Ultimately, while each alternative presents tradeoffs, both scenarios position Community Connector to modernize its fare system, improve rider experience, and enhance operational efficiency. **The most critical success factor will be achieving high adoption rates through effective implementation, education, and support for riders.**

Introduction

This report provides:

- **Background information related to fare policies**, both for Community Connector (existing conditions) and practices from peer agencies.
- **Descriptions of the two proposed fare policy alternatives for the City of Bangor's Community Connector transit system**. These alternatives were developed based on the study's goals.
- **An impact analysis to inform selection of a preferred alternative.** The impact analysis provides insight into the estimated changes to ridership, fare revenue, and operating costs, and notes expected operational and staffing implications.
- **Comparison of impacts on fare policy goals**. This will serve as the basis for identifying a preferred alternative.

Fare Practices Overview

This section provides an overview of fare terminology, different fare structures, fare policies, and fare media to establish common understanding. It concludes with **Table 1**, which identifies the opportunities and limitations of different options inform the selection of the alternative fare scenarios for study.

FARE STRUCTURES

Fare structures refer to **how fares are calculated and organized**. Fare prices can be determined based on the service type, trip distance, and time. Depending on the needs of passengers and travel behavior, there are opportunities and limitations associated with each type of fare structure.

Flat Fares

A flat fare structure requires all riders to pay a set price per ride, regardless of time of day or distance traveled. Flat fares are the easiest to understand and simple to implement, and there is more predictable fare revenue. However, there are no cost savings or incentives for riders with flat fares.

Distance-Based Fares

Distance-based fares vary depending on the distance traveled. This type of fare structure is appropriate for larger systems where there is a significant variation in the potential travel distance. Distance-based fares can be more equitable, as fares are in alignment with the actual distance and cost of a trip. However, there are challenges associated with complexity. Distance-based fare structures typically require smart card technology to track the start and end points of a trip.

Time-Based Passes

Time-based passes allow unlimited rides within a set period, such as 90 minutes, a day, week, or month, like the monthly pass offered by Community Connector. Time-based passes offer riders lower per-trip costs and greater flexibility, since additional trips have no extra cost. Passes can also enhance operational efficiency by eliminating paper transfers and reducing boarding times compared to cash. However, offering multiple pass types can add complexity for riders, and if paper-based, passes require production and distribution.

FARE POLICIES

Fare policies refer to the **set of rules, programs, and principles** that determine who pays, how much they pay, and under what conditions. Fare policy shapes how fare structures are applied and how access to transit is managed, often guided by goals related to equity, affordability, ridership, and revenue.

Fare Capping

Fare capping systems set a maximum amount that a rider will pay for service within a specified time frame (daily, weekly, or monthly). Riders are charged per trip until they reach the cap, after which additional rides are free for the remainder of the period. This approach eliminates the need for riders to choose a pass in advance, offering potential cost savings and improving affordability, especially for low-income riders who may not be able to pay upfront for multi-day or monthly passes.

Implementing fare capping requires the ability to track individual fare payments over time, typically through an **account-based system**. In systems with onboard validators, riders tap their fare media (e.g., mobile app, smartcard, or contactless card) when boarding, and the validator communicates with the back-end system to log the trip and apply the appropriate fare. The system tracks accumulated fares and automatically stops charging once the rider reaches the cap. Fare capping through a mobile app without an onboard validator works by using alternative methods to confirm that a rider has boarded a vehicle and to track their trips in real-time. These methods include scanning a vehicle-specific QR code or using the riders' smartphone geolocation. This approach enables fare capping without onboard hardware, but requires reliable mobile connectivity and depends on accurate trip validation through the app.

An account-based fare system stores fare value, passes, and ride history in a central account rather than on the fare media itself. When a rider taps or scans a smartcard, mobile app, or contactless card, the system accesses their account to process the fare based on recent activity and any applicable discounts. Because all fare logic is managed on the back end, account-based systems allow for greater flexibility, enabling features like fare capping, automatic discounts, real-time balance updates, and integration across multiple platforms.

Income-Based Discount Programs

Income-based discount programs provide low-income individuals access to fares at a discounted rate. A common way to determine eligibility for these programs is through Supplemental Nutrition Assistance Program (SNAP) eligibility. When riders enroll in the program, they can receive automatic discounts on fares, increasing equity and accessibility. However, these programs may reduce overall fare revenue for systems with high proportions of low-income riders, as well as requiring additional administrative effort.

Free Transfers or Time-Based Transfers

Many transit systems offer free transfers or time-based transfers. After a rider pays their fare, they can receive a paper transfer ticket that can be used to board another bus after a certain period of time from the original fare payment. Transfers are useful in systems where riders often have to transfer from one bus to another to reach their destination. However, there are drawbacks to providing free transfers, since they can reduce overall fare revenue. For cash and ticket payments, transfers also require additional administrative effort to print and distribute paper transfers.

Fare-Free Transit

Some transit agencies opt to eliminate fare collection and allow passengers to board buses without paying a fare. The primary benefit of this structure is increasing equity and access to transit, as well as reducing administrative burden. Fare-free transit can also have benefits for operators and improve on-time performance. However, fare-free transit requires agencies to find alternative sources of funding, and can result in a reduced level of service.

Other Access Programs

Transit agencies may implement programs to provide access to specific groups of riders. Other access programs include:

- **University Agreements:** Agreements with local universities allow students to ride for free. Community Connector currently has agreements with the University of Maine, Eastern Maine Community College, and Beal University. These agreements can provide a predictable source of

revenue and may increase ridership. However, maintaining university agreements may present an additional administrative burden.

- **Student Passes:** A student pass program can offer passes at a discounted rate to students from non-partnering institutions. Student pass programs can increase access for students and function similarly to a traditional monthly pass.
- **Employer-Subsidized Passes:** Employer-subsidized pass programs allow companies to provide transit passes directly to their employees at a subsidized rate. These pass purchases can also provide a predictable source of revenue and may increase ridership.
- **Community-Based Organization Passes:** Transit agencies can also provide passes, often at discounted rates, to local community-based organizations to increase access to low-income riders.

FARE MEDIA

Fare media are the **physical or digital tools riders use to pay for transit**. Fare media serve as the interface between the rider and the fare collection system, enabling fare validation and access to transit services. The type of fare media used can influence system efficiency, accessibility, and ease of fare payment for riders.

Cash

Cash can be a simple and accessible fare payment method, especially for visitors, infrequent riders, and those without bank accounts or smartphones. It requires no advance planning or digital tools, making it an important option for unbanked and offline riders. However, widespread cash use can create inefficiencies, including slower boarding, the need to print and manage paper transfers, and increased administrative burden from handling and counting farebox revenue.

Paper Tickets and Passes

Paper tickets and passes allow riders to pre-purchase fares, often at a discounted rate compared to paying for individual rides. This allows the agency to have a more predictable fare revenue and reduces the burdens associated with cash payments. However, offering paper tickets and passes requires the agency to print and distribute them at vendor locations, and it can be inconvenient for riders to plan and purchase their fare ahead of time.

Smart Cards

Smart transit cards are contactless stored-value cards that can be used for fare payment. Smart cards are more accessible, since they do not require a bank account or smartphone to purchase and can be reloaded at vendor locations. Smart cards enable easier tracking and regulation of transfers, can be used for multiple fare types, and facilitate integration with fare capping structures. With smart cards, ridership data collection can be simplified, and the use of cards enables faster boarding compared to cash payments. However, the limitations of smart cards are primarily the associated costs. There are higher start-up costs for both riders themselves and for the agency. Smart cards require machines on buses and other technology for purchasing cards and loading fares, and the physical cards must be produced and distributed.

Mobile Ticketing

Mobile ticketing enables riders to purchase and display fares directly on their smartphones. While it requires a smartphone, internet access, and typically a bank account, it offers lower startup costs for agencies compared to physical smartcards. Mobile ticketing can often be integrated into existing apps,

allowing riders to buy and store multiple tickets in advance. It also supports faster boarding than cash payments and provides opportunities to collect valuable ridership data. However, implementation still involves vendor coordination and associated service fees.

Contactless/Open Payment

Contactless or open payments allow riders to use credit or debit cards on board the bus to pay their fare. The primary benefit of open payment is its overall ease of use, as it eliminates the need for passengers to visit a vendor location and purchase a pass. Similar to smart cards and mobile ticketing, open payment results in faster boarding times and exact fare revenues and allows for ridership data collection. There is also an opportunity to integrate fare capping with open payment systems. However, this fare medium does not serve unbanked populations. There are also higher start-up costs for new payment machines on buses, as well as additional transaction fees.

Printed QR Code Tickets

Often used in conjunction with mobile ticketing systems, a printed QR code ticketing system can offer an alternative to traditional paper tickets/transfers. With an onboard ticket machine, QR code tickets are printed when passengers pay cash for their fare. The QR code ticket can then be scanned by the machine as a transfer, which remains valid for a specified time period. QR code ticketing systems eliminate the challenges associated with traditional paper transfers, as operators no longer need to visually validate. This system allows agencies to maintain transfers for cash payers, but it requires additional technology and upfront costs to implement.

KEY CONSIDERATIONS

Table 1 summarizes key benefits and drawbacks of the different fare structure, policies, and media.

Table 1: Fare Structure, Policies, and Media Benefits and Drawbacks Summary

	TOPIC	BENEFITS	DRAWBACKS
FARE STRUCTURES	Flat Fares	■ Easy for riders to understand ■ Predictable revenue for the agency ■ Faster boarding due to consistent fare collection	■ No cost savings for frequent riders ■ May not reflect actual service cost
	Distance-Based Fares	■ Fares align with trip length and service cost ■ Perceived as fairer by short-distance riders	■ More complex for riders to understand ■ Can heavily impact low-income riders who travel longer distances
	Time-Based Passes	■ Offers cost savings for frequent riders ■ Increases flexibility by eliminating marginal cost of additional trips ■ Reduces boarding time and improves operational efficiency	■ Requires upfront planning or commitment from riders ■ Potential confusion if multiple pass options are offered

	TOPIC	BENEFITS	DRAWBACKS
FARE POLICIES	Fare Capping	■ Increases affordability for low-income and frequent riders ■ Eliminates need to choose a pass in advance ■ Encourages more frequent use of the system	■ Requires account-based system and backend infrastructure ■ Not compatible with cash payment ■ May increase reliance on mobile devices or smartcards
	Income-Based Discount Programs	■ Improves access for low-income riders by reducing costs ■ Expands access to essential trips	■ Requires eligibility verification and administrative capacity ■ May reduce fare revenue if widely adopted ■ Can create challenges with outreach and enrollment
	Free Transfers	■ Reduces total trip costs for multi-leg journeys ■ Encourages use of the full network ■ Supports seamless rider experience	■ Potential fare revenue loss ■ Paper transfers can be misused or counterfeited if not digitally managed ■ Increases reliance on backend tracking if digital
	Fare-Free Transit	■ Eliminates financial barriers to access ■ Reduces boarding time and dwell time	■ Requires sustainable alternative funding ■ May necessitate service adjustments to manage increased demand ■ Risk of overuse or misuse if not paired with demand management
	Other Access Programs	■ Expands access for key rider groups ■ Provides predictable, upfront revenue through institutional partnerships ■ Encourages habitual transit use	■ Requires coordination with external partners ■ Administrative burden for enrollment, verification, and tracking ■ May lead to uneven access if not broadly available
FARE MEDIA	Cash	■ Accessible ■ Easy to understand ■ Does not require any additional technology	■ Administrative burden to empty fareboxes and count cash ■ Less predictable fare revenue ■ Requires additional effort for operators
	Paper Tickets / Passes	■ Cost savings for riders ■ Operational efficiencies on board	■ Administrative burden of production and distribution ■ Requires riders to make decisions ahead of time and to purchase tickets and passes in person
	Smart Cards	■ Increases accessibility for riders ■ Does not require a bank account ■ Operational efficiencies on board and for administrative staff ■ Potential for ridership data collection ■ Can easily integrate with other policies	■ Requires additional technology ■ Additional upfront costs, for especially the agency and also riders

	TOPIC	BENEFITS	DRAWBACKS
FARE MEDIA	Mobile Ticketing	■ Lower upfront costs, for both the agency and riders ■ Convenient for smartphone users ■ Operational efficiencies on board and for administrative staff ■ Can easily integrate with other policies	■ Requires a smartphone and reliable internet access ■ Adds technology cost for the agency ■ Although some mobile ticketing allows cash loading via retail or kiosks, unbanked riders may still face access challenges if these options are limited or hard to use
	Contactless / Open Payment	■ Increases accessibility for riders ■ Convenience for riders, does not require any additional effort ■ Operational efficiencies on board and for administrative staff ■ Can integrate with other policies	■ Significant additional costs for the agency ■ Not accessible to unbanked individuals
	Printed QR Code Tickets	■ Ability to maintain transfers for cash payers ■ Operational efficiencies on board	■ Higher additional upfront costs

Peer Review

A comparison of fare products, prices, and technological capabilities of peer agencies provides context for the potential fare structure alternatives for Community Connector. The study team selected nine peer agencies for review using FDOT's Transit Agency Peer Comparison Tool based on their comparability to Community Connector in terms of service area populations, operating characteristics, and mode types.

Table 2 provides an overview of agency information, fare products offered, and the fare media and technological capabilities of each agency. A few interesting findings emerged from this review:

- Out of the nine peer agencies, six use a mobile app for fare payment.
- Only three agencies collect paper fare media.
- The High Point Transit System and AMTRAN have integrated smart cards for fare payment in addition to mobile app payment.
- None of the peer agencies offer fare capping or open payment system capabilities, which are widely viewed as the next advancements the industry is moving toward to improve access, convenience, and system integration.
- The highest per-trip base fare among the agencies is $2.00; the average is slightly under $1.50.

Table 2: Peer Summary Table

PEER AGENCY (STATE)	AGENCY INFO			FARE PRODUCTS		MEDIA/CAPABILITIES			
	FY23 VOMS	FY23 RIDERSHIP	FY23 FAREBOX RECOVERY RATIO	FARE UNIT PRICE	MONTHLY PASS PRICE	MOBILE APP	SMART CARD	FARE CAPPING	OPEN PAYMENT
Community Connector (ME)	18	416,372	11.0%	$1.50	$45.00	X	X	X	X
Manchester Transit Authority (NH)	21	302,854	7.4%	$2.00	$60.00	✓	X	X	X
Washington County Transit (MD)	12	332,051	8.6%	$1.25	$50.00	X	X	X	X
Ohio Valley Regional Transportation Authority (WV/OH)	17	311,560	6.7%	$1.30	$42.00	✓	X	X	X
High Point Transit System (NC)	18	513,225	6.6%	$1.25	$40.00	✓	✓	X	X
Shoreline Metro (WI)	20	560,155	12.3%	$1.75	$48.00	✓	X	X	X
Johnson City Transit System (TN)	25	333,076	9.5%	$1.00	$25.00	X	X	X	X
AMTRAN (PA)	21	444,667	12.0%	$1.75	$50.00	✓	✓	X	X
Easy Rider (WV/OH)	13	267,602	4.3%	$0.75	$25.00	X	X	X	X
Lewiston-Auburn Transit Committee (ME)	9	270,483	7.1%	$1.50	$36.00	✓	X	X	X

Mobile App Transition

Manchester Transit, Shoreline Metro, the Lewiston-Auburn Transit Committee, and AMTRAN have all implemented mobile fare payment apps, with varied implementation experiences. Manchester Transit's system allows customers to purchase a QR code mobile ticket through a partnership with Chase Bank; however, the agency has encountered ongoing technical difficulties related to QR code validation and system integration. In contrast, Shoreline Metro and the Lewiston-Auburn Transit Committee adopted mobile ticketing platforms that do not require on-board farebox integration, making implementation relatively straightforward. Both agencies reported smooth rollouts but are now considering the addition of onboard validators to improve fare enforcement and streamline boarding.

AMTRAN participates in NEORide, a multi-state council of transit agencies formed to collaboratively pursue funding opportunities, share best practices, and implement rider-focused technology enhancements. Through NEORide, AMTRAN adopted the EZfare mobile ticketing platform, which allows riders to pay fares across multiple participating transit systems using a single app. This partnership enables smaller agencies to benefit from shared procurement and technological resources that would be cost-prohibitive to implement independently.

Mobile App Costs

Responses from the peer agencies on mobile app costs highlight the variation in costs depending on the mobile ticketing solution. For example, the vendor for the Lewiston-Auburn Transit Committee is Token Transit, which charges 10 percent per transaction. However, with the convenience of the new payment method, the agency is experiencing an increase in ridership, which is resulting in a rise in revenue despite higher administrative costs.

Development of Scenario Alternatives

Goals and Scenario Alternatives

Through staff and technical committee workshops and interviews, the study team has identified three goals for the Community Connector's fare policy. These goals directly inform the selection of scenarios for further analysis.

GOAL 1	GOAL 2	GOAL 3
Increase Fare Revenue	**Decrease Fare Collection Burden and Inefficiencies**	**Consider the Impact on Riders**

Focusing on the goals to increase revenue, decrease fare collection burden and inefficiencies, and consider impacts to riders, the team developed two main alternative scenarios. Each scenario was informed by the literature review of different fare structure types and the peer review to understand how other agencies have implemented similar policies. Staff input helped to refine the alternatives and develop two feasible scenarios for Community Connector. Scenarios and goals are described in the **Scenario Characteristics and Goals Summary**.

Description of Fare Scenarios

Each fare scenario includes elements related to fare pricing, fare products, and fare collection technology. Both scenarios 1 and 2 aim to address project goals while also standardizing fare options to reduce administrative burden, exploring opportunities to modernize technology, and adapting to recent trends in college pass programs.

	SCENARIO 1	SCENARIO 2
FARES AND REVENUE	■ Maintain the Base Fare of $1.50 and Paratransit Fare of $3.00	■ Increase the Base Fare of $2.00 and Paratransit Fare of $4.00
	■ Eliminate Free Transfers for Cash Payers	■ Eliminate Free Transfers for Cash Payers
	■ Update College Contracts Cost Methodology *(IDs of Participating Institutions Still Valid for Boarding)*	■ Update College Contracts Cost Methodology *(IDs of Participating Institutions Still Valid for Boarding)*
EQUIPMENT AND COST	■ Implement Mobile Payment App	■ Implement Mobile Payment App and Smart Card with Mobile Option
	■ Implement Fare Capping Through Mobile Payment App	■ Implement Fare Capping for Mobile Payment and Smart Card Users
	■ Phase Out Paper Tickets, Passes, and Transfer Tickets	■ Phase Out Paper Tickets, Passes, and Transfer Tickets
	■ Maintain Existing Fareboxes for Cash Payments *(No Change Provided)*	■ Maintain Existing Fareboxes and Implement Equipment for Validating QR Codes and Smart Cards

	SCENARIO 1	SCENARIO 2
HIGH-LEVEL IMPACTS	■ Slightly increases revenue through the elimination of free paper transfers	■ Increases revenue through a fare increase and the elimination of free paper transfers
	■ Reduces the administrative burden associated with paper media distribution	■ Reduces the administrative burden associated with paper media distribution
	■ Fare capping increases access to reduced fares	■ Fare capping increases access to reduced fares
		■ Providing a smart card option reduces the impacts on cash-reliant riders

Scenario 1 maintains current fare prices while exploring targeted changes to improve efficiency and modernize the fare system. The implementation of a **mobile payment app** with **fare capping** would replace paper-based passes and tickets and eliminate free transfers for cash-paying riders (**Table 3**). Scenario 1 requires technology system improvements to support mobile ticketing and fare capping, but no onboard fare validation equipment. The fare structure would remain a flat fare for cash payment, but the single fare via mobile app would be a 90-minute pass that would allow riders to board any vehicles in that time period.

Scenario 2 incorporates price adjustments and expanded fare technology. This scenario would increase the base fare and other fare products proportionally and eliminate free transfers for cash-paying riders (**Table 3**). In addition to a mobile payment app, Scenario 2 introduces a **physical smart card** as another fare media option, replacing paper passes entirely and offering more flexibility for unbanked or smartphone-limited riders. Scenario 2 requires greater upfront investment due to the need for smart card infrastructure and onboard validators for smart cards and the mobile app. In this scenario, cash and smart card paying riders would pay a flat fare, while mobile app users would purchase a 90-minute pass as a “single fare.”

Key equipment and technology considerations include:

- **Account-Based System (ABT)**: Required for mobile ticketing and fare capping in both scenarios. ABT relies on a centralized back office where fare balances and trip history are stored and updated in real time.
- **Fare Capping**: Enables monthly fare limits when payment history is tracked digitally. Fare capping is not compatible with cash or current paper passes.
- **Mobile Ticketing App**: Allows passengers to purchase and store fare products on their smartphones. Validation would be done visually by operators in Scenario 1 and rely on onboard technologies (e.g., barcode scanners, NFC validators) in Scenario 2, requiring additional capital investment.
- **Smart Cards with Fare Capping**: While smart cards can operate offline with some technology, fare capping requires an account-based system with real-time communication to track and calculate fare accumulation by rider.
- **Validator Equipment**: Onboard validator units are required for smart card use in Scenario 2.

Table 3: Fare Product Prices

FARE PRODUCT	SCENARIO 1 PRICES	SCENARIO 2 PRICES
Single Ride	$1.50	$2.00
Half Fare	$0.75	$1.00
ADA Paratransit	$3.00	$4.00
Fare Capping (Monthly)	$45.00	$60.00
Transfer	Free for Mobile App users, cash-paying riders pay each time they board.	Free for Mobile App or Smart Card payments
Student Monthly Pass	$20.00, with Mobile App.	$25.00, with Mobile App or Smart Card.
Student ID (University of Maine, EMCC, or Beal)	Free	Free

Cost Considerations

The costs of a fare collection system can generally be categorized into initial capital costs and recurring operating and maintenance expenses. Initial capital costs typically include system setup and integration, mobile app customization or branding, fare structure configuration, and staff training, which also requires operating resources (staff and administration time) as well. For Scenario 2, which includes smart card functionality, capital costs also include hardware such as onboard validators and card production. As some vendors can offer reduced setup fees to smaller agencies or those participating in pilot programs, setup fees can range significantly, even in scenarios without capital costs for card issuance and onboard validators. Additional app customization and training can also increase setup costs.

Recurring costs typically include software-as-a-service (SaaS) fees (system hosting, maintenance, and ongoing vendor support) and transaction processing fees. Contracts typically define a yearly ramp-up of around 2 or 3 percent. Transaction fees are calculated as a fixed fee, a percentage of the fare cost, or a combination of both, as outlined in **Table 4**.

Table 4: Cost Estimates

		SCENARIO 1	SCENARIO 2
Initial Capital Costs	Setup Fees	$2,500-$30,000	$100,000-$170-000
Recurring Operating and Maintenance Costs	Recurring Fees	$2,500-$12,500 / year	$30,000-$32,000 / year
	Transaction Fees	$0.06-$0.15 + 0.07%-7% of the fare / rider Assuming 500,000 annual boardings, transaction fees would total $80,000-$82,500 / year	Up to 10% of the fare / rider Assuming 500,000 annual boardings, transaction fees would total $100,000 / year

Impact Analysis

Each fare scenario is projected to result in different impacts on ridership, revenue, operating costs, and the Community Connector's operations and staffing needs. To estimate the likely outcomes of each scenario, the project team conducted an impact analysis based on a consistent set of assumptions. These assumptions reflect industry standards, regional and Community Connector-specific trends, and insights provided by agency staff.

ASSUMPTIONS

The following assumptions were used to model the projected effects of each fare alternative:

- **Ridership Projections:** This analysis focuses exclusively on **paying ridership**, excluding both student riders using university ID cards and riders traveling under free fare programs. It is assumed that university-affiliated riders will continue to board using their ID cards, with no change in fare behavior across scenarios
- **Baseline Ridership Growth**: Population and employment levels in the Bangor region are expected to remain relatively stable over the next decade, with modest employment gains. Based on this outlook, the analysis assumes a baseline annual ridership growth of **0.5 percent**, independent of any fare changes. This growth creflects increases in travel demand due to demographic and economic trends.
- **College Student Ridership Growth**: Ridership among college students has rebounded strongly following the COVID-19 pandemic. Between FY2021 and FY2024, student ridership across partner colleges and universities grew by an average of 25 percent each year. Ridership from the University of Maine (UMaine) increased even more dramatically, averaging 50 percent year-over-year and surpassing pre-pandemic levels by FY2021. For this analysis, a more conservative but still significant **5 percent annual growth rate** is assumed for student ridership, recognizing recent trends while anticipating some stabilization.
- **Ridership Elasticity**: Elasticity refers to how sensitive riders are to fare changes. The model assumes a standard fare elasticity of -0.2. As a result, in **Scenario 1**, the model assumes that 20 percent of the **cash-paying riders who transfer** and do not adopt the mobile app would leave the system. In **Scenario 2**, 20 percent of the **cash-paying riders who transfer** and do not adopt mobile app or smart card payment methods are assumed to leave the system, as well as 6 percent of the ridership due to theincrease in the base fare price.
- **Changes in Service Levels**: Due to staffing limitations, Community Connector currently does not offer Saturday service or extended evening service. For the purposes of this analysis, it is assumed that **Saturday service will resume in FY2026**, returning to FY2024 levels of revenue miles and hours. And, to reflect potential expansion into evening hours, as suggested by Community Connector staff, revenue miles and hours are assumed to increase by **15 percent in FY2028**.
- **Overall Operating Costs**: Operating costs are assumed to rise by **5 percent annually**, reflecting rising labor expenses, which have been particularly volatile in recent years, and general cost increases.
- **Fare System Operating Costs**: Fare system operating costs are assumed to rise by **3 percent annually,** according to input from vendor engagement.

FARE PRODUCT AND MEDIA ADOPTION ASSUMPTIONS

Assumptions about the adoption of new fare media and products were guided by a combination of industry trends and rider behavior patterns informed by the rider survey conducted as part of this fare structure analysis. A key assumption in the impact analysis is that adoption will be gradual, with most growth occurring in the first three years following implementation, after which adoption rates are expected to plateau or become irrelevant. Rider survey findings helped define likely user preferences, with riders who currently pay with debit/credit cards or Apple Pay assumed to be more likely to adopt mobile-based or smart card fare media. Frequency of use was another important factor: riders who use the system four or more times per week are expected to adopt the new payment methods at higher rates, particularly given the cost savings offered through fare capping. Additionally, smart card adoption is projected to be higher than mobile app adoption because smart cards offer greater accessibility for unbanked riders and those without smartphones and can be easily reloaded with cash at the transit center, removing key barriers to adoption faced by many current cash users.

To account for uncertainty in predicting rider behavior, two sets of assumptions, low-end and high-end estimates, were developed for each fare scenario. These ranges reflect different levels of rider responsiveness to new fare payment options, depending largely on the effectiveness of public communication, ease of use, and outreach efforts during implementation. **The actual rates of adoption of a new mobile app, or app and smart card, between the low end and the high end could vary significantly depending on the effectiveness of communication efforts regarding the new fare payment options.**

Table 5 presents the estimated adoption rates for mobile fare payment under **Scenario 1**, which introduces a mobile app without smart card integration. The adoption assumptions are broken down by rider type and current fare media. Under both the low-end and high-end estimates, a portion of riders from each group is assumed to shift to mobile app use, while the remainder defaults to paying with cash if they do not adopt the new technology. For example, if 60 percent of infrequent riders who currently use five-ride tickets adopt the app, the remaining 40 percent are assumed to revert to cash payment. Higher mobile app adoption rates in the high-end scenario reflect successful outreach and a broader appeal of features like fare capping and the elimination of paper transfers.

Table 5: Three-Year Payment Adoption Rates by Rider, Scenario 1

EXISTING PAYMENT METHOD AND PRODUCT	NEW PAYMENT METHOD AND PRODUCT	LOW-END ESTIMATE			HIGH-END ESTIMATE		
		Year 1	*Year 2*	*Year 3*	*Year 1*	*Year 2*	*Year 3*
Cash (F)	Mobile App, Fare Capping	20%	30%	40%	40%	55%	70%
Cash (I)	Mobile App, Single Fare	10%	20%	30%	30%	40%	40%
Half-Cash (F)	Mobile App, Fare Capping	20%	30%	40%	30%	50%	70%
Half-Cash (I)	Mobile App, Half Fare	5%	10%	15%	20%	30%	40%
Monthly Pass (F, paid via cash/check)	Mobile App, Fare Capping	30%	45%	60%	60%	70%	80%
Monthly Pass (F, paid via card/Apple Pay)	Mobile App, Fare Capping	80%	90%	95%	90%	100%	100%
Five-Ride Ticket (F)	Mobile App, Fare Capping	70%	80%	90%	90%	92%	95%
Five-Ride Ticket (I)	Mobile App, Single Fare	60%	70%	80%	80%	90%	92%
Transfers (F)	Mobile App, Fare Capping	20%	30%	40%	40%	55%	70%
Transfers (I)	Mobile App, Single Fare	10%	20%	30%	30%	40%	50%

I = Infrequent riders (3 or fewer average trips per week)
F = Frequent Riders (4 or more average trips per week)

Table 6 outlines adoption rates under Scenario 2, which introduces both a mobile app and a reloadable smart card. The logic for estimating adoption is similar to that used in Scenario 1, but with an additional pathway for riders to shift to smart card use, especially for those who are unbanked or do not own smartphones. Smart cards can be reloaded with cash at the transit center, lowering the barrier to adoption for riders who prefer or rely on cash-based transactions. Scenario 2 assumptions anticipate that this added flexibility will reduce the share of riders defaulting to cash and expand the reach of new payment technologies across a broader segment of the rider base.

Table 6: Three-Year Payment Adoption Rates by Rider, Scenario 2

EXISTING PAYMENT METHOD AND PRODUCT	NEW PAYMENT METHOD AND PRODUCT	LOW-END ESTIMATE			HIGH-END ESTIMATE		
		Year 1	*Year 2*	*Year 3*	*Year 1*	*Year 2*	*Year 3*
Cash (F)	Mobile App, Fare Capping	5%	10%	15%	10%	20%	25%
Cash (I)	Mobile App, Single Fare	10%	15%	20%	15%	20%	25%
Cash (F)	Smart Card, Fare Capping	20%	30%	40%	30%	40%	60%
Cash (I)	Smart Card, Single Fare	30%	40%	50%	40%	50%	60%
Half-Cash (F)	Mobile App, Fare Capping	5%	10%	15%	10%	15%	20%
Half-Cash (I)	Mobile App, Half Fare	2%	5%	7%	5%	10%	15%
Half-Cash (F)	Smart Card, Fare Capping	20%	30%	40%	30%	40%	60%
Half-Cash (I)	Smart Card, Half Fare	30%	40%	50%	40%	50%	60%
Monthly Pass (F, paid via cash/check)	Mobile App, Fare Capping	10%	15%	20%	10%	15%	20%
Monthly Pass (F, paid via card/Apple Pay)	Mobile App, Fare Capping	20%	25%	25%	25%	30%	30%
Monthly Pass (F, paid via cash/check)	Smart Card, Fare Capping	30%	40%	50%	40%	50%	60%
Monthly Pass (F, paid via card/Apple Pay)	Smart Card, Fare Capping	60%	65%	70%	65%	70%	70%
Five-Ride Ticket (I)	Mobile App, Single Fare	10%	15%	20%	10%	15%	20%
Five-Ride Ticket (F)	Mobile App, Fare Capping	20%	25%	25%	25%	30%	30%
Five-Ride Ticket (I)	Smart Card, Single Fare	20%	30%	40%	40%	50%	60%
Five-Ride Ticket (F)	Smart Card, Fare Capping	60%	65%	70%	65%	70%	70%
Transfers (F)	Mobile App, Fare Capping	10%	15%	20%	15%	20%	25%
Transfers (I)	Mobile App, Single Fare	5%	10%	15%	10%	20%	25%
Transfers (F)	Smart Card, Fare Capping	30%	40%	50%	40%	50%	60%
Transfers (I)	Smart Card, Single Fare	20%	30%	40%	35%	40%	45%

I = Infrequent riders (3 or fewer average trips per week)
F = Frequent Riders (4 or more average trips per week)

RIDERSHIP IMPACT

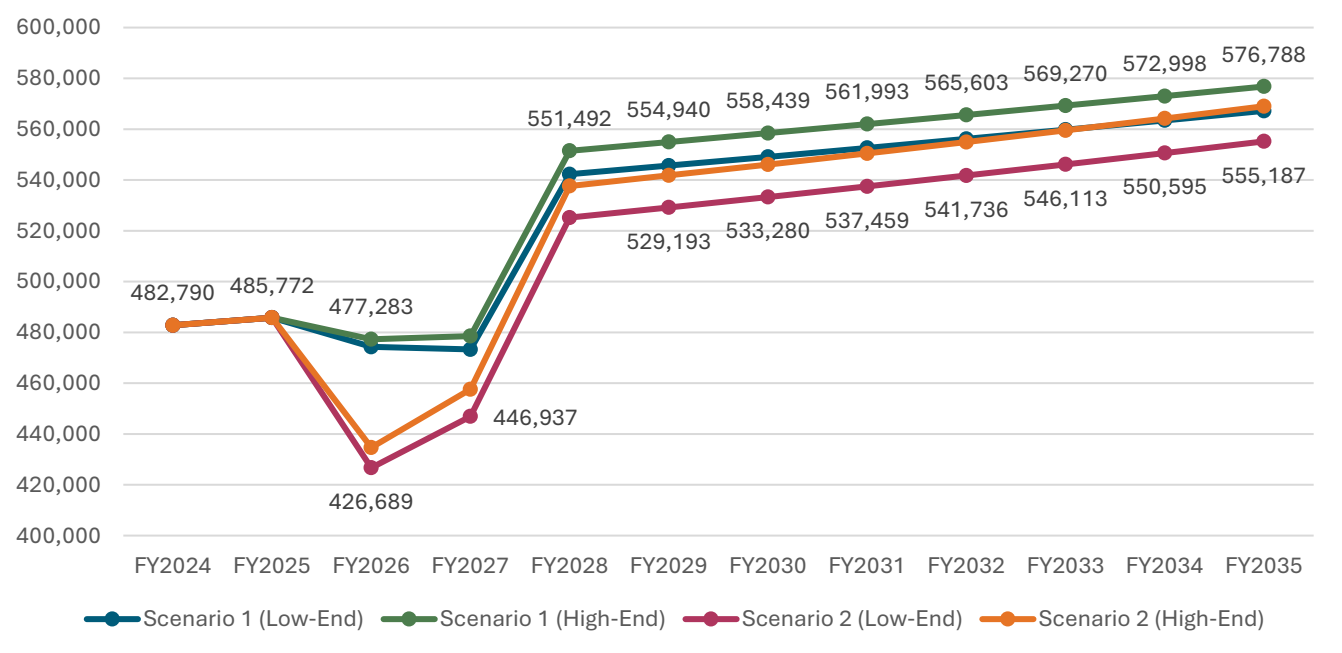
Based on the defined assumptions, the study team projected ridership for each year by fare type for each scenario according to the low-end and high-end technology adoption estimates. The goal of projecting the ridership is to inform the projected revenue. In FY2026, mobile app payment (Scenarios 1 and 2) and smart card (Scenario 2) are introduced, and the number of riders using these payment modes is anticipated to grow over the years. With the elimination of free transfers for cash and five-ride ticket riders, the share of riders paying with cash initially increases and then stabilizes after a few years. Ridership elasticity factors also impact the number of riders, with the increase of the fare cost, either for riders paying with cash and transferring, or in Scenario 2. For this reason, a higher adoption of the new fare media also means retaining more riders in the system. Ridership projections for each scenario for low- and high-end technology adoption are detailed in the **Appendix**.

Figure 1 presents projected ridership trends for each fare scenario and new fare technology adoption rate. The projections begin with observed ridership in FY2024 and assume that FY2024 service levels remain unchanged through FY2027. As a result, ridership in FY2025 shows a modest increase, continuing the post-pandemic recovery trend seen in recent years.

A decline in ridership is projected in FY2026 with the implementation of new fare technology and associated fare policy changes. These are associated with the elimination of free transfers for cash-paying riders in both scenarios and fare increases in Scenario 2. Among the scenarios, Scenario 1 with high-end technology adoption sees the smallest drop in ridership (less than 2%), while Scenario 2 with low-end adoption experiences the largest decline (approximately 12%).

However, ridership in Scenario 2 is projected to recover more quickly, due in part to higher estimated adoption of smart cards, which are more accessible to a wider range of riders and may encourage broader system use. In FY2028, assumptions in service levels are expected to boost ridership across all scenarios, reducing the differences between them over time.

Figure 1: Ridership Projections by Scenario and Adoption Rate



REVENUE IMPACT

Scenario 1

In Scenario 1, the mobile app payment option will be implemented in FY2026, and the Five-Ride Ticket and Monthly Pass will be phased out in the same year. **Table 7** illustrates the estimated impacts on revenue by fare type for each year, based on assumptions for ridership changes and service increases, as well as the more conservative defined assumptions for mobile app adoption rates. Meanwhile, **Table 8** illustrates the estimates based on the high-end estimates for mobile app adoption rates. In both cases, fare revenue is expected to increase initially, with a considerable share of riders switching to cash, which is assumed to decrease over time. Revenue increases again in FY2028, as a result of assumed additional services, and continues with a steady, modest growth following projected ridership growth. In a high-end adoption rate, fare revenue is projected to be higher because fewer people would pay with cash, meaning fewer people would leave the system for having to pay two fares on journeys that would require a transfer.

Table 7: Estimated Annual Revenue Impact, Scenario 1 (Low-End Technology Adoption Estimate)

FARE TYPE	METHOD	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Single Ride	Cash	$107,690	$108,228	$327,288	$255,514	$223,159	$224,274	$225,396	$226,523	$227,655	$228,794	$229,938	$231,087
Single Ride	Mobile App			$46,833	$64,575	$94,806	$95,280	$95,756	$96,235	$96,716	$97,199	$97,685	$98,174
Paratransit	Cash	$37,878	$39,772	$41,760	$43,849	$46,041	$48,343	$50,760	$53,298	$55,963	$58,761	$61,699	$64,784
Half Fare	Cash	$46,992	$47,227	$41,420	$38,089	$39,906	$40,106	$40,307	$40,508	$40,711	$40,914	$41,119	$41,324
Half Fare	Mobile App			$1,205	$2,422	$4,196	$4,217	$4,238	$4,260	$4,281	$4,302	$4,324	$4,345
Five Ride Ticket	-	$119,993	$120,593										
Monthly Pass	-	$243,349	$244,566										
Student Pass	Mobile App	$422	$424	$421	$423	$489	$491	$494	$496	$499	$501	$504	$506
Fare Capping	Mobile App			$220,985	$271,996	$361,567	$363,375	$365,192	$367,018	$368,853	$370,697	$372,550	$ 374,413
Fare Capping (Half Fare)	Mobile App			$4,631	$6,981	$10,751	$10,805	$10,859	$10,914	$10,968	$11,023	$11,078	$11,133
TOTAL FARE REVENUE		**$556,324**	**$560,810**	**$684,544**	**$683,849**	**$780,915**	**$786,891**	**$793,001**	**$799,250**	**$805,645**	**$812,192**	**$818,897**	**$825,768**

Table 8: Estimated Annual Revenue Impact, Scenario 1 (High-End Technology Adoption Estimate)

FARE TYPE	METHOD	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Single Ride	Cash	$107,690	$108,228	$209,754	$154,593	$138,051	$138,741	$139,435	$140,132	$140,833	$141,537	$142,245	$142,956
Single Ride	Mobile App			$126,564	$149,817	$197,414	$198,401	$199,393	$200,390	$201,392	$202,399	$203,411	$204,428
Paratransit	Cash	$37,878	$39,772	$41,760	$43,849	$46,041	$48,343	$50,760	$53,298	$55,963	$58,761	$61,699	$64,784
Half Fare	Cash	$46,992	$47,227	$35,490	$31,013	$30,444	$30,596	$30,749	$30,903	$31,058	$31,213	$31,369	$31,526
Half Fare	Mobile App			$4,820	$4,844	$5,595	$5,623	$5,651	$5,679	$5,708	$5,736	$5,765	$5,794
Five Ride Ticket	-	$119,993	$120,593										
Monthly Pass	-	$243,349	$244,566										
Student Pass	Mobile App	$422	$424	$425	$427	$493	$495	$498	$500	$503	$505	$508	$510
Fare Capping	Mobile App			$279,769	$315,040	$380,136	$382,036	$383,946	$385,866	$387,795	$389,734	$391,683	$393,642
Fare Capping (Half Fare)	Mobile App			$7,005	$11,734	$18,973	$19,068	$19,163	$19,259	$19,355	$19,452	$19,549	$19,647
TOTAL FARE REVENUE		**$556,324**	**$560,810**	**$691,667**	**$694,805**	**$798,635**	**$804,700**	**$810,899**	**$817,238**	**$823,722**	**$830,359**	**$837,155**	**$844,117**

Scenario 2

In Scenario 2, in addition to the mobile app payment option, smart cards are also implemented, following the same timeline as Scenario 1. Following the same service increase assumptions, but with a higher fare across fare products, the fare revenue growth in Scenario 2 follows the same pattern as Scenario 1 while markedly higher. Despite lower ridership levels due to the fare price increases, the higher adoption of new fare payment media (partially driven by higher smart card adoption rates) and new fare product prices result in fare revenue increases in Scenario 2 between 20 and 30 percent higher than in Scenario 1 (**Table 9**).

Table 9: Estimated Annual Revenue Impact, Scenario 2 (Low-End Technology Adoption Estimate)

FARE TYPE	METHOD	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Single Ride (I)	Cash	$107,690	$108,228	$314,005	$226,663	$177,202	$178,088	$178,978	$179,873	$180,772	$181,676	$182,585	$183,497
Single Ride (I)	Mobile App			$11,910	$20,615	$33,795	$33,964	$34,133	$34,304	$34,476	$34,648	$34,821	$34,995
Single Ride (I)	Smart Card			$43,667	$65,829	$101,376	$101,883	$102,392	$102,904	$103,419	$103,936	$104,455	$104,978
Paratransit	Cash	$37,878	$39,772	$55,681	$58,465	$61,388	$64,457	$67,680	$71,064	$74,617	$78,348	$82,266	$86,379
Half Fare (I)	Cash	$46,992	$47,227	$42,425	$34,316	$30,374	$30,526	$30,679	$30,832	$30,986	$31,141	$31,297	$31,453
Half Fare (I)	Mobile App			$604	$1,518	$2,454	$2,467	$2,479	$2,491	$2,504	$2,516	$2,529	$2,542
Half Fare (I)	Smart Card			$6,041	$9,107	$14,025	$14,095	$14,166	$14,237	$14,308	$14,379	$14,451	$14,523
Five Ride Ticket		$119,993	$120,593										
Monthly Pass		$243,349	$244,566										
Student Pass (F)		$422	$424	$495	$590	$686	$694	$703	$712	$722	$731	$741	$752
Fare Capping	Mobile App			$83,499	$132,486	$172,458	$174,584	$176,784	$179,060	$181,418	$183,861	$186,393	$189,018
Fare Capping (Half Fare)	Mobile App			$1,451	$3,463	$6,036	$6,110	$6,187	$6,267	$6,349	$6,435	$6,523	$6,615
Fare Capping	Smart Card			$250,497	$292,840	$385,689	$387,618	$389,556	$391,504	$393,461	$395,429	$397,406	$399,393
Fare Capping (Half Fare)	Smart Card			$8,707	$11,667	$16,844	$16,928	$17,013	$17,098	$17,183	$17,269	$17,356	$17,442
TOTAL FARE REVENUE		**$556,324**	**$560,810**	**$818,982**	**$857,557**	**$1,002,327**	**$1,011,414**	**$1,020,750**	**$1,030,346**	**$1,040,215**	**$1,050,370**	**$1,060,823**	**$1,071,588**

Table 10 summarizes fare revenue projections for Scenario 2, considering a higher technology adoption rate. Similar to Scenario 1, fare revenue increases are slightly higher, due to fewer riders paying with cash and experiencing higher costs on journeys that would require a transfer

Table 10: Estimated Annual Revenue Impact, Scenario 2 (High-End Technology Adoption Estimate)

FARE TYPE	METHOD	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Single Ride (I)	Cash	$107,690	$108,228	$230,300	$138,150	$81,855	$82,265	$82,676	$83,089	$83,505	$83,922	$84,342	$84,764
Single Ride (I)	Mobile App			$17,204	$31,254	$46,084	$46,314	$46,546	$46,778	$47,012	$47,247	$47,484	$47,721
Single Ride (I)	Smart Card			$74,433	$94,421	$144,002	$144,722	$145,446	$146,173	$146,904	$147,638	$148,377	$149,119
Paratransit	Cash	$37,878	$39,772	$55,681	$58,465	$61,388	$64,457	$67,680	$71,064	$74,617	$78,348	$82,266	$86,379
Half Fare (I)	Cash	$46,992	$47,227	$34,145	$25,387	$15,503	$15,581	$15,659	$15,737	$15,816	$15,895	$15,974	$16,054
Half Fare (I)	Mobile App			$1,510	$3,036	$5,259	$5,286	$5,312	$5,339	$5,365	$5,392	$5,419	$5,446
Half Fare (I)	Smart Card			$9,062	$12,143	$21,038	$21,143	$21,249	$21,355	$21,462	$21,569	$21,677	$21,785
Five Ride Ticket		$119,993	$120,593										
Monthly Pass		$243,349	$244,566										
Student Pass (F)		$422	$424	$495	$590	$686	$694	$703	$712	$722	$731	$741	$752
Fare Capping	Mobile App			$103,896	$156,822	$200,739	$203,214	$205,774	$208,424	$211,168	$214,012	$216,959	$220,014
Fare Capping (Half Fare)	Mobile App			$2,902	$5,194	$8,048	$8,147	$8,250	$8,356	$8,466	$8,580	$8,698	$8,820
Fare Capping	Smart Card			$291,383	$333,930	$416,661	$418,744	$420,838	$422,942	$425,057	$427,182	$429,318	$431,465
Fare Capping (Half Fare)	Smart Card			$11,609	$14,583	$20,213	$20,314	$20,415	$20,517	$20,620	$20,723	$20,827	$20,931
TOTAL FARE REVENUE		**$556,324**	**$560,810**	**$832,620**	**$873,976**	**$1,021,476**	**$1,030,881**	**$1,040,547**	**$1,050,487**	**$1,060,714**	**$1,071,241**	**$1,082,081**	**$1,093,250**

OPERATING COSTS IMPACT

Modern fare collection technologies, such as mobile apps and smart cards, introduce new costs to transit operations, but also offer substantial benefits. These systems improve convenience for riders, support fare policy goals like fare capping and transfer elimination, and can help attract new riders by offering more flexible and accessible payment options. The typical cost structure for these technologies includes both recurring fees (system hosting, software maintenance, and ongoing vendor support) and transaction-based fees, which are often calculated as a percentage of each fare product use. While these costs represent a relatively small portion of total operating expenses, these fare collection solutions can have a meaningful impact on fare revenue outcomes and rider satisfaction.

Table 11 summarizes the estimated fare collection operating costs under Scenario 1, which introduces a mobile app. Costs are projected to rise significantly in the first three years, reflecting initial adoption growth, and then level off as adoption stabilizes. Under the high-end adoption scenario, transaction fees and overall costs are approximately 20 percent higher than under the low-end scenario. This mirrors the expected growth in fare revenue and indicates that as more riders shift to mobile payments, fare collection costs grow proportionally.

Table 11: Fare Collection Costs, Scenario 1

OPERATING COSTS	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Fare Collection Recurring Fees	$12,500	$12,875	$13,261	$13,659	$14,069	$14,491	$14,926	$15,373	$15,835	$16,310
Fare Collection Transaction Fees *(Low-End)*	$27,365	$35,635	$48,546	$48,789	$49,033	$49,278	$49,524	$49,772	$50,021	$50,271
Fare Collection Transaction Fees *(High-End)*	$40,088	$48,404	$61,368	$61,675	$61,984	$62,294	$62,605	$62,918	$63,233	$63,549
Total Fare Collection Costs *(Low-End)*	**$39,865**	**$48,510**	**$61,807**	**$62,448**	**$63,102**	**$63,769**	**$64,450**	**$65,145**	**$65,856**	**$66,581**
Total Fare Collection Costs *(High-End)*	**$52,588**	**$61,279**	**$74,629**	**$75,334**	**$76,053**	**$76,785**	**$77,531**	**$78,291**	**$79,068**	**$79,859**

Table 12 presents fare collection costs for Scenario 2, which includes both a mobile app and a smart card. The addition of a smart card increases both recurring and transaction costs, driven by the broader appeal and higher overall adoption rates. However, the impact of increased adoption is proportionally smaller in Scenario 2 compared to Scenario 1. Overall, Scenario 2's fare collection costs are between 60 and 80 percent higher than Scenario 1, reflecting both the expanded infrastructure and broader usage of the system.

Table 12: Fare Collection Costs, Scenario 2

OPERATING COSTS	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Fare Collection Recurring Fees	$32,000	$32,960	$33,949	$34,967	$36,016	$37,097	$38,210	$39,356	$40,537	$41,753
Fare Collection Transaction Fees *(Low-End)*	$40,638	$55,365	$75,466	$75,978	$76,499	$77,030	$77,571	$78,123	$78,685	$79,259
Fare Collection Transaction Fees *(High-End)*	$51,200	$67,093	$88,791	$89,392	$90,004	$90,628	$91,264	$91,911	$92,572	$93,246
Total Fare Collection Costs *(Low-End)*	**$72,638**	**$88,325**	**$109,415**	**$110,945**	**$112,515**	**$114,127**	**$115,781**	**$117,479**	**$119,222**	**$121,012**
Total Fare Collection Costs *(High-End)*	**$83,200**	**$100,053**	**$122,740**	**$124,359**	**$126,020**	**$127,725**	**$129,474**	**$131,267**	**$133,109**	**$134,999**

Table 13 compares fare revenue and fare collection costs for each scenario and adoption rate. Since fare collection costs are partially a result of the number of transactions, Scenario 1, low-end adoption, represents the smallest cost by fare revenue (close to 6 percent), and Scenario 2, high-end adoption, represents a higher cost by revenue (10 percent).

Table 13: Fare Revenue and Fare Collection Costs

			FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
SCENARIO 1	*Low-End*	Fare Revenue	$684,544	$683,849	$780,915	$786,891	$793,001	$799,250	$805,645	$812,192	$818,897	$825,768
		Fare Collection Cost	$39,865	$48,510	$61,807	$62,448	$63,102	$63,769	$64,450	$65,145	$65,856	$66,581
		(%)	*5.8%*	*7.1%*	*7.9%*	*7.9%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.0%*	*8.1%*
	High-End	Fare Revenue	$691,667	$694,805	$798,635	$804,700	$810,899	$817,238	$823,722	$830,359	$837,155	$844,117
		Fare Collection Cost	$52,588	$61,279	$74,629	$75,334	$76,053	$76,785	$77,531	$78,291	$79,068	$79,859
		(%)	*7.6%*	*8.8%*	*9.3%*	*9.4%*	*9.4%*	*9.4%*	*9.4%*	*9.4%*	*9.4%*	*9.5%*
SCENARIO 2	*Low-End*	Fare Revenue	$818,982	$857,557	$1,002,327	$1,011,414	$1,020,750	$1,030,346	$1,040,215	$1,050,370	$1,060,823	$1,071,588
		Fare Collection Cost	$72,638	$88,325	$109,415	$110,945	$112,515	$114,127	$115,781	$117,479	$119,222	$121,012
		(%)	*8.9%*	*10.3%*	*10.9%*	*11.0%*	*11.0%*	*11.1%*	*11.1%*	*11.2%*	*11.2%*	*11.3%*
	High-End	Fare Revenue	$832,620	$873,976	$1,021,476	$1,030,881	$1,040,547	$1,050,487	$1,060,714	$1,071,241	$1,082,081	$1,093,250
		Fare Collection Cost	$83,200	$100,053	$122,740	$124,359	$126,020	$127,725	$129,474	$131,267	$133,109	$134,999
		(%)	*10.0%*	*11.4%*	*12.0%*	*12.1%*	*12.1%*	*12.2%*	*12.2%*	*12.3%*	*12.3%*	*12.3%*

Figure 2 outlines the estimated impacts on farebox recovery ratios from FY2024 to FY2035. For both scenarios, the farebox recovery ratio is expected to spike in FY2026, in the first year of implementation, primarily due to the expected initial increase in cash payments replacing paper-based passes and tickets. However, as the rate of adoption of new payment methods increases over time, along with the expected rise in operating costs in FY2028 due to increased service levels, the farebox recovery ratio is expected to stabilize. Overall, Scenario 2 is expected to yield a higher farebox recovery ratio over time, despite the associated increases in operating costs.

Figure 2: Farebox Recovery Ratio

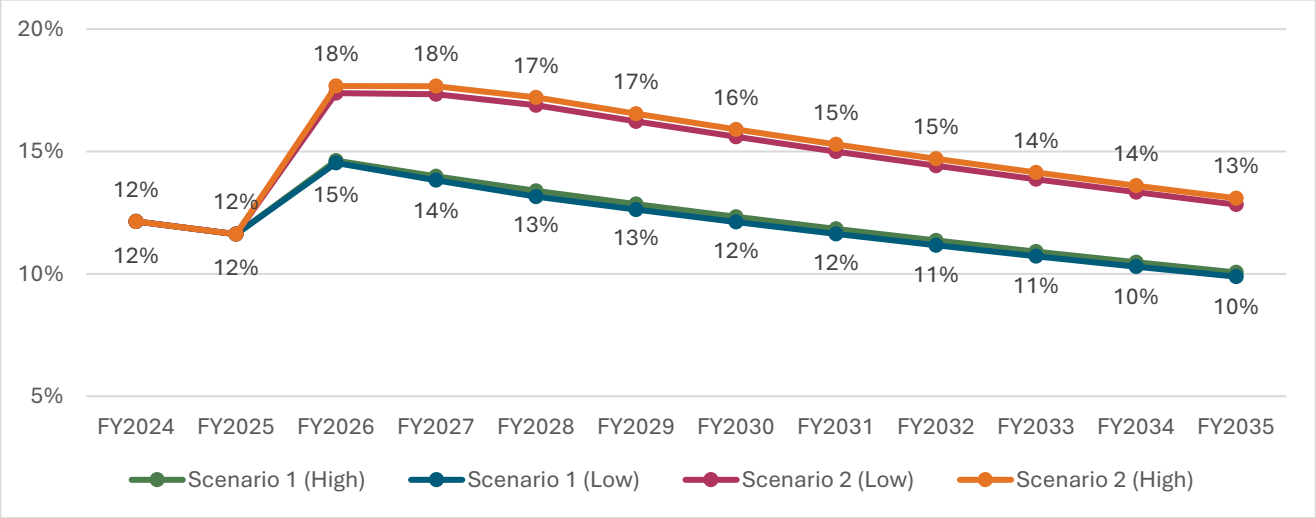
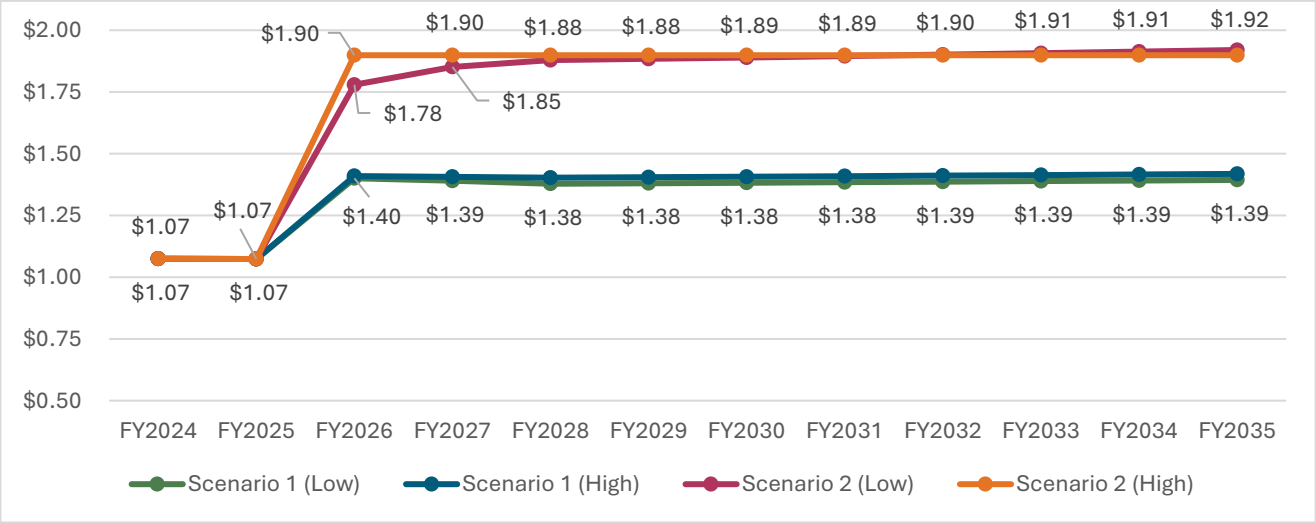


Figure 3 highlights the progression of the average fare per passenger from FY2024 to FY2035, including paratransit. The low-end and high-end estimates for both scenarios are similar. The fare per passenger is expected to increase for both scenarios in the implementation year, due to the significant increase in fare revenue. Scenario 2 would see a more significant increase compared to Scenario 1.

Figure 3: Fare Per Passenger



COLLEGE CONTRACT CONSIDERATIONS

Community Connector currently maintains service agreements with UMaine, Eastern Maine Community College (EMCC), and Beal University, providing students, faculty, and employees with fare-free access to the system. These agreements are based on a negotiated flat annual fee, which was last updated in 2014. This simple, stable arrangement has historically worked well for both the City and its college partners. Flat-rate contracts are often based on peer benchmarks, political feasibility, and affordability, and are especially common when programs are first established or when detailed ridership data is limited.

However, this fare structure assessment presents an important opportunity to modernize the methodology used to calculate contract rates. A more consistent, data-informed approach would help Community Connector:

- Better align partner contributions with actual system usage and costs
- Ensure equity and transparency across institutions
- Protect the agency from rising operating costs.

It's worth noting that UMaine's relationship is unique, as the university also contributes to Community Connector through a direct service contract for Route O – the Black Bear Orono Express – and local match funding. Any updates to contract terms should reflect these differences.

SUGGESTED ENHANCEMENTS TO COLLEGE CONTRACTS

- **Adopt a Consistent Pricing Formula:** Move away from individually negotiated lump sums and use a transparent, enrollment- or ridership-based formula for all colleges. A recommended structure is to use historical ridership data or enrollment numbers to estimate usage, a reference base fare, and a bulk discount (e.g., 40–50 percent) to reflect administrative simplicity and predictable revenue. This formula can be tailored to reflect each college's size and usage patterns.
- **Include an Annual Cost Adjustment Clause:** Introduce a pricing escalator to account for inflation and increasing operating costs. A low-burden option is to include a fixed annual increase (e.g., 3 percent). This provides predictability for colleges and protects Community Connector from cost stagnation over long-term contracts.
- **Add a Mid-Term Review or Reopener Clause:** For five-year agreements, include a provision for a mutual review in Year 3: "The City and College will review actual ridership and cost trends. If ridership or system costs change by more than 10 percent cumulatively, either party may request a renegotiation of the contract rate." This clause adds flexibility, allowing contracts to remain fair and sustainable over time.

OPERATIONAL AND STAFFING IMPACT

Both proposed alternatives would have impacts on staff workload and operational efficiency. For both scenarios, eliminating paper transfers, tickets, and monthly passes would result in staff no longer needing to print, distribute, process, or reconcile paper media purchases. The existing ticket and pass distribution process contributes to the operational burden on administrative staff. However, the additional technology solutions would add new responsibilities and workload to office staff and require technical knowledge to coordinate with the fare technology vendor and facilitate payments.

The technical equipment requirements vary between the two alternative scenarios. For Scenario 1, there is a lower level of technical equipment required. The payment method can be implemented more quickly, with no new fareboxes or validators required on board. Depending on the mobile payment solution, fare payment may require visual validation from the driver, where riders show a digital ticket with a timestamp.

Alternatively, riders may scan a unique QR code on board using the app, confirming that they are on a specific vehicle and validating their fare. This method also eliminates the need for hardware on board, thereby reducing the fare validation burden on drivers, similar to Scenario 2 where vehicles would be equipped with validators and QR code readers.

Alignment with Goals

The results of the impact analysis can inform how the two alternative scenarios would affect overall revenue, fare collection burdens, and riders. **Table 14** provides an overview of how the two scenarios would have an impact for each goal.

Table 14: Fare Scenarios and Goals Considerations

GOAL	SCENARIO 1	SCENARIO 2
Goal 1: Increase Revenue	■ Fare revenue would increase by eliminating free transfers for cash payers. ■ Mobile ticketing would require a lower upfront investment and have lower operating and maintenance costs. ■ Revenue gains are more modest compared to Scenario 2 but still reflect a positive trend, particularly under higher mobile adoption rates.	■ Despite larger initial ridership drop, fare price updates would result in fare revenue increases between 20 and 30 percent higher than in Scenario 1. ■ Smart card integration requires a higher upfront capital investment (e.g., hardware for validators, smart card distribution) and higher ongoing costs, including transaction fees and vendor support. ■ The expanded payment options and accessibility (especially for unbanked riders) could drive longer-term revenue gains by attracting and retaining a broader rider base. ■ Higher fare revenue helps offset the increased fare collection costs and supports improved financial sustainability in the long run.
Goal 2: Decrease Fare Collection Burden and Inefficiencies	■ Mobile ticketing would reduce the volume of cash payments and improve convenience for riders, lowering boarding times and simplifying fare handling. ■ Eliminating paper tickets, monthly passes, and transfers reduces the administrative burden of printing, distributing, and reconciling physical fare media. ■ However, visual fare validation (e.g., showing a phone screen) may require some ongoing attention from drivers and introduces potential ambiguity without onboard validation equipment. ■ Office staff responsibilities shift to overseeing the mobile app platform, monitoring adoption, and coordinating with the vendor for troubleshooting and updates.	■ Mobile ticketing and smart cards are expected to reduce cash payments even further than Scenario 1, especially for riders who prefer or rely on cash, since smart cards can be reloaded with cash at the transit center. ■ The elimination of paper fare media similarly reduces manual processing tasks. ■ The addition of onboard validators introduces new equipment to maintain, but it also reduces reliance on drivers for fare inspection, improving clarity and consistency in fare enforcement. ■ Administrative and technical staff will need to manage both the mobile platform and the smart card system, which may require additional training, IT coordination, and vendor management capacity, but provides a more robust and scalable long-term solution.

GOAL	SCENARIO 1	SCENARIO 2
Goal 3: Consider Impact on Riders	■ Maintaining current fare prices reduces the cost burden on low-income individuals. ■ Cash payments remain accepted, allowing unbanked populations to continue accessing the system without barriers. ■ The introduction of fare capping provides significant value to frequent riders by eliminating the need to pre-pay for a monthly pass and ensuring they never pay more than the equivalent of a monthly pass.	■ Although fare prices increase, the scenario offers a wider range of accessible payment options, including cash-reloadable smart cards, which particularly benefit unbanked riders or those without smartphones. ■ Smart cards reduce barriers to adopting capped fares, ensuring more riders can benefit from fare capping and free transfers regardless of banking status or technology access. ■ While the initial fare increase may present a challenge for some low-income riders, longer-term savings from fare capping and transfer elimination can mitigate these impacts, especially for frequent riders.

Appendix

Table 15: Ridership Projections, Scenario 1 (Low-End Technology Adoption Estimate)

FARE TYPE	METHOD	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Single Ride	Cash	71,793	72,152	218,192	170,342	148,772	149,516	150,264	151,015	151,770	152,529	153,292	154,058
Single Ride	Mobile App	-	-	31,222	43,050	63,204	63,520	63,837	64,156	64,477	64,800	65,124	65,449
Paratransit	Cash	12,626	13,257	13,920	14,616	15,347	16,114	16,920	17,766	18,654	19,587	20,566	21,595
Half Fare	Cash	62,656	62,969	55,227	50,786	53,209	53,475	53,742	54,011	54,281	54,552	54,825	55,099
Half Fare	Mobile App	-	-	1,607	3,230	5,595	5,623	5,651	5,679	5,708	5,736	5,765	5,794
Five Ride Ticket	-	99,994	100,494	-	-	-	-	-	-	-	-	-	-
Monthly Pass	-	160,881	161,685	-	-	-	-	-	-	-	-	-	-
Student Monthly Pass	-	628	631	632	635	733	737	740	744	748	752	755	759
Fare Capping	Mobile App	-	-	147,323	181,331	241,045	242,250	243,461	244,678	245,902	247,131	248,367	249,609
Fare Capping (Half-fare)	Mobile App	-	-	6,175	9,309	14,335	14,407	14,479	14,551	14,624	14,697	14,771	14,845
Transfers	-	74,212	74,583	-	-	-	-	-	-	-	-	-	-
TOTAL RIDERSHIP		482,790	485,772	474,298	473,298	542,240	545,641	549,095	552,602	556,164	559,784	563,465	567,208

Table 16: Ridership Projections, Scenario 1 (High-End Technology Adoption Estimate)

FARE TYPE	METHOD	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Single Ride	Cash	71,793	72,152	140,314	99,286	85,069	85,494	85,922	86,351	86,783	87,217	87,653	88,092
Single Ride	Mobile App	-	-	54,450	64,777	85,263	85,689	86,118	86,548	86,981	87,416	87,853	88,292
Paratransit	Cash												
Half Fare	Cash	62,656	62,969	47,320	38,121	33,132	33,298	33,464	33,631	33,800	33,969	34,138	34,309
Half Fare	Mobile App	-	-	6,427	9,689	14,920	14,995	15,070	15,145	15,221	15,297	15,374	15,450
Five Ride Ticket	-	99,994	100,494	-	-	-	-	-	-	-	-	-	-
Monthly Pass	-	160,881	161,685	-	-	-	-	-	-	-	-	-	-
Student Monthly Pass	-	628	631	632	635	733	737	740	744	748	752	755	759
Fare Capping	Mobile App	-	-	204,959	235,915	291,941	293,400	294,867	296,342	297,823	299,312	300,809	302,313
Fare Capping (Half-fare)	Mobile App	-	-	9,262	15,514	25,087	25,212	25,338	25,465	25,592	25,720	25,849	25,978
Transfers	-	74,212	74,583	-	-	-	-	-	-	-	-	-	-
TOTAL RIDERSHIP	-	482,790	485,772	477,283	478,552	551,492	554,940	558,439	561,993	565,603	569,270	572,998	576,788

Table 17: Ridership Projections, Scenario 2 (Low-End Technology Adoption Estimate)

FARE TYPE	METHOD	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Single Ride	Cash	71,793	72,152	157,003	113,331	88,601	89,044	89,489	89,936	90,386	90,838	91,292	91,749
Single Ride	Mobile App	-	-	7,113	12,634	20,928	21,033	21,138	21,244	21,350	21,457	21,564	21,672
Single Ride	Smart Card	-	-	21,834	32,914	50,688	50,941	51,196	51,452	51,709	51,968	52,228	52,489
Paratransit	Cash	12,626	13,257	13,920	14,616	15,347	16,114	16,920	17,766	18,654	19,587	20,566	21,595
Half Fare	Cash	62,656	62,969	42,425	34,316	30,374	30,526	30,679	30,832	30,986	31,141	31,297	31,453
Half Fare	Mobile App	-	-	604	1,518	2,454	2,467	2,479	2,491	2,504	2,516	2,529	2,542
Half Fare	Smart Card	-	-	6,041	9,107	14,025	14,095	14,166	14,237	14,308	14,379	14,451	14,523
Five Ride Ticket	-	99,994	100,494	-	-	-	-	-	-	-	-	-	-
Monthly Pass	-	160,881	161,685	-	-	-	-	-	-	-	-	-	-
Student Monthly Pass	-	628	631	594	708	823	833	844	855	866	877	890	902
Fare Capping	Mobile App	-	-	41,749	66,243	86,229	87,292	88,392	89,530	90,709	91,930	93,196	94,509
Fare Capping (Half-fare)	Mobile App	-	-	1,451	3,463	6,036	6,110	6,187	6,267	6,349	6,435	6,523	6,615
Fare Capping	Smart Card	-	-	125,248	146,420	192,845	193,809	194,778	195,752	196,731	197,714	198,703	199,696
Fare Capping (Half-fare)	Smart Card	-	-	8,707	11,667	16,844	16,928	17,013	17,098	17,183	17,269	17,356	17,442
Transfers	-	74,212	74,583	-	-	-	-	-	-	-	-	-	-
TOTAL RIDERSHIP	-	482,790	485,772	426,689	446,937	525,194	529,193	533,280	537,459	541,736	546,113	550,595	555,187

Table 18: Ridership Projections, Scenario 2 (High-End Technology Adoption Estimate)

FARE TYPE	METHOD	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Single Ride	Cash	71,793	72,152	115,150	69,075	40,928	41,132	41,338	41,545	41,752	41,961	42,171	42,382
Single Ride	Mobile App	-	-	10,917	20,280	29,760	29,909	30,058	30,208	30,360	30,511	30,664	30,817
Single Ride	Smart Card	-	-	37,216	47,211	72,001	72,361	72,723	73,087	73,452	73,819	74,188	74,559
Paratransit	Cash	12,626	13,257	13,920	14,616	15,347	16,114	16,920	17,766	18,654	19,587	20,566	21,595
Half Fare	Cash	62,656	62,969	34,145	25,387	15,503	15,581	15,659	15,737	15,816	15,895	15,974	16,054
Half Fare	Mobile App	-	-	1,510	3,036	5,259	5,286	5,312	5,339	5,365	5,392	5,419	5,446
Half Fare	Smart Card	-	-	9,062	12,143	21,038	21,143	21,249	21,355	21,462	21,569	21,677	21,785
Five Ride Ticket	-	99,994	100,494	-	-	-	-	-	-	-	-	-	-
Monthly Pass	-	160,881	161,685	-	-	-	-	-	-	-	-	-	-
Student Monthly Pass	-	628	631	594	708	823	833	844	855	866	877	890	902
Fare Capping	Mobile App	-	-	51,948	78,411	100,370	101,607	102,887	104,212	105,584	107,006	108,479	110,007
Fare Capping (Half-fare)	Mobile App	-	-	2,902	5,194	8,048	8,147	8,250	8,356	8,466	8,580	8,698	8,820
Fare Capping	Smart Card	-	-	145,691	166,965	208,331	209,372	210,419	211,471	212,529	213,591	214,659	215,732
Fare Capping (Half-fare)	Smart Card	-	-	11,609	14,583	20,213	20,314	20,415	20,517	20,620	20,723	20,827	20,931
Transfers	-	74,212	74,583	-	-	-	-	-	-	-	-	-	-
TOTAL RIDERSHIP	**-**	482,790	485,772	434,665	457,610	537,620	541,799	546,073	550,447	554,925	559,512	564,212	569,031