

Port Authority of Allegheny County 2019-2021 Fare Structure and Policy Study

Executive Summary

Port Authority of Allegheny County (PAAC) provides fixed-route bus and light rail service throughout the Greater Pittsburgh region to more than 60 million riders each year. Port Authority operates 98 bus routes, three light rail lines and the Monongahela Incline.

To satisfy requirements that it review fares every few years, Port Authority contracted Four Nines Technologies in February 2019 to conduct a review of the Authority's fare policy and structure.

Port Authority contracted Four Nines Technologies to conduct a review of the Port Authority's fare policy and fare structure in February 2019. The project was initiated in the summer of 2019 with a review of the Port Authority's fare system and a comparison to peer agencies. In the fall of 2019, a fare strategies workshop was conducted with staff to explore potential fare strategies for further evaluation. The Four Nines Fare Model was calibrated in the winter of 2019-2020 with fiscal year 2019 (FY 2019) ridership and fare revenue data.

The COVID-19 pandemic impacted the timeline for evaluation of fare strategies. The evaluation of fare strategies was deferred until summer of 2020 to gain a better understanding of the impacts of COVID-19 on the Port Authority's ridership and fare revenue.

Due to the impacts of COVID-19 and uncertainty of post-pandemic travel patterns, the analysis of certain fare strategies has been postponed until there is more certainty about how ridership will return and the ability to attract new riders. At the same time, the pandemic has elevated the importance of certain fare strategies that had been identified for further evaluation prior to the pandemic.

In developing the recommendations, Port Authority staff sought changes to the fare structure to provide meaningful benefits to riders, especially as riders may be facing financial hardships caused by the ongoing COVID-19 pandemic.

The proposed recommendations to implement a 3-hour pass and rolling weekly and monthly passes (i.e., 7-day and 31-day passes) are intended to provide additional flexibility to riders while removing financial penalties associated with needing to transfer to complete a one-way trip. These changes will be financially sustainable today and into the future, while providing riders with usable fare products to respond to their immediate needs and helping to recapture and attract new ridership post-pandemic. Removing the financial penalty associated with paid transfers also presents new opportunities as the Port Authority seeks to improve the transfer experience for riders as well as its service design to be more responsive to travel demands while managing operating costs and increasing operational efficiencies. The elimination of the stored value discount also enables the Port Authority to establish a more equitable fare system by aligning the cash and stored value fares as well as minimize fare revenue loss.

Introduction

Phase 1: Fare Structure Review	Phase 2: Fare Strategy Alternatives	Phase 3: Recommendation
Objective: Conduct SWOT analysis to guide the study	Objective: Develop fare strategy recommendation	Objective: Recommend fare change

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| <ul style="list-style-type: none"> ● Review of Port Authority’s fare structure, pricing, and policies ● Fare-related performance metrics ● Peer review and benchmarking | <ul style="list-style-type: none"> ● Internal workshops to select fare strategies for evaluation and refine and develop recommendation ● Evaluation of fare strategies ● Modeling of revenue and ridership impacts | <ul style="list-style-type: none"> ● Title VI fare equity analysis ● Public engagement on the recommendation ● Board adoption and implementation |
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Guiding Fare Policies

Board Fare Adjustment Policy

Section 1507(a) of Pennsylvania’s Public Transportation Law requires public transportation agencies that operate within the Commonwealth and apply for and receive state transportation funding adopt and maintain “a statement of policy outlining the basic principles for the adjustment of fare growth to meet the rate of inflation.”

Consumer Price Index (CPI) measures the changes in the prices of goods and services purchased for consumption by households. On average, the CPI for Pittsburgh has increased by 1.5-2 percent per year over the last decade.

Pursuant to Section 1507(a), the Port Authority Board has adopted a Fare Adjustment Policy. While the Authority’s Fare Adjustment Policy does not establish a set frequency for fare reviews, it does establish the agency’s goals, objectives, and methodology.

Port Authority’s Fare Adjustment Policy Goals & Objectives

- Provide a framework for determining the need for a modification to fares
- Offer increased transparency regarding decisions related to fare structure
- Communicate any fare modification required to maintain current service with customers and the general public
- Assist in providing greater financial stability
- Ensure fare equity is recognized
- Maintain a satisfactory fare recovery level
- Ensure fares keep pace with inflation by systematically and periodically reviewing fares and adjusting them in accordance to the methodology

Additional Fare Policy Goals

Port Authority’s study team also identified additional goals to guide the evaluation of fare strategies for this study:

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| Simplicity and ease of use | Fairness |
| Reflect value of service | Competitive for choice riders |
| Equitable and efficient use of public resources | |

Port Authority’s Fare Adjustment Policy Methodology

The Authority’s Fare Adjustment Policy establishes a methodology for reviewing fares, and identifies a number of factors to evaluate the need for and amount of any future increase in passenger fares, including changes in operating costs, the CPI, operating funding, and total passenger revenue since the last fare increase.

Prior to the COVID-19 pandemic, an analysis of data since the last fare change in FY2017 indicated that Port Authority would likely need to raise fares in accordance with its Fare Adjustment Policy. This need has potentially increased due to the uncertainty surrounding the future of Act 89 Transportation Plan State Financing and passenger revenue following the COVID-19 pandemic. However, due to the ongoing financial hardships for riders caused by the COVID-19 pandemic and the emergency relief funding provided by the federal government to support transit, Port Authority is proposing certain changes to its fare structure but deferring a base fare increase at this time.

Fare Structure Review

Four Nines’ fare structure review included an assessment of Port Authority’s existing fare structure, pricing, policies, and programs. It also evaluated the current distribution of ridership and revenue by fare product and fare-related performance metrics, including farebox recovery. It then compared this information to peer agencies as part of a benchmarking exercise. The review culminated in an analysis of the fare structure’s strengths, weaknesses, opportunities, and challenges.

Fare Structure Review - Strengths, Weaknesses, Opportunities, and Challenges

Strengths	Weaknesses (Needs)
<ul style="list-style-type: none"> ● Simple, flat fare structure ● Fare policies encourage electronic fare payment adoption ● Weekly pass increases the affordability of passes ● Strong U-Pass ridership and revenue ● Charging \$1 for transfers helps keep the base fare lower ● Bus farebox recovery is higher than the national average ● Employer program enables purchase of monthly passes and stored value using pre-tax money ● Pittsburgh Public Schools agreement helps provide mobility to students ● Standardized discounts for eligible riders (persons with disabilities, youth under age 12) ● Free fares for senior citizens (ages 65 and older) are subsidized by the Commonwealth of Pennsylvania 	<ul style="list-style-type: none"> ● Charging \$1 for transfers penalizes riders who need to transfer ● Base fare (\$2.50 stored value; \$2.75 cash) is higher than the peer average of \$2.25 (although most riders pay the stored value fare, use a pass, or ride free and only 8% of Port Authority’s riders pay the cash fare) ● Port Authority forgoes revenue from the rail free fare zone with current limited sponsorships ● U-Pass reimbursement rate of \$1.25 is significantly below the average fare per boarding (\$2.077) for full fare riders ● Port Authority offers several underused fare products, including the daily and annual passes ● Unlike other transit agencies, youth are eligible for the half fare only until they reach their 12th birthday instead of until they are 18.

Opportunities	Challenges
<ul style="list-style-type: none"> Alternative electronic fare media incentives to stored value discount Alternative transfer policies and/or daily pass pricing to support service design that requires transfers (e.g., free electronic transfers or reduction in daily pass price) Repricing of U-Pass to reflect utilization and enable expansion of the program to Pittsburgh Public Schools and other educational institutions Low-income fare program to offset impacts of fare increase on those with limited means Increased employer participation in Job Perks through marketing, pricing incentives, and/or all-in universal employer pass program Special event passes 	<ul style="list-style-type: none"> Average fare per boarding (yield) decreased from \$1.47 in FY 2016 to \$1.42 in FY 2019 following the 2017 fare change The COVID-19 pandemic has impacted ridership and frequency of travel in the short- and medium-term Operating costs are increasing faster than CPI Operations are heavily reliant on state funding compared to other transit agencies outside of Pennsylvania Eliminating \$1 transfer charge would require increasing the base fare to remain revenue neutral Eliminating the free rail fare zone would have capital and operating impacts Daily pass is not available on ConnectCard Fare capping is cost prohibitive to implement on ConnectCard

Fare Strategies Considered

A variety of alternative fare strategies were explored with staff in November 2019.

Fare Strategies and Considerations

Fare Strategy	Considerations
<p>Transfers, 3-hour passes, and daily passes</p>	<p>Port Authority offers both paid transfers and daily passes, although daily passes are only available on full fare ConnectTix. Introduction of mobile ticketing would create opportunities to make daily passes more accessible and offer discounted daily passes to half fare riders.</p> <p>Three options were discussed and moved forward for further evaluation:</p> <ul style="list-style-type: none"> Paid Transfers (status quo) Retain \$1 paid transfers and limit to one transfer within 3 hours from the first boarding 3-Hour Pass Offer unlimited boardings, including round-trips, within 3 hours from the first boarding Daily Pass (no transfers) Expand access to daily passes (and offer half fare daily pass) Reprice daily pass with elimination of transfers
<p>Electronic fare media incentives</p>	<p>Port Authority has accomplished significant market adoption of ConnectCard. In FY 2019, cash boardings accounted for 8% of ridership.</p> <p>There are a number of fare strategies to incentivize riders to use electronic fare collection (i.e., ConnectCard and in the future, mobile ticketing). Port Authority has implemented the majority of the fare strategies:</p> <ul style="list-style-type: none"> ✓ Offering alternative to cash (i.e., stored value)

	<ul style="list-style-type: none"> ✓ Limiting passes to electronic fare media ✓ Limiting transfers to electronic fare media ✓ Offering a financial incentive via stored value discount ✓ Offering remote and autoload stored value and passes ✓ Integrating half fare eligibility card with smart card <p>There are only two strategies that are not employed by the Port Authority:</p> <ul style="list-style-type: none"> X Offering free transfers or 3-hour pass X Encouraging reloadable media through limited use media fee <p>Replacing paid transfers with a 3-hour pass would provide additional benefits to stored value users not available to cash riders. Discontinuing the stored value discount as part of introducing a 3-hour pass may be more equitable and fairer than retaining the stored value discount.</p> <p>Strategy moved forward for further evaluation: transition from offering a stored value discount to free transfers as part of introducing a 3-hour pass.</p>
<p>Fare strategies to promote affordability</p>	<p>As fares have increased rapidly in recent years, transit agencies have looked to find ways to offset the financial impacts of these necessary fare increases on low-income riders to maintain affordability. As fares and the costs of passes have increased, there have also been concerns about the ability of lower income riders to afford the upfront cost of passes and obtain the frequent rider discounts associated with passes.</p> <p>The following fare strategies increase affordability and minimize the upfront cost of passes on lower income riders. All four strategies were moved forward for retention (weekly passes) or further evaluation (fare capping, rolling passes, and low-income fare programs):</p> <ul style="list-style-type: none"> ● Weekly passes Some riders may not be able to afford the upfront cost of a monthly pass. Weekly passes may provide a more affordable option. Purchasing four weekly passes at \$25 per pass is only slightly more expensive than purchasing a monthly pass at \$97.50. ● Rolling passes Rolling passes are valid for a defined period of time (e.g., 7 days, 31 days) and are activated on first use. Rolling passes provide flexibility to the rider to choose the best validity period based on travel and when they have the financial resources (e.g., pay periods). ● Fare capping Fare capping eliminates the need to have sufficient funds to purchase a pass upfront. Fare capping enables a rider to pay toward a pass in increments. Fares are capped once a rider has paid the equivalent of a day, weekly, and/or monthly pass. Fare capping provides riders with the best and lowest fare based on their transit use. ● Low-income fare programs Low-income fare programs offer discounted fares and/or passes to adult riders who are not eligible for free or half fares but are eligible based on their household income. The income threshold is based on the area's cost of living and the discounted fare is seen as a vehicle for upward economic mobility for those at or near poverty level.

<p>Employer programs</p>	<p>Port Authority offers an employer program called Job Perks that enables employees to use pre-tax earnings to purchase transit passes or load up to \$200 in stored value on ConnectCards. In FY 2019, Job Perks generated \$6.1 million (7%) of fare revenue. In FY 2019, there were almost 150 active employers participating with approximately 5,000 employees participating per month.</p> <p>In addition to programs that enable the purchase of stored value and/or passes for employees who opt into the programs, some transit agencies offer universal pass program options. These all-in programs are similar to the U-Pass program in that all employees receive an unlimited access pass. Also, like U-Pass, the pricing for these programs is often based on the number of boardings or trips taken. Employers may be priced individually or grouped to create an insurance pool with similar employers. Compared to programs like Job Perks, these programs can be significantly more complex to administer.</p> <p>Discounted bulk pass sales are another variation of an employer program whereby employees opt into the program. These passes are discounted to recognize that not all passholders use their passes enough to justify purchasing the pass. Underused passes help cross-subsidize other passes similar to universal passes.</p> <p>Port Authority has received grant funding to conduct a six-month bulk pass program. However, this pilot has been deferred due to the ongoing COVID-19 pandemic. Information from this pilot as well as increased certainty about how commuting patterns may change post COVID-19 will help inform potential changes to the Port Authority’s Job Perks and new opportunities for offering bulk discounts.</p>
<p>Student programs</p>	<p>Port Authority has three student programs:</p> <ul style="list-style-type: none"> ● Bulk Monthly Pass Sales for Schools Pittsburgh Public Schools and other schools pay the full fare monthly pass price (\$97.50) for each student who receives a pass in a month. The Pittsburgh Public Schools program has transitioned to ConnectCard and Pittsburgh Public Schools is charged based on each unique ConnectCard used in a month. In FY 2019, Port Authority received \$4.2 million from schools. ● U-Pass U-Pass enables students and staff to board fixed-route vehicles at no direct cost to the individual. The University of Pittsburgh, Carnegie Mellon University, and Chatham University pay \$1.25 per boarding. In FY 2019, U-Pass generated 9 million boardings and \$11.3 million in revenue. ● Off-Peak Fare University Program Students, faculty, and staff at Carlow University, Point Park University, and Robert Morris University can pay \$1 per boarding by showing their valid school-issued ID cards during non-peak times (e.g., evenings, weekends, holidays). <p>There have been requests to expand U-Pass to additional institutions. However, expanding at current pricing is financially unsustainable as many of the students may be already riding and paying the full fare.</p> <p>Strategy moved forward for further evaluation: opportunities to reprice U-Pass to make it financially sustainable to expand to additional institutions, including Pittsburgh Public Schools.</p>

<p>Free rail fare zone</p>	<p>In 2017, Port Authority eliminated the free bus fare zone but retained the free rail fare zone. The free fare zone includes six light rail stations. In FY 2019, ridership in the free rail fare zone was approximately 2 million. At that time, the Authority received \$220,000 from the Sports & Exhibition Authority. The free rail fare zone encourages transit use in the downtown core and attracts riders who may otherwise not ride the system.</p> <p>The tradeoffs of eliminating the free rail fare zone were considered. Given the additional infrastructure required to implement fares in the free rail fare zone and the operational impacts, eliminating the free rail fare zone was not pursued. Instead, it was proposed to work with the Sports & Exhibition Authority, David L. Lawrence Convention Center, and other venues to establish agreements, which may include sponsorship for the free rail fare zone, similar to the Port Authority’s agreement with the Sports & Exhibition Authority.</p>
<p>Special event/convention passes</p>	<p>Transit agencies have implemented a variety of methods to accommodate special events:</p> <ul style="list-style-type: none"> ● Special Event Fare Product Special event ticket is created that is essentially a round-trip ticket or daily pass, eliminating the need to purchase a fare after the event. The rider purchases the fare directly from the transit agency. As required by FTA, the price is no more than the fare for the underlying transit service. ● Distribution of Physical Media in Bulk Passes are distributed in bulk for an event (e.g., a conference). Transit agencies may offer a discount if unused passes are non-refundable. The discount is intended to offset the cost of unused passes for large purchases. With transition to electronic fare media, transit agencies are able to charge only for passes used, addressing event coordinators’ concerns about unused fare media and eliminating the need to offer discounts for unused passes. ● Distribution of Mobile Ticketing Code Event attendees receive a mobile ticket code that provides them a round-trip or daily pass. This method simplifies distribution significantly for the transit agency and event coordinators as physical media are not required. ● Integration with Event Ticket The event ticket itself is used to ride transit to and from the event. The transit agency is reimbursed for transit used based on agreement with the event and number of attendees. The reimbursement rate can be developed based on estimated transit use and current transfer fares (e.g., in San Francisco, Muni is reimbursed a per-attendee fee developed based on an annual survey to estimate transit use and the price of the day pass). <p>Port Authority could implement all or a subset of these options as different methods may serve different needs of conventions and special events (e.g., sporting events) while providing flexibility to event coordinators.</p> <p>Further evaluation of special event/convention passes was deferred due to uncertainty of interest in special event fare programs post COVID-19 because of the suspension of special events and conferences.</p>
<p>Fare product pricing</p>	<p>As riders choose fare products, they may consider their trip making behavior and the breakeven point for passes (i.e., number of trips required to financially benefit from purchasing</p>

a pass). The current pass pricing encourages riders to purchase longer term passes by providing greater discounts that also accommodate vacations, holidays, etc.

Under the current fare structure and pricing levels, riders who transfer are more likely to purchase a pass. With current paid transfers, weekly passholders who do not transfer must make 10 trips to breakeven with purchasing the pass, while weekly passholders who make one transfer must only make 7 trips. Similarly, monthly passholders who do not transfer must make 39 trips, while monthly passholders who make one transfer must only make 28 trips.

Introduction of a 3-hour pass would have a significant impact on fare product selection and there may be a migration of passholders to stored value. However, given the uncertainty of how COVID-19 will impact long-term travel patterns and frequency of travel, evaluation of how passes should be repriced based on transfer policy changes has been deferred.

When exploring fare strategies, it became clear that Port Authority should identify opportunities to make electronic fare media more accessible, whether through increasing access to physical media and ability to load value or passes through ticket vending machines and retail locations or introducing new fare media options, such as mobile ticketing. Increasing access is particularly important in communities with a high proportion of unbanked and underbanked populations who lack access to a credit or debit card to load value remotely. The planned retail network for the new mobile ticketing solution, which will enable riders to digitize cash and load it to their mobile ticketing accounts, will be a significant opportunity to further increase access for cash riders to the benefits of electronic fare media.

Impacts of COVID-19

Port Authority has experienced a significant decrease in ridership due to the ongoing COVID-19 pandemic. It is unclear how COVID-19 will impact ridership long-term. However, the immediate impacts on ridership, changes in travel patterns and the financial hardships for riders caused by the pandemic has elevated the importance of certain fare strategies, such as changes to the Authority's paid transfers.

Due to COVID-19, riders are traveling less frequently than prior to the pandemic. The percentage of riders who transfer has increased as ridership demographics have changed. In addition, due to this reduction in travel, passholders have been transitioning to stored value for greater flexibility. However, for riders who must transfer to complete their trip, the transition to stored value poses a financial penalty due to paid transfers. As such, introducing a 3-hour pass may provide relief to riders using Port Authority during the pandemic as well as during the pandemic recovery.

Although COVID-19 has made consideration and implementation of certain fare strategies more important, the uncertainty of the long-term impacts of COVID-19 has made the evaluation of other strategies difficult. It is unclear how commuting and travel patterns will impact fare product selection. Possible reductions in the number of days riders commute to work may have a significant impact on the attractiveness of weekly and monthly passes and the Job Perks program. It is also unclear how special events and conferences will return and how attendees will use Port Authority's services. As such, the evaluation of these fare strategies has been deferred until more information is available post COVID-19 and there is more certainty about the long-term impacts of the pandemic on transit use.

Fare Strategies Evaluated

A number of fare strategies were moved forward for further evaluation, while the evaluation of others were postponed until there is more certainty about post COVID-19 transit use. It is worth noting that the fare strategies moved forward

for evaluation are also primarily focused on increasing affordability, mobility, and flexibility.

Fare Strategies Moved Forward for Evaluation vs. Postponed

Moved Forward for Evaluation	Evaluation Postponed due to COVID-19
<ul style="list-style-type: none"> • Transfers, 3-Hour Passes, and Daily Passes • Fare Capping • Rolling Passes • Student Programs, including U-Pass • Low-Income Fare Program 	<ul style="list-style-type: none"> • Employer programs • Free rail fare zone agreements/sponsorships • Special event/convention passes • Fare product pricing

Transfers, 3-Hour Passes, and Daily Passes

Under the current transfer policy, Port Authority charges for transfers. ConnectTix and ConnectCard users may purchase one transfer within three hours for \$1 for full fare one-way fares or \$0.50 for half-fare one-way fares. ConnectTix users must purchase a one-way fare with the paid transfer included to be able to transfer. For ConnectCard, the \$1 electronic transfer is deducted from ConnectCard stored value if the card is used to board a second vehicle within 3 hours of the first boarding. Second transfers require payment of the full stored value fare. Cash riders do not get access to transfers and must pay per boarding.

Paid transfers are generally uncommon among transit agencies, especially where transfers are limited exclusively to smart card. Instead, transit agencies have implemented free, unlimited transfers or time-limited passes (e.g., 2-hour passes). Other transit agencies have eliminated transfers and focused on offering affordable and accessible daily passes.

Three options were evaluated for the Port Authority:

Transfer Policy Options Evaluated

Option	Description
Option 1. Pay for Transfers (Status Quo)	Rider pays \$1 for their 1st transfer, full fare for 2nd transfer
Option 2. Pay for Time (3-Hour Pass)	Rider pays a flat fare for unlimited boardings, including round-trips within three hours from the first boarding
Option 3. Pay per Boarding with Daily Pass	Rider pays for each boarding or purchases a daily pass

There are strengths and weaknesses to each of the three options.

Strengths and Weakness of the Transfer Options Evaluated

Option 1. Pay for Transfers (Status Quo)	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Minimizes the fare increase necessary to meet revenue needs (transfers generated ~\$2m in FY 2019) • Encourages frequent riders who transfer to purchase weekly or monthly passes 	<ul style="list-style-type: none"> • Increases the fare for riders who must transfer to complete their one-way trip
Option 2. Pay for Time (3-Hour Pass)	

Strengths	Weaknesses
<ul style="list-style-type: none"> • Simplifies rider experience • Reduces fares for riders who transfer • Further incentivizes using a fare media (ConnectTix, ConnectCard) 	<ul style="list-style-type: none"> • Requires a fare increase to offset revenue loss • May require the re-evaluation of weekly and monthly pass pricing (which has been deferred until more certainty post pandemic) • There is no way to keep track of the three-hour window for cash users
Option 3. Pay per Boarding, Offer Daily Pass	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Simplifies rider experience • Simplifies fare structure • Introduces a half fare daily pass 	<ul style="list-style-type: none"> • May require repricing the current daily pass • Penalizes riders who transfer and do not make a return trip or multiple trips • For the Port Authority, daily passes would be limited to mobile ticketing and ConnectTix. Implementing daily passes on ConnectCard is not be feasible or cost effective

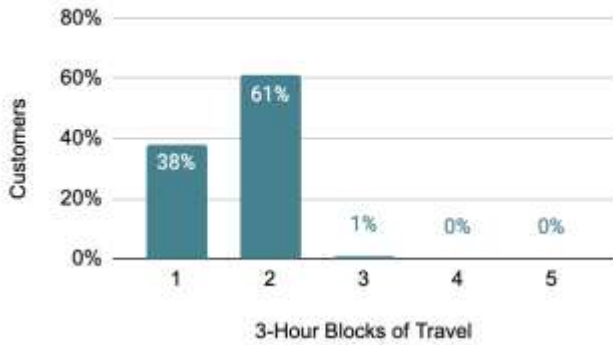
Each of the three options were modeled using FY 2019 data to understand pricing tradeoffs on ridership and fare revenue. ConnectCard and ConnectTix data were used to differentiate between stored value riders who make no transfers, make one transfer, and make two or more transfers. For each of the options, multiple pricing iterations were modeled to understand the tradeoffs, as shown on the following table. Option 2a highlighted in green is the recommended option.

Modeling Results of Transfer Policy Options Evaluated

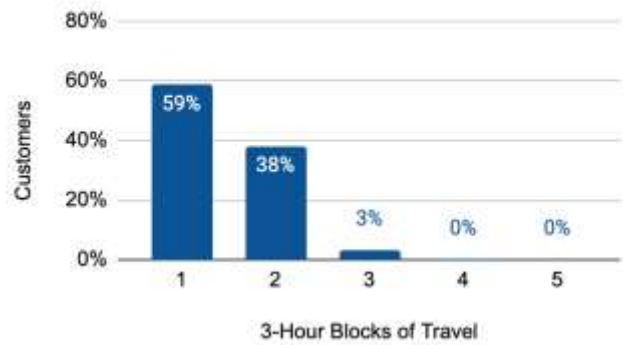
	Ridership (millions)				Revenue (millions)			
	FY 2019	Proposed	Change		FY 2019	Proposed	Change	
Option 1. Pay for transfers (Status Quo)	62.63	62.63	-	-	\$88.77	\$88.77	-	-
Option 1a. Pay for transfers with elimination stored value discount	62.63	62.24	(0.39)	(0.6%)	\$88.77	\$89.79	\$1.02	1.1%
Option 2. Pay for time (3-Hour Pass)	62.63	63.75	1.12	1.8%	\$88.77	\$86.47	(\$2.30)	(2.6%)
Option 2a (Recommended). Pay for time (3-Hour Pass) with elimination of stored value discount	62.63	63.18	0.55	0.9%	\$88.77	\$87.75	(\$1.02)	(1.1%)
Option 2b. Pay for time (3-Hour Pass) with cash fare increase and elimination of stored value discount	62.63	62.62	(0.01)	(0.0%)	\$88.77	\$89.07	\$0.29	0.3%
Option 3. Pay per Boarding, offer daily pass	62.63	62.63	(.001)	(0.0%)	\$88.77	\$89.36	\$0.59	0.7%
Option 3a. Pay per Boarding, offer \$6.00 daily pass	62.63	62.88	0.25	0.4%	\$88.77	\$88.51	(\$0.26)	(0.3%)

The travel patterns of riders who use stored value were explored using ConnectCard data. The analysis found that most stored value riders use transit daily in one or two 3-hour blocks and would therefore benefit more from Option 2 (3-Hour Pass) than Option 3 (Daily Pass). With Option 2a, riders traveling in two 3-hour blocks would pay \$5.50 rather than paying \$7 for a daily pass.

Daily Linked Trips per Day (Stored Value Full Fare, FY2019)



Daily Linked Trips per Day (Stored Value Half Fare, FY 2019)



As part of evaluating the transfer policy options, Port Authority also considered how technology could be used to implement the recommendations. While mobile ticketing would be able to support all of these options, implementing Option 3 on the ConnectCard system poses significant challenges from a user perspective, including the ability to load only two daily passes at a time, a delay in availability of daily passes loaded remotely, and the inability to select whether to use stored value or a pass or which pass to use if two passes are loaded onto the card.

Recommendation:

Option 2a, which introduces a 3-hour pass and discontinues the stored value discount, is recommended for implementation in FY 2022. As part of implementing Option 2a, the Port Authority would be transitioning from using a stored value discount to provide a financial incentive to use electronic fare media to offering a 3-hour pass that would provide a substantial benefit for riders who must transfer to complete their trips and may not be able to purchase a longer term pass (e.g., weekly or monthly pass). This proposed recommendation would not impact ACCESS fares for the Port Authority’s paratransit service.

Comparison of Current Fares and Recommended Fares

Fare Product	Full Fare		Half Fare	
	Status Quo	Recommended	Status Quo	Recommended
	Option 1	Option 2a	Option 1	Option 2a
Cash Fare	\$2.75	\$2.75	\$1.35	\$1.35
Stored Value	\$2.50	\$2.75	\$1.25	\$1.35
Transfer	\$1 for 1 transfer within 3 hours	free, unlimited for 3 hours	\$0.50 for 1 transfer within 3 hours	free, unlimited for 3 hours
Daily Pass	\$7	\$7	n/a	n/a
Weekly Pass	\$25	\$25	\$12.50	\$12.50
Monthly Pass	\$97.50	\$97.50	\$48.75	\$48.75
Annual Pass	\$1,072.50	\$1,072.50	n/a	n/a

Rolling Passes

Rolling passes are common for transit agencies with magstripe passes. When transitioning from magstripe to smart card systems, some agencies have continued to offer rolling passes. However, there are some notable advantages of rolling passes for riders, in particular the additional flexibility to align purchases based on travel and when they have the financial resources (e.g., pay periods).

Strengths and Weakness of Calendar-Based and Rolling Passes

Calendar-Based Passes	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Simple for riders to understand • More predictable revenue stream • Compatible with fare capping • Weekly passes provide some of the flexibility to align purchases with pay periods 	<ul style="list-style-type: none"> • Limited flexibility for the rider since rider is unable to choose the best validity period
Rolling Passes	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Rolling passes are one of the most requested fare products from riders • Convenience and flexibility; riders are able to align pass purchases with pay periods and work schedules as well as when they may receive government benefits and financial assistance • Validity period is based on first use, helping riders save money if they are able to ‘skip’ days between passes • Workload impact by reducing month-end demand related to calendar pass purchases 	<ul style="list-style-type: none"> • Difficult to communicate to rider when pass expires • Increase in customer service calls to determine when pass expires • Conflicts with operator when pass has expired • No autopay feature to automatically reload a new pass when current pass is about to expire • Revenue loss compared to calendar-based passes • Rolling passes are not conducive to fare capping

Recommendation:

Implement rolling 7-day and 31-day passes in FY 2022 to provide flexibility for riders to align purchase with travel and income availability.

Fare Capping

Fare capping is a relatively recent pricing strategy employed by some public transit agencies whereby riders’ fares cap at the price of a pass. If implemented within Port Authority’s current fare structure, riders would pay per boarding for each of their trips until they have paid the equivalent of the price of a pass. For example, the full fare monthly pass is priced at \$97.50 and a single ride fare is \$2.50 with a \$1 transfer. At those prices, riders would need to make 28 to 39 trips, depending on whether their trip required a transfer, to reach the monthly cap. In addition to a monthly fare cap, Port Authority could consider implementing a daily fair cap or alternatively, weekly fare cap.

A primary motivation behind fare capping is equity. With fare capping, frequent riders who cannot afford the upfront price of either a weekly or monthly pass would receive the frequent rider discount embedded in the passes. Other motivations behind implementing fare capping are positive marketing for the agency and increased loyalty among riders. Fare capping is often marketed as a “best fare guarantee” to enhance public perception of service and to

potentially increase ridership. It is also important to note that fare capping does not benefit cash-paying riders.

Fare capping modeling was conducted using ConnectCard data for FY 2019. The modeling focused on data that could be associated with a unique rider to analyze an individual rider's travel patterns, including transfer behavior and frequency of use. The modeling used current fare pricing levels but analyzed the various transfer policy options. Based on pre-pandemic travel patterns, fare capping is expected to result in a 4 to 10% revenue loss (\$4 to \$10 million), depending on the transfer option. In addition to this sizable revenue loss, there are technological and equity challenges associated with the Authority's ability to implement fare capping.

Fare capping requires implementation of smart card technology or mobile ticketing. To enable the equity benefits identified above, an agency must ensure access to the electronic fare payment technology, even for unbanked and underbanked riders. Based on prior conversations with ConnectCard's vendor, Scheidt & Bachmann, fare capping on the ConnectCard would be cost prohibitive to implement since the current card-based system would need to be replaced with an account-based system. Alternatively, fare capping could be implemented using Masabi's mobile ticketing app, which is expected to launch in 2021 with electronic validation. However, if fare capping were launched exclusively on mobile ticketing, there may be Title VI implications since riders would need a smartphone and the ability to load value to their account conveniently to benefit. These requirements would likely pose a burden for low-income riders who may not have a smartphone and/or need a way to load cash if they are unbanked or underbanked.

Given some of the challenges associated with fare capping, the Authority reflected on the goals that the agency was trying to achieve. The primary goals of fare capping that had been identified included increasing the affordability of transit fares and flexibility in transit fare payment. The proposed recommendations to introduce a 3-hour pass and rolling weekly and monthly passes would also help to achieve those goals. In addition, the proposed recommendations are supported by both ConnectCard and mobile ticketing, increasing access to the benefits of the recommendations by removing potential barriers, such as smartphone ownership.

Recommendation:

Implement a 3-hour pass and rolling weekly and monthly passes to increase affordability and flexibility rather than fare capping.

Student Programs, including U-Pass

Port Authority's student programs are vital for students to get to and from classes and extracurricular activities. The programs also have the opportunity to promote public transit use to the next generation of users.

Port Authority offers three different programs with different prices (i.e., bulk monthly pass sales for schools, U-Pass, and off-peak university fare program). There has been interest in expanding U-Pass to additional educational institutions. The transition of the Pittsburgh Public Schools program to ConnectCard also provides new opportunities to explore U-Pass expansion.

The Authority is currently negotiating new agreements with U-Pass-participating institutions, which will help determine Port Authority's financial ability to expand the program.

Recommendation:

Negotiate repricing U-Pass with current institutions to enable the Port Authority to expand U-Pass.

Low-Income Fare Program

Low-income fare programs provide an opportunity to increase affordability for those who are income eligible by offering discounted fares and/or passes. Across the United States, there has been increasing interest in making fares more affordable for low-income riders.

Recent Low-Income Fare Programs in the United States

Program	Year Started	Discount	Income Threshold	Funding
Seattle	2015	up to 50% including passes	200% FPL	Fare increase
	2020-2022 (pilot)	100%	80% FPL	N/A, long-term undetermined
Minneapolis	2017 (pilot 2016)	50-70%	50% of AMI, 185% FPL or other program	N/A
Portland	2018	50-72% including passes	200% FPL	Dedicated state funding (payroll tax)
Denver	2019	40% including day passes	185% FPL	Fare increase
SF Bay Area	2020-2021 (pilot)	20-50%	200% FPL	State Transit Assistance (diesel sales tax), State Low Carbon Transit Operations Program, CARES

The increasing interest is in part driven by recent rapid increases in fares as well as new fare collection technology. New technologies, including smart cards and mobile ticketing, have enabled transit agencies to manage eligibility and provide these targeted discounts. Electronic fare media help agencies track administration and enforcement, and discounts are automatically provided and enforced.

Discount amounts and whether a discount is offered on certain fares and/or passes vary. Often, low-income discounts align with other discount fares. However, discounts often range from 20-70%, which may be less than those afforded to other discount rider categories (e.g., minimum 50% discount for seniors and persons with disabilities). Agencies may also offer free fare programs for a subset of the population, such as those who are very low income. For example, three transit providers in the Seattle area recently launched a very low-income pilot program, and in San Francisco, Muni has free-fare programs for low-income youth, seniors, and persons with disabilities.

Income verification is necessary for determining eligibility, and the income threshold varies by agency. The income threshold is established based on cost of living and is often higher than the household income threshold used for environmental justice purposes to enable upward economic mobility. The most common measure used to determine eligibility is the Federal Poverty Level (FPL) based on household size with a multiplier (e.g., Denver’s program uses 185% of the FPL). In addition to FPL, Metro Transit in Minneapolis uses Area Median Income (AMI).

The income threshold greatly impacts the number of people eligible for the program. In the 2016 Title VI Fare Equity Analysis for the 2017 fare change, Port Authority defined a low-income person as any person living in a household

making less than \$25,000 per year. According to the 2014 rider survey, which is the most recent rider survey available, almost a third of the people using Port Authority daily would qualify for a low income fare. As the income threshold increases, so does the percentage of riders who would be eligible. While some of these riders may qualify for other discounts (e.g., free fares for seniors or half fares for children ages 6-11, persons with disabilities, and Medicare recipients), the proportion of the ridership that is low income is notable.

Percent of Boardings Made by Individuals with Household Incomes at or below Income Threshold

Low-Income Threshold	\$15k	\$25k	\$35k	\$50k
% of boardings	17%	29%	43%	59%

It is also important to note that household size would also impact eligibility as households with more persons would qualify at a higher income threshold. In 2014, a household income of \$25,000 or less would encompass households with four or fewer persons at 100% of the FPL.

The leading practice for administering low-income fare programs is to partner with local organizations for income verification. Port Authority, while critical to promoting mobility and accessibility to economically disadvantaged populations, is not a social service agency. Enlisting partner organizations (e.g. social service agencies, non-profits, community-based organizations) that low-income riders already go to for other services would provide significant advantages for the Authority and its riders. Partnering with organizations like these could decrease the burden on low-income riders for enrolling in the program by increasing access, improving outreach to riders who would benefit from the low-income fare program, and helping partner organizations to increase enrollment in their other programs.

One of the most significant challenges for implementing a low-income fare program is identifying new, ongoing funding to offset the fare revenue losses and increases in administrative costs. Recent low-income fare programs have used a variety of funding sources, including fare increases to provide dedicated funding. Many funding sources are not ongoing and may be one time. Funding sources used by other transit agencies include:

- **Corporate Sponsorship**- shorter term and not always sustainable
- **In-kind contributions by organizations** - leverage social agency network for means-testing for a low-income fare program
- **State legislature** - requires legislative approval and in face of budget cuts, state may reduce or eliminate funding for program, forcing the transit agency to decide whether to eliminate program or subsidize the program itself
- **Dedicated taxes, fees, etc.** - May require voter approval and often part of a larger transportation program
- **Developer fees** - often one-time payments
- **Fare increases for non-low-income riders** - completely within agency’s control but can negatively impact ridership overall and riders just above the income threshold (or low-income riders not enrolled). This also requires a significant share of non-low-income riders to minimize the size of the necessary fare increase

Introducing a discount to low-income riders could result in loss of up to \$5 million in annual fare revenue, in addition to administrative costs. This estimate is based on the FY 2019 average fare for full fare riders and 30% of full fare riders eligible for a 50% discount and at a 50% participation rate. Without dedicated funding, Port Authority would need to consider fare increases and/or service reductions in the future to support such a program. These options could have devastating impacts on the Authority's efforts to recapture transit ridership post pandemic, especially as the burden of the fare increases would be imposed primarily on a subset of riders. For example, in FY 2019, only slightly over half of

the Port Authority's boardings were made by full fare riders.

Ongoing dedicated funding would provide opportunities to maintain the Authority's financial sustainability. This could take the form of the Free Transit Program for Senior Citizens that is funded by the Commonwealth of Pennsylvania and allows seniors 65 years of age or older to ride free on local fixed-route service.

Recommendation:

Explore a low-income fare program further if ongoing dedicated funding is available.

Title VI Considerations

FTA Circular 4702.1B, issued in October of 2012, requires that transit agencies complete a fare equity analysis to determine if planned changes to transit fares will have a disparate impact or a disproportionate burden on certain segments of the population within their service area. The fare equity analysis consists of two parts: (1) Disparate impact analysis that determines how the fare change will impact minority populations and (2) Disproportionate burden analysis that assesses how the fare change will impact low-income populations. All federal transit recipients operating more than 50 peak vehicles must conduct these assessments when pursuing a fare change.

A fare change is defined as any increase or decrease of fares, whether applicable to the entire transit system, or on certain transit modes, or by fare payment type or fare media. The definition of fare change does not include instances where all passengers ride free, or to temporary fare reductions that are mitigating measures for other activities such as construction, or to promotional fare reductions, so long as the temporary fare reduction or promotional reduction does not last longer than six months. A fare change also does not include the introduction of new fare products or fare media where those new fare products or fare media are only being added to Port Authority's existing fare products or fare media versus replacing or discontinuing existing fare products or fare media.

Port Authority and the FTA Circular 4702.1B defines minority persons to include the following five groups: 1) American Indian and Alaskan Native, 2) Asian, 3) Black or African-American, 4) Hispanic or Latino, and 5) Native Hawaiian and Other Pacific Islander. Any person claiming a combination of the above groups or an above group in conjunction with Caucasian is also considered a minority person.

Port Authority and the FTA Circular 4702.1B defines a low-income person as any person living in a household at or below the federal poverty guidelines as defined by the U.S. Department of Health and Human Services.

The fare equity analysis compares the effects of the proposed fare change on the Port Authority's minority and low-income riders to its effects on the Port Authority's non-minority and non-low-income riders using the Disparate Impact and Disproportionate Burden Thresholds as a measuring stick. Using data obtained from Port Authority ridership surveys, the analysis compares both absolute and percent changes to measure adverse impacts and benefits.

The Port Authority defines its Disparate Impact and Disproportionate Burden Thresholds as any fare change that results in protected (minority or low-income) riders bearing an adverse effect of 20% more than those borne by non-protected (non-minority or non-low-income) riders.

If the fare equity analysis concludes that Disparate Impact will occur as a result of a fare change, the change may be implemented only if (1) there exists a substantial legitimate justification for the proposed service change; and (2) there exists no alternatives that would have a less Disparate Impact on the minority population that would still accomplish Port Authority's legitimate program goals.

Should any proposed fare change result in Disparate Impact, Port Authority will consider modification of the proposed

change to avoid, minimize or mitigate the Disparate Impact. Once a modification has occurred to avoid, minimize or mitigate potential Disparate Impacts, the Authority will conduct an additional analysis to determine whether the modifications successfully corrected the potential Disparate Impact resulting from the changes. Port Authority shall provide a meaningful opportunity for public comment on any proposed mitigation measures, including available less discriminatory alternatives, and Senior Management and Board of the Port Authority shall be briefed as to the outcome of the fare equity analysis.

If the fare equity analysis concludes that Disproportionate Burden will occur as a result of a fare change, Port Authority will consider modification of the proposed change to avoid, minimize or mitigate Disproportionate Burden where practical, and the Authority should describe alternatives available to low-income populations affected by the fare change. Port Authority shall provide a meaningful opportunity for public comment on any proposed mitigation measures, including available less discriminatory alternatives, and Senior Management and Board of the Port Authority shall be briefed as to the outcome of the fare equity analysis.

The fare equity analysis for the recommendations has been initiated to identify whether the proposed changes will result in a Disparate Impact or Disproportionate Burden. This analysis will be conducted using demographic data from the 2014 rider survey. While the Authority had planned to conduct a rider survey in 2020, it has been deferred due to the ongoing COVID-19 pandemic. As such, the 2014 rider survey data is being used as it is believed to be the most representative of future post COVID-19 ridership.

According to the 2014 rider survey, minority and low-income riders are more likely to use cash or a weekly pass compared to non-minority and non-low-income riders. Non-minority and non-low-income riders are more likely to use stored value and monthly passes compared to minority and low-income riders. It is worth noting that the 2017 fare change has resulted in an increase in ConnectCard adoption. According to the 2014 rider survey, cash boardings accounted for 14% of ridership. Meanwhile, cash boardings only accounted for 8% of ridership in FY 2019. The 2017 fare change increased ConnectCard adoption by creating a stored value discount by increasing the cash fare by \$0.25 while holding the stored value fare constant and eliminating paper transfers for cash riders. The 2017 fare change also eliminated the Zone 2 fare (\$3.75), decreasing the fare to align with the Zone 1 fare (\$2.50 stored value, \$2.75 cash).

Fare Media Usage Rates from 2014 Rider Survey

Fare Product	Overall	Minority	Non-Minority	Low-Income (<\$25k)	Non Low-Income (>\$25k)
Cash	14%	17%	13%	18%	12%
Stored Value	23%	16%	24%	12%	27%
Tickets	3%	3%	3%	2%	3%
Weekly Pass	9%	17%	7%	15%	6%
10-Trip Pass	1%	0%	1%	1%	1%
Monthly Pass	28%	23%	29%	22%	30%
Annual Pass	2%	2%	2%	1%	2%
Senior Pass	2%	1%	2%	2%	1%
Disability and Half-Fare	2%	4%	1%	5%	1%
Student ID	14%	14%	13%	21%	11%
Other	5%	3%	5%	1%	6%
Total	100%	100%	100%	100%	100%

Note: columns may not sum to 100% due to rounding

Minority and low-income riders are more likely to need to transfer to complete their one-way trip.

Percentage of Riders that Transfer

Transferring	Overall	Minority	Non-Minority	Low-Income (<\$25k)	Non Low-Income (>\$25k)
% riders who do transfer	20%	31%	18%	35%	14%
% riders who do not transfer	80%	69%	82%	65%	86%
Total	100%	100%	100%	100%	100%

This understanding of how different fare policies would impact minority and low-income riders was valuable in developing the recommendations, including the recommendation to eliminate the ConnectCard discount and the transfer charge. Introducing the 3-hour pass and eliminating the transfer charge benefits minority and low-income riders who are more likely to transfer. Meanwhile, the recommendation discontinues the ConnectCard discount that disproportionately benefits non-minority and non-low-income riders, making the fare system more equitable by bringing the cash and stored value base fares in line with each other. In the recommended fare change, Option 2a, the average fare per boarding would increase from \$2.34 per boarding in FY 2019 to \$2.44.

Average Fare for Options 1 and 2

Rider Category	Option 1. Pay for Transfers (Status Quo)	Option 2. 3-Hour Pass with Stored Value Discount	Option 2a. 3-Hour Pass without Stored Value Discount
Full Fare	\$2.34/boarding	\$2.21/boarding	\$2.44/boarding

The implementation of the rolling passes is also intended to help provide lower income riders flexibility to align purchases with travel (e.g., work schedules) and income availability (e.g., pay periods).

A full Title VI fare equity analysis on the final recommended fare change will be completed prior to Board adoption of management’s recommended FY 2022 Proposed Fare Changes and will incorporate the public feedback received during the formal public comment process.

Recommendations and Next Steps

Recommendations for Implementation	Next Steps for Implementation
<ul style="list-style-type: none"> ● Create a 3-hour pass priced at \$2.75 by eliminating \$1 transfer charge and \$0.25 stored value discount ● Introduce rolling weekly and monthly passes (i.e., 7-day and 31-day passes) in place of calendar passes (except maintain calendar passes for employer Job Perks program participants) 	<ul style="list-style-type: none"> ● Seek Board Authorization for Public Comment ● Formal Public Comment Period ● Formal Public Hearing(s) ● Seek Board approval for final recommended changes ● Assuming Board approval, software changes to fare system will be made. Implementation will be based on the timeline to complete software changes and public communication for the changes
Other Recommendations	
<ul style="list-style-type: none"> ● Re-negotiate U-Pass pricing with universities and expand U-Pass to Pittsburgh Public Schools and other educational institutions ● Evaluate deferred fare strategies (e.g., employer programs, special event and convention passes, and pass repricing based on changes in transfer policies) in the future when there is more certainty about what ridership will look like post COVID-19 and once ridership stabilizes and new rider survey demographic data is available 	