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INTRODUCTION

Letter from CEO Katharine Kelleman

To our Customers.

When people hear the words public transit, they think of buses, trains, stops and stations. But those are simply the tools we use to move customers around our community; the heart of our system goes beyond moving riders, it's about connecting them to places, events and people who are important in their lives.

During my first year at Port Authority, I have been struck by the dedication and pride our employees have in their work and in their neighborhoods, and I have been even more impressed by their commitment to our customers.

From flooding damage in the South Hills to the freight train that fell on our property at Station Square to the trucker's lawsuit that led to a significant loss of capital funding, the year certainly was not without its obstacles. If it was a test. I believe we succeeded.

Despite these issues, we bucked a national trend with increased ridership, and while we cannot currently meet demand by putting more buses on the street or building new stations, we can focus our efforts on providing customers with reliable, clean, safe and friendly service that they can count on each day.



While we have made great strides in our ability to evaluate and improve service, there remains a lot of work to do, and we remain committed to providing the quality public transit that Allegheny County deserves.

In the pages that follow, I invite you to learn more about the achievements we made in 2018 and the challenges we plan to tackle in the years ahead.

Thank you for allowing us to serve you.

Sincerely.

yen

Katharine Kelleman, CEO, Port Authority of Allegheny County

Overview of the Annual Service Report

The Port Authority of Allegheny County strives to provide a range of safe, quality transit services in a manner that satisfies three primary goals: efficiency, effectiveness and equity, all of which are critical to successful transit. More information about how the Authority measures its progress against these goals can be found throughout this report.

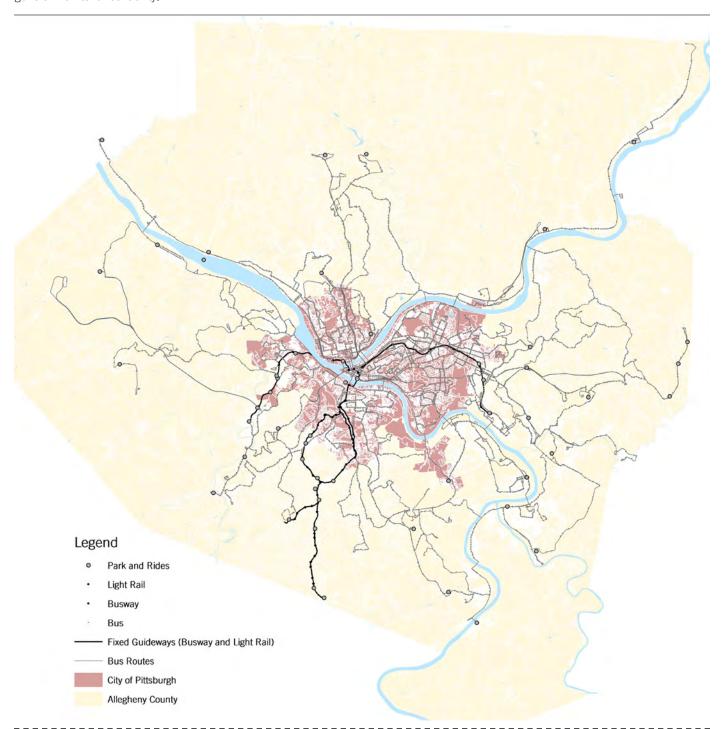
Calendar year 2015 was the first year that Port Authority publicly released its metrics and route performance with respect to its service guidelines. These Transit Service Guidelines, which have existed at Port Authority since 2009 with the Transit Development Plan (and existed prior to that as Service Standards), were updated and approved by the Port Authority Board in November 2017 to reflect realistic metrics for providing efficient, effective and equitable transit service in Allegheny County. The 2018 Annual Service Report is the fourth report of its kind released by the Authority.

Port Authority hopes that this era of transparency and data-driven decision-making assures riders that the organization is constantly striving to better itself and evolve with new technologies and data, while maintaining its emphasis on local knowledge and a deep understanding of the communities it serves.

SYSTEM OVERVIEW

Overview of Port Authority's Transit Services

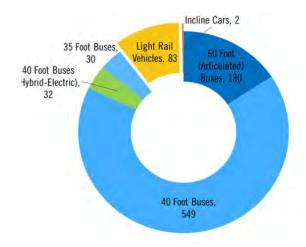
Port Authority of Allegheny County provides public transportation services within Allegheny County, including the City of Pittsburgh, in Southwest Pennsylvania. These services include 97 bus routes (three of which are fixed guideways, or busways, which run along designated, bus-only roads), three light rail routes, and 2 inclined planes (funiculars), one of which is operated by an outside entity and is therefore not included further in this report. Port Authority also sponsors the ACCESS paratransit program, which provides door-to-door, advance reservation, shared ride service which is contracted through a third party provider. These services are all supported by almost 7,000 transit stops and stations, 714 shelters, 52 Park and Ride lots, 119 locations where customers can purchase fare cards and tickets, and various operational centers (including one light rail center, four bus garages, one heavy maintenance bus facility, and one general maintenance facility).



SYSTEM OVERVIEW

Fleet

Port Authority received 69 new buses in 2018 and was able to retire buses that had reached the end of their useful life. The current fleet size is 741 buses and 83 light rail vehicles. The breakdown of the number of vehicles by type can be seen in the chart below.







Transit Stops and Stations

Port Authority has 6,962 transit stations and stops, of which 6,856 are for buses, 102 are for light rail, and four are for the inclines.

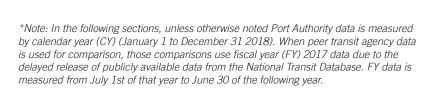
Shelters

Port Authority has 148 shelters at fixed guideway (light rail and busway) stations and 131 shelters at bus stops throughout the county. Additionally, 321 bus stops have shelters owned by another entity (mostly advertising agencies). Overall, 573, or eight percent, of Port Authority's transit stops/stations are sheltered. Of Port Authority's 64 million passenger trips taken in 2018, about 34% of these trips provided shelter for waiting passengers.

28X 77 86 88



Port Authority riders have access to 54 park and ride lots with 13,864 parking spaces. Port Authority owns 29 of these lots (totaling 8,290 spaces). The remaining lots (25 lots with 5,813 spaces) are either leased by the Port Authority or are owned by another entity but advertised in Port Authority's system due to their proximity to transit service. These parking spaces were filled with approximately 10,470 vehicles (74 percent full), on average in 2018, providing access to at least 20,940 trips per day, or about three percent of Port Authority's riders.

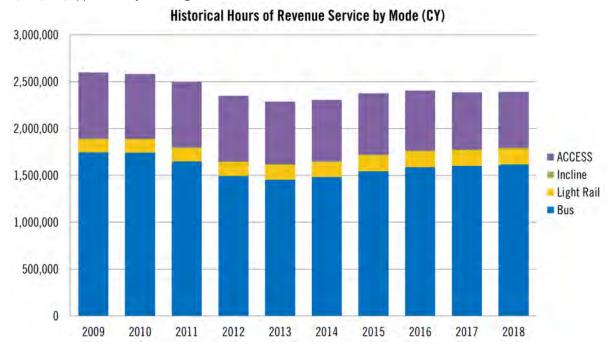






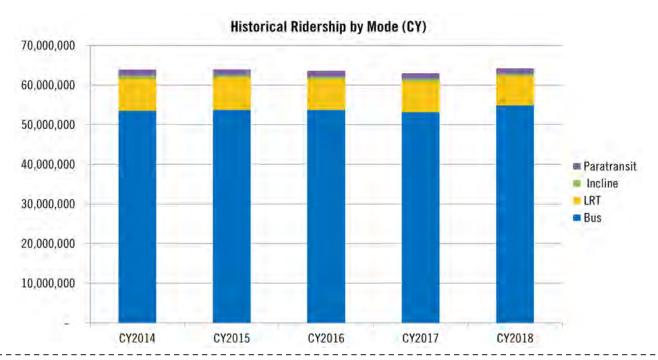
Service Levels

Port Authority has undergone three major service reductions since the early 2000s; which reduced service hours by 18%, then in 2009 with the Transit Development Plan (TDP) which reduced service by 3%, and finally service cuts in 2011 which reduced service by about 8%. Since 2013, service has slowly increased by about 4% to its current level. In 2018, revenue vehicle hours provided by the Authority totalled 2,392,266, approximately 0.2% higher than levels in 2017.



Ridership

Port Authority's overall ridership totalled 64,221,728 in 2018, up 2.0% from 2017 ridership. Bus ridership increased by 3.3%, light rail dropped by 5.5%, ACCESS paratransit dropped by 2.9%, and incline ridership dropped by 4% from 2017 levels. Trends in ridership are explained further on the following page.



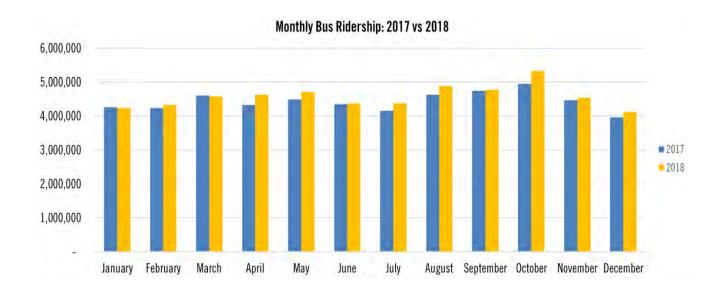
Trends in Ridership

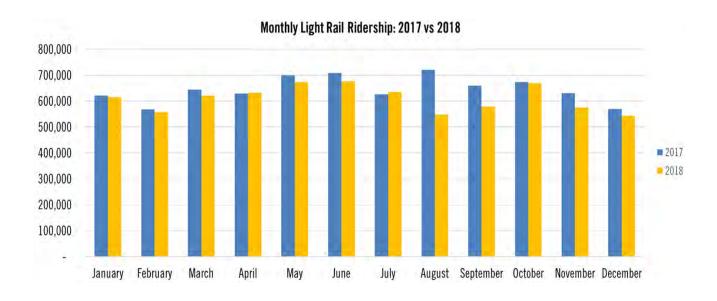
This increase of bus ridership of in 2018 was mainly on routes that enter the Oakland neighborhood of the City of Pittsburgh. This is in keeping with an increase in University (University of Pittsburgh and Carnegie Mellon University) pass usage of 5.1% in CY2018 over CY2017.

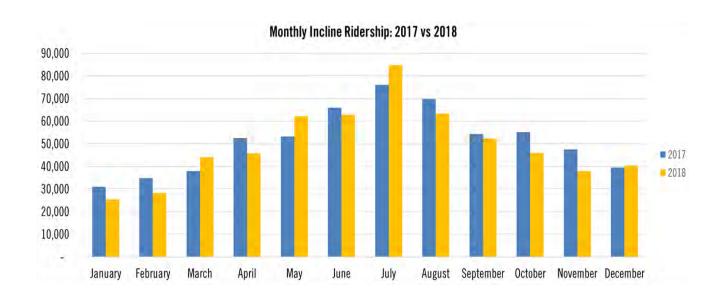
Light rail ridership declined by approximately 5.5% in calendar year 2018. The Library Line was closed due to flooding for three months from June 24th to September 16th 2018, and then there was a train derailment at Station Square in August 2018 for which the tracks were closed for two weeks. These back to back incidents negatively impacted the Port Authority's rail ridership to a great extent. Accurate ridership reporting for the LRT is challenging because the LRT system does not have automatic passenger counters (APCs) that would count passengers as they board and disembark. Port Authority has identified APCs as a potential capital project should funding become available in the FY2020 budget.

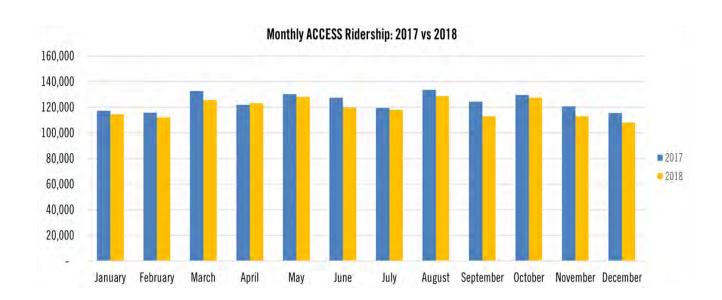
Incline ridership declined by 4.0% in 2018, with no clear indications as to why.

A month over month comparison between the 2017 and 2018 ridership for the four modes: bus, light rail, incline and ACCESS have been shown below and on the following page.









Peer Agency Selection

The following pages describe Port Authority's efficiency and effectiveness metrics, which are provided both historically as well as in comparison with peer agencies. Port Authority compares itself to nine peer transit agencies around the U.S. with which it has some combination of similar city/metropolitan area population, similar transit service levels, and similar modes of service provided. Information regarding each of these attributes is provided below for each agency.

Location	Agency Name	Service Area (miles²)	Service Area Popula- tion	Bus	LRT	Para- transit	Inclined Plane	Annual Total Rider- ship	Annual Operating Budget
Buffalo, New York	Niagara Frontier Transportation Authority (NFTA)	407	981,771	Х	Х	х		26,501,597	\$133,240,098
Milwaukee, Wisconsin	Milwaukee County Transit System (MCTS)	237	957,735	х		x		35,053,133	\$143,007,519
Cleveland, Ohio	The Greater Cleveland Regional Transit Author- ity (RTA)	458	1,412,140	х	х	х		39,562,839	\$255,147,527
Pittsburgh, Pennsylvania	Port Authority of Allegheny County (PAAC)	775	1,415,244	Х	Х	х	Х	63,230,618	\$400,237,217
Minneapolis, Minnesota	Metro Transit (Metro)	653	1,837,223	х	х			81,927,425	\$376,857,531
Denver, Colorado	Regional Transportation District (RTD)	2,342	2,920,000	х	х	х		98,077,504	\$534,766,117
Portland, Oregon	Tri-County Metropolitan Transportation District of Oregon (TriMet)	534	1,560,803	х	х	х		9,045,313	\$448,729,653
Baltimore, Maryland	Maryland Transit Administration (MTA)	2,560	7,811,145	х	х	х		103,571,348	\$696,680,357
Seattle, Washington	King County Metro Transit (Metro)	2,134	2,117,125	х		х		127,954,193	\$686,913,987

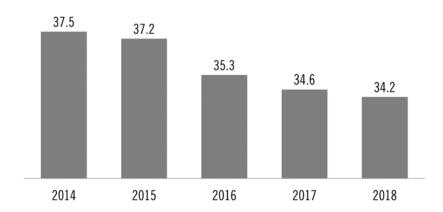
Port Authority strives to provide the highest amount of value to riders and taxpayers by using resources efficiently. This is achieved by maximizing the number of passenger trips provided with available resources, such as time, vehicles, and staff. Three metrics are used to evaluate Port Authority's efficiency: passengers per revenue vehicle hour, cost per passenger served, and percentage of time spent in revenue service.

Peer agency comparisons may include a mixture of data for different modes pertaining to the specific agencies and thus not be directly comparable (unless otherwise stated, they do not include paratransit).

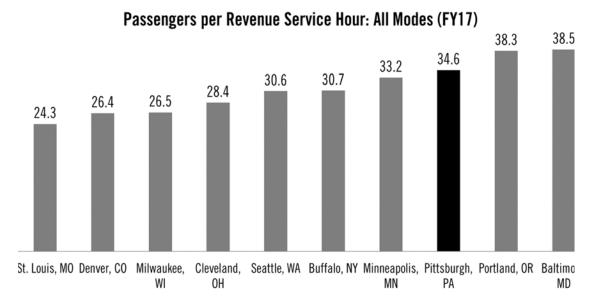
Passengers per Revenue Vehicle Hour

The amount of time spent transporting passengers is an important indicator of the efficiency of the transit system. Port Authority measures the number of passengers it carries per hour of revenue service (time spent picking up and dropping off passengers) it provides. In 2018, Port Authority carried, on average, 34.2 passengers per hour of revenue service provided. This is approximately 1% less efficient than the 2017 efficiency of 34.6 passengers per hour.

Passengers per Revenue Service Hour: All Modes (FY)



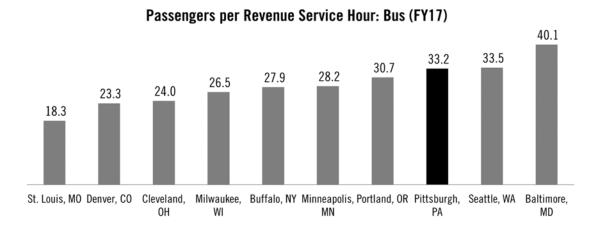
Port Authority ranks moderately high in efficiency of passengers carried per revenue vehicle hour compared to its peers. A breakdown of passengers per revenue service hour by transit mode can be seen on the following page. The relatively high usage of the Authority's bus service hours drive this high ranking.



^{*}Note: Port Authority's peer agencies do not operate inclined planes; as such, there are no peer comparison graphs for this mode.

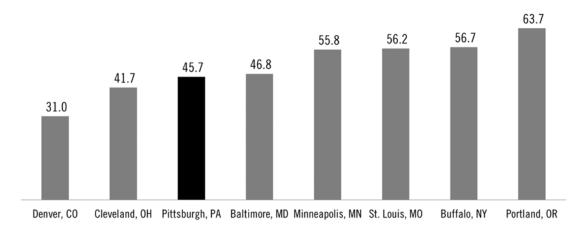
Passengers per Revenue Vehicle Hour by Mode

Bus performed well in comparison with its peer agencies, carrying 33.2 passengers per hour of revenue service provided in FY2017.



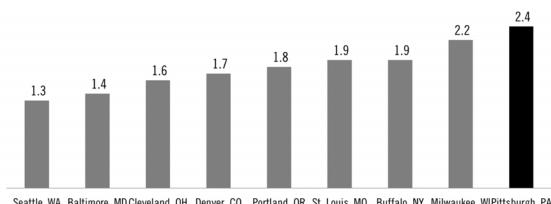
Light Rail performed moderately in efficiency compared to its peers, carrying 45.7 passengers per hour of revenue service provided in 2018.

Passengers per Revenue Service Hour: Light Rail (FY17)



ACCESS Paratransit performed the most efficiently of all of its peers, carrying 2.4 passengers per hour of revenue service provided in 2018.

Passengers per Revenue Service Hour: Paratransit (ACCESS, FY17)

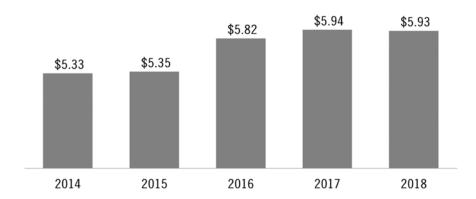


Seattle, WA Baltimore, MD Cleveland, OH Denver, CO Portland, OR St. Louis, MO Buffalo, NY Milwaukee, WIPittsburgh, PA

Cost per Passenger Served

In addition to passengers served per revenue service hour and vehicle in-service time, cost per passenger served is another important measure of efficiency. In 2018, it cost Port Authority an average of \$5.93 to transport each passenger it carried, down 0.2% from 2017. That decrease can be traced largely to a slight increase in ridership while costs remained relatively constant. With an average fare revenue of \$1.57 (26.54% of the cost) per passenger trip provided, this leaves a \$4.35 subsidy per ride that is filled through various federal, state, and local funding sources.

Cost per Passenger Served: All Modes (FY)



Port Authority's cost per passenger served is the second highest among its peers. The cost might not be directly comparable due to different agencies having a unique mix of modes. In Port Authority the costs can be attributed to an older system with significant legacy costs, a strong labor union, significant congestion, and the region's unique topography, which affects the efficiency of vehicles getting to and from places where it begins service, as well as vehicle maintenance costs. A breakdown of cost per passenger served by mode is below.

Cost per Passenger Served: All Modes (FY17)



■ Fare Revenue Per Trip ■ Subsidy per Trip

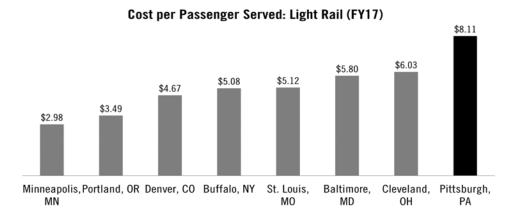
Cost per Passenger Served by Mode

Bus performed relatively inefficiently compared to its peer agencies in FY2017. As passengers carried was not a factor in this cost, this performance is not due to the number of passengers served but the cost of providing the service. Comparatively high operator and maintenance employee wages and benefits, as well as high maintenance costs, are reasons for this.

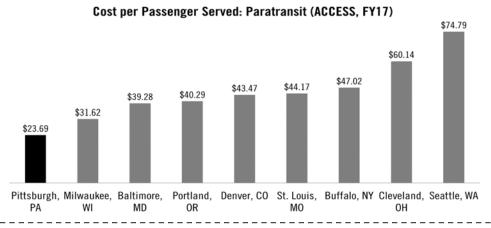
Cost per Passenger Served: Bus (FY17)



Light rail had the highest cost per passenger served compared to its peers. As passengers carried per hour performed moderately, this performance is not due to the amount of service supplied for passengers but rather the costs of providing the service. Comparatively high operator and maintenance employee wages and benefits, high maintenance costs (which are impacted by challenging topography and slopes), and closely spaced stations which cause the rail to travel at lower speeds are reasons for this. Also, the LRT system does not have automatic passenger counters that give a more accurate ridership information at station level. The Port Authority has initiated several studies to better identify actionable steps that can be taken to lower LRT costs.



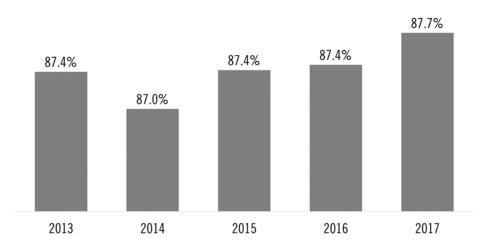
ACCESS paratransit performed most efficiently out of its peer agencies with a cost per passenger of only \$23.69 in FY17.



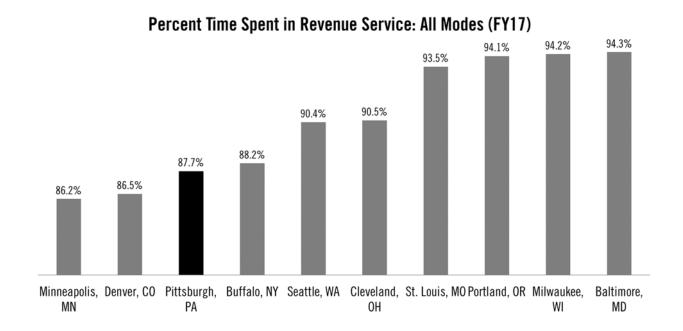
Time Spent in Revenue Service

Port Authority continues to seek more efficient ways to provide service, and attempts to maximize the amount of time that buses are in revenue service (as opposed to driving to/from garages to start or end their trips). This allows the Authority to provide the most transit service possible within the available resources of operator time and vehicles required. The amount of time vehicles spend in service has remained relatively constant over the last five years, but the Authority is focused on increasing this percentage in the coming year.

Percent Time Spent in Revenue Service: All Modes (FY)

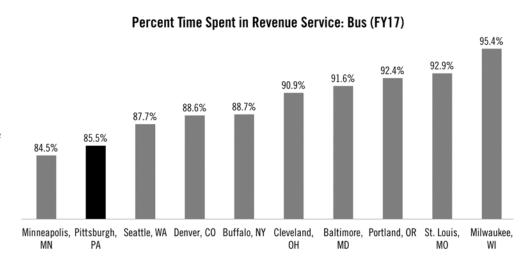


Compared to its peers, the Authority is on the lower end of efficiency due to geographical challenges of Allegheny County's street network. However, the Authority continues to look to ways to increase this efficiency. Evaluation and analysis to increase this percentage will be conducted in FY2020. Revenue service time is further broken out by mode in the charts on the following page.



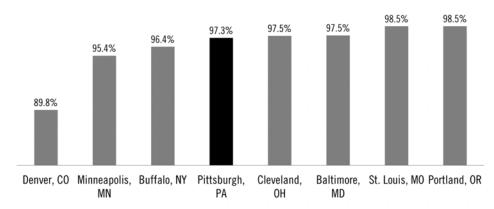
Time Spent in Revenue Service by Mode

Compared to its peers, Port Authority buses spend the second least percentage of their time in service. One challenge for the Authority in this regard is the location of its bus garages - two of which are relatively convenient to areas where service begins or ends, but two of which are further away from where service is provided. As the Authority looks towards adding another bus garage in the future, the convenience of its location is essential to maximizing the amount of service provided within available resources.



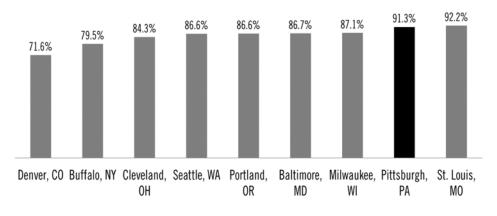
Port Authority's light rail in-service time is comparable to its peers. These numbers do not vary much from one agency to the next, as light rail vehicle storage and maintenance facilities are almost always built near the terminus of a light rail line.

Percent Time Spent in Revenue Service: Light Rail (FY17)



Compared to its peers, ACCESS paratransit performs very well with an average percent time spent in revenue service of more than 91%.

Percent Time Spent in Revenue Service: Paratransit (ACCESS, FY17)



Providing effective transit services means providing services that maximize access to the variety of destinations around Allegheny County. This includes not only residents and jobs, but also medical institutions, shopping, cultural centers, places of worship, parks and recreational areas, and other community assets. The Port Authority defines effectiveness in a variety of ways - on a system level, this includes looking at how many residents and jobs are accessible to transit within a reasonable walking distance (the walkable service area), the timeliness of those transit services (on-time performance) so that riders can get to their destinations as planned, and crowding on vehicles to ensure there is space for people to access those transit services when they arrive.

Walkable Service Area

Over the last decade, Port Authority has seen a substantial decrease in the total area in which its services are provided (defined as the 'walkshed', this includes anywhere within a five minute walk of a bus stop or a ten minute walk of a light rail, incline, or busway station). The 18 percent service cut in 2007, the Transit Development Plan system redesign in 2009, and another round of service cuts in 2011 caused the Authority to lose more than 27 percent of its total hours of transit service provided. During the same period, it also lost a significant portion of its walkable service area. Even though this service area has been reduced, Port Authority still serves a substantial part of Allegheny County, covering nearly half of all residents and almost half of all jobs in the county in 2017.

The walkable service area is also dependent upon service availability. Though almost 11 percent of the county is walkable to transit service on any day of the week, this walkable area serves 34 percent of residents and 45 percent of the jobs in Allegheny County due to population and job density. This service area is slightly larger for six-day-a-week service (areas without Sunday transit service), which serves about 36 percent of residents and 46 percent of jobs, and again slightly larger for areas that have service on weekdays 42 percent of residents and about 49 percent of jobs in the county have walkable access to transit.

Frequent Service Area

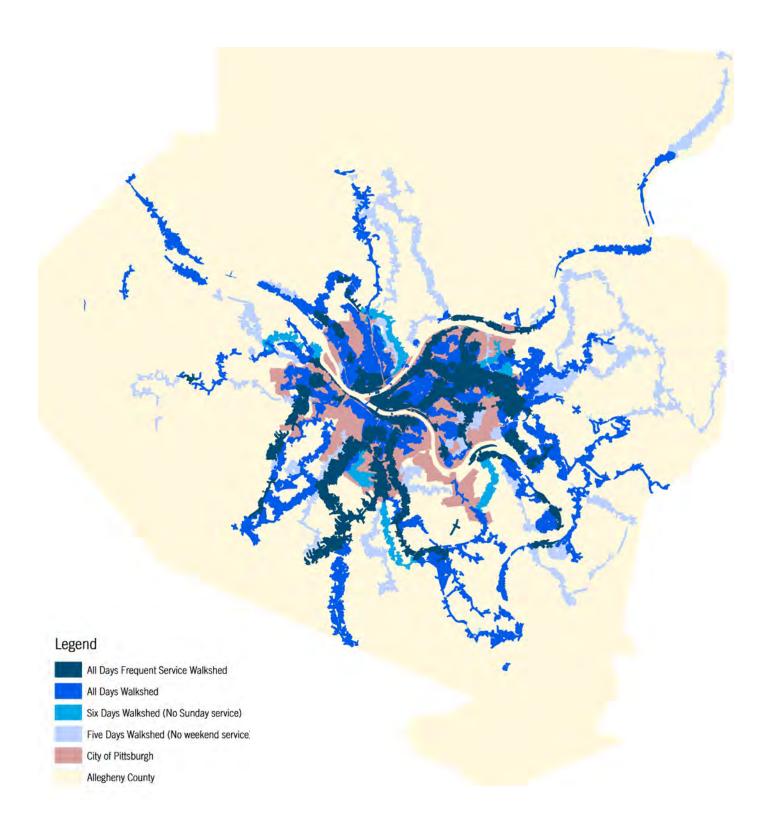
Being able to access transit services is vital to many communities, but being able to access transit without having to schedule life activities around transit schedules promotes mobility and allows residents the freedom of not owning a personal vehicle. In order to have such mobility, it is vital that transit is always on the way - in the industry this is referred to as the frequent service area.

Port Authority defines a "frequent service area" as the 1/4 mile area around a transit stop or the 1/2 mile area around a transit station where transit vehicles come, on average, every fifteen minutes for fifteen hours of the day and every thirty minutes for an additional five hours of the day, every day of the week.

In 2018, Port Authority's frequent service area covered just 4.1 percent of the geographic area of Allegheny County, but encapsulated nearly 17 percent of the residents and 35 percent of the jobs.

	Service	e Area	Popula	ation	Jobs	
Service Days	Total (miles²)	Percent of Total	Total	Percent of Total	Total	Percent of Total
Five Day Service Walkshed (No weekends)	114.43	15.4%	509,997	41.5%	349,855	49.2%
Six Day Service Walkshed (No Sundays)	86.58	11.6%	437,650	35.6%	323,759	45.6%
All Days Service	80.98	10.9%	413,578	33.6%	319,419	45.0%
Frequent Service	30.21	4.1%	205,983	16.7%	250,774	35.3%
All of Allegheny County	745		1,230,360		710,479	

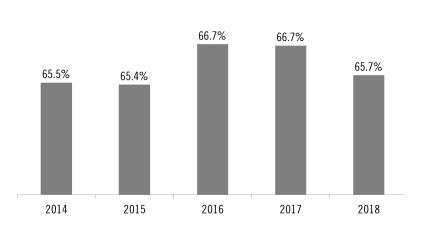
The map on the following page shows geographically where each of these walksheds occur within Allegheny County. The darkest walkshed represents the most robust service (the frequent service area), and the lightest walkshed represents the least robust service (the weekday only service area), with relative walksheds lightening in color respectively.



System On-Time Performance

Port Authority measures on-time performance monthly; bus and light rail schedules are updated quarterly to adjust for changes in running times along a route. The Monongahela Incline is not included in on-time performance, as its trips do not run on a schedule.

To be considered 'on-time,' a bus or light rail vehicle must arrive at its timepoint (key stops along its route) between 1 minute ahead of schedule and five minutes behind schedule (this represents a change from past reports, where on-time performance was measured up to six minutes late). On-time performance is collected at every timepoint on every trip through automatic vehicle location (AVL) systems linked to GPS aboard buses. Light rail only recently acquired the AVL system; as such light rail on-time performance is not included in this report but will begin to be reported in 2019.

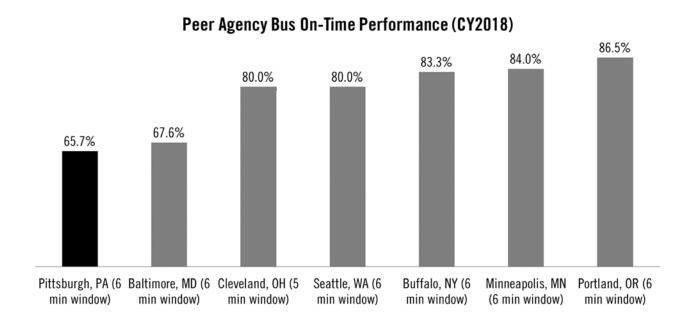


Historical Bus On-Time Performance (CY)

Bus on-time performance increased from 63.8% in 2013

to 67.0% in 2017 and then went down to 65.7% in 2018. These changes are largely due to greater ability to analyze appropriate travel times for buses by time of day using historical location data and adjusting schedules to match actual conditions in the field.

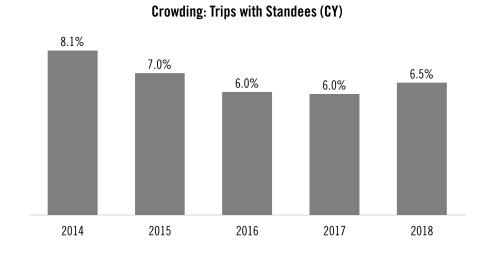
Compared to its peer agencies who report on-time performance data (which is not required by the FTA and therefore has different definitions at different agencies), Port Authority buses perform the least effectively. Three peer agencies did not have data available for comparison, or data that was available was not detailed enough to ensure similar measurement techniques for comparative purposes, therefore they are not reported below. Peak hour congestion contributes to relatively unreliable travel times, especially within the City of Pittsburgh, making the scheduling of and adherance to specified times difficult.



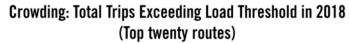
Passenger Loads: Crowding

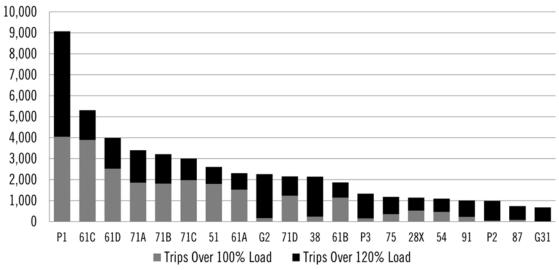
Port Authority considers a bus trip to be "crowded" when the number of people on board the vehicle (load) at any point along the trip is equal to or greater than the number of seats on the vehicle. For example, a standard 40 foot bus may have 40 seats. With 40 people on the bus, the bus is considered to be at a 100% seated load. Beyond this, the bus is considered to be crowded. Due to limitations on the number of vehicles the Authority owns it is allowable for buses to run, on average, at 120% seated loads during rush hour and, on average, at 100% seated loads during all other times. If a particular bus route averages more than these allowed loads, additional service must be considered for this route in order to minimize passenger discomfort and the possibility of a passenger getting passed up by a full bus and having to wait for the next trip.

In 2018, 6.5% of trips were considered crowded, representing an increase of nine percent more overcrowded trips from 2017 levels.



Crowding continues to be a problem on select routes, and Port Authority continues to prioritize reducing crowding to manageable levels wherever possible given labor force and availability of vehicles. More than 55 percent of this crowding occurs on bus trips during peak periods on weekdays when resources are already being utilized near maximum capacity. Over 50 percent of crowding occurs on only 7 bus routes; the P1, 61C, 61D, 71A, 71B, 71C, and 51.





SYSTEM EQUITY

Persons with higher mobility needs are critical to the sustainability of Port Authority; they are the people who ride most often and are most in need of service because they do not have as many options to get from place to place by other means. Data below includes information regarding the population of Allegheny County as a whole to give a broader view of riders and trends. The Authority is in the process of conducting an updated rider survey for 2019 in order to better understand how the populations it serves differ from those of the County as a whole. For information on the prior rider survey conducted in 2015, see the 2015 or 2016 Annual Service Reports.

Port Authority's Equity Index

Port Authority considers the following groups when looking at higher mobility need populations: people in poverty, persons of a minority race or ethnicity, persons with disabilities, persons under age 18 and over age 65, persons without access to a vehicle, persons who do not speak English very well and female head of households (with no husband present). The 2015 Equity Index included five of the stated indicators and was updated in 2019 to also include persons under age 18, female householders and persons who do not speak English very well (the report can be found on Port Authority's website, https://www.portauthority.org/siteassets/inside-the-pa/transparency/data-and-statistics/paac-2019-equity-index.pdf). All of the data on where these groups reside around Allegheny County is taken from the US Census and American Community Survey. Port Authority uses a combination of the stated demographic indicators to develop an overall location-based equity index within Allegheny County. This new index will be used for equity analysis beginning with the 2019 Annual Service Report. Each category and their reason for inclusion in the index has been discussed below.

People in Poverty:

Three types of data are used to capture the areas where people in poverty either live or work: household income (households earning less than \$25,000 per year), cost burdened renters (houeholds that pay more than 30% of their household income for rent), and locations of low income jobs (jobs that pay less than \$1250 per month).

Racial or Ethnic Minority Persons:

People who are either Hispanic or do not identify as Caucasian are considered as racial and ethnic minorities. Minority populations are a historically disadvantaged group, making them more transit dependent irrespective of them being included in any of the other categories in the index.

People with Disabilties:

People identified as having one or more disabilities are included in this group. Two data sets were used to used to identify areas where people with disabilities live and travel. One is Census data for households with one or more persons with a disability. The other is the trip origin and destination data of the Authority's ACCESS paratransit program, which provides rides primarily for seniors and people with disabilities.

Older Adults:

Households with persons over age 65. Older adults may no longer have the ability to drive, making them dependent on transit.

Persons Under Age 18:

Households with persons under age 18 are included in this index as they most likely do not possess a drivers license yet.

Households without Vehicles:

Households that do not have access to a vehicle are much more transit dependent.

People with Limited English Proficiency:

Households where one or more persons speak a language other than English and do not report as speaking English very well are included in the index as they might not have the ability to take the written test for a drivers license or read road signs.

Female Householders:

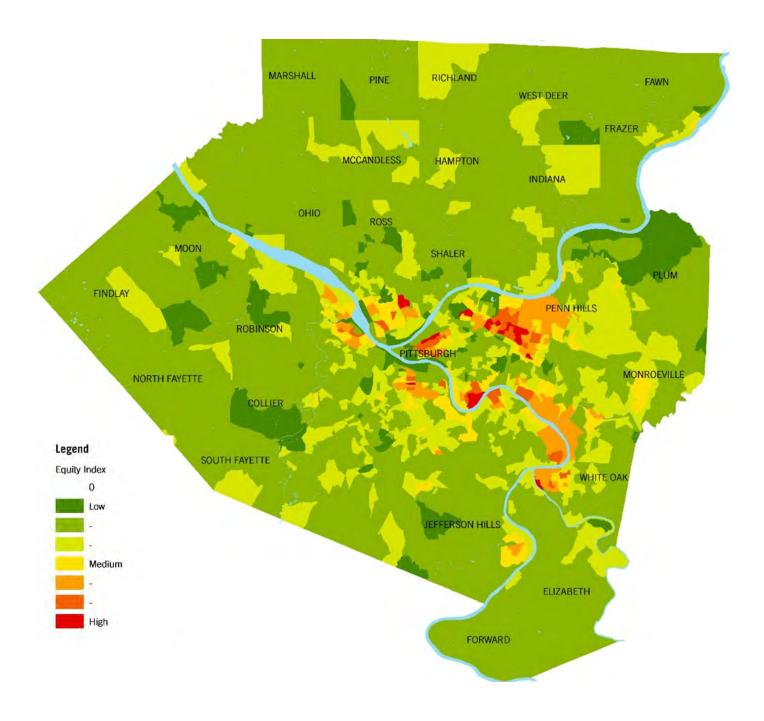
Households with a female parent or guardian and children but no husband have added vulnerability which can make them transit dependent.

Port Authority Sensitive Use Policy

In addition to the groups above, which mainly include where people live, it is also important that the Authority prioritize where more vulnerable populations need to go in order to provide economic mobility. The Authority is considering additions to its Service Guidelines, which need to be reapproved by the Board, in FY2020 which reflect these priorities. One example of this could include ensuring that the Authority provide all day transit service within a reasonable walking distance to all higher education institutions within the County borders that serve more than 2,500 students, faculty and staff in order to promote economic mobility of our customers through continuing education and in support of regional economic growth.

SYSTEM EQUITY

The percentage of the population in each Census block group falling into the eight categories of the Equity Index is averaged (all eight indicators are weighed equally) together to create one final value of 'equity' for each location. Higher equity areas have higher percentages of the population falling into these eight demographic categories, and are higher priority areas for Port Authority to serve. These are shown in the map below for Allegheny County.



Summary of Service Guidelines

The following sections describe current areas where existing service is not meeting the service guidelines established and approved by the Board in 2017. In addition to descriptions, each problem area has a solution presented that outlines the proposed plan for addressing each issue in FY2020. Planned changes set forth in this document are not set in stone – the scheduling of vehicles is conducted in a complex optimization software program, and therefore the cost of proposed changes cannot be fully determined until the entire system is optimized with this software. As such, the Service Development Department will identify all of the areas where current guidelines are not being met, but budgetary, vehicle, and/or labor force constraints may limit the agency's ability to address these areas in near term.

The following chart gives a summary of the route-specific service guidelines set forth in the 2017 Transit Service Guidelines document. See the Service Guidelines document on Port Authority's website for more detailed guidelines.

Mode	Route Type	Service Day	In-Service Percent	Passengers per Revenue Service Hour	On-Time Performance	Crowding	Average Stop Spacing (feet)	
		Weekday		40		1400/ (magk)		
	Rapid	Saturday	75%	40	75%	140% (peak) 120% (all other times)	2,500	
		Sunday		30		times)		
		Weekday		30				
	Express	Saturday	50%	20	75%	120% (peak) 100% (all other	1,200	
Bus		Sunday		20		times)		
		Weekday		30		120% (peak) 100% (all other times)		
	Key Corridor	Saturday	75%	20	75%		900	
		Sunday		20		times/		
		Weekday		20		120% (peak)		
	Local	Saturday	70%	15	75%	100% (all other times)	900	
		Sunday		15		times/		
		Weekday		80		250% (peak)		
Rail	Rapid	Saturday	75%	50	80%	140% (all other times)	2,500	
		Sunday		45				

In-Service Time

In-service time refers to the percentage of time that vehicles are in-service (as opposed to out of service). Out-of-service time includes vehicles heading to and from the bus garages/rail center, as well as time spent moving from the end of one route to the end of another to begin a trip on a different route. In 2018, no routes were out of compliance with the in-service percent guidelines.

Frequency of Service

In 2018, all routes met frequency guidelines and do not require any changes for FY2020.

Passengers per Revenue Vehicle Hour

Passengers per revenue vehicle hour refers to the basic efficiency of the bus or light rail route when it is running. The number of people the vehicle carries per hour of service that it provides is a standard measure of general efficiency in the realm of public transportation.

Day of Week	Route Type	Route	Guideline (riders / hour of service)	Current Level (riders / hour of service)	Planned Changes	
	Rapid	BLLB	80	73	Technology updates planned for FY2020.*	
		2	20	17	Evaluate route design & service level based on ridership levels. Conduct community outreach & survey to evaluate appropriate service levels & route design. Implement On Time Performance (OTP) initiatives to increase service reliability.	
Weekday	Local	18	20	18	Evaluate route design & service level based on ridership levels. Conduct community outreach & survey to evaluate appropriate service levels & route design. Implement OTP initiatives to increase service reliability.	
			44	20	19	Evaluate Weekday Extension to Baldwin for possible separate route designation with faster service into CBD. Implement OTP initiatives to increase service reliability.
		71	20	13	Headway changed for June 2019 schedule change. Awaiting reconstruction of Kenmawr Bridge in 2019 to implement routing improvements. Implement OTP initiatives to increase service reliability.	
		BLLB	50	33	Technology updates planned for FY2020.*	
Saturday	Rapid	BLSV	50	26	Technology updates planned for FY2020.*	
Saturday	Ναρισ	G2	40	39	Continue to monitor performance & implement development initiatives for route. Implement OTP initiatives to increase service reliability.	
	Local	40	15	12	Evaluate route design & service level based on ridership levels. Conduct community outreach & survey to evaluate appropriate service levels & route design. Implement OTP initiatives to increase service reliability.	
		55	15	13	Passenger loads to be reviewed for unnecessary trips.	
Sunday		58	15	14	Passenger loads to be reviewed for unnecessary trips.	
		BLLB	45	27	Technology updates planned for FY2020.*	
	Rapid	BLSV	45	25	Technology updates planned for FY2020.*	
	Ναμια	G2	30	29	Continue to monitor performance & implement development initiatives for route. Implement OTP initiatives to increase service reliability.	

^{*}The Authority does not have automatic passenger counters (APCs) on the light rail system, and is planning to procure them in FY2020 which should better account for light rail free rides in the Downtown area that are not accounted for in these figures. Port Authority has identified APCs as a potential capital project should funding become available.

Distance between Transit Stops

Port Authority has had minimum stop spacing guidelines since the TDP in 2009, but has not yet undertaken a system-wide project to adjust the spacing between its stops. In advance of the broad rollout of a new wayfinding program to better provide signage and stop amenities throughout the system, the Authority will begin to address this issue in the coming year. This will be done in concert with a broader effort to reach out to communities and riders to determine priorities in provision of transit services in the near future.

At the end of 2018, 59 routes did not meet stop spacing as per the service guidelines. Port Authority did not begin its stop optimization project in calendar year 2018 due to other planning projects, but is developing a plan for rolling this program out using a data-driven process.



Passenger Loads: Crowding

Based on the service guidelines, the following routes were out of compliance for crowding in 2018 over ten percent of the time. Service Development staff will coordinate a Quarterly Fleet Allocation plan with Operations and Maintenance staff to begin planning efforts to address capacity with overcrowding trips. Current limitations are routes that cannot perform with a 60' vehicle and budgetary restrictions to add frequency to address overcrowding.

Earl	y AM	AM	Peak	Mi	dday	PM	Peak	Wee	ekend
10	0%	12	120%		100%		120%		00%
Route	% Trips Over Guideline								
P76	23%	G31	27%	61C	23%	P1	21%	61C	19%
P10	13%	38	16%	61D	15%	610	17%	P1	13%
		28X	16%	P12	13%	71B	17%	61D	12%
		P1	15%	P1	13%	71A	16%	71C	11%
		71B	15%	71A	13%	61D	14%		
		61C	14%	71B	11%	38	14%		
		G3	13%			71C	12%		
		71A	13%			G2	12%		
		61D	12%			71D	12%		
		P2	12%			61A	12%		
		75	11%	_		P12	11%	_	
		54	11%			61B	11%		
						75	11%		

Bus On-Time Performance

In 2018, the Authority moved from measuring on-time performance as one minute early to six minutes late to now measuring it as one minute early to five minutes late to better align with its peer agencies. In doing so, it also adjusted its goal to be 73% on time for CY2018. Average bus on-time performance was 65.7% for the calendar year, with 77 of 97 bus routes not meeting the 73% goal. The lowest performing 20 routes are listed below and will be prioritized in 2019 for updates to schedules if possible to improve on-time performance.

Route	On Time Performance
P7	51%
Y47	52%
61C*	55%
P76	55%
P69	56%
71C*	57%
012	58%
77	59%
67	60%
86	60%

Route	On Time Performance
21	60%
82	60%
05	61%
1	61%
69*	61%
51	61%
61D*	62%
61B*	62%
29	62%
61A*	62%

*The Oakland Bus Rapid Transit (BRT) project calls for dedicated, transit-only lanes and adaptive transit signals along the Fifth Ave and Forbes Ave corridors between Downtown Pittsburgh and the Uptown and Oakland neighborhoods of the City of Pittsburgh. This project proposes to increase travel speeds and reliability in the corridor with the hope of significantly improving on-time performance. Routes 61A, 61B, 61C, 61D, 69, and 71C from the above tables will be affected by the BRT project. More information on the Oakland BRT, including a project timeline, can be found on the project's website, https://www.portauthority.org/inside-Port-Authority/projects/bus-rapid-transit/.

For improvement of both BRT and non-BRT routes a thorough analysis of the data collection and reporting process for on-time performance will be conducted to ensure a firm understanding of various technologies on board the transit vehicles. An internal review of an arrival versus departure based system setup within our CAD/AVL will be conducted. The routes identified in this report will be a high priority for focusing particular attention on the improvement of operating schedules.

ACCESS Paratransit On-time Performance

ACCESS Paratransit defines on-time performance as arriving not more than 20 minutes after the scheduled pickup time, and within 45 minutes of a will-call return. For 2018, ACCESS's on-time performance was 95.5%.



ROUTE PERFORMANCE

Summary of Route Performance

A summary of existing transit route metrics can be seen below. Highlighted metrics fall below the service guidelines for that route.

Route	Mode	Route Type	Days of Service	Average Weekday Riders	Average Saturday Riders	Average Sunday Riders	Passengers per Revenue Service Hour	In- Service Percent	Cost / Rider Served	Percent of Trips Crowded	On-Time Perfor- mance	Average Stop Spacing
1	Bus	Local	All Days	1,732	1,221	936	27	82.8%	\$9.71	1%	61%	1,105
2	Bus	Local	Weekday Only	1,002	-	-	17	87.4%	\$13.39	0%	63%	952
4	Bus	Local	No Sundays	661	254	-	24	97.7%	\$8.47	0%	67%	686
6	Bus	Local	All Days	1,205	538	454	36	87.9%	\$7.24	1%	76%	562
7	Bus	Local	Weekday Only	134	-	-	26	91.2%	\$8.84	0%	73%	826
8	Bus	Key Corridor	All Days	3,293	1,663	1,090	36	90.6%	\$6.49	1%	68%	666
11	Bus	Local	All Days	595	241	160	31	88.4%	\$9.05	0%	74%	639
12	Bus	Local	All Days	1,178	1,369	847	24	81.9%	\$10.02	3%	<mark>65%</mark>	1,482
13	Bus	Local	All Days	2,177	1,425	724	35	91.1%	\$6.53	1%	67%	706
14	Bus	Local	All Days	1,325	604	409	22	79.3%	\$13.18	0%	75%	1,222
15	Bus	Local	All Days	1,076	754	458	32	87.7%	\$8.13	0%	75%	568
16	Bus	Key Corridor	All Days	3,982	2,128	1,443	49	85.5%	\$5.31	2%	<mark>70%</mark>	586
17	Bus	Local	All Days	1,352	623	567	26	97.4%	\$7.88	0%	69%	893
18	Bus	Local	All Days	92	-	-	18	89.2%	\$16.88	0%	79%	616
20	Bus	Local	Weekday Only	642	-	-	20	81.8%	\$12.76	0%	73%	1,196
21	Bus	Local	All Days	1,429	681	399	29	75.1%	\$9.46	0%	60%	2,089
22	Bus	Local	No Sundays	868	451	-	35	81.0%	\$8.02	0%	72%	1,191
24	Bus	Local	All Days	1,769	1,347	1,039	40	78.2%	\$6.72	1%	<mark>68%</mark>	1,447
26	Bus	Local	All Days	991	550	352	29	79.5%	\$9.89	0%	76%	745
27	Bus	Local	All Days	1,135	634	459	33	78.7%	\$8.41	0%	74%	797
29	Bus	Local	Weekday Only	924	-	-	22	80.5%	\$11.17	0%	62%	1,225
31	Bus	Local	All Days	1,749	864	612	27	90.2%	\$8.14	1%	<mark>69%</mark>	917
36	Bus	Local	Weekday Only	709	-	-	27	81.0%	\$9.98	0%	64%	1,149
38	Bus	Local	All Days	3,303	386	226	40	85.0%	\$6.18	9%	63%	977
39	Bus	Local	No Sundays	1,608	239	-	32	74.5%	\$9.66	2%	77%	884
40	Bus	Local	All Days	613	229	165	22	77.4%	\$12.92	0%	75%	712
41	Bus	Local	All Days	1,749	524	336	26	89.7%	\$8.62	2%	70%	841
43	Bus	Local	All Days	708	356	247	32	78.8%	\$8.63	0%	64%	742
44	Bus	Local	All Days	1,049	306	244	19	74.1%	\$14.71	0%	76%	861
48	Bus	Local	All Days	3,066	1,854	1,066	54	78.1%	\$5.05	3%	69%	537
51	Bus	Key Corridor	All Days	8,204	5,164	3,482	50	93.0%	\$4.42	6%	61%	841
54	Bus	Key Corridor	All Days	4,088	2,305	1,119	33	86.6%	\$8.10	4%	67%	673
55	Bus	Local	All Days	1,005	759	601	18	98.0%	\$11.72	0%	70%	1,373
56	Bus	Local	All Days	1,700	823	647	30	91.8%	\$7.81	2%	73%	1,097
57	Bus	Local	All Days	1,275	927	674	33	85.5%	\$7.60	0%	69%	1,056
58	Bus	Local	All Days	1,065	243	147	<mark>27</mark>	89.6%	\$8.76	0%	71%	813
59	Bus	Local	All Days	2,142	1,912	1,308	25	88.9%	\$8.98	0%	64%	1,028
60	Bus	Local	Weekday Only	566	-	-	40	95.9%	\$4.97	0%	80%	594
64	Bus	Local	All Days	1,790	1,720	1,067	29	85.3%	\$9.33	0%	69%	862
65	Bus	Express	Weekday Only	438	-	-	42	72.2%	\$6.72	1%	64%	745
67	Bus	Local	All Days	2,146	929	466	30	90.7%	\$7.79	5%	60%	937
68	Bus	Local	All Days	100	453	223	22	92.7%	\$11.14	0%	71%	805
69	Bus	Local	All Days	1,530	369	256	26	89.8%	\$8.78	5%	61%	825
71	Bus	Local	Weekday Only	90	-	-	13	93.1%	\$18.01	0%	70%	571
74	Bus	Local	No Sundays	983	486	-	23	93.2%	\$9.45	0%	64%	538
75	Bus	Local	All Days	3,326	1,829	1,372	42	94.4%	\$5.76	6%	64%	747

ROUTE PERFORMANCE

Route	Mode	Route Type	Days of Service	Average Weekday Riders	Average Saturday Riders	Average Sunday Riders	Passengers per Revenue Service Hour	In- Service Percent	Cost / Rider Served	Percent of Trips Crowded	On-Time Perfor- mance	Average Stop Spac- ing
77	Bus	Local	All Days	2,335	1,121	699	30	91.7%	\$7.68	1%	59%	880
79	Bus	Local	All Days	993	702	404	30	90.8%	\$8.28	0%	67%	632
81	Bus	Local	All Days	1,818	932	621	44	84.5%	\$6.10	0%	65%	667
82	Bus	Key Corridor	All Days	4,061	2,447	1,829	52	91.5%	\$4.30	1%	60%	528
83	Bus	Local	All Days	2,469	1,493	920	51	84.9%	\$4.86	2%	63%	701
86	Bus	Local	All Days	2,937	2,522	1,618	42	96.5%	\$5.20	1%	60%	594
87	Bus	Local	All Days	2,789	722	218	43	87.0%	\$5.80	3%	70%	577
88	Bus	Local	All Days	3,164	1,624	1,194	49	96.9%	\$4.55	2%	64%	655
89	Bus	Local	All Days	407	272	154	26	95.5%	\$9.42	0%	63%	544
91	Bus	Key Corridor		4,452	2,114	1,076	38	82.6%	\$7.19	3%	63%	717
93	Bus	Local	Weekday Only	2,010	_	_	34	86.2%	\$7.86	2%	67%	669
19L	Bus	Express	Weekday Only	662	_	_	44	68.6%	\$7.61	6%	69%	1,150
28X	Bus	Local	All Days	2,065	1,693	1,461	25	90.7%	\$9.83	5%	63%	4,462
51L	Bus		Weekday Only	688	1,095	1,401	59	57.4%	\$6.49	7%	68%	1,134
		Express				-						
52L	Bus	Express	Weekday Only	429	-	-	31	74.1%	\$9.25	1%	69%	978
53/53L	Bus	Local	No Sundays	1,462	337	-	23	93.8%	\$8.97	1%	63%	1,200
61A	Bus	Key Corridor		4,895	3,210	2,381	42	85.0%	\$5.74	8%	62%	656
61B	Bus	Key Corridor	,	4,394	2,708	1,935	44	81.9%	\$5.86	7%	62%	751
61C	Bus	Key Corridor	All Days	6,314	4,562	3,374	50	84.1%	\$4.69	17%	<mark>55%</mark>	936
61D	Bus	Key Corridor	All Days	5,451	3,264	2,126	50	84.8%	\$4.99	12%	<mark>62%</mark>	866
71A	Bus	Key Corridor	All Days	5,814	2,587	1,787	58	91.8%	\$3.99	10%	64%	580
71B	Bus	Key Corridor	All Days	5,199	2,267	1,393	56	92.7%	\$4.13	11%	65%	623
71C	Bus	Key Corridor	All Days	5,812	3,099	1,981	52	97.3%	\$4.06	11%	57%	639
71D	Bus	Key Corridor	All Days	4,572	1,969	1,378	45	96.4%	\$4.84	7%	65%	643
78/P78	Bus	Local	Weekday Only	1,234	-	-	29	88.8%	\$8.40	5%	59%	1,216
BLLB	LRT	Rapid	All Days	5,977	1,830	1,448	64	89.3%	\$8.13	#N/A	No data	2,402
BLSV	LRT	Rapid	All Days	9,035	1,390	1,183	75	98.0%	\$6.13	#N/A	No data	2,295
G2	BRT	Rapid	All Days	3,905	1,049	753	49	86.1%	\$5.28	5%	70%	2,607
G3	Bus	Express	Weekday Only	952	-	-	33	68.7%	\$9.49	7%	65%	6,477
G31	Bus	Express	Weekday Only	686	_	_	33	74.3%	\$8.34	13%	70%	1,663
INC	Incline	Rapid	All Days	1,350	2,883	1,626		100.0%	φο.ο :	#N/A	No data	1,000
01	Bus	Express	Weekday Only	1,170	2,000	1,020	78	64.3%	\$5.20	5%	64%	4,422
012				1,456			46	70.5%	\$6.83	6%	58%	2,180
05	Bus	Express	Weekday Only	1,436	-	-	25	59.5%		0%	61%	
	Bus	Express	Weekday Only		4 005	2 200			\$13.13			1,115
P1/P2	BRT	Rapid	All Days	11,996	4,885	3,380	102	93.6%	\$2.41	15%	73%	3,414
P10	Bus	Express	Weekday Only	699	-	-	29	62.2%	\$10.86	8%	62%	1,550
P12	Bus	Express	Weekday Only	1,229	-	-	33	69.2%	\$8.98	10%	63%	2,305
P13	Bus	Express	Weekday Only	308	-	-	30	68.6%	\$11.55	0%	63%	1,235
P16	Bus	Express	Weekday Only	911	-	-	30	69.2%	\$10.06	6%	68%	1,368
P17	Bus	Express	Weekday Only	390	-	-	39	82.4%	\$6.55	1%	<mark>69%</mark>	990
P3	Bus	Express	Weekday Only	2,821	-	-	53	75.3%	\$5.85	5%	81%	2,037
P67	Bus	Express	Weekday Only	483	-	-	33	74.4%	\$8.75	3%	64%	2,263
P68	Bus	Express	Weekday Only	1,230	-	-	37	85.4%	\$6.59	3%	63%	1,134
P69	Bus	Express	Weekday Only	256	-	-	31	72.8%	\$9.46	3%	<mark>56%</mark>	1,334
P7	Bus	Express	Weekday Only	764	-	-	31	82.5%	\$8.08	1%	51%	1,540
P71	Bus	Express	Weekday Only	571	-	-	38	85.9%	\$6.91	3%	68%	1,171
P76	Bus	Express	Weekday Only	1,021	_	-	39	60.7%	\$8.40	6%	55%	2,029
RED	LRT	Rapid	All Days	10,322	5,801	3,934	82	99.1%	\$5.57	#N/A	No data	1,801
Y1	Bus	Express	Weekday Only	749	3,001	3,504	43	63.4%	\$8.11	7%	67%	2,622
Y45	Bus	Express	Weekday Only	277	-	-	25	62.0%	\$12.85	0%	70%	1,200
Y46												
	Bus	Local	All Days	1,829	843	683	26	79.5%	\$9.73	1%	67%	1,344
Y47	Bus	Local	No Sundays	1,122	527	-	27	87.7%	\$8.67	1%	52%	1,329
Y49	Bus	Local	All Days	1,349	651	393	30	88.6%	\$7.67	2%	68%	1,30

UPDATES ON RECENT SERVICE CHANGES

Minor Service Updates

The following table provides a summary of minor service changes made in calendar year 2018 to address various efficiency metrics. Minor service changes are made four times each year, and use mostly existing resources to adjust services to improve service quality. This includes adding/removing individual trips to better serve riders and increasing/decreasing the scheduled time for buses to get from one point to another to improve on-time performance.

Issue Addressed	Route(s)
On-time Performance (running times adjusted to improve)	1, 12, 16, 19L, 20, 21, 22, 24, 28X, 29, 36, 38, 41, 43, 48, 51, 51L, 52L, 53L, 55, 58, 59, 61A, 61B, 61C, 61D, 64, 65, 67, 69, 71B, 71D, 74, 75, 77, 79, 81, 82, 83, 86, 87, 88, 91, 05, 012, P7, P10, P17, P67, P69, P76, P78, Y1, Y45, Y46, Y47, Y49
Off Service Running Time (Time to/from garage changed to improve efficiency or on-time performance.)	12, 43, 48, 91, 01, 012
Extending Span of Service or Frequency of Service	12, 51, 61A, 65, 87, 91
Reducing Overcrowding by Adding Trips or adjusting trip times	38, 61D, 67, 71A, 71B, 71C, 71D, BLLB, BLSV
Minor Extensions	53L, 55, 59, 69, P67

Major Service Updates

The following table provides a summary of service changes made in calendar years 2017 and 2018 to maintain service guidelines and to expand service using the Service Evaluation process where budget allowed. Route extensions are often inefficient on their own due to the nature of ridership near the end of a route. Changes which do not perform well over time may be adjusted to improve efficiency.

	Route(s)	Major Change	Change in riders (per Weekday / Saturday / Sunday)			Efficiency of Change		Cost per
Year			Projected	Actual Gain		(riders/hour on altered	Annual Cost	Rider Gained (Lost)
			Gain	2017	2018	segment only)		(LUSI)
2017	55	Route extended to serve Mifflin Estates apartment complex seven days a week	212 / 108 / 69	70 / 66 / 54	73 / 46 /37	7.2	\$501,000	\$21.62
	56	Route extended to Penn State McKeesport Campus on Saturdays and Sundays to match weekday	71 / 42	66 / 56	97 / 91	28.1	\$8,400	\$0.81
	78/P78	Midday 78 trips converted to P78 to stimulate ridership and improve efficiency	10	220	-82	(15.8)	\$163,000	(\$7.75)
	21	Reroute the 21 on every other trip via University Blvd to University Blvd PNR in Moon Township instead of Sewickley	169 / 85 /51	NA	36 / 2 / 29	4.9	\$164,000	\$14.92
	28X	Extend 28X to East Liberty Garage via Fifth Avenue	10/5/3	NA	154 / 122 / 109	13.9	\$179,000	\$3.44

CHANGES COMING IN FY2020

Service Request Process

Port Authority's Service Guidelines include a process for the public to submit a request for a major service change (changes that affect more than 30% of a route's miles or hours of service). A PennDOT audit in CY2018 suggested the Authority update the process for evaluating major service changes. As such, the Authority is currently working on changes to this process and will release an evaluation of the service requests from 2018 later this calendar year as an Addendum to this report.

Summary

This was the fourth year that Port Authority has released route level data with respect to meeting service guidelines. As this process continues, the Authority hopes that it not only improves the transparency of decision-making processes, but that it leads to better efficiency, effectiveness, and equity in the system as a whole so that Allegheny County's transit system evolves along with the communities that it serves.



This document was produced by the Planning Department and the Service Development Department at the Port Authority of Allegheny County. For additional information on the creation of this report or Port Authority's services, please visit Port Authority's website at www.portauthority.org.