

**PORT AUTHORITY OF ALLEGHENY COUNTY
ANNUAL SERVICE REPORT
2017**

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INTRODUCTION

Letter from CEO Katharine Kelleman

To our Customers,

Calendar year 2017 was defined by change for Port Authority of Allegheny County.

The year began with a change in fare policy that, for the first time in more than 30 years, reduced average fares and made the way we pay to ride the bus simpler and more efficient.

Midway through the year, the Board announced the search for a new chief executive officer who would lead Port Authority into the next decade. I have the proud and distinct honor to be the person who will bring about the changes to further advance this agency, and look forward to working with this Board, local leaders, riders, and our community in the coming years.

As we move into 2018, I am excited for the opportunity to set and prioritize goals and objectives that will improve service and reliability, grow ridership, and enhance the public transit experience throughout Allegheny County.

The first step to get to where we want to go is to take an honest look at where we are today. This document serves as a snapshot for where we are today and a starting point for where we go in Port Authority's bright future.



Thank you,

A handwritten signature in black ink, appearing to read 'Kelleman', written in a cursive style.

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. Changes to this report from those updates will be reflected in the 2018 report. The 2017 Annual Service Report is the third report of its kind released by the Authority.

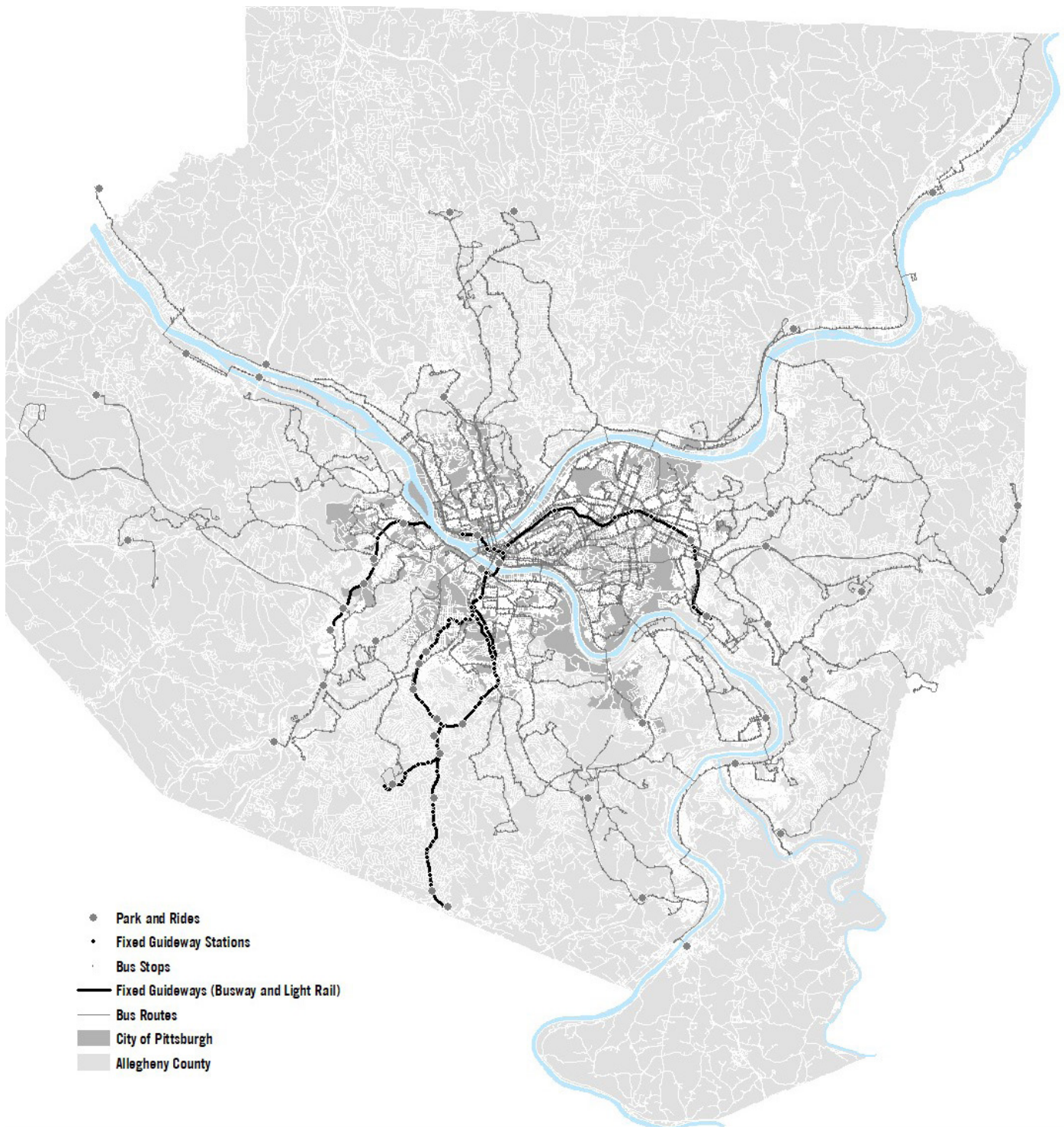
Port Authority hopes that this era of transparency and data-driven decision-making assures riders that the organization is constantly striving to better itself and evolve with new technologies and data, while maintaining its emphasis on local knowledge and a deep understanding of the communities it serves.



SYSTEM OVERVIEW

Overview of Port Authority's Transit Services

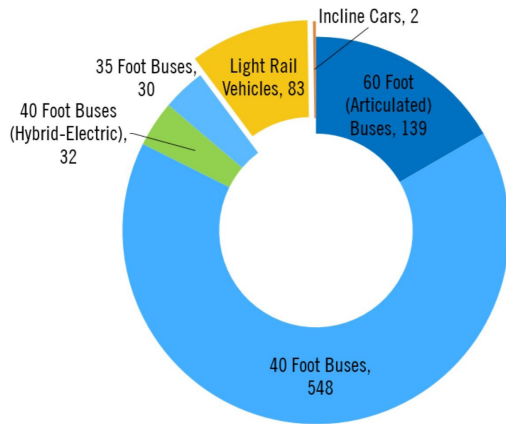
Port Authority of Allegheny County provides public transportation services within Allegheny County, including the City of Pittsburgh, in Southwest Pennsylvania. These services include 97 bus routes (three of which are fixed guideways, or busways, which run along designated, bus-only roads), three light 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 more than 7,000 transit stops and stations, 700 shelters, 53 Park and Ride lots, 129 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

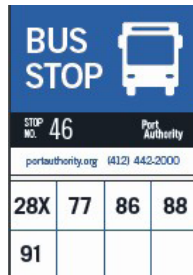
Fleet

Port Authority received 95 new buses in the fall of 2017 and was able to retire buses that had reached the end of their useful life. The current fleet size is 726 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 7,033 transit stations and stops, of which 6,925 are for buses, 104 are for light rail, and four are for the inclines.



Shelters

Port Authority has 150 shelters at fixed guideway (light rail and busway) stations and 132 shelters at bus stops throughout the county. Additionally, 294 bus stops have shelters owned by another entity (mostly advertising shelters). Overall, 576, or eight percent, of Port Authority's transit stops/stations are sheltered. Of Port Authority's 63,823,513 rides in 2017, approximately 26,800,000 of riders were sheltered while waiting for transit vehicles. This comprises about 42 percent of the ridership.



Park and Ride Lots

Port Authority riders can use 53 park and ride lots with 14,082 parking spaces. Port Authority owns 29 of these lots (totaling 8,283 spaces). The remaining lots (24 lots with 5,799 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 10,533 vehicles (75 percent full), on average in 2017, providing access to at least 21,066 trips per day, or about ten percent of Port Authority's riders.



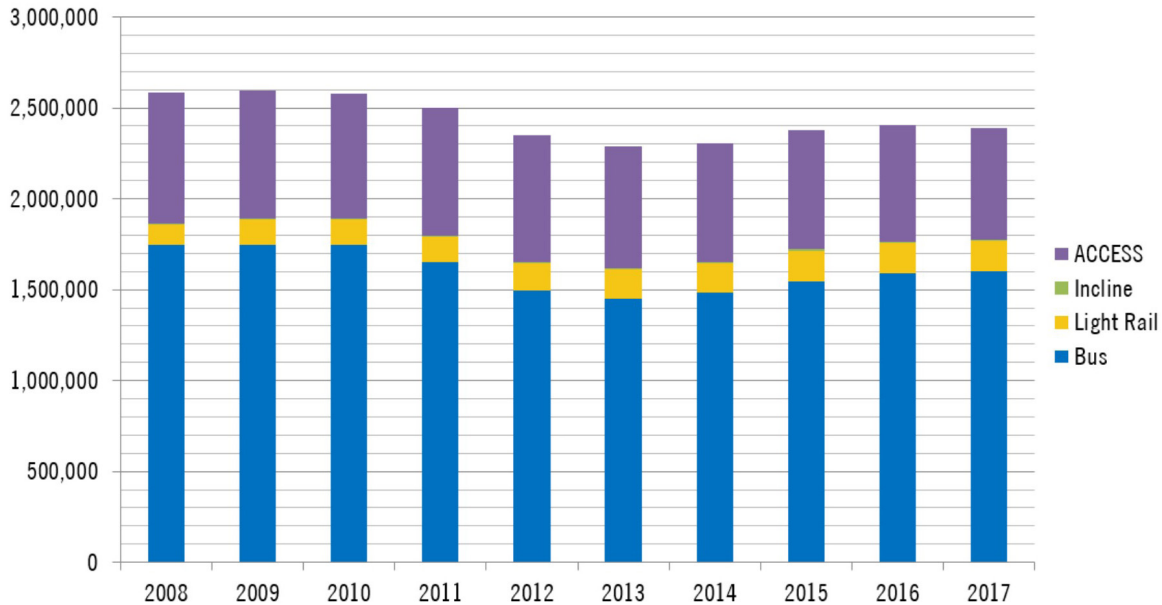
**Note: In the following sections, unless otherwise noted Port Authority data is measured by calendar year (CY) (January 1 to December 31 2017). When peer transit agency data is used for comparison, those comparisons use fiscal year (FY) 2016 data due to the delayed release of publicly available data from the National Transit Database. FY data is measured from July 1st of that year to June 30 of the following year.*

SERVICE AND RIDERSHIP

Service Levels

Port Authority has undergone three major service reductions in the last eleven years; service cuts in 2007 which reduced service hours by 18%, service changes in 2009 with the Transit Development Plan (TDP) which reduced service by 3%, and service cuts in 2011 which reduced service by about 8%. Since 2013, service has slowly increased by about 4% to its current level. In 2017, revenue vehicle hours provided by the Authority totalled 2,387,082, approximately 1% lower than levels in 2016. This is due to major long term construction detours that were required by the Authority in 2016 that ended in 2017.

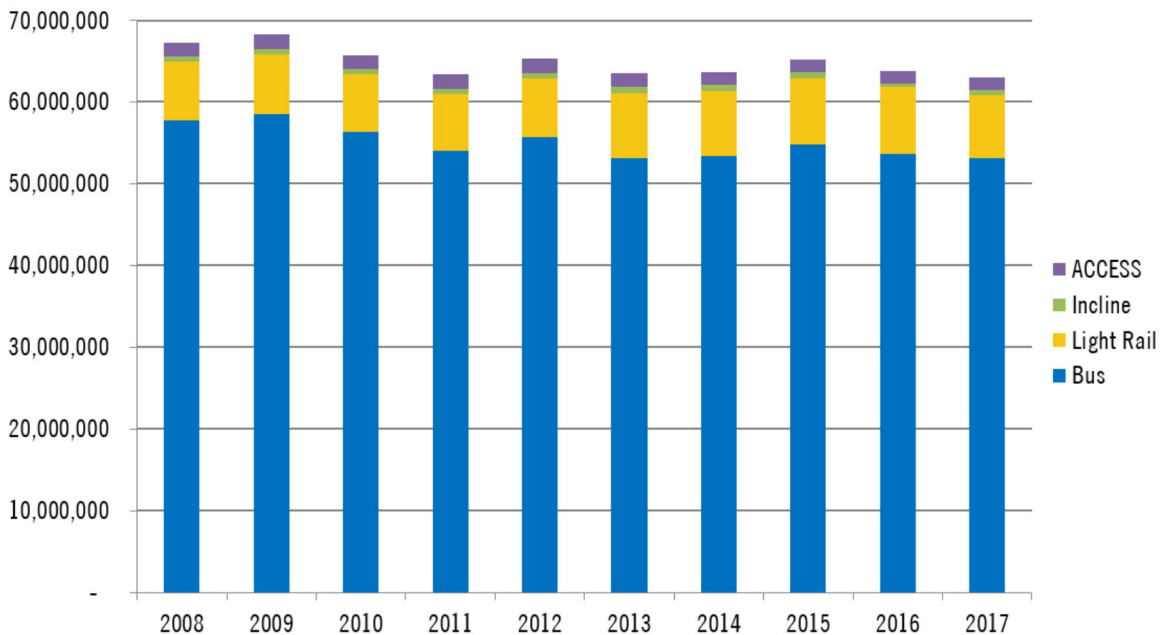
Historical Hours of Revenue Service by Mode (CY)



Ridership

Port Authority's overall ridership totalled 62,986,589 in 2017, down 1.0% from 2016 ridership. Bus ridership dropped by 1.2%, light rail dropped by 0.4%, ACCESS paratransit dropped by 1.5%, and incline ridership was up 8.1% from 2016 levels. Trends in ridership are explained further on the following page.

Historical Ridership by Mode (CY)



SERVICE AND RIDERSHIP

Trends in Ridership

Calendar year 2017 saw a slight reduction in overall ridership of approximately 1.0% over 2016 levels.

Bus ridership declined by approximately 1.2%. This reduction is mainly attributable to temporary buses that were in place in 2016 (the RED2 and the 42) for light rail repairs which were no longer running in 2017. After accounting for the removal of these temporary routes, the reduction of about 0.2% of ridership on buses was mainly due to a slight reduction of 6% (about 700 per weekday) in ridership on the P1 East Busway route, and a reduction of riders on the P3 East Busway-Oakland route of about 300 riders per weekday due to a long term detour from the reconstruction of the Neville ramp in 2017. After accounting for these route changes, ridership on all other buses was very slightly higher in 2017 than 2016.

Light rail ridership declined by approximately 0.4% in calendar year 2017. There are likely still some residual effects from the long term closure of the RED Line in 2016 that have not completely returned to their pre-construction levels.

Incline ridership increased 8.1% in 2017 over 2016 levels. This is because 2016 had several long term closures of the incline for repairs, which depressed ridership.

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 (miles ²)	Service Area Population	Bus	LRT	Para-transit	Inclined Plane	Annual Total Ridership	Annual Operating Budget
Baltimore, Maryland	Maryland Transit Administration (MTA)	2,560	7,811,145	x	x	x		85,032,196	395,782,195
Buffalo, New York	Niagara Frontier Transportation Authority (NFTA)	407	981,771	x	x	x		28,079,525	134,503,599
Cleveland, Ohio	The Greater Cleveland Regional Transit Authority (RTA)	458	1,412,140	x	x	x		37,868,011	225,587,367
Denver, Colorado	Regional Transportation District (RTD)	2,342	2,920,000	x	x	x		99,023,392	474,235,723
Milwaukee, Wisconsin	Milwaukee County Transit System (MCTS)	237	957,735	x		x		40,709,350	146,995,051
Minneapolis, Minnesota	Metro Transit (Metro)	653	1,837,223	x	x			81,913,452	364,773,899
Pittsburgh, Pennsylvania	Port Authority of Allegheny County (PAAC)	775	1,415,244	x	x	x	x	63,823,513	397,642,850
Portland, Oregon	Tri-County Metropolitan Transportation District of Oregon (TriMet)	534	1,560,803	x	x	x		101,106,443	413,256,247
Seattle, Washington	King County Metro Transit (Metro)	2,134	2,117,125	x		x		102,773,790	536,328,441
St. Louis, Missouri	Metro Transit (Bi-State Development) (Metro)	558	1,566,004	x	x	x		44,046,960	261,712,810

SYSTEM EFFICIENCY

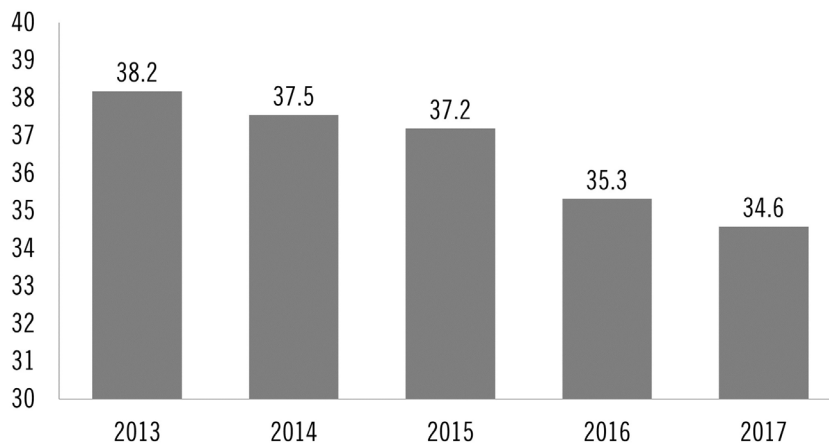
Port Authority strives to provide the highest amount of value to riders and taxpayers by using resources efficiently. This is achieved by maximizing the number of passenger trips provided with available resources, such as time, vehicles, and staff. Three metrics are used to evaluate Port Authority's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

Peer agency comparisons include bus, light rail, and incline mode data (Unless otherwise stated, they do not include paratransit).

Passengers per Revenue Vehicle Hour

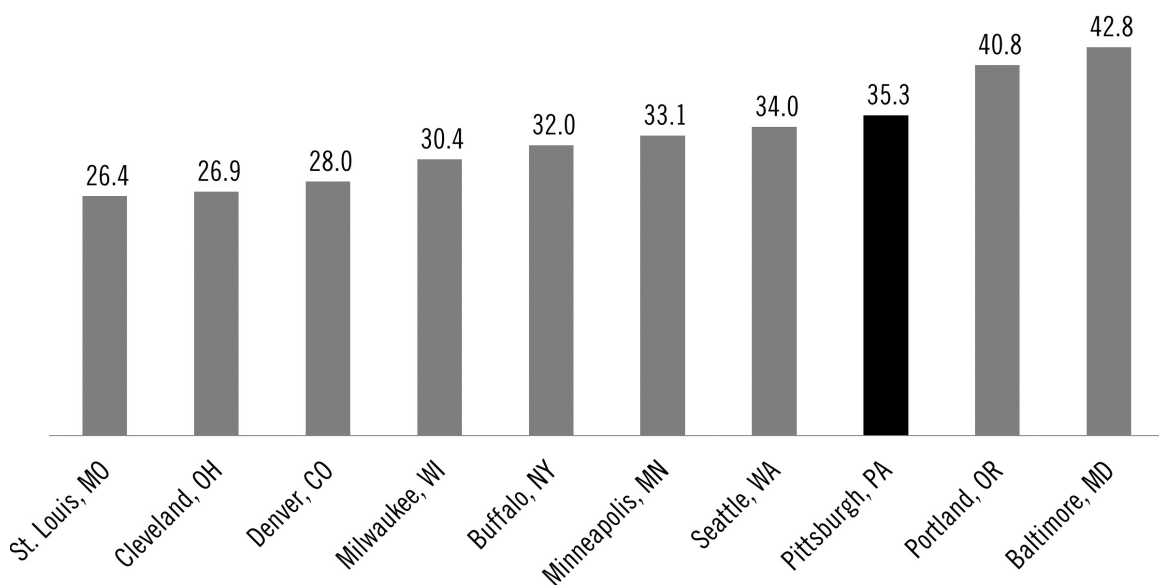
The amount of time spent transporting passengers is an important indicator of the efficiency of the transit system. Port Authority measures the number of passengers it carries per hour of revenue service (time spent picking up and dropping off passengers) it provides. In 2017, Port Authority carried, on average, 34.6 passengers per hour of revenue service provided. This is approximately 2% less efficient than the 2016 efficiency of 35.3 passengers per hour.

Passengers per Revenue Service Hour (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.

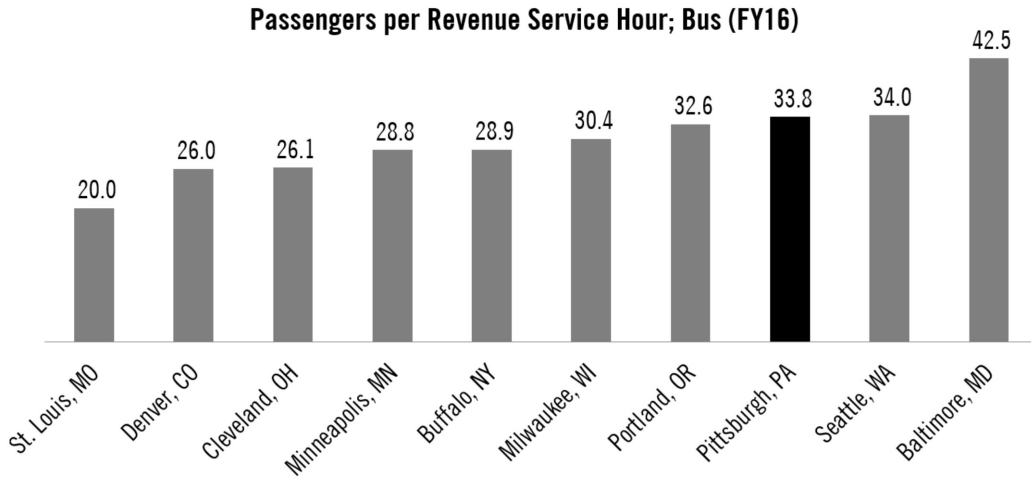
Passengers per Revenue Service Hour (FY16)



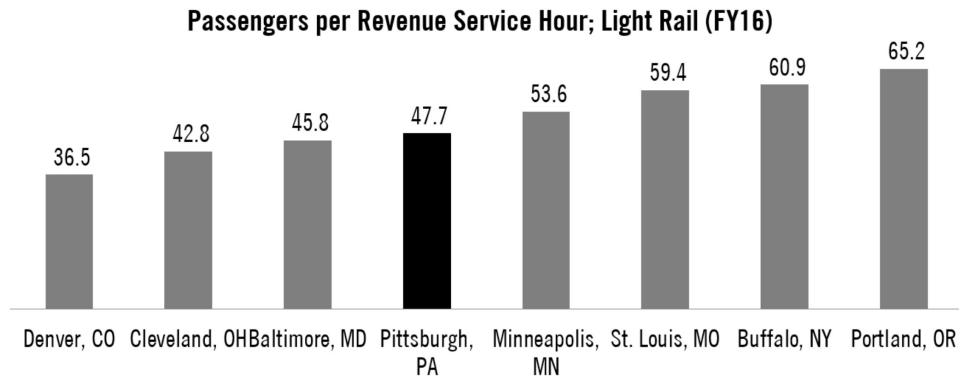
SYSTEM EFFICIENCY

Passengers per Revenue Vehicle Hour by Mode

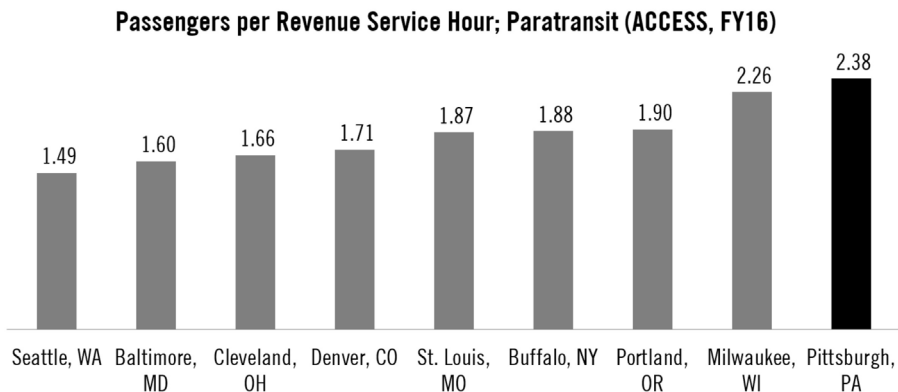
Bus performed well in comparison with its peer agencies, carrying 33.8 passengers per hour of revenue service provided in FY2016.



Light Rail performed moderately in efficiency compared to its peers, carrying 47.7 passengers per hour of revenue service provided in 2017.



ACCESS Paratransit performed the most efficiently of all of its peers, carrying 2.38 passengers per hour of revenue service provided in 2017.

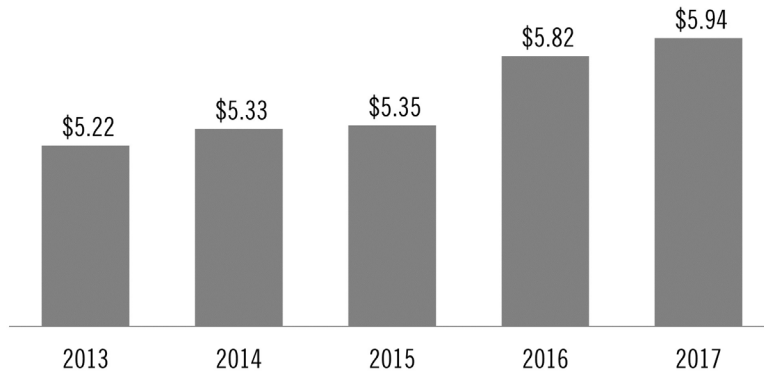


SYSTEM EFFICIENCY

Cost per Passenger Served

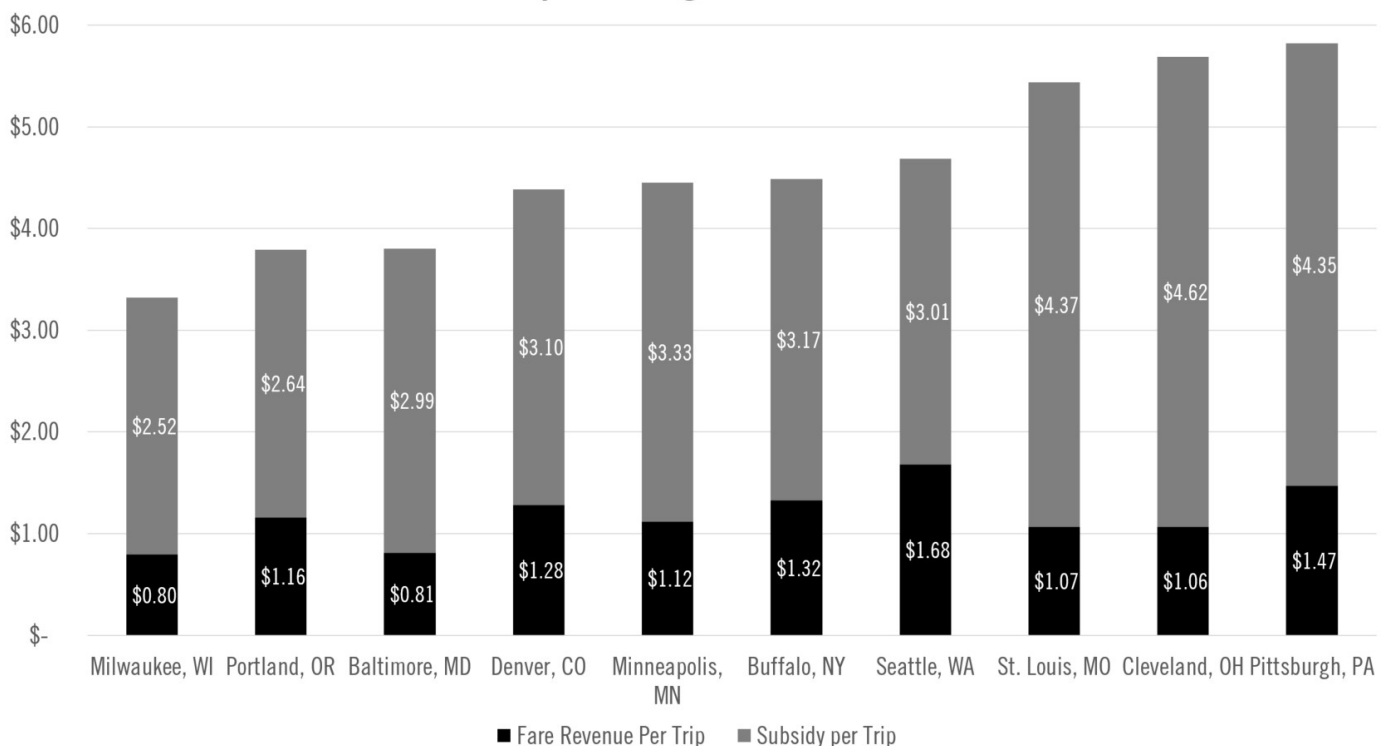
In addition to passengers served per revenue service hour and vehicle in-service time, cost per passenger served is another important measure of efficiency. In 2017, it cost Port Authority an average of \$5.94 to transport each passenger it carried, up 2.0% from 2016. That increase can be traced largely to a slight reduction in ridership while costs remained relatively constant. With an average fare revenue of \$1.50 (25.3% of the cost) per passenger trip provided, this leaves a \$4.44 gap per ride that is filled through various federal, state, and local funding sources.

Cost per Passenger Served (FY)



Port Authority's cost per passenger served is the highest among its peers. These 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 on the following page.

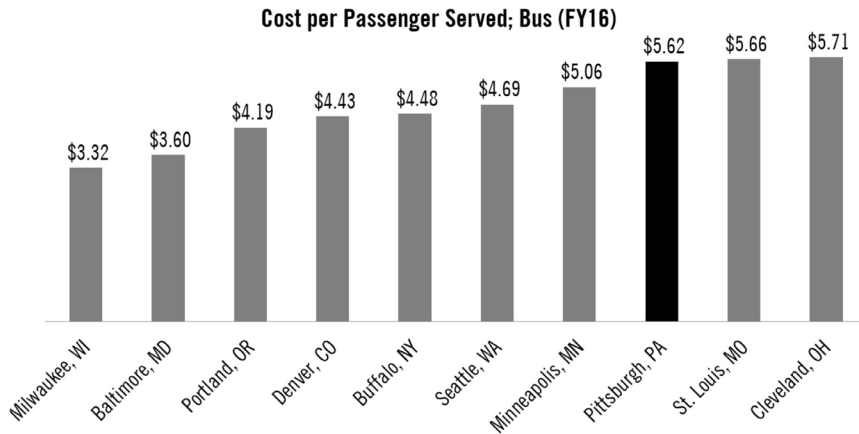
Cost per Passenger Served (FY16)



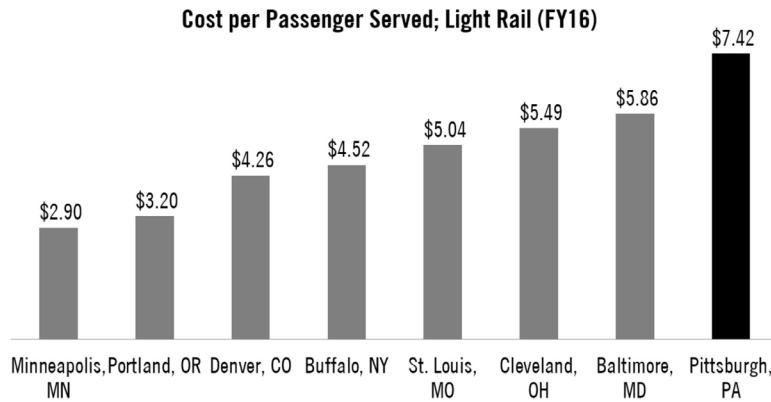
SYSTEM EFFICIENCY

Cost per Passenger Served by Mode

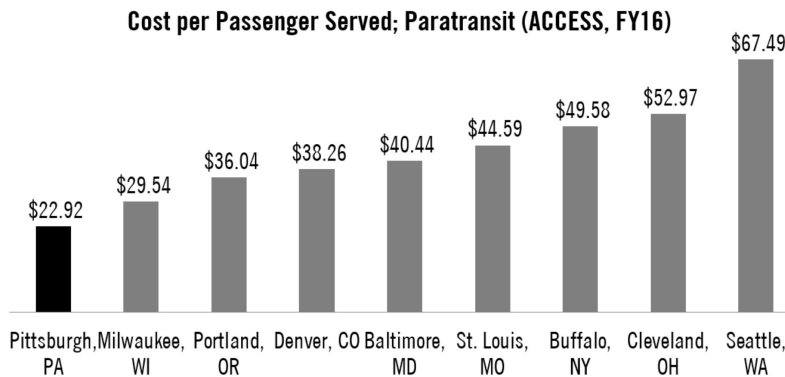
Bus performed relatively inefficiently compared to its peer agencies in FY2016. As passengers carried was not a factor in this cost, this performance is not due to the number of passengers served but the cost of providing the service. Comparatively high operator and maintenance employee wages and benefits, as well as high maintenance costs, are reasons for this.



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 lower travel speeds are reasons for this. Additional efforts to better understand these unique challenges to the Authority's LRT costs will be conducted in FY2019.



ACCESS paratransit performed most efficiently out of its peer agencies with a cost per passenger of only \$22.92 in FY2016.

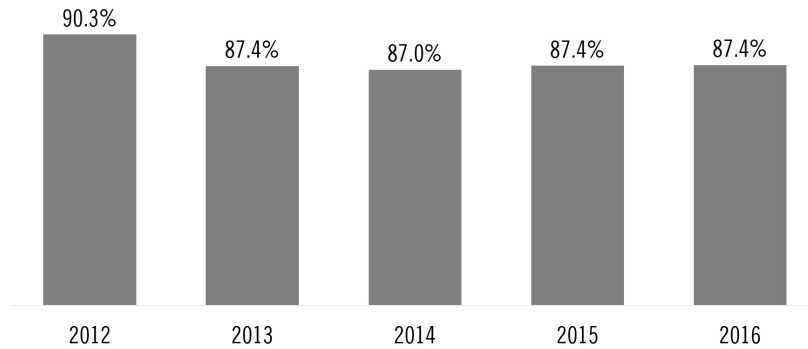


SYSTEM EFFICIENCY

Time Spent in Revenue Service

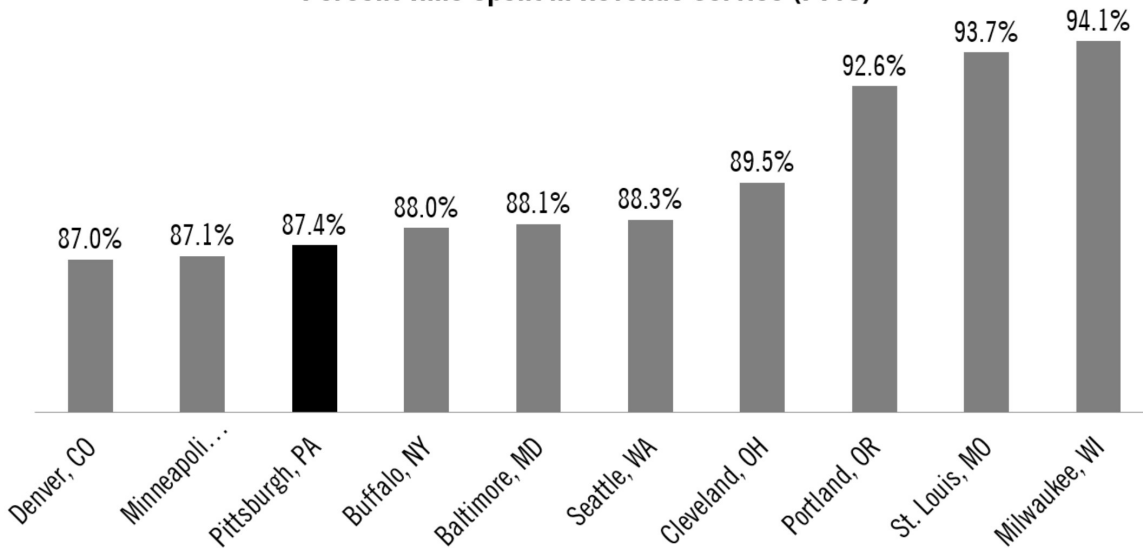
Port Authority continues to seek more efficient ways to provide service, and attempts to maximize the amount of time that buses are in revenue service (as opposed to driving to/from garages to start or end their trips). This allows the Authority to provide the most transit service possible within the 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.

Percent Time Spent in Revenue Service



Compared to its peers, this 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. Revenue service time is further broken out by mode on the following page.

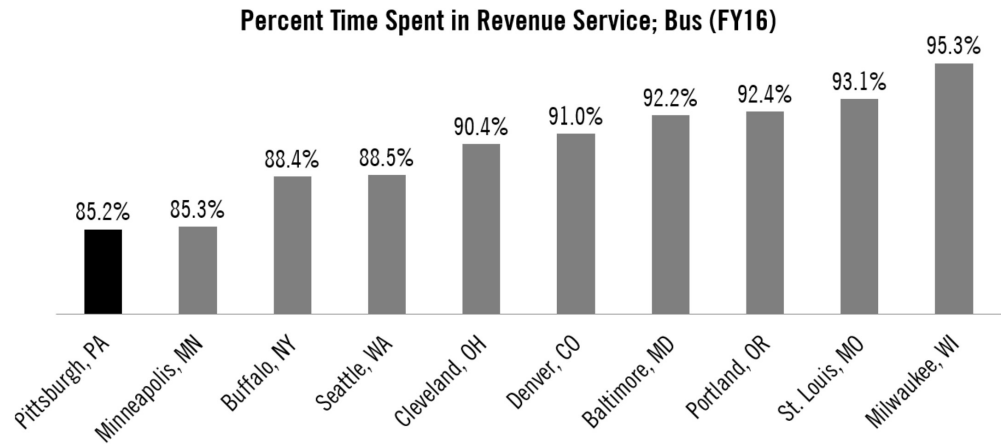
Percent Time Spent in Revenue Service (FY16)



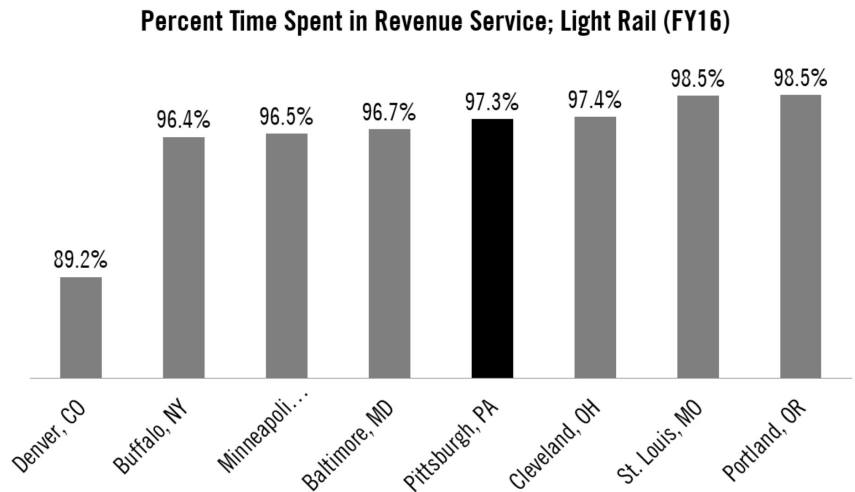
SYSTEM EFFICIENCY

Time Spent in Revenue Service by Mode

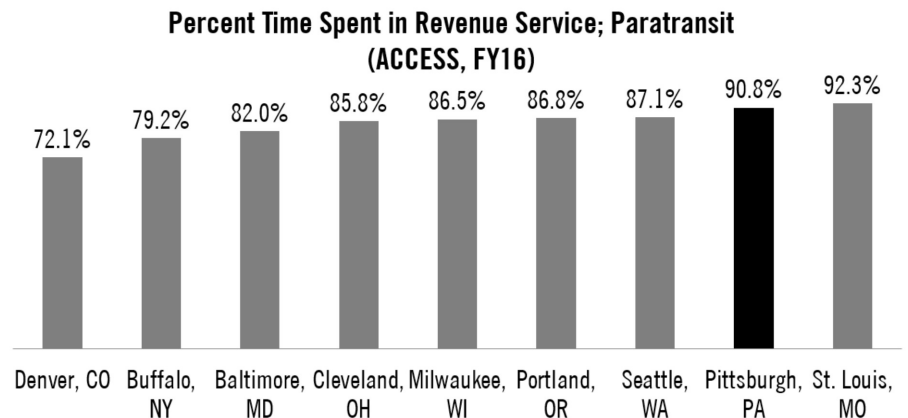
Compared to its peers, Port Authority buses spend the least percentage of their time in service. One challenge for the Authority in this regard is the location of its bus garages - two of which are relatively convenient to areas where service begins or ends, but two of which are further away from where 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.



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



SYSTEM EFFECTIVENESS

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 more than half of all jobs in the county in 2016.

The walkable service area is also dependent upon service availability. Though slightly more than 11 percent of the county is walkable to transit service on any day of the week, this walkable area serves more than 35 percent of residents and more than 51 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 38 percent of residents and about 53 percent of jobs, and again slightly larger for areas that have service on weekdays - about 45 percent of residents and about 58 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.

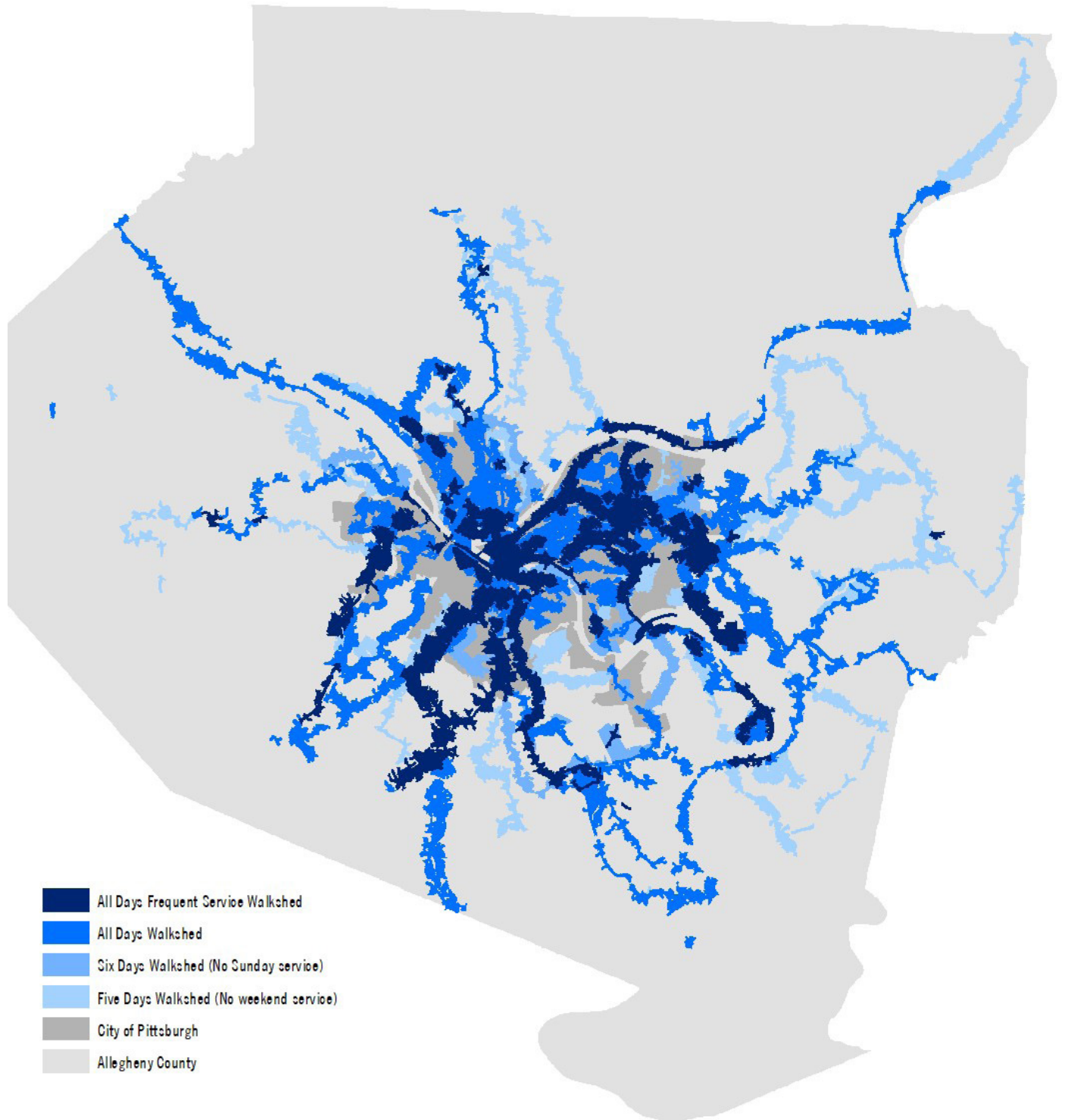
Port Authority defines a "frequent service area" as the 1/4 mile area around a transit stop or the 1/2 mile area around a transit station where transit vehicles come, on average, every fifteen minutes for fifteen hours of the day and every thirty minutes for an additional five hours of the day, every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

In 2017, Port Authority's frequent service area covered just 4.4 percent of the geographic area of Allegheny County, but encapsulated nearly 19 percent of the residents and 38 percent of the jobs.

Service Days	Service Area		Population		Jobs	
	Total (miles ²)	Percent of Total	Total	Percent of Total	Total	Percent of Total
Five Day Service Walkshed (No weekends)	121.8	16.4%	547,668	44.8%	412,067	57.9%
Six Day Service Walkshed (No Sundays)	91.4	12.3%	464,095	38.0%	377,291	53.0%
All Days Service	83.4	11.2%	433,944	35.5%	368,386	51.8%
Frequent Service	33.0	4.4%	225,790	18.5%	267,188	37.5%
All of Allegheny County	745.0	-	1,223,048	-	711,598	-

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 EFFECTIVENESS



SYSTEM EFFECTIVENESS

System On-Time Performance

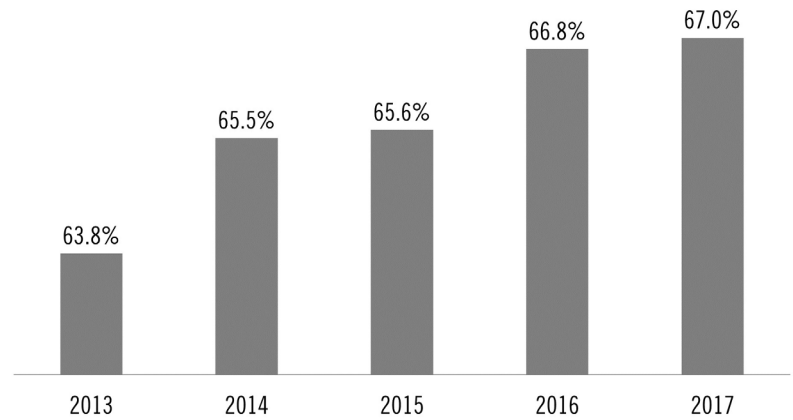
Port Authority measures on-time performance monthly; bus and light rail schedules are updated quarterly to adjust for changes in running times along a route. The Monongahela Incline is not included in on-time performance, as its' trips do not run on a schedule.

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 on-time performance is measured by manual checks, as AVL data is not yet available on these vehicles. Due to limited samples, light rail on-time performance is not included in this report.

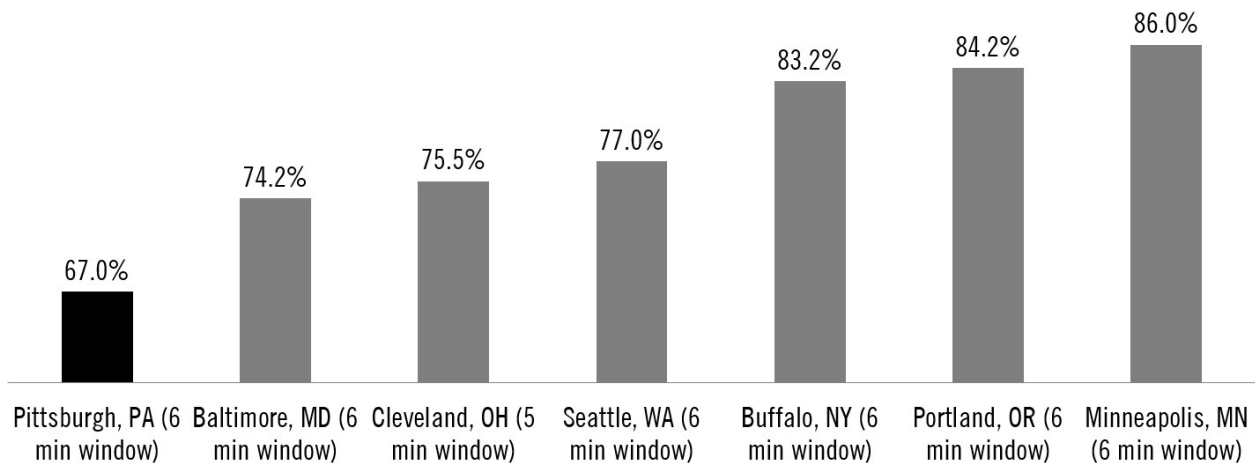
Bus on-time performance continues to improve, increasing from 63.8% in 2013 to 67.0% in 2017. These changes are largely due to greater ability to analyze appropriate travel times for buses by time of day using historical location data and adjusting schedules to match actual conditions in the field.

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 adherence to specified times difficult.

Historical Bus On-Time Performance (CY)



Peer Agency Bus On-Time Performance (CY2017)



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 coming years.

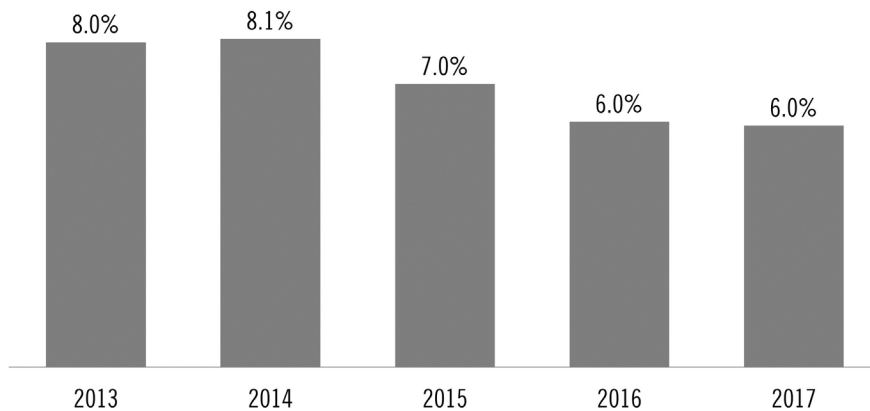
SYSTEM EFFECTIVENESS

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 has 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.

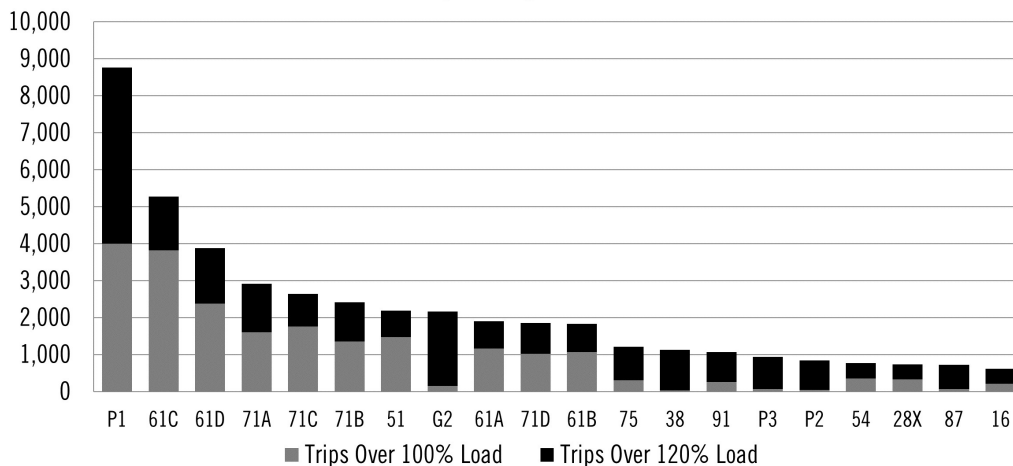
In 2017, 6.0% of trips were considered crowded, representing no change from 2016 levels.

Crowding: Trips with Standees (CY)



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 51, 61C, 61D, 71A, 71B, 71C, and P1.

Crowding: Total Trips Exceeding Load Threshold CY2017 (Top twenty routes)



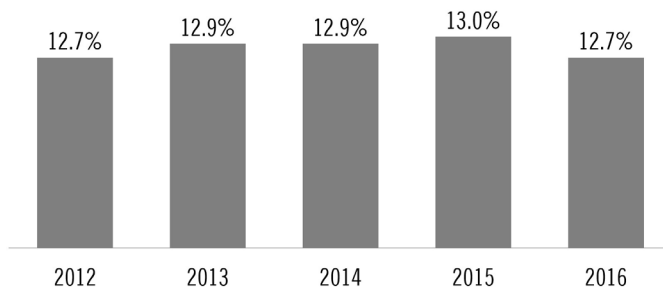
SYSTEM EQUITY

Persons with higher mobility needs are critical to the sustainability of Port Authority; they are the riders 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 plans to conduct additional rider surveys in FY2019 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 considers the following groups when looking at higher mobility need populations: low-income persons, persons of a minority race or ethnicity, persons under age 20 and over age 65, persons with disabilities, persons without access to a vehicle, and persons who do not speak English very well. All of the data on where these groups reside around Allegheny County is taken from the US Census and American Community Survey.

Low-Income Persons

Port Authority follows the Federal Transportation Administration's guidance to define persons of low income: Anyone living in a household making less than the federal poverty level (for 2017, this was \$28,780 for a family of four or \$20,420 for a family of two) per year on the US Census. As seen in the top chart below, the percentage of low-income persons in Allegheny County has remained fairly constant over the last five years.

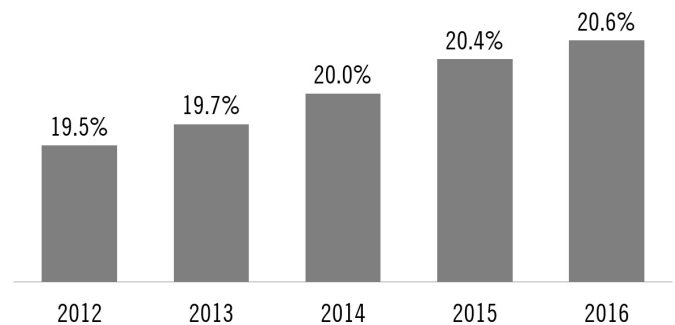
**Historical Low Income Population:
Allegheny County**



Minority Race/Ethnicity

Port Authority follows the Federal Transportation Administration's guidance on defining a minority as a person reporting being a race other than white, non-Hispanic on the US Census. As can be seen in the top chart below, the percentage of minorities in Allegheny County has been slowly and steadily increasing over the last five years to its current level of 20.6% of the population.

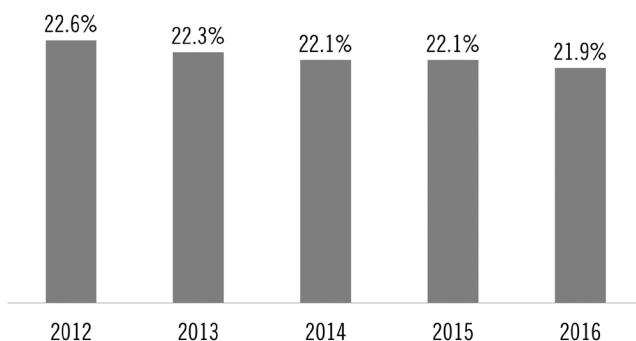
**Historical Minority Race Population:
Allegheny County**



Persons Under Age 20

As seen in the chart below, the percentage of persons reporting to be under age 20 in Allegheny County has been slowly decreasing over the last five years to the current level of about 22 percent of the population.

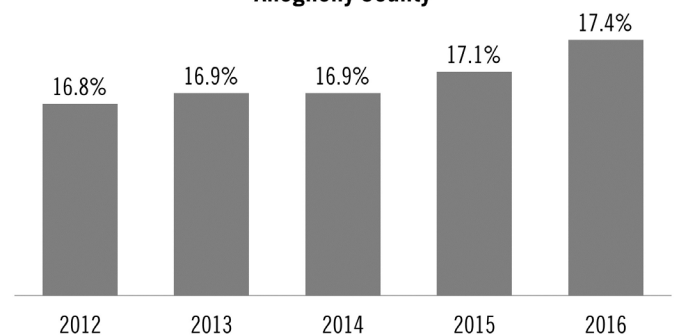
**Historical Percent Population Under Age 20:
Allegheny County**



Persons Over Age 65

As seen in the top chart below, the percentage of persons reporting to be over age 65 on the US Census in Allegheny County has been slowly increasing over the last five years to its current level just over 17 percent. This number is expected to continue to increase over the next decade based on those reporting to be between ages 50 and 65 on the Census.

**Historical Percent Population Over Age 65:
Allegheny County**

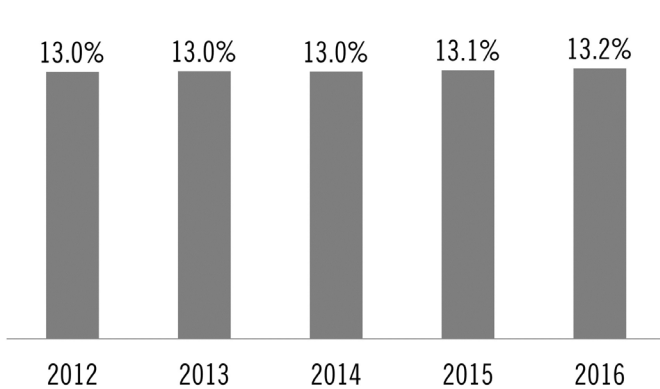


SYSTEM EQUITY

Persons with Disabilities

Port Authority defines persons with disabilities as persons reporting to have one or more disabilities on the US Census. In 2016, 13.2 percent of the county population reported as having one or more disabilities, and there does not seem to be a significant trend in this percentage changing over time.

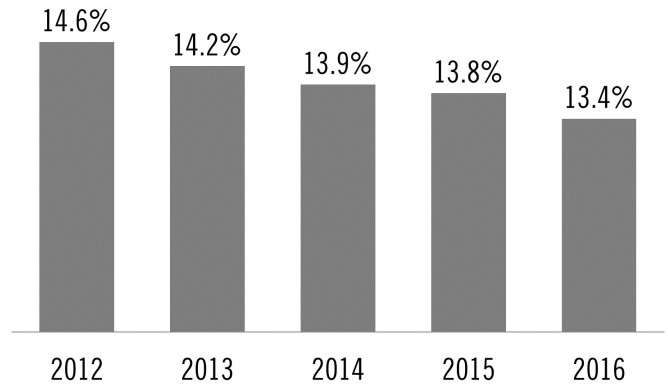
Historical Percent Population with a Disability: Allegheny County



Persons without Access to a Personal Vehicle

Port Authority defines persons without vehicles as persons who reported not having access to a vehicle in their household on the US Census. As shown in the chart below, the percentage of persons in Allegheny County without an available vehicle seems to be on a slight downward trend to its 2016 level of 13.4 percent of the population.

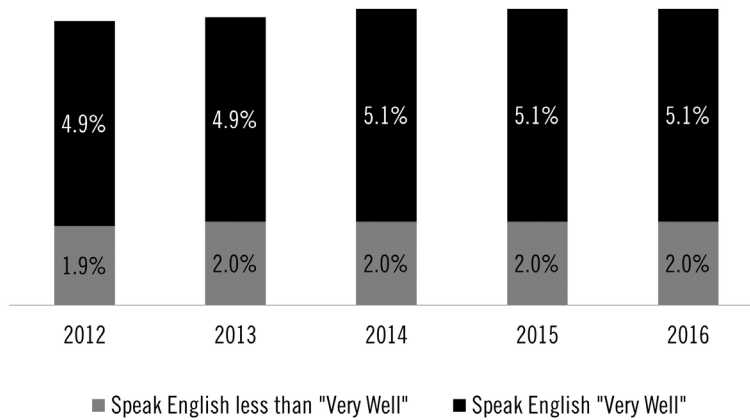
Historical Percent Households with No Vehicle Available: Allegheny County



Persons with Limited English Proficiency

Port Authority follows the FTA's guidelines in defining persons with limited English proficiency as those who report not being able to speak English "very well" on the US Census. As shown in the chart below, about seven percent of Allegheny County's population primarily speaks a language other than English, but only about two percent of the population does so without also speaking English "very well". This two percent has not changed significantly over the last five years, though the percentage speaking another primary language has risen slightly from 6.8 percent in 2012 to 7.1 percent in 2016.

Primarily Speak Another Language: Allegheny County



SYSTEM EQUITY

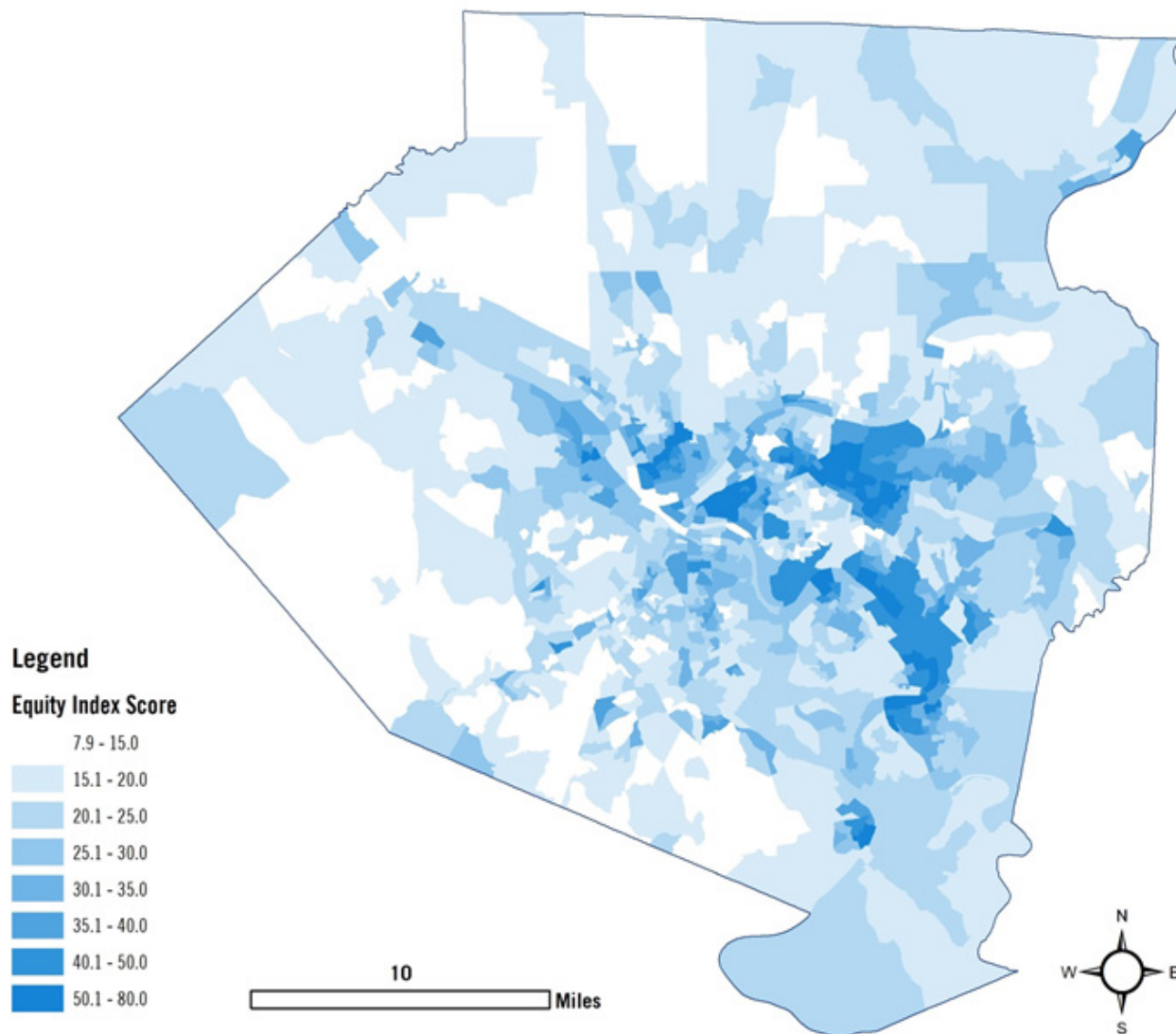
Overall Equity Index Performance

Port Authority uses a combination of five of the previously stated demographic indicators (low-income persons, minority race/ethnicity persons, persons over age 65, persons with disabilities, and persons without access to vehicles) to develop an overall location-based equity index within Allegheny County. Beginning with the 2018 Annual Service Report, persons under age 20 and persons who do not speak English very well will be added to the index. The percentage of the population in each Census block group falling into these five categories is averaged (all five 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 five demographic categories, and are higher priority areas for Port Authority to serve.

Of the approximately 1,100 Census blocks in Allegheny County, Port Authority has service inside or in close proximity (five minute walk) to 982 of them. Splitting the County into 2 groups, the 550 highest equity (highest need) block groups (areas) and the 550 lowest equity (lowest need) areas, we find that 66% of high equity areas have service in their centers, while only 34% of low equity areas do.

Further, 55% of high equity areas have service in their centers 7 days a week, whereas only 27% of low equity areas do. Finally, 27% of high equity areas have frequent transit services in their centers, while only 14% of low equity areas do. Port Authority's services are well skewed in both geography and frequency towards higher equity areas around Allegheny County.

Service Type	High Equity Areas	Low Equity Areas
Any Transit Service	66%	34%
Transit Service Seven Days a Week	55%	27%
Frequent Transit Service	27%	14%



SYSTEM EQUITY

Low and High Equity Routes: Performance

The Authority also measures its efficiency and effectiveness metrics by equity to ensure that system-wide equity is achieved beyond specific routes. To do this, the Authority averages its equity populations across each transit route in the system and then splits routes into equal groups of about 50 routes each: the half with higher percentages of equity populations across their routes are considered “High Equity Routes”, and the half with lower percentages of equity populations are considered “Low Equity Routes”. The breakdown of routes by type for CY2017 is as follows:

High Equity Routes: 16, 20, 21, 22, 53, 55, 56, 59, 60, 64, 67, 68, 69, 71, 74, 75, 77, 79, 81, 82, 83, 86, 88, 89, 51L, 52L, 61A, 61B, 61C, 61D, 71A, 71B, 71C, 71D, 78/P78, O1, O12, P1/2, P10, P12, P16, P17, P3, P67, P68, P69, P7, P71, P76, P78

Low Equity Routes: 1, 2, 4, 6, 7, 8, 11, 12, 13, 14, 15, 17, 18, 24, 26, 27, 29, 31, 36, 38, 39, 40, 41, 43, 44, 48, 51, 53/53L, 54, 57, 58, 65, 87, 91, 93, 28X, BLLB, BLSV, G2, G3, G31, INC, O5, P13, RED, Y1, Y45, Y46, Y47, Y49

As can be seen in the charts below, higher equity routes carry more riders and do so more efficiently and effectively than lower equity routes. This is simply because those with higher mobility needs tend to ride transit more often and for more trip types than those with lower mobility needs, who may only ride transit to and from work or for special events.

Basic Information	High Equity Routes	Low Equity Routes	Percent Difference
Average Weekday Ridership	120,718	101,358	16%
Average Saturday Ridership	56,468	43,617	23%
Average Sunday Ridership	37,245	29,168	22%
Percent of Weekday Ridership - Saturday	47%	43%	9%
Percent of Weekday Ridership - Sunday	31%	29%	7%
Total Annual Ridership	35,796,148	29,733,934	17%
Total Annual Revenue Service Hours	796,891	781,828	19%
Total Annual Route Hours	1,028,280	1,036,039	-1%
Efficiency & Effectiveness Metrics	High Equity Routes	Low Equity Routes	Percent Difference
Weekday Passengers per Revenue Service Hour	45.8	39.1	15%
Saturday Passengers per Revenue Service Hour	40.6	33.3	18%
Sunday Passengers per Revenue Service Hour	39.8	31.0	22%
Total Passengers per Revenue Service Hour	34.6	28.9	16%
Average In-Service Percent	76.9%	76.0%	1%
Cost per Rider Served	\$5.44	\$6.52	-20%
Percent of Trips Crowded	4%	2%	50%
On-Time Performance	67%	69%	-3%
Average Stop Spacing	1,024 feet	1,035 feet	-1%

ADHERENCE TO SERVICE GUIDELINES

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 FY2018. 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 and Evaluation Department will attempt to address all of the areas where current guidelines are not being met, but due to budgetary, vehicle, and/or labor force constraints, no guarantees can be made.

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)	
Bus	Rapid	Weekday		40		140% (peak)	2,500	
		Saturday	75%	40	75%	120% (all other times)		
		Sunday		30				
	Express	Weekday			30		120% (peak)	1,200
		Saturday	50%	20	75%	100% (all other times)		
		Sunday		20				
	Key Corridor	Weekday			30		120% (peak)	900
		Saturday	75%	20	75%	100% (all other times)		
		Sunday		20				
	Local	Weekday			20		120% (peak)	900
		Saturday	70%	15	75%	100% (all other times)		
		Sunday		15				
Rail	Rapid	Weekday		80		250% (peak)	2,500	
		Saturday	75%	50	80%	140% (all other times)		
		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 2017, no routes were out of compliance with the In-service percent guidelines.

ADHERENCE TO SERVICE GUIDELINES

Passengers per Revenue Vehicle Hour

Passengers per service 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	
Weekday	Ex-press	05	25	24	Marketing campaign for route was conducted to stimulate ridership. Re-evaluate in one year.	
		Y45	25	23	Low performing trips were consolidated in September of 2017; evaluate again in one year to determine if successful at increasing efficiency.	
	Local	2	20	17	Rewrite schedule for optimal headway of every 35 minutes peak and every 55 minutes off peak.	
		18	20	19	Consolidate 2 early and 2 late trips to improve efficiency.	
		20	20	19	Rewrite schedule for optimal headway of every 35 minutes peak and every 50 minutes off peak.	
Saturday	Local	44	20	18	Investigate creating midday short trips that terminate at St. Clair Village on every other trip to improve efficiency.	
		71	20	13	No changes to improve efficiency can be made at this time due weight limitations on the Kenmawr Bridge. The bridge is set to be reconstructed in 2019.	
		58	15	14	The Greenfield Bridge reopened in late 2017 - need one year to reassess efficiency once route has returned to normal ridership levels.	
		BLSV	50	30	Conduct community outreach on the Blue lines in FY2019 to better understand weekend ridership pattern (as stop level data is not yet available on LRT) and then adjust service accordingly.	
		BLLB	50	33	Conduct community outreach on the Blue lines in FY2019 to better understand weekend ridership pattern (as stop level data is not yet available on LRT) and then adjust service accordingly.	
	Rapid	G2	40	39	Added weekend service in the fall of 2016 to meet frequency guidelines for rapid service - efficiency is almost at required level. Check again in one year.	
		Local	40	15	12	Consolidate last two trips on Sunday evenings due to low ridership.
			55	15	13	Route extended to Mifflin Estates Apartment complex in September 2017. Wait one year to see how change affects ridership levels on Sundays.
			58	15	14	The Greenfield Bridge reopened in late 2017 - need one year to reassess efficiency once route has returned to normal ridership levels.
		89	15	14	Service was added in September of 2016. Reevaluate in one year after two year adjustment period has ended.	
Sunday	Rapid	BLSV	45	32	Conduct community outreach on the Blue lines in FY2019 to better understand weekend ridership pattern (as stop level data is not yet available on LRT) and then adjust service accordingly.	
		BLLB	45	32	Conduct community outreach on the Blue lines in FY2019 to better understand weekend ridership pattern (as stop level data is not yet available on LRT) and then adjust service accordingly.	
		G2	30	28	Added weekend service in the fall of 2016 to meet frequency guidelines for rapid service - efficiency is almost at required level. Check again in one year.	

Stop Spacing

At the end of 2016, 63 routes did not meet stop spacing standards. Port Authority did not begin its stop optimization project in calendar year 2017 due to other planning projects, but has developed a plan for rolling this program out using a data-driven process.



ADHERENCE TO SERVICE GUIDELINES

Bus On-Time Performance

Port Authority increased its on-time performance goal in 2017 from 70% to 75% in an effort to continually improve timeliness of services. Average bus on-time performance was 67% for the calendar year, with 84 of 97 bus routes not meeting the 75% goal. The lowest performing 20 routes are listed below and will be prioritized in 2018 for updates to schedules if possible to improve on-time performance.

Route	On Time Performance	Reason / Plan
2	53%	No changes: Long-term detour in 2017
71C	56%	BRT Project 2021
61C	59%	BRT Project 2021
P10	59%	Update running times
P69	59%	Update running times
77	60%	Update running times
82	60%	Update running times
61A	60%	BRT Project 2021
71A	61%	BRT Project 2021
71D	61%	BRT Project 2021

Route	On Time Performance	Reason / Plan
P76	61%	Update running times
86	61%	Update running times
P12	62%	Update running times
78/P78	62%	Update running times
P7	62%	Update running times
69	62%	Update running times
29	62%	Update running times
52L	62%	Update running times
43	62%	Update running times
61B	62%	BRT Project 2021

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 2017, ACCESS's on-time performance was 96.1%.

Frequency of Service

Due to changes in 2016 and 2017 to meet service guidelines, all routes now meet their frequency guidelines where feasible, and do not require any changes for 2018.

Passenger Loads: Crowding

Based on the service guidelines on page 21, the following routes were out of compliance for crowding in 2017 over ten percent of the time:

Early AM		AM Peak		Midday		PM Peak		Weekend	
100%		120%		100%		120%		100%	
Route	% Trips Over Guideline	Route	% Trips Over Guideline	Route	% Trips Over Guideline	Route	% Trips Over Guideline	Route	% Trips Over Guideline
P76	24%	G31	23%	61C	23%	P1	20%	61C	12%
		G3	16%			61C	17%	P1	10%
		P1	15%			71B	16%		
		61C	14%			61D	15%		
		71A	13%			75	14%		
		Y1	12%			61A	12%		
		P16	12%			G2	12%		
		75	12%			71A	12%		
		61D	12%			71C	12%		
		28X	11%			61B	12%		
						69	11%		
						38	11%		
						71D	11%		

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 Performance	Average Stop Spacing
1	Bus	Local	All Days	1,714	1,258	899	26	82.7%	\$9.83	1%	63%	1,096
2	Bus	Local	Weekday Only	993	-	-	17	86.3%	\$13.93	0%	53%	962
4	Bus	Local	No Sundays	689	243	-	26	98.3%	\$7.99	0%	68%	681
6	Bus	Local	All Days	1,171	537	463	35	88.1%	\$7.33	1%	77%	573
7	Bus	Local	Weekday Only	136	-	-	26	90.6%	\$8.83	0%	70%	826
8	Bus	Key Corridor	All Days	3,342	1,717	1,088	36	91.0%	\$6.45	1%	73%	637
11	Bus	Local	All Days	544	230	139	28	89.3%	\$9.83	0%	76%	619
12	Bus	Local	All Days	1,053	1,201	763	22	81.4%	\$10.75	4%	64%	1,460
13	Bus	Local	All Days	2,115	1,408	757	33	91.3%	\$6.92	1%	67%	721
14	Bus	Local	All Days	1,285	590	407	21	78.9%	\$13.73	0%	73%	1,222
15	Bus	Local	All Days	1,050	742	430	31	89.5%	\$8.11	0%	76%	557
16	Bus	Key Corridor	All Days	3,912	2,116	1,416	46	86.5%	\$5.54	2%	72%	586
17	Bus	Local	All Days	1,235	577	504	24	97.1%	\$8.62	0%	68%	861
18	Bus	Local	All Days	101	-	-	19	89.2%	\$15.52	0%	78%	616
20	Bus	Local	Weekday Only	597	-	-	19	79.9%	\$13.62	0%	74%	1,186
21	Bus	Local	All Days	1,373	659	371	27	74.5%	\$10.04	0%	67%	1,158
22	Bus	Local	No Sundays	803	431	-	32	77.3%	\$8.67	0%	70%	1,191
24	Bus	Local	All Days	1,648	1,250	945	36	78.7%	\$7.38	0%	67%	1,423
26	Bus	Local	All Days	1,009	578	350	29	80.9%	\$9.63	0%	76%	731
27	Bus	Local	All Days	1,179	648	476	34	81.5%	\$7.90	0%	75%	797
29	Bus	Local	Weekday Only	860	-	-	23	78.7%	\$10.87	0%	62%	1,195
31	Bus	Local	All Days	1,639	872	593	26	89.3%	\$8.47	1%	68%	943
36	Bus	Local	Weekday Only	560	-	-	20	78.9%	\$13.53	0%	62%	1,188
38	Bus	Local	All Days	2,604	337	197	31	84.4%	\$7.93	5%	63%	991
39	Bus	Local	No Sundays	1,533	240	-	30	72.2%	\$10.16	2%	76%	907
40	Bus	Local	All Days	623	238	162	22	76.4%	\$12.81	0%	75%	712
41	Bus	Local	All Days	1,733	522	320	26	90.5%	\$8.77	2%	70%	841
43	Bus	Local	All Days	704	357	266	32	80.3%	\$8.63	0%	62%	742
44	Bus	Local	All Days	1,027	300	231	18	74.4%	\$15.27	0%	76%	861
48	Bus	Local	All Days	2,981	1,899	1,060	51	80.5%	\$5.18	1%	67%	537
51	Bus	Key Corridor	All Days	7,883	4,987	3,226	48	92.7%	\$4.63	5%	65%	841
54	Bus	Key Corridor	All Days	3,846	2,187	1,069	30	86.4%	\$8.66	3%	67%	673
55	Bus	Local	All Days	910	694	521	18	98.4%	\$11.80	0%	77%	1,411
56	Bus	Local	All Days	1,703	731	565	30	91.6%	\$7.98	2%	70%	1,097
57	Bus	Local	All Days	1,262	914	661	33	85.7%	\$7.74	0%	69%	1,033
58	Bus	Local	All Days	1,071	253	156	23	88.9%	\$9.87	0%	65%	800
59	Bus	Local	All Days	2,088	1,902	1,237	25	88.9%	\$9.02	0%	67%	1,032
60	Bus	Local	Weekday Only	501	-	-	35	95.4%	\$5.67	0%	82%	584
64	Bus	Local	All Days	1,733	1,636	1,004	28	85.5%	\$9.70	0%	71%	862
65	Bus	Express	Weekday Only	391	-	-	41	70.9%	\$7.26	0%	66%	735
67	Bus	Local	All Days	2,101	877	358	29	91.3%	\$7.89	4%	63%	929
68	Bus	Local	All Days	278	428	224	24	92.7%	\$9.96	0%	73%	799
69	Bus	Local	All Days	1,654	357	253	28	90.0%	\$8.12	6%	62%	809
71	Bus	Local	Weekday Only	98	-	-	13	94.0%	\$17.04	0%	76%	571
74	Bus	Local	No Sundays	980	490	-	23	94.1%	\$9.63	0%	63%	538
75	Bus	Local	All Days	3,152	1,741	1,260	40	89.4%	\$5.96	7%	65%	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 Performance	Average Stop Spacing
77	Bus	Local	All Days	2,353	1,055	664	29	91.0%	\$7.86	1%	60%	866
79	Bus	Local	All Days	993	702	404	27	92.5%	\$8.95	0%	67%	632
81	Bus	Local	All Days	1,731	883	580	41	84.8%	\$6.45	0%	65%	667
82	Bus	Key Corridor	All Days	4,023	2,490	1,815	50	91.7%	\$4.45	1%	60%	528
83	Bus	Local	All Days	2,358	1,418	869	48	85.6%	\$5.09	1%	66%	701
86	Bus	Local	All Days	2,890	2,495	1,619	40	95.8%	\$5.37	1%	61%	594
87	Bus	Local	All Days	2,753	689	225	42	87.3%	\$5.88	4%	69%	577
88	Bus	Local	All Days	3,136	1,656	1,194	47	96.3%	\$4.88	1%	67%	655
89	Bus	Local	All Days	419	242	146	26	94.6%	\$9.44	0%	66%	544
91	Bus	Key Corridor	All Days	4,334	1,969	1,134	38	84.2%	\$7.20	3%	67%	717
93	Bus	Local	Weekday Only	1,717	-	-	32	88.2%	\$8.42	2%	67%	669
19L	Bus	Express	Weekday Only	594	-	-	38	67.2%	\$8.50	5%	67%	1,150
28X	Bus	Local	All Days	1,927	1,531	1,343	23	89.7%	\$10.50	4%	64%	4,462
51L	Bus	Express	Weekday Only	701	-	-	57	59.4%	\$6.54	6%	67%	1,134
52L	Bus	Express	Weekday Only	414	-	-	28	73.8%	\$9.79	1%	62%	978
53/53L	Bus	Local	No Sundays	1,387	325	-	23	93.8%	\$8.97	1%	66%	1,200
61A	Bus	Key Corridor	All Days	4,797	3,085	2,243	43	83.5%	\$5.70	7%	60%	656
61B	Bus	Key Corridor	All Days	4,250	2,621	1,816	43	81.8%	\$5.89	6%	62%	751
61C	Bus	Key Corridor	All Days	6,245	4,417	3,290	49	84.1%	\$4.77	16%	59%	936
61D	Bus	Key Corridor	All Days	5,344	3,289	2,218	50	85.1%	\$4.97	12%	63%	866
71A	Bus	Key Corridor	All Days	5,710	2,668	1,775	57	91.8%	\$4.04	9%	61%	580
71B	Bus	Key Corridor	All Days	4,771	2,149	1,298	52	92.1%	\$4.51	8%	63%	623
71C	Bus	Key Corridor	All Days	5,638	2,967	1,876	50	97.0%	\$4.21	9%	56%	639
71D	Bus	Key Corridor	All Days	4,471	1,955	1,399	45	96.5%	\$4.88	6%	61%	643
78/P78	Bus	Local	Weekday Only	1,199	-	-	30	73.8%	\$8.40	4%	62%	1,216
BLLB	LRT	Rapid	All Days	6,680	1,876	1,722	71	89.6%	\$6.91	N/A	No data	2,402
BLSV	LRT	Rapid	All Days	9,255	1,552	1,494	80	98.5%	\$5.52	N/A	No data	2,295
G2	BRT	Rapid	All Days	3,827	1,036	733	48	86.3%	\$5.41	5%	74%	2,607
G3	Bus	Express	Weekday Only	921	-	-	31	67.1%	\$10.12	7%	71%	6,477
G31	Bus	Express	Weekday Only	632	-	-	32	72.8%	\$9.07	12%	72%	1,663
INC	Incline	Rapid	All Days	1,491	2,626	1,735	NA	100.0%	NA	N/A	No data	NA
O1	Bus	Express	Weekday Only	1,171	-	-	77	64.7%	\$4.92	2%	73%	4,422
O12	Bus	Express	Weekday Only	1,450	-	-	45	72.9%	\$6.76	4%	64%	2,180
O5	Bus	Express	Weekday Only	122	-	-	24	64.2%	\$12.42	0%	67%	1,115
P1/P2	BRT	Rapid	All Days	12,014	4,996	3,416	102	93.6%	\$2.41	13%	80%	3,414
P10	Bus	Express	Weekday Only	705	-	-	29	61.8%	\$10.73	4%	59%	1,550
P12	Bus	Express	Weekday Only	1,200	-	-	32	68.7%	\$9.30	4%	62%	2,305
P13	Bus	Express	Weekday Only	286	-	-	26	64.0%	\$11.62	0%	68%	1,235
P16	Bus	Express	Weekday Only	943	-	-	30	69.3%	\$9.89	8%	68%	1,368
P17	Bus	Express	Weekday Only	377	-	-	37	86.3%	\$6.72	2%	70%	990
P3	Bus	Express	Weekday Only	2,403	-	-	40	74.5%	\$7.76	4%	81%	2,037
P67	Bus	Express	Weekday Only	472	-	-	32	75.4%	\$9.05	4%	65%	2,263
P68	Bus	Express	Weekday Only	907	-	-	36	83.9%	\$6.92	2%	63%	1,134
P69	Bus	Express	Weekday Only	269	-	-	32	73.5%	\$9.38	3%	59%	1,334
P7	Bus	Express	Weekday Only	750	-	-	30	81.8%	\$8.48	1%	62%	1,540
P71	Bus	Express	Weekday Only	593	-	-	39	85.2%	\$6.72	3%	67%	1,171
P76	Bus	Express	Weekday Only	1,040	-	-	39	60.7%	\$8.26	9%	61%	2,029
RED	LRT	Rapid	All Days	10,769	6,000	4,567	90	98.8%	\$4.85	N/A	No data	1,801
Y1	Bus	Express	Weekday Only	721	-	-	41	62.0%	\$8.59	9%	70%	2,622
Y45	Bus	Express	Weekday Only	274	-	-	23	63.7%	\$13.91	0%	70%	1,200
Y46	Bus	Local	All Days	1,790	819	672	25	80.1%	\$9.98	1%	72%	1,344
Y47	Bus	Local	No Sundays	1,069	479	-	26	88.1%	\$9.01	0%	66%	1,329
Y49	Bus	Local	All Days	1,328	629	383	29	88.3%	\$7.92	1%	70%	1,301

UPDATES ON RECENT SERVICE CHANGES

Minor Service Updates

The following table provides a summary of minor service changes made in calendar year 2017 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)	2, 4, 14, 36, 38, 51, 52L, 53, 53L, 54, 55, 67, 69, 71, 74, 75, 77, 79, 82, 87, 93, P7, P13, P17, P69, P71, Y47, Y49
Off Service Running Time (Time to/from garage changed to improve efficiency or in-time performance.)	20, 22, 24, 26, 27, 28X, 40, 58, P3
Extending Span of Service or Frequency of Service	31, 51, 79, 93, G31, P1, P68, RED
Reducing Overcrowding by Adding Trips or adjusting trip times	12, 51, P1
Minor Extensions	55, 61A, 61B

Major Service Updates

The following table provides a summary of service changes made in calendar years 2016 and 2017 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.

Year	Route(s)	Major Change	Projected gain in riders (per day)	Actual gain in riders (per day)		Efficiency of Change (riders/hour on altered segment only)	Annual Cost	Cost per Rider Gained (Lost)
				2016	2017			
2016	17/18	Reduced frequency on Route 18 replaced by expanded frequency (incl. weekends) on Route 17	75 / 336 / 269	-20 / 307 / 253	72 / 458 / 421	29.6 added riders per hour of service reduced	-\$90,000	-\$3.50 per rider gained
	21	Increase Sunday frequency to 90 minutes	0	38	103	22.6	\$83,000	\$13.81
	41	Increase Sunday frequency to 90 minutes	0	-52	42	17.6	\$54,000	\$22.13
	79	Extend to Mt. Carmel Road (incl. weekends)	93 / 110 / 90	93 / 66 / 21	251 / 198 / 85	17.7	\$784,000	\$27.74
	89	Add Saturday / Sunday service	130 / 70	212 / 76	242 / 146	16.6	\$324,000	\$15.28
	G2	Increase weekend frequency to every 35 minutes	0	69 / 52	61 / 65	38.5 / 28.0	\$90,000	\$6.48
	G3	Make some reverse-direction trips in-service	7	40*	54*	6.1	\$145,000	\$14.28
	P13	Change route from East Busway to S.R. 28	120	-39	25	24.9	\$179,000	\$28.08
2017	55	Route extended to serve Mifflin Estates apartment complex seven days a week	212 / 108 / 69	NA	70 / 66 / 54	10.3	\$402,000	\$16.48
	56	Route extended to Penn State McKeesport Campus on Saturdays and Sundays to match weekday	71 / 42	NA	66 / 56	18.5	\$12,000	\$1.75
	78/P78	Midday 78 trips converted to P78 to stimulate ridership and improve efficiency	10	NA	220	44.0	\$173,000	\$3.08

*End of line ridership data is being validated on this route due to close proximity of the layover area where Bus Operators get on and off the bus between trips. Actual ridership on reverse trips may be significantly lower.

SERVICE REQUESTS FOR FY2019

Service Request Process

Port Authority's Service Guidelines include a process for the public to submit a request for a major service change. A major service change is defined as any service change which affects more than 30 percent of a route's miles. Minor service changes are made four times each year and do not require a ranking process, but are put in as resources are available or changes are needed due to road closures or other events.

Port Authority received 116 requests for service changes in 2017. Though the call for ideas was targeted toward major changes to existing service, many other requests were received. Minor requests included 29 minor requests (such as adding trips to alleviate overcrowding, adding a new bus stop, or rerouting a bus only a short distance), 1 request for changes which had already been put in place or were being put in place in the fall of 2017, and 1 request which was deemed to be infeasible because it required large up front capital (such as a new light rail line). The minor requests will be taken into consideration by Department of Service Development and Evaluation, and if they are deemed feasible and beneficial to riders, adjustments may be made throughout the year as schedules and budget allows. No rankings or reporting on minor service changes will be developed.

Ranking Requests for Major Service Change

Of the 116 requests received in 2017, 69 unique ideas were represented and ranked. The requests were aggregated when similar, and may be slightly different than the original request if two or more very similar requests were made. Efforts were made to adjust requests if necessary to ensure rankings reflected the most feasible and manageable ways it could be carried out. Rankings were based on the three overarching goals of efficiency, effectiveness, and equity. Each request received a score for these three categories based on a number of metrics. The scores were averaged to create a final score (sorted on the following pages in order of highest Final Score to lowest Final Score).

Limitations to Adding Service in Fiscal Year 2018

Though many requests were received asking that Port Authority add service in fiscal year 2019, there are limitations to the services Port Authority can provide. Garage space for buses is currently limited, and as such, increasing bus fleet much beyond its current size without building or expanding a bus garage is infeasible.

Currently, peak vehicles are being used at or above recommended capacity, meaning that the ability to add service between 6am and 9am and 3pm and 6pm is extremely limited and should be prioritized for alleviating crowding on existing service. There is potential for adding midday, evening, and weekend service, however. There is also limited capacity to add peak service out of the Collier Bus Garage in southwestern Allegheny County for routes that operate from this garage. Port Authority is evaluating options for building a new bus garage, but limited land availability and capital costs for building such a facility mean that this will be a long-term endeavor.

The right-most column 'Recommendation' on the following pages therefore includes three basic categories; "Requires Peak Vehicles", "Does not meet Service Guidelines", and "Put in if budget allows". "Put in if budget allows" means that the request is deemed feasible given existing constraints and if additional budget is made available, requests should be input in order of highest to lowest ranked request.



SERVICE REQUESTS FOR FY2019

Service Request Description	Cost Annual	Projected Weekday Riders	Projected Saturday Riders	Projected Sunday Riders	Cost (Savings) per Rider Gained	Efficiency Score	Equity Score	Effective-ness Score	Final Score	Recommendation
Reroute the 21 on every other trip via University Blvd to University Blvd PNR in Moon Township instead of Sewickley	\$100,000	169	85	51	\$2.83	91.9	86.1	68.5	82.2	Put in if budget allows
Extend 28X to East liberty Garage via Fifth Ave	\$1,000	10	5	3	\$0.48	100.0	62.8	70.1	77.6	Put in if budget allows
Extend the 12 further north on McKnight Road	\$239,000	283	-	-	\$4.73	84.5	75.3	71.1	77.0	Put in if budget allows
Reroute the 55 through Atlantic Ave in McKeesport and Independence Drive in Clairton (Old 50B)	\$317,000	43	43	18	\$31.79	15.7	95.6	75.7	62.3	Put in if budget allows
Create a new route from Oakdale/McDonald to Downtown (Old 33F)	\$330,000	297	-	-	\$6.22	80.3	47.7	54.5	60.9	Put in if budget allows
Reroute the Y1 via Old Clairton Road to Large Park and Ride while simultaneously rerouting the Y46 to serve Century III Park and Ride instead of the Y1 (Old JL Flyer)	\$7,000	109	-	-	\$0.36	100.0	44.9	37.0	60.6	Put in if budget allows
Extend the 44 to Willet Road	\$153,000	135	-	-	\$6.35	78.8	48.6	42.4	56.6	Put in if budget allows
Extend the 64 to Millvale	\$1,135,000	98	69	29	\$53.58	9.3	60.8	99.5	56.5	Put in if budget allows
Create a new route from Sumac to McKeesport (Old 60B)	\$951,000	156	-	-	\$34.15	14.6	94.7	58.6	56.0	Requires too many peak vehicles
Create a new route from Moon Township to Robinson (Old 25, 25A)	\$325,000	214	-	-	\$8.49	58.9	51.4	54.7	55.0	Requires too many peak vehicles
Create a new route from South Oakland to Oakland (Old 84B)	\$956,000	175	137	46	\$25.10	19.9	77.2	67.4	54.9	Requires too many peak vehicles
Create a new route from Kennywood Mall to Waterfront via West Run Road (Old 55D)	\$165,000	108	-	-	\$8.56	58.4	65.2	38.8	54.1	Requires too many peak vehicles
Create a new route from Allison Park to Downtown	\$280,000	298	-	-	\$5.26	49.4	44.4	65.7	53.2	Requires too many peak vehicles
Extend the 31 to Millers Run	\$719,000	351	-	-	\$11.48	43.6	47.0	68.4	53.0	Put in if budget allows
Create a new route from Shaler to East Liberty	\$609,000	53	-	-	\$64.37	7.8	88.8	56.5	51.0	Requires too many peak vehicles
Create a variant of the 51 from Carrick to Waterfront via Mt. Oliver	\$899,000	158	159	67	\$24.49	20.4	69.5	60.7	50.2	Requires too many peak vehicles
Extend the 29 to Oakdale and McDonald via McKee Road	\$600,000	220	-	-	\$15.28	32.7	35.1	81.0	49.6	Put in if budget allows
Create a new route from Verona to Monroeville Mall (Old 75D)	\$2,455,000	220	108	58	\$53.81	9.3	64.2	74.9	49.5	Requires too many peak vehicles
Extend the 55 to Monroeville Mall	\$650,000	184	92	55	\$16.92	29.6	69.1	48.8	49.1	Requires too many peak vehicles
Extend the 4 to Passavant Hospital via Perry Highway	\$883,000	275	-	-	\$17.99	27.8	49.8	66.8	48.1	Requires too many peak vehicles
Extend every 3rd trip on 8 out Perry Hwy to CCAC North Campus	\$1,166,000	347	-	-	\$18.82	26.6	77.0	40.4	48.0	Put in if budget allows
Add Sunday service to the 39	\$160,000	-	-	443	\$8.90	56.2	67.4	17.5	47.1	Put in if budget allows
Reroute the P10 to Constitution Blvd in New Kensington instead of Freeport Road	\$288,000	66	-	-	\$24.45	20.5	88.9	31.5	47.0	Put in if budget allows
Create a new route from Versailles to Braddock (Old 76)	\$816,000	153	-	-	\$29.88	16.7	81.4	42.2	46.8	Requires too many peak vehicles

SERVICE REQUESTS FOR FY2019

Service Request Description	Cost Annual	Projected Weekday Riders	Projected Saturday Riders	Projected Sunday Riders	Cost (Savings) per Rider Gained	Efficiency Score	Equity Score	Effective-ness Score	Final Score	Recommendation
Reroute the 59 to Skyline Drive (instead of serving McKeesport via West 5th Avenue)	\$(83,000)	(50)	(17)	(43)	\$7.35	35.4	49.0	54.4	46.3	Removes service
Create a new route from Ross Township to Downtown via Perry Highway	\$2,283,000	1,042	-	-	\$12.27	40.7	56.1	41.9	46.2	Requires too many peak vehicles
Create a new route from Pittsburgh Mills Mall to Downtown via East Busway	\$542,000	50	-	-	\$60.73	8.2	75.3	54.3	45.9	Requires too many peak vehicles
Create a new route from Monroeville Mall to Forbes Regional Hospital via Garden City (Old 75A, 75C)	\$1,718,000	194	196	82	\$38.10	13.1	67.4	56.0	45.5	Requires too many peak vehicles
Add Sunday service to the 74	\$297,000	-	-	353	\$20.72	24.1	89.3	22.2	45.2	Put in if budget allows
Add Saturday and Sunday service to the P78	\$605,000	-	520	331	\$18.69	26.7	87.0	20.4	44.7	Put in if budget allows
Create short trips on the 69 to Wilksburg Station in between the long trips	\$981,000	369	-	-	\$14.89	33.6	81.6	18.3	44.5	Put in if budget allows
Extend the 54 to Allegheny Station	\$1,460,000	100	-	-	\$81.79	6.1	99.8	26.2	44.0	Bridge repair required
Create a new route from Walmart-North Versailles to Monroeville Mall (Old 75B)	\$5,226,000	204	206	87	\$110.15	4.5	63.4	60.8	42.9	Requires too many peak vehicles
Extend the 21 to Robert Morris University and Walmart in Moon Township	\$(204,000)	127	63	41	\$(7.66)	(33.9)	86.1	76.4	42.9	Removes service
Add Saturday and Sunday service to the 93	\$985,000	-	734	467	\$21.56	23.2	81.2	23.7	42.7	Put in if budget allows
Extend the 20 to University Blvd Park and Ride via Coraopolis	\$1,525,000	201	-	-	\$42.50	11.8	56.1	59.8	42.5	Put in if budget allows
Create a new route from Crafton Ingram Shopping Center to Downtown (Old 26A, 26D)	\$524,000	10	-	-	\$293.56	1.4	64.7	60.2	42.1	Put in if budget allows
Extend the 26 to Windgap Industrial Park all days of the week	\$468,000	28	16	10	\$78.18	6.4	65.2	52.8	41.5	Put in if budget allows
Extend the 93 to Etna/Sharpsburg	\$870,000	53	-	-	\$91.96	5.4	59.7	58.7	41.3	Put in if budget allows
Add midday and weekend service to the P16	\$3,220,000	424	618	425	\$27.89	17.9	74.7	27.6	40.1	Put in if budget allows
Add Saturday and Sunday service to the 2	\$605,000	-	373	160	\$30.14	16.6	54.6	46.1	39.1	Put in if budget allows
Create a new route from Baldwin to South Park Parkford Apartments (Old 35A)	\$1,998,000	401	-	-	\$27.91	17.9	49.5	49.4	38.9	Requires too many peak vehicles
Extend the P12 to Sardis Road in New Kensington	\$336,000	2	-	-	\$941.18	0.5	51.2	64.7	38.8	Requires too many peak vehicles
Extend the 29 to intersection of Steubenville Pike and RT 30	\$374,000	110	-	-	\$19.05	26.3	26.9	63.0	38.7	Put in if budget allows
Add Saturday and Sunday service to the 29	\$683,000	-	416	265	\$26.37	19.0	48.4	48.2	38.5	Put in if budget allows
Create a new route from North Park through Babcock and Thompson Run and McIntyre Square to Downtown via the East Busway (from O5 and P13 routing)	\$1,557,000	201	-	-	\$43.40	11.5	68.8	29.7	36.7	Requires too many peak vehicles
Create a new route from Etna to Downtown via the East busway	\$891,000	48	-	-	\$103.99	4.8	80.7	23.5	36.4	Requires too many peak vehicles
Create a new route from Babcock and Thompson Run to Downtown via the East Busway (from O5 and P13 routing)	\$1,317,000	160	-	-	\$46.11	10.8	69.8	28.1	36.2	Requires too many peak vehicles

SERVICE REQUESTS FOR FY2019

Service Request Description	Cost Annual	Projected Weekday Riders	Projected Saturday Riders	Projected Sunday Riders	Cost (Savings) per Rider Gained	Efficiency Score	Equity Score	Effective-ness Score	Final Score	Recommendation
Add Saturday and Sunday service to the 20	\$480,000	-	327	208	\$23.59	21.2	56.9	29.3	35.8	Put in if budget allows
Create a new route from Mt. Lebanon to Oakland (Old 44U)	\$1,014,000	330	-	-	\$17.21	29.0	61.3	16.7	35.7	Put in if budget allows
Add Saturday and Sunday service to the 53L (Extend Saturday 53 trips)	\$649,000	-	453	507	\$17.51	28.6	67.9	10.5	35.7	Put in if budget allows
Extend the Y46 through West Elizabeth before traveling to Elizabeth (Old 46G)	\$321,000	28	-	-	\$64.23	7.8	53.0	45.4	35.4	Put in if budget allows
Extend the 38 to Hoodridge Drive	\$1,916,000	163	-	-	\$65.85	7.6	41.0	56.0	34.9	Put in if budget allows
Eliminate Route 29	\$(2,365,000)	(860)	-	-	\$15.41	32.5	47.2	24.2	34.6	Removes service
Create a new route from McIntyre Square to Downtown via East busway	\$2,458,000	210	-	-	\$65.57	7.6	69.7	26.3	34.6	Requires too many peak vehicles
Reroute the 67 to Atkinson Place via Graham Blvd	\$510,000	(77)	(39)	(25)	\$(31.52)	0.1	71.1	28.5	33.2	Removes service
Reroute the G3 to serve Campbells Run Road	\$1,292,000	169	-	-	\$42.83	11.7	43.6	43.6	33.0	Put in if budget allows
Add midday and weekend service to the 19L	\$1,474,000	119	333	217	\$34.95	14.3	56.7	26.7	32.6	Put in if budget allows
Add midday service to the 52L	\$1,255,000	83	-	-	\$84.71	5.9	73.0	18.7	32.5	Put in if budget allows
Create a new route from Allentown to Downtown (Old Brown Line, LRT)	\$1,308,000	173	-	-	\$42.40	11.8	70.8	13.5	32.0	Put in if budget allows
Add midday and evening service to the G3	\$1,657,000	161	-	-	\$57.66	8.7	50.1	36.6	31.8	Put in if budget allows
Extend the P12 to Old Leechburg Road in Plum	\$336,000	27	-	-	\$69.72	7.2	46.5	37.9	30.5	Requires too many peak vehicles
Reroute the 1 through Cherry City on the weekends	\$82,000	-	41	24	\$33.24	15.0	55.6	18.5	29.7	Put in if budget allows
Extend the G3 to Walmart in Moon Township	\$304,000	80	-	-	\$21.29	23.5	37.4	25.8	28.9	Put in if budget allows
Reroute the 53L to run on West Run Road instead of Main St.	\$165,000	(44)	-	-	\$(21.01)	0.1	54.6	29.8	28.2	Removes service
Extend the RED line to South Hills Village on weekends	\$655,000	-	39	-	\$461.40	1.1	55.5	25.1	27.2	Put in if budget allows and service guidelines for efficiency are met
Create a new route from Robinson to Downtown (Old G29)	\$1,049,000	143	-	-	\$41.10	12.2	51.9	17.4	27.2	Put in if budget allows
Add midday service to the Y45	\$1,407,000	55	-	-	\$143.32	3.5	48.7	17.1	23.1	Put in if budget allows

PLANNED CHANGES FOR FY2019

Planned Changes to Meet Service Guidelines on Existing Routes

Some of the following changes were also major service requests, but because the route is not meeting service guidelines, these changes are made in order to bring the route into adherence with guidelines.

Service Guideline	Route	Service Day(s)	Planned Changes	Annual Cost
Passengers per revenue service hour	2	Weekday	Adjust frequency of trips optimal headways puring peak periods	(\$293,000)
	18	Weekday	Consolidate 1 evening trip with low ridership	(\$14,000)
	20	Weekday	Adjust frequency of trips optimal headways	(\$10,000)
	40	Sunday	Consolidate 1 late evening trip with low ridership	(\$14,000)
	44	Weekday	Investigate creating midday short trips that terminate at St. Clair Village on every other trip to improve efficiency	(\$576,000)
On-time performance	Various	NA	Adjust running times on at least the following low-performing routes to improve on-time performance: 29, 43, 52L, 69, 77, 82, 86, P10, P12, P69, P76, P78	\$336,000
Crowding	61C	Weekday	Investigate adding 61D short inbound trips from 9:30 am - 11:30 am to address crowding	\$297,000
	G31	Weekday	Add one extra morning peak trip to maintain 15 minute frequency until 8:00am	\$72,000
	P1	Weekday	Various scenarios for changes to the P1 are being evaluated in summer 2018, as capacity is available on the route, but traffic conditions cause bunching in Downtown Pittsburgh, leading to overcrowding	Unknown
	P76		Add an early morning trip	\$101,000
Total				(\$101,000)

Major Service Changes

Major Change	Annual Cost	Limitations & Next Steps
Reroute the 21 on every other trip via University Blvd to University Blvd PNR in Moon Township instead of Sewickley	\$100,000	Community input from end of route areas on 21 needed to confirm route change detail

Minor Service Changes

Minor Change	Annual Cost	Limitations & Next Steps
Extend 28X to East liberty Garage via Fifth Ave	\$1,000	None - Update service in FY2019

Total Cost of All Planned Service Changes for FY2019

\$0

*Planned changes are not set in stone at this point - changes to costs from optimization of schedules can occur, and all changes are subject to a Board approved fiscal year 2019 budget.

Summary

This was the third 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 and Evaluation Department in the Communications Division and the Service Development and Evaluation Department in the Operations Division 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.