2022

SRTA Year End Fixed Route Ridership Analysis: FY 2022

Contents

Figures

I. Introduction

Presented here are the results of an in-depth analysis of ridership trends for the Southeastern Regional Transit Authority (SRTA) fixed route service for the entirety of fiscal year 2022 (FY22); FY22 began July 1, 2021 and ended June 30, 2022.

Ridership data is collected and reported by the Sheidt & Bachmann farebox system and stored in the Central Computing System (CCS). The farebox system records the details of each transaction at the fareboxes, ticket vending machines, and terminal ticket offices. The data is compiled through a series of reports available in the CCS. The data used to prepare this report was compiled from the "Route Ridership by Garage and Day of Week" and the "Route Ridership by Garage and Product Type" reports.

Values for revenue miles and revenue hours are calculated using data collected by the Clever Devices Automatic Vehicle Locator system which records time and distance for buses in fixed route service. The data was also used to report on-time performance and passenger boarding and alighting at stops. The data is reported using Ridecheck Plus v8.10.

Tableau Desktop was used to analyze ridership data and develop the tables and charts found in this report. Individual route profiles were excluded from this report, however, are stored in Tableau Desktop.

A. Key Terms Used in this Report

Route is the path a vehicle will travel while operated in service which passengers are permitted to board after paying the appropriate fare.

Trip is a segment of time in which the vehicle will travel a route in a single direction from one end of the route to the other end of the route.

Ridership is the number of trips recorded by SRTA fixed route vehicles.

Revenue Miles is the measure of distance traveled by a fixed route vehicle operated along scheduled routes in which passengers are permitted to board after paying the appropriate fare.

Revenue Hours is the measure of time a fixed route vehicle is operated along scheduled routes in which passengers are permitted to board after paying the appropriate fare.

Passengers per Revenue Mile (PPRM) is the calculation of the number of passengers boarding a fixed route vehicle for each mile the vehicle operates revenue service.

Passengers per Revenue Hour (PPRH) is the calculation of the number of passengers boarding a fixed route vehicle for each hour the vehicle operates revenue service.

Passenger per Trip (PPT) is the calculation of the number of passengers boarding a fixed route vehicle for each trip the vehicle performs in revenue service.

Boardings per Day is the stop level calculation of total boardings divided by the total number of days the stop was serviced.

Alightings per Day is the stop level calculation of total alightings divided by the total number of days the stop was serviced.

Stop Use is the ratio of total boardings and alightings and the number of trips serving a bus stop. The ratio measures how frequently the bus stops compared with the number of times it passes a stop and ranges from 0.00 – 1.00 and is represented as a percentage.

B. List of Routes in Service during FY21

Route	Route Name
FR1	Fall River Route 1 - South Main Street
FR10	Fall River Route 10 - Rodman Street
FR14	Fall River Route 14 - Swansea Mall
FR2	Fall River Route 2 - North Main Street
FR3	Fall River Route 3 - Laurel Street
FR4	Fall River Route 4 - Robeson Street
FR5	Fall River Route 5 - Stafford Street
FR6	Fall River Route 6 - Pleasant Street*
FR7	Fall River Route 7 - Bay Street
FR8	Fall River Route 8 - Bristol Community College/Durfee High School
FR9	Fall River Route 9 - Bedford Street
NB1	New Bedford Route 1 - Fort Rodman
NB10	New Bedford Route 10 - Dartmouth Mall
NB11	New Bedford Route 11 - Fairhaven
NB2	New Bedford Route 2 - Lund's Corner
NB3	New Bedford Route 3 - Dartmouth Street
NB4	New Bedford Route 4 - Ashley Boulevard
NB5	New Bedford Route 5 - Rivet Street
NB6	New Bedford Route 6 - Shawmut/Rockdale
NB8	New Bedford Route 8 - Mt. Pleasant Street
NB9	Intercity Route - New Bedford/Fall River
NB9X	Intercity Express – New Bedford/Fall River
NB21	New Bedford North End Shuttle
NBHSN	New Bedford High School – North*
NBHSS	New Bedford High School – South*
NBKN	New Bedford Keith Middle School – North*
NBKS	New Bedford Keith Middle School – South*
NBW	New Bedford / Wareham - New Bedford to Wareham

*Route only in service when school is in session.

II. Key Findings

A. Ridership

SRTA ridership rebounded in FY22 from the declines experienced in FY20 and FY21 caused by the COVID-19 pandemic. Systemwide ridership was 2,015,769 trips, which was 21.6% higher than FY21. Despite this increase, FY22 was 10% below the five year annual average of 2,241,774 trips. Prior to FY20, average annual ridership was 2,676,236 trips. All but four routes experienced an increase in ridership in FY22 compared with FY21; two experienced significant growth compared with FY21 (NB1 and FR5).

COVID-19 remains ever present in the communities served by SRTA, however infection rates have remained low and stable. The restrictions on social gathering and mask requirements have been rescinded. Area schools were in full session for the entirety of FY22. Recovering ridership to pre-pandemic levels will be a long process and it remains uncertain when, or if, SRTA will experience pre-pandemic ridership levels.

Total ridership for the previous five fiscal years is shown below in Figure 1.

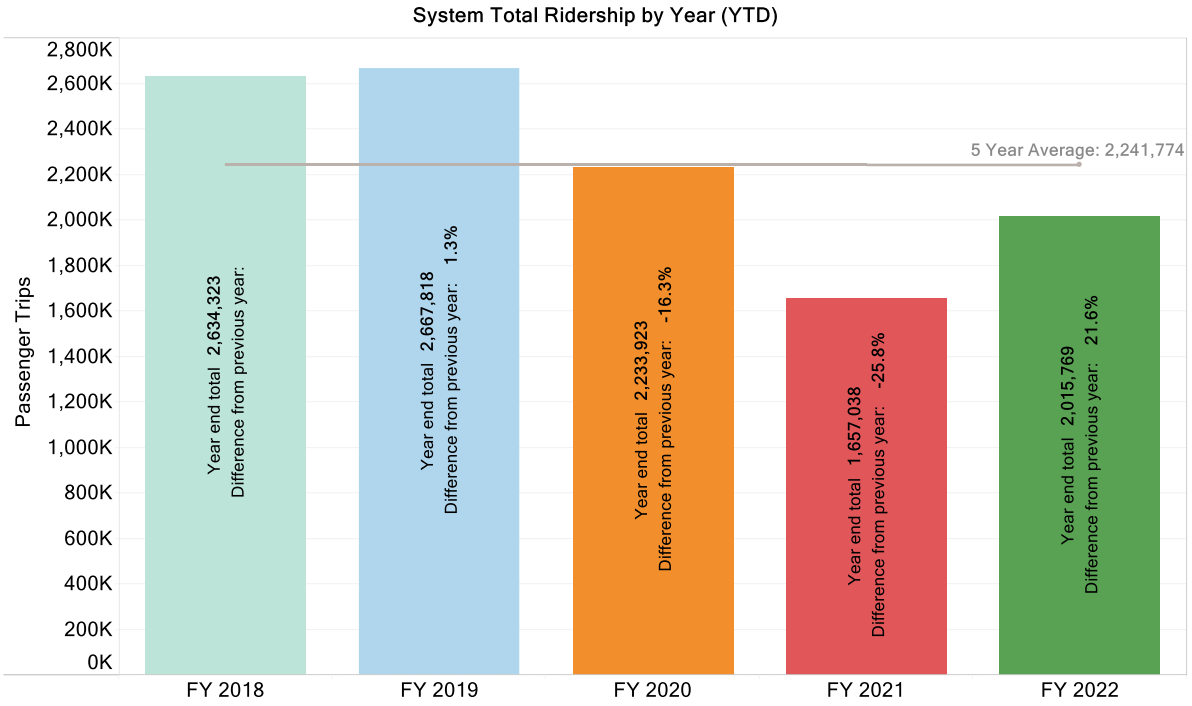

Figure 1: SRTA Total Ridership FY18-FY22

SRTA operates fixed route service out of two terminals: Fall River and New Bedford. The service from each terminal operates independent of the other with exception of the New Bedford Route 9 – Intercity (NB9) and the New Bedford Route 9X – Intercity Express (NB9X), which provides a connection between New Bedford and Fall River. Ridership data for the NB9 and NB9X is recorded such that boardings on the trips originating from New Bedford terminal are attributed to New Bedford terminal and boardings on the trips originating from Fall River terminal are attributed to the Fall River terminal.

The service in each city reflects the unique service demands for each city, and as a result the ridership trends vary between the two cities. Ridership in Fall River for FY22 was 963,831 trips (48% of the systemwide total). Ridership in New Bedford was 1,051,938 trips (52% of the systemwide total). The totals are shown below in Figure 2.

Figure 2: Total by Terminal FY21 & FY22

SRTA operates three schedules for service: Weekday, Saturday, and Holiday. Weekday service operates Monday through Friday and provides the greatest span of service and the shortest headways of the three schedules. Saturday and Holiday service share the same schedule, which provides shorter span of service and longer headways than the Weekday schedule. The Saturday schedule is operated each Saturday; Holiday service is operated on weekdays when a federal or state holiday is observed.

There were 311 service days in FY22. There were 250 Weekdays, 51 Saturdays, and 10 Holidays.

Weekday average ridership increased 25% in FY22; the FY21 weekday average ridership was 5,776, the FY22 weekday average ridership was 7,242. Saturday ridership declined 4% from the FY21 average of 3,512 to the FY22 average of 3,371. Holiday ridership increased 2% from FY21 average of 3,399 to 3,326 in FY222. The results are shown below in Figure 3.

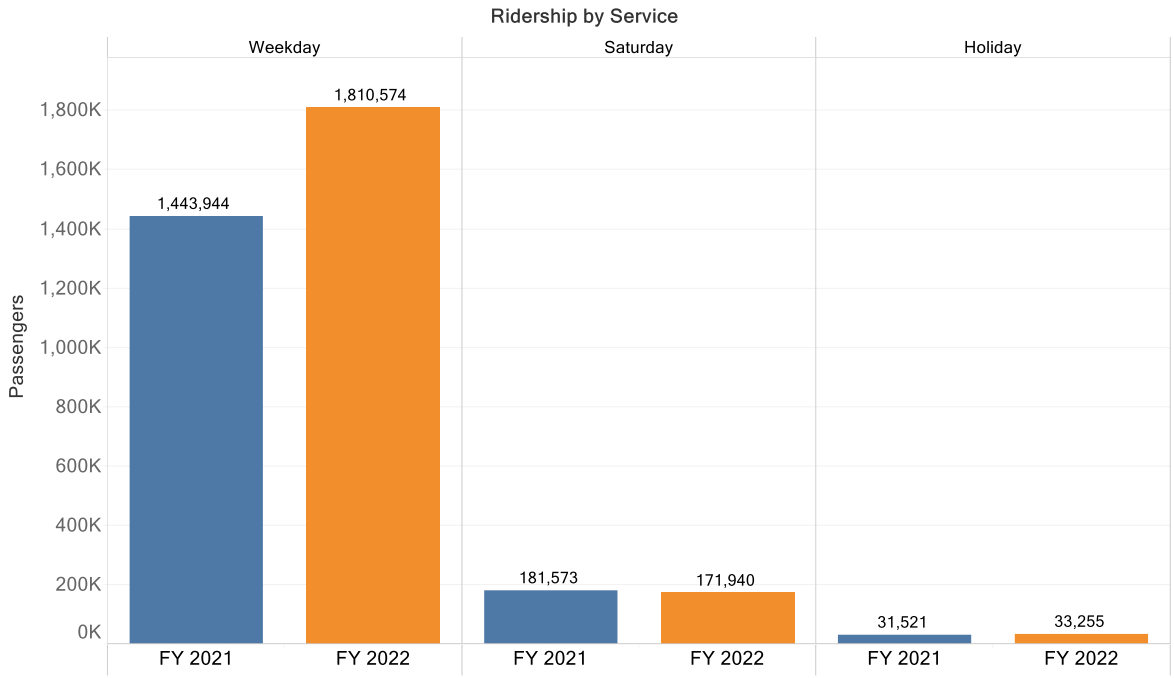

Figure 3: Ridership by Service Schedule

B. Fare Payment

In addition to recording boarding counts, the Sheidt & Bachmann fare collection system records detailed information for each transaction made when passengers pay a fare. This information is useful to determine the method customers pay for their service and the extent that various pass products are used by SRTA customer. Beginning in March, 2020, fare collection was suspended in response to the COVID-19 pandemic. Fare collection was resumed on April 1, 2021, with fare prices reduced from the pre-pandemic fare rates which remained in place until September 30, 2021. On October 1, 2021, a new fare set was established which lowered prices on multi-use passes and stored-value fare. Stored-value trips also include a 2-hour transfer that allows for a trip on inbound buses in addition to the outbound transfer offered with a cash fare.

Historically, cash has been the predominant method of fare payment, however that has changed in FY22 with 593,405 (30%) trips paid for with cash. The share of cash trips is declining with more multi-ride passes in use. Multi-ride pass products (one day, seven-day, thirty-one day, and ten ride) accounted for 691,959 (35%) trips; transfers accounted for 422,738 trips (21%); and stored value accounted for 226,285 (11%) trips.

The results are shown below in Figure 4.

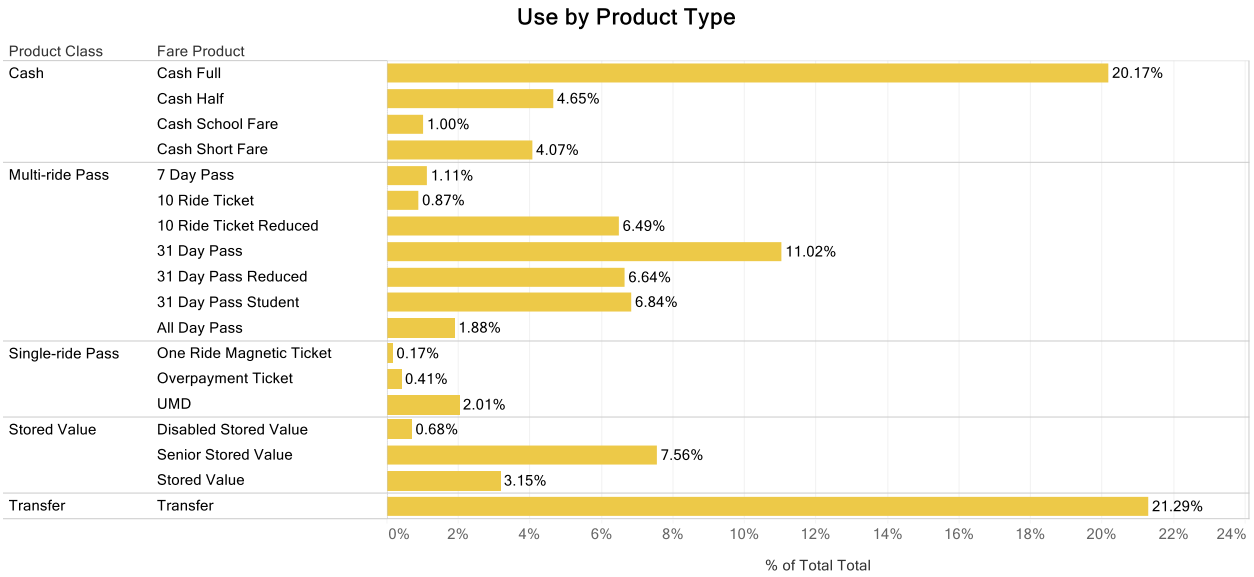

Figure 4: Fare Product Use

Fare products are sold in three locations: at the farebox, at the ticket vending machines located in both terminals, and at the staffed ticket windows in each terminal. Farebox sales only accept cash and only allow for cash fare products, to add cash value to stored value products, or to purchase an All-Day Pass. Ticket vending machines and ticket windows sell all fare products and accept cash, credit, and debit transactions.

Multi-use pass products are the greatest value for frequent riders due to their fixed purchase price and unlimited use while the product is valid. On October 1, 2021, prices were reduced from pre-pandemic prices, the prices shown in this report reflect the new fare prices. Multi-use products include: All Day Pass ($3.00), 7 Day Pass ($10.00), and 31 Day Pass (full price - $30; student - $20; reduced - $20). Multi-use passes are analyzed in two ways: the average fare paid per pass use and average trips taken per pass.

The average fare paid per pass use is calculated by dividing the total value of products sold by the total number of unlinked passenger trips recorded for the pass products. The resulting figure measures the value each pass provides to the user relative to the maximum fare that user may otherwise be required to pay. For example, an adult rider may choose to pay cash when boarding, which would cost $1.50 for each trip; however, if that same adult purchased a 31 Day Pass for $30.00, they would be provided unlimited use of the SRTA Fixed Route bus network while the pass is valid, and assuming they use the pass more than 20 times, they have maximized the use of the pass by reducing their per trip cost below $1.50.

All multi-use passes, with the exception of the Ten Trip Ticket, provided a significant savings to customers over paying the cash fare. The greatest value was found in the All-Day pass with which customers saved an average of 74% over the cost of a single trip fare. The 31-Day Pass provided savings to customers with an average fare of $0.69 per trip, a 54% savings over the cash fare.

It should be noted that 10-Trip Tickets appeared to have an average fare twice the cash fare. SRTA sells these tickets in bulk to social service agencies, which tend to make large purchases

at the end of the fiscal year in June. Because of these bulk orders, more tickets are sold than can be redeemed, which skews the average fare.

The results are shown in

Average Fare by Multi-Use Product

Pass Product	Total Trips	Average Fare	Discount
31 Day Pass	218,862	$0.69	54%
31 Day Pass Reduced	131,797	$0.85	43%
31 Day Pass Student	135,852	$1.00	34%
All Day Pass	37,235	$0.39	74%
7 Day Pass	21,956	$0.89	41%
10 Trip Ticket	17,302	$3.00	-100%
10 Trip Ticket Reduced	128955	$1.02	32%

Figure 5.

Average Fare by Multi-Use Product

Pass Product	Total Trips	Average Fare	Discount
31 Day Pass	218,862	$0.69	54%
31 Day Pass Reduced	131,797	$0.85	43%
31 Day Pass Student	135,852	$1.00	34%
All Day Pass	37,235	$0.39	74%
7 Day Pass	21,956	$0.89	41%
10 Trip Ticket	17,302	$3.00	-100%
10 Trip Ticket Reduced	128955	$1.02	32%

Figure 5: Average Fare by Multi-Use Product

Another way of evaluating Multi-Use Products is by the average number of trips taken by pass type. The average fare paid answers the question of the value of the multi-use pass for the customer; the average number of trips taken by pass type answers the question of how frequently do multi-use riders use the pass. This analysis includes all the pass types analyzed for average fare and include two additional passes: full price and reduced price 10 Ride Ticket. Interestingly, the utilization of ten trip tickets is less than 100% of trips purchased. The product is sold for $14.00 at full price and $7.50 reduced price to students, which would represent a per trip cost of $1.40 and $0.75 respectively. This is the only multi-use product where utilization can be measured as a ratio of trips available. Average trips taken per ten trip ticket was 4.15 for the full price 10 Ride Ticket and 7 for the reduced price. Contributing to the lower utilization rate could be passes sold but not distributed during the fiscal year, as is common for school districts or social service agencies. It is possible however, that customers purchase the product and never use all ten trips that were purchased.

Pass utilization was highest for the 31-Day Pass: an average of 39 trips per pass was observed for FY22. This suggests that commuters or regular riders are using this pass. The number of trips taken with this pass as a percentage of all trips began increasing steadily in October when the pass price was reduced from $40 to $30.

The full results are below in

Average Trips per Multi-Use Product

Pass Product	Total Sold	Total Trips	Average Trips per Pass
10 Ride Ticket	4,170	17,302	4.15
10 Ride Ticket Reduced	17,767	128,955	7
31 Day Pass	5,603	218,862	39
31 Day Pass Reduced	10,382	131,797	13
31 Day Pass Student	6,760	135,852	20
7 Day Pass	1,980	21,956	11
All Day Pass	5,282	37,235	7

Figure 6.

Average Trips per Multi-Use Product

Pass Product	Total Sold	Total Trips	Average Trips per Pass
10 Ride Ticket	4,170	17,302	4.15
10 Ride Ticket Reduced	17,767	128,955	7
31 Day Pass	5,603	218,862	39
31 Day Pass Reduced	10,382	131,797	13
31 Day Pass Student	6,760	135,852	20
7 Day Pass	1,980	21,956	11
All Day Pass	5,282	37,235	7

Figure 6: Average Trips per Multi-Use Product

III. Performance Analysis of Service

SRTA adopted performance standards to assess the productivity of service for each route relative to the whole system. The standards are quantitative indicators that measure route performance against a specific measure of productivity for the purpose of identifying routes that are underperforming expectations.

Route performance is measured against the systemwide average and falls in one of three categories:

- **Pass** – productivity measure is greater than 50% of the systemwide average and no corrective action is necessary.
- **Monitor** – productivity is less than 50% of the systemwide average but greater than 35% of the systemwide average, performance should be monitored, and a corrective plan should be developed;
- **Fail** – productivity is less than 35% of the systemwide average, the corrective plan should be implemented.

There are three indicators used in this report: **passengers per revenue hour, passenger per revenue mile, and passengers per trip**. The metrics each measure a different aspect of transit route productivity, each providing a slightly different insight in to how the service is being used by SRTA customers.

Passengers per revenue hour measures the number of passengers boarding a route during an hour of service. It is reported as an average number based on the total number of hours a route is in service and the total passengers that boarded the route during a period of time.

Passengers per revenue hour identifies productivity based on the amount of time a route is in service and is a way to determine if that time is being used as efficiently as possible. Routes with a greater frequency of service tend to perform better over those with lower frequency as there are more opportunities in an hour for the route to board passengers.

Passengers per revenue mile measures the number of passengers boarding a route over the course of a mile of service. It is reported as an average number based on the total number of miles a route travels while in service and the total number of passengers that board the route while in service. Passengers per revenue mile identifies productivity based on the total distance a route travels and is a way to determine if the distance traveled by the route is being used as efficiently as possible. Routes that are shorter and serve more densely developed areas tend to perform better over those that are longer and serve less densely developed areas.

Passenger per trip measures the number of passengers that board a bus each time it travels the route. It is reported as an average number based on the total number of trips performed on a route and the total number of passengers that board the route during a trip. Passengers per trip identifies the number of passengers that board a vehicle for each trip and is a way to determine if the amount of service for a route is being allocated as efficiently as possible. This metric is as close to a combined metric of hours and miles but tends to favor routes that serve more densely developed areas, as there is a greater potential to pick up passenger.

A. Passengers per Revenue Hour

The systemwide average for passengers per revenue hour (PPRH) was 18.47, an increase of 19% over FY21; the Monitor category was set at 9.24 and the Fail category was set at 6.46. Eleven of the twenty-three routes operated in FY22 performed above the average PPRH; nine were below the average but above the Monitor category.

Two routes fell in the Monitor category: Fall River Route 14 – Swansea (FR14) and the New Bedford 9X – Intercity Express (NB9X). The FR14 is a route that historically has underperformed the system average. The route serves lower density residential areas compared with the rest of the Fall River service area as well as auto-centric shopping and commercial corridors. The operating environment for the route is not favorable to transit and is not generally favorable for pedestrian traffic either. The route is also the second longest route, with significant distances between trip generators. These factors all contribute to the FR14 consistently underperforming the system average.

The NB9X also underperformed the system average, which is not surprising given the unique manner the route operates. The NB9X is a commuter express route that connects the New Bedford Terminal with the Fall River Terminal via Interstate 195; the only boarding location is either terminal. Having only one location to board passengers and a lengthy trip between terminals results in underperformance for the route. The NB9X was operated as a pilot service and was discontinued at the end of FY23 due to a lack of sustainable funding.

One route fell in the Fail category: New Bedford: North End Shuttle (NB21). The New Bedford North End Shuttle is a perennial low-performer. The North End Shuttle serves a low-density part of New Bedford, however has very regular ridership. There is very little fluctuation in the volume of passengers carried on the route. This suggests that the riders of the North End Shuttle ride with regular frequency. SRTA has no immediate plans to make changes to the route, however it is anticipated that the route will be evaluated either in late FY23 or early FY24.

The results of the Passengers per Revenue Hour analysis are shown on the next page in Figure 7 and Figure 8.

Passengers per Revenue Hour

Route ID	July	August	September	October	November	December	Date January	February	March	April	May	June	YTD Avg
FR1	18.94	19.94	25.03	25.47	25.28	21.31	21.47	22.04	21.61	18.21	20.29	19.54	21.65
FR2	15.39	15.80	17.11	17.20	17.35	15.10	15.80	17.02	16.78	15.65	16.70	16.52	16.36
FR3	22.50	23.55	26.56	27.00	27.11	23.63	23.70	23.83	23.16	19.58	21.75	21.85	23.70
FR4	16.41	15.11	17.49	18.37	16.82	14.44	16.17	15.57	14.45	12.71	14.69	15.11	15.66
FR5	14.86	15.86	21.00	21.58	21.58	18.46	19.99	19.57	18.99	15.22	17.74	16.59	18.58
FR6	22.53	22.86	26.28	27.42	27.08	22.65	23.82	23.90	22.23	18.54	21.76	19.75	23.38
FR7	14.80	15.09	21.68	23.35	22.88	18.80	19.78	18.97	17.76	14.41	16.79	15.08	18.38
FR8	8.44	8.39	29.84	34.77	30.95	24.04	28.25	28.92	28.05	22.71	27.55	17.52	25.10
FR9	11.47	11.26	13.13	13.53	13.00	10.65	12.65	12.09	10.88	9.32	10.79	10.01	11.61
FR10	19.25	20.21	28.79	30.88	30.79	26.06	25.40	24.69	24.40	20.72	22.38	20.76	24.57
FR14	7.56	7.64	7.26	7.08	7.05	6.31	6.71	6.60	6.67	6.46	6.84	7.17	6.95
NB1	31.57	32.01	31.91	30.42	29.81	26.97	26.60	28.43	27.21	26.56	27.62	29.08	29.04
NB2	25.88	25.59	24.36	23.79	24.60	22.58	21.59	23.05	22.56	23.13	23.47	23.91	23.68
NB3	14.34	14.97	14.61	13.85	13.84	12.63	13.15	14.02	13.37	13.11	13.04	13.59	13.73
NB4	23.51	23.05	20.63	20.63	20.34	17.23	17.24	18.36	17.38	17.31	19.04	20.07	19.51
NB5	15.88	17.12	17.62	15.41	15.64	14.63	15.09	17.27	15.07	12.20	12.52	14.03	15.40
NB6	11.40	11.20	11.40	11.65	11.13	10.38	10.12	10.48	9.68	7.84	8.92	9.51	10.40
NB8	25.87	27.97	25.94	24.67	25.10	22.57	22.21	23.20	21.53	20.31	19.75	22.53	23.53
NB9	20.04	21.19	22.75	21.97	21.72	19.58	19.47	20.73	19.12	17.94	17.31	18.18	20.08
NB9X	7.47	8.21	7.70	8.21	9.19	8.85	6.75	5.87	6.79	9.22	11.40	9.40	8.20
NB10	15.91	17.34	17.53	17.31	18.07	16.71	14.97	15.21	14.52	12.95	12.85	14.66	15.69
NB11	14.99	15.18	14.07	14.23	14.56	13.72	12.34	12.79	12.54	12.69	12.75	14.16	13.67
NB21	5.63	6.45	6.06	5.36	5.43	4.53	4.49	5.02	5.70	4.32	4.41	4.78	5.18
System Avg	17.79	18.28	20.40	20.57	20.31	17.81	18.05	18.73	17.98	16.35	17.45	17.29	18.47

Figure 7: FY22 Passengers per Revenue Hour Table

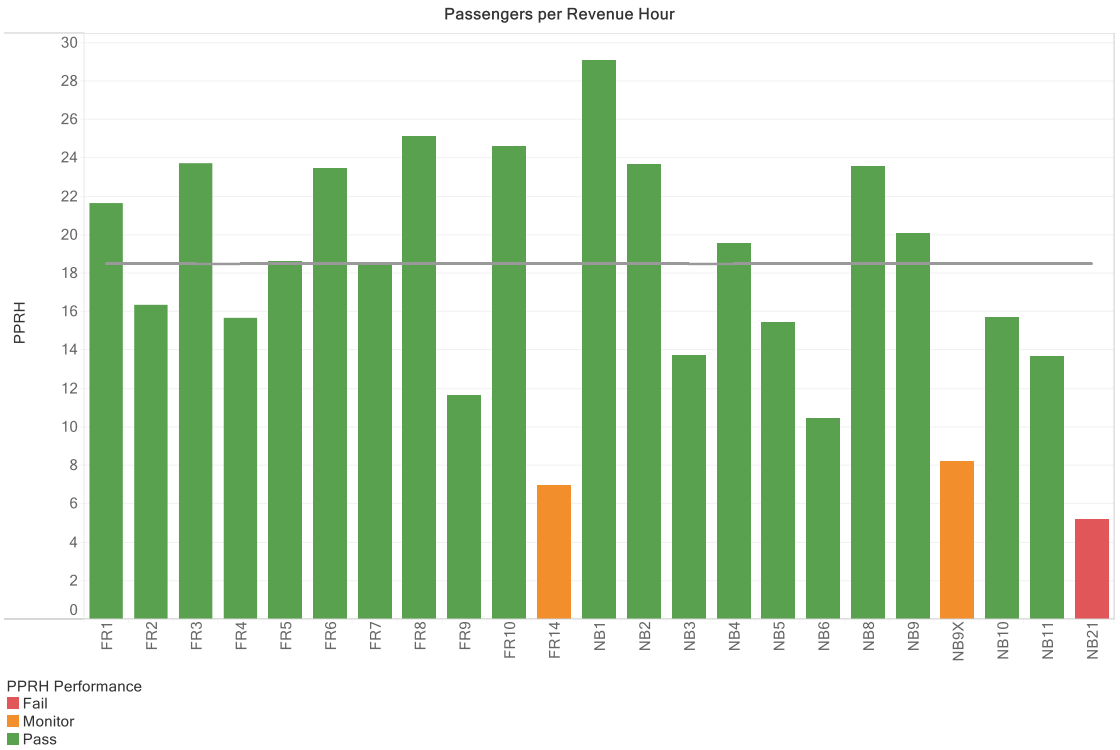

Figure 8: FY22 Passengers per Revenue Hour Score Chart

B. Passengers per Revenue Mile

The systemwide average for passengers per revenue mile was 1.30, an increase of 25% over FY21; the Monitor category was set at 0.65 and the Fail category was set at 0.45. Eleven of twenty-three routes were observed above the average of 1.30; nine routes performed below the average but above the Monitor category.

Three routes fell in the Fail category: FR14, NB9X. and NB21.

The results of the Passengers per Revenue Mile analysis are shown below in Figure 9 and Figure 10.

Passengers per Revenue Mile

Route ID	July	August	September	October	November	December	Date January	February	March	April	May	June	YTD Avg
FR1	1.31	1.38	1.70	1.73	1.73	1.45	1.46	1.50	1.46	1.22	1.36	1.34	1.47
FR2	0.90	0.91	0.94	0.95	0.95	0.83	0.87	0.93	0.93	0.90	0.96	0.91	0.92
FR3	1.79	1.87	2.10	2.13	2.15	1.86	1.87	1.88	1.83	1.54	1.72	1.76	1.88
FR4	1.11	1.02	1.16	1.22	1.12	0.96	1.08	1.06	0.97	0.84	0.98	1.00	1.05
FR5	1.11	1.18	1.55	1.59	1.59	1.35	1.47	1.44	1.39	1.09	1.26	1.19	1.36
FR6	1.36	1.49	2.28	2.37	2.36	1.96	2.07	2.05	1.93	1.73	2.02	1.57	1.92
FR7	1.16	1.18	1.52	1.64	1.61	1.31	1.39	1.38	1.27	0.99	1.16	1.05	1.31
FR8	0.68	0.67	2.35	2.74	2.44	1.89	2.22	2.22	2.13	1.68	2.04	1.31	1.94
FR9	0.83	0.81	0.92	0.95	0.91	0.75	0.89	0.88	0.79	0.67	0.77	0.71	0.83
FR10	1.25	1.31	1.88	2.01	2.01	1.70	1.65	1.51	1.49	1.28	1.38	1.33	1.56
FR14	0.46	0.47	0.47	0.46	0.45	0.41	0.43	0.43	0.43	0.42	0.45	0.46	0.44
NB1	2.45	2.45	2.35	2.24	2.20	1.98	1.97	2.10	1.99	1.92	2.02	2.15	2.15
NB2	2.05	2.05	1.98	1.94	2.00	1.84	1.75	1.87	1.83	1.76	1.76	1.80	1.89
NB3	1.20	1.25	1.21	1.15	1.15	1.05	1.09	1.16	1.10	1.04	1.02	1.06	1.13
NB4	1.40	1.40	1.30	1.30	1.28	1.09	1.09	1.19	1.14	1.12	1.20	1.25	1.23
NB5	1.08	1.09	0.91	0.81	0.82	0.76	0.79	0.91	0.77	0.56	0.58	0.71	0.82
NB6	0.77	0.74	0.71	0.72	0.69	0.64	0.63	0.65	0.60	0.50	0.56	0.64	0.66
NB8	1.82	1.96	1.80	1.71	1.75	1.57	1.55	1.61	1.49	1.39	1.36	1.56	1.63
NB9	1.39	1.48	1.65	1.60	1.56	1.43	1.40	1.53	1.44	1.36	1.28	1.29	1.46
NB9X	0.34	0.38	0.37	0.40	0.43	0.42	0.32	0.37	0.42	0.54	0.63	0.45	0.41
NB10	1.27	1.37	1.37	1.35	1.41	1.31	1.17	1.19	1.14	1.04	1.03	1.17	1.24
NB11	1.20	1.22	1.15	1.16	1.19	1.12	1.00	1.04	1.03	1.05	1.06	1.16	1.12
NB21	0.31	0.35	0.33	0.29	0.30	0.25	0.24	0.27	0.31	0.24	0.25	0.27	0.29
System Avg	1.24	1.28	1.43	1.44	1.42	1.25	1.26	1.33	1.28	1.15	1.22	1.20	1.30

Figure 9: FY22 Passengers per Revenue Mile Table

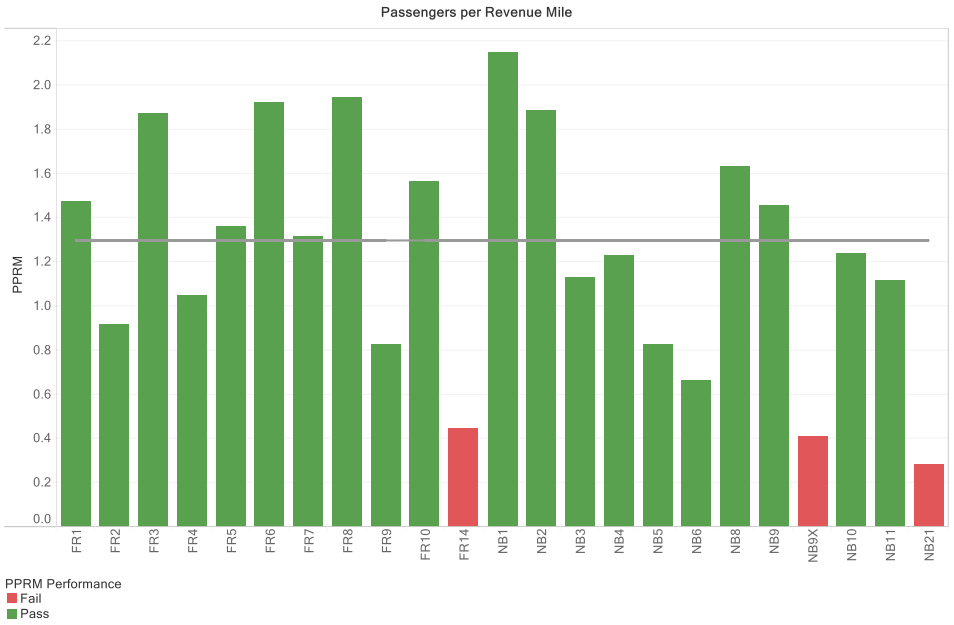

Figure 10: FY22 Passengers per Revenue Mile Chart

C. Passengers per Trip

The systemwide average for passengers per trip was 6.87, an increase of 18% over FY21; the Monitor category was set at 3.44 and the Fail category was set at 2.40. Six of twenty-three routes were observed above the average of 5.82; eleven routes were below the average but above the Monitor category.

Two routes fell in the Monitor category: New Bedford Route 5 – South Central and New Bedford North End Shuttle (NB21). The NB21 is the perennial low-performer. Its performance in this category is affected by low ridership and relatively few trips. The NB21 serves a low-density residential area with few commercial trip generators. New Bedford Route 5 – Rivet Street (NB5) has improved slightly from FY21 when it was in the failing category. The NB5 is a short route that does not serve many destinations and has a low demand for service. A recent service evaluation identified several service change options that include route elimination and a restoration of the route's historic alignment. No decision was made to change the route and it's performance will continued to be monitored in FY23.

The full results of the analysis are shown below in Figure 11 and Figure 12.

Passengers per Trip

Route ID	July	August	September	October	November	December	Date January	February	March	April	May	June	YTD Avg
FR1	4.58	4.82	6.05	6.16	6.11	5.15	5.19	5.33	5.22	4.40	4.90	4.74	5.23
FR2	7.54	7.63	7.83	7.87	7.95	6.91	7.23	7.79	7.66	7.17	7.65	7.55	7.57
FR3	6.36	6.65	7.53	7.64	7.67	6.71	6.70	6.74	6.58	5.57	6.19	6.31	6.73
FR4	4.97	4.57	5.24	5.52	5.05	4.33	4.87	4.76	4.40	3.82	4.42	4.50	4.72
FR5	4.71	5.02	6.63	6.82	6.81	5.82	6.32	6.20	6.01	4.76	5.49	5.17	5.85
FR6	5.52	5.81	7.11	7.47	7.29	6.15	6.44	6.36	5.83	4.41	5.15	4.54	6.02
FR7	4.53	4.63	6.63	7.15	7.01	5.75	6.07	6.02	5.58	4.37	5.10	4.61	5.65
FR8	2.81	2.79	9.58	11.16	9.95	7.77	9.06	8.93	8.58	6.97	8.39	5.40	7.96
FR9	3.55	3.46	3.98	4.10	3.94	3.23	3.84	3.76	3.39	2.91	3.37	3.14	3.57
FR10	4.70	4.93	7.05	7.56	7.53	6.38	6.22	6.05	6.02	5.18	5.59	5.22	6.05
FR14	3.78	3.82	3.63	3.54	3.52	3.15	3.35	3.30	3.34	3.23	3.42	3.56	3.47
NB1	9.83	9.90	9.65	9.21	9.03	8.15	8.07	8.61	8.19	8.01	8.41	8.81	8.82
NB2	9.74	9.73	9.42	9.21	9.49	8.76	8.32	8.90	8.69	8.34	8.35	8.55	8.97
NB3	5.87	6.10	5.89	5.60	5.58	5.10	5.32	5.65	5.34	5.00	4.94	5.18	5.48
NB4	7.73	7.66	7.01	7.01	6.90	5.86	5.85	6.44	6.12	5.88	6.34	6.70	6.62
NB5	3.23	3.30	2.85	2.53	2.55	2.37	2.48	2.83	2.39	1.74	1.78	1.99	2.53
NB6	4.30	4.11	3.88	3.99	3.80	3.54	3.47	3.59	3.27	2.56	2.91	3.11	3.57
NB8	7.03	7.60	7.04	6.70	6.81	6.13	6.03	6.30	5.84	5.50	5.36	6.13	6.39
NB9	19.18	20.29	21.81	21.12	20.82	18.78	18.71	20.34	18.74	16.93	16.05	16.96	19.22
NB9X	3.40	3.74	3.53	3.77	4.20	4.06	3.10	2.79	3.23	4.03	4.75	4.04	3.72
NB10	8.18	8.82	8.71	8.60	8.99	8.29	7.45	7.57	7.21	6.50	6.47	7.42	7.86
NB11	7.50	7.59	7.03	7.12	7.28	6.86	6.17	6.40	6.27	6.35	6.38	7.08	6.84
NB21	2.96	3.40	3.19	2.81	2.86	2.39	2.36	2.64	3.02	2.35	2.44	2.66	2.76
System Avg	6.76	6.93	7.59	7.66	7.56	6.64	6.72	7.00	6.70	5.98	6.34	6.34	6.87

Figure 11: FY22 Passengers per Trip Table

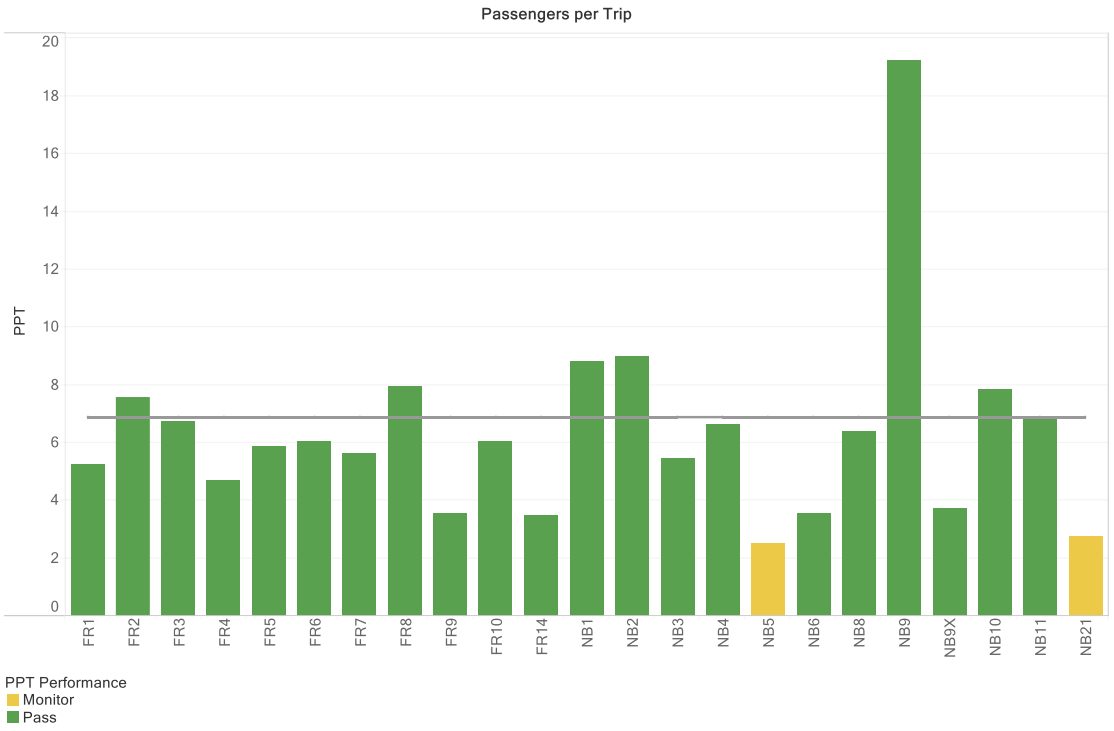

Figure 12: FY22 Passengers per Trip Chart

D. Significant changes in Route Ridership

The above section identified route performance relative to the standards SRTA uses to evaluate performance. The analysis is intended to identify underperforming routes for corrective actions, and because the standards are established relative to the systemwide performance, there are routes that experienced significant changes in ridership that did not affect the position relative to the whole.

Significant changes in ridership were identified based on the average change in ridership for all routes using the standard deviation from that average. Any route where the change was greater than 1.65 standard deviations from the average was identified as a significant change. 1.65 standard deviations was chosen because it includes 90% of the dataset, making any change above or below that threshold significantly greater than any other change observed and warrants further examination.

The average change in ridership across all routes was 8,935 more trips than the FY21 average. Routes with an increase of more than 28,484 represented 1.65 standard deviation above the average, where as a decrease of more than 10,613 represented 1.65 standard deviation below the average. Two routes experienced a significant change in ridership compared with FY21: The New Bedford Route 1 – Fort Rodman (NB1) and the Fall River Route 5 – Stafford Road (FR5).

It is not clear what caused significant growth on the NB1. The route has historically been a top performer for route ridership. It benefits from relatively high frequency of service which operates every 20 minutes. The route also serves a very densely populated corridor in New Bedford with high demand for transit.

The FR5 continues to experience significant growth bolstered by student ridership generated by Atlantis Charter School and the popularity of the South Coast Marketplace shopping plaza.

Three routes remained nearly unchanged in ridership: New Bedford Route 2 – Lund's Corner (NB2), New Bedford Intercity Express (NB9X), and the New Bedford Route 3 – Dartmouth Street (NB3). The NB2 is interlined with the NB1 and serves the very popular New Bedford Market Basket. The lack of any change in ridership on the NB2 is interesting considering it has been historically linked with the NB1 to serve the eastern parts of New Bedford. It has long been assumed that riders travel through the New Bedford terminal by making use of both routes. However, the inconsistency in ridership growth between the routes suggests that the link between the two may not be as strong as previously assumed.

The other interesting observation was that the NB10 decreased ridership in a year when ridership was increasing across most routes. It was the only route to add ridership in FY21 and yet is lost the most ridership of any route in FY22. This trend is concerning and could be a result of on-time performance issues that have challenged the route in FY22. Further analysis will be necessary to determine why ridership is declining on a route that has historically performed very well.

The results of the route ridership change analysis are shown below in Figure 13.

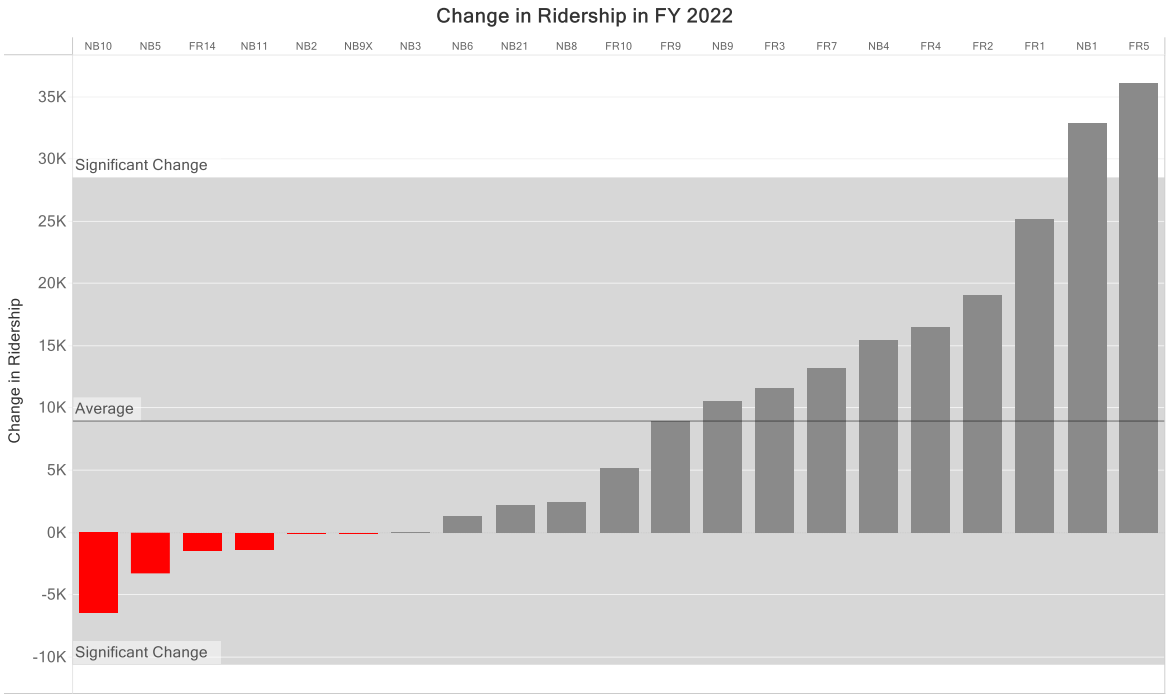

Figure 13: Route Ridership Change from FY20

E. On-Time Performance

On-time performance is the operational statistic most relevant to the customer experience. A bus that arrives late is frustrating for customers because they rely on the fixed route transit system to carry them to their destination and plan their trip around the published times. Waiting for a bus that is running late can make customers anxious or stressed knowing they are likely to arrive at their destination later than they intended. More detrimental to the customer experience

is a bus that runs early. Early departures are incredibly disruptive because the customer may be waiting for a bus that has already passed the stop. For many routes, missing a bus that arrived early can mean waiting as much as an hour for the next to arrive.

SRTA measures On-time performance against the scheduled departure time for the trip origin. Trip origins are either the New Bedford or Fall River Terminals for outbound buses; inbound trip origins are the location where the outbound trip ends. A trip is considered on-time if it departs the trip origin no less than one minute prior to the scheduled time or five minutes after the scheduled time. The systemwide metric for on-time performance is 85% of scheduled trips departing within the on-time performance window. Systemwide on-time performance for FY22 was 85%; 3% of trips left early, 12% of trips left late.

Nine routes fell below the systemwide standard of 85%: FR9 (73%); NB10 (76%); FR10 (77%); FR5 (79%); NB9 (79%); FR3 (80%); FR7 (82%); NB5 (84%); FR14 (84%). Measuring on-time performance should also consider early departures because there are few, if any, operating conditions that would explain an early departure. Of the routes that were below the systemwide standard for on-time performance, the NB10 was early 9% of all trips and the FR9 was early on 8% of all trips, and the NB8 was early on 6% of all trips. The FR10 fell below the on-time performance standard due to 37% of all trips departing late. The full results are below in Figure 14.

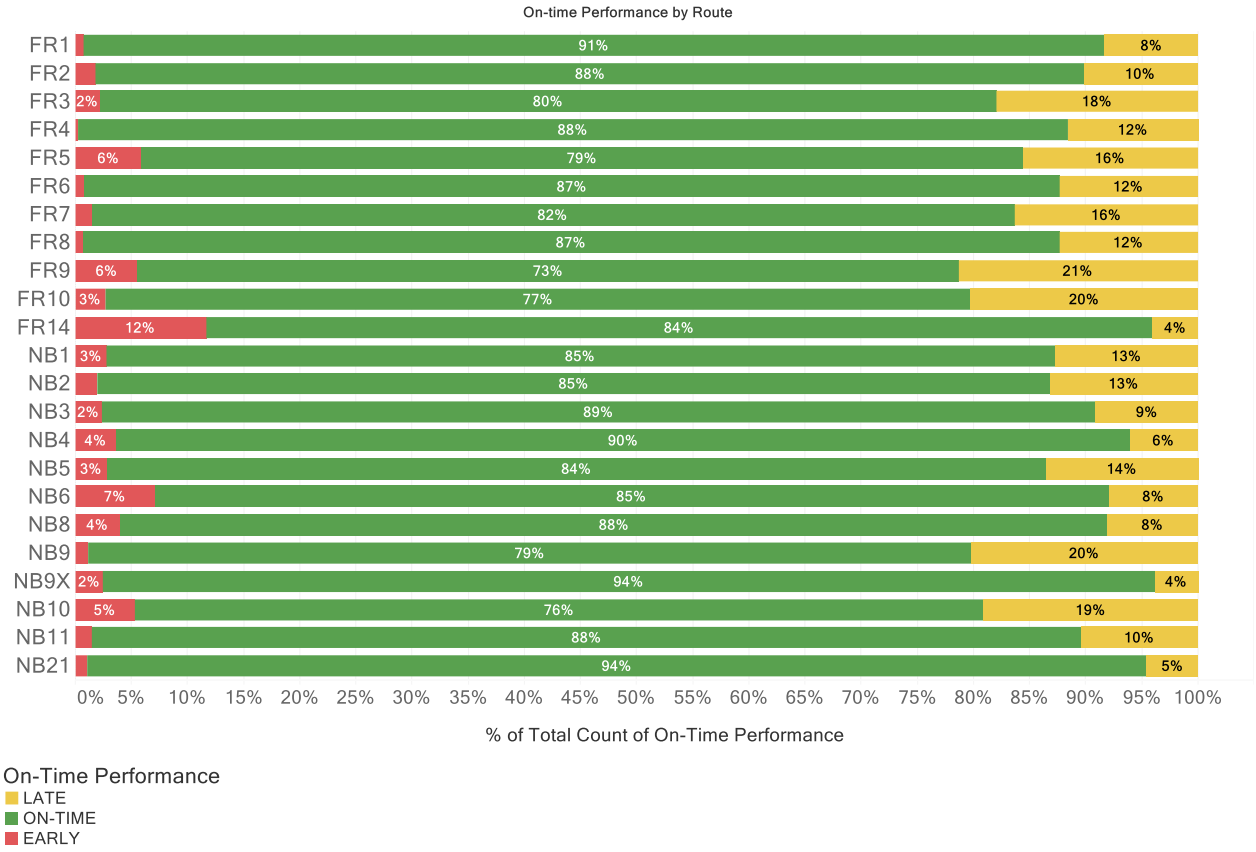

Figure 14: FY22 Route On-Time Performance

F. Stop Level Boarding and Alighting

With the introduction of Automatic Passenger Counters (APC) systems on all SRTA fixed route buses, it is now possible to monitor and report information relating to passenger activity at the stop level. This information is important to understand ridership trends and to analyze route performance to determine segments of high and low use. The SRTA fixed route network serves more than 1,100 stops. Stop use can be categorized to either a boarding stop or an alighting stop. Most stops (excluding the Fall River and New Bedford Terminals) tend to have significant differences between boarding and alighting activity and for that reason this report considers both measures of passenger activity. The Fall River and New Bedford Terminals have been excluded from the list because the purpose of this list is to illustrate locations in the SRTA system that generate the greatest demand for transit service.

The top ten stops for boardings are shown below in

Stop Number	Name	Total Boardings	Boardings per Day	Stop Use
5060	New Bedford Market Basket	45,409	146.48	79%
5247	Dartmouth Mall	37,512	121.01	100%
5023	Fairhaven Stop & Shop	23,437	75.60	82%
5379	Durfee High School	22,195	71.37	30%
5055	Fieldstone Marketplace	17,636	57.26	61%
5211	Fall River Walmart	17,122	55.23	75%
5194	Fairhaven Walmart	16,445	53.05	73%
6074	Lund's Corner	15,216	49.08	56%
6094	Ocean State Job Lot	14,127	45.57	70%
5199	Four Winds	13,169	43.75	69%

Figure 15.

Stop Number	Name	Total Boardings	Boardings per Day	Stop Use
5060	New Bedford Market Basket	45,409	146.48	79%
5247	Dartmouth Mall	37,512	121.01	100%
5023	Fairhaven Stop & Shop	23,437	75.60	82%
5379	Durfee High School	22,195	71.37	30%
5055	Fieldstone Marketplace	17,636	57.26	61%
5211	Fall River Walmart	17,122	55.23	75%
5194	Fairhaven Walmart	16,445	53.05	73%
6074	Lund's Corner	15,216	49.08	56%
6094	Ocean State Job Lot	14,127	45.57	70%
5199	Four Winds	13,169	43.75	69%

Figure 15: Top Ten Boarding Stops

The top ten stops for alightings are shown below in

Stop Number	Name	Total Alightings	Alightings per Day	Stop Use
5060	New Bedford Market Basket	43,330	139.77	79%
5247	Dartmouth Mall	37,680	121.55	100%
5023	Fairhaven Stop & Shop	23,435	75.60	82%
5886	Bridge St and Fairhaven Commons	19,735	63.66	78%
6094	Ocean State Job Lot	16,226	52.34	72%
6074	Lund's Corner	13,956	45.02	53%
5031	Fall River Shopping Plaza	11,418	36.83	67%
5199	Four Winds	10,982	37.23	65%
5663	Stafford Rd and Hancock St	10,556	33.94	46%
5992	Trucchis	10,190	32.87	67%

Figure 16.

Stop Number	Name	Total Alightings	Alightings per Day	Stop Use
5060	New Bedford Market Basket	43,330	139.77	79%
5247	Dartmouth Mall	37,680	121.55	100%
5023	Fairhaven Stop & Shop	23,435	75.60	82%
5886	Bridge St and Fairhaven Commons	19,735	63.66	78%
6094	Ocean State Job Lot	16,226	52.34	72%
6074	Lund's Corner	13,956	45.02	53%
5031	Fall River Shopping Plaza	11,418	36.83	67%
5199	Four Winds	10,982	37.23	65%
5663	Stafford Rd and Hancock St	10,556	33.94	46%
5992	Trucchis	10,190	32.87	67%

Figure 16: Top Ten Alighting Stops

IV. Discussion

Ridership on the SRTA fixed route system rebounded in FY22 after declining rapidly in the spring of 2020 which remained depressed through FY21 due to the COVID-19 pandemic. Restrictions on social gathering, the return of students to full time in-person learning, and many businesses returning to in-person work resulted in more passenger trips. Despite a 21% increase in ridership over FY21, FY22 remained more than 200,000 passenger trips below the FY18-FY22 five year average of 2,241,774. Considering service levels in FY22 were similar to those in FY19 when ridership peaked at 2,667,818, it remains unclear when, or if, ridership will return exceed historic highs.

Most routes experienced increases in ridership, however several also experienced decreases. Most concerning among the routes decreasing is the New Bedford Route 10 – Dartmouth Mall (NB10) which lost 6,492 trips (11% decrease from FY21). The route had a higher than average early departure at 5%, however a deeper analysis revealed that 10% of all inbound trips departed early. Early departures are detrimental to ridership because customers lose trust in the published timetables and the reliability of the service. Additionally, the early departure on the NB10 from the Dartmouth Mall places passengers on the very busy Intercity Route.

Another route that plagued by early departures which also experienced a drop in ridership was the Fall River Route 14 – Swansea. The route lost 1,437 trips from FY21 (a 5% reduction) and saw 23% of inbound trips depart early. This is very concerning because the route operates with sixty minute headways; an early departure can cause a customer to wait at least an hour for the next bus.

Routes in Fall River are showing signs of growth, Routes 1, and 5 experienced significant growth over their FY21 performance and over the FY22 systemwide average. Fall River Route 1 – South Main St added 25,201 trips and Fall River Route 5 – Stafford Road added 36,035 trips; both a significant amount of growth. If the trends observed in FY22 continue in FY23, system ridership could return to pre-pandemic levels by the end of the year.

Funding outlooks for the coming years suggest that operating costs will exceed available funds to support operations. SRTA is undergoing a comprehensive analysis of all routes in preparation to align operating costs with operating funds with service reductions a very likely outcome. The intent with a service reduction plan is reduce service in such a way that it minimizes the harm to the community to the furthest extent possible. Regardless of how carefully crafted these service cuts may be, any reduction in service will reduce ridership and will signal to the community that transit may not be a reliable form of transportation. Service reductions carry the risk of a vicious cycle in which ridership declines because service availability decreases, which in turn means fewer customers use the system, which can lead to declining support for funding, which leads to more service reductions. Over the last decade, SRTA has nearly doubled annual ridership and has expanded service to become a reliable mode of transportation. Reducing service will have the opposite effect and could irreversibly alter transportation choice for the region’s residents.

SRTA provides an invaluable service to the communities of southeastern Massachusetts. Reliable transportation to the region’s schools, shopping centers, and employment centers is crucial to growing the economy. SRTA serves a clientele with few options for transportation and remains a lifeline for many people. As the region recovers from COVID-19, customers are returning to the SRTA system and using it for shopping, attending school, and commuting to work. Transit is at a tipping point and can either continue to grow its user base and expand

travel options or slip into a decline that will isolate the most vulnerable members of our community for a lack of transportation options.