SRTA Year End Fixed Route Ridership Analysis: FY 2023

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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 2023 (FY23); FY23 began July 1, 2022 and ended June 30, 2023.

Ridership data is collected and reported by Ridecheck Plus v8.52. Ridecheck Plus receives raw data from the automatic passenger counters on each SRTA fixed route vehicle and processes the data for quality control to eliminate errors and inconsistencies in the data. The resulting dataset is available at the trip and stop level and is used in this report for stop, trip, and route level data. Systemwide data is further processed by Ridecheck Plus and a correction factor is applied by an algorithm to account for data that was discarded during the initial processing. The corrected data is used for reporting systemwide ridership and has been approved by the Federal Transit Administration for use in reporting to the National Transit Database.

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 v8.52.

Tableau Desktop was used to analyze ridership data and develop the tables and charts found in this report.

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 FY23

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
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.
** Vehicles serving this route are not equipped with APC or AVL equipment. Data is collected manually and is not input to the Ridecheck Plus system and has therefor been excluded from this report.

II.   Key Findings

A.   Ridership

Ridership has continued to recover from declines experienced in FY20 and FY21 caused by the COVID-19 pandemic. System ridership was 2,252,138 total trips, a 12% increase from FY22. The four-year average annual ridership is 2.04 million; FY23 exceeded the average by 10%. All but four routes (NB11, NB8, NB21, FR14) experienced growth in ridership in FY23 over FY22.

Ridership is steadily increasing after the decline in FY21; a trend that began in FY22 and continued in FY23. FY23 represents a "new normal" for system ridership. The fare and pass price adjustment in October 2021 have remained unchanged with no changes anticipated. The reduced cost of multi-ride pass products have been a benefit to ridership, increasing the number of passes sold and the number of trips per pass.

Significant growth occurred in Fall River with 119,256 additional trips to and from Durfee High School compared with FY22; this increase represents 14% of Fall River division total ridership. Systemwide average growth was 15% for the same route compared with FY22. Nearly all the gains in ridership occurred on Weekdays, carrying 15% more passengers in FY23 than FY22.

Total ridership for the previous five fiscal years is shown below in Figure 1.
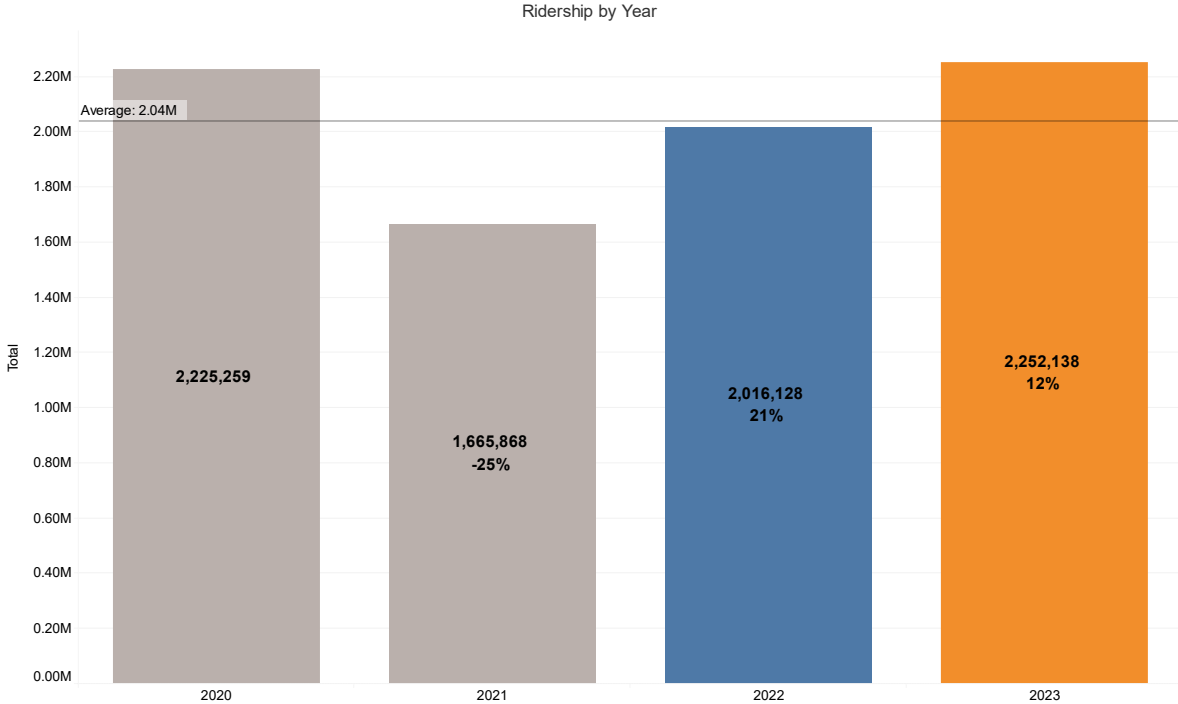
Figure 1: SRTA Total Ridership FY20-FY23

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) which provides a connection between New Bedford and Fall River. Ridership data for the NB9 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 FY23 was 974,299 trips (50% of the systemwide total). Ridership in New Bedford was 986,279 trips (50% of the systemwide total). The totals are shown below in Figure 2.

Ridership by Terminal

| Fall River | | New Bedford | |

Year End Total: 773,579
45%

Year End Total: 974,299
50%

Year End Total: 950,547
55%

Year End Total: 986,279
50%
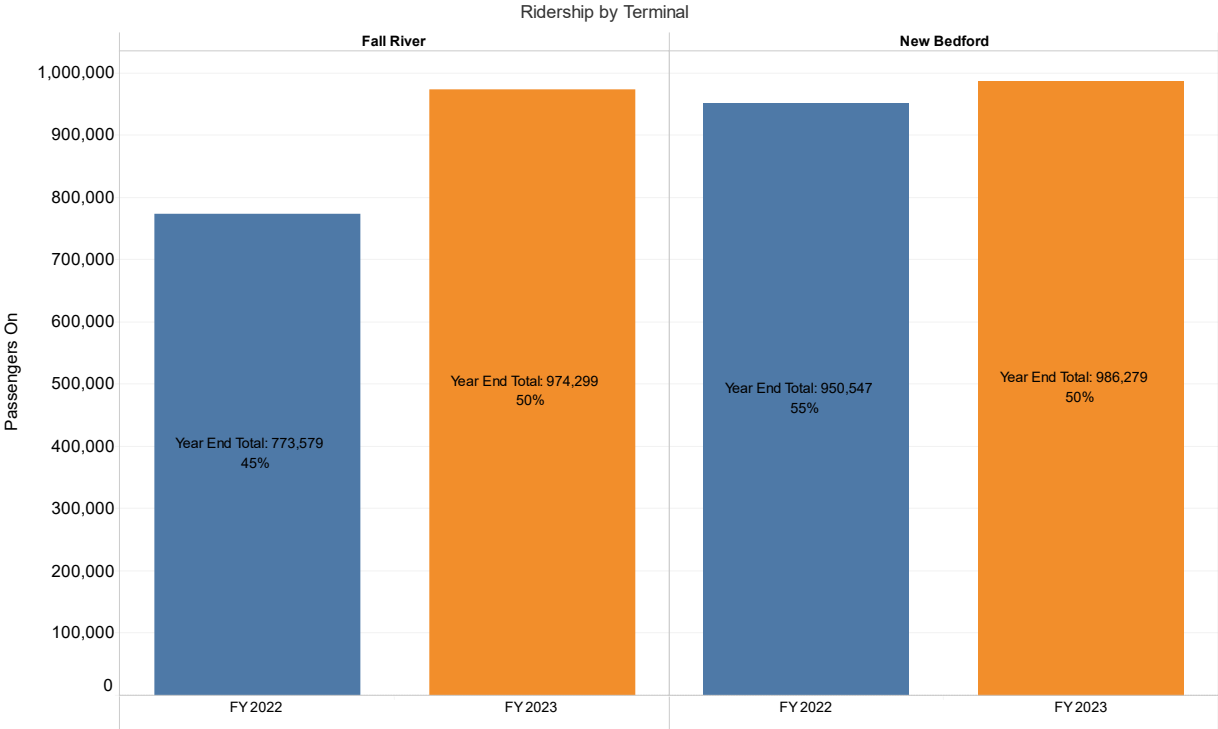
Figure 2: Total by Terminal FY22 & FY23

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 312 service days in FY23. There were 250 Weekdays, 52 Saturdays, and 10 Holidays.

Weekday average ridership increased 15% in FY23; the FY22 weekday average ridership was 6,129, the FY23 weekday average ridership was 7,058. Saturday ridership remained nearly flat from the FY22 average of 3,492 to the FY23 average of 3,364. Holiday ridership decreased 9% from FY22 average of 3,227 to 2,937 in FY23. The results are shown below in Figure 3.
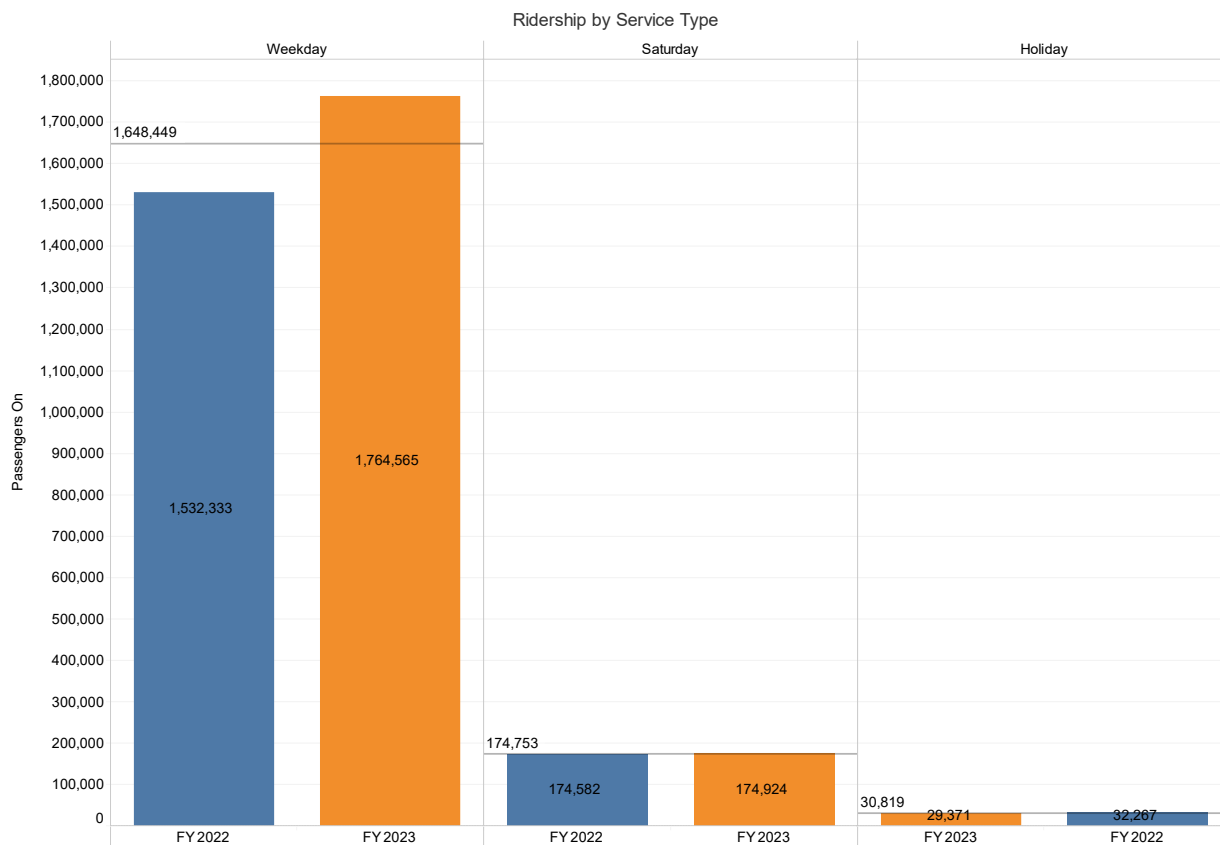
Figure 3: Ridership by Service Schedule

B.   Fare Payment

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. 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 535,091 (23%) 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 855,272 (37%) trips; transfers accounted for 614,511 trips (27%); and stored value accounted for 183,506 (8%) trips.

The results are shown below in Figure 4.

Use by Product Type

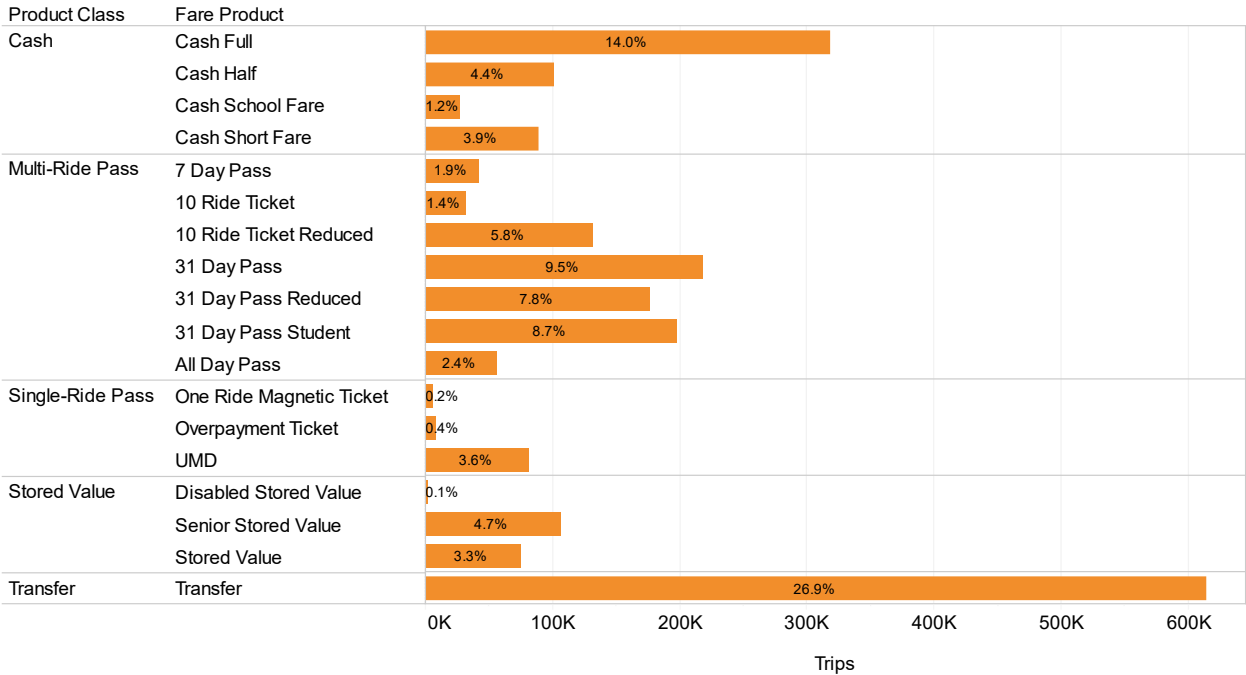| Product Class	Fare Product	
Cash	Cash Full	14.0%
	Cash Half	4.4%
	Cash School Fare	1.2%
	Cash Short Fare	3.9%
Multi-Ride Pass	7 Day Pass	1.9%
	10 Ride Ticket	1.4%
	10 Ride Ticket Reduced	5.8%
	31 Day Pass	9.5%
	31 Day Pass Reduced	7.8%
	31 Day Pass Student	8.7%
	All Day Pass	2.4%
Single-Ride Pass	One Ride Magnetic Ticket	0.2%
	Overpayment Ticket	0.4%
	UMD	3.6%
Stored Value	Disabled Stored Value	0.1%
	Senior Stored Value	4.7%
	Stored Value	3.3%
Transfer	Transfer	26.9%

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 for: single trips, add value to stored value products, or 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 to the current fare policy. 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 the 31-Day Pass Reduced with which customers saved an average of 73% over the cost of a single trip fare. The 31-Day Pass provided a 51% savings over the cash fare.

It should be noted that 10-Trip Tickets appeared to have an average fare of 1.65 times 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 Figure 5.

Fare Product	Trips	Cost per Trip	Discount
7 Day Pass	42,365	$0.89	41%
10 Ride Ticket	31,622	$2.48	-65%
10 Ride Ticket Reduced	132,196	$1.07	29%
31 Day Pass	217,929	$0.74	51%
31 Day Pass Reduced	177,178	$0.41	73%
31 Day Pass Student	198,052	$0.88	42%
All Day Pass	55,930	$0.41	72%

Figure 5: Average Fare by Multi-Use Product

Another way of evaluating Multi-Use Products is by the average number of trips taken with each 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 for each 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 6 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 Reduced: an average of 49 trips per pass was observed for FY23. However, the 31-Day Pass had nearly as many trips per pass at 41. This suggests that when SRTA customers purchase a 31-Day Pass, regardless of the cost, they ride often and maximize the value of the pass. Of interest is the number of trips per All Day Pass, which is good only for the day it was purchased. There was an average of 7 trips per pass sold which suggests that customers buy the pass when they have a multiple trips to make in a single day. The full results are below in Figure 6

Fare Product	Sold	Trips	Trips per Pass
7 Day Pass	3,764	42,365	11
10 Ride Ticket	5,591	31,622	6
10 Ride Ticket Reduced	18,779	132,196	7
31 Day Pass	5,343	217,929	41
31 Day Pass Reduced	3,638	177,178	49
31 Day Pass Student	8,683	198,052	23
All Day Pass	7,717	55,930	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 24.71, an increase of 34% over FY22; the Monitor category was set at 12.36 and the Fail category was set at 8.65.

Eleven of the twenty-two routes operated in FY23 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 Route 21 – North End Shuttle. 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.

New Bedford North End Shuttle is a perennial low-performer. The North End Shuttle serves a low-density part of New Bedford. Ridership on the route is low, but there is very little fluctuation in the volume of passengers carried on the route day-to-day and month-to-month. This suggests that the few riders of the North End Shuttle ride regularly. SRTA evaluated the North End Shuttle in FY23 and is developing a service improvement program to provide service that is responsive to the needs to customers.

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

Passengers per Revnue Hour

Route Name	July	August	September	October	November	December	January	February	March	April	May	June	YTD
FR1	24.73	24.17	31.11	31.24	28.03	31.16	31.39	32.16	36.88	35.53	33.23	28.53	30.47
FR2	20.01	22.25	24.15	24.50	25.32	24.19	23.45	21.96	22.60	22.13	23.22	21.58	22.85
FR3	25.33	26.74	30.67	32.68	31.59	34.04	29.97	28.73	30.59	30.78	30.80	29.40	30.11
FR4	17.25	18.03	22.48	23.94	22.87	27.82	38.96	34.49	41.31	32.68	37.63	30.57	29.27
FR5	20.39	20.98	29.81	30.78	29.56	30.01	31.01	28.31	31.08	28.39	32.77	26.97	28.26
FR6	17.51	19.88	24.71	24.76	22.90	26.82	27.21	25.47	28.18	24.47	26.00	24.47	24.38
FR7	11.26	13.05	23.53	24.18	22.57	21.69	22.11	19.50	22.64	18.00	21.54	17.40	19.83
FR8	22.52	17.53	45.69	50.77	39.24	40.82	35.38	30.46	48.70	40.40	32.16	22.24	36.47
FR9	13.27	12.48	14.26	16.05	13.66	14.78	15.77	15.96	16.29	18.58	18.82	13.89	15.21
FR10	19.41	22.47	27.31	27.31	25.77	32.06	29.14	27.48	27.45	26.02	28.11	26.44	26.67
FR14	8.79	9.81	8.90	9.53	9.85	9.49	9.09	9.17	9.98	9.86	10.87	10.83	9.63
NB1	32.64	32.40	34.79	34.00	34.71	40.74	37.64	36.09	33.14	30.46	30.95	30.68	33.86
NB2	25.50	25.87	26.00	26.04	27.06	30.11	26.07	26.07	27.04	27.58	28.17	28.08	26.96
NB3	17.11	16.92	17.51	16.62	16.12	17.95	16.76	15.88	17.14	17.72	18.58	17.45	17.17
NB4	22.77	22.47	23.21	23.20	23.19	24.84	22.00	21.30	22.83	24.97	25.43	24.56	23.37
NB5	14.84	15.54	17.96	19.41	18.59	20.66	18.43	16.94	18.03	16.03	14.48	15.06	17.03
NB6	11.37	12.22	14.72	15.54	15.18	17.45	15.29	14.72	15.22	15.95	16.27	15.19	14.91
NB8	27.58	30.45	29.73	28.89	31.43	34.13	28.41	28.14	28.48	28.76	29.84	30.21	29.68
NB9	23.19	24.34	28.02	28.19	24.96	25.42	24.92	26.17	26.03	27.49	24.89	25.17	25.72
NB10	19.02	20.05	28.14	29.79	28.60	29.47	23.88	23.72	23.05	25.85	24.98	23.79	24.59
NB11	17.77	17.11	17.68	16.58	17.50	20.73	19.62	17.95	17.73	19.73	20.57	19.76	18.45
NB21	9.10	10.94	9.59	8.59	9.16	9.79	8.02	8.45	9.07	9.59	8.46	8.43	9.17
System Average	21.10	21.42	25.53	25.94	24.87	26.83	25.35	24.37	26.39	25.66	25.88	23.68	24.71

Figure 7: FY23 Passengers per Revenue Hour Table
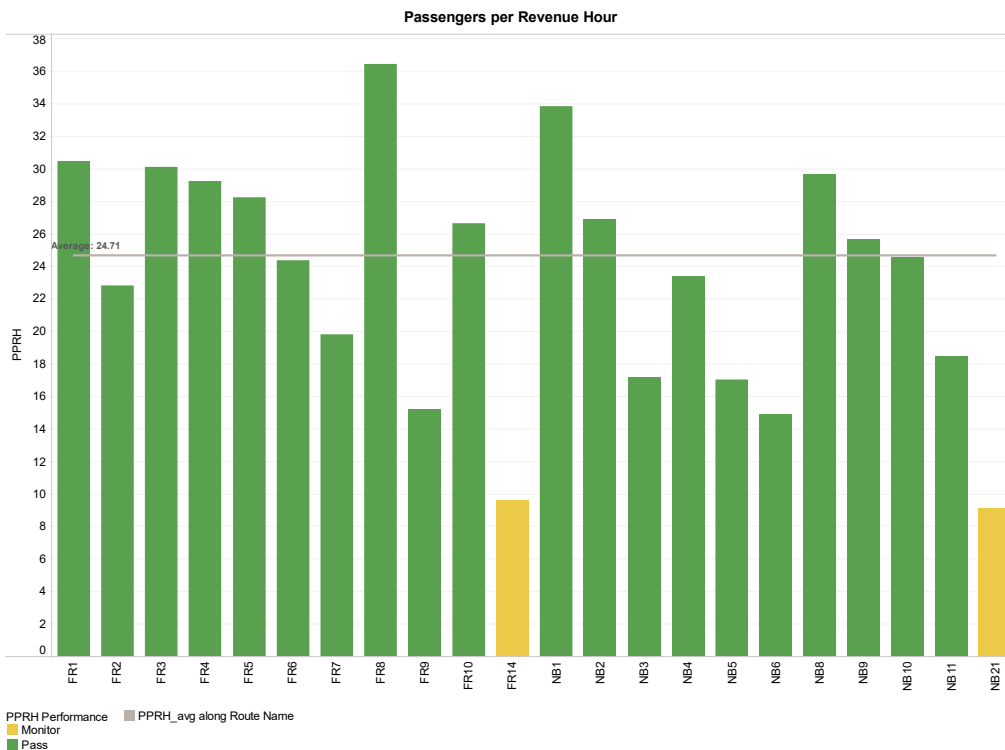
Figure 8: FY23 Passengers per Revenue Hour Score Chart

B.   Passengers per Revenue Mile

The systemwide average for passengers per revenue mile was 1.47, an increase of 12% over FY22; the Monitor category was set at 0.74 and the Fail category was set at .51. Ten of twenty-two routes were observed above the average of 1.47; ten routes performed below the average but above the Monitor category.

Two routes fell in the Fail category: FR14 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 Name	July	August	September	October	November	December	January	February	March	April	May	June	YTD
FR1	1.74	1.75	2.37	2.38	2.09	2.23	2.08	2.08	2.54	2.35	2.40	2.03	2.17
FR2	0.82	0.91	1.00	1.02	1.00	0.95	0.97	0.90	0.92	0.90	0.97	0.91	0.94
FR3	2.13	2.26	2.67	2.81	2.69	2.87	2.59	2.45	2.64	2.68	2.70	2.56	2.59
FR4	1.02	1.06	1.40	1.51	1.41	1.71	2.56	2.15	2.71	2.10	2.54	1.75	1.83
FR5	1.37	1.38	1.96	2.07	1.98	1.98	2.01	1.83	2.01	1.88	2.12	1.79	1.86
FR6	1.53	1.64	2.11	2.13	1.93	2.25	2.33	2.20	2.49	2.13	2.24	1.95	2.08
FR7	0.74	0.86	1.42	1.44	1.32	1.33	1.41	1.27	1.40	1.16	1.39	1.13	1.25
FR8	1.32	1.02	3.45	3.76	2.98	2.64	2.13	1.81	2.92	2.48	2.12	1.37	2.37
FR9	0.78	0.81	0.97	1.08	0.92	0.98	1.05	1.04	1.09	1.04	1.12	0.92	0.98
FR10	1.28	1.48	1.83	1.85	1.79	2.10	1.97	1.81	1.86	1.73	1.88	1.77	1.79
FR14	0.38	0.42	0.39	0.40	0.43	0.41	0.40	0.40	0.43	0.43	0.40	0.41	0.41
NB1	2.23	2.19	2.39	2.28	2.35	2.65	2.45	2.42	2.33	2.35	2.37	2.35	2.36
NB2	1.86	1.89	1.96	1.94	2.02	2.21	1.91	1.94	2.03	2.06	2.11	2.11	2.00
NB3	1.13	1.12	1.18	1.13	1.06	1.19	1.10	1.05	1.16	1.21	1.27	1.17	1.15
NB4	1.25	1.24	1.35	1.35	1.30	1.40	1.26	1.20	1.34	1.43	1.48	1.37	1.33
NB5	1.02	1.05	1.19	1.29	1.24	1.32	1.17	1.13	1.20	1.07	0.95	0.98	1.13
NB6	0.68	0.76	0.95	1.02	0.99	1.11	1.00	0.96	1.00	1.09	1.10	1.00	0.97
NB8	1.81	2.00	1.99	1.90	2.09	2.17	1.86	1.85	1.91	1.96	2.04	2.02	1.97
NB9	1.15	1.22	1.44	1.37	1.28	1.29	1.27	1.33	1.34	1.44	1.30	1.31	1.31
NB10	1.05	1.10	1.16	1.16	1.12	1.23	1.06	1.04	1.02	1.16	1.13	1.14	1.12
NB11	1.14	1.11	1.17	1.09	1.13	1.22	1.07	1.02	1.10	1.19	1.26	1.23	1.14
NB21	0.32	0.39	0.37	0.33	0.35	0.38	0.31	0.32	0.35	0.36	0.33	0.33	0.35
System Average	1.23	1.26	1.55	1.55	1.50	1.58	1.48	1.43	1.59	1.55	1.57	1.42	1.47

Figure 9: FY23 Passengers per Revenue Mile Table

Passengers per Revenue Mile

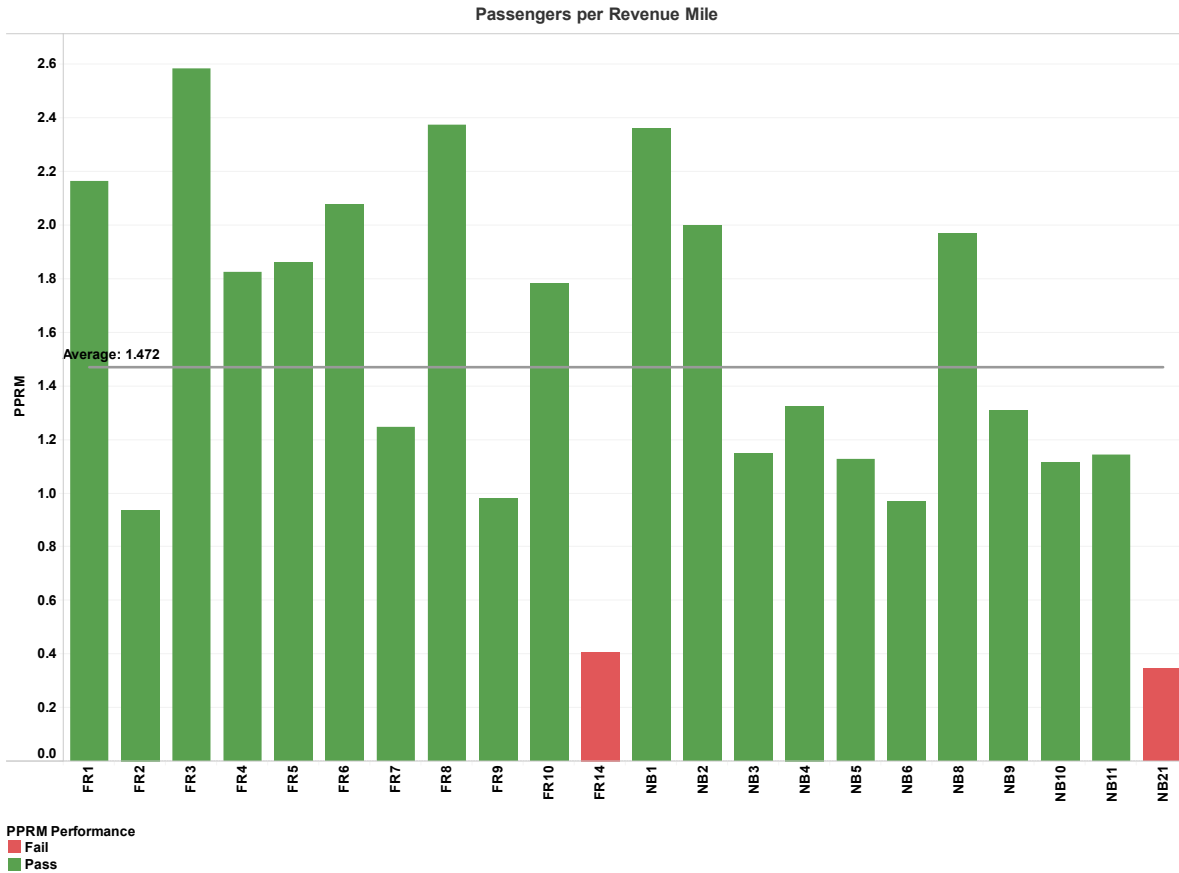*Figure 10: FY23 Passengers per Revenue Mile Chart*

C.   Passengers per Trip

The systemwide average for passengers per trip was 7.69, an increase of 17% over FY22; the Monitor category was set at 3.85 and the Fail category was set at 2.69. Seven of twenty-two routes were observed above the average of 7.69; twelve routes were below the average but above the Monitor category.

Two routes fell in the Monitor category: Fall River Route 14 - Swansea and New Bedford Route 6 – Shawmut Ave. The FR14 is perennially in the monitor category largely due to the low density corridor is serves with few destinations that generate high demand for transit. The NB6 was in the Monitor category for its performance considered over the entire year, however monthly, the route was in the Monitor category for six months of the year.

One route was in the Fail category: New Bedford Route 5 – South Central. The route has been experiencing a steady decline in ridership for several years. It lacks a strong anchor on the route with only one substantial residential building trip generator.

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

Passengers per Trip

| Route Name	July	August	September	October	November	December	January	February	March	April	May	June	YTD
FR1	4.86	4.88	6.62	6.65	5.85	6.21	5.74	5.75	7.00	6.50	6.62	5.60	6.01
FR2	7.49	8.29	9.14	9.30	9.15	8.66	8.76	8.17	8.39	8.22	8.82	8.26	8.53
FR3	6.30	6.70	7.90	8.32	7.98	8.47	7.60	7.18	7.75	7.87	7.93	7.51	7.62
FR4	4.25	4.39	5.81	6.25	5.85	6.97	9.97	8.49	10.51	8.29	9.87	7.00	7.36
FR5	5.47	5.53	7.96	8.38	8.06	8.02	8.15	7.43	8.14	7.60	8.60	7.29	7.53
FR6	3.38	3.60	4.64	4.69	4.26	4.96	5.13	4.84	5.50	4.69	4.92	4.29	4.57
FR7	3.48	4.02	6.68	6.77	6.21	6.13	6.34	5.70	6.29	5.22	6.26	5.09	5.73
FR8	4.64	3.59	11.89	12.95	10.27	9.12	7.36	6.28	10.05	8.59	7.33	4.77	8.22
FR9	3.22	3.37	4.00	4.46	3.79	4.04	4.34	4.29	4.50	4.30	4.62	3.81	4.05
FR10	4.63	5.37	6.59	6.66	6.46	7.59	7.14	6.56	6.75	6.25	6.83	6.43	6.46
FR14	3.49	3.83	3.55	3.69	3.96	3.74	3.63	3.61	3.87	3.90	3.65	3.73	3.71
NB1	8.39	8.26	9.03	8.59	8.85	10.02	9.24	9.12	8.75	8.82	8.86	8.80	8.88
NB2	8.56	8.72	9.02	8.93	9.32	10.16	8.71	8.86	9.29	9.41	9.61	9.64	9.18
NB3	5.66	5.64	5.92	5.67	5.33	5.95	5.52	5.28	5.84	6.07	6.38	5.85	5.76
NB4	6.92	6.91	7.50	7.46	7.21	7.77	6.98	6.65	7.46	7.89	8.21	7.68	7.38
NB5	1.32	1.35	1.54	1.68	1.61	1.71	1.52	1.47	1.57	1.40	1.23	1.27	1.46
NB6	2.67	2.97	3.73	3.98	3.89	4.34	3.94	3.76	3.90	4.25	4.31	3.91	3.79
NB8	6.36	7.04	6.98	6.67	7.34	7.63	6.54	6.49	6.71	6.88	7.18	7.09	6.91
NB9	20.32	21.40	25.39	24.04	22.57	22.71	22.34	23.49	23.52	25.22	22.95	23.14	23.05
NB10	7.61	7.97	8.63	8.71	8.40	9.02	7.68	7.56	7.23	8.35	8.23	8.25	8.14
NB11	7.78	7.61	7.97	7.44	7.73	8.28	7.19	6.90	7.44	8.02	8.43	8.22	7.76
NB21	3.92	4.84	4.55	4.00	4.35	4.61	3.78	3.88	4.27	4.38	3.97	3.98	4.23
System Average	6.58	6.69	8.16	8.18	7.85	8.23	7.73	7.48	8.21	7.90	8.08	7.34	7.69

Figure 11: FY23 Passengers per Trip Table
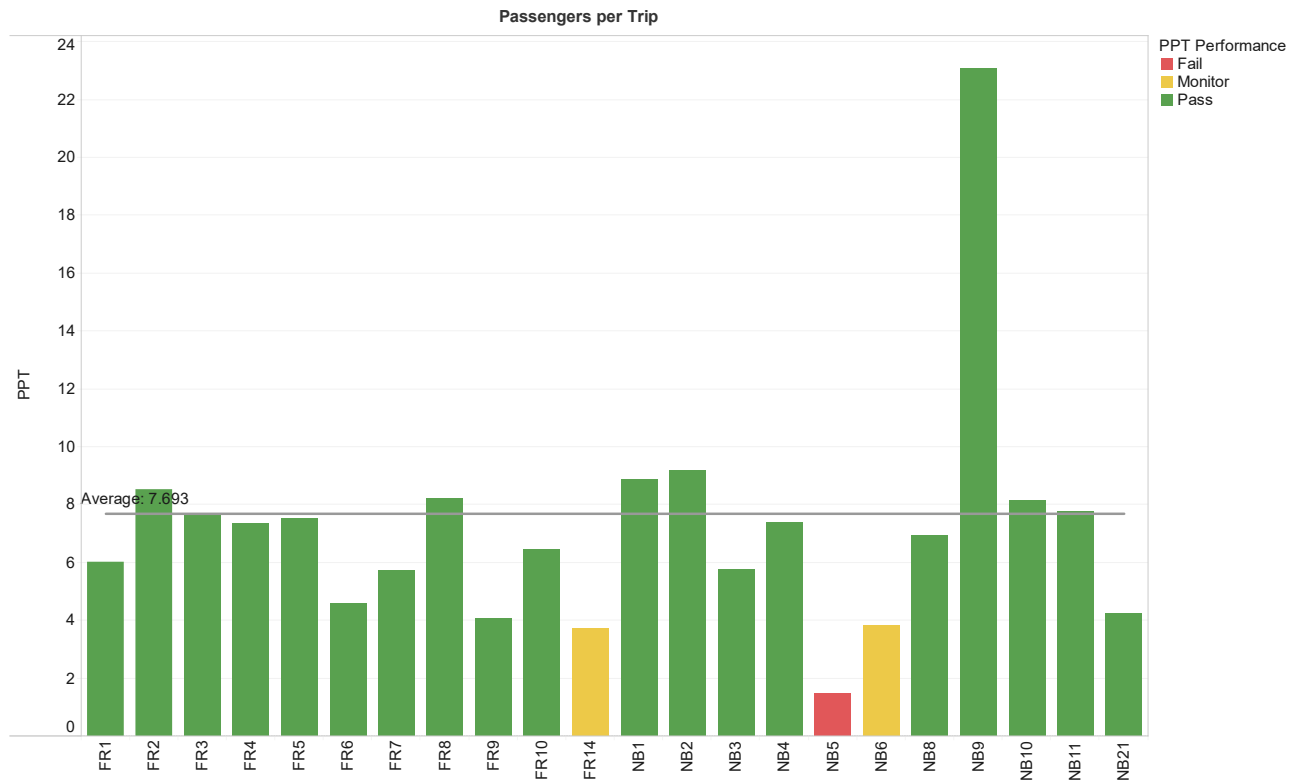
Figure 12: FY23 Passengers per Trip Chart

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 11,644 more trips than the FY22 average. Routes with an increase of more than 43,292 represented 1.65 standard deviation above the average, whereas a decrease of more than 20,005 represented 1.65 standard deviation below the average. Three routes experienced a significant change in ridership compared with FY22: The New Bedford Route 11 – Fairhaven, Fall River Route 8 – BCC, and the New Bedford Route 9 - Intercity.

The NB11 experienced a drop in ridership in FY23 largely due to the elimination of night service on the route. In FY22, NB11 operated until 8:40 PM, however due to the loss of funding supporting the operation, the service was reduced, and service ended at 6:35 PM.

In the case of the FR8 and NB9, it is not clear what caused the significant growth in ridership. The FR8 serves Durfee High School, which has historically been a significant trip generator. However, there were no meaningful changes in service characteristics that would have caused the increase. It is very likely that more of the students found their way onto the route to travel to and from school.

The same is true for the NB9. There were no changes in route schedule or alignment that would have caused such a significant increase in ridership. It is possible that student enrollment has changed, or the housing choices of students have changed in such a way that more students live off campus and use the route to commute. There have been changes in development at the Dartmouth Mall with several new stores opened in recent years. It is possible that the changes in retail space have contributed to the increase in ridership.

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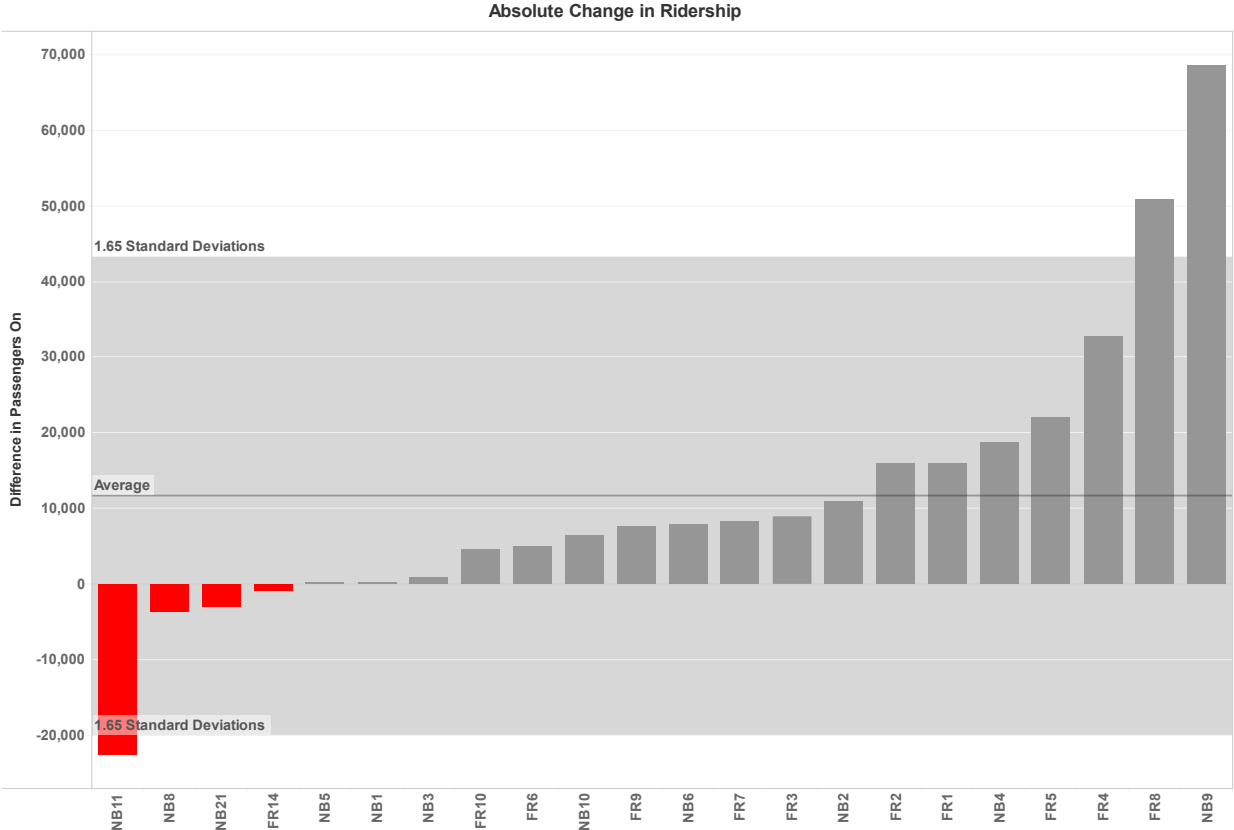
Absolute Change in Ridership

Figure 13: Route Ridership Change from FY22

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 FY23 was 85%; 2% of trips left early, 13% of trips left late.

Ten routes fell below the systemwide standard of 85%: NB2 (84%); FR10 (84%); FR8 (84%); FR5 (84%); NB3 (83%); FR3 (83%); FR7 (81%); NB10 (81%); FR9 (78%); NB9 (78%). Measuring on-time performance should also consider early departures because there are few, if any, operating conditions that would explain an early departure. In FY23 an On-Time

Performance Improvement plan was initiated to improve the reliability of SRTA routes. A threshold of 1% was established for early departures. Fifteen of the twenty-two routes exceeded the 1% threshold. Thos routes were: FR14 (6%); FR5 (5%); NB10 (5%); NB6 (4%); FR8 (3%); NB4 (3%); FR9 (3%); NB8 (3%); FR10 (3%); NB5 (3%); NB1 (2%); FR7 (2%); NB11 (2%); NB3 (2%); FR2 (2%). The full results are below in Figure 14.
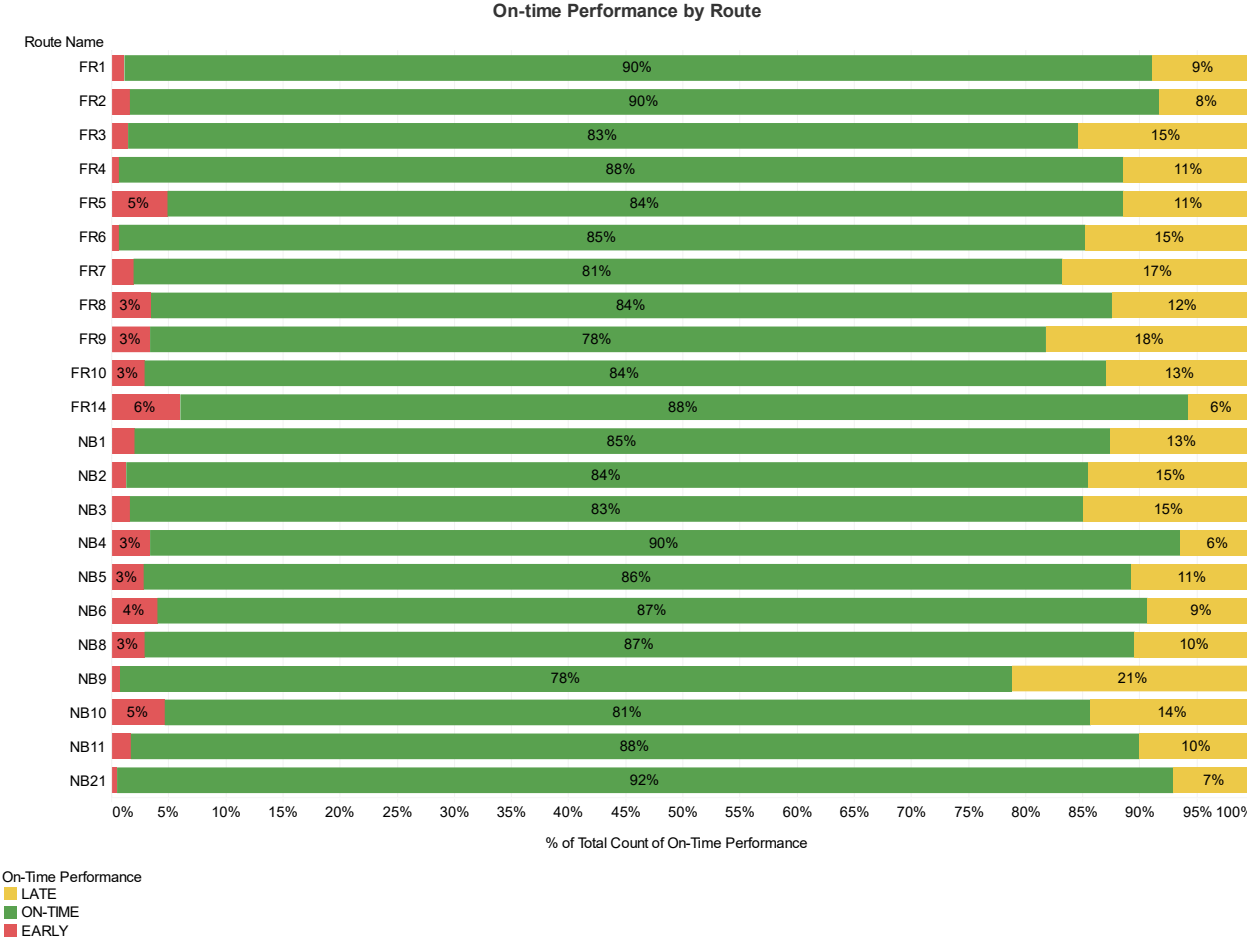
On-time Performance by Route

Route Name	EARLY	ON-TIME	LATE
FR1		90%	9%
FR2		90%	8%
FR3		83%	15%
FR4		88%	11%
FR5	5%	84%	11%
FR6		85%	15%
FR7		81%	17%
FR8	3%	84%	12%
FR9	3%	78%	18%
FR10	3%	84%	13%
FR14	6%	88%	6%
NB1		85%	13%
NB2		84%	15%
NB3		83%	15%
NB4	3%	90%	6%
NB5	3%	86%	11%
NB6	4%	87%	9%
NB8	3%	87%	10%
NB9		78%	21%
NB10	5%	81%	14%
NB11		88%	10%
NB21		92%	7%

% of Total Count of On-Time Performance

On-Time Performance
- LATE
- ON-TIME
- EARLY

Figure 14: FY23 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 Figure 15.

Stop Name	Stop Id	Stop Rank	Average Daily Boardings	Total Boardings
New Bedford Market Basket	5060	1	178	55,427
Dartmouth Mall	5247	2	124	38,671
Fairhaven Walmart	5194	4	39	12,177
UMass Dartmouth Campus Center	5009	3	51	16,030
County St and Rivet St	5760	6	35	10,947
Rodney French Blvd and Welcome St	5018	8	32	10,008
County St and Division St	5175	5	37	11,418
Dartmouth St Stop/Shop	5051	7	33	10,284
Acushnet Ave and Earle St	5141	9	29	9,055
Southcoast Marketplace	6168	10	26	8,062

Figure 15: Top Ten Boarding Stops

The top ten stops for alightings are shown below in Figure 16

Stop Name	Stop Id	Stop Rank	Average Daily Alightings	Total Alightings
New Bedford Market Basket	5060	1	159	49,554
Dartmouth Mall	5247	2	114	35,511
Bridge St and Fairhaven Commons	5886	3	54	16,881
Fall River Shopping Plaza	5031	4	40	12,529
Third District Court	5705	5	39	12,166
Durfee High School	5738	6	37	11,556
Brock Ave and Ruth St	5440	7	36	11,119
UMass Dartmouth Campus Center	5009	8	33	10,385
County St and Division St	5381	9	32	9,999
Bedford Towers	5697	10	32	9,875

Figure 16: Top Ten Alighting Stops

IV. Discussion

FY23 continued the trend of increased ridership post COVID-19 with 2.25 million trips, a 12% increase over FY22 ridership of 2.01 million trips and the highest ridership year since the peak experienced in FY19 (2.67 million trips). Ridership increased for all service types with the most significant increase in weekday ridership. Ridership also increased (with a few exceptions) for every route in the SRTA fixed route system. The growth in ridership at the system level, at the service level, and at the route level suggests that the demand and need for fixed route transit service in southeastern Massachusetts is widespread and not limited to the day of the week or resulting from a change in development that increased demand for trips. There have been few developments in the region during FY23 that can be identified as having a substantial influence on ridership. The growth is more likely a natural increase perhaps influenced by changes in the regional economy that make transit more attractive to residents. The trend since restoring full

service after COVID-19 suggests that FY23 represents the new baseline for fixed route ridership.

The changes made to the fare policy in October 2021 that made multi-use passes more affordable have changed ridership patterns. It was evident in FY22 and the trend continued in FY23. More trips are taken with multi-ride passes than any other form of payment, suggesting that pricing the products to be more affordable has yielded the benefit of making transit more accessible for lower income households. The share of trips paid for in cash has been declining since the fare change and is at its lowest level since the Sheidt & Bachmann Charlie Card fare collection system was deployed in 2013.

The "Try Transit" fare free pilot suspended fare collection from November 25, 2022 to December 31, 2022. The effect the fare suspension had on ridership was difficult to determine due to steadily increasing ridership in the months before and after the pilot. Anecdotal evidence from our customers suggests that the impact of the fare suspension was beneficial to their individual financial position and was positively received by the community.

Despite systemwide growth, not all routes followed the ridership trends. In the case of the New Bedford 11 – Fairhaven, ridership decreased by 22,489 trips, a 20% decrease from FY22. The span of service on the route was reduced such that it no longer operates in the evening hours. This reduction had the predictable effect of being less useful for customers and therefore less attractive and reliable as a mode of transportation. The demand for service was demonstrated during the night service pilot; the span reduction was due to a loss of state funding that supported the service, not a lack of need. The loss of ridership on the NB11 demonstrates that ridership has a strong correlation with the resources available to operate and the market is sensitive to reductions in service.

Over the course of FY23, the Fall River and New Bedford fixed route systems were subject to Comprehensive Operational Analysis (COA) that evaluated route performance, route alignment, route geography, and system demographics. The COAs identified markets served by SRTA and opportunities for new or improved service. The COA process included input from the public to understand the priorities and preferences of riders for considering service changes. The COAs were crafted to provide guidance to SRTA to reduce service in anticipation of declining funding. However, the COAs also provided insight into a transit system that meets the regional demands with respect to coverage, span, and frequency of service. This exercise was done to demonstrate the resources needed for SRTA to meet the needs of the community.

The COAs identified several underperforming routes and recommended changes to improve performance. Many of the identified changes have been implemented, with several others to follow. The routes identified are also documented in the history of previous year's ridership reports based on the performance measures and metrics. Many of the recommended changes were minor to eliminate confusing, unproductive, and underutilized route segments.

FY24 has a much more positive outlook for growth and expansion of service than FY23 did. The passage of the "Fair Share Act" in November 2022 promises to infuse much needed operating resources to allow for service expansion. Expansion is likely to include service on Sunday as the first use of the "Fair Share" funds; further increases in funding may consider a longer span of service for Weekdays and Saturdays, or higher frequency on Saturday and Weekdays. The ability to provide these types of expansions is directly related to the resources available to operate them.