

ROUTE 84

Bustleton-County Line and Philadelphia Mills to Frankford Transportation Center

KEY SERVICE CHARACTERISTICS, ISSUES, AND OPPORTUNITIES

- *Route 84 operates between Frankford Transportation Center and Philadelphia Mills Mall via State Road. The route generally operates every other trip as an extension beyond Philadelphia Mills to County Line Road near Somerton Regional Rail station.*
- *Route 84 serves to connect riders between Frankford Transportation Center, employment sites and major destinations east of I-95 along the Delaware River, and the neighborhoods of Morrell Park and Modena Park. It operates infrequent service during all times and has moderate ridership on weekdays.*
- *The major opportunity for Route 84 is to straighten its alignment, make its schedule more consistent, increase weekend frequencies, and focus its resources on its primary ridership corridor between Frankford Transportation Center and Philadelphia Mills Mall.*

ROUTE OVERVIEW

Route 84 operates between Frankford Transportation Center and Philadelphia Mills Mall via State Road. The route generally operates every other trip as an extension beyond Philadelphia Mills to County Line Road. The route primarily serves to connect passengers to major job sites and destinations east of I-95, which separates Northeast Philadelphia from the Delaware River waterfront.

Route 84's alignment is circuitous, especially between Bustleton-County Line and Philadelphia Mills Mall (as shown in Figure 1). It provides moderate frequencies and attracts moderate ridership on weekdays, but it has hourly service and low ridership on weekends.

SERVICE OVERVIEW

Schedule

Route 84 operates over 20 hours a day from approximately 5:47 AM until approximately 1:00 AM seven days a week (see Table 1):

- On weekdays, Route 84 provides moderately frequent service from early in the morning until the end of the PM peak. AM peak through the end of PM peak period frequencies average between 8-26 minutes. Evening frequencies average 25 to 55 minutes, while late night and overnight service frequencies average every 60 minutes. However, actual frequencies vary during all time periods.
- On Saturdays and Sundays, service frequencies average around 60 minutes all day.

Figure 1 | Route Map

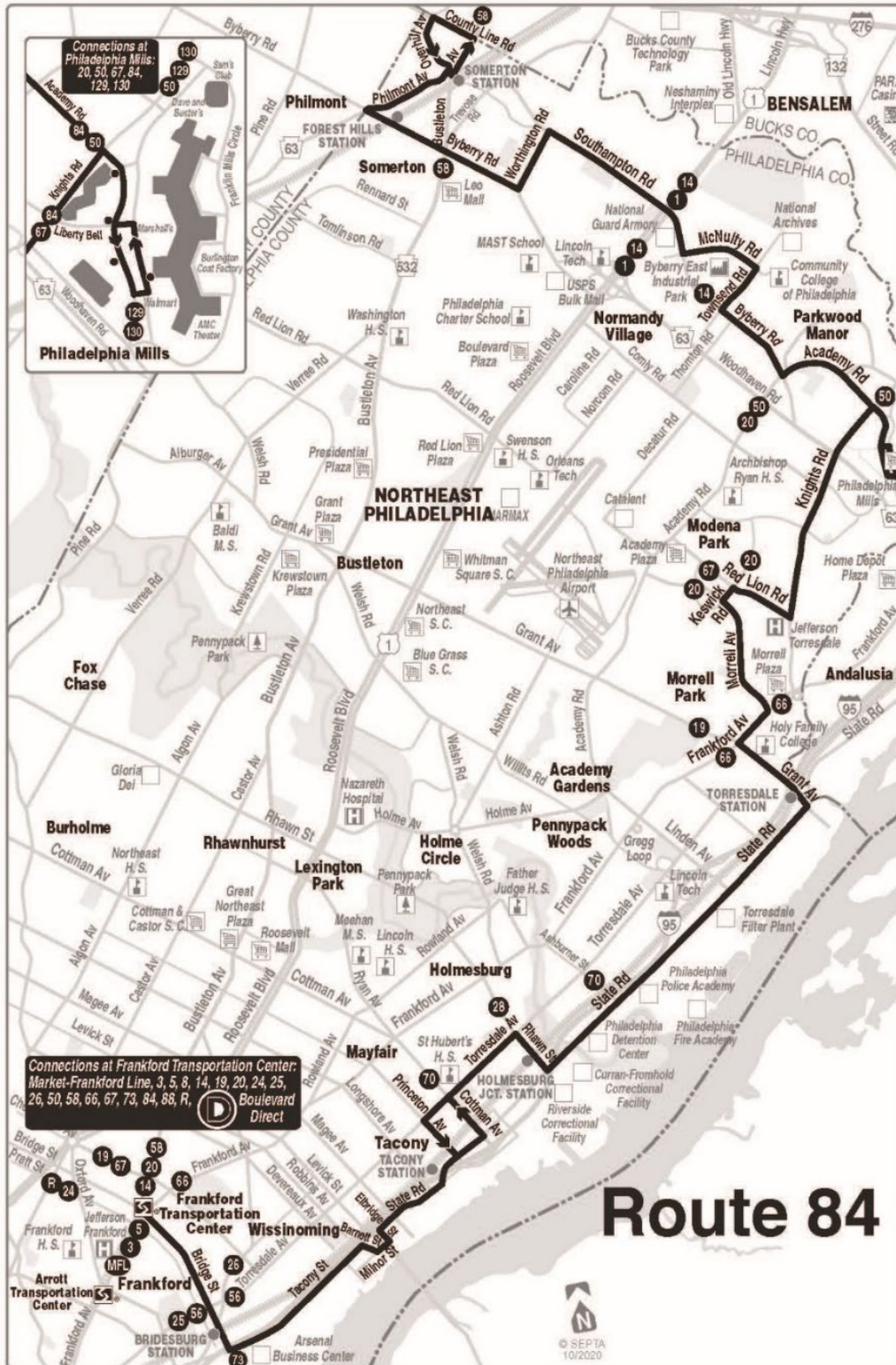


Table 1 | Schedule Statistics

Service Day	Span Of Service	Frequency (Range)	Frequency (Average)
Weekdays	5:47 AM to 1:07 AM		
AM Peak	6:00 AM to 8:59 AM	8-25	20.
Midday	9:00 AM to 2:59 PM	20-26	24
PM Peak	3:00 PM to 5:59 PM	15-26	22
Evening	6:00 PM to 9:59 PM	25-55	42
Late Night	After 10:00 PM	58-60	60
Owl	Before 4:00 AM	60-60	60
Saturdays	5:48 AM to 12:49 AM		
Day	8:00 AM to 5:59 AM	59-61	60
Night	Before 8:00 AM at After 5:59 PM	59-64	61
Sundays	5:46 AM to 12:47 AM		
Day	8:00 AM to 5:59 AM	58-62	60
Night	Before 8:00 AM at After 5:59 PM	57-66	60

Note: Span of service reflects the time the first bus begins service until the time the last bus finishes service.

Service Patterns

Route 84 operates a primary pattern between Frankford Transportation Center and Philadelphia Mills and operates every other trip as an extension to County Line Road at Bustleton Avenue. Route 84 also operates 2 inbound trips as school trips when school is in session (see Table 2).

Table 2 | Service Patterns

Pattern	Origin	Destination	Unique Feature	Unique Stops	Trips Per Day		
					Wkd	Sat	Sun
Southbound							
229898	Philadelphia Mills Mall	Frankford Transportation Center	Primary Pattern	0	21	5	19
229900	County Line Rd & Bustleton Av	Frankford Transportation Center	Primary Extension pattern	54	19	14	0
229895	State Rd & Rhawn St	Frankford Transportation Center	School trip	0	1	0	0
229899	Southampton Rd & Roosevelt Blvd	Frankford Transportation Center	School trip	21	1	0	0
Northbound							
229892	Frankford Transportation Center	Philadelphia Mills Mall	Primary Pattern	0	21	5	19
229893	Frankford Transportation Center	County Line Rd & Bustleton Av	Extension	50	20	14	0

Note: Unique stops are those not served by the primary pattern

RIDERSHIP

In Fall 2019, Route 84 carried 3,550 passengers on weekdays, 1,190 on Saturdays, and 850 on Sundays (see Table 3).

Table 3 | Fall 2019 Ridership and Productivity

	Weekdays	Saturdays	Sundays
Daily Ridership	3,544	1,192	850
Rank	57	65	64
Passengers per Revenue Vehicle Hour	43.2	30.2	31.6
Rank	55	67	55

Transfer Patterns

About a quarter of trips on Route 84 involve a transfer to the Market Frankford Line and most other transfers (except for with Route 70) occur at Frankford Transportation Center. The largest transfer volumes are to and from:

- The Market Frankford Line (25.8% of all trips)
- Route 66 (Frankford Transportation Center to Frankford-Knights) (4.9%)
- Route 56 (23rd-Venango to Torresdale-Cottman) (4.5%)

- Route R (Henry-Mid or Wissahickon Transportation Center to Frankford Transportation Center) (3%)
- Route 70 (Frankford-Gregg/Torresdale-Cottman to Frankford Transportation Center) (2.8%)

Weekend transfer patterns are similar but at a slightly lower rate.

Ridership by Stop

Route 84's primary function is to transport people between Frankford Transportation Center and northeast Philadelphia along the Bucks County border. However, there is also a significant amount of intermediate ridership to destinations like Philadelphia Mills Mall, Pennypack Park, and Philadelphia Department of Prisons House of Corrections (see Figure 2). Major ridership patterns on southbound trips are as shown in Figure 2; northbound patterns generally mirror southbound patterns.

In more detail, and again on southbound trips (also see Figure 2):

- 14 passengers board at County Line Road at Bustleton Avenue, which is the northern terminal of some trips. Through to Philadelphia Mills Mall, ridership is very low, with fewer than 5 boardings and 3 alightings at most stops. Exceptions include:
 - 25 passengers board and 3 alight at Byberry Road at Bustleton Avenue. This is a transfer point with Route 58.
 - 33 passengers board and 2 alight at Southampton Road at Roosevelt Boulevard. This is a transfer point with Boulevard Direct, Route 1, and Route 14.
 - 43 passengers board and 20 alight at McNulty Road at Townsend Road. This stop serves a number of large warehouse and industrial sites.
 - 14 passengers board and 19 alight at Academy Road at Medford Road. This is a transfer point with Routes 20 and 50.
- The largest numbers of passengers – 1666 – board at the primary northern terminal, Philadelphia Mills Mall. Through to Torresdale Station, most of the subsequent stops see about 14 boardings and fewer than 6 alightings per stop. Exceptions include a few high ridership stops in the densest portions of Morrell Park and the stop serving Benjamin Rush High School, both of which see 40 to 50 boardings and about 12 alightings.
- Ridership levels remain similar through to Route 84's southern terminal. An average of 12 boardings and 9 alightings occur at each of the 29 stops between Cottman Avenue and Frankford Avenue at Bridge Street. 840 passengers alight at Frankford Transportation Center

Weekend patterns are similar but with lower volumes.

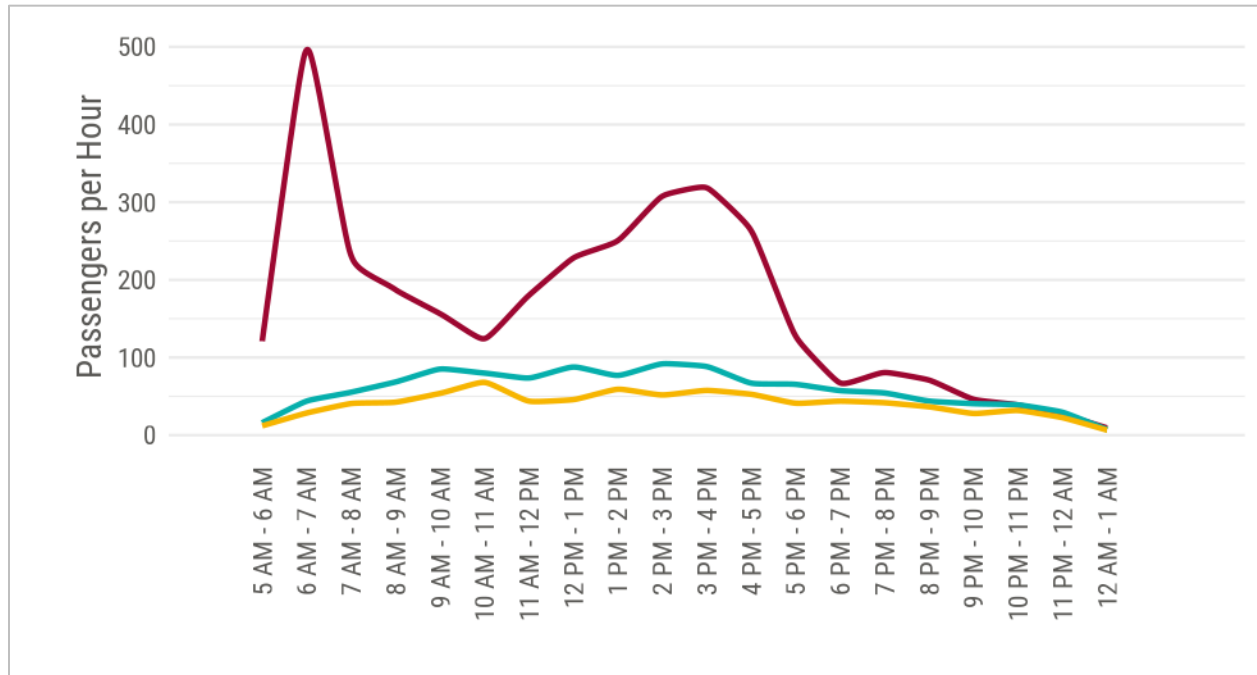
Figure 2 | Weekday Northbound Ridership by Stop


Ridership by Time of Day

Ridership by Hour

In Fall 2019, weekday ridership was very peaked, in part due to high student ridership (see Figure 3). Midday ridership, on a per hour basis, was generally about half as high as peak period ridership. Evening ridership was much lower than midday ridership and fell quickly after 5:00 PM. Saturday and Sunday ridership did not exhibit peaks and gradually increased through mid-afternoon and then gradually decreased.

Figure 3 | Ridership by Hour: Fall 2019

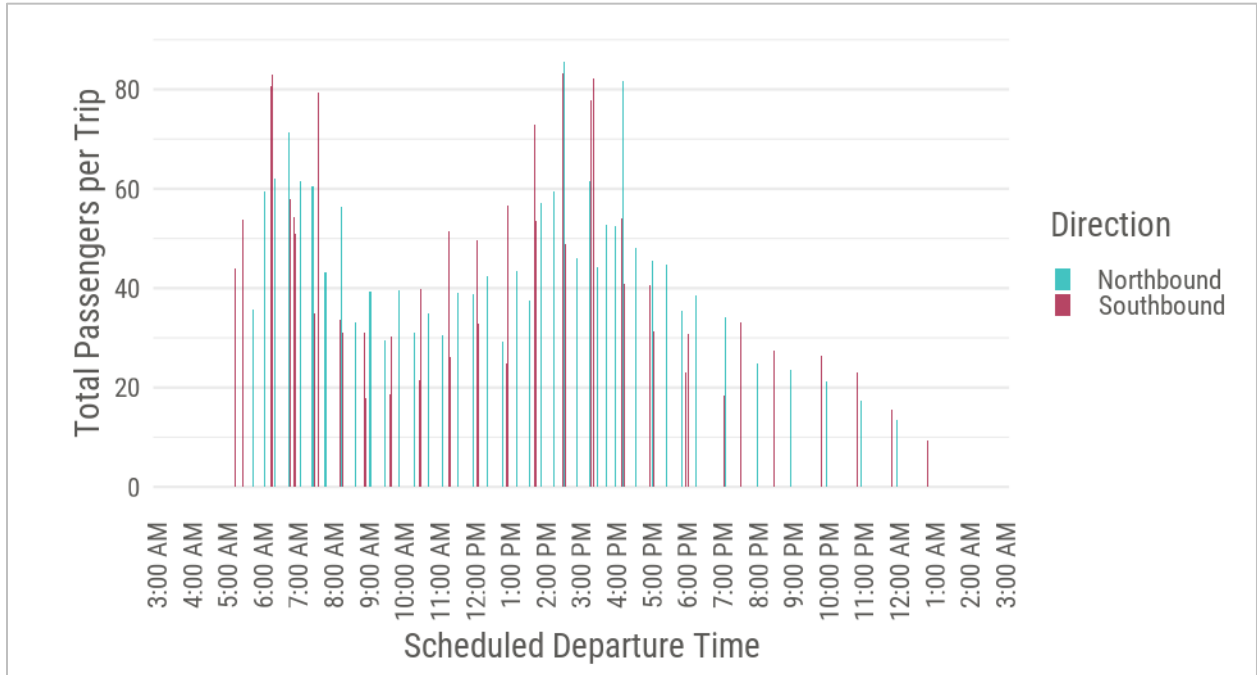


Ridership and Maximum Loads by Trip

Weekday ridership per trip is high during peak periods and moderate during other times (see Figure 4):

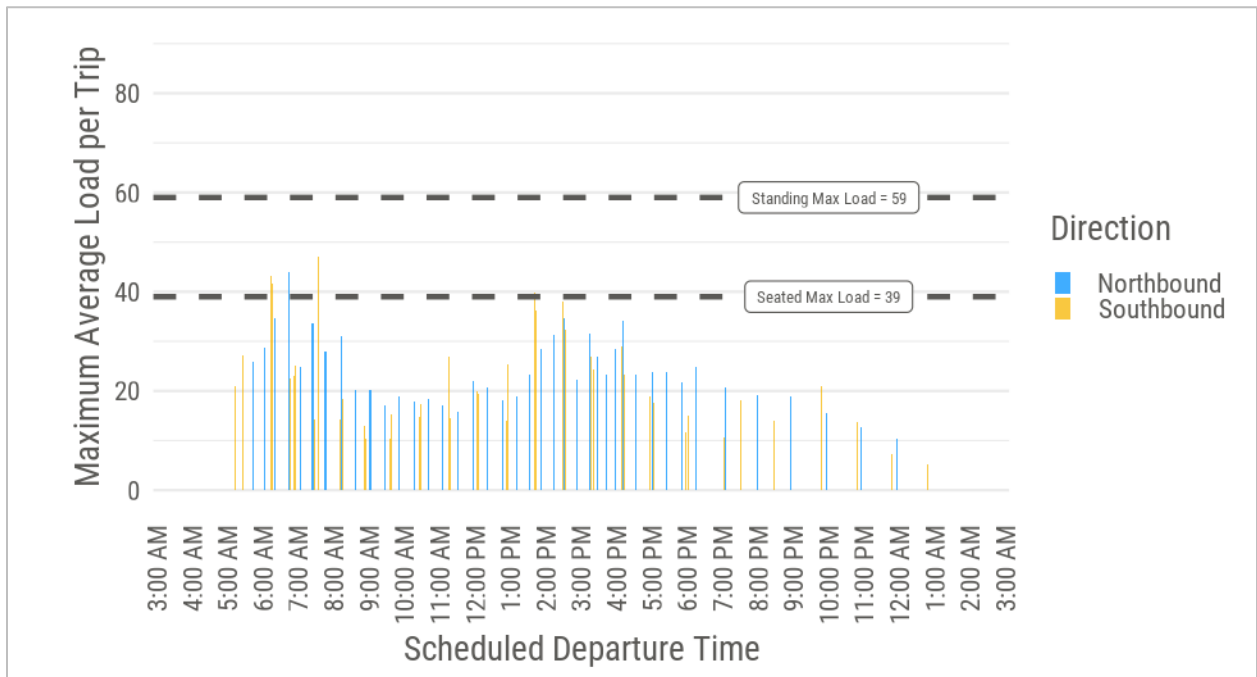
- Early morning trips before 6:00 AM carried about 40 passengers
- AM and PM peak trips carried 50 to 85 passengers
- Midday trips carried 20 to 40 passengers
- After 6:00 PM, ridership gradually declined to about 10 passengers per trip after midnight.

Figure 4 | Weekday Ridership by Trip: Fall 2019



Because there is a large amount of ridership turnover along the route only a handful of trips operate at or above seated capacity (see Figure 5). Only a handful of trips operate at or above seated capacity. The few trips that do operate with standing loads on average are in the AM peak.

Figure 5 | Weekday Maximum Loads by Trip: Fall 2019



On Saturdays and Sundays, most trips see around 20 passengers per trip or fewer.

ON-TIME PERFORMANCE AND RUNNING TIMES

On-Time Performance

In Fall 2019, Route 84’s on-time performance was 72% on weekdays, 79% on Saturdays, and 82% on Sundays (see Table 4). Off-schedule performance skews late on weekdays and Saturdays and early on Sundays. This indicates high levels of running time variability along the route on weekdays.

Table 4 | On-Time Performance: Fall 2019

	Early (>2 Mins Early)	On Time (<2 Mins Early to 6 Mins Late)	Late (>6 Mins Late)	Missed Trips
Goal		80%		
Fall 2019 Actual				
Weekday	6.8%	72.4%	20.8%	1.7%
Saturday	5.1%	78.9%	16.0%	1.2%
Sunday	10.9%	82.3%	6.8%	1.9%

Note: On-time percentages are for trips that are run (do not include dropped trips)

AVERAGE SPEEDS AND STOP SPACING

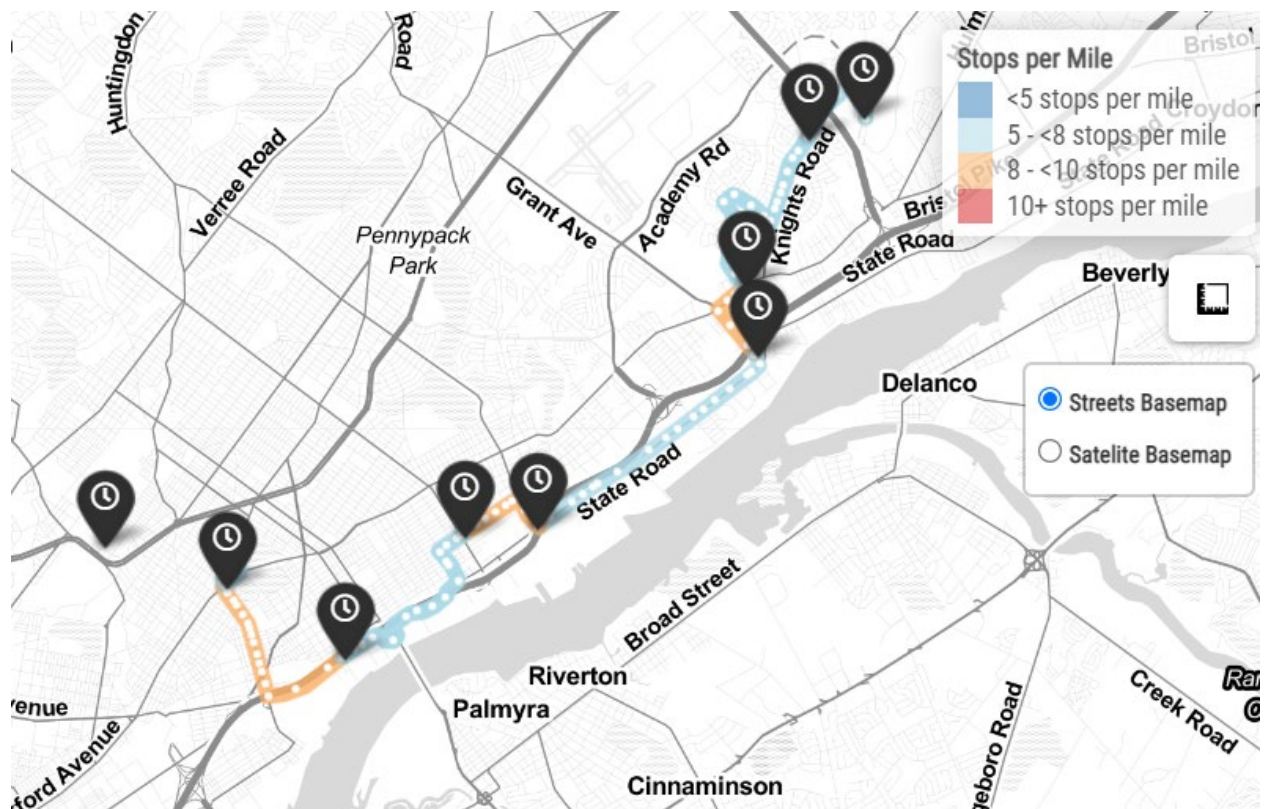
Route 84’s average weekday speed is 15.4 mph. However, during peak periods, Route 84 is slower along the southern portion of the route between State Road & Magee Ave and Frankford Transportation Center where speeds average 10-12 mph (see Figure 6).

Route 84 has an average of 7.5 stops per mile and many areas with 9 stops per mile (see Figure 7).

Figure 6 | Average Speeds: PM Peak Westbound



Figure 7 | Stop Spacing by Route Segment



RIDER CHARACTERISTICS

Route 84's service area is somewhat typical of SEPTA's entire service area (see Table 5). The major differences are that Route 84 has a higher percentage of white riders, a lower percentage of black riders, and fewer riders without a vehicle.

Table 5 | Rider Characteristics

	Route 84 Riders	Systemwide Average
Median Household Income	\$30,555	\$32,713
Share in Poverty	30%	30%
Ethnicity		
White	46%	38%
Black	34%	46%
Hispanic	14%	10%
Other	6%	7%
Without a Vehicle	30%	37%
Seniors	12%	15%
With a Disability	2.5%	2%

SERVICE IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 84 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- **Adjust Schedule to Operate Clockface Headways and add Additional Weekend Service:** Route 84's headways are inconsistent on weekdays and infrequent on weekends. Route 84 could operate clockface headways during all times and with generally more frequent service on weekends to make service more convenient and easier to use (see Figure 8).
- **Streamline Northern Half of Alignment and Near Cottman Avenue:** Route 84 is unnecessarily circuitous near Forest Hills Station, Modena Park, Morrell Park, and Tacony. The route could be straightened, and service could be made faster without impacting many riders by operating service via Bustleton to and from Somerton, via Knights Road between Red Lion Road and Frankford Avenue, and by operating on Cottman Avenue bi-directionally instead of as a one-way couplet with Princeton Avenue.
- **Split Route at City Line Loop (Frankford Knights) or Philadelphia Mills:** Route 84 is very long, at 12.4 miles, and demand for service varies along its alignment. To improve on-time performance and better balance service levels, Route 84 could be operated as two separate routes, split at one of the following locations:
 - City Line Loop, where connection is available to several other routes including Route 66 which also travels to Frankford Transportation Center
 - Philadelphia Mills Mall if an end-of-line location can be identified.

Figure 8 | Potential Adjusted Schedule

Service Day	Frequency (Range)	Frequency (Average)	Potential Adjusted Frequency
Weekdays			
AM Peak	8-25	20.	20
Midday	20-26	24	20
PM Peak	15-26	22	20
Evening	25-55	42	30
Late Night	58-60	60	60
Owl	60-60	60	60
Saturdays			
Day	59-61	60	30
Night	59-64	61	60
Sundays			
Day	58-62	60	30
Night	57-66	60	60

Note: Span of service reflects the time the first bus begins service until the time the last bus finishes service.