

ROUTE 23

Center City to Chestnut Hill

KEY SERVICE CHARACTERISTICS, ISSUES, AND OPPORTUNITIES

- *Route 23 operates 24 hours per day and connects Chestnut Hill with Center City via Germantown Avenue and 11th/12th Street. The 10-mile alignment includes Germantown and Mount Airy.*
- *Route 23 carries more passengers on all days of the week than almost any other SEPTA bus route. Priority treatments, fewer bus stops, and improved parking/curb management could improve speed and on-time performance, particularly since much of the route operates on narrow Germantown Avenue.*
- *Shortening the route would also be likely to improve on-time performance, possibly by separating the segments north of Germantown or south of Broad/Erie into different routes.*

ROUTE OVERVIEW

Route 23 operates 24 hours per day and connects Chestnut Hill, Mount Airy, and Germantown with Center City via Germantown Avenue and 11th/12th Street (see Figure 1). The alignment is simple and direct, although a one-way trip is more than 10 miles long. On all days of the week, the route carries more passengers than almost any other route in the SEPTA network.

SERVICE OVERVIEW

Schedule

Route 23 operates 24 hours per day on all days of the week. Frequencies vary by time of day (see Table 1):

- On weekdays, frequencies are 7-9 minutes from the beginning of the AM Peak through 9 PM.
- On weekend days, service frequencies average 14 minutes during the day on Saturday and every 19-22 minutes at other times.

Figure 1 | Route Map

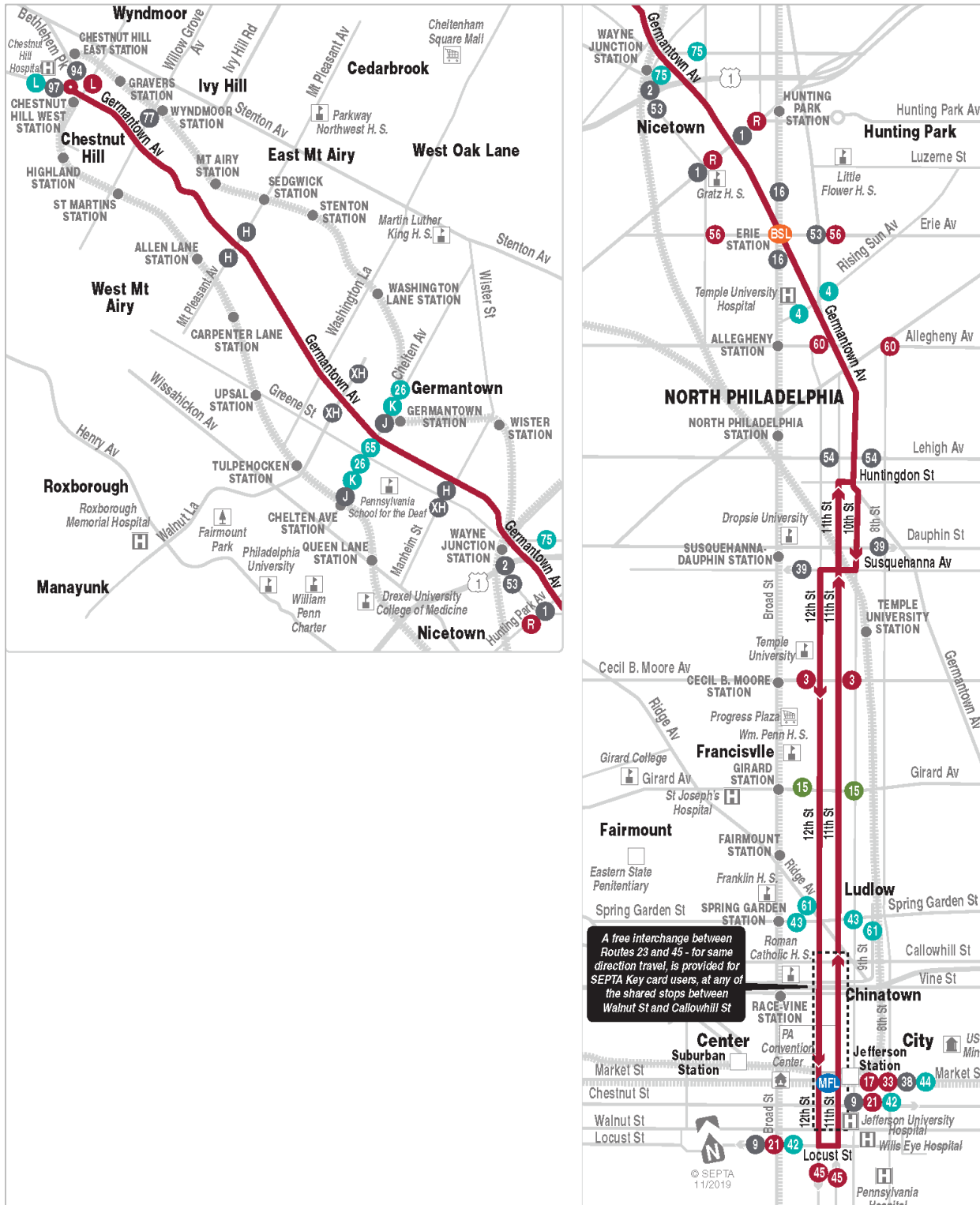


Table 1 | Schedule Statistics

Service Day	Span Of Service	Frequency (Range)	Frequency (Average)
Weekdays	24 Hours		
Early AM	4:00 AM to 5:59 AM	1-40	15
AM Peak	6:00 AM to 8:59 AM	7-12	8
Midday	9:00 AM to 2:59 PM	7-11	9
PM Peak	3:00 PM to 5:59 PM	7-8	7
Evening	6:00 PM to 9:59 PM	7-25	11
Late Night	10:00 PM to 11:59 PM	22-26	24
Owl	Midnight to 3:59 AM	1-39	25
Saturdays	24 Hours		
Day	8:00 AM to 5:59 PM	11-16	14
Night	Before 8:00 AM & After 5:59 PM	1-40	20
Sundays	24 Hours		
Day	8:00 AM to 5:59 PM	18-21	19
Night	Before 8:00 AM & After 5:59 PM	1-40	22

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

Service Patterns

Route 23 has four weekday service patterns, two in each direction. The vast majority of trips use the primary service pattern (see Table 2).

Table 2 | Service Patterns

Pattern	Origin	Destination	Unique Feature	Unique Stops	Trips Per Day		
					Wkd	Sat	Sun
Northbound							
229400	11th Street & Market Street	Chestnut Hill Loop	Primary Pattern	-	122	78	62
229399	Germantown Avenue & Tioga Street	Chestnut Hill Loop	Start of Service Short-turn	0	6	5	5
Southbound							
229398	Chestnut Hill Loop	11th Street & Market Street	Primary Pattern	-	124	78	62
229397	Chestnut Hill Loop	Germantown Avenue & Rising Sun Avenue	Start/End of service Short-turn	0	4	4	4

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

RIDERSHIP

Fall 2019, Route 23 carried 15,637 passengers on weekdays, 8,465 on Saturdays, and 6,206 on Sundays (see Table 3). Based on weekday ridership, it was SEPTA's 3rd highest ridership route.

Table 3 | Fall 2019 Ridership and Productivity

	Weekdays	Saturdays	Sundays
Daily Ridership	15,637	8,465	6,206
Rank	3	2	2
Passengers per Revenue Vehicle Hour	57.7	52.4	52.3
Rank	28	18	16

Transfer Patterns

The single largest transfer rate among Route 23 trips is with the Broad Street Line, but many other Route 23 transfers occur along different segments of the route. The largest transfer rates are to and from:

- Broad Street Line (11.4% of all trips)
- Market-Frankford Line (5.8%)
- Route 26 (Cheltenham Avenue Station to Frankford Transportation Center) (3.2%)
- Route 65 (Germantown-Cheltenham to 69th Street Transportation Center) (2.8%)
- Route K (Ridge-Midvale to Arrott Transportation Center) (2.8%)

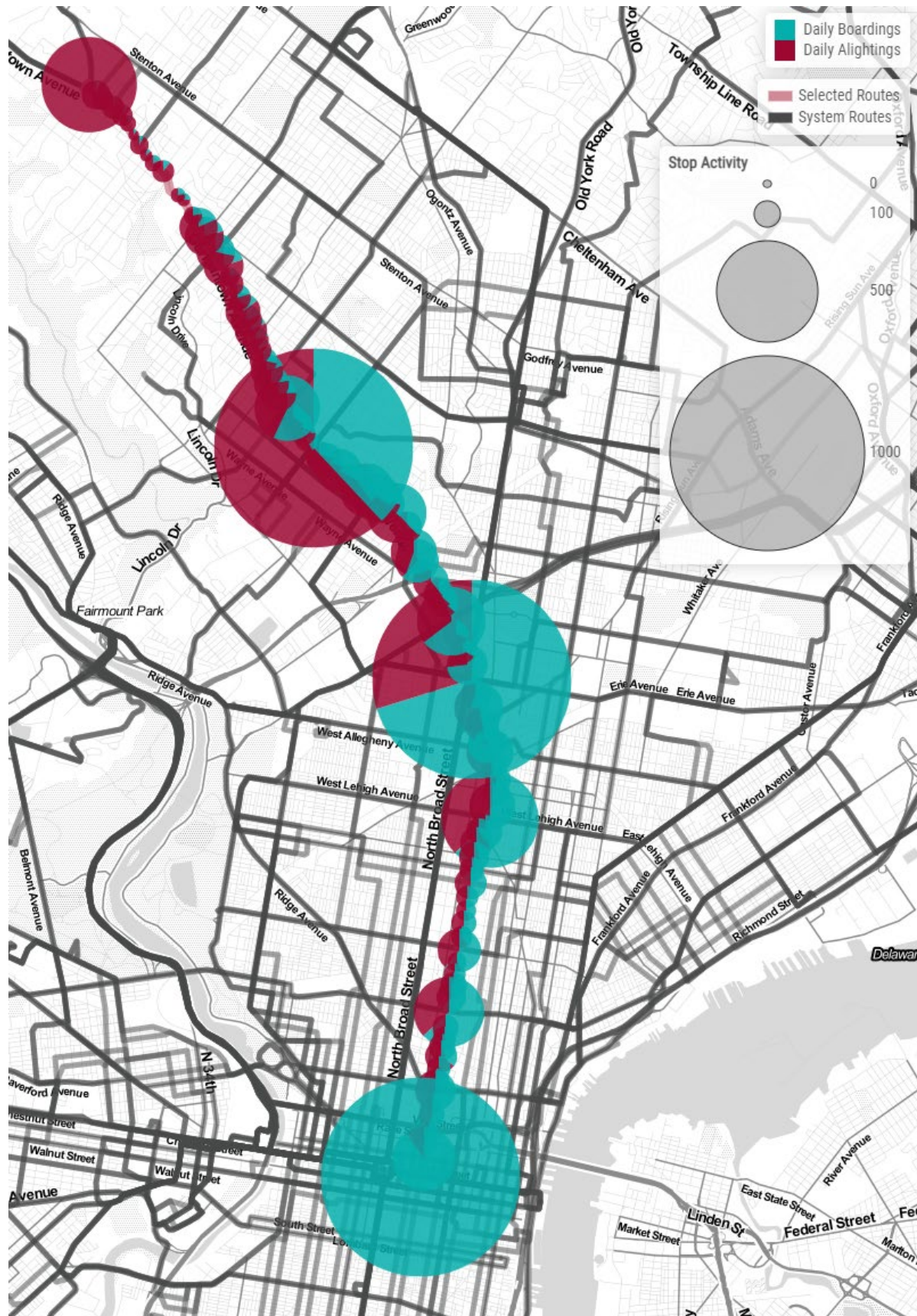
Weekend transfer rates are similar.

Ridership by Stop

Route 23 has consistent demand at stops along the route, with the greatest activity typically at major transfer locations (see Figure 2). For northbound weekday trips, some highlights include:

- 1,751 riders board at the origin at 11th and Market
- There are 204 boardings and 119 alightings at 11th and Girard Avenue
- 293 riders board and 174 alight at Germantown and Lehigh Avenues
- There are 874 boardings and 371 alightings at Germantown/Broad/Erie
- 408 riders board and 664 alight at Germantown and Cheltenham Avenues
- 456 riders alight at the final Chestnut Hill Loop stop

Figure 2 | Weekday Northbound Ridership by Stop



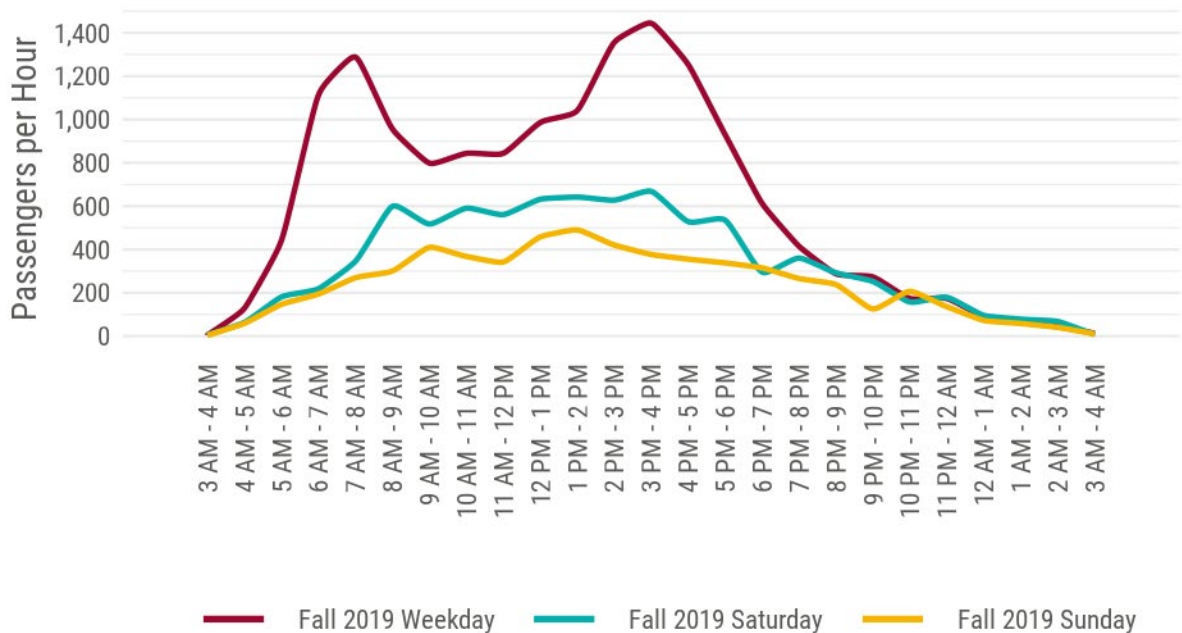
Ridership by Time of Day

Ridership by Hour

In Fall 2019, weekday ridership was fairly peaked with the highest ridership during the PM peak. Ridership during the PM peak was highest between 2:00-4:00 PM, indicating that students are likely a significant percentage of passengers (see Figure 3).

Midday ridership, on a per hour basis, was more than half of the peak periods. Evening ridership was much lower especially after 6:00 PM. Weekend ridership was steadier throughout the day and was highest between about 9:00 AM and 4:00 PM.

Figure 3 | Ridership by Hour: Fall 2019



Ridership and Maximum Loads by Trip

In Fall 2019, weekday ridership per trip was high on most trips (see Figure 4):

- Peak period trips carried 80 to 110 passengers
- Midday trips carried 60 to 85 passengers
- After 6:00 PM, ridership per trip decreased from 60 passengers to around 50.
- After 11:00 PM ridership continued to drop to less than 20 per trip during overnight hours

Some peak period trips had standing loads while other trips approached the seating capacity on average. Bus bunching makes it likely that some trips throughout the day had loads exceeding the number of seats on occasion (see Figure 5). Bunching is a significant issue on this route, particularly as it approaches Center City.

Weekend trips carry 60-80 passengers through much of the day and less during mornings and evenings. Most weekend trips have loads within the seating capacity although some afternoon trips on both Saturday and Sunday had standing loads.

Figure 4 | Fall 2019 Weekday Ridership by Trip

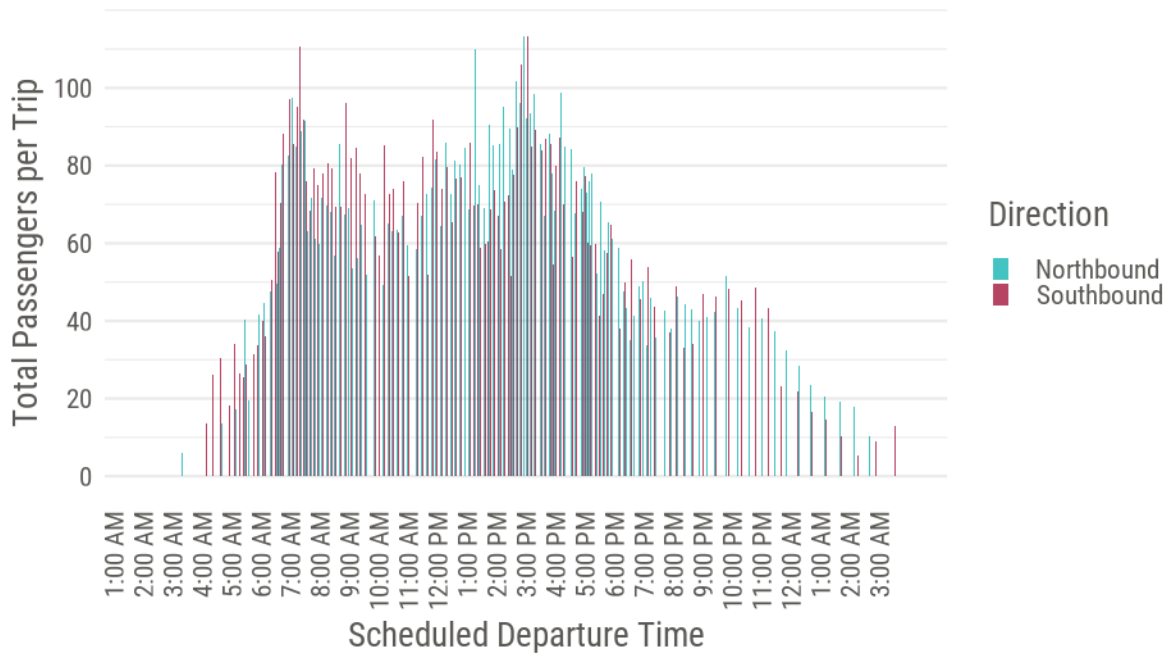
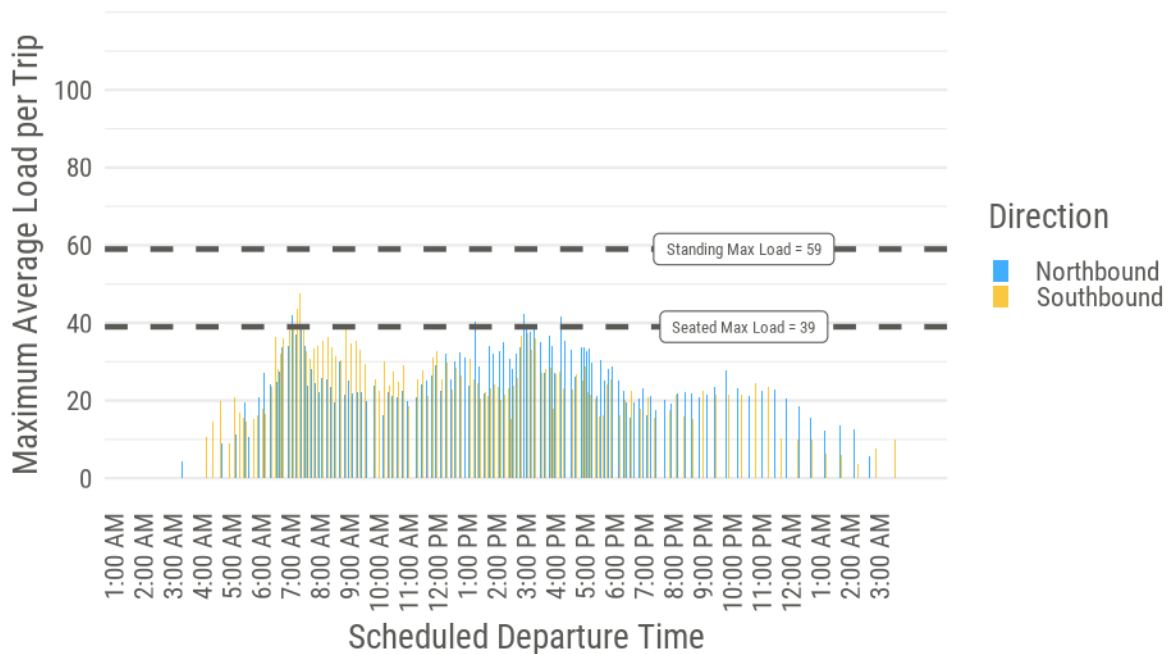


Figure 5 | Fall 2019 Weekday Maximum Loads by Trip



ON-TIME PERFORMANCE AND RUNNING TIMES

On-Time Performance

In Fall 2019, Route 23’s on-time performance was 67.7% on weekdays, 66.6% on Saturdays, and 74.1% on Sundays (see Table 4). On all days, the trips are more likely to be late than early and that is particularly true on Saturdays. Dwell time is a likely contributor to late trips.

Table 4 | Fall 2019 On-Time Performance

	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	12.4%	67.7%	19.9%	0.0%
Saturday	8.5%	66.6%	24.9%	0.0%
Sunday	11.2%	74.1%	14.7%	0.0%

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

AVERAGE SPEEDS AND STOP SPACING

On weekdays during the PM Peak, Route 23 travels at less than 8 mph in Center City and 8-10 mph elsewhere (see Figure 6). Slow speeds are attributable to traffic congestion as well as stop spacing along the route. Route 23 has an average of 10 stops per mile over its entire length; but some segments have more than 12 stops per mile (see Figure 7).

Figure 6 | Fall 2019 PM Peak Northbound Speeds

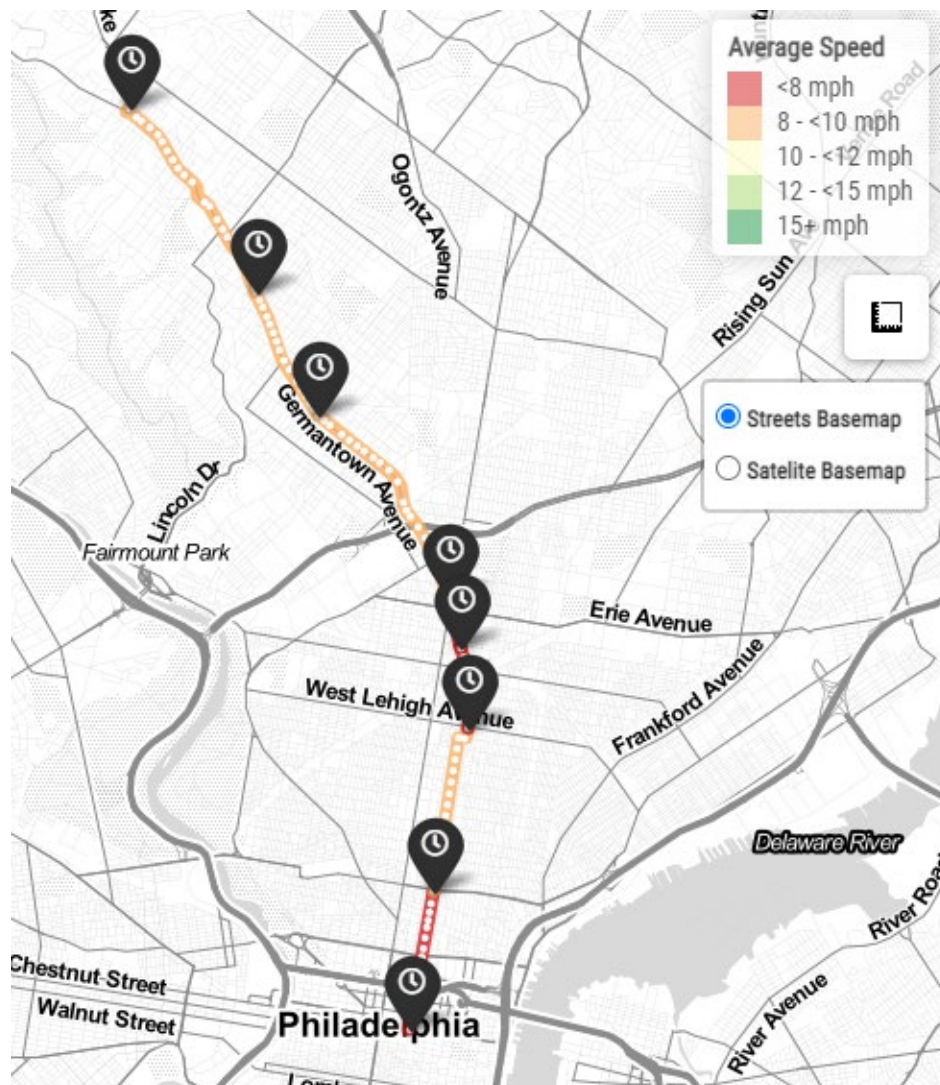
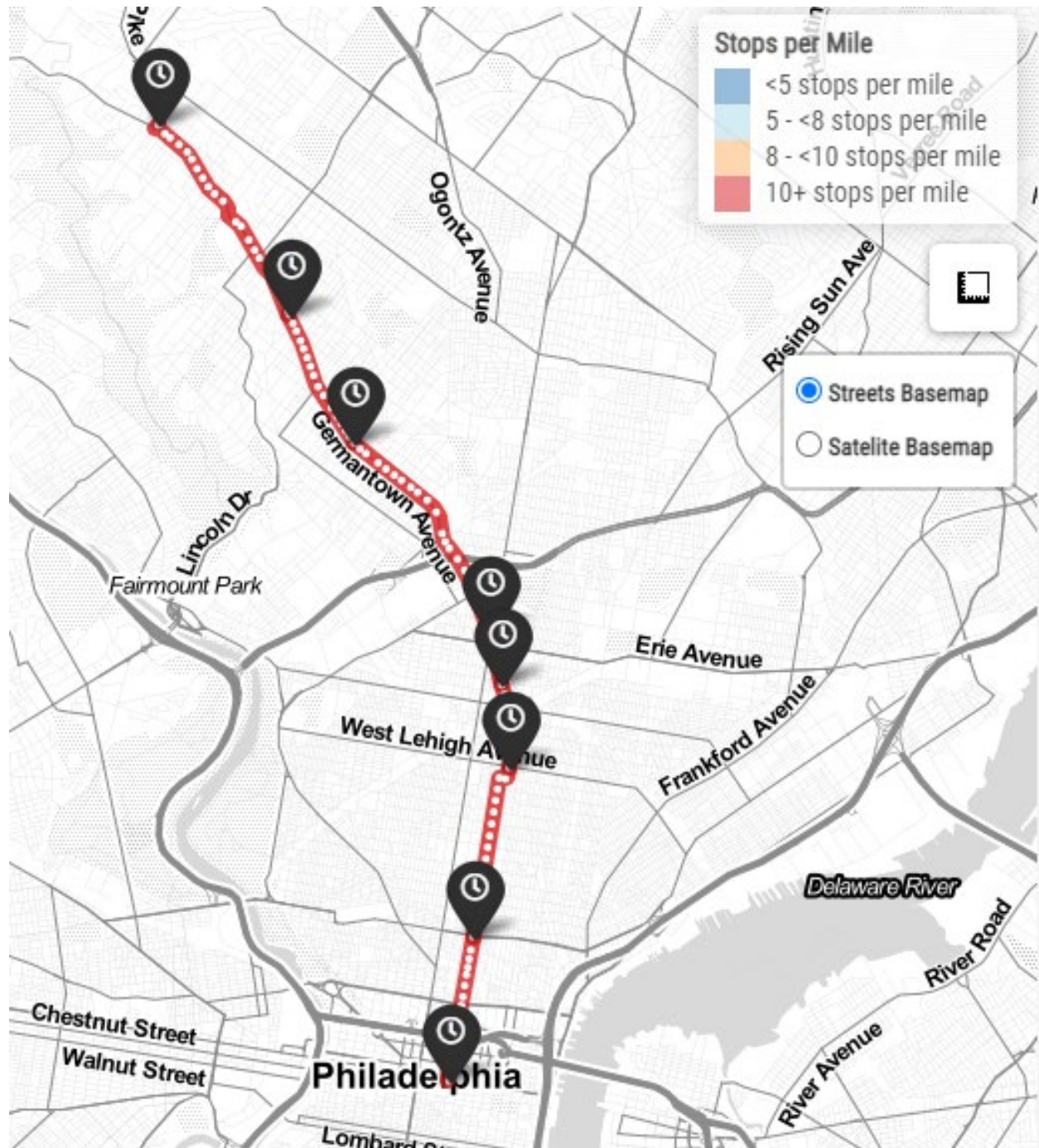


Figure 7 | Stop Spacing by Route Segment



RIDER CHARACTERISTICS

Route 23's rider demographics are generally typical of SEPTA's entire service area (see Table 5). The route's riders are somewhat more likely to be Black, to be in poverty, and to be without access to a vehicle.

Table 5 | Rider Characteristics

	Route 23 Riders	Systemwide Average
Median Household Income	\$31,573	\$32,713
Share in Poverty	36%	30%
Ethnicity		
White	27%	38%
Black	59%	46%
Hispanic	10%	10%
Other	4%	7%
Without a Vehicle	45%	37%
Seniors	20%	15%
With a Disability	3%	2%

SERVICE IMPROVEMENT OPPORTUNITIES

Opportunities to strengthen Route 23 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

- Move Southern Terminus to Germantown/Broad/Erie:** One way to shorten the route would be to eliminate service south of Erie Avenue. This would still allow direct connections to the Broad Street Line. The Route 23 service south of Erie is similar to the subway and other bus routes. The upcoming redesign of the intersection at Germantown/Broad/Erie could allow for an end-of-line site for Route 23.
- Collaborate with City on Parking/Curb Management:** New technology and policies could enable bus cameras to assist with improved parking and curb management operations which could in turn improve Route 23’s speed and on-time performance.