

# 2000 – 2020 TRAVEL TRENDS

## in the Philadelphia Central Business District

*April 2023*



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# Executive Summary

This report documents the changes in travel to and from Philadelphia's Central Business District (CBD) between 2000 and 2020. This was a period of major change, including the Great Recession from December 2007 to June 2009, and the Coronavirus Disease 2019 (COVID-19) pandemic beginning in March of 2020. The pandemic had a drastic impact on both the economy and travel in the CBD, and throughout the Philadelphia region. Auto, transit, bike, and pedestrian trips collected in 2000, 2005, 2010, and 2015 are compared to data from just before COVID-19 in the Fall of 2019, as well as data from during COVID-19 in the Summer of 2020.

## Major Findings

- Short term travel trends, from 2015 to the Fall of 2019, for Center City<sup>1</sup> are slightly negative, with decreases across all modes, and across three of the four screenlines surrounding Center City.
- On average, 1.9 million people traveled to and from Center City each weekday in the Fall of 2019, a decrease of 1.3 percent from 2015.
- During this time, there was not much change in mode split. Pedestrian trips declined slightly from 5.4 percent of total trips to 5.1 percent. Bicycle trips remained the same at 0.9 percent. Transit trips declined from 26.9 percent to 26.2 percent, and highway trips increased from 66.9 percent to 67.8 percent.
- However, longer term travel trends from the end of the Great Recession in 2009 to early 2020 are mostly positive, across all screenlines and modes of travel. This all changed in March of 2020 with the onset of COVID-19 and its severe negative impact to the economy and travel behavior.
- Evidence suggests that there may be fundamental changes to underlying travel behavior<sup>2</sup>. For example, as of Fall 2022, only 50 percent of office workers in Center City have returned to working from their offices. At this point in time, it is still unclear what the long-term impacts of COVID-19 will be in terms of land-use and transportation planning.
- The existing transit network and schedules are designed to help suburban commuters travel to and from Center City every weekday. The ridership data indicates that the existing system is very good at bringing a lot of people into a very dense, compact, and concentrated activity area. However, the system does not function as well for reverse commuters, those people who live in the urban core and travel to work in the suburbs. The job locations are too spread out, and they cannot be served efficiently.

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<sup>1</sup> Center City and the Central Business District (CBD) are used interchangeably throughout this document.

<sup>2</sup> Central Philadelphia Development Corporation. *Center City Philadelphia Retail*. November 2022. [centercityphila.org/](http://centercityphila.org/)

## CHAPTER 1:

# Introduction

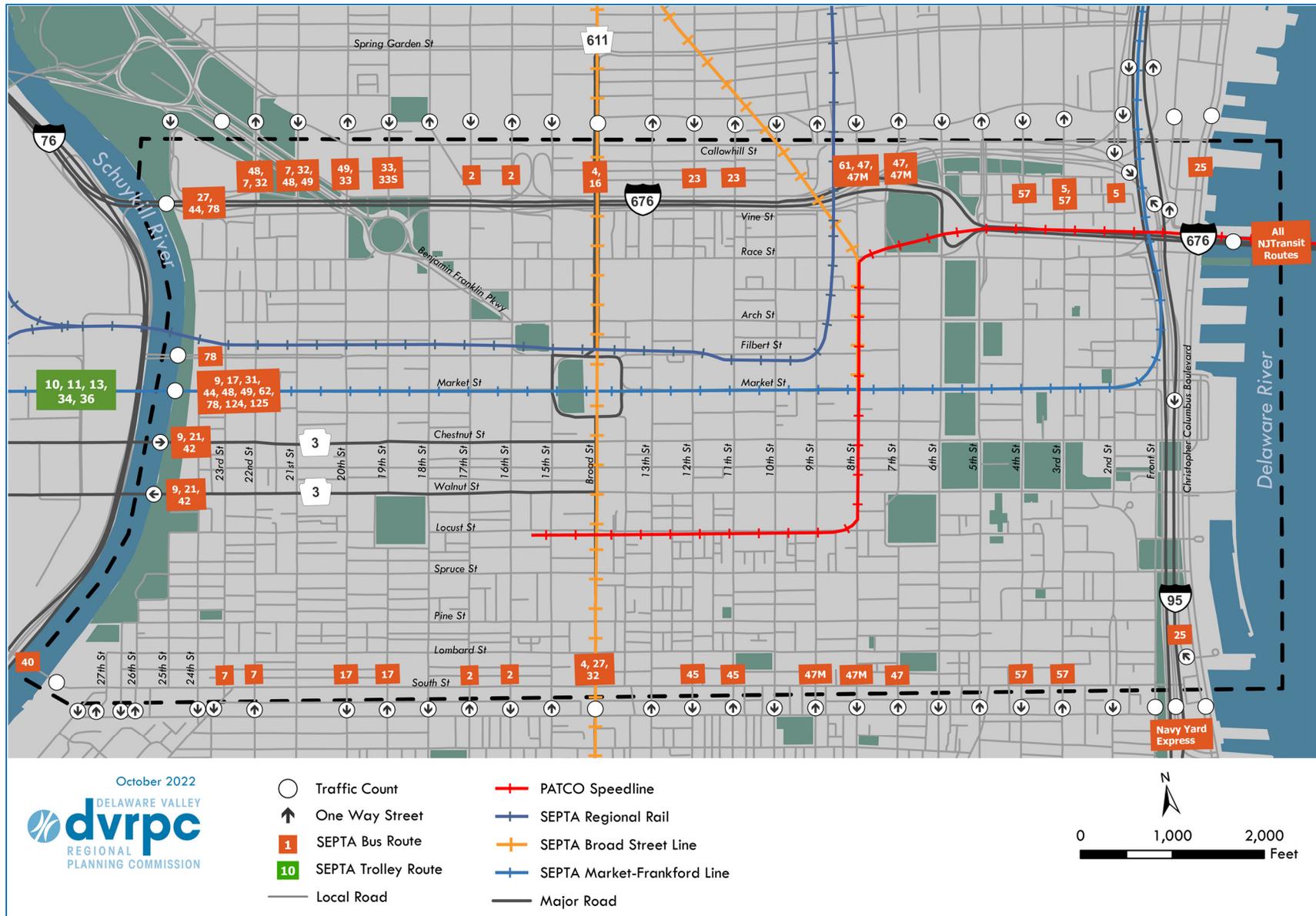
Center City is the commercial hub of the Greater Philadelphia region. In the Fall of 2019, there were almost 70,000 residents and 230,000 employees living and working in Center City's two square miles. In terms of transportation infrastructure, both the highway and transit networks radiate out from Center City, bringing suburban residents into the city, and moving city residents out to the surrounding area.

The Delaware Valley Regional Planning Commission (DVRPC), the federally designated metropolitan planning organization for the bi-state, nine-county Greater Philadelphia Region, monitors travel trends to and from Center City on a regular basis to inform updates to the regional travel model. The regional travel model aims to produce modeled estimates of daily trips that match the count data. When necessary, the model is adjusted to bring it closer to the count data.

Four screenlines define the cordon surrounding Center City: Callowhill Street is the northern boundary, the Delaware River is the eastern boundary, South Street is the southern boundary, and the Schuylkill River is the western boundary. Counts of highway traffic, public transit passengers, bicyclists, and pedestrians that cross each screenline are conducted every five years. Traffic, bicycle, and pedestrian counts are taken where each road or bridge crosses a screenline, as shown in [Figure 1](#). Public transit passenger counts are estimated where every bus or train route crosses a screenline. As such, the count data only captures travel to and from Center City, not the travel that occurs from point to point within Center City.

This technical report presents conditions that existed in the Fall of 2019, just before the COVID-19 pandemic. Most of the highway traffic counts were taken by DVRPC staff during September, October, November, and December of 2019. Public transit ridership data for the Fall of 2019 were provided by the transit agencies serving Center City - The Port Authority Transit Corporation (PATCO), New Jersey Transit (NJ Transit), and the Southeastern Pennsylvania Transportation Authority (SEPTA). Bicycle and pedestrian counts were taken by DVRPC staff.

Figure 1: Center City



CHAPTER 2:

## Data Collection and Study Method

This section of the report describes how the traffic, public transit, bicycle, and pedestrian data were collected. It should be noted that although DVRPC has been collecting traffic and public transit data for several decades, it did not begin counting bicycle and pedestrian trips until 2010.

### Highway Traffic Counts

Traffic volumes were collected at all of the roads crossing the screenlines. Most of the highway counts were collected by DVRPC staff using pneumatic tubes, as shown in [Figure 2](#). Video cameras were used when it was unsafe for field technicians to install tubes, for example on highways and interstates such as I-95 and the Ben Franklin Bridge (I-676). Highway counts are conducted over a continuous 48-hour period during the work week (Monday through Friday). Appropriate seasonal and area travel pattern factors were applied to the raw counts to convert them to annual average daily traffic (AADT) estimates.

**Figure 2:** Pneumatic Tube Vehicle Counter



Source: DVRPC, 2018

### Public Transit Ridership

Passenger trips on all public transit routes that cross the screenlines were obtained from each of the operators providing service to Center City.

SEPTA uses a variety of methods to count passengers. Approximately 30 percent of their bus fleet has automatic passenger counters (APC) installed, as shown in [Figures 3 and 4](#), which record the number of passengers boarding and alighting at each stop. SEPTA also periodically conducts manual ride checks that are used to calibrate APC results.

**Figure 3: APC on SEPTA Bus**



Source: DVRPC, 2023

**Figure 4: APC on SEPTA Bus**



Source: DVRPC, 2023

SEPTA conducts a census of its Broad Street (BSL) and Market-Frankford (MFL) subway lines every four years. The census data is collected by one person per car, standing on the train platform and counting passengers boarding and alighting during the entire day. For example, the MFL ridership data presented in this report is based on the 2016 ridership census<sup>3</sup>. They also conduct a census of their regional rail routes every two years, counting the number of passengers boarding and alighting at each station.

NJ Transit provides a summary of the daily ridership on their bus routes, and on the River Line light rail, crossing DVRPC's screenlines. NJ Transit and PATCO bus and rail counts were based on recent turnstile or farebox counts, which were then aggregated into specific route and time categories.

## Bicycle Counts

DVRPC conducts bicycle counting using equipment that is similar to what is used for vehicle counting, e.g., a pneumatic tube stretched across a road, as shown in [Figure 5](#). When a tire rolls across the tube, an increase in air pressure activates a switch in the counter, recording the tire. The spacing between the axles allows the counter to distinguish a bicycle from a car or truck. The tubes are able to measure the direction a bicyclist is traveling in, and they work in all weather conditions.

**Figure 5:** Bicycle Counter



Source: DVRPC, 2018

## Pedestrian Counts

DVRPC uses passive infrared technology to count pedestrians on sidewalks. The equipment is mounted on a fixed object like a telephone pole as shown in [Figure 6](#), and measures the heat signature of a person walking past the unit. Dual sensors allow the unit to distinguish direction of travel. The unit is mounted at hip height, preventing each leg of a pedestrian from being counted. However, using the hip height of an adult sometimes means children are undercounted.

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<sup>3</sup> Southeastern Pennsylvania Transportation Authority, *Market-Frankford Line Ridership Census 2016*, 2016.

**Figure 6:** Pedestrian Counter



*Source: DVRPC, 2023*

One weakness of the pedestrian counter is that it can be overly sensitive. For example, if there is a ball field right next to a sidewalk, the counter will record the number of pedestrians walking by, but it may also read any kids playing on the adjacent field. To avoid this type of situation, we frequently use a shield, or barrier, to block the sensor from detecting (and counting) the people in the background.

Another issue with pedestrian and bicycle counts is the higher degree of day-to-day fluctuation when compared to vehicle counts. This is due to the fact that a person who drives to work will probably continue to drive regardless of the weather, but a person who walks may decide to ride the bus or carpool on rainy or extremely cold days. For this reason, the counting equipment for bicycle and pedestrian counts is set up for a minimum of seven continuous days at each location.

## Trends in Center City Screenline Travel Volumes

### North Screenline

The North Screenline runs parallel to, and a little north of, Callowhill Street, from the Schuylkill River in the west to the Delaware River in the east. The Vine Street Expressway (I-676) runs parallel to the North Screenline, but is located approximately 0.1 miles south, and never crosses it. However, the eastbound on-ramp (24<sup>th</sup> Street) to I-676 from the Benjamin Franklin Parkway does cross the North Screenline. The North Screenline monitors the flow of trips between Center City and the residential neighborhoods and educational institutions (e.g., Temple University) of North Philadelphia, and the suburban neighborhoods beyond North Philadelphia in Montgomery and Bucks counties.

Twenty-six streets cross the North Screenline, as listed in [Table 1](#). A little over 400,000 vehicles cross the North Screenline every day, the highest volume of the four screenlines surrounding Center City. Traffic crossing the North Screenline increased by 14,478 vehicles per day (vpd) between 2015 and Fall 2019, an increase of 3.7 percent. The highest volume roads are I-95 (184,172 vpd), the Ben Franklin Parkway (38,773 vpd), Broad Street (27,920 vpd), and Columbus Boulevard (21,898 vpd). Traffic increased on I-95 by 4.7 percent, on the Ben Franklin Parkway by 13.0 percent, on Broad Street by 23.5 percent, and on Columbus Boulevard by 1.9 percent. Traffic also decreased between 2015 and Fall 2019 on several streets. 16<sup>th</sup> Street decreased by 2,891 vpd (-30.3 percent), 20<sup>th</sup> Street decreased by 1,952 vpd (-27.3 percent), 12<sup>th</sup> Street decreased by 1,589 vpd (-23.5 percent), and 15<sup>th</sup> Street decreased by 1,501 vpd (-20.6 percent).

Occasionally, streets experience an extreme percentage change in traffic volume. For example, Front Street increased by 567 percent between 2015 and Fall 2019. One of the main reasons this happens is because of new land use development. A new 250 unit, 16 story apartment building located at the intersection of Water and Front streets, was completed and opened in 2016. And the Northern Liberties neighborhood, which extends from Callowhill Street north to Girard Avenue, has experienced a sharp increase in new construction in the past decade. In addition to new residential development, this also includes the expansion of the Rivers Casino, which is located on the waterfront, a block away from Front Street.

The North Screenline also has the highest volume of daily transit passengers, and the ridership on each route is shown in [Table 2](#). The total number of transit passengers declined by 22,492 passengers between 2015 and Fall 2019, or by -9.4 percent. About 80 percent of passengers crossing the North Screenline are riding the two subways (Broad Street and Market-Frankford) and regional rail (Chestnut Hill East, Fox Chase, Glenside, Manayunk Norristown, Warminster, and West Trenton). Ridership on the Market-Frankford subway increased a little bit (+2.2 percent), but ridership on the Broad Street subway and Regional Rail lines decreased by -21.1 percent and -12.4 percent respectively.

Pedestrian trips crossing the North Screenline are shown in [Table 3](#). Daily pedestrian trips decreased by 12,158 between 2015 and Fall 2019 (-28.1 percent). As mentioned above, there are several factors that can contribute to this type of fluctuation in pedestrian activity, such as weather and device sensitivity. Device oversensitivity can lead to inaccurate results, such as abnormally high readings in a previous year, which is what likely happened on 18<sup>th</sup> Street in 2015.

Bicycle trips crossing the North Screenline are shown in [Table 4](#). Daily bike trips increased slightly from 2015 to Fall 2019, from 3,876 to 4,006 per day, an increase of +3.4 percent. The highest number of bicycle trips (353) were

observed on the Ben Franklin Parkway, likely due to the wide painted bike lanes in the outer lanes of the parkway, and its proximity and connection to the Schuylkill River regional trail.

**Table 5** and **Figure 7** summarize the travel trends between 2000 and the Fall of 2019 for the North Screenline.

Table 1: Daily Highway Vehicle Trips Crossing the North Screenline

Street	Average Daily Traffic					Percentage Change		
	2000	2005	2010	2015	Fall 2019	2005 to 2010	2010 to 2015	2015 to 2019
Columbus Boulevard	21,231	25,829	19,509	21,483	21,898	-24.5%	10.1%	1.9%
Front Street	571	2,121	385	169	1,127	-81.8%	-56.1%	566.9%
I-95	186,273	175,937	200,186	175,918	184,172	13.8%	-12.1%	4.7%
2 <sup>nd</sup> Street	5,913	7,715	7,966	7,875	6,848	3.3%	-1.1%	-13.0%
3 <sup>rd</sup> Street	4,547	4,519	4,064	6,954	5,861	-10.1%	71.1%	-15.7%
4 <sup>th</sup> Street	4,823	4,742	4,022	5,080	5,341	-15.2%	26.3%	5.1%
5 <sup>th</sup> Street	10,904	10,035	14,494	7,892	11,541	44.4%	-45.5%	46.2%
6 <sup>th</sup> Street	8,397	6,696	7,074	8,630	10,012	5.6%	22.0%	16.0%
7 <sup>th</sup> Street	7,864	8,889	8,643	10,513	11,548	-2.8%	21.6%	9.8%
8 <sup>th</sup> Street	5,753	5,648	6,432	7,186	6,837	13.9%	11.7%	-4.9%
9 <sup>th</sup> Street	1,399	1,713	1,357	1,455	1,019	-20.8%	7.2%	-30.0%
Ridge Ave	4,033	4,153	3,879	4,148	4,503	-6.6%	6.9%	8.6%
10 <sup>th</sup> Street	3,146	3,203	3,208	2,633	2,874	0.2%	-17.9%	9.2%
11 <sup>th</sup> Street	4,084	4,609	6,488	5,691	4,580	40.8%	-12.3%	-19.5%
12 <sup>th</sup> Street	5,881	4,190	4,441	6,765	5,176	6.0%	52.3%	-23.5%
13 <sup>th</sup> Street	4,896	4,928	4,249	4,936	4,269	-13.8%	16.2%	-13.5%
Broad Street	29,957	29,447	21,133	22,615	27,920	-28.2%	7.0%	23.5%
15 <sup>th</sup> Street	8,224	6,186	6,737	7,275	5,774	8.9%	8.0%	-20.6%
16 <sup>th</sup> Street	7,891	8,932	8,363	9,556	6,665	-6.4%	14.3%	-30.3%
17 <sup>th</sup> Street	5,793	4,494	4,502	4,867	3,953	0.2%	8.1%	-18.8%
18 <sup>th</sup> Street	6,683	6,854	4,051	4,582	5,731	-40.9%	13.1%	25.1%
19 <sup>th</sup> Street	7,212	4,286	4,965	3,953	4,811	15.8%	-20.4%	21.7%
20 <sup>th</sup> Street	7,242	7,402	5,762	7,150	5,198	-22.2%	24.1%	-27.3%
21 <sup>st</sup> Street	10,343	10,227	4,091	8,382	7,794	-60.0%	104.9%	-7.0%
Ben Franklin Parkway	41,686	44,319	31,657	34,299	38,773	-28.6%	8.3%	13.0%
22 <sup>nd</sup> Street	9,240	9,598	5,389	7,987	7,947	-43.9%	48.2%	-0.5%
<b>TOTAL</b>	413,986	406,672	393,047	387,994	402,172	-3.4%	-1.3%	3.7%

Source: DVRPC, 2023

**Table 2: Daily Public Transit Trips Crossing the North Screenline**

Route	Type	Passengers					Percentage Change		
		2000	2005	2010	2015	Fall 2019	2005 to 2010	2010 to 2015	2015 to 2019
2	Bus	2,349	2,306	2,438	1,948	2,371	5.7%	-20.1%	21.7%
C (4,16)	Bus	5,001	5,518	4,509	4,249	3,593	-18.3%	-5.8%	-15.4%
5	Bus	455	529	564	629	538	6.6%	11.5%	-14.5%
7, 32, 48	Bus	9,158	8,884	8,409	7,941	7,632	-5.3%	-5.6%	-3.9%
23	Bus	3,698	4,341	4,716	5,101	3,907	8.6%	8.2%	-23.4%
25	Bus	183	415	682	667	634	64.3%	-2.2%	-4.9%
33, 33S	Bus	7,805	7,041	6,283	6,375	5,567	-10.8%	1.5%	-12.7%
38, 76	Bus	2,225	2,177	2,075	1,826	1,569	-4.7%	-12.0%	-14.1%
45	Bus					107			
47, 47m	Bus	4,874	5,043	4,538	4,527	4,748	-10.0%	-0.2%	4.9%
49	Bus					1,196			
57	Bus	2,118	2,599	2,457	2,270	2,212	-5.5%	-7.6%	-2.6%
61	Bus	1,783	2,025	1,889	1,175	1,251	-6.7%	-37.8%	6.5%
78	Bus				223	75			-66.4%
Broad Street Owl	Bus					1,016			
HRS 400 Series (limited service)	Bus					123			
Market-Frankford Owl	Bus					721			
Broad-Ridge Spur	Subway	6,726	7,603	7,381	7,703	5,788	-2.9%	4.4%	-24.9%
Broad Street Line (BSL)	Subway	62,185	67,337	73,712	72,368	57,116	9.5%	-1.8%	-21.1%
Market-Frankford Line (MFL)	Subway	49,822	58,421	54,865	65,517	66,971	-6.1%	19.4%	2.2%
Regional Rail	Rail	34,514	42,892	49,355	57,475	50,367	15.1%	16.5%	-12.4%
<b>TOTAL</b>		192,896	217,131	223,873	239,994	217,502	3.1%	7.2%	-9.4%

Source: DVRPC, 2023

NOTE: The transit operators occasionally modify their routes. New routes are added, old routes are discontinued, and the stops or timetables of existing routes may be changed. Empty cells in Tables 2, 7, 12, and 17 for previous years indicates that a particular route did not exist before Fall 2019. For example, SEPTA Bus Route 49 in Table 2 started service on February 25, 2019<sup>4</sup>, and did not exist in earlier editions of the Travel Trends report.

<sup>4</sup> PhillyVoice. SEPTA's brand-new Route 49 bus. February 25, 2019. [www.phillyvoice.com/photos-septas-brand-new-route-49-bus](http://www.phillyvoice.com/photos-septas-brand-new-route-49-bus)

**Table 3: Daily Pedestrian Trips Crossing the North Screenline**

Street	Pedestrians			Percentage Change	
	2010	2015	Fall 2019	2010 to 2015	2015 to 2019
Columbus Blvd	821	1,209	1,993	47.3%	64.8%
Front Street	176	419	240	138.1%	-42.7%
2 <sup>nd</sup> Street	518	507	331	-2.1%	-34.7%
3 <sup>rd</sup> Street	669	711	388	6.3%	-45.4%
4 <sup>th</sup> Street	463	706	1,169	52.5%	65.6%
5 <sup>th</sup> Street	196	172	150	-12.2%	-12.8%
6 <sup>th</sup> Street	237	274	368	15.6%	34.3%
7 <sup>th</sup> Street	395	388	231	-1.8%	-40.5%
8 <sup>th</sup> Street	772	571	179	-26.0%	-68.7%
9 <sup>th</sup> Street	315	215	153	-31.7%	-28.8%
Ridge Ave	694	767	303	10.5%	-60.5%
10 <sup>th</sup> Street	1,039	1,021	4,174	-1.7%	308.8%
11 <sup>th</sup> Street	857	567	814	-33.8%	43.6%
12 <sup>th</sup> Street	923	1,143	629	23.8%	-45.0%
13 <sup>th</sup> Street	787	1,037	1,521	31.8%	46.7%
Broad Street	2,495	2,120	1,653	-15.0%	-22.0%
15 <sup>th</sup> Street	1,436	1,232	2,344	-14.2%	90.3%
16 <sup>th</sup> Street	1,765	934	1,625	-47.1%	74.0%
17 <sup>th</sup> Street	1,389	1,327	1,617	-4.5%	21.9%
18 <sup>th</sup> Street	1,381	9,961	811	621.3%	-91.9%
19 <sup>th</sup> Street	1,232	2,773	1,408	125.1%	-49.2%
20 <sup>th</sup> Street	2,382	4,069	3,545	70.8%	-12.9%
21 <sup>st</sup> Street	1,557	1,895	1,460	21.7%	-23.0%
Benjamin Franklin Pkwy	1,121	8,051	1,325	618.2%	-83.5%
22 <sup>nd</sup> Street	1,259	1,230	2,710	-2.3%	120.3%
<b>TOTAL</b>	<b>24,879</b>	<b>43,299</b>	<b>31,141</b>	<b>74.0%</b>	<b>-28.1%</b>

Source: DVRPC, 2023

**Table 4:** Daily Bicycle Trips Crossing the North Screenline

Street	Bicyclists			Percentage Change	
	2010	2015	Fall 2019	2010 to 2015	2015 to 2019
<b>Columbus Blvd</b>	133	290	179	118.0%	-38.3%
<b>Front Street</b>	4	9	15	125.0%	66.7%
<b>2<sup>nd</sup> Street</b>	55	127	48	130.9%	-62.2%
<b>3<sup>rd</sup> Street</b>	277	199	113	-28.2%	-43.2%
<b>4<sup>th</sup> Street</b>	101	162	66	60.4%	-59.3%
<b>5<sup>th</sup> Street</b>	149	34	100	-77.2%	194.1%
<b>6<sup>th</sup> Street</b>	122	270	134	121.3%	-50.4%
<b>7<sup>th</sup> Street</b>	125	81	69	-35.2%	-14.8%
<b>8<sup>th</sup> Street</b>	61	44	114	-27.9%	159.1%
<b>9<sup>th</sup> Street</b>	21	16	18	-23.8%	12.5%
<b>Ridge Ave</b>	90	108	98	20.0%	-9.3%
<b>10<sup>th</sup> Street</b>	119	153	153	28.6%	0.0%
<b>11<sup>th</sup> Street</b>	11	161	175	1363.6%	8.7%
<b>12<sup>th</sup> Street</b>	67	194	232	189.6%	19.6%
<b>13<sup>th</sup> Street</b>	87	200	260	129.9%	30.0%
<b>Broad Street</b>	292	175	304	-40.1%	73.7%
<b>15<sup>th</sup> Street</b>	261	115	137	-55.9%	19.1%
<b>16<sup>th</sup> Street</b>	90	86	148	-4.4%	72.1%
<b>17<sup>th</sup> Street</b>	12	132	132	1000.0%	0.0%
<b>18<sup>th</sup> Street</b>	29	86	134	196.6%	55.8%
<b>19<sup>th</sup> Street</b>	156	117	238	-25.0%	103.4%
<b>20<sup>th</sup> Street</b>	81	214	203	164.2%	-5.1%
<b>21<sup>st</sup> Street</b>	116	162	259	39.7%	59.9%
<b>Benjamin Franklin Pkwy</b>	135	549	353	306.7%	-35.7%
<b>22<sup>nd</sup> Street</b>	81	192	324	137.0%	68.8%
<b>TOTAL</b>	2,675	3,876	4,006	44.9%	3.4%

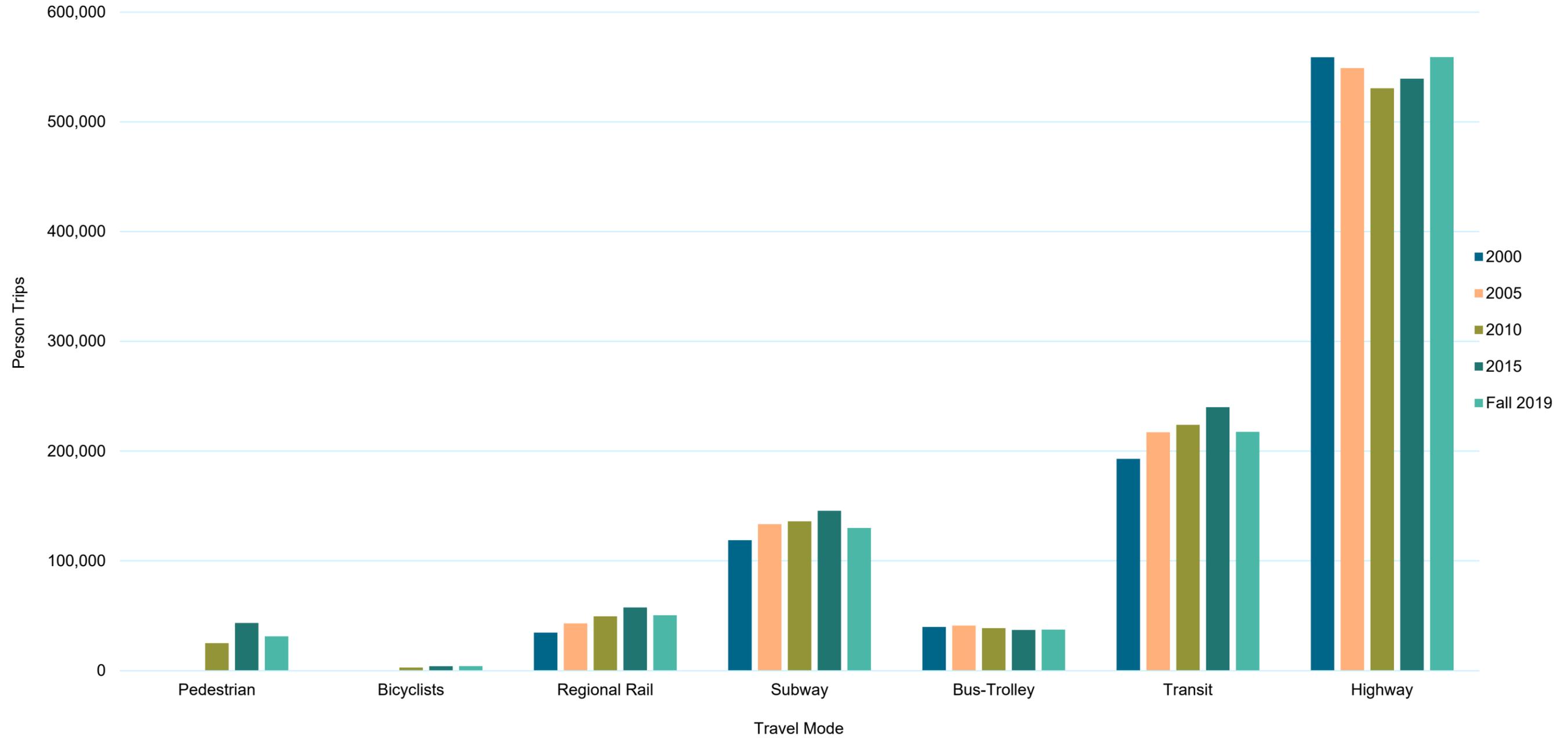
Source: DVRPC, 2023

**Table 5:** 2000 to Fall 2019 Summary for the North Screenline

	Daily Person Trips					Average Annual Growth			
	2000	2005	2010	2015	Fall 2019	2000 to 2005	2005 to 2010	2010 to 2015	2015 to 2019
<b>Pedestrians</b>			24,881	43,299	31,141			11.7%	-6.4%
<b>Bicyclists</b>			2,675	3,876	4,006			7.7%	0.7%
<b>Regional Rail</b>	34,514	42,892	49,355	57,475	50,367	4.4%	2.8%	3.1%	-2.6%
<b>Subway</b>	118,733	133,361	135,958	145,588	129,875	2.4%	0.4%	1.4%	-2.3%
<b>Bus-Trolley</b>	39,649	40,878	38,560	36,931	37,260	0.6%	-1.2%	-0.9%	0.2%
<b>Total Transit</b>	192,896	217,131	223,873	239,994	217,502	2.4%	0.6%	1.4%	-1.9%
<b>Highway</b>	558,881	549,007	530,616	539,312	559,019	-0.4%	-0.7%	0.3%	0.7%
<b>TOTAL w/o Bike and Ped</b>	751,777	766,138	754,489	779,306	776,521	0.4%	-0.3%	0.6%	-0.1%
<b>TOTAL</b>			782,045	826,481	811,668			1.1%	-0.4%

Source: DVRPC, 2023

Figure 7: 2000 to Fall 2019 Summary for the North Screenline



Source: DVRPC, 2023

## South Screenline

The South Screenline runs along South Street, from where it crosses the Schuylkill River in the west, to where it would cross the Delaware River in the east, if it was extended an additional 580 feet beyond the intersection with Front Street. This screenline monitors the flow of trips between the densely packed residential neighborhoods of South Philadelphia and Center City.

**Table 6** displays the daily traffic volumes for the twenty-nine roads crossing the South Screenline. The total volume decreased from 310,492 vpd in 2015 to 259,332 vpd in the Fall of 2019 (-16.5 percent). Traffic volumes are lower on every street crossing this screenline except Broad Street, 22<sup>nd</sup> Street, and Gray's Ferry Avenue. The largest decline occurred on I-95 which had a daily volume of 156,200 in 2015, and 129,861 in Fall 2019, a decrease of 26,339 vpd (-16.9 percent). One contributing factor for this decrease may have been disruptions related to construction work that occurred on several sections of I-95 between 2015 and Fall 2019. Many drivers may have chosen alternative routes to avoid construction delays.

Daily transit passengers crossing the South Screenline are shown in **Table 7**. The total number of transit passengers declined by 12,242 passengers per day between 2015 and 2020 (-17.9 percent). The largest decline was observed on the Broad Street Subway line, which had daily ridership of 36,133 in 2015, and 26,737 in Fall 2019, a decline of 9,336 passengers (-26.0 percent). On the other hand, a few bus routes experienced slight increases in ridership. Most notably, SEPTA Route 2, a north-south route running on 16<sup>th</sup> and 17<sup>th</sup> streets, saw an increase of 211 passengers per day (+11.1 percent).

Conversely, the South Screenline has the greatest number of pedestrians crossing it every day (53,886), and these trips are shown by street in **Table 8**. Pedestrian trips increased by 9,276 trips per day, which is a 20.8 percent increase between 2015 and Fall 2019. The highest pedestrian volumes were observed on Broad Street (4,500), 3<sup>rd</sup> Street (4,030), 7<sup>th</sup> Street (3,851), and Gray's Ferry Avenue (2,864).

The South Screenline also has the greatest number of bicycle trips (8,347) as shown in **Table 9**. Bicycle trips decreased from 10,400 daily trips in 2015 to 8,350 trips in Fall of 2019 (-19.8 percent). The streets with the highest daily bike volumes are 22<sup>nd</sup> Street (660), Broad Street (553), 21<sup>st</sup> Street (526), and 10<sup>th</sup> Street (451).

The disparity between decreases in vehicle, transit, and bicycle trips compared to an increase in pedestrian trips may be attributed in part to the walkability of the South Screenline border itself, as South Street is a lively hub with well-maintained sidewalks and robust mixed-use developments. Furthermore, between 2015 and 2019, population in Center City went up and employment fell, while the opposite effect occurred in South Philadelphia – population decreased while employment rose by over 11,000<sup>5</sup>. It is plausible therefore that residents of Center City found jobs on the other side of the screenline and found it easiest to walk to and from work. However, this is just one hypothesis, and future studies may investigate this effect further.

**Table 10** and **Figure 8** summarize the travel trends between 2000 and the Fall of 2019 for the South Screenline.

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<sup>5</sup> Delaware Valley Regional Planning Commission. *Population and Employment Forecasts 2015-2050*. November 2022. <https://www.dvrpc.org/products/adr21014>

Table 6: Daily Highway Vehicle Trips Crossing the South Screenline

Street	Average Daily Traffic					Percentage Change		
	2000	2005	2010	2015	Fall 2019	2005 to 2010	2010 to 2015	2015 to 2019
27 <sup>th</sup> Street / Schuylkill Ave	3,823	2,647	5,226	8,733	7,100	97.4%	67.1%	-18.7%
Taney Street	177	178	59	979	271	-66.9%	1559.3%	-72.3%
26 <sup>th</sup> Street	212	132	58	194	125	-56.1%	234.5%	-35.6%
24 <sup>th</sup> Street	1,653	1,858	1,924	2,339	1,167	3.6%	21.6%	-50.1%
Gray's Ferry Ave	2,868	3,261	2,429	2,727	2,795	-25.5%	12.3%	2.5%
22 <sup>nd</sup> Street	5,459	6,324	6,603	6,395	6,749	4.4%	-3.2%	5.5%
21 <sup>st</sup> Street	6,002	5,293	4,159	5,164	4,136	-21.4%	24.2%	-19.9%
20 <sup>th</sup> Street	4,910	5,037	3,878	4,036	3,794	-23.0%	4.1%	-6.0%
19 <sup>th</sup> Street	3,038	2,866	3,073	3,152	2,295	7.2%	2.6%	-27.2%
18 <sup>th</sup> Street	5,015	4,220	3,821	4,073	4,034	-9.5%	6.6%	-1.0%
17 <sup>th</sup> Street	5,125	4,028	3,831	3,944	3,075	-4.9%	2.9%	-22.0%
16 <sup>th</sup> Street	5,852	4,479	4,798	4,213	3,677	7.1%	-12.2%	-12.7%
15 <sup>th</sup> Street	6,183	3,225	3,374	3,313	2,485	4.6%	-1.8%	-25.0%
Broad Street	23,912	24,575	17,504	22,065	24,325	-28.8%	26.1%	10.2%
13 <sup>th</sup> Street	3,890	3,503	3,248	3,413	2,794	-7.3%	5.1%	-18.1%
12 <sup>th</sup> Street	4,418	3,816	3,640	3,675	3,630	-4.6%	1.0%	-1.2%
11 <sup>th</sup> Street	4,696	4,263	3,920	4,187	3,192	-8.0%	6.8%	-23.8%
10 <sup>th</sup> Street	6,167	4,225	3,493	4,121	3,058	-17.3%	18.0%	-25.8%
9 <sup>th</sup> Street	5,544	4,305	2,587	5,190	2,846	-39.9%	100.6%	-45.2%
8 <sup>th</sup> Street	4,800	4,784	3,758	6,749	3,531	-21.4%	79.6%	-47.7%
7 <sup>th</sup> Street	4,855	4,061	3,407	5,920	2,808	-16.1%	73.8%	-52.6%
6 <sup>th</sup> Street	4,311	4,609	3,831	4,048	3,525	-16.9%	5.7%	-12.9%
5 <sup>th</sup> Street	6,615	5,666	4,580	4,006	3,738	-19.2%	-12.5%	-6.7%
4 <sup>th</sup> Street	6,555	4,407	3,447	3,664	3,098	-21.8%	6.3%	-15.4%
3 <sup>rd</sup> Street	7,003	5,065	3,460	5,018	2,816	-31.7%	45.0%	-43.9%
2 <sup>nd</sup> Street	7,276	4,272	3,180	3,821	2,342	-25.6%	20.2%	-38.7%
Front Street	3,746	4,825	3,614	4,973	4,462	-25.1%	37.6%	-10.3%
I-95	118,393	157,292	113,873	156,200	129,861	-12.1%	37.2%	-16.9%
Columbus Blvd	24,793	31,368	18,917	24,180	21,603	-39.7%	27.8%	-10.7%
<b>TOTAL</b>	<b>287,291</b>	<b>286,890</b>	<b>239,692</b>	<b>310,492</b>	<b>259,332</b>	<b>-16.5%</b>	<b>29.5%</b>	<b>-16.5%</b>

Source: DVRPC, 2023

**Table 7: Daily Public Transit Trips Crossing the South Screenline**

Route	Type	Passengers					Percentage Change		
		2000	2005	2010	2015	Fall 2019	2005 to 2010	2010 to 2015	2015 to 2019
<b>2</b>	Bus	2,000	2,040	2,044	1,897	2,108	0.2%	-7.2%	11.1%
<b>C (4,16)</b>	Bus	2,187	2,294	1,871	1,872	1,854	-18.4%	0.1%	-1.0%
<b>7, 12</b>	Bus	3,215	3,295	3,334	3,336	2,930	1.2%	0.1%	-12.2%
<b>17</b>	Bus	6,686	7,081	7,978	7,630	5,547	12.7%	-4.4%	-27.3%
<b>23</b>	Bus	2,884	4,140	4,949	4,702		19.5%	-5.0%	
<b>25</b>	Bus	158	386	644	659	612	66.8%	2.3%	-7.1%
<b>27, 32</b>	Bus	672	831	1,182	1,447	1,369	42.2%	22.4%	-5.4%
<b>45</b>	Bus					4,042			
<b>47</b>	Bus	4,585	6,271	5,643	5,044	5,253	-10.0%	-10.6%	4.1%
<b>47m</b>	Bus	814	540	486	1,400	558	-10.0%	188.1%	-60.1%
<b>57</b>	Bus	3,654	3,543	3,354	3,277	3,521	-5.3%	-2.3%	7.4%
<b>Navy Yard Express</b>	Bus				1,000	1,000			0.0%
<b>Broad Street Owl (BSO)</b>	Bus					624			
<b>Broad Street Line (BSL)</b>	Subway	25,251	28,837	34,699	36,133	26,737	20.3%	4.1%	-26.0%
<b>TOTAL</b>		52,106	59,258	66,184	68,397	56,155	11.7%	3.3%	-17.9%

Source: DVRPC, 2023

Table 8: Daily Pedestrian Trips Crossing the South Screenline

Street	Pedestrians			Percentage Change	
	2010	2015	Fall 2019	2010 to 2015	2015 to 2019
Schuylkill Ave	195	397	269	103.6%	-32.2%
27 <sup>th</sup> Street	226	192	287	-15.0%	49.5%
Taney Street	153	262	199	71.2%	-24.0%
26 <sup>th</sup> Street	172	182	189	5.8%	3.8%
24 <sup>th</sup> Street	792	742	1,000	-6.3%	34.8%
Gray's Ferry Ave	2,020	1,561	2,864	-22.7%	83.5%
22 <sup>nd</sup> Street	1,959	2,096	2,589	7.0%	23.5%
21 <sup>st</sup> Street	1,726	1,908	1,784	10.5%	-6.5%
20 <sup>th</sup> Street	1,995	1,444	1,795	-27.6%	24.3%
19 <sup>th</sup> Street	1,718	2,178	2,053	26.8%	-5.7%
18 <sup>th</sup> Street	1,975	1,801	2,863	-8.8%	59.0%
17 <sup>th</sup> Street	1,789	1,820	1,215	1.7%	-33.2%
16 <sup>th</sup> Street	1,600	1,446	1,333	-9.6%	-7.8%
15 <sup>th</sup> Street	1,840	1,616	1,471	-12.2%	-9.0%
Broad Street	4,687	2,838	4,500	-39.4%	58.6%
13 <sup>th</sup> Street	1,081	1,382	1,065	27.8%	-22.9%
12 <sup>th</sup> Street	1,405	1,051	1,120	-25.2%	6.6%
11 <sup>th</sup> Street	1,862	1,501	1,724	-19.4%	14.9%
10 <sup>th</sup> Street	2,509	1,862	2,055	-25.8%	10.4%
9 <sup>th</sup> Street	3,399	2,588	2,620	-23.9%	1.2%
8 <sup>th</sup> Street	2,254	1,519	1,456	-32.6%	-4.1%
7 <sup>th</sup> Street	2,194	1,143	3,851	-47.9%	236.9%
6 <sup>th</sup> Street	1,772	1,177	1,348	-33.6%	14.5%
5 <sup>th</sup> Street	2,501	2,028	2,169	-18.9%	7.0%
4 <sup>th</sup> Street	5,358	3,882	2,594	-27.5%	-33.2%
3 <sup>rd</sup> Street	2,850	2,296	4,030	-19.4%	73.5%
2 <sup>nd</sup> Street	2,618	1,898	1,672	-27.5%	-11.9%
Front Street	1,062	907	1,331	-14.6%	46.7%
Columbus Blvd	582	843	2,390	44.8%	183.5%
<b>TOTAL</b>	<b>54,294</b>	<b>44,560</b>	<b>53,836</b>	<b>-17.9%</b>	<b>20.8%</b>

Source: DVRPC, 2023

**Table 9: Daily Bicycle Trips Crossing the South Screenline**

Street	Bicyclists			Percentage Change	
	2010	2015	Fall 2019	2010 to 2015	2015 to 2019
Schuylkill Ave	7	43	56	514.3%	30.2%
27 <sup>th</sup> Street	14	140	125	900.0%	-10.7%
Taney Street	6	21	20	250.0%	-4.8%
26 <sup>th</sup> Street	8	15	226	87.5%	1406.7%
24 <sup>th</sup> Street	94	142	105	51.1%	-26.1%
Gray's Ferry Ave	125	297	227	137.6%	-23.6%
22 <sup>nd</sup> Street	478	676	660	41.4%	-2.4%
21 <sup>st</sup> Street	204	531	526	160.3%	-0.9%
20 <sup>th</sup> Street	228	306	252	34.2%	-17.6%
19 <sup>th</sup> Street	215	348	349	61.9%	0.3%
18 <sup>th</sup> Street	176	401	313	127.8%	-21.9%
17 <sup>th</sup> Street	209	321	357	53.6%	11.2%
16 <sup>th</sup> Street	313	367	243	17.3%	-33.8%
15 <sup>th</sup> Street	185	388	343	109.7%	-11.6%
Broad Street Northbound	450	304	286	-32.4%	-5.9%
Broad Street Southbound	237	349	267	47.3%	-23.5%
13 <sup>th</sup> Street	243	412	400	69.5%	-2.9%
12 <sup>th</sup> Street	56	308	238	450.0%	-22.7%
11 <sup>th</sup> Street	277	510	443	84.1%	-13.1%
10 <sup>th</sup> Street	364	636	451	74.7%	-29.1%
9 <sup>th</sup> Street	7	500	244	7042.9%	-51.2%
8 <sup>th</sup> Street	304	483	244	58.9%	-49.5%
7 <sup>th</sup> Street	236	488	308	106.8%	-36.9%
6 <sup>th</sup> Street	277	462	270	66.8%	-41.6%
5 <sup>th</sup> Street	193	461	331	138.9%	-28.2%
4 <sup>th</sup> Street	312	535	197	71.5%	-63.2%
3 <sup>rd</sup> Street	300	365	147	21.7%	-59.7%
2 <sup>nd</sup> Street	154	192	340	24.7%	77.1%
Front Street	102	175	148	71.6%	-15.4%
Columbus Blvd Northbound	118	111	108	-5.9%	-2.7%
Columbus Blvd Southbound	52	117	123	125.0%	5.1%
<b>TOTAL</b>	<b>5,944</b>	<b>10,404</b>	<b>8,347</b>	<b>75.0%</b>	<b>-19.8%</b>

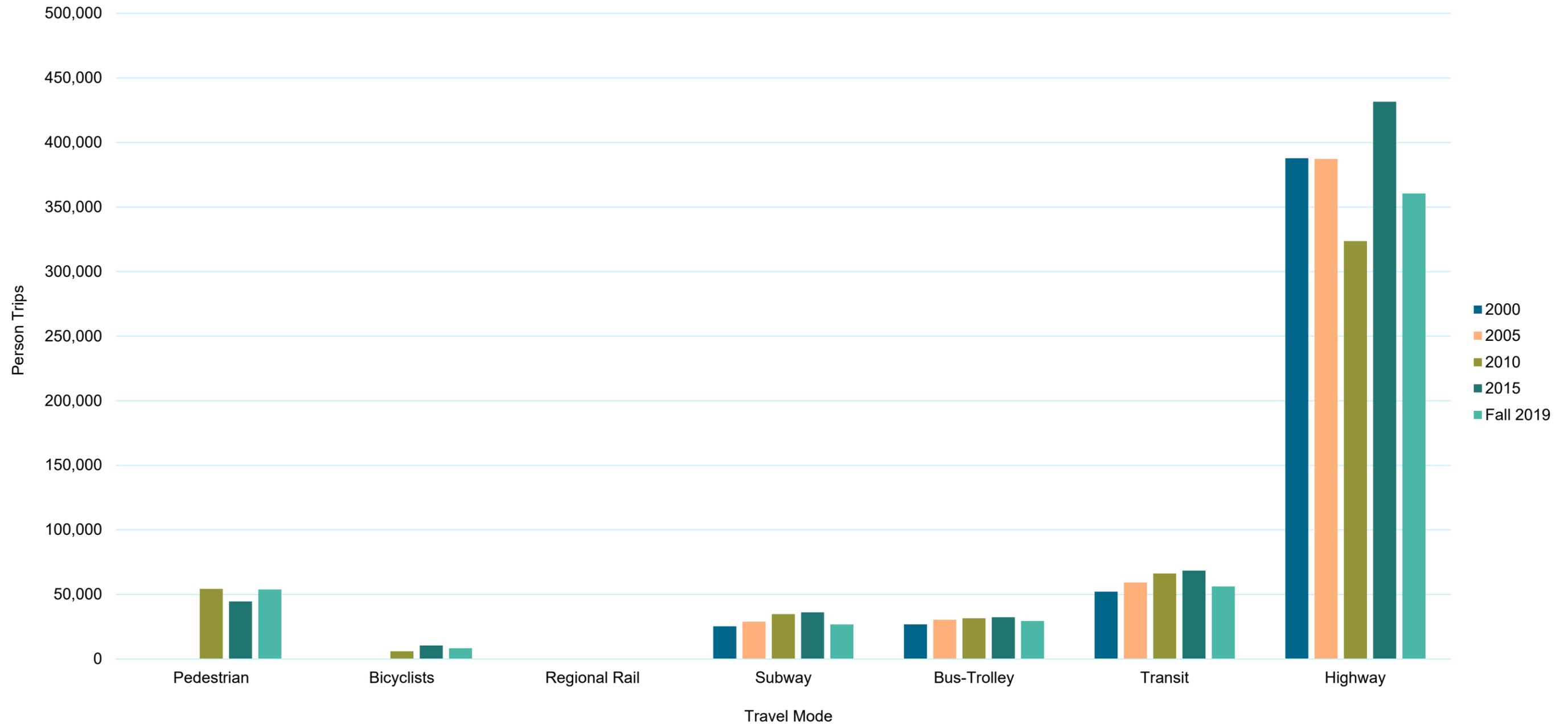
Source: DVRPC, 2023

**Table 10:** 2000 to Fall 2019 Summary for the South Screenline

	Daily Person Trips					Average Annual Growth			
	2000	2005	2010	2015	Fall 2019	2000 to 2005	2005 to 2010	2010 to 2015	2015 to 2019
<b>Pedestrians</b>			54,294	44,560	53,836			-3.9%	3.9%
<b>Bicyclists</b>			5,944	10,404	8,347			11.8%	-4.3%
<b>Regional Rail</b>									
<b>Subway</b>	25,251	28,837	34,699	36,133	26,737	2.7%	3.8%	0.8%	-5.8%
<b>Bus-Trolley</b>	26,855	30,421	31,485	32,264	29,418	2.5%	0.7%	0.5%	-2.5%
<b>Transit</b>	52,106	59,258	66,184	68,397	56,155	2.6%	2.2%	0.7%	-4.2%
<b>Highway</b>	387,843	387,302	323,584	431,584	360,471	0.0%	-3.5%	5.9%	-3.5%
<b>TOTAL w/o Bike and Ped</b>	439,949	446,560	389,768	499,981	416,626	0.3%	-2.7%	5.1%	-3.6%
<b>TOTAL</b>			450,006	554,945	478,809			4.3%	-2.9%

Source: DVRPC, 2023

**Figure 8:** 2000 to Fall 2019 Summary for the South Screenline



Source: DVRPC, 2023

## East Screenline

The Ben Franklin Bridge (I-676) provides the only entry into Center City from east of the Delaware River (New Jersey) for autos, public transit passengers, bicyclists, and pedestrians. The bridge opened in 1926 and carries vehicles, the PATCO rail line, buses operated by NJ Transit, bicyclists, and pedestrians. The Delaware River Port Authority (DRPA) supplied ridership counts for PATCO and NJ Transit supplied ridership counts for their buses.

With only a single road, the East Screenline has the lowest number of trips crossing it every day. [Tables 11, 12, 13 and 14](#) show the vehicle trips, public transit ridership, pedestrian trips, and bicycle trips respectively crossing this screenline. Between 2015 and the Fall of 2019, vehicle trips crossing the bridge increased from 96,389 vpd to 105,000 vpd (+8.9 percent). The Ben Franklin Bridge is one of the few locations where pre-COVID vehicle counts from the Fall of 2019, during COVID-19 data from mid-2020, and post-COVID data from 2021 is available. The data shows a decrease of 23,550 vpd (-22.4 percent) between the Fall of 2019 and mid-2020, during COVID-19. Between 2020 and 2021, as the region started to recover from the pandemic, there was an increase of 16,170 vpd (+19.9 percent), although the 2021 count is still well below the pre-COVID count from the Fall of 2019.

[Table 15](#) and [Figure 9](#) summarize the travel trends between 2000 and the Fall 2019 for the East Screenline.

**Table 11: Daily Highway Vehicle Trips Crossing the East Screenline**

Street	Average Daily Traffic							Percentage Change				
	2000	2005	2010	2015	Fall 2019	2020	2021	2005 to 2010	2010 to 2015	2015 to Fall 2019	Fall 2019 to 2020	2020 to 2021
<b>Ben Franklin Bridge (I-676)</b>	98,734	102,670	101,342	96,389	105,000	81,450	97,620	-1.3%	-4.9%	8.9%	-22.4%	19.9%
<b>TOTAL</b>												

Source: DVRPC, 2023

**Table 12: Daily Public Transit Trips Crossing the East Screenline**

Transit Agency	Type	Passengers					Percentage Change		
		2000	2005	2010	2015	Fall 2019	2005 to 2010	2010 to 2015	2015 to 2019
<b>New Jersey Transit Bus</b>	Bus	6,395	6,756	6,562	4,142	2,808	-2.9%	-36.9%	-32.2%
<b>PATCO</b>	Rail	33,234	33,920	31,590	31,053	32,394	-6.9%	-1.7%	4.3%
<b>TOTAL</b>		39,629	40,676	38,152	35,195	35,202	-6.2%	-7.8%	0.0%

Source: DVRPC, 2023

**Table 13: Daily Pedestrian Trips Crossing the East Screenline**

Street	Pedestrians			Percentage Change	
	2010	2015	Fall 2019	2010 to 2015	2015 to 2019
<b>Ben Franklin Bridge</b>	739	816	652	10.4%	-20.1%
<b>TOTAL</b>	739	816	652	10.4%	-20.1%

Source: DVRPC, 2023

**Table 14:** Daily Bicycle Trips Crossing the East Screenline

Street	Bicyclists			Percentage Change	
	2010	2015	Fall 2019	2010 to 2015	2015 to 2019
Ben Franklin Bridge	232	177	150	-23.7%	-15.3%
<b>TOTAL</b>	232	177	150	-23.7%	-15.3%

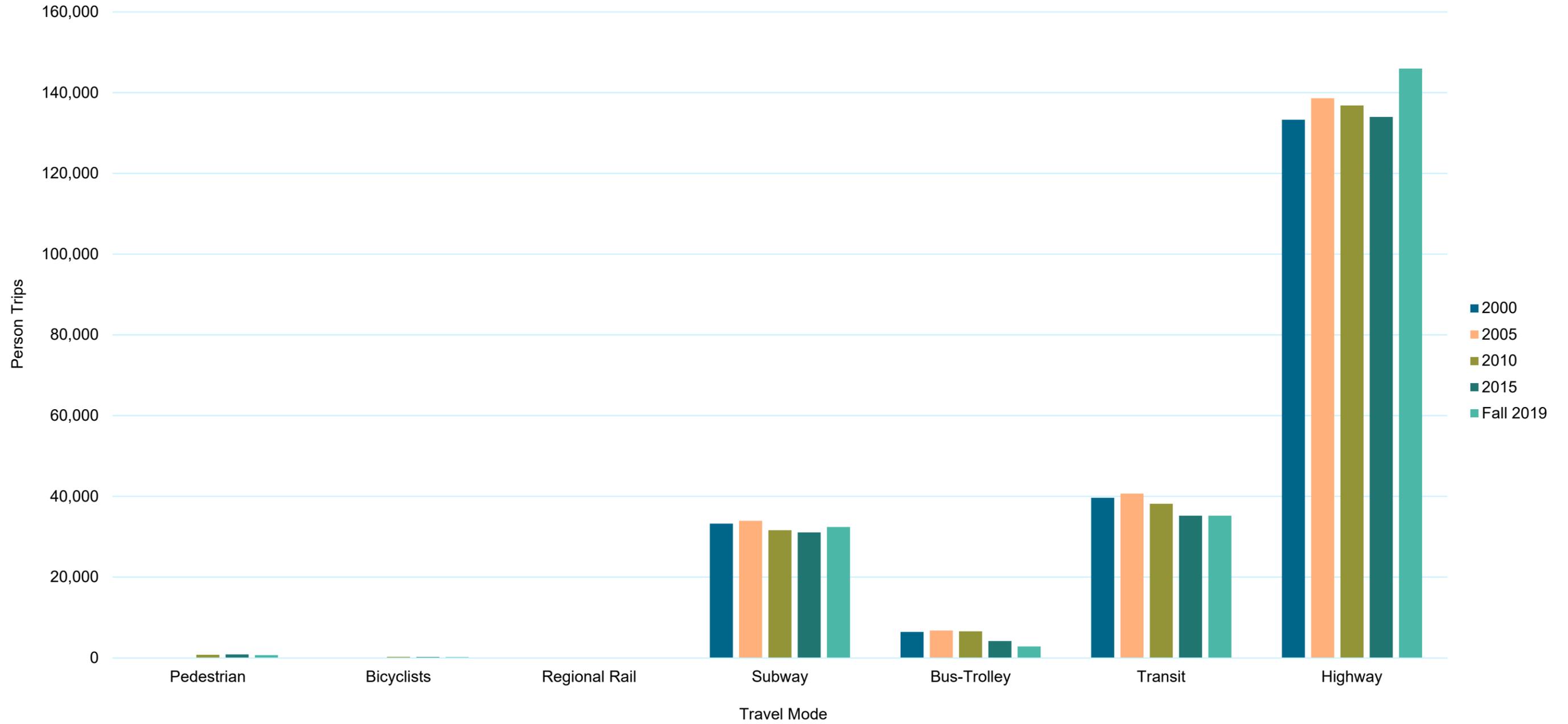
Source: DVRPC, 2023

**Table 15:** 2000 to Fall 2019 Summary for the East Screenline

	Daily Person Trips					Average Annual Growth			
	2000	2005	2010	2015	Fall 2019	2000 to 2005	2005 to 2010	2010 to 2015	2015 to 2019
<b>Pedestrians</b>			739	816	652			2.0%	-4.4%
<b>Bicyclists</b>			232	177	150			-5.3%	-3.3%
<b>Regional Rail</b>									
<b>Subway / PATCO</b>	33,234	33,920	31,590	31,053	32,394	0.4%	-1.4%	-0.3%	0.8%
<b>Bus-Trolley</b>	6,395	6,756	6,562	4,142	2,808	1.1%	-0.6%	-8.8%	-7.5%
<b>Transit</b>	39,629	40,676	38,152	35,195	35,202	0.5%	-1.3%	-1.6%	0.0%
<b>Highway</b>	133,291	138,605	136,812	133,981	145,950	0.8%	-0.3%	-0.4%	1.7%
<b>TOTAL w/o Bike and Ped</b>	172,920	179,281	174,964	169,176	181,152	0.7%	-0.5%	-0.7%	1.4%
<b>TOTAL</b>			175,935	170,169	181,954			-0.7%	1.3%

Source: DVRPC, 2023

**Figure 9:** 2000 to Fall 2019 Summary for the East Screenline



Source: DVRPC, 2023

## West Screenline

The section of the Schuylkill River comprising the West Screenline is crossed by five bridges, an interstate highway, SEPTA's regional rail Center City trunk line, the Market-Frankford subway, and five trolley routes. This screenline monitors the flow of trips between Center City and the neighborhoods of West Philadelphia.

Highway traffic crossing this screenline was counted at the bridges. The Airport, Chestnut Hill West, Cynwyd, Lansdale-Doylestown, Media, Paoli-Thorndale, and Wilmington-Newark Regional Rail lines were counted by train conductors west of 30<sup>th</sup> Street Station. The conductor counts were then adjusted by boardings and alightings at 30<sup>th</sup> Street to derive the number of passengers crossing the screenline. The Market-Frankford subway and trolleys share a station at 30<sup>th</sup> Street, and this is where ridership data for these routes was collected. Bus patronage was tallied at the last stop prior to crossing the river for both inbound and outbound service.

Daily vehicle trips crossing the West Screenline are shown in [Table 16](#). The Chestnut Street bridge was closed for construction between 2015 and 2020. The bridge closure combined with lower volumes on I-676 and South Street resulted in an 19,328 vpd decrease (-10.6 percent) in vehicle traffic crossing the West Screenline.

[Table 17](#) shows the public transit ridership crossing the West Screenline. As with the North Screenline, most passengers (89.1 percent) crossing the West Screenline are riding the subway (MFL), Regional Rail, and trolleys. Total ridership including the bus routes declined by 11,983 passengers per day (-5.9 percent).

Pedestrian trips crossing the West Screenline are shown in [Table 18](#), and bike trips are shown in [Table 19](#). There were 8,420 fewer pedestrian trips crossing the bridges between 2015 and Fall 2019 (-41.8 percent). But there was an increase of 470 bike trips per day (+12.2 percent). Most of the increase in bike trips occurred on the South Street Bridge, which is used by members of the University of Pennsylvania community traveling to and from campus and the medical buildings.

[Table 20](#) and [Figure 10](#) summarize the travel trends between 2000 and the Fall of 2019 for the West Screenline.

**Table 16:** Daily Highway Vehicle Trips Crossing the West Screenline

Street	Average Daily Traffic					Percentage Change		
	2000	2005	2010	2015	Fall 2019	2005 to 2010	2010 to 2015	2015 to 2019
<b>I-676</b>	127,658	134,643	111,705	110,780	98,763	-17.0%	-24.1%	-10.8%
<b>John F. Kennedy Blvd</b>	13,618	14,392	11,102	12,530	14,886	-22.9%	22.8%	18.8%
<b>Market Street</b>	22,617	19,142	15,676	13,968	21,059	-18.1%	-7.8%	50.8%
<b>Chestnut Street</b>	14,151	14,036	13,076	10,466	closed	-6.8%	-13.4%	
<b>Walnut Street</b>	19,104	17,345	14,978	13,086	13,348	-13.6%	-4.5%	2.0%
<b>South Street</b>	22,791	19,341	20,416	21,499	14,945	5.6%	6.1%	-30.5%
<b>TOTAL</b>	219,939	218,899	186,953	182,329	163,001	-14.6%	-14.3%	-4.9%

Source: DVRPC, 2023

**Table 17:** Daily Public Transit Trips Crossing the West Screenline

Route	Type	Passengers					Percentage Change		
		2000	2005	2010	2015	Fall 2019	2005 to 2010	2010 to 2015	2015 to 2019
<b>9, 21, 42</b>	Bus	11,743	14,420	10,776	10,896	9,287	-25.3%	1.1%	-14.8%
<b>12, 40</b>	Bus	1,612	1,796	1,886	2,598	3,077	5.0%	37.8%	18.4%
<b>27</b>	Bus	2,205	2,473	2,469	2,701	2,190	-0.2%	9.4%	-18.9%
<b>31, 62, 124, 125</b>	Bus	2,890	2,517	2,435	3,348	2,524	-3.3%	37.5%	-24.6%
<b>44, 121</b>	Bus	2,740	2,487	2,536	2,326	1,740	2.0%	-8.3%	-25.2%
<b>78</b>	Bus				169	57			-66.3%
<b>49</b>	Bus					1,134			
<b>Market-Frankford Owl</b>	Bus					742			
<b>Trolley</b>	Trolley	29,928	33,070	32,205	39,243	33,157	-2.6%	21.9%	-15.5%
<b>Market-Frankford Line (MFL)</b>	Subway	63,486	67,999	69,536	81,100	81,309	2.3%	16.6%	0.3%
<b>Regional Rail</b>	Rail	42,788	44,499	51,744	60,401	55,582	16.3%	16.7%	-8.0%
<b>TOTAL</b>		157,392	169,261	173,587	202,782	190,799	2.6%	16.8%	-5.9%

Source: DVRPC, 2023

**Table 18:** Daily Pedestrian Trips Crossing the West Screenline

Street	Pedestrians			Percentage Change	
	2010	2015	Fall 2019	2010 to 2015	2015 to 2019
John F. Kennedy Blvd	1,788	2,216	1,453	23.9%	-34.4%
Market Street	4,163	5,364	2,828	28.8%	-47.3%
Chestnut Street	1,690	3,568	closed	111.1%	
Walnut Street	4,058	6,529	3,670	60.9%	-43.8%
South Street	1,796	2,490	3,796	38.6%	52.4%
<b>TOTAL</b>	13,495	20,167	11,747	49.4%	-41.8%

Source: DVRPC, 2023

**Table 19:** Daily Bicycle Trips Crossing the West Screenline

Street	Bicyclists			Percentage Change	
	2010	2015	Fall 2019	2010 to 2015	2015 to 2019
John F. Kennedy Blvd	7	59	47	742.9%	-20.3%
Market Street	197	399	614	102.5%	53.9%
Chestnut Street	447	444	closed	-0.7%	
Walnut Street	577	831	696	44.0%	-16.2%
South Street	1,359	2,105	2,951	54.9%	40.2%
<b>TOTAL</b>	2,587	3,838	4,308	48.4%	12.2%

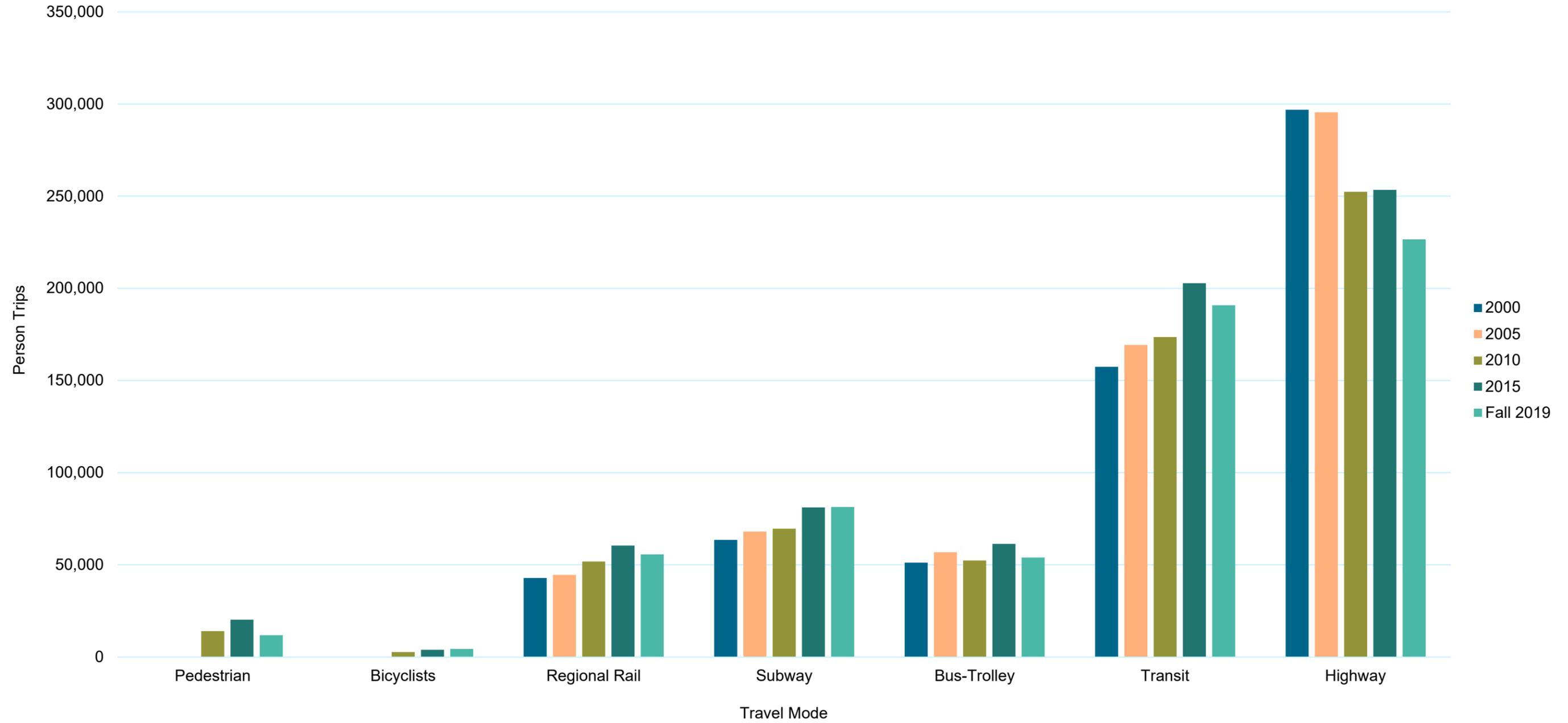
Source: DVRPC, 2023

**Table 20:** 2000 to Fall 2019 Summary for the West Screenline

	Daily Person Trips					Average Annual Growth			
	2000	2005	2010	2015	Fall 2019	2000 to 2005	2005 to 2010	2010 to 2015	2015 to 2019
<b>Pedestrians</b>			13,945	20,167	11,747			7.7%	-10.2%
<b>Bicyclists</b>			2,587	3,838	4,308			8.2%	2.3%
<b>Regional Rail</b>	42,788	44,499	51,744	60,401	55,582	0.8%	3.1%	3.1%	-1.6%
<b>Subway</b>	63,486	67,999	69,536	81,100	81,309	1.4%	0.4%	3.1%	0.1%
<b>Bus-Trolley</b>	51,118	56,763	52,307	61,281	53,908	2.1%	-1.6%	3.2%	-2.5%
<b>Transit</b>	157,392	169,261	173,587	202,782	190,799	1.5%	0.5%	3.2%	-1.2%
<b>Highway</b>	296,918	295,514	252,388	253,437	226,571	-0.1%	-3.1%	0.1%	-2.2%
<b>TOTAL w/o Bike and Ped</b>	454,310	464,775	425,975	456,219	417,370	0.5%	-1.7%	1.4%	-1.8%
<b>TOTAL</b>			442,507	480,224	433,425			1.6%	-2.0%

Source: DVRPC, 2023

Figure 10: 2000 to Fall 2019 Summary for West Screenline



Source: DVRPC, 2023

## Total Cordon Line Travel Volume

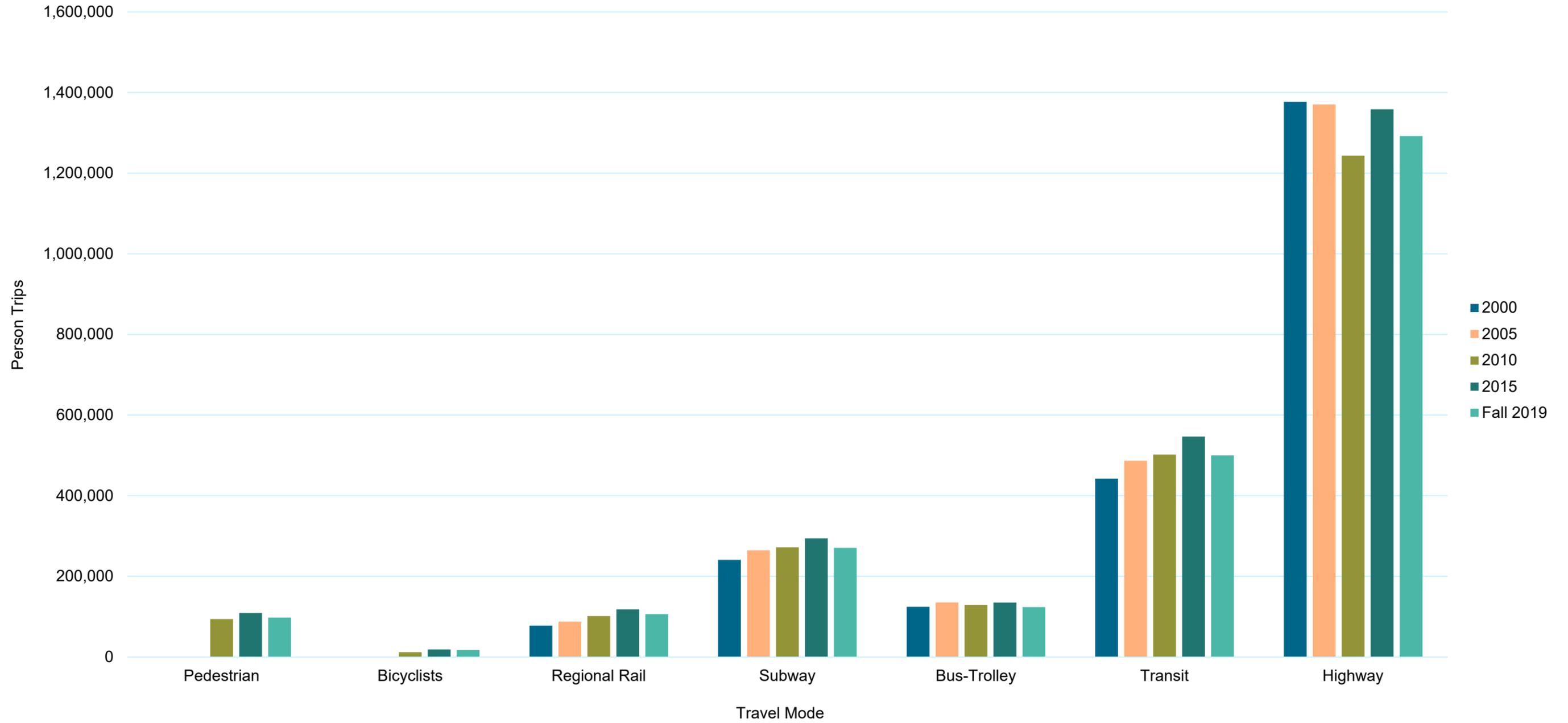
The total highway, public transit, pedestrian, and bicycle person trips crossing the Center City Cordon in the Fall of 2019 were tabulated and compared to the same data from 2000, 2005, 2010, and 2015, and are shown in [Figure 11](#) and [Table 21](#).

Overall travel to/from Center City declined by 125,963 person trips per day between 2015 and Fall of 2019 (-6.20 percent). Three of the four screenlines experienced a decrease. The South screenline declined by 76,136 person trips per day (-13.72 percent), the West screenline decreased by 46,799 (-9.75 percent), and the North decreased by 14,813 (-1.79 percent). The East screenline (the Ben Franklin Bridge) was the only one to increase, by 11,785 person trips per day (+6.93 percent).

In terms of the percentage change in travel mode, vehicle trips declined the least (-4.88 percent) and pedestrian trips declined the most (-10.53 percent). But in terms of change in the actual number of trips, vehicle trips dropped the greatest amount (66,303 person trips per day) and bicycle trips decreased the least (1,484 person trips per day). Actual mode shares did not change between 2015 and Fall of 2019. Pedestrian trips declined from 5.4 percent of all person trips to 5.1 percent. Bicycle trips remained the same at 0.9 percent. Transit trips declined from 26.9 percent to 26.2 percent, and highway trips increased from 66.9 percent to 67.8 percent. [Figure 12](#) charts the change in mode split from 2010 to 2015 and then from 2015 to the Fall of 2019.

There are inherent fluctuations in this type of data, from day to day, from month to month, and from year to year, which can obscure the longer-term trends. Despite the decreases between 2015 and the Fall of 2019, the trend over the last ten years, since the end of the Great Recession are positive for every screenline except the West, as shown in [Figures 13 – 17](#). Likewise, the trends for all modes except public transit are positive, between 2010 and 2020, as shown in [Figures 18 – 21](#). The solid lines in the figures represent actual data, and the dashed lines are a linear regression trend line.

Figure 11: Summary of Trends



Source: DVRPC, 2023

**Table 21:** Summary of Trends in Weekday Person Trips Crossing the Center City Cordon

	Daily Person Trips					Average Annual Growth			
	2000	2005	2010	2015	Fall 2019	2000 to 2005	2005 to 2010	2010 to 2015	2015 to 2020
<b>Pedestrians</b>			93,859	108,842	97,376			3.0%	-2.2%
<b>Bicyclists</b>			11,438	18,295	16,811			9.8%	-1.7%
<b>Regional Rail</b>	77,302	87,391	101,099	117,876	105,949	2.5%	3.0%	3.1%	-2.1%
<b>Subway</b>	240,704	264,117	271,783	293,874	270,315	1.9%	0.6%	1.6%	-1.7%
<b>Bus-Trolley</b>	124,017	134,818	128,914	134,618	123,394	1.7%	-0.9%	0.9%	-1.9%
<b>Transit</b>	442,023	486,326	501,796	546,368	499,658	1.9%	0.6%	1.7%	-1.8%
<b>Highway</b>	1,376,993	1,370,428	1,243,400	1,358,314	1,292,011	-0.1%	-1.9%	1.8%	-1.0%
<b>TOTAL w/o Bike and Ped</b>	1,818,956	1,856,754	1,745,196	1,904,682	1,791,669	0.4%	-1.2%	1.8%	-1.2%
<b>TOTAL</b>			1,850,493	2,031,819	1,905,856			1.9%	-1.3%

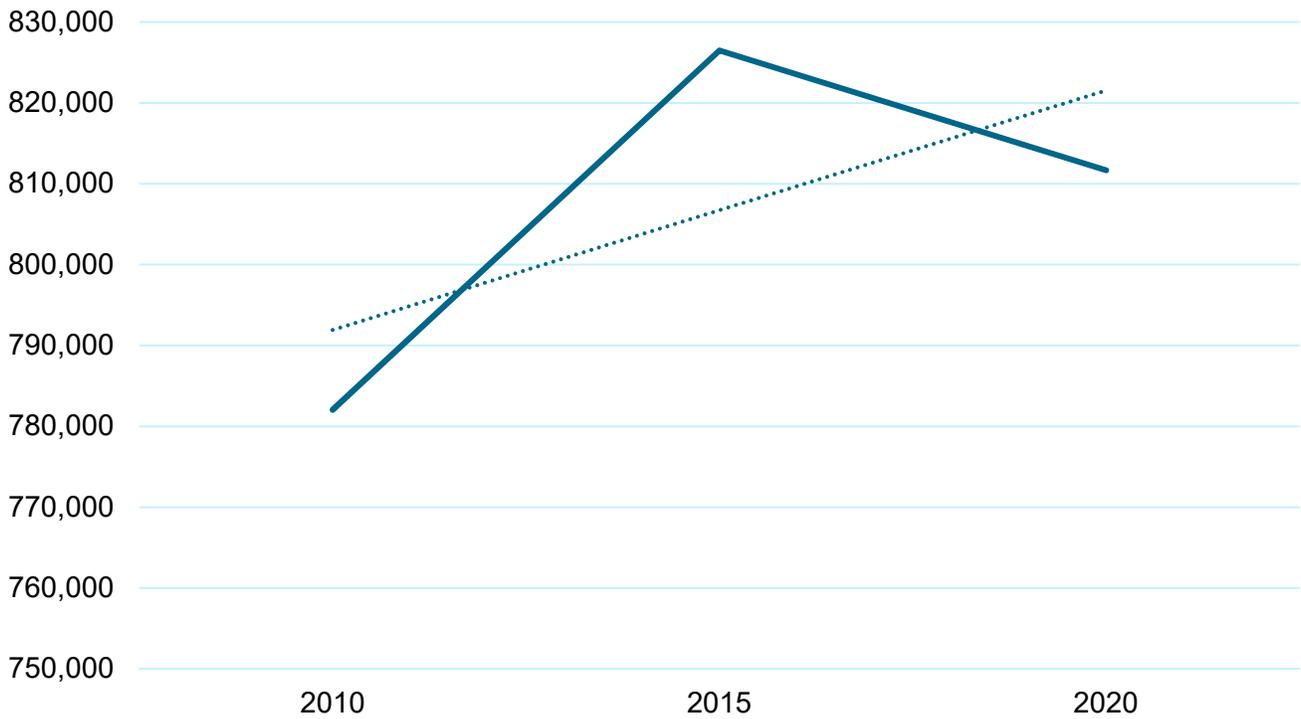
Source: DVRPC, 2023

Figure 12: Change in Mode Split, 2010 to 2015 to Fall 2019



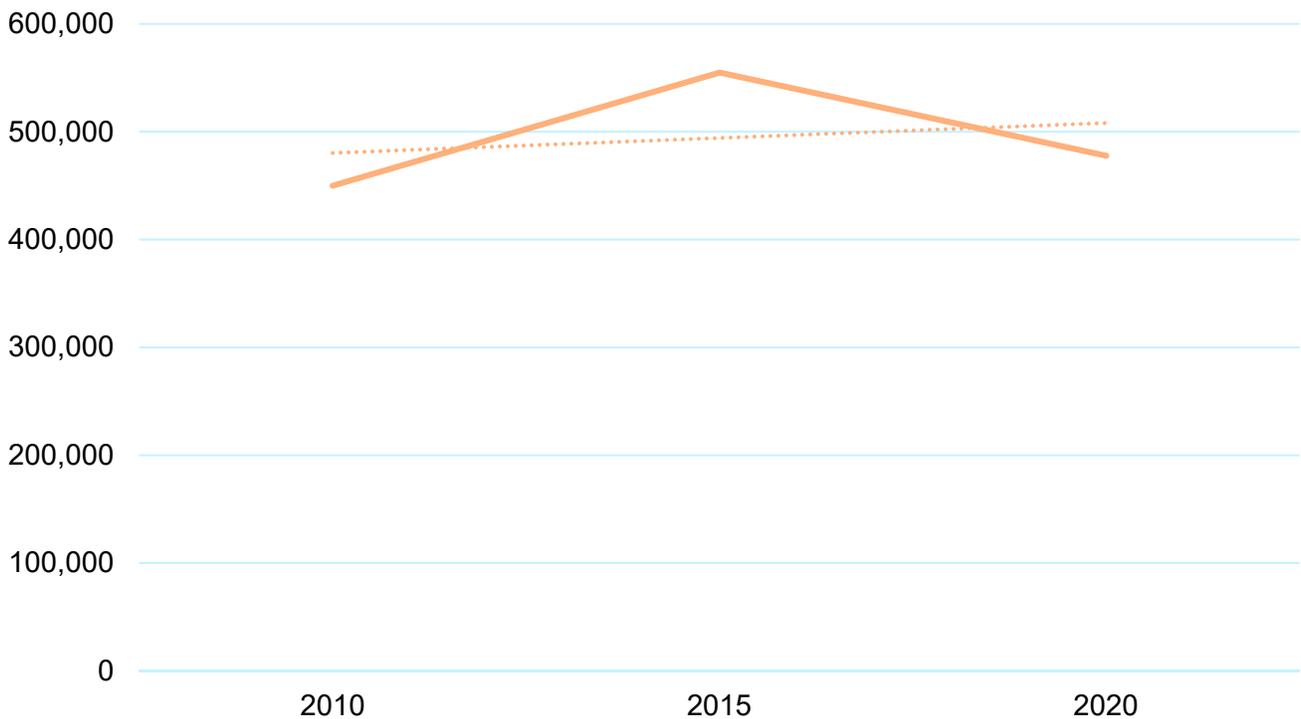
Source: DVRPC, 2023

**Figure 13:** 2010 to Fall 2019 Change in Person Trips Crossing the North Screenline



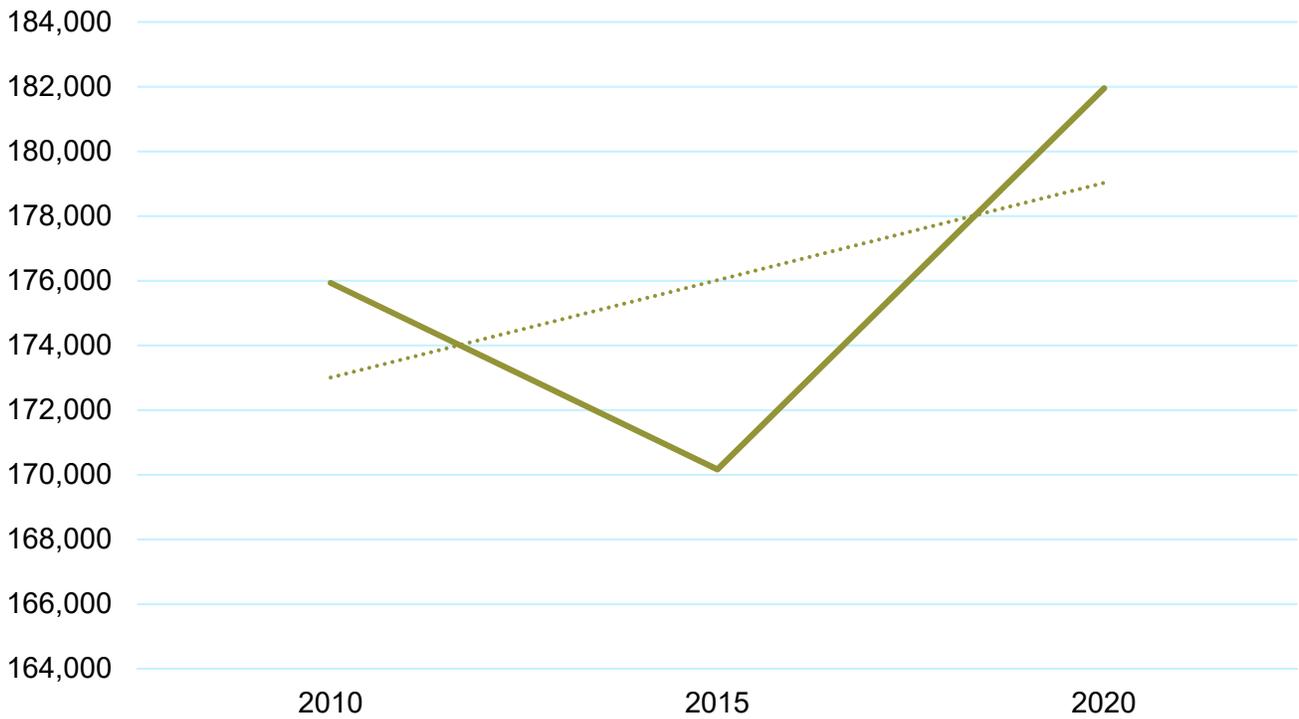
Source: DVRPC, 2023

**Figure 14:** 2010 to Fall 2019 Change in Person Trips Crossing the South Screenline



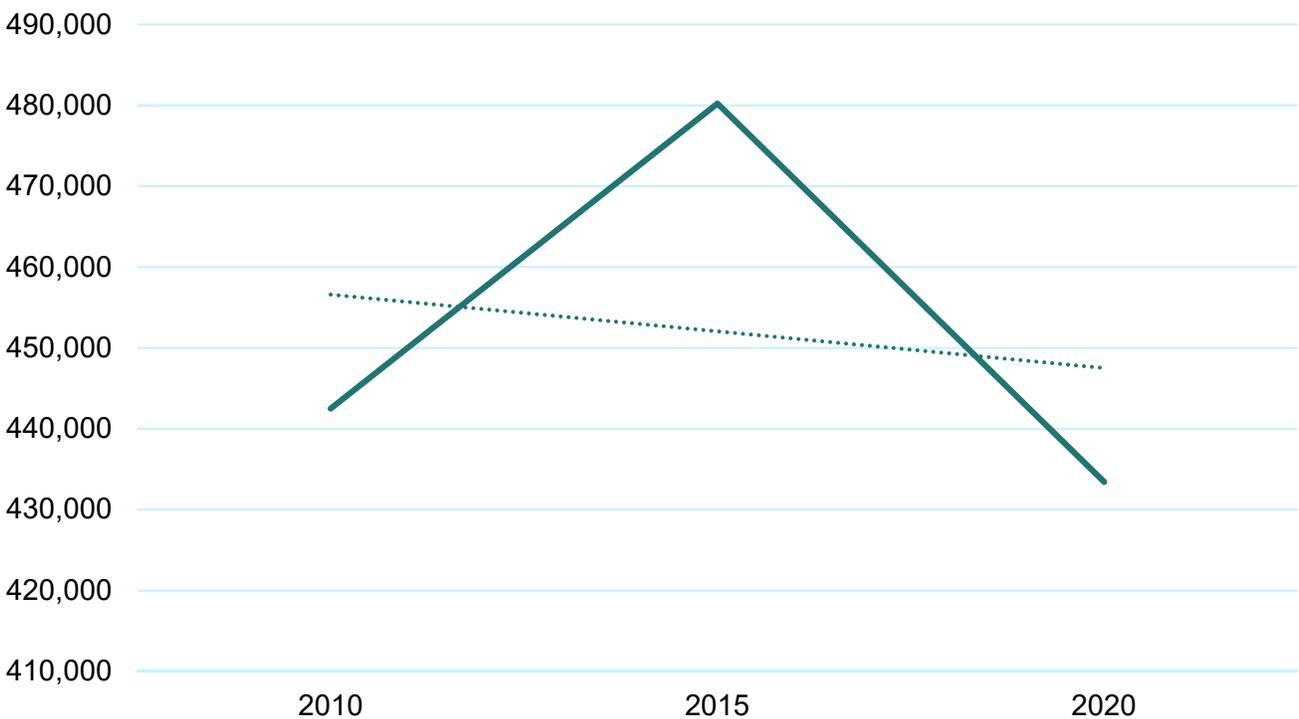
Source: DVRPC, 2023

**Figure 15:** 2010 to Fall 2019 Change in Person Trips Crossing the East Screenline



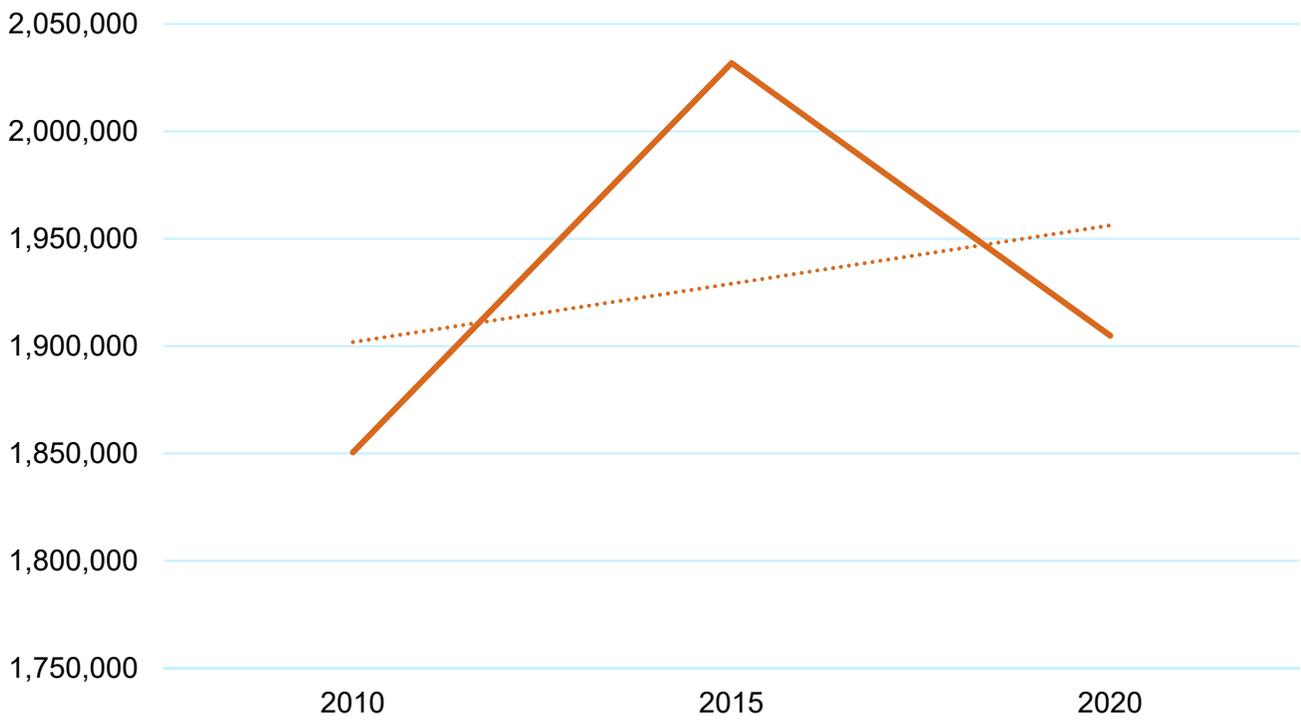
Source: DVRPC, 2023

**Figure 16:** 2010 to Fall 2019 Change in Person Trips Crossing the West Screenline



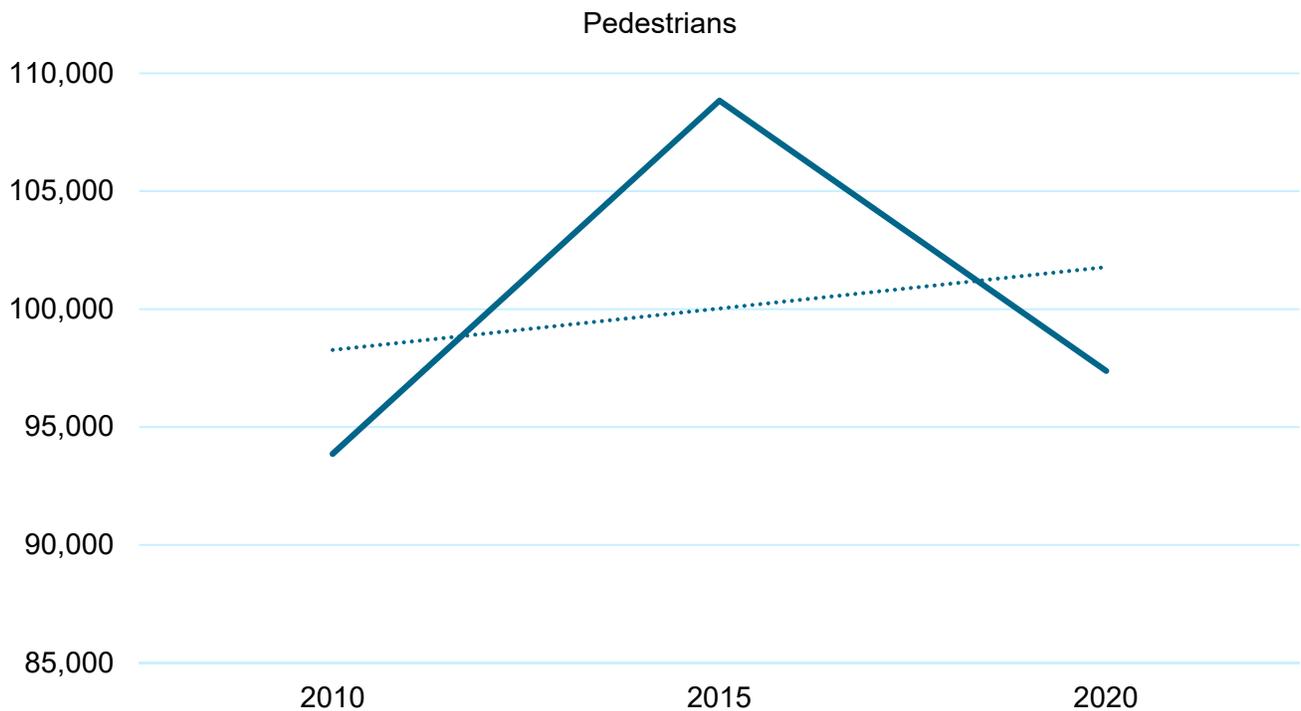
Source: DVRPC, 2023

**Figure 17:** 2010 to Fall 2019 Change in Total Person Trips, Across all Four Screenlines



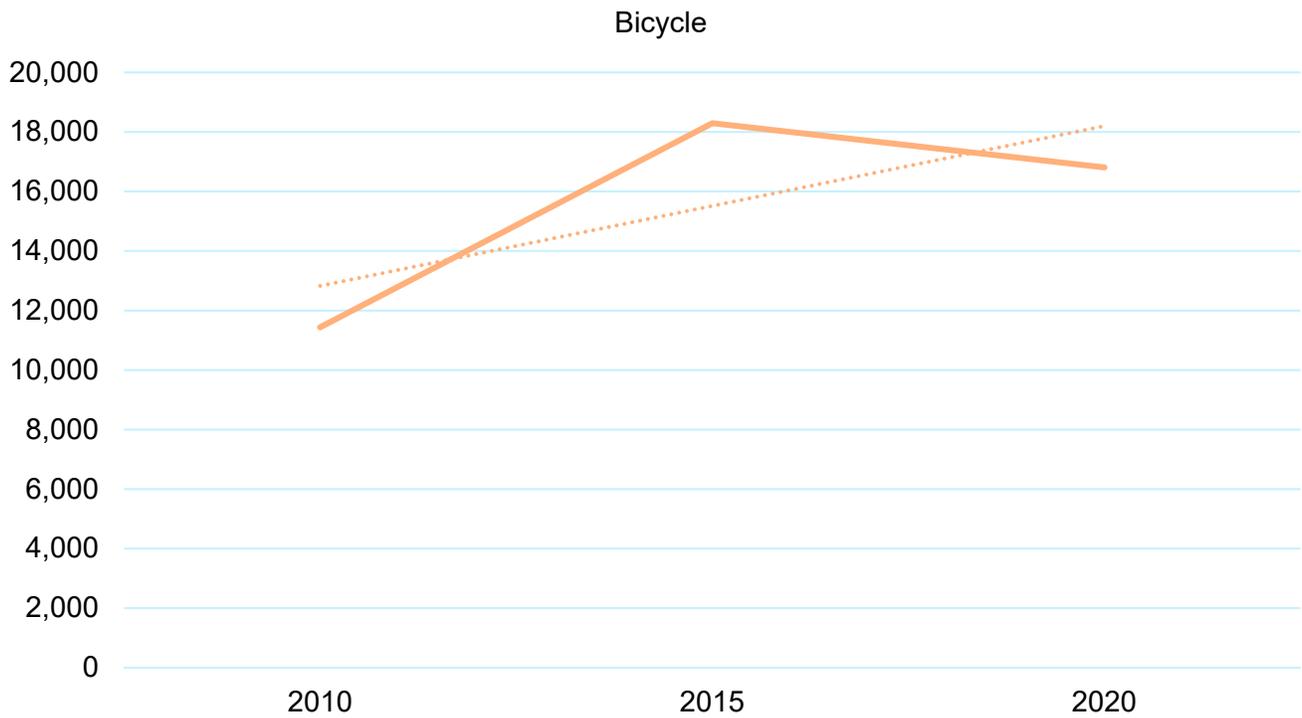
Source: DVRPC, 2023

**Figure 18:** 2010 to Fall 2019 Change in Total Pedestrian Trips to/from Center City



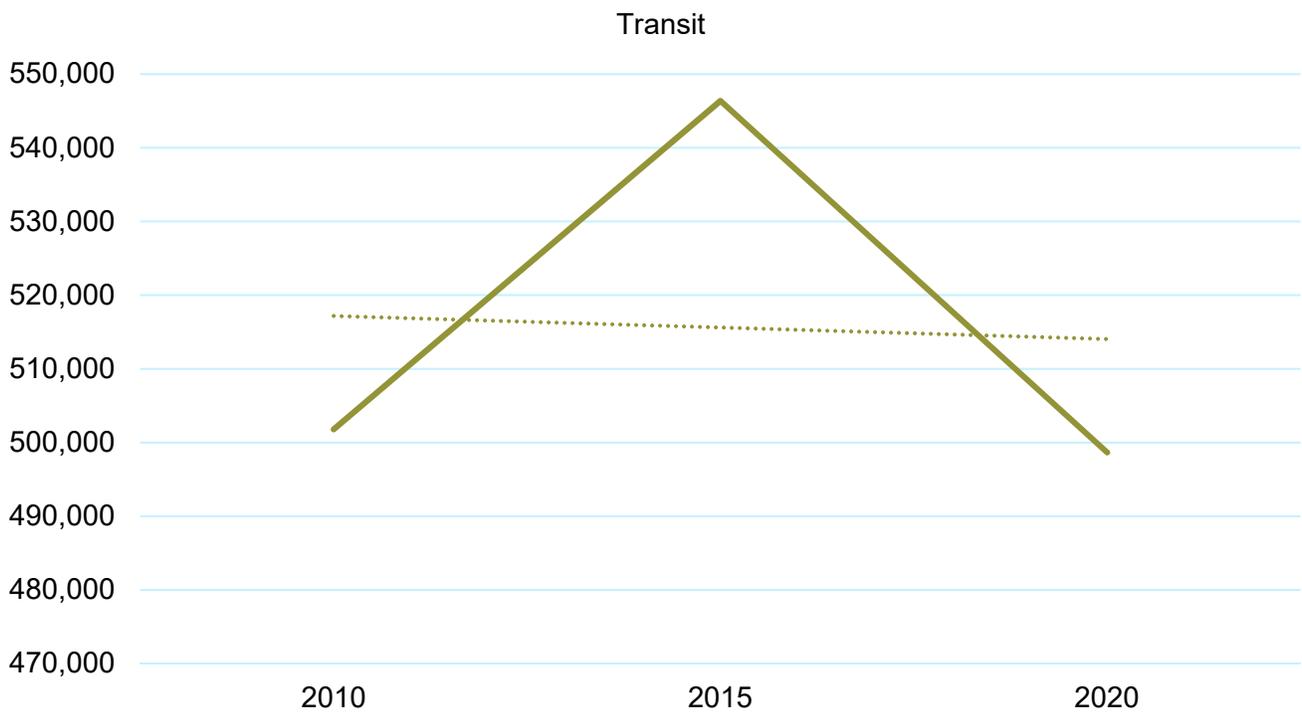
Source: DVRPC, 2023

**Figure 19:** 2010 to Fall 2019 Change in Total Bicycle Trips to/from Center City



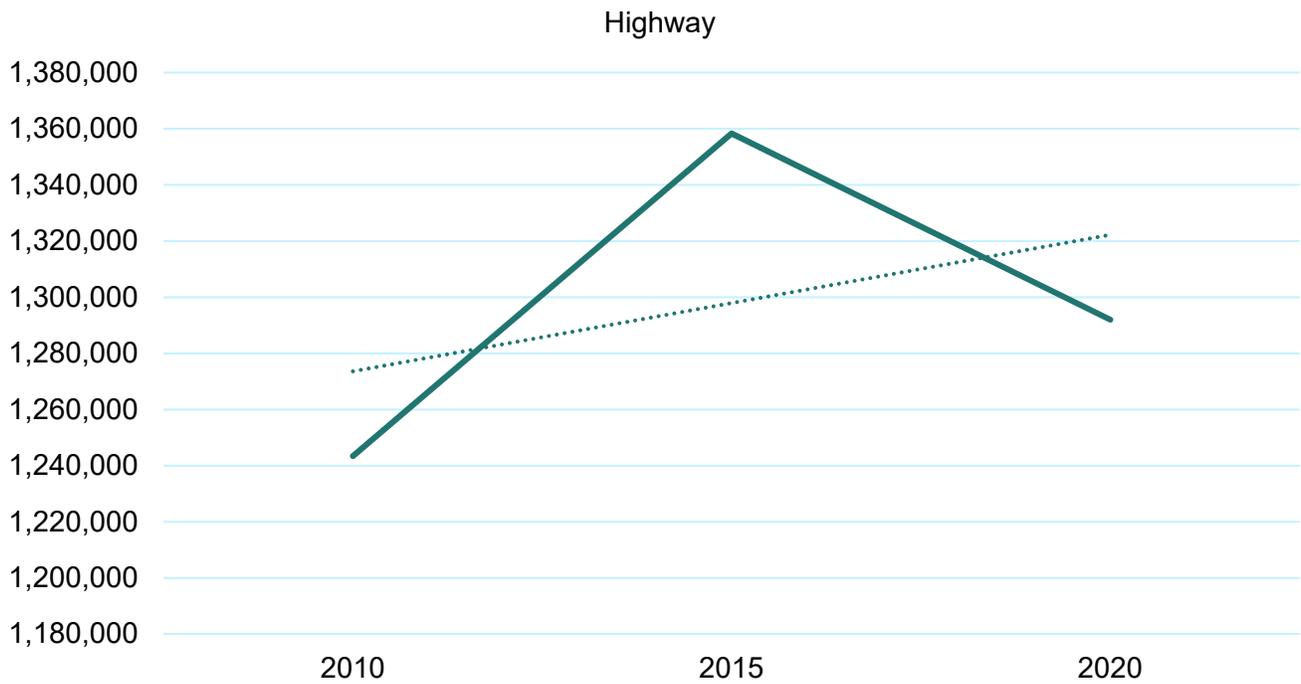
Source: DVRPC, 2023

**Figure 20:** 2010 to Fall 2019 Change in Total Transit Trips to/from Center City



Source: DVRPC, 2023

**Figure 21:** 2010 to Fall 2019 Change in Total Highway Trips to/from Center City



Source: DVRPC, 2023

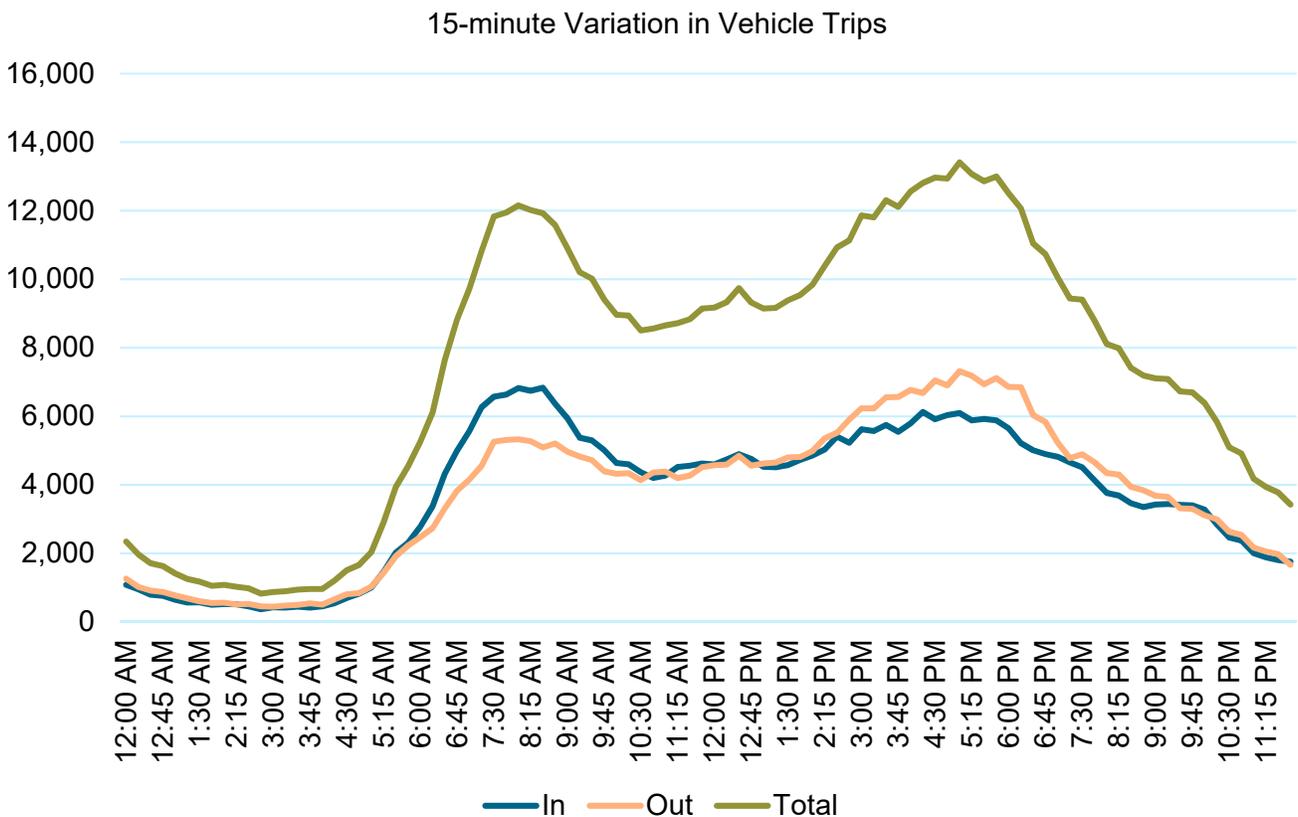
## Time-of-Day Variation in Center City Cordon Line Daily Crossings

Highway, pedestrian, and bicycle counts were collected at 15-minute intervals, and public transit ridership counts were collected at hourly intervals. The data are displayed for an entire day, from 12:00 midnight to 12:00 midnight.

### Fifteen Minute Variation in Highway Traffic

Figure 22 shows the 15-minute variation in highway vehicle trips crossing all four CBD screenlines in Fall 2019. The morning inbound peak hour typically occurs between 7:45 and 8:45 AM, and the afternoon outbound peak hour typically occurs from 5:00 to 6:00 PM. The percentage of daily inbound trips occurring in the AM peak hour, and the percentage of daily outbound trips occurring in the PM peak hour is displayed in Table 22.

Figure 22: Time of Day Variation Highway in Trips



Source: DVRPC, 2023

**Table 22:** Fall 2019 Highway Peak-Hour Vehicle Trips by Direction

	Vehicles per Day	AM Peak Hour	PM Peak Hour	Percentage
<b>Inbound</b>	440,555	32,013		7.27%
<b>Outbound</b>	433,503		32,350	7.46%
<b>TOTAL</b>	874,058			

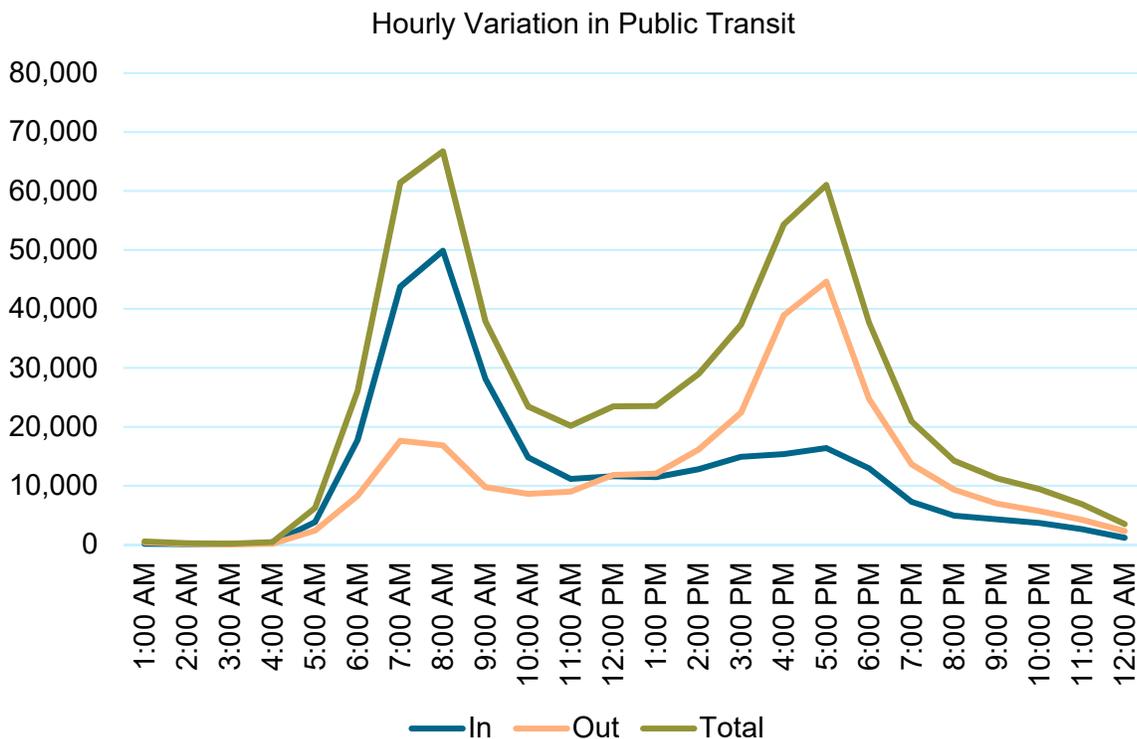
Source: DVRPC, 2023

### Hourly Variation in Public Transportation Ridership

The hourly variation in public transit passenger volumes crossing all four screenlines is displayed in [Figure 23](#). For transit trips, the morning inbound peak hour occurs from 7:00 to 8:00 AM, and the afternoon peak hour occurs from 4:00 to 5:00 PM. The percentage of daily inbound trips occurring in the AM peak hour, and the percentage of daily outbound trips occurring in the PM peak hour is displayed in [Table 23](#).

The transit network and schedules are designed to help people living in the suburbs commute to jobs in Center City, and the ridership data shows this. There are very pronounced AM and PM peaks. During the AM peak hour, 75 percent of all transit trips are in the inbound direction, traveling towards Center City. The flow reverses in the PM peak hour, with 78 percent of all transit trips in the outbound direction.

**Figure 23:** Time of Day Variation in Transit Trips



Source: DVRPC, 2023

**Table 23:** Fall 2019 Public Transit Peak-Hour Person Trips by Direction

	Person Trips per Day	AM Peak Hour	PM Peak Hour	Percentage
<b>Inbound</b>	284,007	49,860		17.56%
<b>Outbound</b>	286,926		44,628	15.55%
<b>TOTAL</b>	570,933			

Source: DVRPC, 2023

### Fifteen Minute Variation in Bicycle and Pedestrian Trips

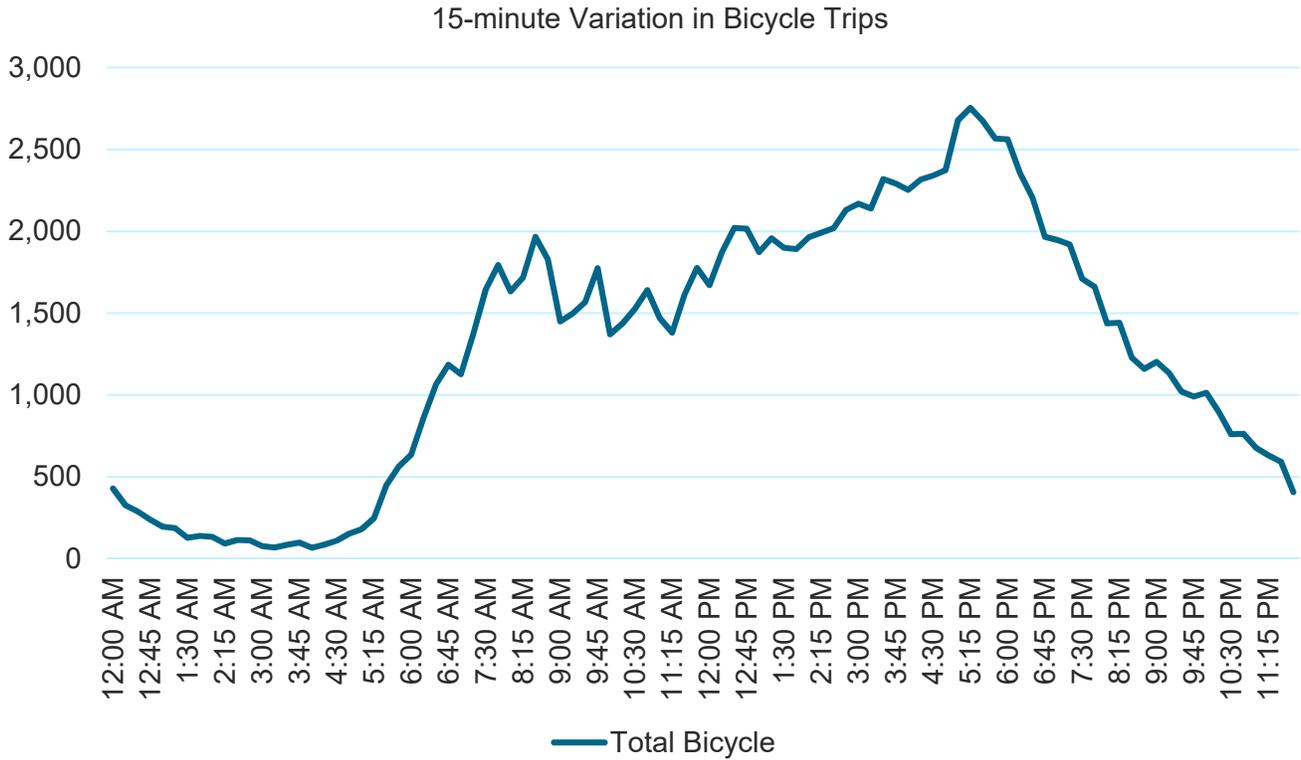
The variation in the flow of bicycle and pedestrian trips to and from Center City across all four screenlines by time of day is displayed in [Figure 24](#), and [Figure 25](#).

The bicycle and pedestrian graphs look very similar, with no clearly discernible AM or PM peak hours. Rather, trips rapidly rise from 5:00 AM to 8:00 AM, then steadily increase throughout the day, peaking at about 5:30 to 6:00 PM, then rapidly declining.

For vehicles (autos, buses, and trucks), it is fairly easy to collect data on the direction (inbound or outbound) of travel. For example, most of the streets crossing the North Screenline are one-way, and the direction of travel for vehicles is very clearly either northbound or southbound. On 18<sup>th</sup> Street, 100 percent of the vehicles are traveling in the northbound (outbound) direction, and on 17<sup>th</sup> Street, 100 percent of the vehicles are traveling southbound (inbound).

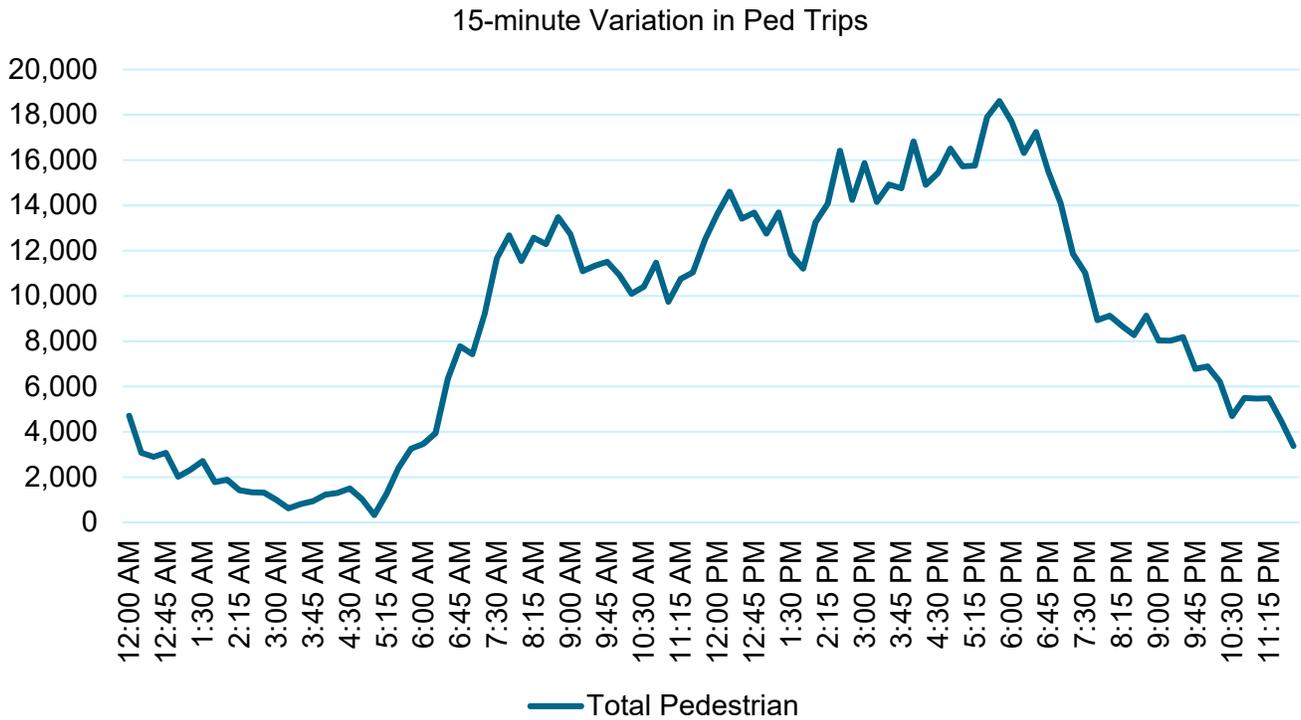
This is not the case with bicyclists and pedestrians; walking or riding on a one-way northbound street does not necessarily mean the bicyclists and pedestrians are traveling in the northbound direction. There are sidewalks on both sides of these streets, and pedestrians travel in both directions on both sides. Bicyclists can be observed riding in the street, both with traffic, as well as riding against the flow of traffic. Due to the complicating factors associated with accurately determining the direction of travel for pedestrians and bicyclists, the time of day distributions shown in [Figure 24](#) and [Figure 25](#) are for the total flow of pedestrians and bicyclists crossing the Center City cordon.

**Figure 24:** Time of Day Variation for Bicycle Trips



Source: DVRPC, 2023

**Figure 25:** Time of Day Variation for Pedestrian Trips

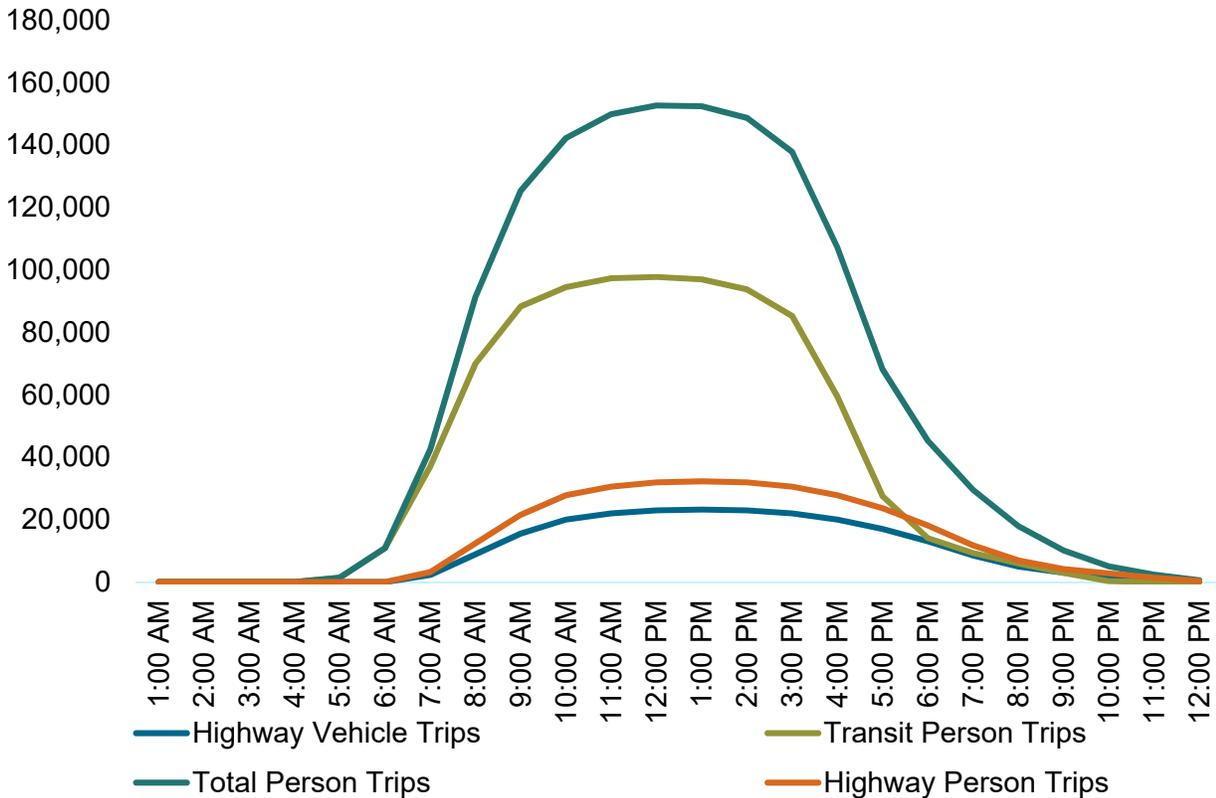


Source: DVRPC, 2023

## Accumulation

The hourly accumulation of highway vehicle and public transit person trips in the Philadelphia CBD is shown in Figure 26. This figure tracks the transient population of vehicles and people in the CBD over the course of an average weekday. On a typical workday, there is a net inflow to downtown during the morning commute, and the total number of people in the CBD increases. These workers stay downtown during the day, then in the afternoon they return home and there is a net outflow from downtown. Table 24 contains the Fall 2019 numerical data for maximum accumulation by vehicle and person trips.

**Figure 26:** Maximum Accumulation in Center City



Source: DVRPC 2023

**Table 24:** Fall 2019 Maximum Accumulation by Vehicle and Person Trips

	Maximum Accumulation
Highway Vehicle Trips	23,226
Highway Person Trips	32,284
Transit Person Trips	97,777
<b>TOTAL</b>	<b>152,747</b>

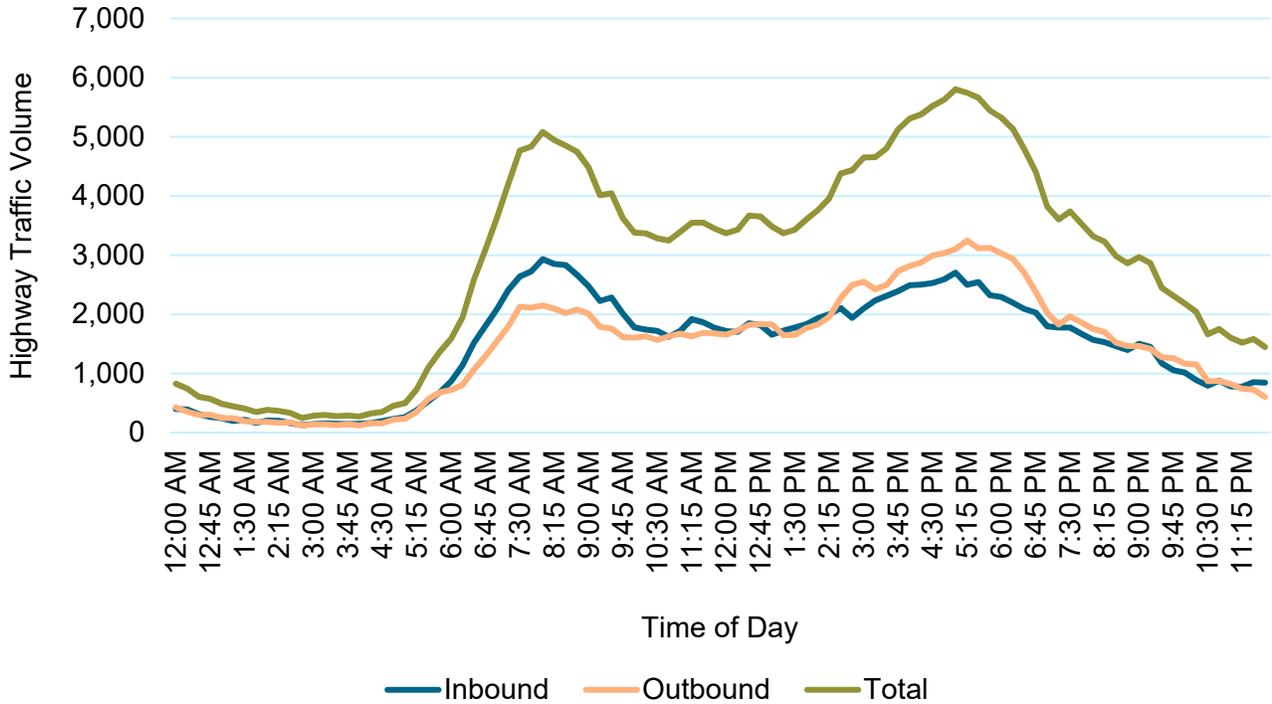
Source: DVRPC, 2023

# Appendices

- A. Time-of-Day Variation for Vehicle Trips
- B. Time-of-Day Variation for Transit Trips
- C. Time-of-Day Variation for Bicycle and Pedestrian Trips

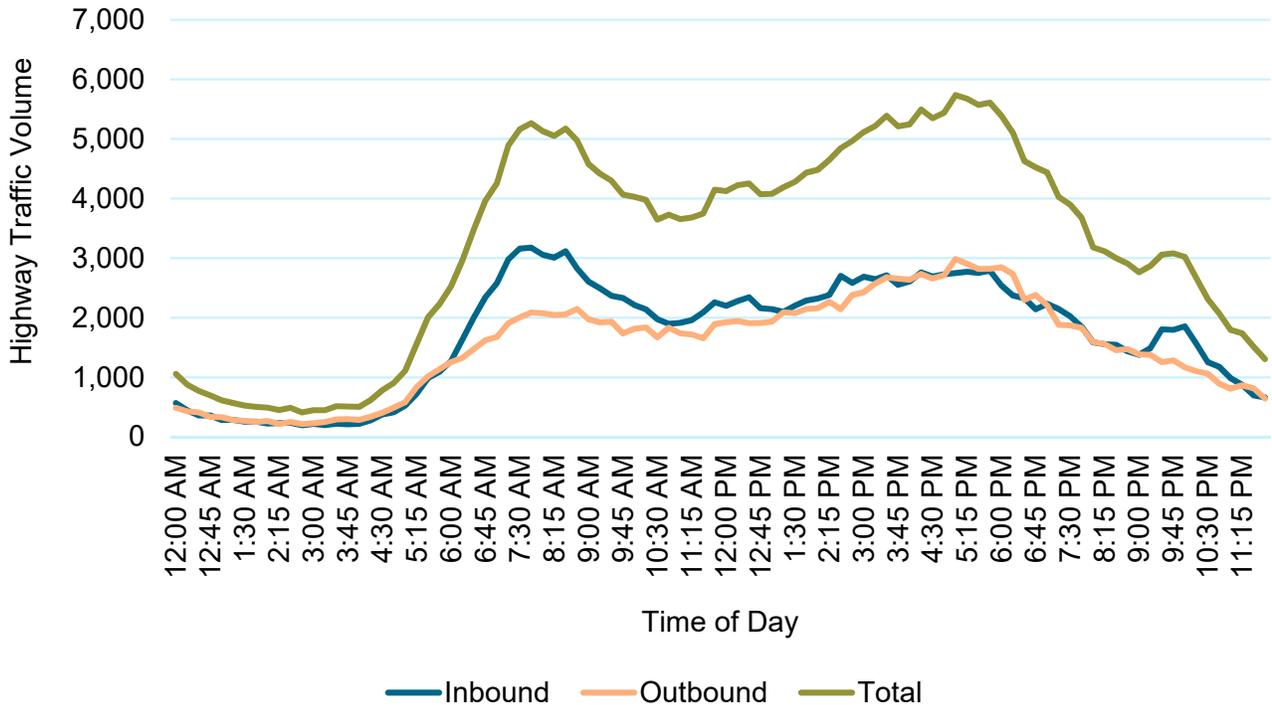
# Appendix A: 2020 Time-of-Day Variation for Vehicle Trips

**Figure A-1:** 15-minute Variation in Highway Vehicle Trips Crossing the North Screenline



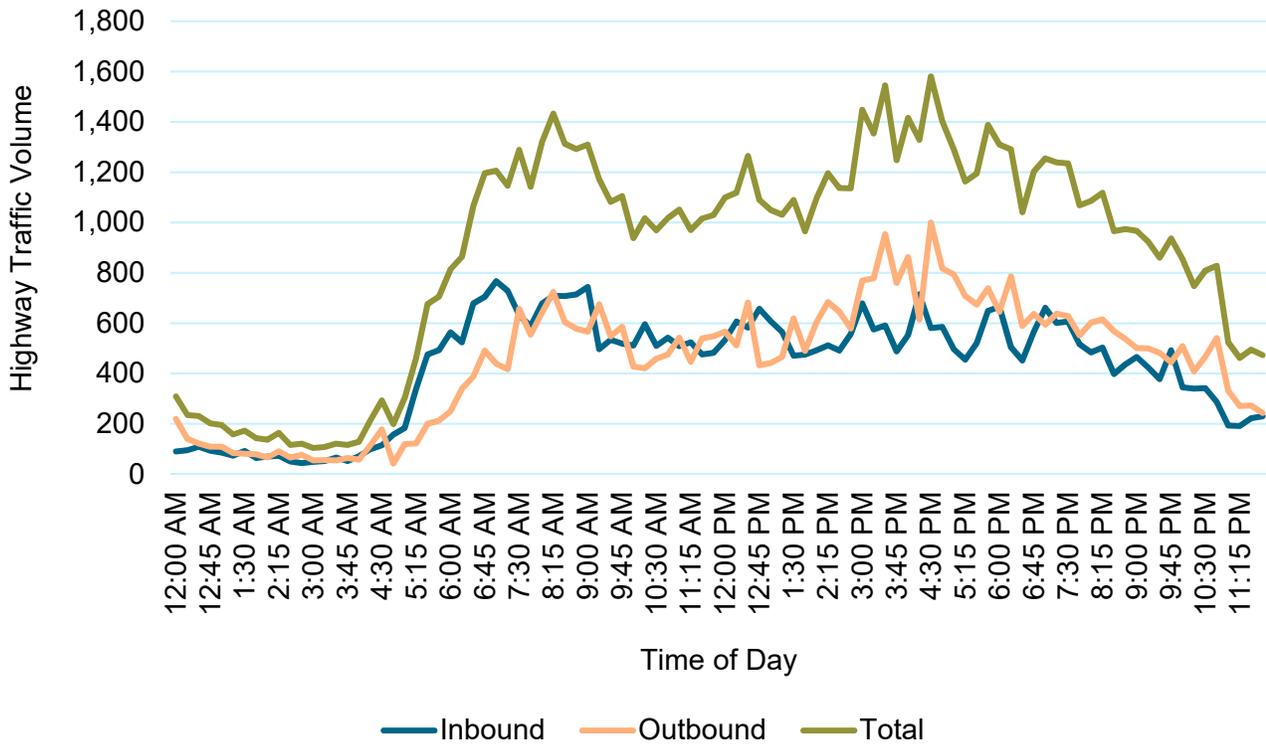
Source: DVRPC, 2023

**Figure A-2:** 15-minute Variation in Highway Vehicle Trips Crossing the South Screenline



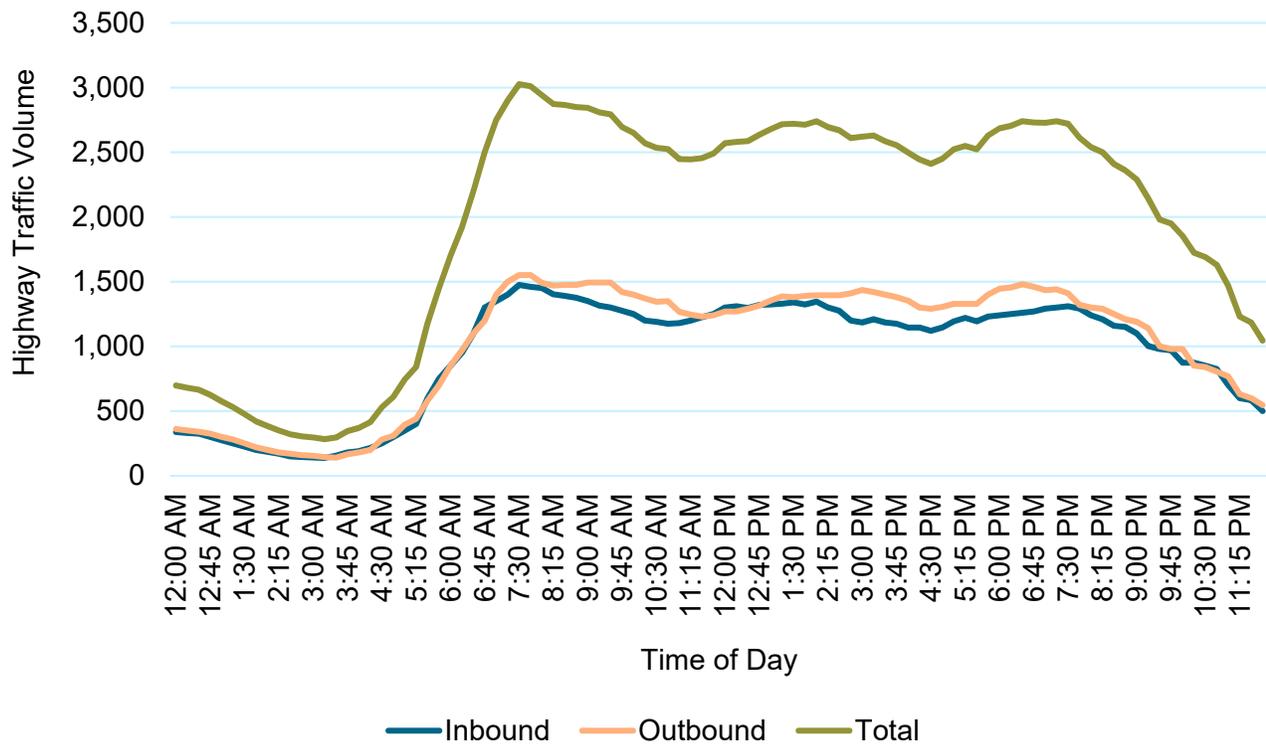
Source: DVRPC, 2023

**Figure A-3:** 15-minute Variation in Highway Vehicle Trips Crossing the East Screenline



Source: DVRPC, 2023

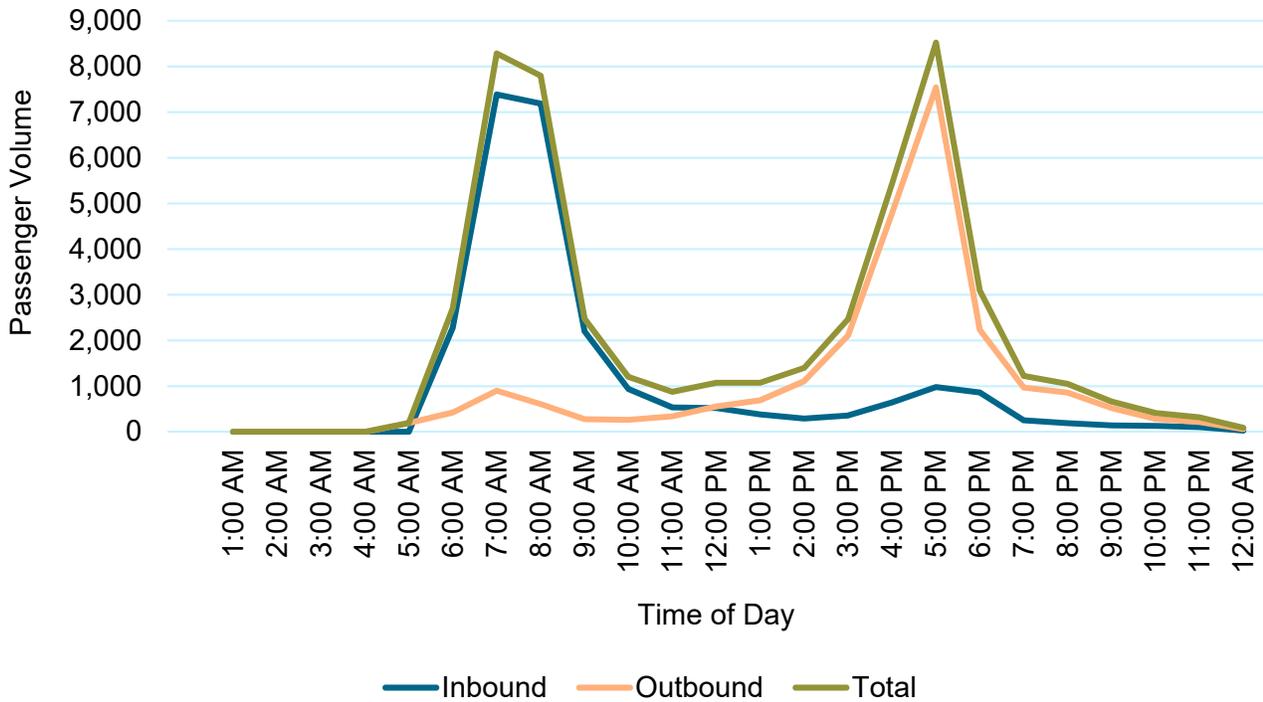
**Figure A-4:** 15-minute Variation in Highway Vehicle Trips Crossing the West Screenline



Source: DVRPC, 2023

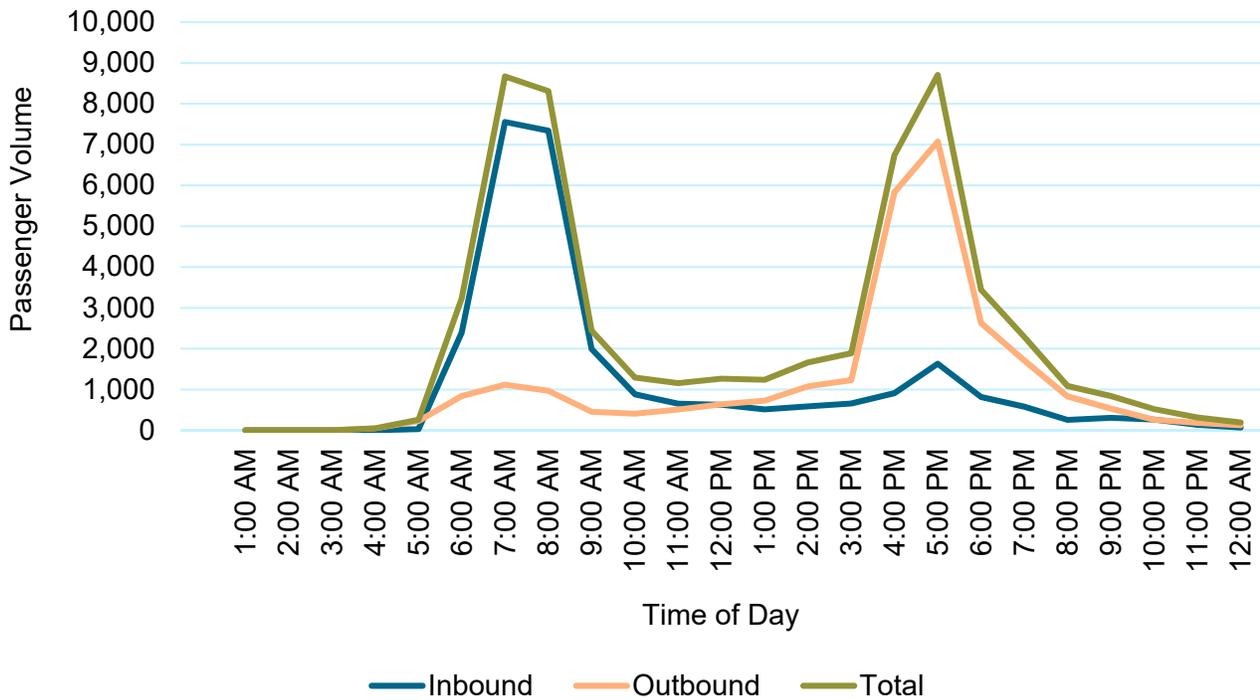
# Appendix B: 2020 Time-of-Day Variation for Transit Trips

**Figure B-1:** Hourly Variation in Regional Rail Trips Crossing the North Screenline



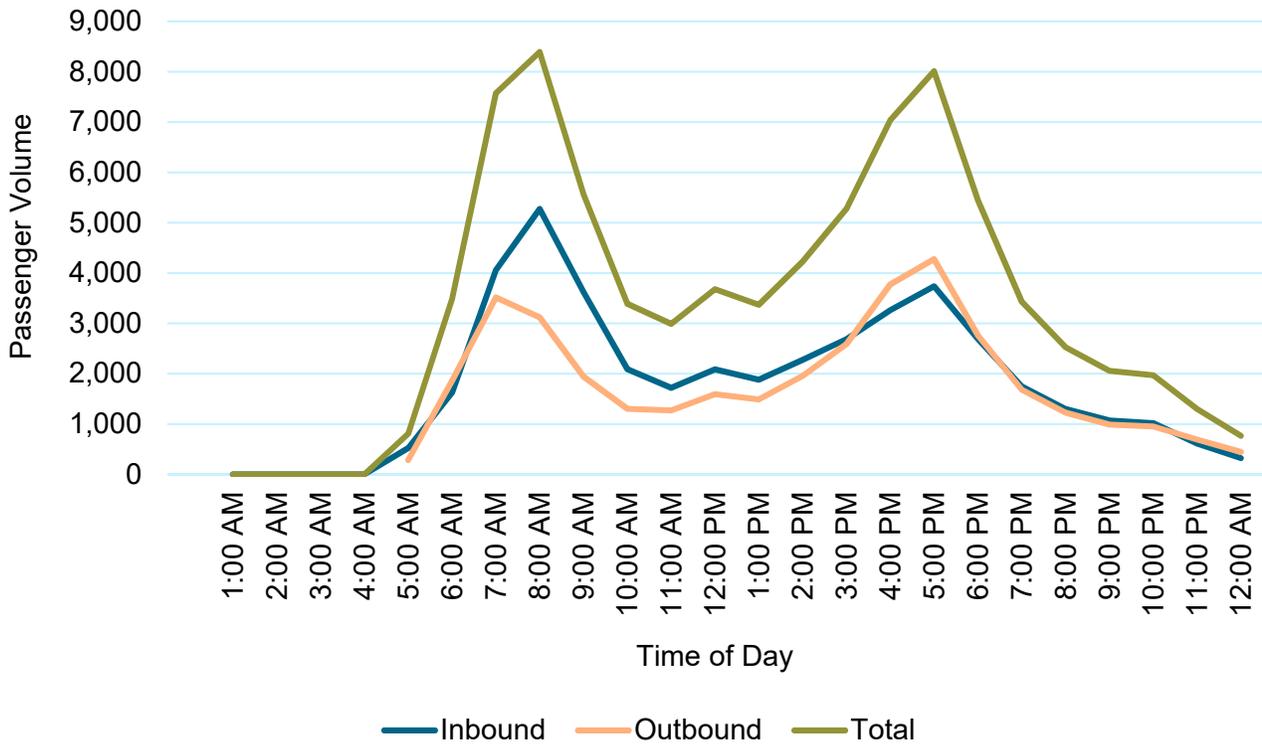
Source: DVRPC, 2023

**Figure B-2:** Hourly Variation in Regional Rail Trips Crossing the West Screenline



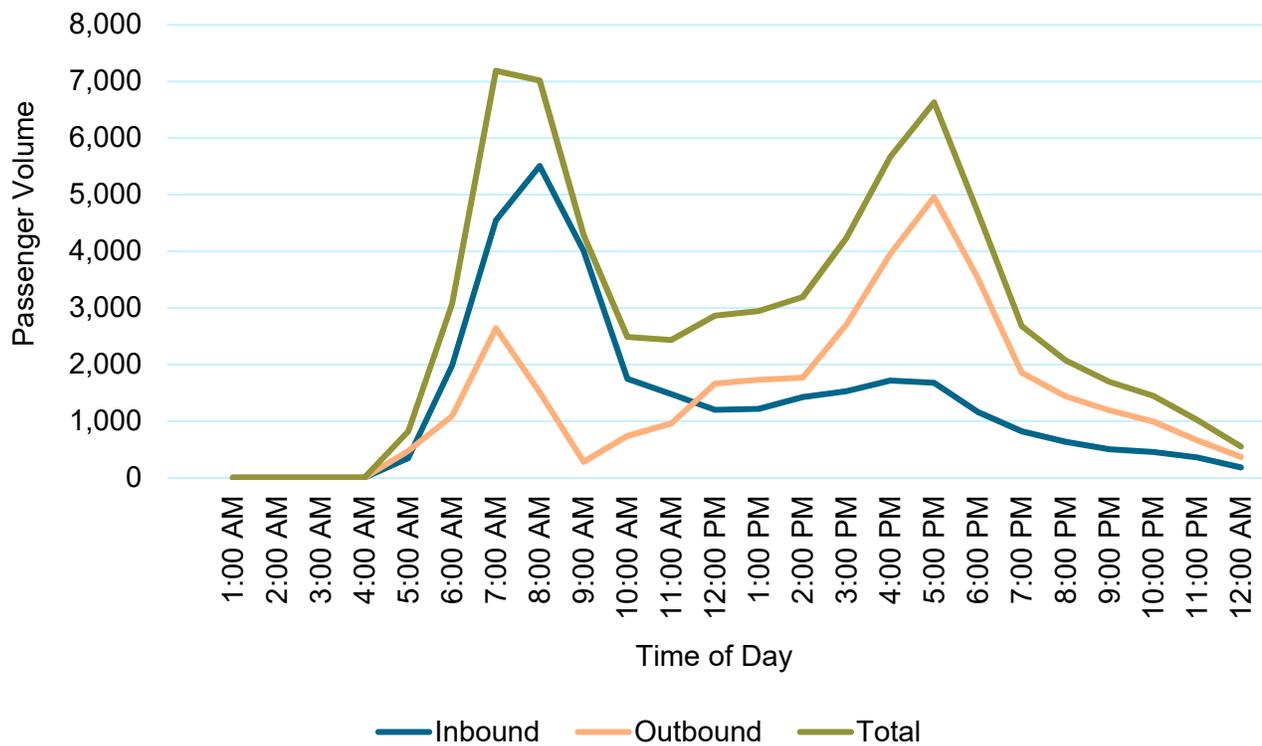
Source: DVRPC, 2023

**Figure B-3: Hourly Variation in MFL Trips Crossing the West Screenline**



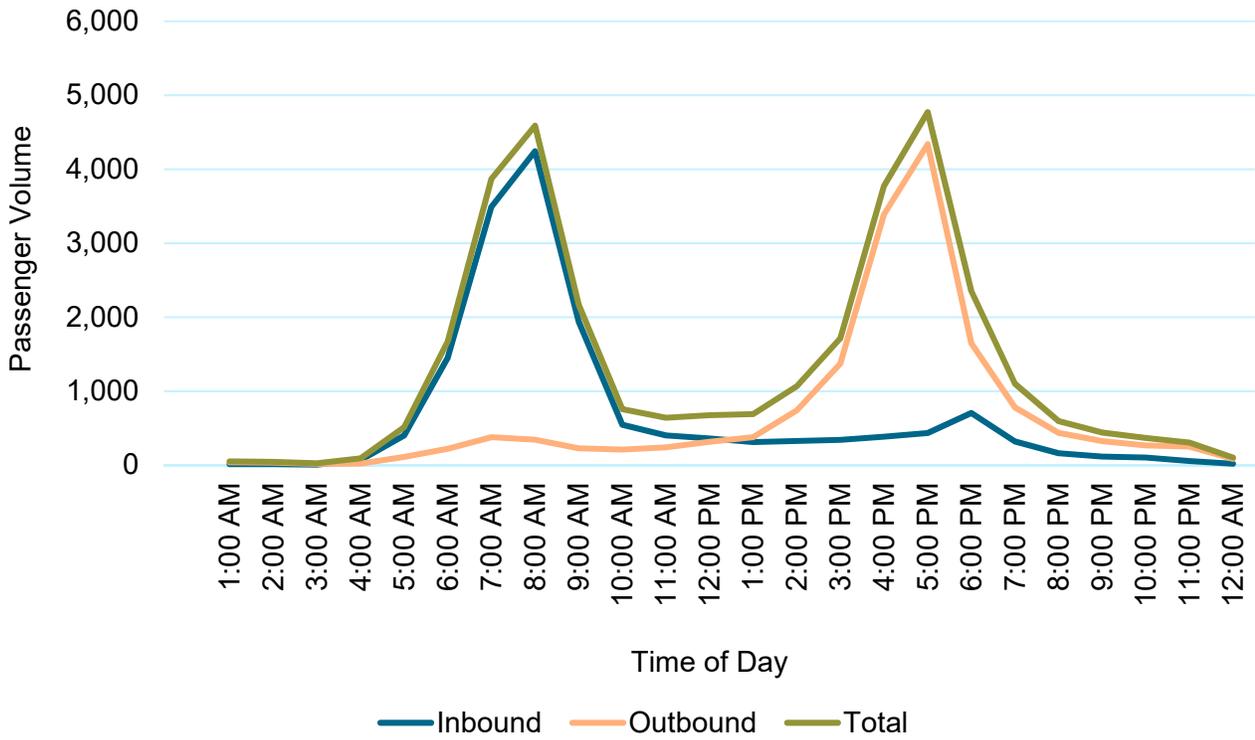
Source: DVRPC, 2023

**Figure B-4: Hourly Variation in MFL Trips Crossing the North Screenline**



Source: DVRPC, 2023

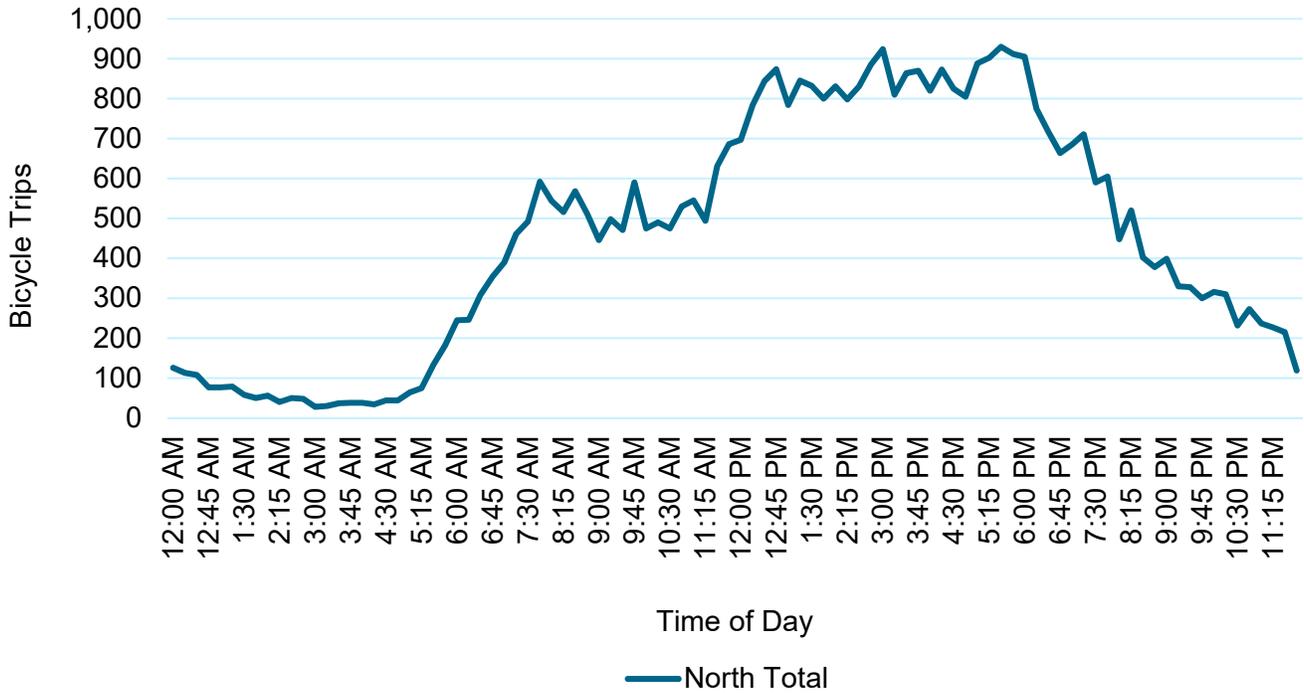
**Figure B-5:** Hourly Variation in PATCO Trips Crossing the East Screenline



Source: DVRPC, 2023

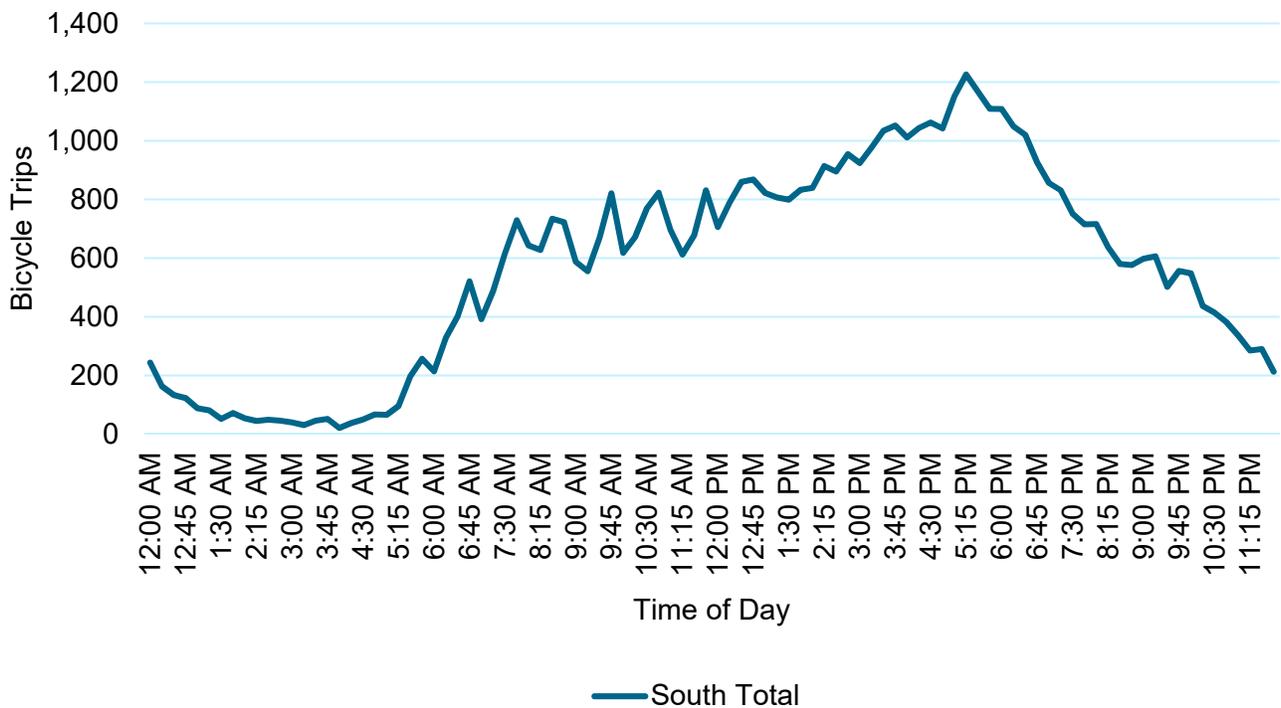
# Appendix C: 2020 Time-of-Day Variation for Bicycle and Pedestrian Trips

Figure C-1: 15-minute Variation in Bicycle Trips Crossing the North Screenline



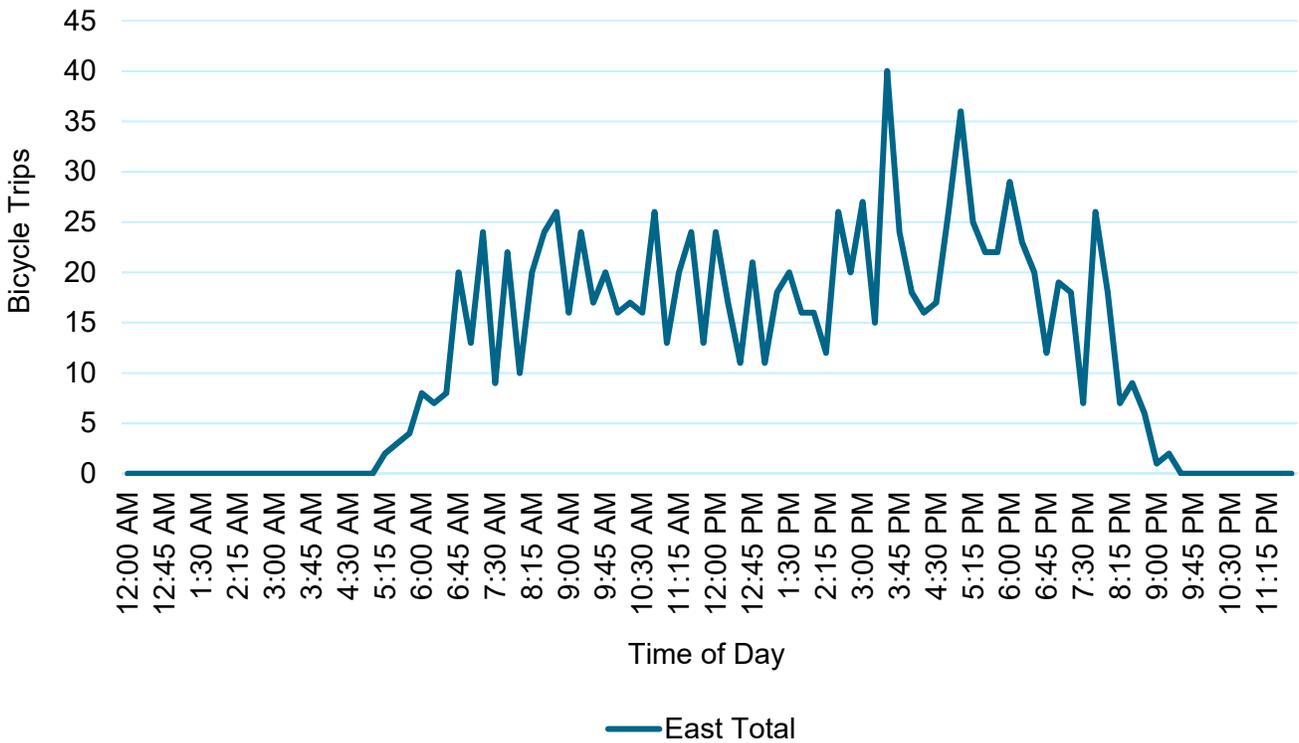
Source: DVRPC, 2023

Figure C-2: 15-minute Variation in Bicycle Trips Crossing the South Screenline



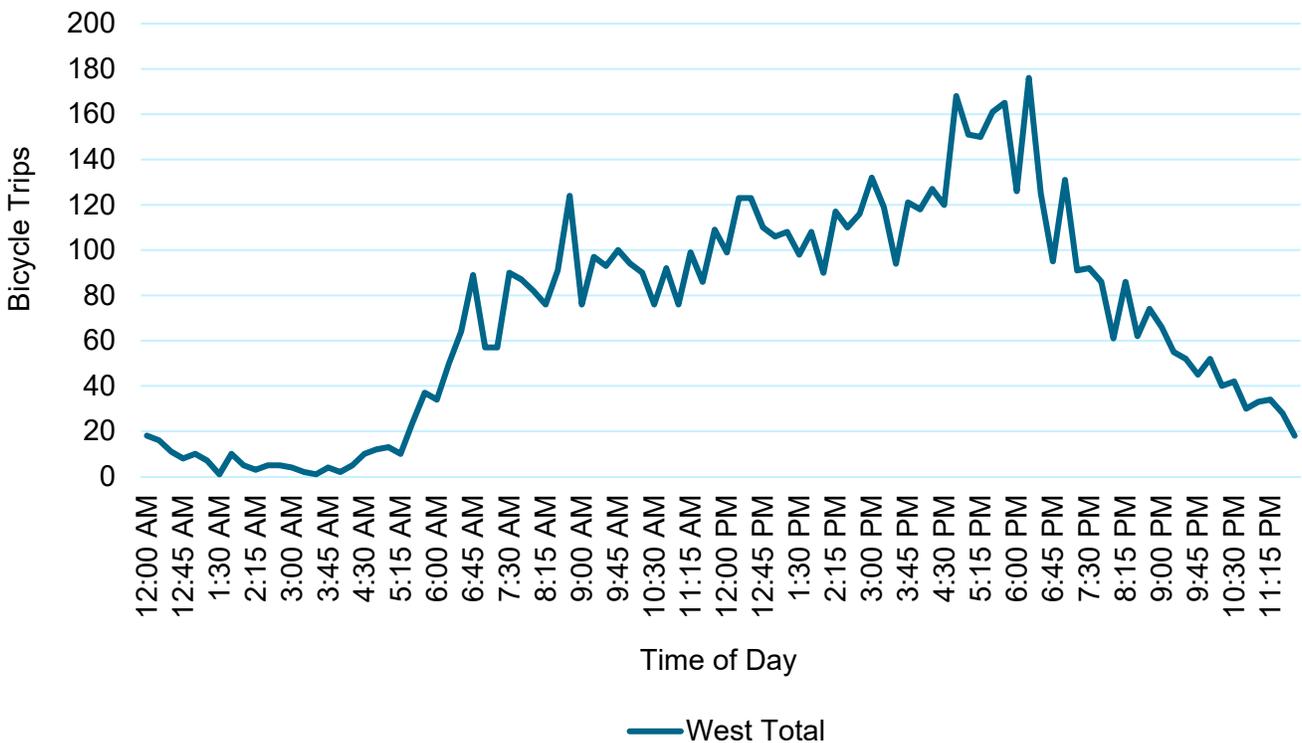
Source: DVRPC, 2023

**Figure C-3: 15-minute Variation in Bicycle Trips Crossing the East Screenline**



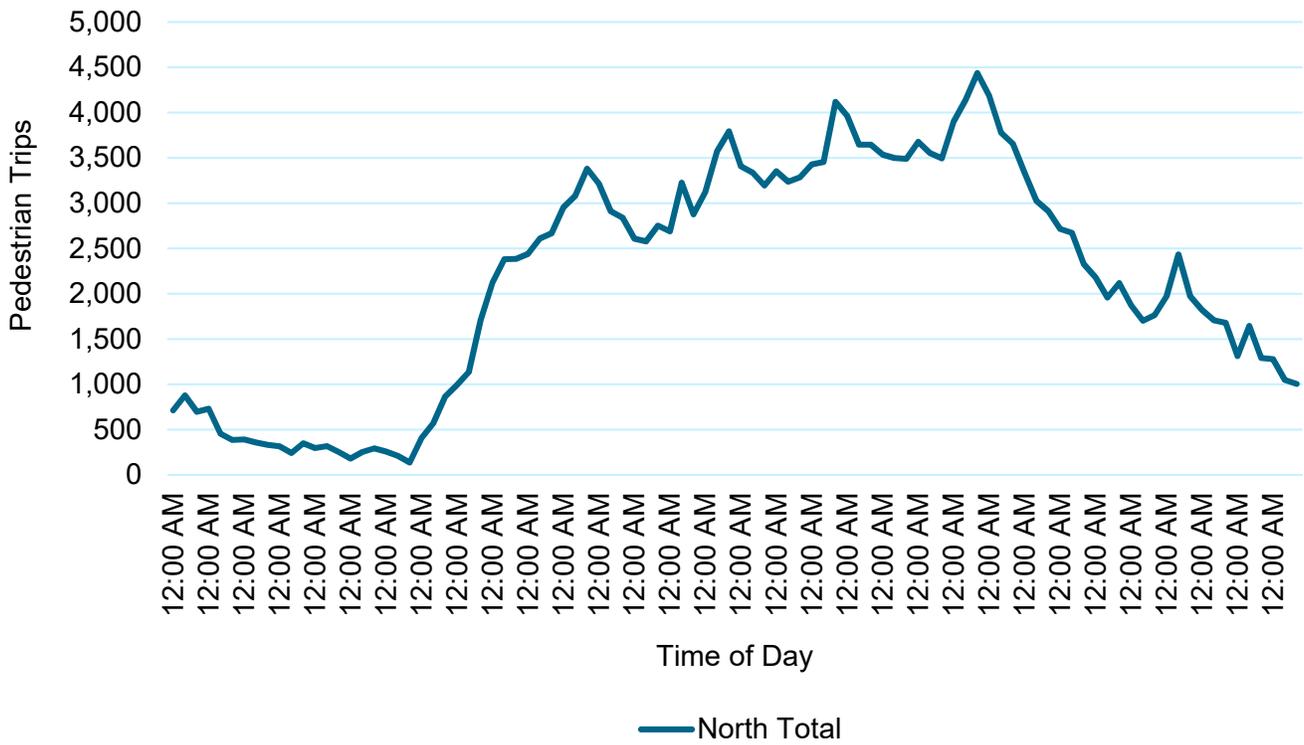
Source: DVRPC, 2023

**Figure C-4: 15-minute Variation in Bicycle Trips Crossing the West Screenline**



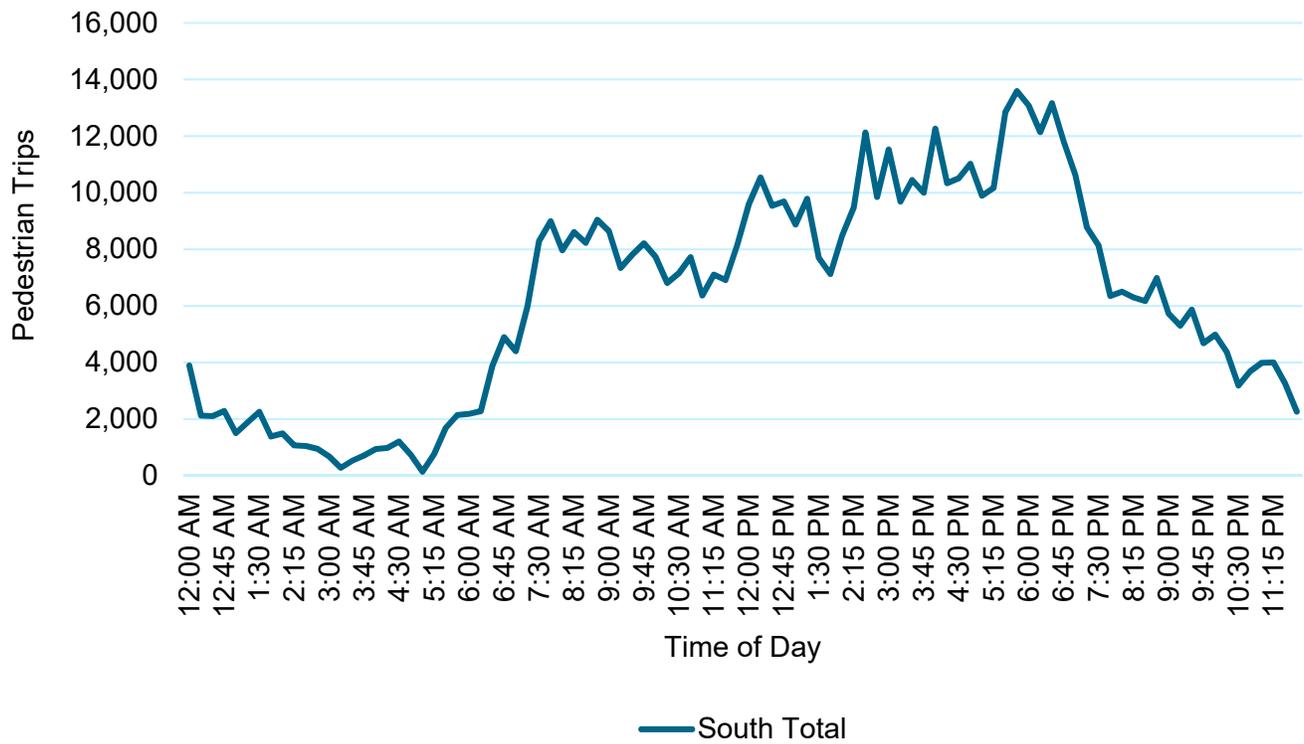
Source: DVRPC, 2023

**Figure C-5: 15-minute Variation in Pedestrian Trips Crossing the North Screenline**



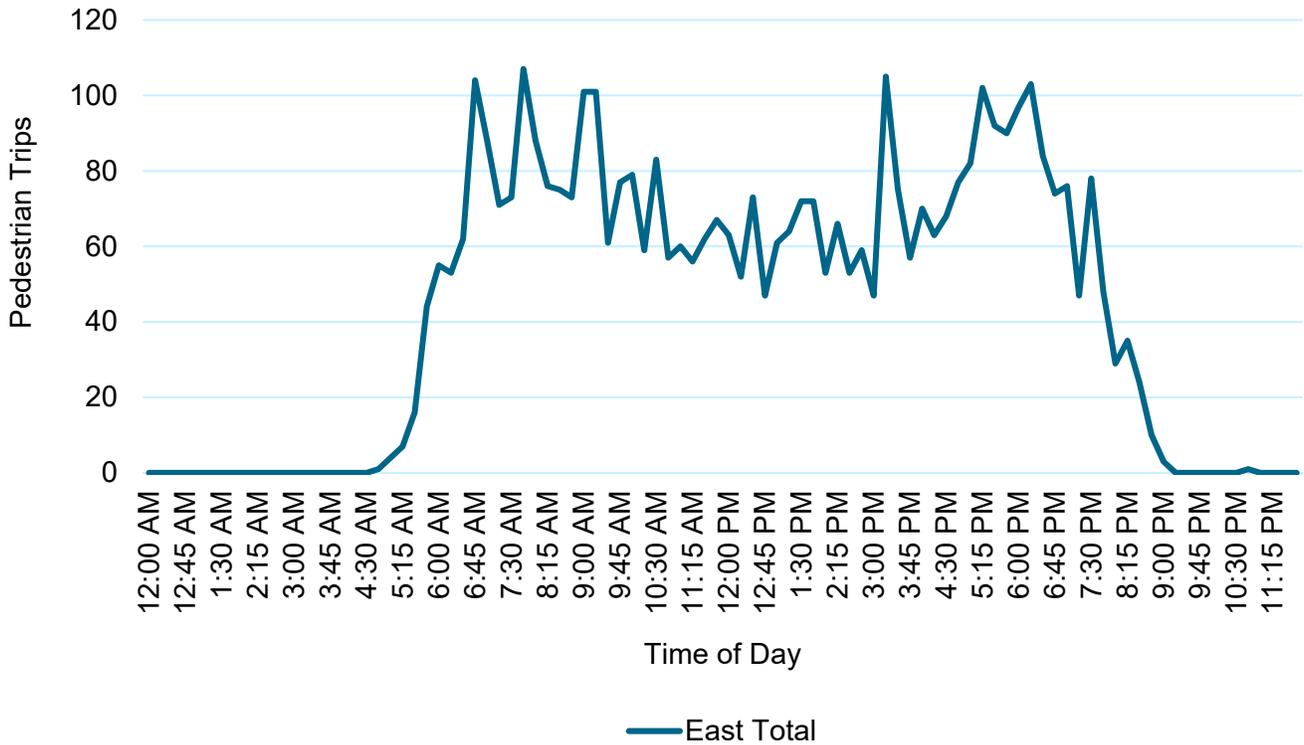
Source: DVRPC, 2023

**Figure C-6: 15-minute Variation in Pedestrian Trips Crossing the South Screenline**



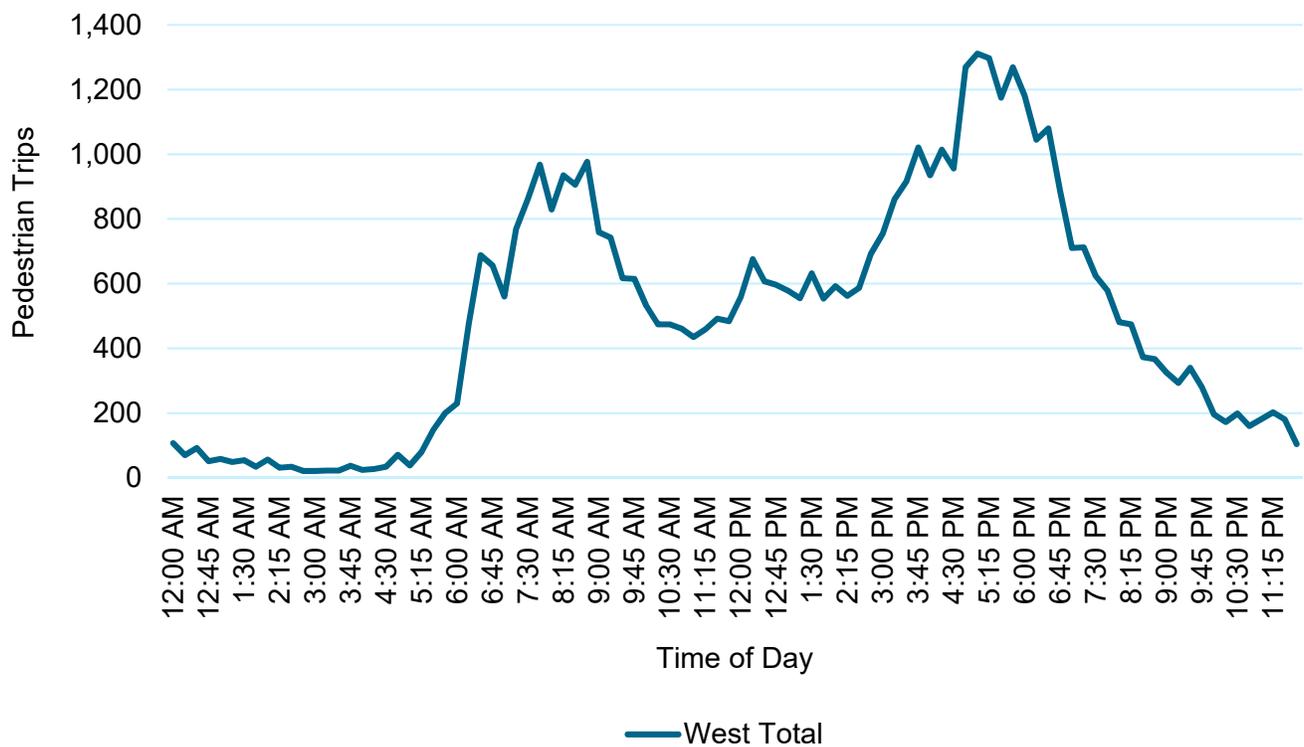
Source: DVRPC, 2023

**Figure C-7: 15-minute Variation in Pedestrian Trips Crossing the East Screenline**



Source: DVRPC, 2023

**Figure C-8: 15-minute Variation in Pedestrian Trips Crossing the West Screenline**



Source: DVRPC, 2023

# 2000 – 2020 Travel Trends In the Philadelphia Central Business District

**Publication Number:** 23108

**Date Published:** April 2023

**Geographic Area Covered:**

Philadelphia Central Business District

**Key Words:**

Center City, Philadelphia Central Business District, Traffic Count, Public Transportation Ridership, Regional Rail, Subway, Bus, Trolley, Cordon Line, Screenline, Travel Trends, Vehicle Trips, Person Trips, Transit Trips, Pedestrian Trips, Bicycle Trips, Annual Average Daily Traffic (AADT), Peak Hour Volume, COVID-19

**Abstract:**

This report assesses the 2000 – 2020 trends in highway traffic volumes, public transit ridership, bicycle trips, and pedestrian trips entering and leaving the Philadelphia Central Business District (CBD). Traffic volumes are expressed as both vehicle and person trips. Public transit, bicycle, and pedestrian trips are expressed as person trips. This report analyzes all trips crossing the North, West, South, and East Screenlines surrounding the CBD.

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