VISION ZERØ
PHILADELPHIA

Automated Speed Enforcement Expansion 2024

CORRIDOR SCORING & METHODOLOGY

Jointly led by the Office of Multimodal Planning, the Office of Transportation & Infrastructure Systems, and the Department of Streets

City of Philadelphia

What is Automated Speed Enforcement?

Automated speed enforcement (ASE) improves safety by placing speed safety cameras along high-speed roads. The cameras are programmed to take photographs of any speeding vehicles' license plates along with a short video of the vehicle if radar detects it traveling in excess of 11 MPH over the posted speed limit. Violators receive a mailed notice and fine for speeding. Net revenue collected from ASE speed camera fines is put into a PennDOT special fund dedicated to traffic safety projects.

RESULTS OF ASE ON ROOSEVELT BOULEVARD

- Speed cameras have reduced speeding at their locations by **95.3%**
- Fatal and serious injury crashes have dropped by **21%**
- Crashes involving people walking have fallen by nearly **50%**
- Researchers estimate that the speed cameras have saved almost **1 life per month** on Roosevelt Boulevard.

OVERVIEW

Vehicular speeding on city streets is a critical issue that must be addressed to improve safety and save lives. The City is partnering with PennDOT and the Philadelphia Parking Authority to expand Automated Speed Enforcement (ASE) on streets with the most speed-related crashes.

Vehicle speed is the determining factor in the severity of a crash. Speeding significantly increases the risk of crashes and the severity of injuries resulting from a crash. Speed also poses a serious threat to pedestrians, bicyclists, and vehicle occupants. Every fatal and severe crash is tragic and impacts the lives of Philadelphia residents and visitors.

To reduce traffic deaths, we need to design our transportation system for lower speeds.

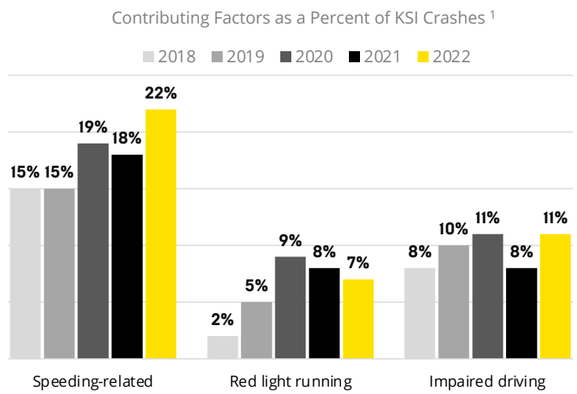
Since 2018, speeding-related crashes have increased from 15% to 22% of severe crashes in Philadelphia. This alarming number of speeding-related crashes has led to 296 deaths and 501 suspected serious injuries from 2018-2022. To reduce traffic deaths, it is crucial more is done to reduce vehicle speeds.

HOW VISION ZERO CAN HELP

Vision Zero, a program led by the City, works to eliminate all traffic related deaths and severe injuries on Philadelphia streets, while increasing safety, health, and mobility for all.

For more information, visit:
www.VisionZeroPHL.com.

Speed is a Top Contributing Factor in Severe Crashes



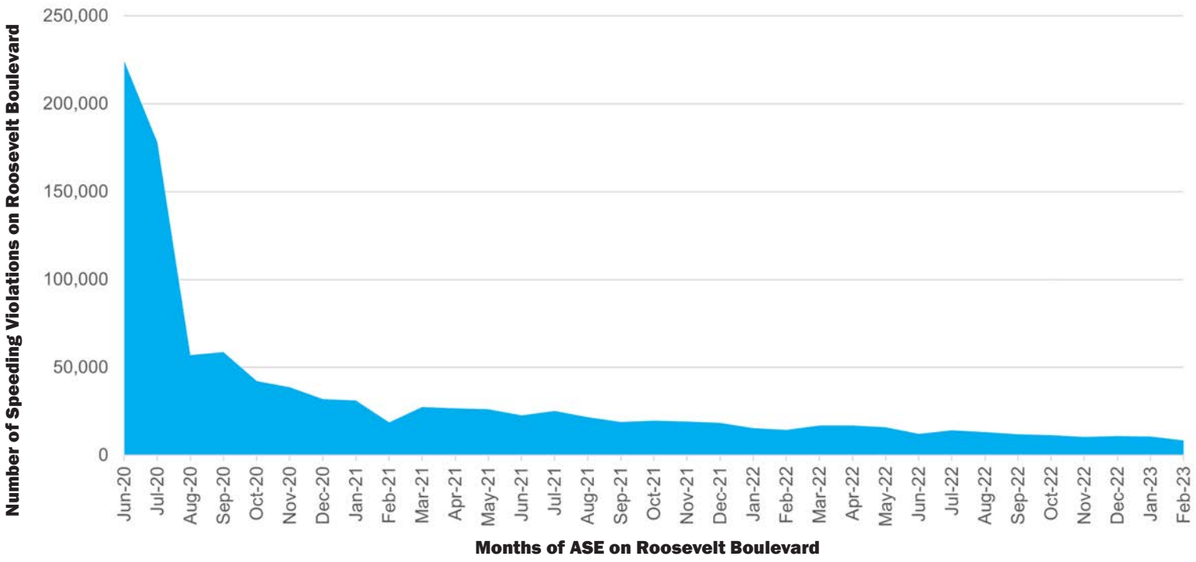
The rise in speeding accounts for **1 in 5 killed and serious injury crashes** since 2020.

AUTOMATED SPEED ENFORCEMENT WORKS

To address speeding-related crashes, the City of Philadelphia introduced automated speed enforcement (ASE) safety cameras on Roosevelt Boulevard as part of a pilot program. Cameras were placed at eight locations along Roosevelt Boulevard between 9th Street and Levick Street. In June 2020, vehicles driving 11 miles or more over the posted limit were subject to a mailed warning, along with information about the automated speed enforcement program and its goal to make Roosevelt Boulevard safer. On August 1, 2020, all violators began receiving a notice and fine for speeding.

ASE on Roosevelt Boulevard has been highly effective in slowing drivers, reducing serious crashes, and saving lives on Philadelphia's most dangerous roadway.

SPEED CAMERAS REDUCED SPEEDING ON ROOSEVELT BLVD



EXPANDING ASE

Due to the success of the automated speed cameras on Roosevelt Boulevard, the City is exploring expansion of the ASE program to other corridors with high levels of speed-related crashes.

Governor Shapiro signed HB 1284 into law in December 2023, reauthorizing the ASE pilot to be permanent on the Roosevelt Boulevard and permitting expansion of the program to five additional "corridors" or streets. The law also authorized a five-year pilot program for ASE in up to five designated school zones.

Potential corridors for expansion are state or local routes within the borders of Philadelphia. The corridor must begin and end on the same state or local route. To be selected for the program, the following conditions must be met for each corridor:

1. Analysis of speed and speeding-related crashes involving vehicles and pedestrians in consultation with PennDOT*
2. An engineering and traffic investigation on the posted speed limit
3. At least one opportunity for public comment
4. Passage of a local ordinance authorizing expansion to the selected corridor

**This requirement does not apply to placing speed cameras in school zones*

This report summarizes the City's approach to expansion of the ASE program and how corridors throughout Philadelphia were evaluated and selected for ASE.

SCORE CRITERIA

Automated speed enforcement is a proven strategy for reducing crashes that result in fatalities and serious injuries. Therefore, in selecting corridors for potential enforcement locations, the City developed a scoring system that considered crash history. Among the highest rated corridors, the Delaware Valley Regional Planning Commission's (DVRPC) Indicators of Potential Disadvantage (IPD) tool and Replica data were used to understand how different populations are impacted by the crash trends and would be impacted by ASE.

To generate a score for a corridor, the City looked at the last five years of crashes on state and local routes within the city limits. Crash data was limited to those that included one or more of the following:

- **Whether someone was killed or seriously injured.** This connects to the City's Vision Zero goal that no one should die on our roads. Broken bones, significant burns or blood loss, and head, chest, or abdominal injuries are all examples of serious injuries. The direct relationship between speed and crash severity also means that these crashes serve as a useful proxy for locations where speed is likely contributing to severe crashes.
- **Whether speed contributed to the crash.** The reporting officer lists contributing factors related to the crash. If speed was noted as a factor, the crash was included in our analysis. The enabling state legislation also required looking at speeding-related crash data.
- **Whether a pedestrian was involved.** People walking are particularly vulnerable when struck by vehicles at high speeds. The enabling state legislation also required looking at pedestrian crash data.

A corridor received five points for each crash resulting in a fatal or serious injury, three points for a crash where speed was a contributing factor, and one point for each crash involving a pedestrian. The highest scoring corridors are all PennDOT State Routes (SR).* Results of the scoring is explained on page 5.

Among the five corridors with the highest scores, the project team then worked to understand who lives near the route, as well as those who travel along the route to help better understand who would benefit from reductions in crashes and who would be impacted by ASE violations. DVRPC's IPD tool was used to understand the people who live along the route, incorporating race, ethnicity income, age, gender, disability, foreign-born, and limited English proficiency. Replica data was used to understand whether drivers are using the corridors for shorter local trips vs. longer commuter trips.

The City found that ASE on these five corridors will enhance road safety for historically marginalized communities while driver impacts of ASE will largely be experienced by commuters and others driving through neighborhoods on longer trips. More details of these analyses are included on pages 8-11.

*A roadway segment may have multiple state route designations. If a crash occurred on a segment with more than one SR designation, the crash was assigned to both SRs.

SPEED-RELATED CRASH HISTORY

Vision Zero's commitment to saving lives by lowering speeds on Philadelphia's streets means prioritizing Automated Speed Enforcement (ASE) on streets with demonstrated speed-related crash histories.

The City used five-year PennDOT crash data (2018 - 2022) to identify crashes within the city limits. During analysis, each crash was first tied to the associated roadway where the crash occurred. Some roads have multiple state route designations, so those crashes were assigned to each route. Once all of the crashes were assigned, the scores were generated. A route received scores as follows:

- **5 points** for each crash resulting in a fatal or serious injury;
- **3 points** for each crash where speed was a contributing factor;
- **1 point** for each crash involving a pedestrian.

The top 15 scoring corridors were all state routes except for G001 (5th Street). State Routes 611, 13, 2016, 3, and 291 were the five highest scoring routes as shown in the table below.

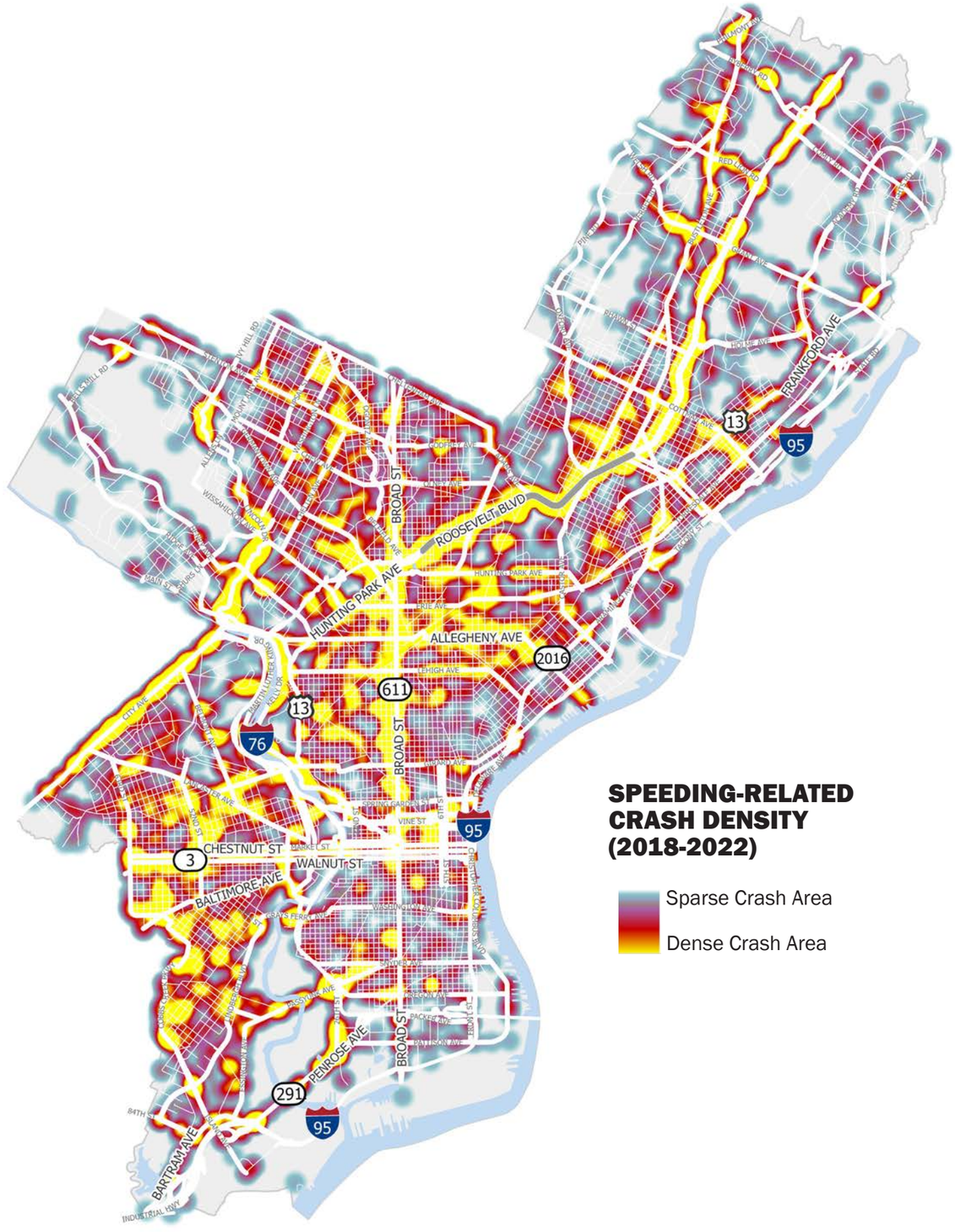
ABOUT PENNSYLVANIA CRASH DATA

Each state establishes its own criteria for what makes a crash "reportable." In Pennsylvania, a crash is reportable if it involves a motor vehicle and one or more of the following:

- A motor vehicle is towed from the scene, or
- Someone is transported to the hospital in an ambulance, or
- A fatality occurs

(PA Vehicle Code Title 75 Section 3746 (a))

State Route	Score Ranking	Total Score	# Fatal/Serious Injury Crashes	# Speeding Related Crashes	# Pedestrian Involved Crashes
611	1	1,796	169	165	456
13	2	1,219	109	141	251
2016	3	640	70	42	164
3	4	599	42	67	188
291	5	540	36	82	114



PROPOSED ASE CORRIDORS

The following five corridors scored the highest in the analysis of speed- and pedestrian-related crashes on state and local routes in Philadelphia and are recommended for Automated Speed Enforcement (ASE). See Appendix for detailed scoring results.

1. **State Route (SR) 611** (Broad St/Old York Rd)
2. **SR 13** (Baltimore Ave/Hunting Park Ave/Roosevelt Blvd/Frankford Ave)
3. **SR 2016** (Allegheny Ave)
4. **SR 3** (Chestnut St/Walnut St)
5. **SR 291** (Penrose Ave/Bartram Ave/Moyamensing Ave)

PennDOT provides county-level road maps broken down by state route segment markers at:

https://www.penndot.pa.gov/ProjectAndPrograms/Planning/Maps/Pages/County-T3-Seg.aspx

CORRIDOR SCORES

Score Calculation

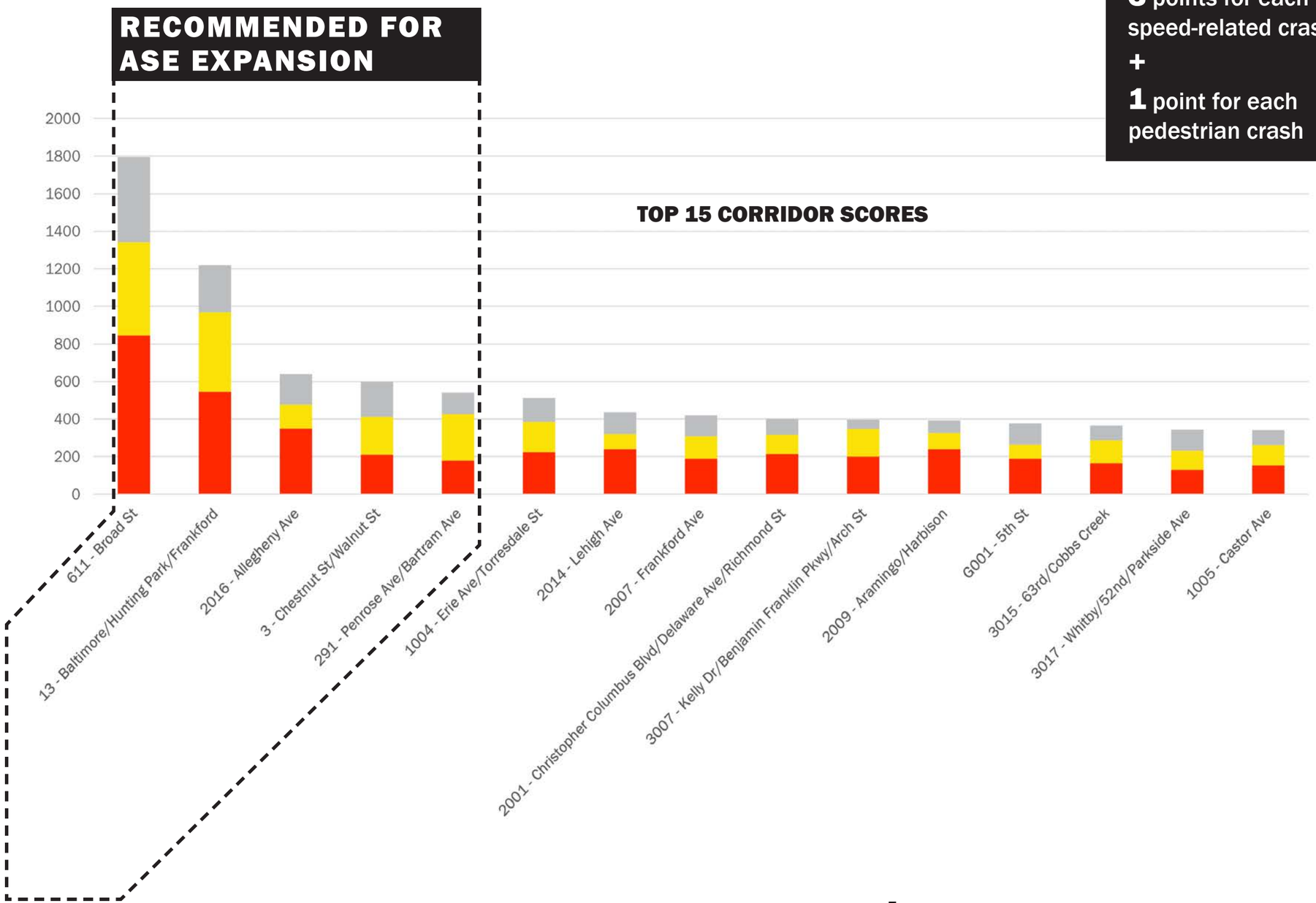
5 points for each killed or severe injury crash (KSI)

+

3 points for each speed-related crash

+

1 point for each pedestrian crash



Community Impacts

Indicators of Potential Disadvantage

The City analyzed demographic data to understand how speed-related crashes impact marginalized populations and to identify who would benefit from expansion of Automated Speed Enforcement (ASE) on the top scoring corridors.

The City used DVRPC's equity analysis tool for the greater Philadelphia region called "Indicators of Potential Disadvantage" (IPD). The purpose of the resource is to provide a foundational start to identifying historically marginalized populations. The tool and outputs are publicly accessible. The analysis is based on federal Title VI and Environmental Justice guidelines and uses data provided within the U.S. Census American Community Survey.

Indicators used to create an IPD score include the following:

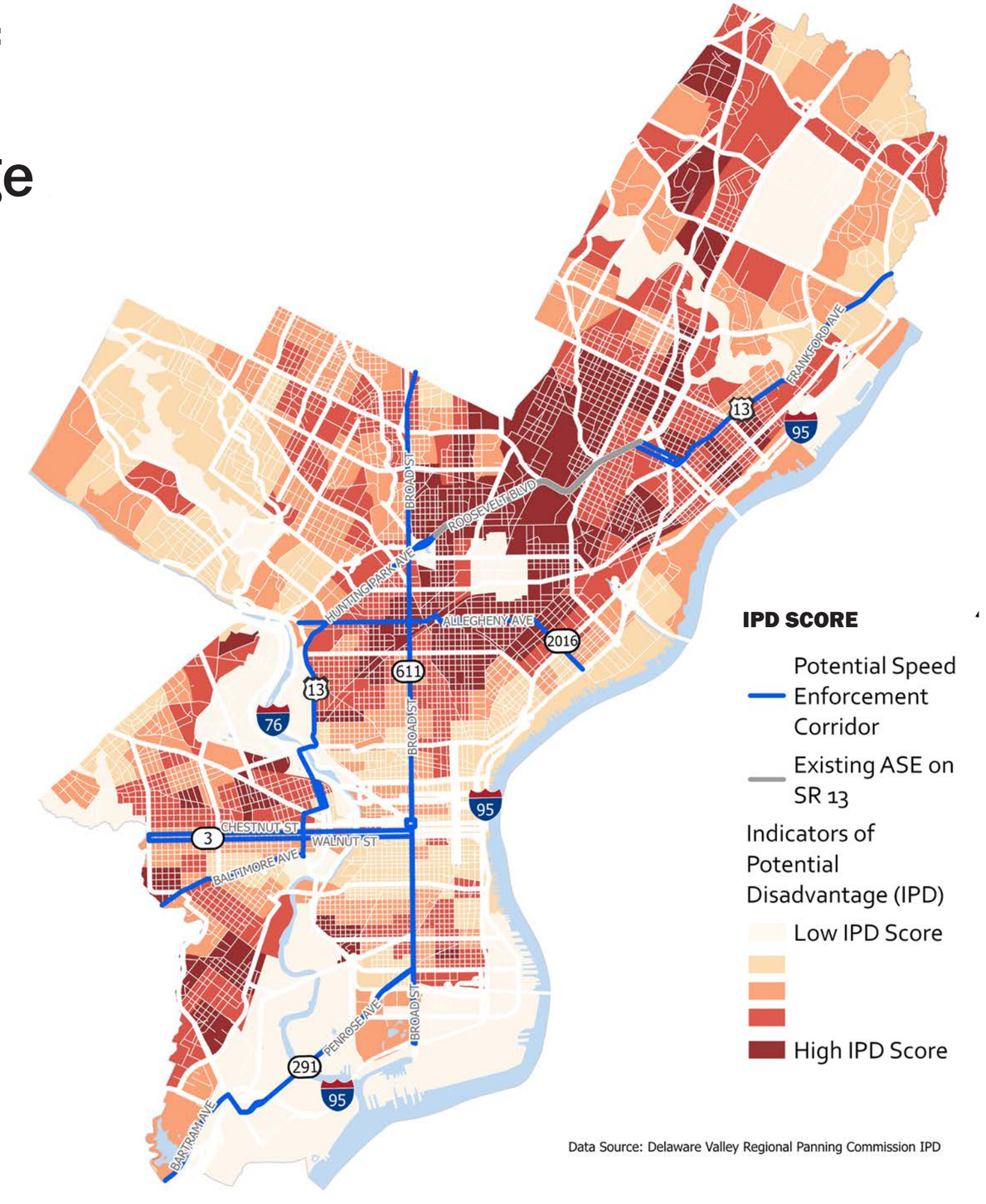
Youth	Female	Ethnic Minority
Older Adults	Racial Minority	Foreign-Born
Limited English Proficiency	Disabled	Low-Income

DVRPC IPD data was used to assess the proposed ASE corridors and their proximity to marginalized populations.

The following was considered when evaluating the impact of speeding on marginalized populations:

- Low-income neighborhoods in Philadelphia have higher rates of pedestrian and cyclist fatalities due to lower rates of car ownership, inadequate infrastructure and speeding vehicles.
- Speeding contributes to air and noise pollution, which disproportionately affect low-income communities residing along busy streets like the proposed ASE corridors.
- Inadequate pedestrian infrastructure and high-speed traffic create barriers to accessing jobs, services, and amenities.
- High-speed traffic fragments communities and creates physical barriers that have adverse effects on community well-being, social capital, and collective efficacy.

Many of the proposed ASE corridors touch some of the densest areas with marginalized populations, such as North Broad Street (SR 611), Hunting Park Avenue (SR 13), and Allegheny Avenue (SR 2016). These areas will benefit from safety improvements on those high-crash corridors.



Data Source: Delaware Valley Regional Panning Commission IPD

Community Impacts

At-risk Road Users

While the Indicators of Potential Disadvantage tool provided an initial equity screening, the project team worked to examine specific populations that are most at-risk to the impacts of speeding and severe crashes in Philadelphia. The following populations are disproportionately impacted by severe crashes. The highest scoring corridors were examined closely to understand the potential for ASE to help address these disparities.

- Non-White
- Youth
- Older Adults
- Zero-Car Households
- Low-Income
- Gender

The experience of crashes, especially severe ones, is not felt equally. When looking at race and ethnicity, traffic deaths occur more among Black and Hispanic Philadelphians compared to their share of the city's population. Additionally, fatal or serious injury crashes are 30% more likely to occur in areas of the city where most residents are people of color compared to areas where most residents are white.

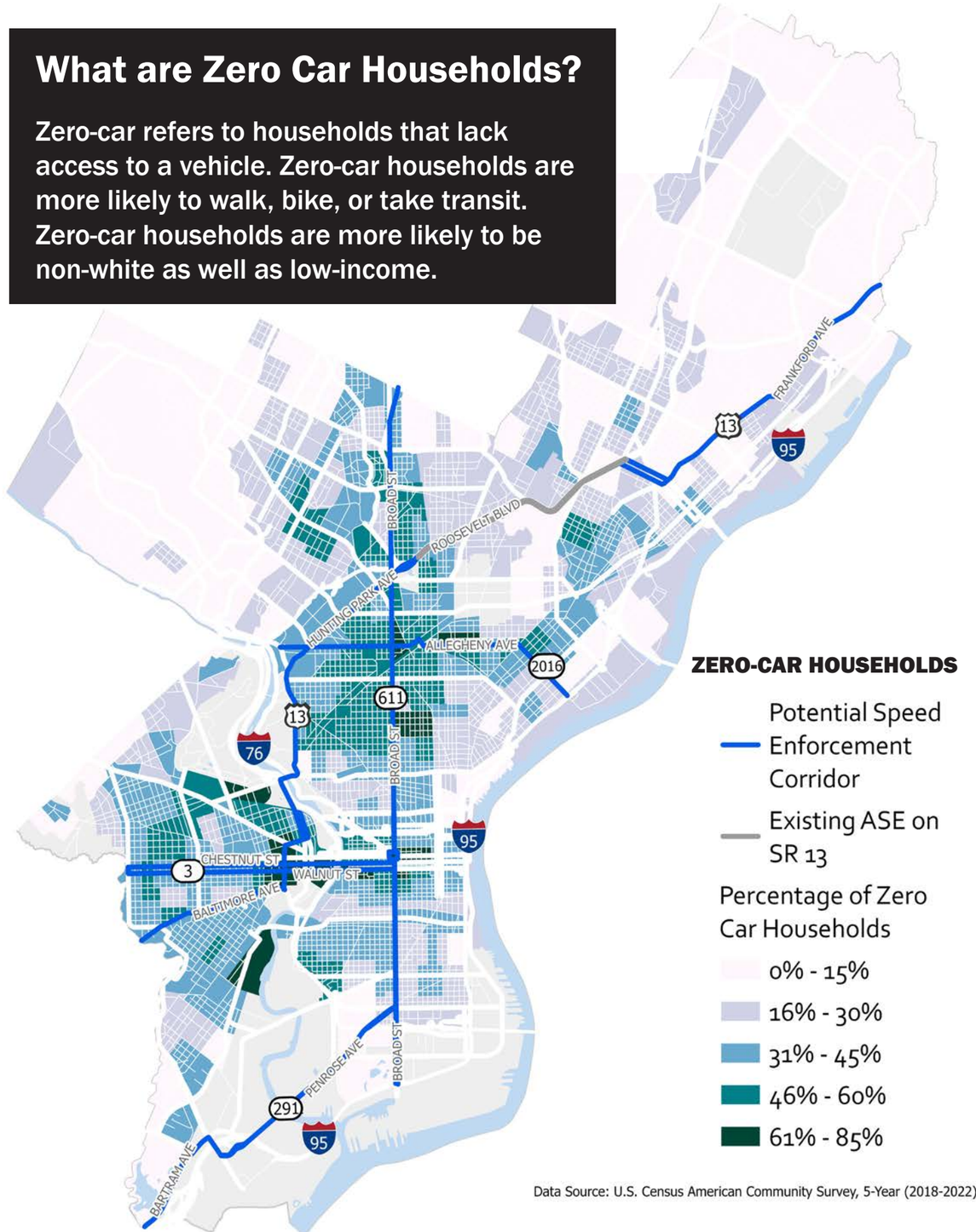
A person's age also affects if they will be involved in a severe injury crash. Every week, five school-aged children are struck by vehicles in Philadelphia. Older adults (50 and older) are at greater risk of having a serious injury in a crash than younger adults.

Adult males had a higher share of the post-2020 increases in fatalities and serious injuries. Adult males were also more likely to be the driver in severe crashes. Among males 25-44 in Philadelphia, deaths from injuries (including crashes) are now the third leading cause of death for the first time.

Most corridors recommended for ASE expansion traverse areas with significant at-risk populations who inequitably share the burden of speed-related crashes while being less likely to be drivers on the corridors. For instance, the map on the right shows how zero-car households would be impacted by ASE expansion corridors. **63% of the proposed ASE corridors pass through areas where more than 30% of the population live in zero car households.**

What are Zero Car Households?

Zero-car refers to households that lack access to a vehicle. Zero-car households are more likely to walk, bike, or take transit. Zero-car households are more likely to be non-white as well as low-income.



Data Source: U.S. Census American Community Survey, 5-Year (2018-2022)

Driver Impacts

Commuter Patterns

Driver trip data was obtained at multiple locations along the proposed ASE corridors to understand driver travel patterns (local trips vs commuter trips). Analysis explored private vehicles and taxi/Uber/Lyft patterns for distance of trips. Data was obtained from Replica[1].

TRIP DISTANCE

The City gathered data to understand the length of trips along the proposed ASE corridors; trips greater than 8 miles were classified as commuter trips. This measure was used to understand if the corridor is frequented more by commuters (i.e. those passing through the neighborhoods) or by those who live in the neighborhood (i.e. those making local trips).

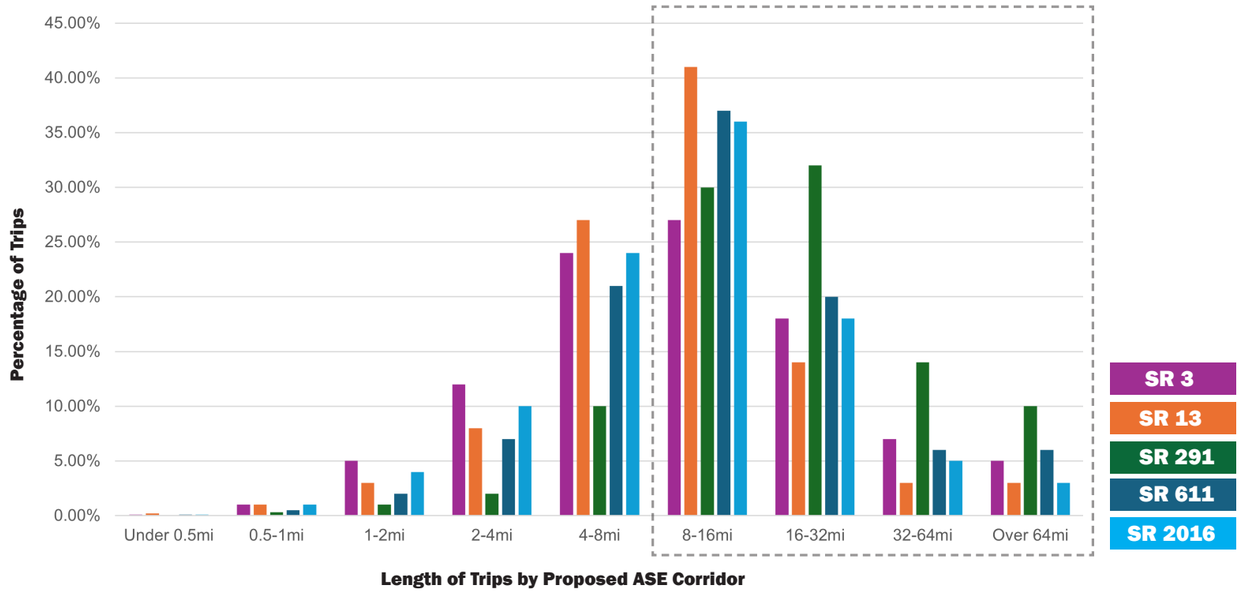
A trip of 8 miles or more is considered a commuting trip.

Overall, 68% of all proposed ASE corridor trips were above 8 miles, indicating that a large number of corridor drivers are commuters. The least frequent trip length was 0.5-1 mile (0.7% of corridor trips) and under 0.5 mile (0.1% of corridor trips).

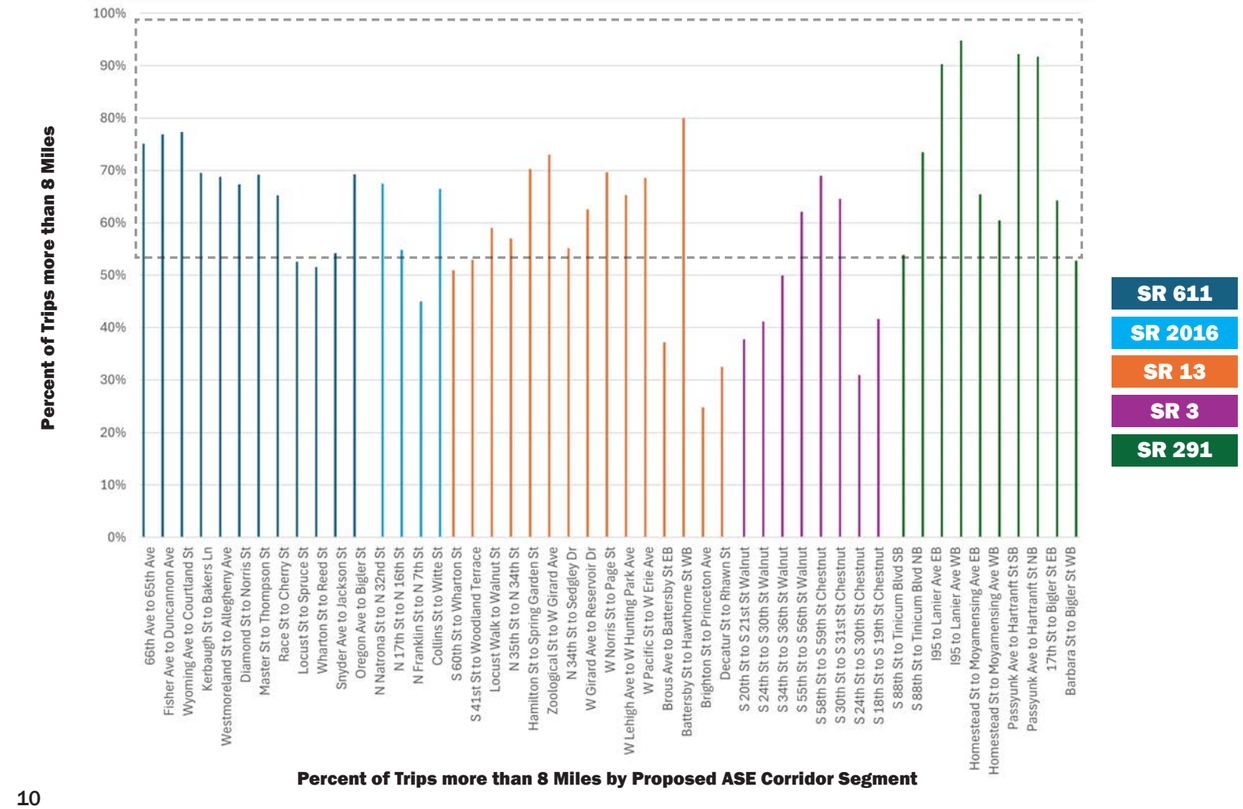
This data suggests that local residents will not be disproportionately impacted by ASE violations.

1 The analysis conducted herein is based on data collected and summarized by Replica. Replica utilizes a variety of third-party sources for collecting source data. It also generates data through large-scale, computationally intensive simulations and employs a composite approach to data aggregation, synthesizing information from multiple sources to create a representative model of transportation and economic patterns while safeguarding individual privacy. It's essential to recognize that Replica's data collection methods have inherent limitations and biases.

TYPICAL CORRIDOR TRIPS ARE COMMUTING LENGTH



COMMUTING TRIPS ARE COMMON ACROSS MOST SEGMENTS



CONCLUSION

Automated Speed Enforcement (ASE) enhances road safety and saves lives by slowing speeds and reducing speed-related crashes. Philadelphia has seen success with ASE on Roosevelt Boulevard with major reductions in speeding, severe and fatal crashes, and crashes involving people walking. The City is now looking to expand the installation of ASE to five additional high-crash corridors in Philadelphia.

The City analyzed crashes throughout Philadelphia to identify the top priority corridors for ASE by the number of speed-related crashes, crashes in which someone was killed or seriously injured, and pedestrian crashes. This analysis identified SR 3, SR 13, SR 291, SR 611, and SR 2016 as the highest priority corridors for ASE.

The City then completed an equity analysis of the proposed ASE corridors to understand the impacts ASE would have on populations that live along the corridors and on people that drive on the corridors. The equity analysis shows that significant portions of the proposed ASE corridors traverse areas with at-risk populations who inequitably experience severe crashes citywide. The analysis also found that people driving on the corridors are more likely to be commuters passing through than residents making local trips.

The City's analysis demonstrates that installing speed cameras on these corridors will vastly improve safety for both the commuters that use these roads the most and the residents that live alongside them. These corridors experience the highest number of the crashes that speed cameras are proven to reduce. Residents along these corridors deserve safer streets and speed cameras are a critical tool to deliver them.

AUTOMATED SPEED ENFORCEMENT (ASE) CAMERA ON ROOSEVELT BOULEVARD

APPENDIX

Detailed scores of the highest scoring crash routes in Philadelphia are provided below.

ROUTE NUMBER	STREET NAME	KSI SCORE *(KSI CRASHES X 5)*	SPEED SCORE *(SPEED CRASHES X 3)*	PEDESTRIAN SCORE *(PEDESTRIAN CRASHES X 1)*	TOTAL SCORE
611	Broad St/Old York Rd	845	495	456	1,796
13	Baltimore Ave/Frankford Ave/Girard Ave/Hunting Park Ave/ Levick St/Mantua Ave/Powelton Ave/Ridge Ave/Robbins St/ Roosevelt Blvd/33rd St/34th St/38th St	545	423	251	1,219
2016	Allegheny Ave/Sedgley Ave	350	126	164	640
3	Chestnut St/Walnut St/Cobbs Creek Pkwy/Market St	210	201	188	599
291	Penrose Ave/Bartram Ave/Island Ave/Moyamensing Ave	180	246	114	540
1004	Erie Ave/Torresdale St	225	159	128	512
2014	Lehigh Ave	240	81	115	436
2007	Frankford Ave	190	117	114	421
2001	Christopher Columbus Blvd/Delaware Ave/Richmond St/Oregon Ave	215	102	84	401
3007	Kelly Dr/Benjamin Franklin Pkwy/Arch St	200	147	51	398
2009	Aramingo Ave/Harbison Ave	240	87	66	393
G001	5th St	190	75	111	376
3015	63rd/Cobbs Creek	165	123	77	365
3017	Whitby Ave/52nd/Parkside Ave	130	102	111	343
1005	Castor Ave	155	108	78	341
73	Cottman Ave/Torresdale Ave/State Rd/New State Rd/Princeton Ave	130	114	79	323
G005	Front St/Pattison Ave	155	66	80	301
3009	Ridge Ave	135	72	83	290
G048	Hunting Park Ave	165	78	45	288
1009	Bustleton Ave	125	78	67	270
3010	Bridge St	95	66	107	268
532	Bustleton Ave/Welsh Rd	100	120	44	264
4004	Chew Ave/Olney Ave	110	54	95	259
G046	Kensington Ave	135	42	78	255
3019	Bartram Ave/Essington Ave/Passyunk Ave	130	99	25	254
2008	Girard Ave/Poplar St	105	66	78	249
3005	Belmont Ave/Civic Center Blvd/34th St/33rd St/Lancaster Ave	100	81	66	247
30	Girard Ave/Lancaster Ave	95	114	34	243

ROUTE NUMBER	STREET NAME	KSI SCORE *(KSI CRASHES X 5)*	SPEED SCORE *(SPEED CRASHES X 3)*	PEDESTRIAN SCORE *(PEDESTRIAN CRASHES X 1)*	TOTAL SCORE
1	City Ave/Roosevelt Blvd	65	129	16	210
4002	Godrey Ave/Stenton Ave	70	75	58	203
4007	Bethlehem Pk/Clarissa St/Germantown Ave/Washington Ln/ Wayne Ave	60	84	55	199
1001	Rising Sun Ave/Verree Rd	85	60	46	191
1003	B St/Whitaker Ave	115	48	25	188
G137	Chelten Ave/19th St/Wyncote Ave	75	48	62	185
4005	Germantown Ave	60	63	62	185
3013	Island Ave	120	45	11	176
1013	Academy Rd	70	87	17	174
4001	Henry Ave	65	84	23	172
3018	Haverford Ave	60	60	46	166
G097	Woodland Ave	75	42	47	164
G051	Lansdowne Dr/S Concourse Dr/34th St	55	60	31	146
1002	Adams Ave/Cheltenham Ave/Crescentville	55	54	36	145
3003	38th St/34th St/26th St/University Ave	40	96	6	142
G109	Lincoln Dr	45	96	1	142
3021	Elmwood Ave/49th St/Grays Ferry Ave/Lindbergh Blvd	50	60	30	140
G054	Wyoming Ave	60	45	33	138

Our city and our families deserve safer streets.

Zero traffic deaths.

Questions?
Contact the Office of Transportation and Infrastructure Systems
otis@phila.gov
215-686-5552
www.visionzerophl.com

City of Philadelphia