

VISION ZERØ

CITY OF PHILADELPHIA

Vision Zero Capital Plan 2025 High Injury Network Priority Projects

November 2020



City of
Philadelphia

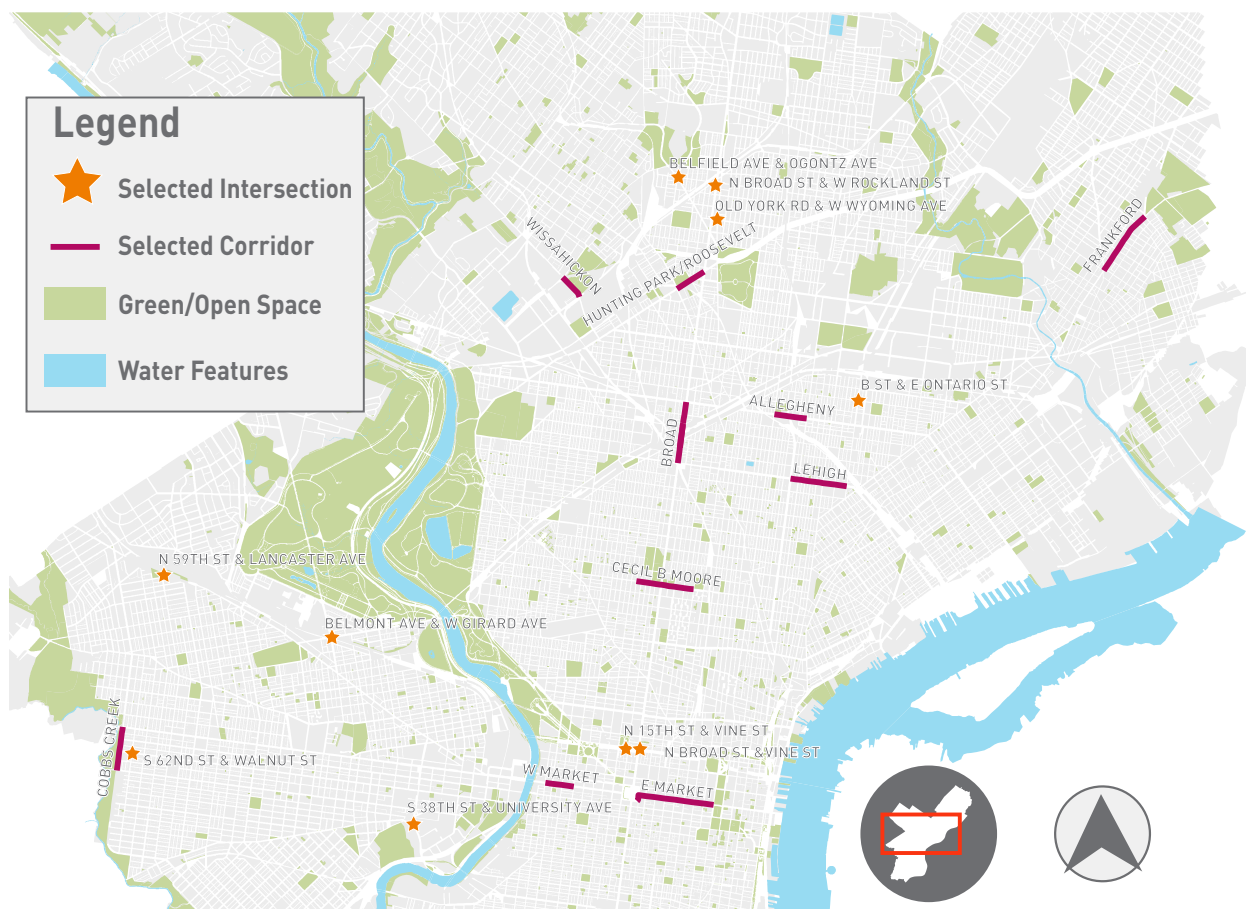
Introduction

To accelerate Philadelphia's progress towards Vision Zero, the City has developed a Capital Plan to accompany the release of the Vision Zero Action Plan 2025.

This Vision Zero Capital Plan 2025 focuses on potential safety solutions for priority corridors and intersections on the High Injury Network – the twelve percent of Philadelphia streets that account for eighty percent of fatal and serious injury crashes. While roadway improvements are needed throughout the High Injury Network (HIN), the City and partner agencies must prioritize improvements on specific locations

that will have the greatest safety impacts and save lives and prevent serious injury.

The Capital Plan provides a snapshot of the traffic safety challenges at each of the ten priority intersections and ten priority corridors combined with information to support implementing roadway design solutions. For each location, a two-page summary sheet provides a crash analysis, a list of potential engineering solutions, and a high-level cost estimate of the investment needed to build the improvements. This document will be utilized for planning purposes as the City partners



Map 1. Map of selected corridors and intersections

with communities and with State and Federal agencies to bring Philadelphia closer to its goal of Vision Zero.

These corridors and intersections have been selected because they are some of the most dangerous places on the High Injury Network and because projects here would meet other City goals including equity, transit, or bike network priority, economic development, and youth safety. Over the next five years, the City will endeavor to fund, design, and build safety improvements at these priority locations.

This plan acknowledges that each location on the HIN presents unique challenges and interventions must respond to the context of current and desired transportation patterns.

Each location also has its own history of crashes and roadway elements that contributed to the conditions of the crash. It is important to study the different crash types and pinpoint the location of these crashes as much as possible in order to evaluate opportunities to implement safety improvements.

Utilizing the High Injury Network

Eliminating traffic-related deaths and serious injuries in Philadelphia by 2030 requires continual, data-informed prioritization of city streets. To systemically prioritize safety interventions the City developed Philadelphia's High Injury Network (HIN) in 2017 and released it with the first Vision Zero Action Plan. The City committed to revising that Network with every plan to track trends in the latest crash data and create objective feedback on the effectiveness of projects.

In 2020 the City updated the High Injury Network using the latest five-year crash data (PennDOT, 2014 - 2018; excludes interstates) as part of the Vision Zero Action Plan 2025. This HIN was developed using a revised methodology that precisely focuses on the twelve percent of Philadelphia streets where eighty percent of fatal and serious injury crashes have occurred from 2014-2018. These crashes are inclusive of all modes - people in vehicles, people walking, and people biking.

Capital Plan Location Selection

The Vision Zero Capital Plan 2025 focuses the High Injury Network further by identifying those locations where physical infrastructure improvements over the next five years would have the greatest impact. To do so, HIN locations were filtered and a subset was selected by analyzing crash data and planning opportunities.

First, all HIN locations were ranked for the highest number of people seriously injured or killed (KSI). Locations that were recently constructed or have projects in development were removed from the list. Then, locations were scored for alignment with CONNECT: Philadelphia's Strategic Transportation Plan. Aligned priorities include equity, schools, pedestrian safety, great streets, transit first, competitive city, and efficient government. This scoring method narrowed the locations down to thirty to forty places. This subset of locations was then evaluated considering City and partner agency plans, funding opportunities, and transferability of solutions. This analysis selected the corridors and intersections shown in Map 1.

Context & Character

This section describes the location's land use and landmarks. It orients the reader to where the location is and its main characteristics.

Improvements Completed to Date

Progress toward Vision Zero takes many forms. This includes consistent improvements already implemented through infrastructure projects at these locations. Improvements include ADA ramps, bike share stations, green stormwater infrastructure (GSI), line striping, medians, resurfacing, pedestrian and bicycle enhancements, street lighting, streetscaping and traffic signal improvements.

Why this intersection

Key statistics are included in this section to highlight the importance of implementing safety improvements at each priority location.

Segment Crash Summary

This section provides a detailed crash analysis of all crashes that killed or injured someone at these locations between 2014-2018. PennDOT crash data was used for the statistical analysis as well as analyzed in Geographic Information System (GIS) software to capture crash types by location. Pie charts show a comparison of all people involved in the injury or fatality crashes at these locations to the people seriously injured or killed in these crashes. This comparison shows that in most locations the people killed or seriously injured in crashes are disproportionately pedestrians and bicyclists.

Crash rates are provided for each corridor and intersection location. These rates compare annual crashes at the specific priority locations to the crashes on similar streets and intersections citywide. The citywide rate is based on major arterial miles and intersections analysis since the majority of the priority locations are on arterials. According to the crash rate analysis, there are 341.7 major arterial miles in the city. On average, 22 people were injured per major arterial mile and 0.7 people suffered from a fatality or serious injury across the entire city. These rates are shown as citywide rates next to the annual average for the same time period at the specific corridor segments. Similar analysis was completed to find rates at intersections that have at least one of their cross-streets classified as a major arterial. Analysis found there are 1443 intersections classified as major arterial intersections in the city. On average, 2.0 people were injured per major arterial intersection and 0.06 people suffered from a fatality or serious injury.

Map

A map shows each corridor with cross streets or each intersection with transit locations. Landmarks including parks, schools, and hospitals are labeled on the maps. The map shows dots for crash locations by type of traveler and severity of injury. Note that the dots are not precise to where a crash occurred. The PennDOT crash data from 2014-2018 is precise to the level of an intersection but not to a specific corner of that intersection. The maps show the volume and type of crashes on the corridors and at intersections. Google Street View images are provided on the intersection sheets to provide additional information on the context of the roadway.

Potential Engineering Toolbox

The potential engineering toolbox provides two key aspects of the capital plan. First, it provides a more technical description of the location including the number of lanes, signals, turn lanes, transit locations, and route ownership. Second, it recommends Federal Highway Administration (FHWA) proven countermeasures that would improve safety.

The FHWA has researched, identified, and promoted a series of twenty countermeasures that offer measurable impacts on improving safety. Details on the countermeasures are available on FHWA's website here: [FHWA Proven Safety Countermeasures](#). The summary sheets link the proven countermeasures to the corridors and intersections. The proven countermeasures have been reviewed for appropriateness at each location by engineers and planners familiar with implementing road safety solutions.

Two FHWA countermeasures are recommended in all locations: A Local Road Safety Plan and Road Safety Audit. These are proposed to study in detail countermeasures that should move through the process of planning, design, and construction. Backplates with Retroreflective Borders and Leading Pedestrian Intervals are two other solutions recommended at all locations. A few rules were used to apply the countermeasures to the following:

- Corridor Access Management was recommended for locations where there were multiple driveways for one business or businesses that showed parking on the sidewalk.
- Walkways were recommended based on a review of sidewalk conditions on Google Earth.
- USlimits2 was recommended if the speed limit is posted higher than 25 mph or not posted. The FHWA

countermeasures provide opportunity to move the priority locations towards Vision Zero with interventions that have been vetted at a federal level.

How this project aligns with safety priorities

Improvements along these corridors and at these intersections align with priorities from the Connect: Philadelphia's Strategic Transportation Plan. This section highlights colorful circles when a location meets the priority and a gray circle when it does not. Whether a location met a priority was based on the following reviews:

- School is highlighted when the corridor or intersection is within 750 feet of a school or within 1000 feet of a community school.
- Transit First is highlighted when the corridor segment or intersection is on or adjacent to SEPTA's high frequency network of buses, trolleys, Broad Street Line, or Market-Frankford Line.
- Bike Network is highlighted when a bike lane is located on the corridor or at the intersection. It is also highlighted when an Indego Station is located on the corridor segment or within one block of an intersection.
- Competitive City is highlighted for locations on commercial corridors.
- Efficient Government is highlighted when the location is in a Combined Sewer Service Area, a PennDOT priority corridor, or if preliminary design complete.
- Equity is highlighted when a location meets the Neighborhood Slow Zone methodology which considers crash history, vulnerable users, and community places.

Table 1 shows corridor and intersection locations compared to City safety priorities. Each location is hyperlinked to its summary sheet.

How much improvements will cost

It is helpful to understand the cost of an improvement project when considering grants and other funding opportunities to implement projects. Detailed cost estimates are created and updated through the planning, design and even construction of a project. To provide a cost estimate prior to more detailed planning and engineering, a simplified cost estimating method was developed. The simplified cost estimate used the following method to develop Planning, Design, Construction, and Construction Management / Construction Inspection (CMCI) estimates for the short term and long term.

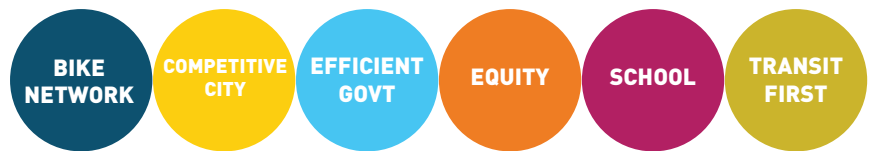
Short term is considered if the project construction started by 2025 and long term if it were to start by 2030. The difference between the short term and long term estimates is five more years of inflation at 3% to reflect that a project would cost more if it were to begin in 2030 versus 2025. Since the estimating methodology was simplified, 45% contingency was added to ensure conservative estimates provide flexibility as projects are designed. Several of the corridors are approximately a quarter of a mile long. The intersections are also relatively small locations. Usually projects are larger than an intersection or quarter of a mile, so the estimates would represent a portion of a larger infrastructure project. Table 2 describes the methods used to develop cost estimates in more detail.

Summary

These summary sheets show opportunities to improve conditions at ten priority corridors and ten priority intersections on the High Injury Network. The analysis aims to match these priority projects with funding and bring them

to implementation. This Vision Zero Capital Plan, released in conjunction with the Vision Zero Action Plan 2025 clearly and concisely summarizes the proposed improvements, benefits, and capital costs. These projects may be advanced through planning, community engagement, design, and construction. Implementing more projects will enable the City to reach the goal of Vision Zero.

Table 1. Safety Priorities for all corridors and intersections



Subcorridors						
Allegheny 5th St to 2nd St	✓	✓	✓	✓	✓	✓
Broad Lehigh Ave to Allegheny Ave		✓	✓	✓	✓	✓
Cecil B Moore Wilmington St to 10th St	✓	✓	✓	✓	✓	✓
Cobbs Creek Market St to Spruce St		✓	✓		✓	✓
Frankford Arrott St to Bridge St	✓	✓	✓	✓	✓	✓
Hunting Park/Roosevelt Blvd Germantown Ave to Broad St		✓	✓	✓	✓	✓
Lehigh American St to B St	✓	✓	✓	✓	✓	
Market Juniper St to 6th St	✓	✓	✓		✓	✓
Market 23rd St to 20th St	✓	✓	✓		✓	✓
Wissahickon Roosevelt Blvd to Roberts Ave	✓	✓	✓	✓	✓	
Intersections						
N 15th St & Vine St		✓	✓		✓	✓
38th St & University Ave	✓	✓	✓			✓
59th St & Lancaster Ave	✓	✓	✓		✓	
62nd St & Walnut St	✓		✓		✓	✓
B St & Ontario St	✓		✓	✓		
Belfield Ave & Ogontz Ave	✓		✓	✓	✓	
Belmont Ave & W Girard Ave	✓		✓	✓	✓	✓
N Broad St & Rockland St		✓	✓	✓	✓	✓
N Broad St & Vine St		✓	✓		✓	✓
Old York & Wyoming Ave	✓	✓	✓	✓	✓	✓

Table 2. Cost Estimation Methodology

Planning	Planning is estimated at 4% of Construction cost for corridors and 5% for intersections. The cost is estimated slightly less for corridors than for intersections because there are economies of scale planning for several intersections versus just one. The Planning estimate may be split in half to approximate studies and public outreach. Planning costs as a percent of construction typically range from 2% to 6% on similar projects. To determine the planning estimate, each corridor was considered individually and 4% was selected as the median estimated cost with slightly more at 5% for one intersection. The methodology used to find the percent for planning is specific to HIN locations in Philadelphia and may or may not apply to planning estimates for other types of studies and locations.
Design	Design is estimated at 10% of Construction cost. This is an industry standard for estimating design.
Construction	Construction is estimated by using the square footage of corridor roadway (length x width) and FHWA estimates for resurfacing costs. The FHWA <i>Status of the Nation's Highways, Bridges, & Transit Conditions & Performance 23rd Edition</i> (November 2019) provided Exhibit A-1 Typical Costs per Lane Mile Assumed in HERS by Type of Improvement in Appendix A. The calculations used from this table were multiplied by the square footage to develop construction cost: • Urban Other Principal Arterial, Resurface Existing Lane, for Major Urbanized (Population over 1 million people) = \$1,135,000 per lane mile (equated to \$17.91/SF) • Urban Minor Arterial/Collector, Resurface Existing Lane, for Major Urbanized (Population over 1 million people) = \$804,000 per lane mile (equated to \$12.69/SF) A contingency was added since the estimates are so simplified. A total of 45% was included in the estimate based on a percentage of the construction costs. 45% was selected utilizing: • 30% from PennDOT Publication 352 Figure 4.2 Contingency Chart • 5% for Maintenance and Protection of Traffic • 5% for Mobilization • 5% for Utility relocation
CMCI	Construction Management / Construction Inspection (CMCI) is estimated at 10% of Construction cost. This is an industry standard for estimating CMCI.
Short vs. Long Term	3% inflation was included in estimates also utilizing PennDOT Publication 352. The inflation was applied so that Short Term Cost for year 2025 include 3% compounded annually over 5 years (16% total growth). Long Term Cost for year 2030 include 3% compounded annually over 5 years from Short Term Cost (an additional 16% growth).

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Context & Character

The character of Allegheny Avenue between 5th Street and 2nd Street is commercial with auto, grocery, and a dollar store. There are two-story rowhomes with some mixed-use takeout restaurants closer to 2nd Street. Allegheny Plaza, a large commercial center dominates the south side of Allegheny stretching almost the length of segment. The Rivera Recreation Center is on the north side of Allegheny Avenue at 5th Street. Adjacent to the recreation center, fronting W Allegheny Avenue, is the Maria de los Santos Health Center. It has a colorful and welcoming street-facing entrance.

SAFETY IMPROVEMENTS COMPLETED TO DATE

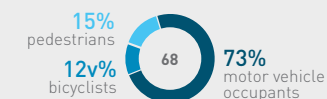
PROJECT TYPE	COMPLETED BY
ADA ramps and resurfacing	City of Philadelphia Streets Department
Linestriping	City of Philadelphia Streets Department
Signal Upgrades; ADA ramps	PennDOT

Why this segment

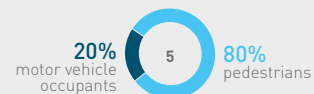
More than 70% of injury-related crashes involve motor vehicle occupants, but 80% of the serious injuries or deaths involve pedestrians. There were no bicycle-related serious injuries or deaths. Crashes are clustered at the intersections, with the most occurring at the intersections with 5th Street and 2nd Street. However, many midblock crashes occur between 5th Street and American Street. These could be related to people turning into the shopping center or slowing down to find parking by health center.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

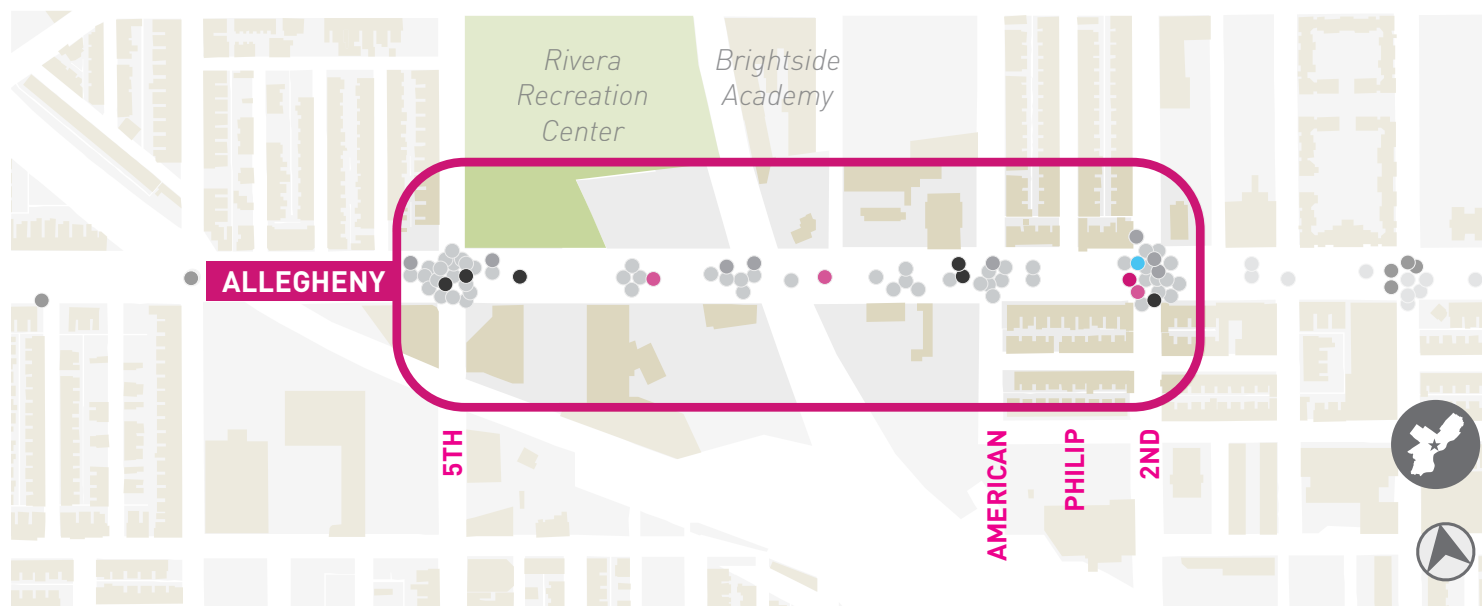


Crash Rates

CITY-WIDE	SUBCORRIDOR
22 injuries major arterial mile	49 injuries minor arterial mile
0.7 KSIs major arterial mile	4 KSIs minor arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

W Allegheny Avenue is typically one travel lane in each direction with parking on both sides. Near Allegheny Plaza, street parking is not allowed. Between 5th Street and 3rd Street there is a center turn lane. At 3rd and American Streets there are left turn only lanes. Two streets intersect with, but don't cross W Allegheny Avenue (3rd Street and N Phillip Street). Three streets go across W Allegheny Avenue (5th Street, N American Street, and 2nd Street). However, 2nd Street is one way southbound and American, is one way southbound on the north side of E Allegheny.

The 60 bus line travels the length W Allegheny. There is a striped bike lane the length of segment.

Allegheny Avenue is owned and maintained by PennDOT (State Road 2016). Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Corridor Access Management

Better management of entry and exit points along a roadway. Reducing number of curb cuts, for example enhances safety for all users, including bicyclists and pedestrians. Safety benefits include a 25 to 31% reduction in injury and fatal crashes on urban arterials.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.



Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

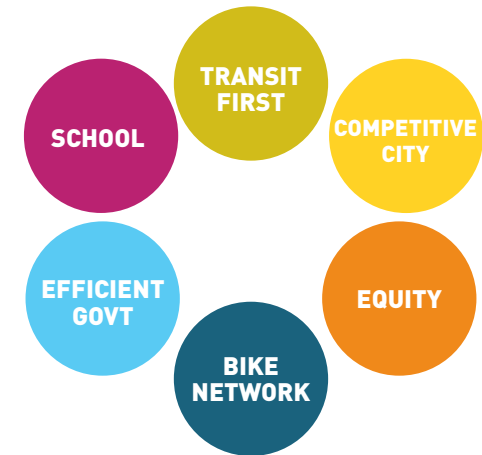


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$75,000	\$87,000
DESIGN	\$187,000	\$217,000
CONSTRUCTION	\$1,861,000	\$2,158,000
CMCI	\$187,000	\$217,000
TOTAL	\$2,310,000	\$2,679,000

Context & Character

This section of Broad Street is a transit nexus with access to North Philadelphia Amtrak Station, four regional rail lines, the Broad Street Line, as well as, SEPTA bus routes. The character of the segment is predominately commercial including gas stations, banks, fast food restaurants with drive throughs, and a strip commercial center. Temple University Children's Medical Center anchors the north end at Allegheny and the Philadelphia County Assistance Office anchors the south end at Lehigh. The segment also goes under the railroad tracks between Glenwood Avenue and Indiana Avenue.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
ADA ramps	City of Philadelphia Streets Department
Street lighting	City of Philadelphia Streets Department

Why this segment

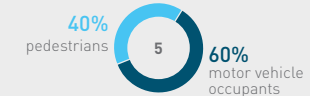
A majority of crashes that resulted in injury involved motor vehicle occupants, but more than 25% of crashes involved pedestrians, and 100% of serious injuries or death crashes involved a pedestrian. The crashes tend to cluster at the intersections, although there are mid-block crashes throughout. Many of pedestrian-related crashes occur at the intersection of Broad Street and Lehigh Avenue, including a pedestrian fatality. The intersection with Glenwood has many vehicle crashes, which could be because the two roads met an angle. There are fewer pedestrian crashes here, but there was a fatality.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

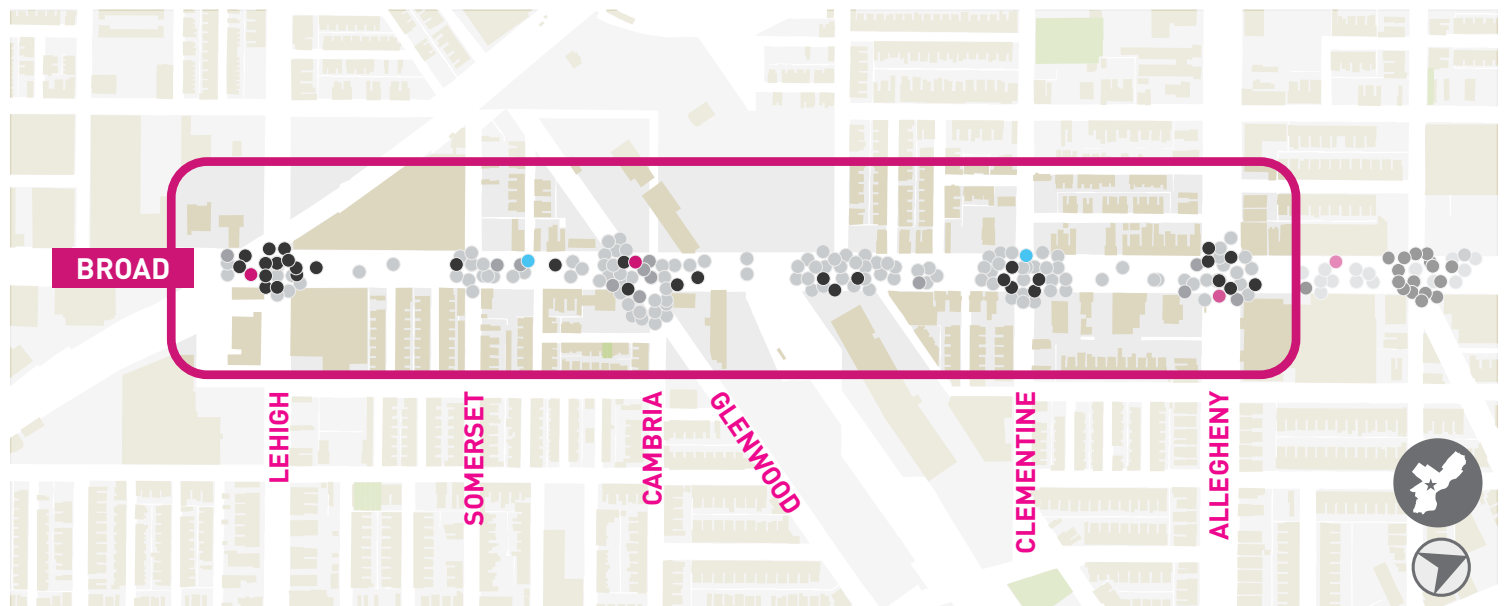


Crash Rates

CITY-WIDE	SUBCORRIDOR
22 injuries major arterial mile	79 injuries major arterial mile
0.7 KSIs major arterial mile	2 KSIs major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

Broad Street usually has two travel lanes in each direction, parking on both sides, and a center turn lane that becomes a left turn only lane at intersections. There are pedestrian refuges at several intersections. Numerous commercial activities access Broad Street through curb cuts and driveways. Eleven streets interact with Broad Street. Six are signalized with crosswalks. Several are one-way.

There are two Broad Street Line stations (Lehigh and Allegheny) and the 16 bus. The SEPTA Regional Rail Chestnut Hill West, Trenton, Lansdale/Doylestown, and Manayunk/Norristown Lines, as well as the North Philadelphia Amtrak Station serve the corridor.

Broad Street and Lehigh and Allegheny Avenues are owned and maintained by PennDOT (Pennsylvania Traffic Route 611 and State Roads 2014 and 2016). The other streets along the segment are owned and maintained by the City. Project work here will require coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Corridor Access Management

Better management of entry and exit points along a roadway. Reducing number of curb cuts, for example enhances safety for all users, including bicyclists and pedestrians. Safety benefits include a 25 to 31% reduction in injury and fatal crashes on urban arterials.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Local Road Safety Plans

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Road Safety Audits

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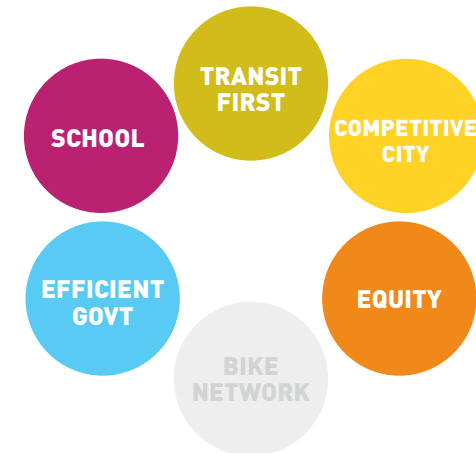


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$268,000	\$311,000
DESIGN	\$670,000	\$777,000
CONSTRUCTION	\$6,697,000	\$7,764,000
CMCI	\$670,000	\$777,000
TOTAL	\$8,305,000	\$9,629,000

Context & Character

Cecil B. Moore Avenue is an east-west arterial in North Philadelphia, traversing the southern end of Temple University's campus. The 3 bus runs on the corridor and a subway station is at the intersection with Broad Street.

West of Broad Street, most of the properties on the segment are mid-rise and mixed-use, with retail or restaurants on the first floor. The architecture is a mix of historic and new construction.

East of Broad Street, the buildings are modern and often high-rise. Temple's campus runs along this segment and much of the street environment has a college aesthetic.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
Medians	City of Philadelphia Streets Department
Pedestrian & Bicycle Enhancement Project	City of Philadelphia Streets Department
Construction & Improvements	City of Philadelphia Streets Department

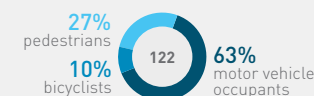
Why this segment

Crashes occur all along the corridor, but there is a notable concentration at the intersection with Broad Street. West of Broad, Cecil B. Moore Avenue is narrower and there are more mid-block crashes. East of Broad, where Cecil B. Moore is wider, most crashes occur at intersections.

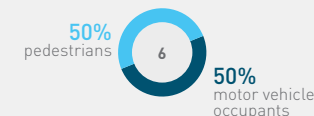
This area serves many pedestrians. West of Broad, the retailers on the segment attract people on foot. East of Broad, Temple University students are active in the area. Pedestrians are particularly vulnerable. While they account for 27% of all injuries, they represent 50% of all serious injuries or fatalities.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

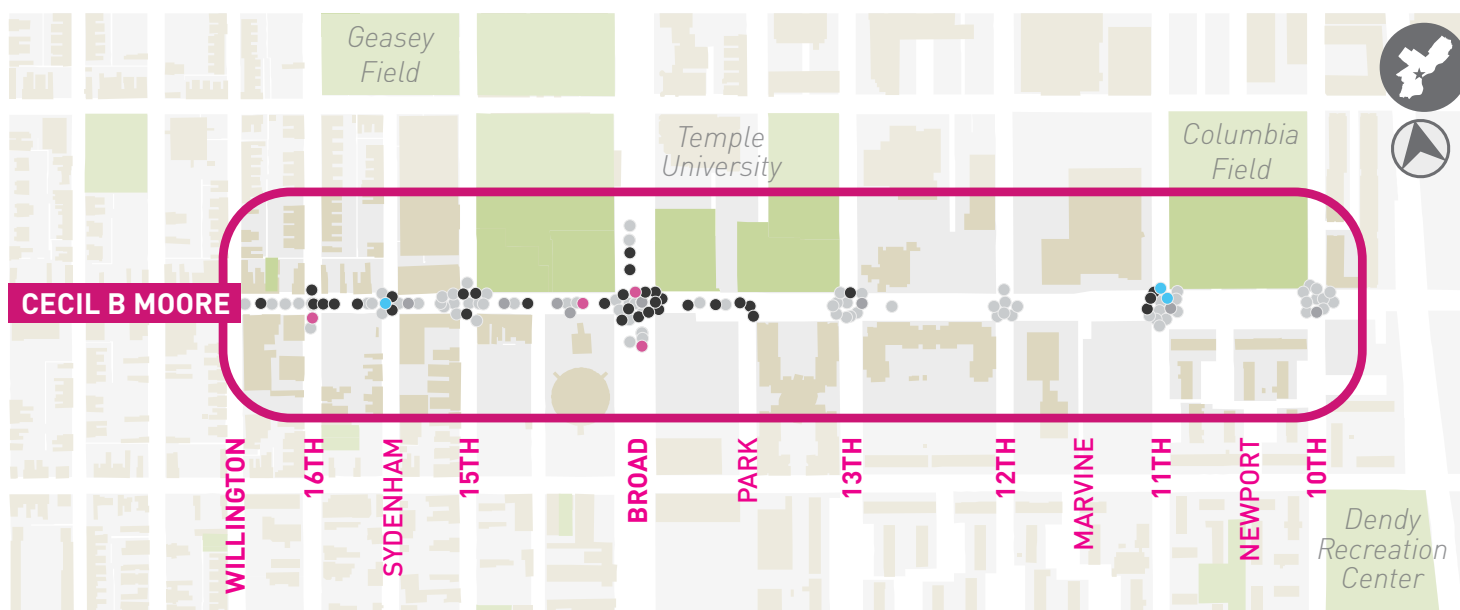


Crash Rates

CITY-WIDE	SUBCORRIDOR
22 injuries major arterial mile	41 injuries major arterial mile
0.7 KSIs major arterial mile	2 KSIs major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

The western portion of the segment, from Willington Street to Broad Street, is two travel lanes, one in each direction, with parking on both sides of the street. Most of the eastern portion of the segment, from Broad Street to 10th street, is comprised of three travel lanes, one lane in each direction and a middle turning lane, striped bike lanes, and parking on both sides of the street.

Twelve streets intersect the segment, including 10th Street and Willington Street. Of these, seven of these intersections are signalized.

Cecil B. Moore Avenue (State Route 2010) is a state road. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.

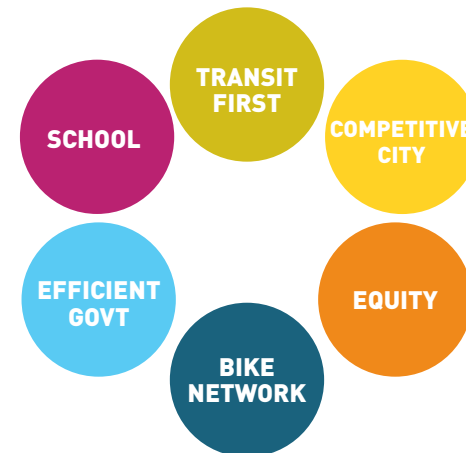


Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$134,000	\$156,000
DESIGN	\$335,000	\$389,000
CONSTRUCTION	\$3,346,000	\$3,879,000
CMCI	\$335,000	\$389,000
TOTAL	\$4,150,000	\$4,813,000

Context & Character

Cobbs Creek Parkway is a north-south arterial at the very western edge of West Philadelphia. The segment is wide and vehicles travel on it at relatively high speeds.

To the west of the segment is Cobbs Creek Park. There are no streets into the park, but there are two driveways along the segment to access two Parks & Rec facilities.

There is a diverse mix of uses on the east side of the segment. Many of the properties are single-family homes. There is also a CHOP hospital, a senior living facility, a gas station, and a pharmacy.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
ADA ramps & resurfacing	City of Philadelphia Streets Department
Intersection modification at Spruce	City of Philadelphia Streets Department
Protected bicycle lane	Office of Transportation, Infrastructure, and Sustainability
Guidrails (project pending)	WSP/McCormick Taylor

Why this segment

The majority of injury crashes involve occupants of motor vehicles (72%). Pedestrians account for 23% of injuries and bicyclists account for 5%. Most crashes occur at or near intersections, especially those involving pedestrians and bicyclists.

The intersection with Market Street has a Market-Frankford Line station, suggesting high volumes of pedestrians in the area. The intersection with Chestnut Street has a gas station, which could mean vehicles are entering and exiting outside the designated travel lanes.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)



Crash Rates

CITY-WIDE

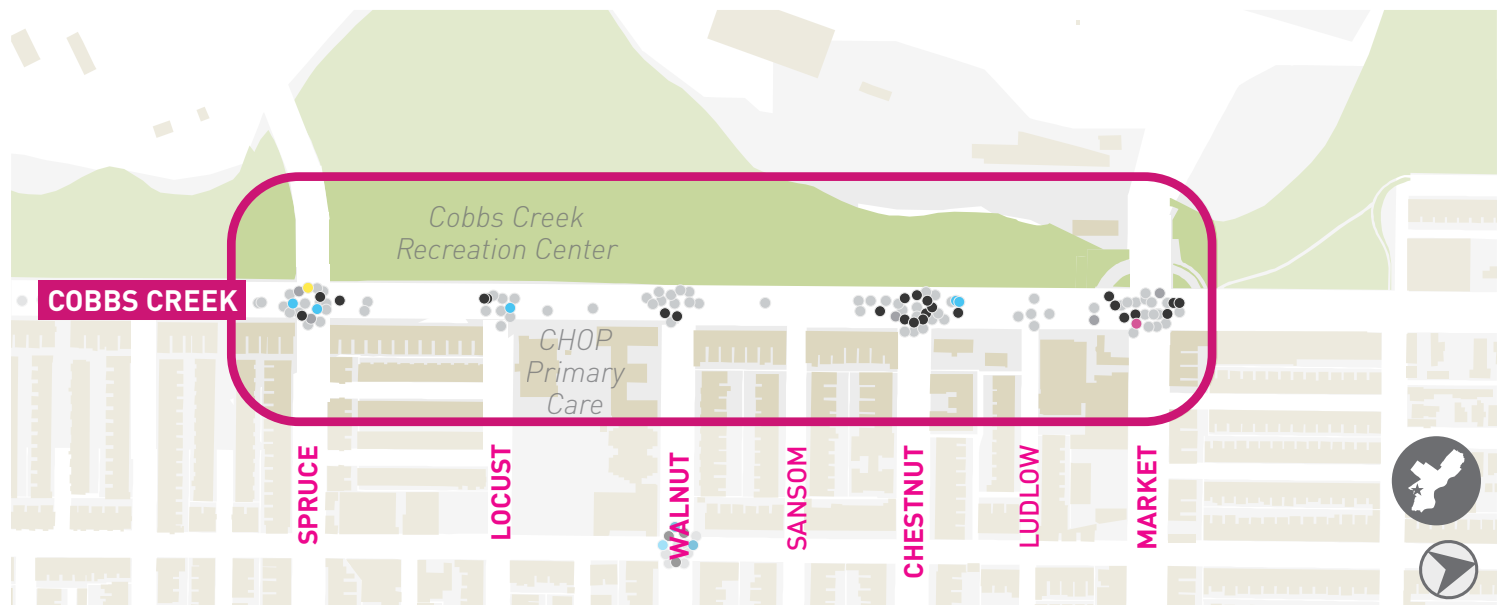
22 injuries
major arterial mile
0.7 KSIs
major arterial mile

SUBCORRIDOR

58 injuries
major arterial mile
3 KSIs
major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

Cobbs Creek Parkway between Market Street and Spruce is generally four lanes, two in each direction. At the north end, it is three lanes, with a middle turn lane added. At the southern end, it is three lanes, two in each direction and a middle turn lane.

There are seven intersections along the segment, including Market Street and Spruce Street. Five of the junctions are t-intersections, while the Market Street and Spruce Street junctures are cross intersections. Four of the intersections are signalized.

Cobbs Creek Parkway at Walnut Street and Chestnut Street is the end of the route for the 21 bus. The 63rd Street Station for the Market-Frankford Line is at the segment intersection with Market Street.

Cobbs Creek Parkway (State Route 3015) is a state road. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Corridor Access Management

Better management of entry and exit points along a roadway. Reducing number of curb cuts, for example enhances safety for all users, including bicyclists and pedestrians. Safety benefits include a 25 to 31% reduction in injury and fatal crashes on urban arterials.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Roundabouts

Roundabouts reduce speeds, minimize conflict points, and improve operations of intersections. They notably reduce severe crashes. Roundabouts can reduce severe crashes by over 80%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.

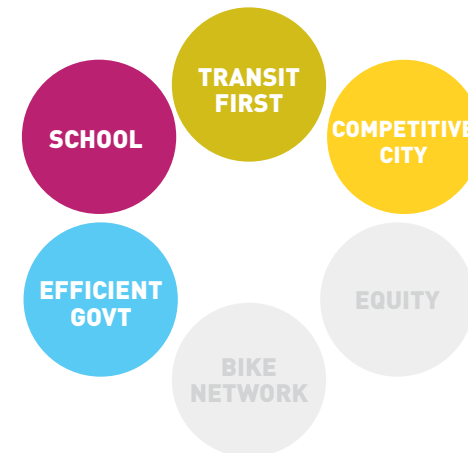


Local Road Safety Plans, Road Safety Audits, and USLIMITS2

Studies to be performed include Local Road Safety Plans, Road Safety Audits, and USLIMITS2.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$121,000	\$141,000
DESIGN	\$303,000	\$352,000
CONSTRUCTION	\$3,023,000	\$3,505,000
CMCI	\$303,000	\$352,000
TOTAL	\$3,750,000	\$4,350,000

Context & Character

Frankford Avenue connects the Arrott and Frankford Transportation Centers. The Market-Frankford Line track covers the roadway for nearly its length, and when the elevated track leaves the roadway it is to enter the Frankford Transportation Center. Along most of the segment there is one to three story commercial buildings, with first floor retail and some with office or housing above. Closer to Bridge Street, the space “opens up” without the track above the street and with less dense land use. Frankford Avenue, Margaret Street, and Oxford Ave meet near Arrott Street at Arrott Transportation Center.

SAFETY IMPROVEMENTS COMPLETED TO DATE

Signal upgrades;
intersection improvements
(project pending)

PennDOT

Why this segment

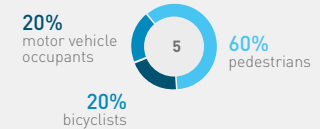
The majority of injury crashes involve occupants of motor vehicles. However nearly 35% of crashes involve pedestrians. The majority of crashes, especially those that involved pedestrian injury or death, occur between Pratt and Bridge Streets. These roads are adjacent to the Frankford Transportation Center or on the complex Bridge Street intersection. The next cluster of crashes is at the intersection with Margaret Street where Arrott Transportation Center is located. These two high traffic areas located adjacent to transit centers have the highest rate of crashes.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

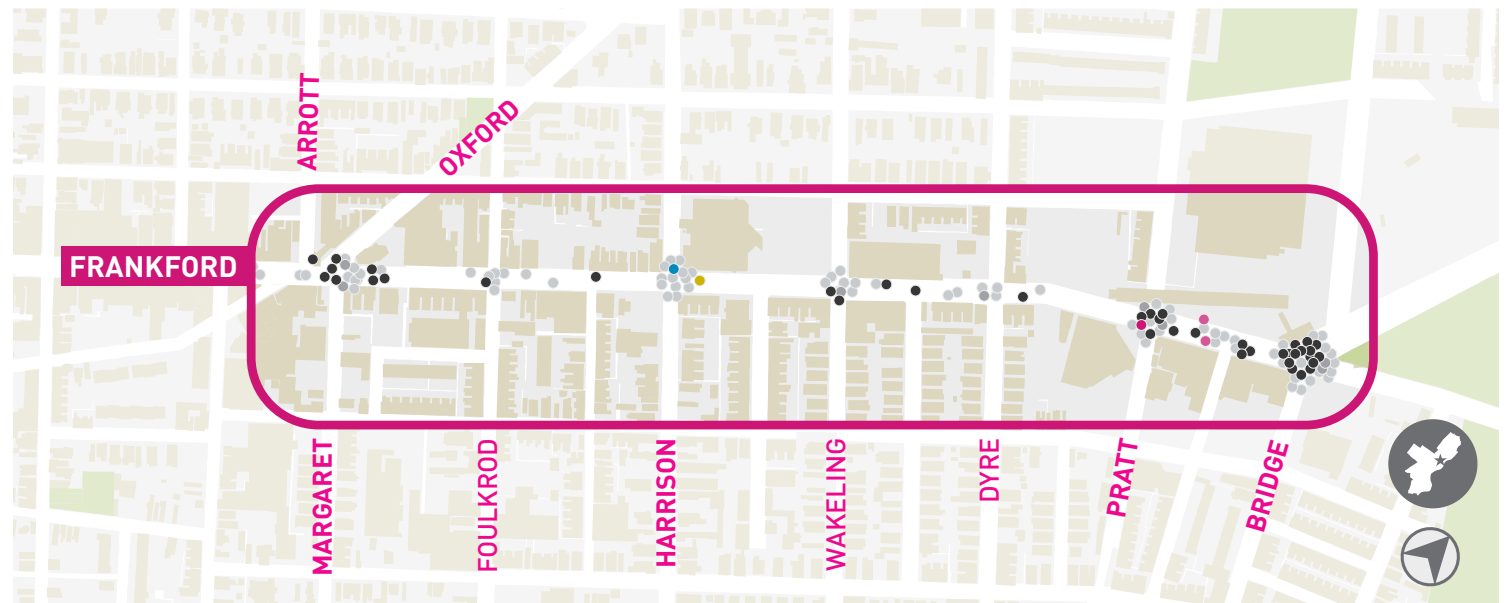


Crash Rates

CITY-WIDE		SUBCORRIDOR	
22	injuries major arterial mile	41	injuries major arterial mile
0.7	KSIs major arterial mile	2	KSIs major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

Frankford Avenue has one travel lane (with bike sharrows) in each direction and parking on both sides of the street. Much of the segment has an elevated track that carries the Market-Frankford Line. North of Dyre Street, the tracks leave the roadway airspace and go to the Frankford Transportation Center. Southbound Frankford Avenue, at Bridge Street, has a free-right with a median/pedestrian refuge.

Eleven streets intersect Frankford Avenue. Many of the streets are one way and seven intersections are signalized. The unsignalized intersections have crosswalks at the side streets, but not crossing Frankford Avenue. The 3 and 5 bus routes travel through the segment.

Frankford Avenue is owned and maintained by PennDOT (State Road 2007). The other roads are owned and maintained by the City. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.

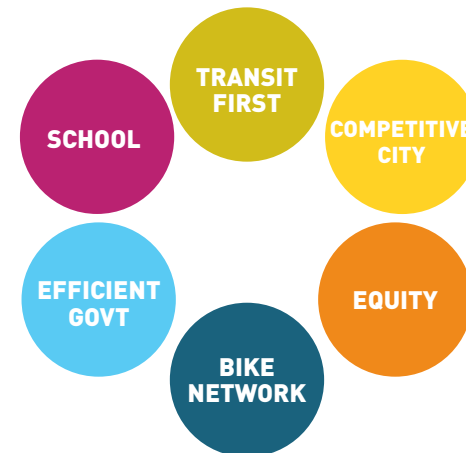


Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$187,000	\$217,000
DESIGN	\$468,000	\$543,000
CONSTRUCTION	\$4,675,000	\$5,420,000
CMCI	\$468,000	\$543,000
TOTAL	\$5,798,000	\$6,723,000

HUNTING PARK/ROOSEVELT BLVD

Germantown Ave to N Broad St

Context & Character

The segment runs southwest-northeast on Hunting Park Ave through the Hunting Park neighborhood of North Philadelphia and turns into Roosevelt Boulevard after traversing 16th Street. Properties on the commercial corridor consist of one- or two-story buildings with parking lots. Businesses include automotive repair centers, a daycare, a furniture store, fast food restaurants, a dollar store, and a laundromat. Many intersecting streets have single-family homes. The Marcus Foster Stadium occupies one full block on the corridor.

SEPTA's 1 and R buses serve the segment and the Hunting Park Broad Street Line station is one block from the segment.

SAFETY IMPROVEMENTS COMPLETED TO DATE

No improvements to report

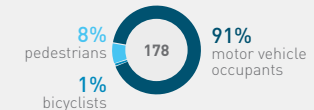
Why this segment

Motorists represent the highest portion of injuries on the corridor (91%). However, 33% of crashes resulting in a serious injury or fatality involve a pedestrian.

Crashes tend to occur in or near intersections, and this is especially true for crashes resulting in serious injuries or fatalities. Not only is Hunting Park Ave/Roosevelt Blvd wide, but there are many angled intersections along the segment, which make street crossings more complicated.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

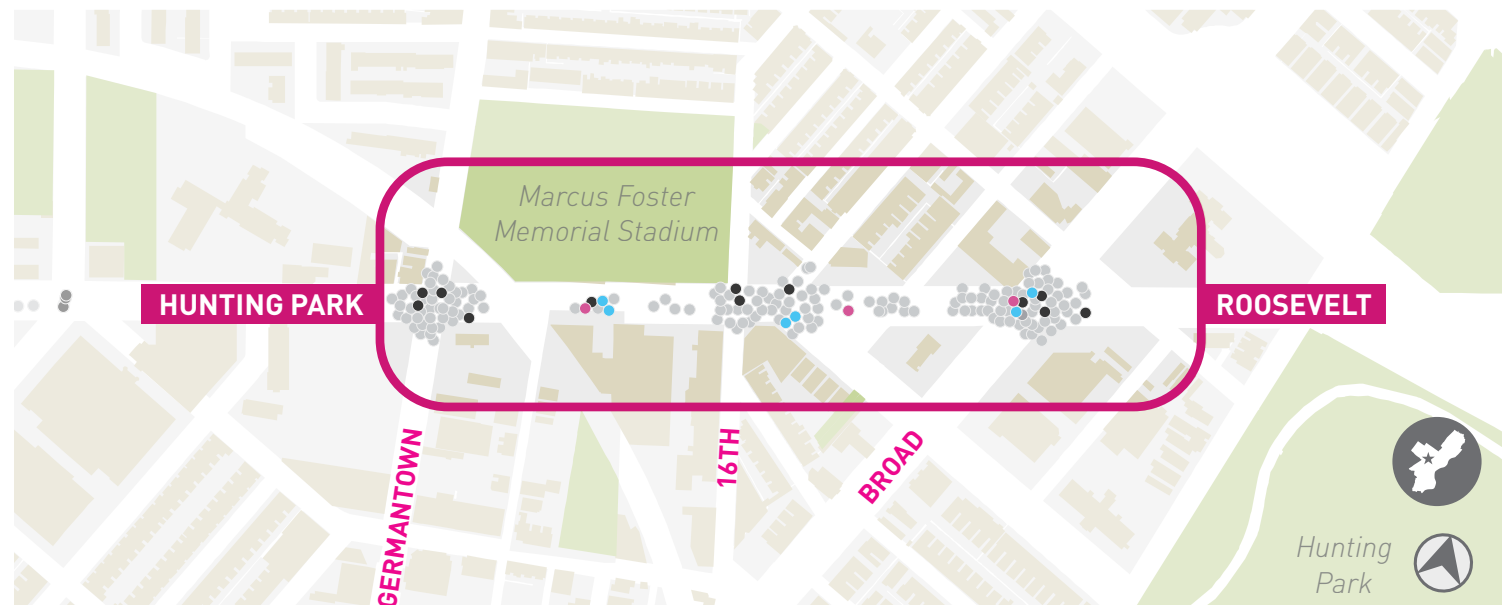


Crash Rates

CITY-WIDE	SUBCORRIDOR
22 injuries major arterial mile	137 injuries major arterial mile
0.7 KSIs major arterial mile	7 KSIs major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

Hunting Park Avenue and Roosevelt Boulevard between Germantown Avenue and Broad Street have four travel lanes, two in each direction. From Germantown Avenue to Carlisle Street, there is typically parking on both sides of the street. From Carlisle Street to Broad Street, instead of parking lanes, there are bus only lanes.

There are five intersections along this segment. The Germantown Avenue and 16th Street junctions are typical cross intersections. The 15th Street, Carlisle Street, and Broad Street junctures are skewed, meaning the streets intersect at oblique angles. Four of the intersections are signalized.

SEPTA's 1 and R buses run service on the segment.

The segment of Hunting Park Avenue and Roosevelt Boulevard are U.S. Route 13 and 1. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Corridor Access Management

Better management of entry and exit points along a roadway. Reducing number of curb cuts, for example enhances safety for all users, including bicyclists and pedestrians. Safety benefits include a 25 to 31% reduction in injury and fatal crashes on urban arterials.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.



Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

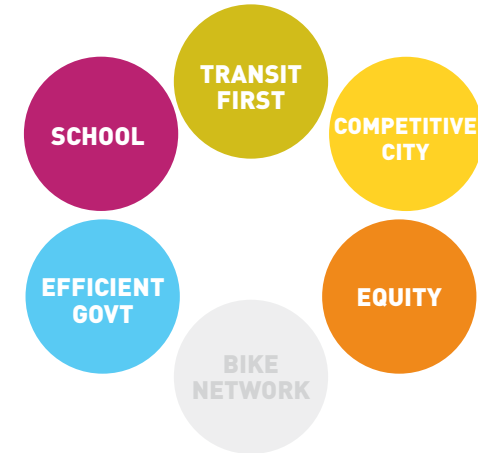


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$100,000	\$116,000
DESIGN	\$249,000	\$289,000
CONSTRUCTION	\$2,482,000	\$2,878,000
CMCI	\$249,000	\$289,000
TOTAL	\$3,080,000	\$3,572,000

Context & Character

Lehigh Avenue is an east-west arterial running through West Kensington. Most properties fronting the segment are commercial or institutional buildings. Nearby cross-streets have many single family homes.

At B Street, Temple University Hospital Episcopal Campus occupies two city blocks. Nearby is a Philadelphia County Assistance Office; Merakey, a school/services organization for children with disabilities; and COMHAR, a mental health and substance abuse organization. The corridor includes Maguire Playground as well as strip malls, fast food restaurants, and auto part stores.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
Curb extensions	City of Philadelphia Streets Department
Ada ramp upgrade	City of Philadelphia Streets Department
Streetscape	City of Philadelphia Streets Department

Why this segment

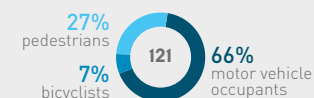
Along this segment, the majority of crash-related injuries are to people in vehicles (66%). However, all people killed or seriously injured in a crash are pedestrians.

Community services on the corridor, such as the Temple University Hospital, the County Assistance Office, COMHAR, Merakey, and Maguire Playground, suggest that more vulnerable populations travel frequently in the area.

Significant transit access on the corridor indicates that many people will be traveling by foot. Transit includes the 54 bus, connection to the 57 bus, and proximity to the MFL Huntingdon Station.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

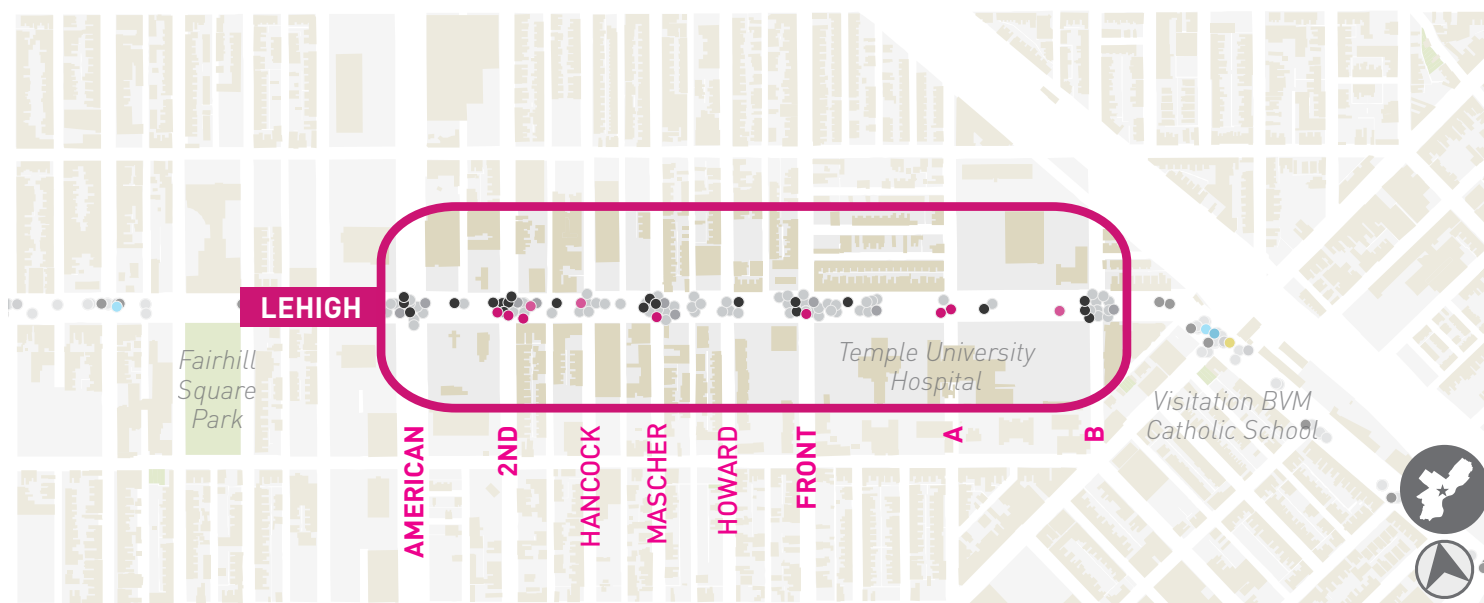


Crash Rates

CITY-WIDE	SUBCORRIDOR
22 injuries major arterial mile	49 injuries major arterial mile
0.7 KSIs major arterial mile	4 KSIs major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

Lehigh Avenue from American Street to B Street is comprised of five travel lanes (two lanes in each direction and a turning lane), a striped bike lane in each direction, parking on both sides of the street, as well as bus stops before major intersections for the 54 bus.

Thirteen streets intersect the corridor, including B Street and American Street. Of these, six intersections are signalized.

Lehigh Avenue is owned by PennDOT (State Route 2014). Project work here will require increased coordination with PennDOT.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Backplates with Retroreflective Borders

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Corridor Access Management

Better management of entry and exit points along a roadway. Reducing number of curb cuts, for example enhances safety for all users, including bicyclists and pedestrians. Safety benefits include a 25 to 31% reduction in injury and fatal crashes on urban arterials.



Road Diets/Configurations

Road diets reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Road configurations include intersection improvements. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.



Road Safety Audits

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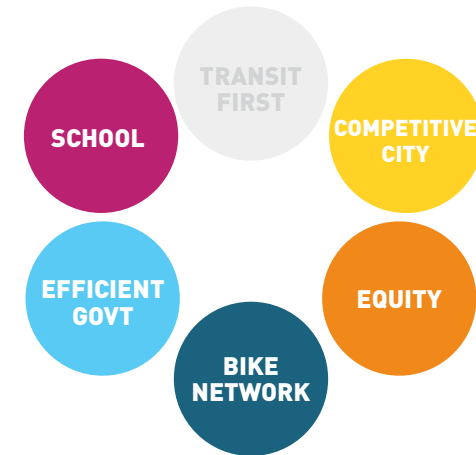


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$262,000	\$304,000
DESIGN	\$655,000	\$760,000
CONSTRUCTION	\$6,546,000	\$7,589,000
CMCI	\$655,000	\$760,000
TOTAL	\$8,118,800	\$9,413,000

Context & Character

Market Street between Juniper Street and 6th Street is an important east-west arterial which connects City Hall to the historic sites of Old City.

In the heart of Center City, the segment is densely developed with high-rise buildings and significant commercial activity. The roadway and the sidewalks are active with people most of the day.

Major commercial developments along the segment include the Fashion District and East Market. Hotels, restaurants, and department stores, such as Macy's, are also line the street. Freire Charter Middle School is on Market Street near 11th Street.

SAFETY IMPROVEMENTS COMPLETED TO DATE

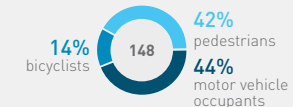
PROJECT TYPE	COMPLETED BY
ADA ramp upgrade	City of Philadelphia Streets Department
Signalization	City of Philadelphia Streets Department
Indego bike share station	Bicycle Transit Systems
Bus shelter/link kiosk	Intersection Media LLC
Protect bicycle lane	Office of Transportation, Infrastructure, and Sustainability

Why this segment

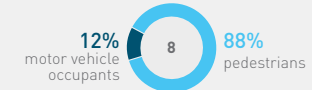
The percentage of crashes resulting in injury to pedestrians and occupants of motor vehicles are nearly the same (42% and 44%, respectively). However, 88% of crashes resulting in serious injury or death involve a pedestrian. Each of the intersections along Market East experience a fairly similar number of crashes. However, crashes involving pedestrians, including serious injury or death are more prevalent between 13th and 10th Street, with a secondary cluster at 8th Street. A motor vehicle fatality occurred at the intersection with 6th Street.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

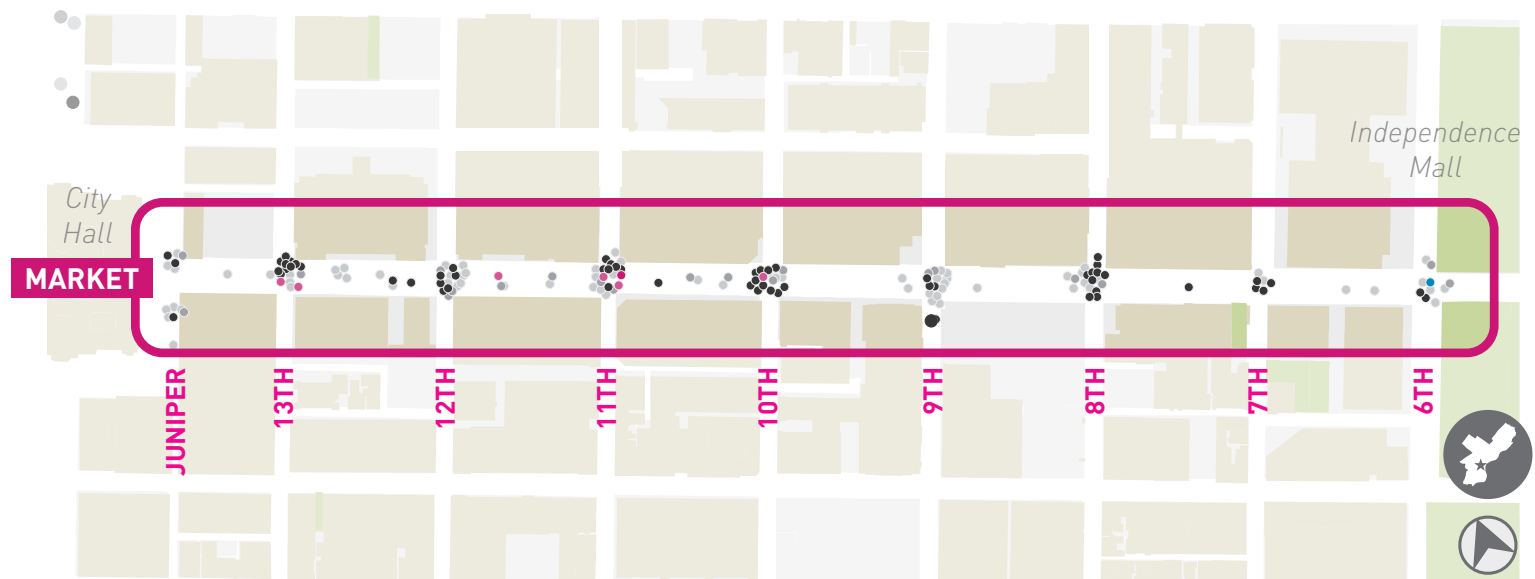


Crash Rates

CITY-WIDE	SUBCORRIDOR
22 injuries major arterial mile	47 injuries major arterial mile
0.7 KSIs major arterial mile	3 KSIs major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

Market Street between Juniper Street and 6th Street is mainly five travel lanes. The three central lanes are open to all vehicles, with two of these lanes going eastbound and one lane going westbound. The outermost lane on each side of the street is a shared bus and bike lane. Occasionally along the segment, there are mid-block parking bays, outside of the bus/bike lanes.

Numerous bus lines serve the segment, include SEPTA's 17, 33, and 48. The 13th Street Station provides access to SEPTA trolley's and the Market-Frankford Line (MFL). MFL stations are also at the intersections with 11th and 8th Streets. Two Indego bike share stations are on the segment.

Nine streets intersect the segment, including 6th Street and Juniper Street. All are signalized.

The segment of Market Street (State Route 2004) is a state road. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

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Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

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Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

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Local Road Safety Plans

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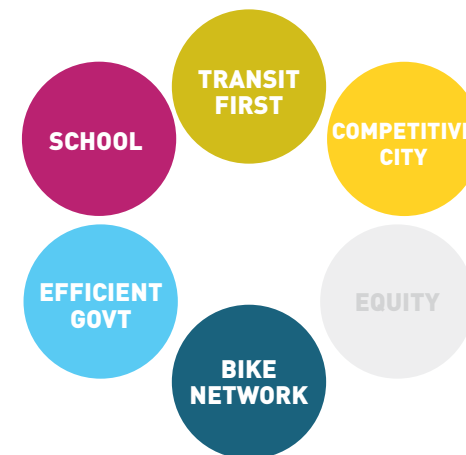


Road Safety Audits

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How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$201,000	\$234,000
DESIGN	\$501,000	\$581,000
CONSTRUCTION	\$5,010,000	\$5,808,000
CMCI	\$501,000	\$581,000
TOTAL	\$6,213,000	\$7,204,000

Context & Character

Market Street West is an east-west arterial running through the heart of downtown Philadelphia. Between 20th and 21st Streets, properties fronting the street are high-rise office buildings. Between 21st and 23rd Streets, there are high rise offices on the north side and two-story commercial buildings on the south side. Closer to 23rd Street, surface parking fronts the street.

Office uses are closer to 20th Street and a mix of office, retail, and residential are closer to 23rd Street. A fire station, 22nd & Market Memorial Park, and Trader Joe's are also along the corridor.

SAFETY IMPROVEMENTS COMPLETED TO DATE

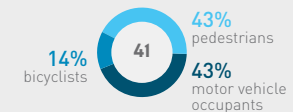
PROJECT TYPE	COMPLETED BY
ADA ramps & resurfacing	City of Philadelphia Streets Department
Safety corridor project/protected bicycle lane	Office of Transportation, Infrastructure, and Sustainability

Why this segment

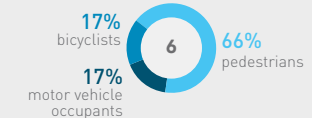
The percentage of injured persons is the same for pedestrian and vehicle crashes (44%), but pedestrian deaths are 67% of the crash related deaths. Crashes tend to cluster at the intersections. However, between 20th and 21st Streets there are several midblock crashes, including a vehicle death. 22nd Street is a key bicycle cross street and the intersection with Market has the highest number pedestrian, bicycle, and vehicle crashes along the segment. Many of the sidewalks lack ADA compliant curb ramps, and improvements to help pedestrians and cyclists safely travel through the segment are needed.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

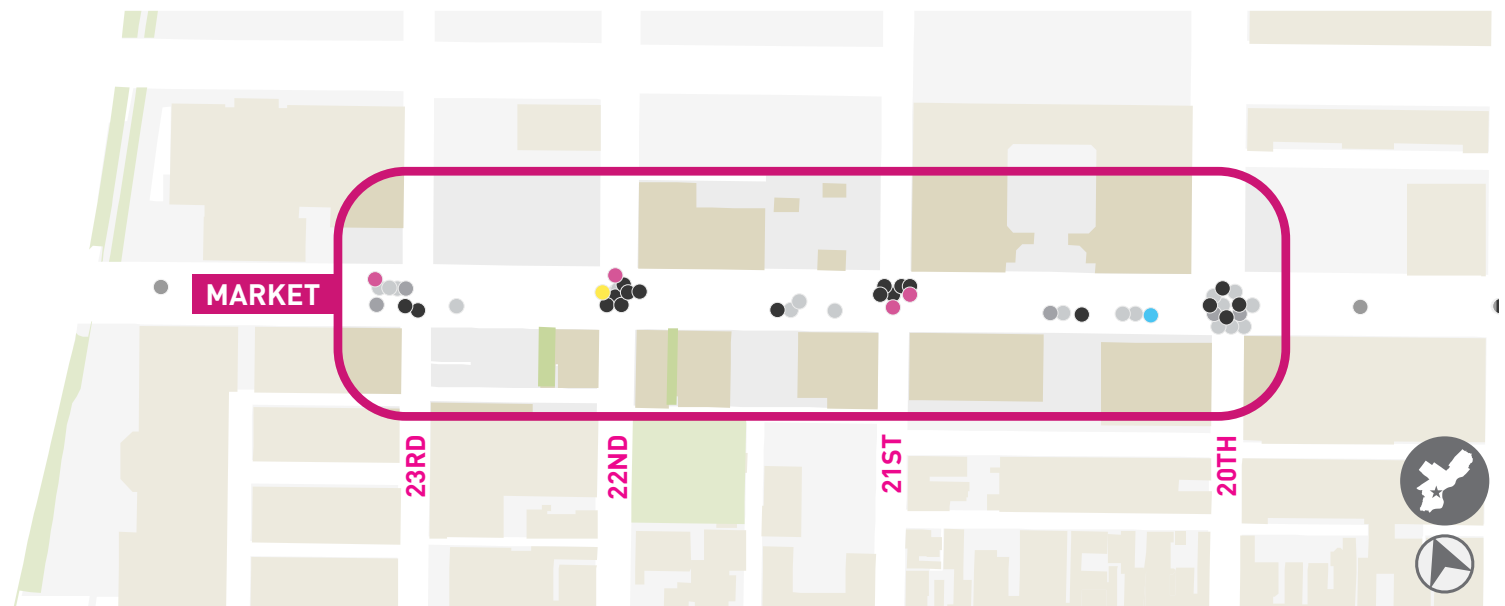


Crash Rates

CITY-WIDE	SUBCORRIDOR
22 injuries major arterial mile	41 injuries major arterial mile
0.7 KSIs major arterial mile	5 KSIs major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

Market Street West between 21st and 23rd Streets is comprised of four travel lanes (two lanes in each direction) and parking on both sides of the street. Between 21st and 20th, a third eastbound lane is added and a west bound lane drops away, while parking on both sides of the street remains. At 20th Street, Market Street West becomes one-way, traveling eastbound. There are bus stops at the intersections including a trolley station at 22nd Street. Bus routes that serve the corridor include the 7, 49, and 48. There are two Indego stations on the segment.

Four streets intersect the corridor, including 20th and 23rd Streets. All of the intersections are signalized and have crosswalks and pedestrian signals.

Market Street West is owned by PennDOT (PA Traffic Route 3 and State Route 3010). The cross streets are owned by the city. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Yellow Change Intervals

This signal timing change reduces red light running crashes at intersections. Calculations are based on the speed limit and distance necessary to traverse through the intersection safely. This can lead to a 36 to 50% reduction in red light running.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Road configurations include intersection improvements. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Walkways

Sidewalks, shared use paths, and other pedestrian walkways reduce pedestrian crashes along roadways. Adding sidewalks along a roadway can reduce pedestrian crashes by 65 to 89%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.

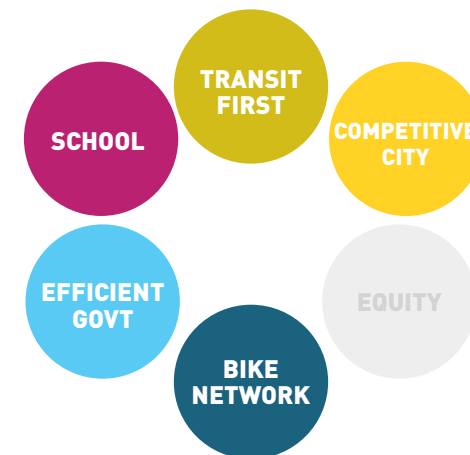


Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$98,000	\$114,000
DESIGN	\$243,000	\$282,000
CONSTRUCTION	\$2,426,000	\$2,813,000
CMCI	\$243,000	\$282,000
TOTAL	\$3,010,000	\$3,491,000

Context & Character

Wissahickon Avenue is a southwest-southeast arterial that travels through Nicetown and Germantown. Fernhill Park dominates the east side of Wissahickon. On the west side of Wissahickon Avenue, there is very large industrial mixed-use building containing a wide variety of businesses including the Wissahickon Charter School, a public K through 8 school. There is a small residential cluster along Deacon Street and the western side of Roberts Avenue.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
Street lighting	PennDOT

Why this segment

The segment includes a park on one side and a school on the other with a signalized crossing between the two. U-turns are an issue in the area. These could be related to turns into Deacon Street or the Fernhill Park entrance or changing directions after the median near Roosevelt Boulevard. More than 95% of crash-related injuries and 75% of serious injury or death are to people in vehicles. However, there are several pedestrian crashes that resulted in injury and death. These are clustered between Roberts Avenue and the entrance to Fernhill Park. No bicycle crashes have been reported.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

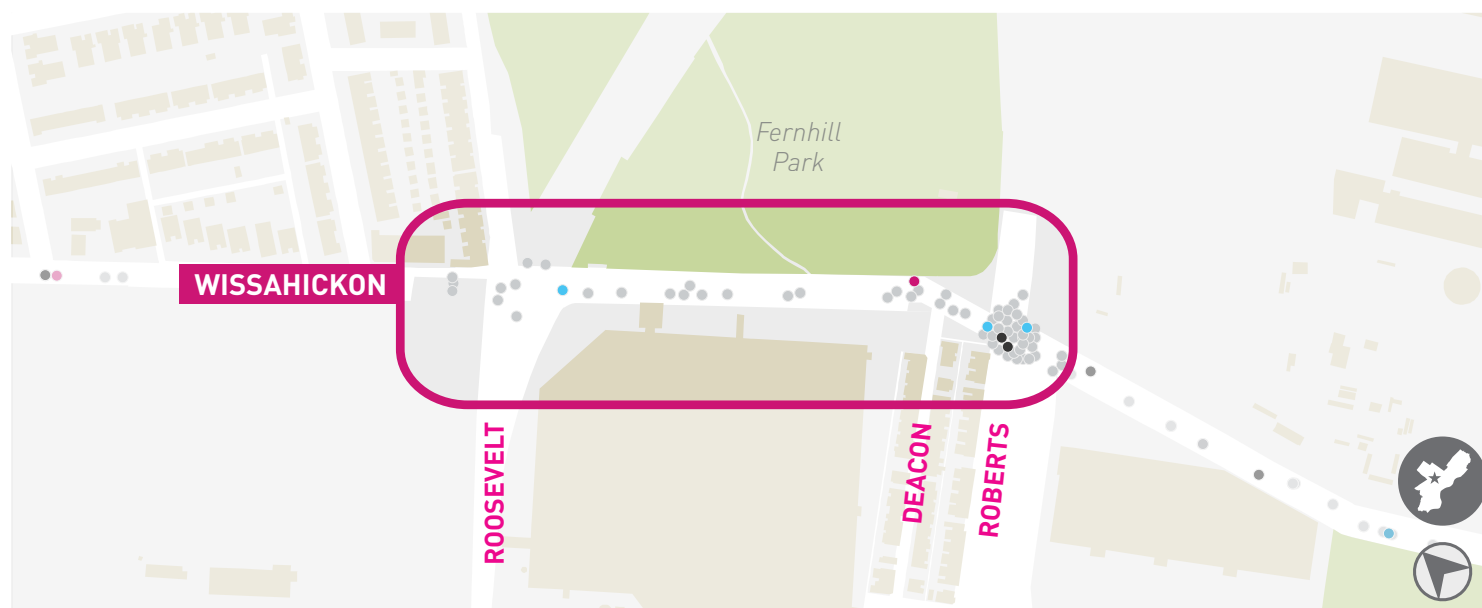


Crash Rates

CITY-WIDE	SUBCORRIDOR
22 injuries major arterial mile	79 injuries major arterial mile
0.7 KSIs major arterial mile	4 KSIs major arterial mile

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



POTENTIAL ENGINEERING TOOLBOX

Wissahickon has two travel lanes in each direction and parking on both sides. Roberts Avenue has one travel lane in each direction and a striped bike lane. The legs of Wissahickon and Roberts Avenue have left turn only lanes. There is a free-right from Roberts Avenue southbound to Wissahickon westbound. The intersection with Roberts Avenue is signalized with crosswalks and pedestrians signals. At the free-right, there is a crosswalk. Deacon Street is a narrow one-way residential street away from Wissahickon. Near Roosevelt Expressway there is a narrow raised median to prevent cars from going left from Abbottsford Avenue. On Wissahickon there is an entrance to Fernhill Park and a midblock pedestrian crossing with a signal at Fernhill Walk.

There are bus stops for the H and XH routes on Wissahickon.

Wissahickon and Roberts Avenue are owned by PennDOT (State Routes 4003 and 4009). Work here will require coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Roundabouts

Roundabouts reduce speeds, minimize conflict points, and improve operations of intersections. They notably reduce severe crashes. Roundabouts can reduce severe crashes by over 80%.



Systemic Applications of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections

This low-cost approach to crash reduction involves installing enhanced signing and pavement markings at intersections to increase awareness of potential conflicts. Safety benefits include a 15% reduction in nighttime crashes.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Road configurations include intersection improvements. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Walkways

Sidewalks, shared use paths, and other pedestrian walkways reduce pedestrian crashes along roadways. Adding sidewalks along a roadway can reduce pedestrian crashes by 65 to 89%.



Local Road Safety Plans, Road Safety Audits, and USLIMITS2

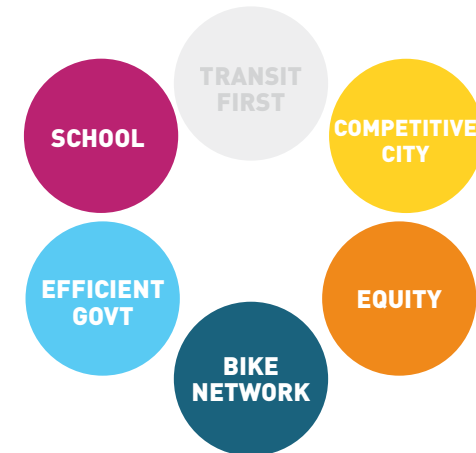
Studies to be performed include Local Road Safety Plans, Road Safety Audits, and USLIMITS2.

WISSAHICKON

Roosevelt Blvd to Roberts Ave

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$79,000	\$92,000
DESIGN	\$196,000	\$228,000
CONSTRUCTION	\$1,960,000	\$2,273,000
CMCI	\$196,000	\$228,000
TOTAL	\$2,431,000	\$2,821,000

Context & Character

Located on the edge of Center City, the Vine Street and 15th Street junction spans I-676 and consists of two signalized intersections. The built environment of the area is dominated by wide, busy roads and large commercial or institutional buildings.

The northwest block is dedicated to I-676 on- and off-ramps and has no structures. The northeast corner houses a restaurant and a Drexel Medicine building. The southeast corner is the location of the former Hahnemann University Hospital. The southwest corner consists of a parking lot and parking garage.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
Signalized intersection	City of Philadelphia Streets Department

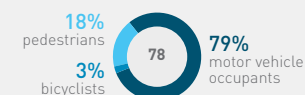
Why this intersection

This is a large and complicated intersection that receives vehicles exiting from both westbound and eastbound I-676. This intersection acts as a transition area from the higher speeds of the interstate to the lower speeds of surface streets. This may partially explain why there are many crashes in the area. Additionally, the intersection has many travel lanes which may be challenging for pedestrians and bicyclists to cross.

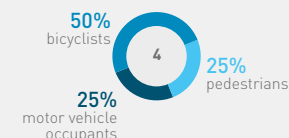
While motorists account for 79% of all injuries, pedestrians and bicyclists account for 75% of serious injuries and fatalities.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)



Crash Rates

CITY-WIDE	INTERSECTION
injuries maj. art. intersection 2.0	injuries min. art. intersection 15.6
KSIs maj. art. intersection 0.06	KSIs min. art. intersection 0.8

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



- A** Looking north on 15th St towards the intersection with Vine St.
- B** Looking east down Vine St towards the intersection with 15th St.

POTENTIAL ENGINEERING TOOLBOX

N. 15th Street is one-way southbound and intersects Vine Street via two signalized intersections.

North of Vine, 15th Street has four travel lanes, with the right turn lane providing access to westbound Vine Street and the west I-676 on-ramp. The segment of 15th Street over I-676 has four travel lanes, with a left turn lane to access eastbound Vine Street. South of Vine, 15th Street has three travel lanes.

Westbound Vine Street has three travel lanes. Eastbound Vine Street has two travel lanes on the western segment. Adjacent, two off-ramp lanes from eastbound I-676 converge at the intersection. An additional two off-ramp lanes are right-turn only onto 15th Street. The eastern segment of eastbound Vine Street has four travel lanes which transition into five lanes before they meet Broad Street.

15th Street (State Route 3029) and Vine Street (State Route 2676) are state owned. Work here will require coordination with PennDOT



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.

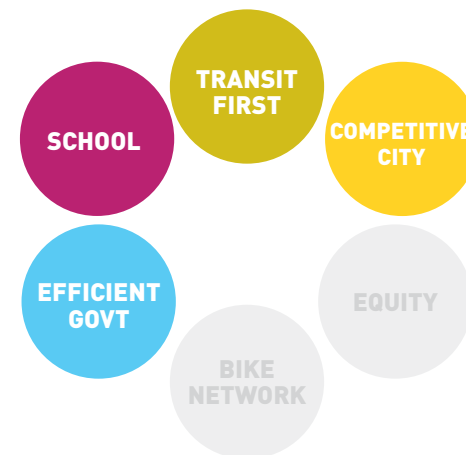


Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$98,000	\$114,000
DESIGN	\$196,000	\$228,000
CONSTRUCTION	\$1,959,000	\$2,272,000
CMCI	\$196,000	\$228,000
TOTAL	\$2,449,000	\$2,842,000

Context & Character

South 38th Street is a north-south arterial in West Philadelphia which transitions into University Avenue at its intersection with Baltimore Avenue.

This intersection in University City is adjacent to the Hospital of the University of Pennsylvania, the Children's Hospital of Philadelphia, and the VA Medical Center. Blocks to the west of the intersection are densely residential.

The juncture provides access north to UPenn and Drexel, south to I-76, and west to Baltimore Avenue. The 30 bus, 42 bus, and LUCY Route serve this area. The 40th Street Trolley Portal is two blocks away.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
Widened intersection	City of Philadelphia Streets Department

Why this intersection

This is a complicated intersection. Motorists must navigate a triangle intersection. Pedestrians do not have a designated crosswalk to directly cross from Baltimore Avenue to the east side of University Avenue. They must first cross to a pedestrian island and then cross east across University Avenue. Most crashes appear to occur in the University Avenue travel lanes. 71% of the injury crashes involve occupants of motor vehicles. There is also one crash resulting in injury to a pedestrian and one crash resulting in injury to a bicyclist.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes

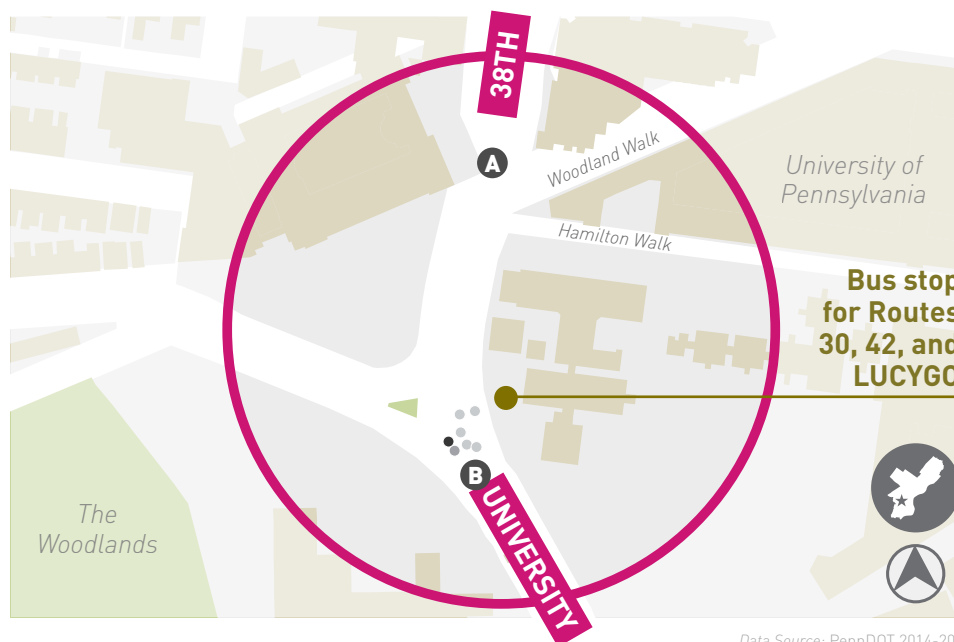


Crash Rates

CITY-WIDE	INTERSECTION
2.0 injuries maj. art. intersection	1.4 injuries maj. art. intersection
0.06 KSIs maj. art. intersection	0 KSIs maj. art. intersection
3.3 injuries & fatalities street miles	26.9 injuries & fatalities street miles
0.1 KSIs street miles	0.5 KSIs street miles

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



A Looking south on 38th St towards the intersection with University Ave.

B Looking north down University Ave towards the intersection with 38th St.

POTENTIAL ENGINEERING TOOLBOX

The complicated triangle intersection is signalized and features six travel lanes on University Avenue, five travel lanes on 38th Street, five travel lanes on Baltimore Avenue, as well as bike lanes on all connecting roads. Just south of the intersection on University Avenue is a signalized intersection into the VA Medical Center, which adds further complexity to the juncture.

PennDOT owns three streets at this intersection. S 38th Street and Baltimore Avenue are U.S. Route 13 and University Avenue is Pennsylvania State Route 3003. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.

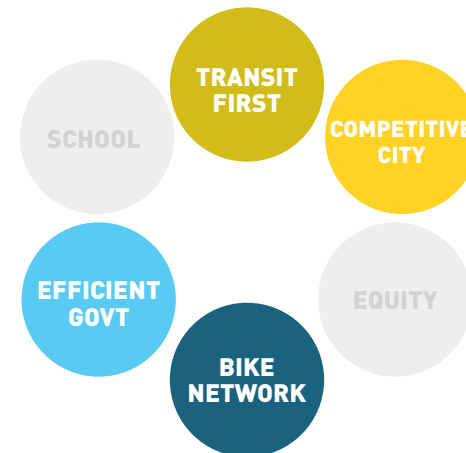


Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$66,000	\$77,000
DESIGN	\$132,000	\$154,000
CONSTRUCTION	\$1,318,000	\$1,528,000
CMCI	\$132,000	\$154,000
TOTAL	\$1,648,000	\$1,913,000

Context & Character

The south leg of 59th Street is dominated by Tustin Playground on the west corner of the intersection and Overbrook High School on the east corner. The north leg of 59th Street has small commercial properties and the intersection's north corners are dominated by small parking lots. The west leg of Lancaster Avenue is mixed use industrial to the north and Tustin Playground to the south. The east leg includes Overbrook High School on the south and an overgrown parking lot and trees, perhaps associated with the railroad tracks adjunct to the property, on the north.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
Intersection realignment & signal upgrade	City of Philadelphia Streets Department
Reduced pedestrian crossing distance	City of Philadelphia Streets Department
Flashing school lights at Overbrooke High School	City of Philadelphia Streets Department
Realigned school pick up lane	City of Philadelphia Streets Department

Why this intersection

85% of the injury crashes involve occupants of motor vehicles. The rest involve pedestrians. There are no bicyclist-related crashes. There were two serious injuries or deaths and they were split evenly between a motorist and a pedestrian. The intersection is signalized, including pedestrian signals. The intersection appears wide because there are parking lots on two corners and a park and grassy median on the other two. All four legs of the intersection have crosswalks and bicycle lanes.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

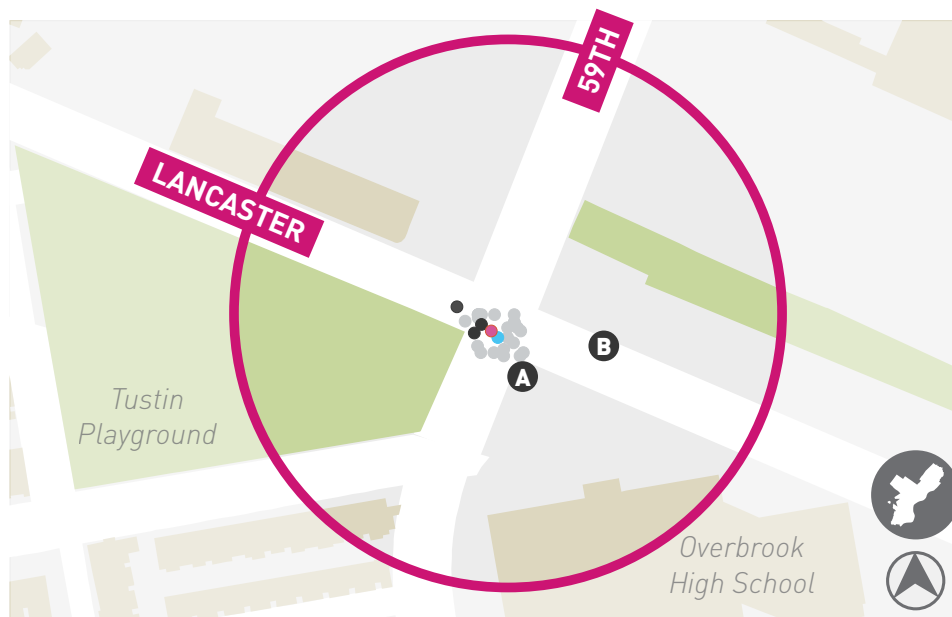


Crash Rates

CITY-WIDE	INTERSECTION
2.0 injuries maj. art. intersection	5.4 injuries maj. art. intersection
0.06 KSIs maj. art. intersection	0.4 KSIs maj. art. intersection

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



A Looking north on 59th St toward the intersection with Lancaster Ave.

B Looking west down Lancaster Ave toward the intersection with 59th St.

POTENTIAL ENGINEERING TOOLBOX

Lancaster Avenue has two travel lanes in each direction, parking on both sides of the street, and a striped bike lane. Approaching N. 59th Street, the right side parking removed to allow for a left turn only lane. In the westbound direction, a right turn only lane is also included. This is accomplished by removing the left side parking. N. 59th Street has two travel lanes in each direction and a striped bike lane. The intersection is signalized and includes crosswalks and pedestrian crossing signals.

There is a free-right lane, with parking from northbound N. 59th Street to eastbound Lancaster Avenue.

Lancaster Avenue is owned and maintained by PennDOT (State Road 3005) and is US Traffic Route 30. 59th Street is owned and maintained by the City. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Corridor Access Management

Better management of entry and exit points along a roadway. Reducing number of curb cuts, for example enhances safety for all users, including bicyclists and pedestrians. Safety benefits include a 25 to 31% reduction in injury and fatal crashes on urban arterials.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.



Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

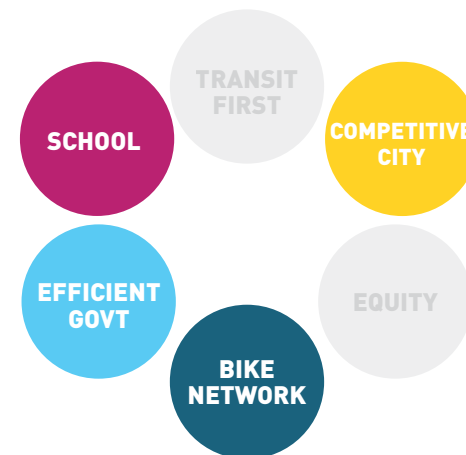


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$68,000	\$79,000
DESIGN	\$135,000	\$157,000
CONSTRUCTION	\$1,344,000	\$1,559,000
CMCI	\$135,000	\$157,000
TOTAL	\$1,682,000	\$1,952,000

Context & Character

This intersection is in a predominantly residential area in Cobbs Creek. On the southwest corner is a long-term nursing care facility. A Children's Hospital of Philadelphia center is two blocks away on Locust Street. A Philadelphia Parks and Rec ice skating facility is located where Walnut Street terminates at 63rd Street one block to the west.

Walnut street is an important west-bound corridor connecting Center City through West Philadelphia to 63rd Street. The 21 bus provides westbound transit service on Walnut Street. The 63rd Street MFL station is three blocks away on Market Street.

SAFETY IMPROVEMENTS COMPLETED TO DATE

No improvements to report

Why this intersection

Almost 80% of injury crashes and 100% of serious injury or fatality crashes involved occupants of motor vehicles. Walnut is one way westbound and the traffic signals for it hang over the street and are also on the far corner. The signals for South 62nd Street are on the far corners and could be hard to see. All four legs of the intersection have pedestrian signals and crosswalks, although some of them are faded.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

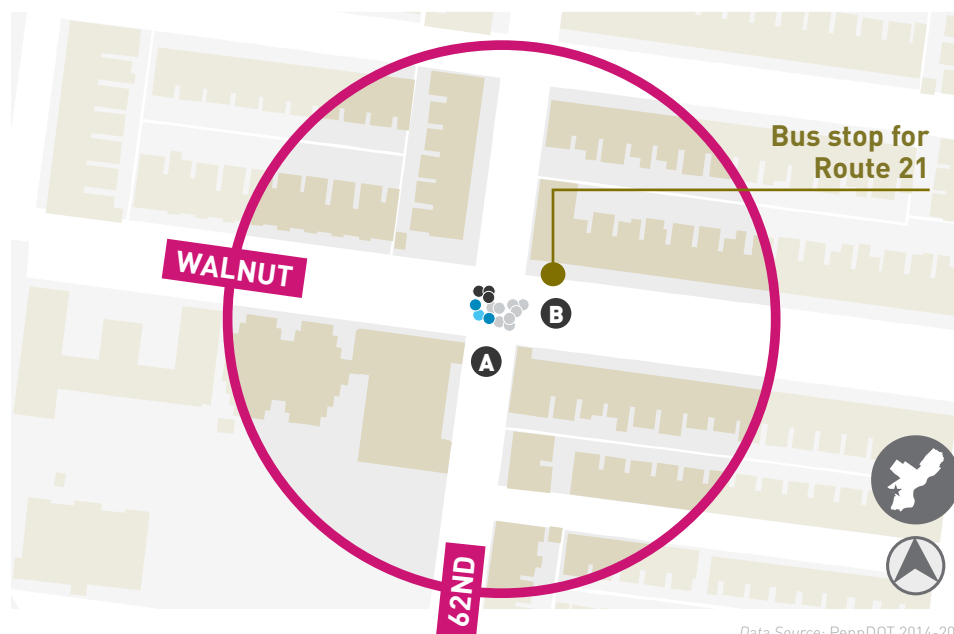


Crash Rates

CITY-WIDE	INTERSECTION
2.0 injuries maj. art. intersection	2.8 injuries maj. art. intersection
0.06 KSIs maj. art. intersection	0.6 KSIs maj. art. intersection

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



Data Source: PennDOT 2014-2018



- A** Looking north on 62nd Ave towards the intersection with Walnut St.
- B** Looking west down Walnut St towards the intersection with 62nd St.

POTENTIAL ENGINEERING TOOLBOX

This is a signalized four-way intersection.

Walnut Street is one-way westbound with two vehicular travel lanes and a third right turn lane on the east segment of the intersection. There is parking on both sides of the street, a buffered bike between the parking and travel lane on the south side of the street, and a route 21 bus stop on the northeast corner.

S. 62nd Street is a two-way north-south street with one vehicular travel lane in each direction. There is parking on both sides of the street and no bike lanes.

Walnut Street (State Route 3) is state owned. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Walkways

Sidewalks, shared use paths, and other pedestrian walkways reduce pedestrian crashes along roadways. Adding sidewalks along a roadway can reduce pedestrian crashes by 65 to 89%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.



Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

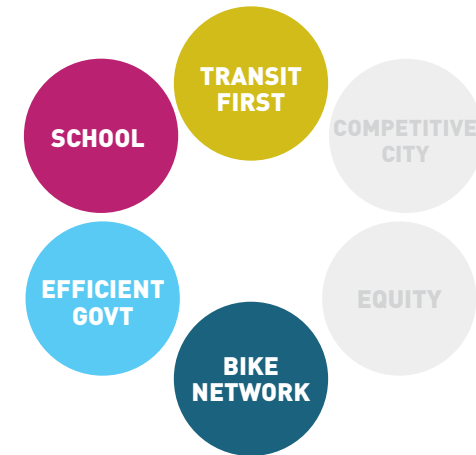


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$29,000	\$34,000
DESIGN	\$57,000	\$67,000
CONSTRUCTION	\$570,000	\$661,000
CMCI	\$57,000	\$67,000
TOTAL	\$713,000	\$829,000

Context & Character

The intersection of B Street and Ontario Street is where Kensington and Feltonville neighborhoods meet. The area around the intersection is predominantly residential – two story, rowhouses that are either multifamily or single family. Small, corner-store type commercial uses are on three corners, the fourth corner is a vacant lot.

SAFETY IMPROVEMENTS COMPLETED TO DATE

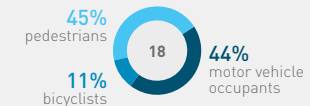
PROJECT TYPE	COMPLETED BY
Low cost safety improvements	ARLE funding

Why this intersection

The percentage of injuries crashes involving pedestrians and motor vehicle occupants are the nearly the same, 44% and 45%, respectively. However, all of the serious injury or fatality crashes involved pedestrians. The traffic signals for Ontario Street hang over the street. The signals for eastbound B Street are on the far corner and could be difficult to see. All four legs of the intersection have crosswalks and pedestrian signals, and Ontario Street has a striped bike lane.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

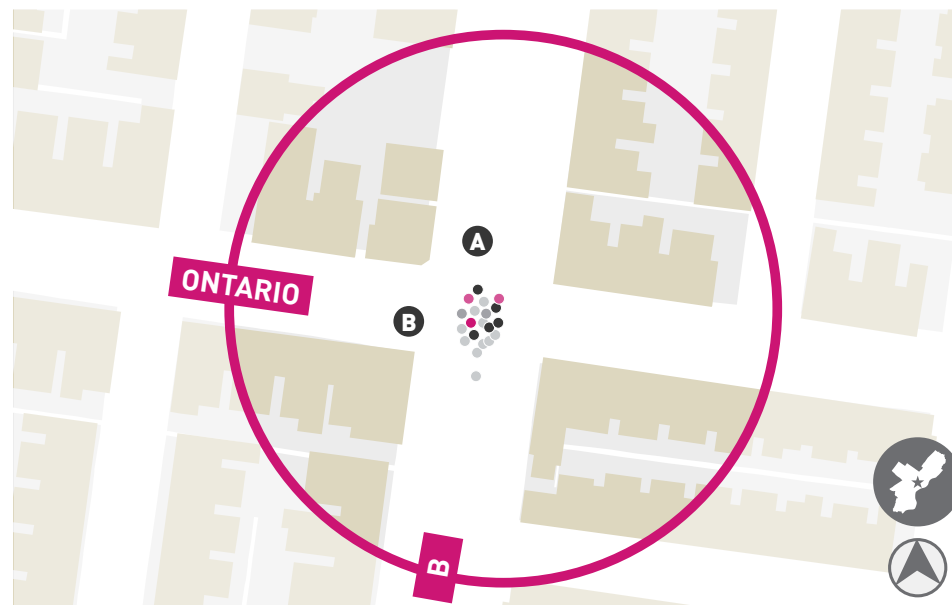


Crash Rates

CITY-WIDE	INTERSECTION
2.0 injuries maj. art. intersection	3.6 injuries min. art. intersection
0.06 KSIs maj. art. intersection	0.6 KSIs min. art. intersection

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



A Looking south on B Street towards intersection of Ontario and B St

B Looking east on Ontario Ave towards intersection of Ontario and B St

POTENTIAL ENGINEERING TOOLBOX

Ontario Street generally runs east/west, and B Street generally runs north/south. The four legs of the intersection meet at roughly 90-degree angles. The intersection is signalized, and all four roadways have crosswalks and pedestrian signals (although the crosswalks are more boldly marked on Ontario Street).

Ontario Street is one-way going east. There is one travel lane and parking on both sides of the street. B Street is bi-directional. Each direction has curbside parking, a bike lane, and a travel lane.

B Street is owned by PennDOT (State Route 1003). Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Walkways

Sidewalks, shared use paths, and other pedestrian walkways reduce pedestrian crashes along roadways. Adding sidewalks along a roadway can reduce pedestrian crashes by 65 to 89%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.



Road Safety Audits

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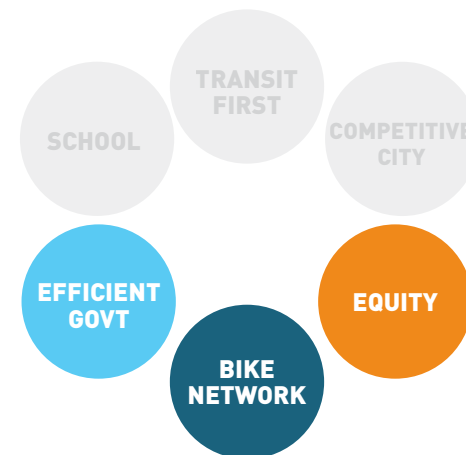


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$19,000	\$23,000
DESIGN	\$37,000	\$43,000
CONSTRUCTION	\$362,000	\$420,000
CMCI	\$37,000	\$43,000
TOTAL	\$455,000	\$529,000

Context & Character

This is a six-legged intersection in the Logan neighborhood. The intersection is very wide and the roadway edges are poorly-defined. Neighborhood commercial, including a gas station, and parking lots frame the intersection. Two-story rowhomes complete the blocks away from the intersection. James Logan School, a public elementary school, is in the northeast corner of the intersection. Lasalle University is approximately one block north of the intersection. The J bus travels on Lindley Avenue, a block north of the intersection.

SAFETY IMPROVEMENTS COMPLETED TO DATE

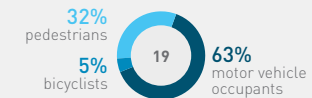
PROJECT TYPE	COMPLETED BY
Signal upgrades and intersection realignment	City of Philadelphia Streets Department
Street lighting	City of Philadelphia Streets Department
Commercial decorative lighting poles	City of Philadelphia Streets Department

Why this intersection

More than 60% of the injury crashes are motor vehicle occupants. However, all of the serious injuries or deaths involve pedestrians. This is a complicated intersection with six legs, and two of the legs are one way toward the intersection. The intersection is wide and feels wider because three corners of the intersection are parking lots or a gas station and at two corners the buildings are set back from the roadway. The intersection is signalized, including crosswalks and pedestrian signals.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

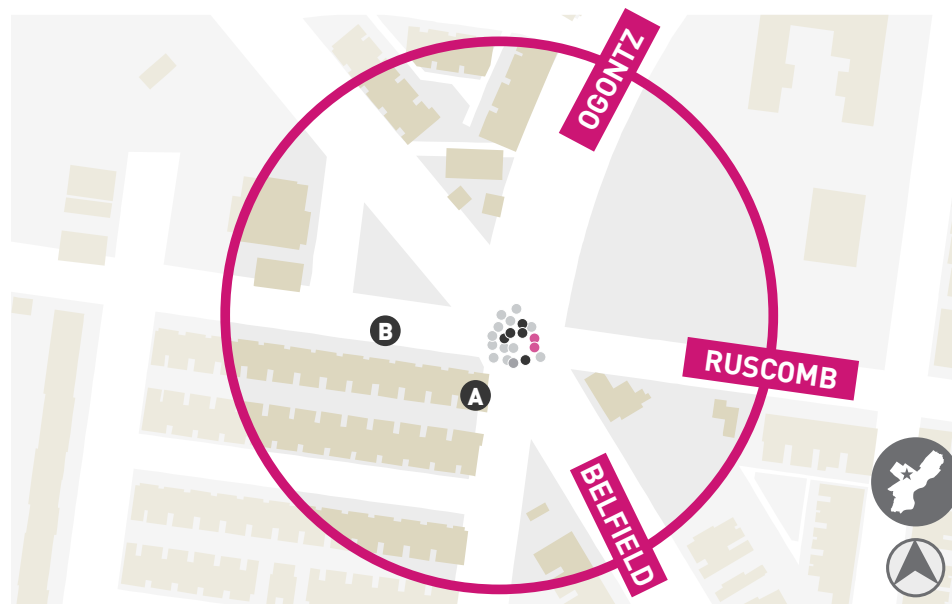


Crash Rates

CITY-WIDE	INTERSECTION
2.0 injuries maj. art. intersection	3.8 injuries maj. art. intersection
0.06 KSIs maj. art. intersection	0.4 KSIs maj. art. intersection

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



- A** Looking north down Belfield Ave towards the fork between Belfield and Ogontz Ave.
- B** Looking east towards Ruscomb St showing the six-way intersection.

POTENTIAL ENGINEERING TOOLBOX

W. Ruscomb Street is one-way toward the intersection on both legs and each leg has one travel lane and parking on both sides of the street. Belfield Avenue is generally one travel lane in each direction with parking on both sides. At the intersection, parking is removed to allow for turning movements and vehicle stacking. Ogontz Avenue/18th Street have very different characters. 18th Street is narrow with one travel lane in each direction and parking on both sides. Ogontz Avenue is much wider and includes a right turn lane and a striped bicycle lane.

All six legs have crosswalks and some have pedestrian signals. The crossing at Belfield Avenue and Ogontz Avenue has a median.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Corridor Access Management

Better management of entry and exit points along a roadway. Reducing number of curb cuts, for example enhances safety for all users, including bicyclists and pedestrians. Safety benefits include a 25 to 31% reduction in injury and fatal crashes on urban arterials.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

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Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

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Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Walkways

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Road Safety Audits

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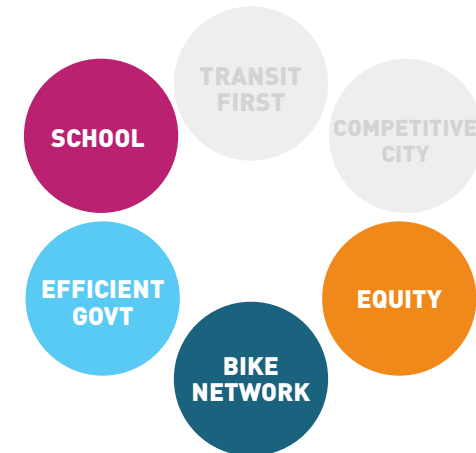


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$49,000	\$57,000
DESIGN	\$98,000	\$114,000
CONSTRUCTION	\$974,000	\$1,130,000
CMCI	\$98,000	\$114,000
TOTAL	\$1,219,000	\$1,415,000

Context & Character

Located in the West Philadelphia Parkside neighborhood, Belmont Avenue at Girard Avenue is an elevated bridge intersection over the Amtrak-owned Philadelphia to Harrisburg Main Line. No structures immediately abut the intersection due to the below-grade rail corridor.

A residential healthcare/rehab center is on the southwest corner. An auto sales business is on the northeast corner. Just south on Belmont is dense residential housing. To the north, Belmont Avenue is a gateway to West Fairmount Park.

The intersection is served by the 43 and 64 buses on Belmont and the 15 trolley on Girard.

SAFETY IMPROVEMENTS COMPLETED TO DATE

No improvements to report

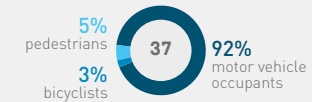
Why this intersection

More than 90% of all injury-related crashes involve vehicle occupants. This suggests opportunities for positive interventions to improve the safety of the area. The serious injury or death related crashes are evenly split between a pedestrian and motor vehicle occupant.

The intersection has multiple transit stops, serving two bus routes and the 15 trolley. The transit lines indicate that many people are pedestrians as they access the buses and trolleys. Furthermore, the striped bike lane on Belmont adds an additional layer of complexity to the juncture.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

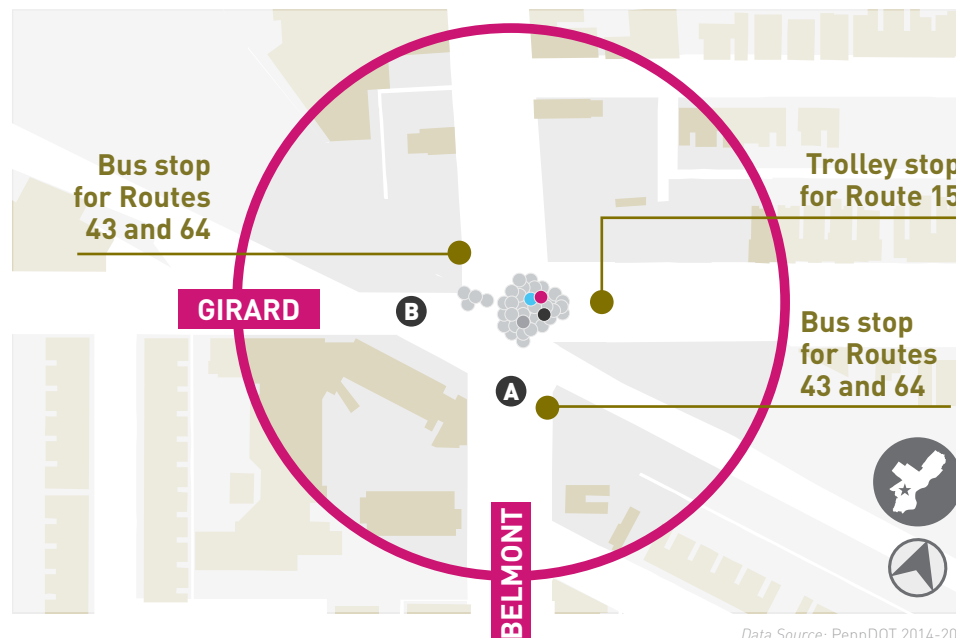


Crash Rates

	CITY-WIDE	INTERSECTION
injuries maj. art. intersection	2.0	7.4
KSIs maj. art. intersection	0.06	0.4

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



Data Source: PennDOT 2014-2018



A Looking north on Belmont Ave towards the intersection with Girard Ave.

B Looking east down Girard Ave towards the intersection with Belmont Ave.

POTENTIAL ENGINEERING TOOLBOX

This is a four-way signalized intersection.

Belmont Avenue has three travel lanes (one lane in each direction and a left turn lane), striped bike lanes, parking on the southwest and northeast corners of the intersection, and bus stops for routes 43 and 64 on the southeast and northwest corners.

Girard Avenue has four travel lanes (two lanes in each direction) and curbside parking on the eastern segment of the intersection. The route 15 trolley runs in the middle two travel lanes which are shared with vehicular traffic. On the eastern segment of Girard, raised passenger platforms separate the outer two lanes from the inner two lanes. These enable mid-street boarding and alighting for both westbound and eastbound trolley service.

Both Belmont Avenue (State Route 3005) and Girard Avenue (U.S. Route 30) are state roads. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Corridor Access Management

Better management of entry and exit points along a roadway. Reducing number of curb cuts, for example enhances safety for all users, including bicyclists and pedestrians. Safety benefits include a 25 to 31% reduction in injury and fatal crashes on urban arterials.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Road configurations include intersection improvements. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.



Road Safety Audits

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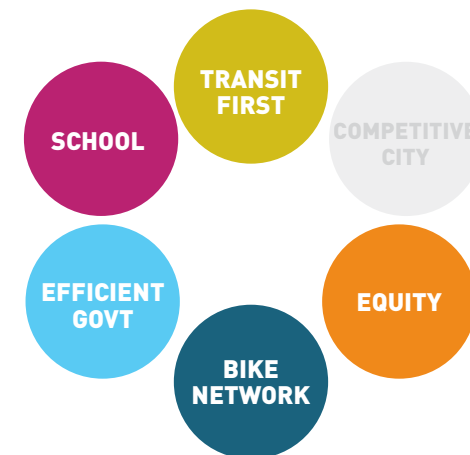


USLIMITS2

USLIMITS2 is an FHWA tool which assesses roads, based on factors such as traffic volumes and crash history, to establish safe speed limits for specific segments.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$68,000	\$79,000
DESIGN	\$136,000	\$158,000
CONSTRUCTION	\$1,359,000	\$1,576,000
CMCI	\$136,000	\$158,000
TOTAL	\$1,699,000	\$1,971,000

Context & Character

Broad is a wide multilane street. It has two travel lanes in each direction with parking on both sides of the street. The southern leg has center turn lane. The northern leg of Broad has a left turn only lane. Rockland Street is narrow with one travel lane in each direction. The east leg of Rockland has parking on both sides of the street. The west leg has parking on the north side of the street. The intersection is signalized and includes crosswalks on all four legs and pedestrian signals.

SAFETY IMPROVEMENTS COMPLETED TO DATE

No improvements to report

Why this intersection

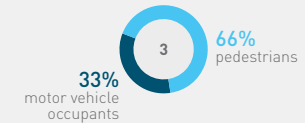
Two-thirds of injury crashes involve occupants of motor vehicles, but two-thirds of serious injuries or fatalities involve pedestrians. There were no bicycle-related crashes. Southbound Broad Street has a left turn only lane onto Rockland Street. The left turn onto Rockland from northbound Broad Street is prohibited. The signals on Broad Street hang over the street. The signals for Rockland Street are on the far side of the street and could be hard to see.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

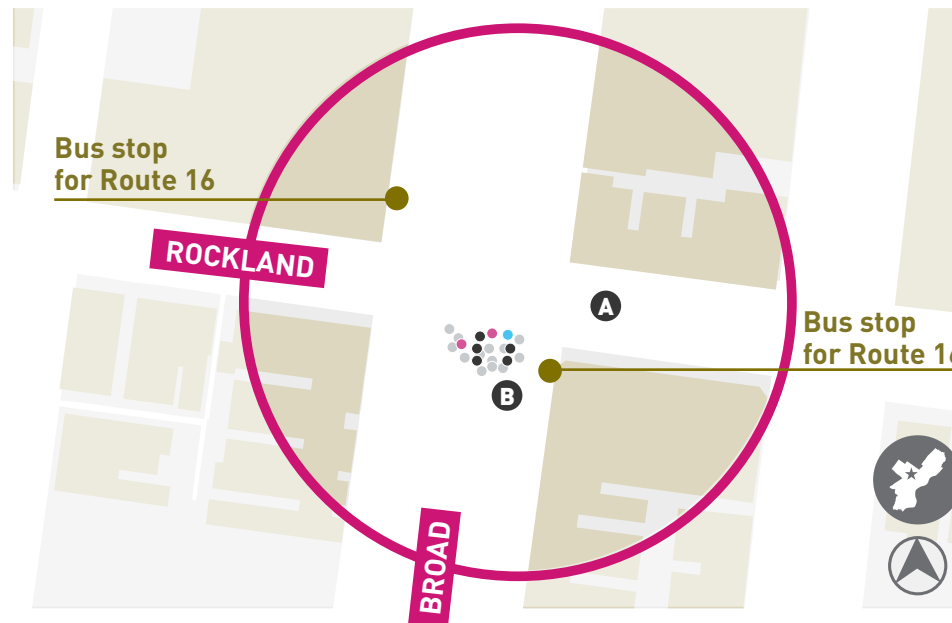


Crash Rates

CITY-WIDE	INTERSECTION
2.0 injuries maj. art. intersection	4.0 injuries maj. art. intersection
0.06 KSIs maj. art. intersection	0.6 KSIs maj. art. intersection

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



A Looking west on Rockland St towards the intersection with N Broad St.

B Looking north on N Broad St towards the intersection with Rockland St.

POTENTIAL ENGINEERING TOOLBOX

N. Broad Street is a wide multilane street. It has two travel lanes in each direction with parking on both sides of the street. The southern leg has center turn lane. The northern leg of N. Broad Street has a left turn only lane. W. Rockland Street is narrow with one travel lane in each direction. The east leg of W. Rockland has parking on both sides of the street. The west leg has parking on the north side of the street. The intersection is signalized and includes crosswalks and pedestrian signals on all four legs.

The near sides of N. Broad Street at Rockland Street have bus stops for the 16. The stop on the south side of Rockland has a shelter.

Broad Street is owned and maintained by PennDOT and is Pennsylvania Route 611. Rockland Street is owned and maintained by the City. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Reduced Left-Turn Conflict Intersections

Update traffic signals to include a dedicated left-turn phase, which includes a signal timing and hardware update at signalized intersections where separate left turn lanes are provided. This stops oncoming traffic while left turns are happening. This can reduce total crashes by 32%.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

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Local Road Safety Plans

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Road Safety Audits

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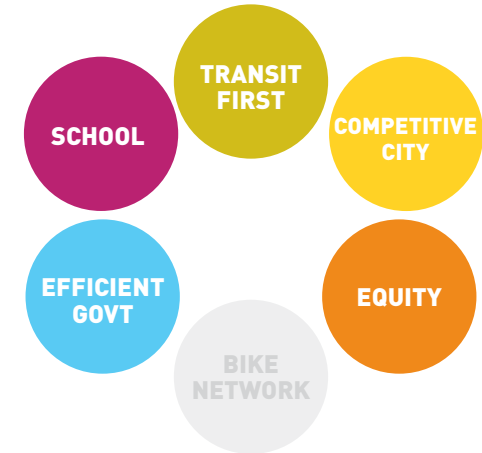


USLIMITS2

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How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$44,000	\$52,000
DESIGN	\$87,000	\$101,000
CONSTRUCTION	\$865,000	\$1,003,000
CMCI	\$87,000	\$101,000
TOTAL	\$1,083,000	\$1,257,000

Context & Character

The Broad Street and Vine Street intersection is in Center City, at the edges of both the Chinatown and Callowhill neighborhoods. Both streets are major arterials and the junction is non-conventional in that it spans I-676.

All of the properties along the intersection are zoned Commercial Mixed-Use. The southwest corner is the site of the former Hahnemann University Hospital. A private high school is located on the northeast corner.

Entrances to the Race Vine Station for the Broad Street Line are located on Broad Street south of Vine. The 4 bus and 16 bus also offer service along Broad.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
Low cost safety improvements	ARLE funding

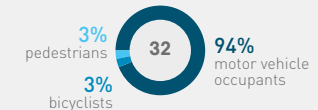
Why this intersection

Broad Street is an important arterial in the City. Its intersection with Vine Street is large and complex because it spans I-676. The intersection is comprised of many lanes and its expanse can be challenging for pedestrians and cyclists to traverse.

More than 90% of crash-related injuries are to occupants of motor vehicles. However, 50% of serious injury or deaths involve pedestrians. There is a notable concentration of crashes resulting in injuries at the southeast corner where Broad intersects eastbound Vine Street. These include pedestrian injuries, cyclist injuries, and serious vehicle injuries.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

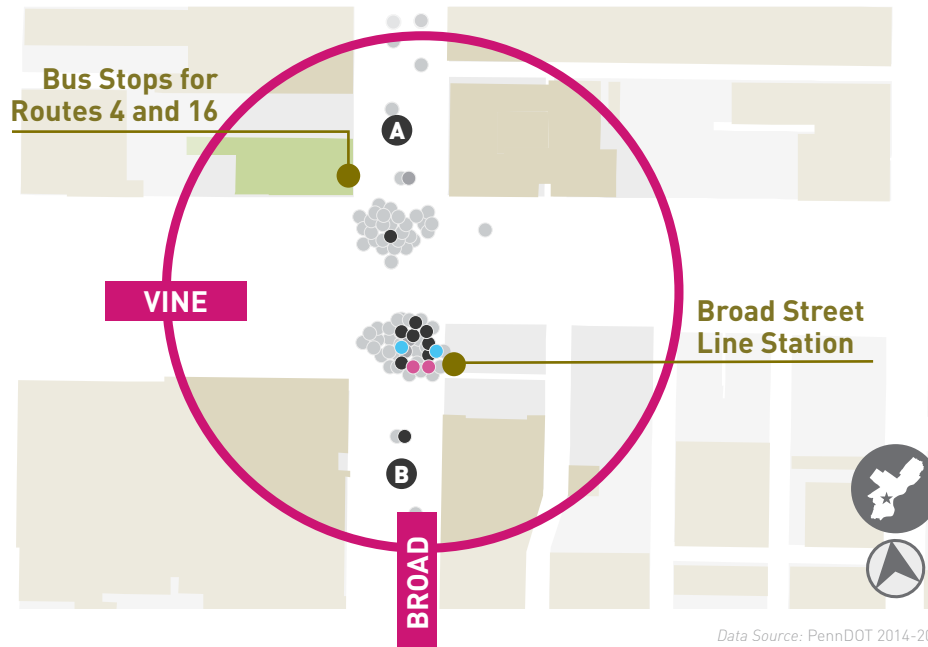


Crash Rates

CITY-WIDE	INTERSECTION
2.0 injuries maj. art. intersection	14 injuries maj. art. intersection
0.06 KSIs maj. art. intersection	0.8 KSIs maj. art. intersection

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



- A** Looking south on N Broad towards the intersection westbound Vine St (north of I-676).
- B** Looking north on N Broad towards the intersection eastbound Vine St (south of I-676).

POTENTIAL ENGINEERING TOOLBOX

This juncture is a set of two signalized intersections.

Eastbound and westbound Vine Street are separated by I-676 (the Vine Street Expressway), which is below-grade. South of I-676, eastbound Vine Street has five travel lanes: two lanes are an on-ramp for eastbound I-676, three lanes provide travel on Vine Street, both left and right turns onto Broad Street are allowed. North of I-676, Vine Street has four westbound travel lanes: one left turn lane, two through lanes, and one right turn lane.

Broad Street north of Vine Street and on the bridge over I-676 has seven travel lanes. South of Vine Street, Broad Street has six travel lanes and a concrete median.

Neither Broad Street nor Vine Street has dedicated bike lanes.

Broad Street (State Route 611) and Vine Street (State Route 2676) are state owned. Project work here will require increased coordination with PennDOT.



Backplates with Retroreflective Borders

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Leading Pedestrian Intervals

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Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

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Walkways

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Local Road Safety Plans

Engages stakeholders in evaluating safety concerns and solutions to develop a collaborative plan moving forward.

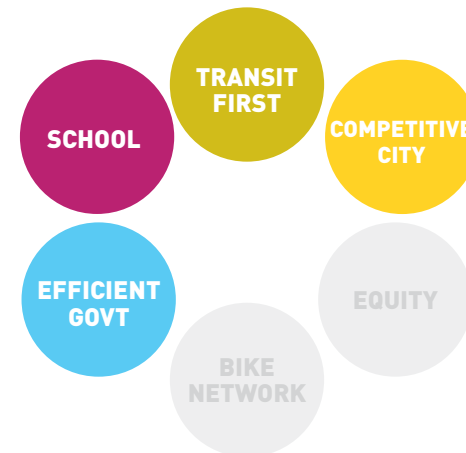


Road Safety Audits

An independent multidisciplinary team conducts a safety audit considering all road users. Benefits include a reduced number and severity of crashes. Road safety audits can reduce crashes by 10 to 60%.

How this project aligns with safety priorities

The improvements recommended in the Potential Engineering Toolbox will help the City meet the Safety Goals emphasized below.



How much improvement will cost

Improvement cost estimates follow for Planning (including public engagement), Design, Construction, and CMCI. The estimates use FHWA typical costs per lane mile, including contingency. Construction by the year 2025 or 2030 shows that it will cost more to complete projects in 6-10 years, than if they were completed sooner.

	Construction by 2025	Construction by 2030
PLANNING	\$98,000	\$114,000
DESIGN	\$196,000	\$228,000
CONSTRUCTION	\$1,959,000	\$2,272,000
CMCI	\$196,000	\$228,000
TOTAL	\$2,449,000	\$2,842,000

Context & Character

This intersection in the Logan neighborhood. It is one block from Broad Street, a major transportation and commercial corridor. The character of the intersection is predominately residential on the east side of Old York Road and community mixed use commercial on the west side. There are two churches located on the west side corners of the intersection. There are bus stops on the near corners of Wyoming Avenue for the 75 and a subway stop one block away at Broad and Wyoming.

SAFETY IMPROVEMENTS COMPLETED TO DATE

PROJECT TYPE	COMPLETED BY
Signalized intersection	City of Philadelphia Streets Department

Why this intersection

All but one of the injury-related crashes and all of the serious injuries or deaths involved occupants of motor vehicles. The intersection is signalized, but the signals are positioned on the corners and could be hard to see. The intersection has crosswalks, but does not have pedestrian signals. There are bus stops on Wyoming, at the near corners. The intersection is not square, which could impact sight lines.

SEGMENT CRASH SUMMARY

People Involved in Injury/Fatality Crashes



People Seriously Injured or Killed (KSI)

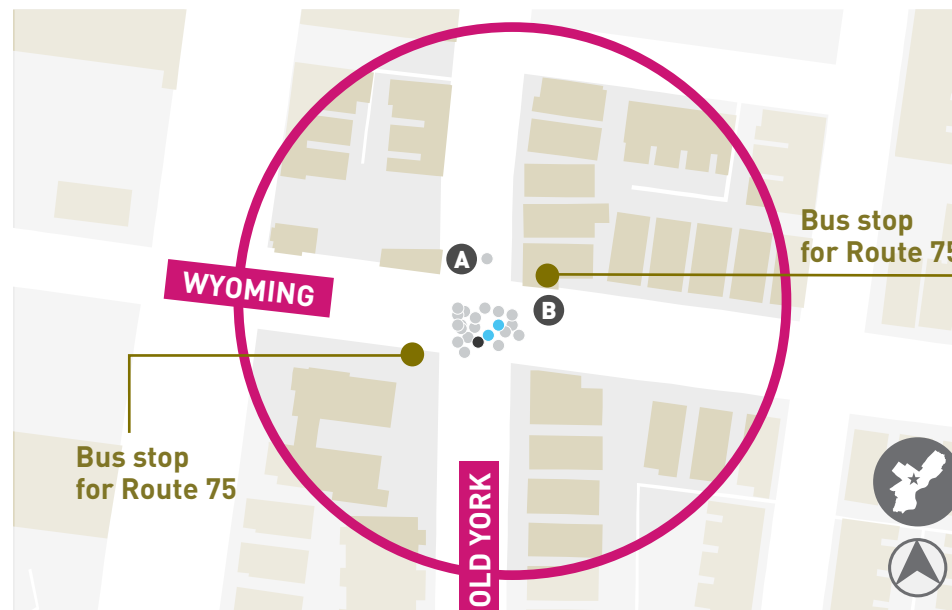


Crash Rates

CITY-WIDE	INTERSECTION
2.0 injuries maj. art. intersection	5.0 injuries maj. art. intersection
0.06 KSIs maj. art. intersection	0.4 KSIs maj. art. intersection

Legend

- pedestrian fatality
- bicyclist fatality
- motor vehicle occupant fatality
- pedestrian suspected serious injury
- bicyclist suspected serious injury
- motor vehicle occupant suspected serious injury
- pedestrian suspected minor injury, injury/unknown severity, or possible injury
- bicyclist suspected minor injury, injury/unknown severity, or possible injury
- motor vehicle occupant suspected minor injury, injury/unknown severity, or possible injury



A Looking south on Old York Road towards the intersection with Wyoming Ave.

B Looking west down Wyoming Ave towards the intersection with Old York Rd.

POTENTIAL ENGINEERING TOOLBOX

Old York Road generally runs north/south and has one travel lane each direction and parking on both sides of the road. W. Wyoming Avenue generally runs east/west. It is wider than Old York Road, but also has one travel lane each direction and parking on both sides. W. Wyoming Avenue also has marked bike sharrows. The intersection is signalized, but does not include pedestrian signals. Each of the intersection legs have crosswalks. There are bus stops on the near corners of W. Wyoming Avenue for the 75 and a subway stop one block away at N. Broad and W. Wyoming.

Both roads are owned and maintained by the City.



Backplates with Retroreflective Borders

This very low-cost safety treatment improves the visibility of a traffic signal by adding a contrast background. Providing a retroreflective border further improves the signal's appearance. This leads to a 15% crash reduction.



Leading Pedestrian Intervals

Walk signals are timed so pedestrians enter an intersection three to seven seconds before vehicles. This improves their visibility and helps pedestrians who may have slower mobility. This simple measure can reduce pedestrian crashes by 60%.



Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Medians and islands improve safety by allowing pedestrians to cross one direction of traffic at a time. Pedestrians can safely wait within the median before completing their crossing. A pedestrian crossing island can reduce pedestrian crashes by 56%.



Road Diets/Configurations

Road diets are low-cost improvements which reallocate vehicle space to accommodate pedestrian/bicycle infrastructure. Safety benefits include a significant reduction in crashes. Converting a 4-lane road to a 3-lane road can decrease crashes by 19 to 47%.



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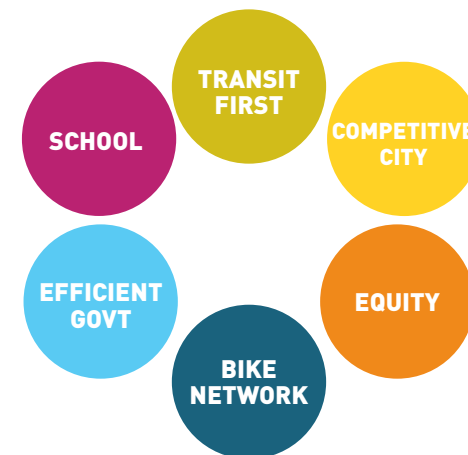


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	Construction by 2025	Construction by 2030
PLANNING	\$23,000	\$27,000
DESIGN	\$46,000	\$54,000
CONSTRUCTION	\$454,000	\$527,000
CMCI	\$46,000	\$54,000
TOTAL	\$569,000	\$662,000