



**BICYCLE
COALITION
OF GREATER
PHILADELPHIA**

SAFER STREETS

Philadelphia

INTRO DUCTION

Philadelphia has more bicyclists per capita than any of our big city peers. And we consistently score very high on lists of pedestrian-friendly cities. But the rate of pedestrian crashes in Philadelphia is disturbingly high and we are not keeping pace with our big city peers in installing protected bike lanes.

In this report, we document how better infrastructure creates safer streets for all road users and increases economic vitality. [NYC DOT] The fact that biking, walking and transit are appealing transportation options for Philadelphians makes us economically competitive, but we will maintain this edge only if we keep pace with the safety improvements being made in other US cities.

It is tempting to treat traffic crashes as part of the unavoidable cost of traveling on city streets. Even using the word “accident” implies that crashes are inevitable. But the data shows better infrastructure prevents crashes for all road users -- motorists, pedestrians, transit riders and bicyclists. The cost of not acting to improve safety is seen in the havoc wreaked on the lives of traffic crash victims and their families. But there is also a cost that can be measured in dollars and cents: according to PennDOT, traffic crashes cost the Philadelphia economy a remarkable \$1,000,000,000 per year.

Better bicycle infrastructure is a relatively low-cost investment that improves safety for not only bicyclists but often for motorists as well. Prioritizing safety improvements for bicyclists and pedestrians in a broader plan for improving traffic safety by reducing crashes by 50% will make Philadelphia a safer and more enjoyable place to live.

Unfortunately, Philadelphia is not investing enough of its own local money in traffic safety. The transportation side of the Streets Department budget has dropped 37% over the last 10 years when measured as a percentage of the overall city budget. The backlog of city streets that need to be repaved has grown from 600 to 900 miles in the last five years. Given the human and economic costs of crashes, Philadelphia must invest more in traffic safety.

PEDESTRIANS ARE OUR MOST VULNERABLE ROAD USERS

Traffic crashes are one of the leading causes of injuries and deaths in the United States. Safety efforts have focused on safe crashing (seat belts, air bags) aimed at protecting vehicle occupants, leaving pedestrians vulnerable. More needs to be done regarding street engineering, education and enforcement to make it safer for everyone to get from point A to point B.

In 2013, four out of every ten Philadelphia traffic deaths were pedestrians. This is more than three times the Pennsylvania statewide rate of 1.25 out of ten traffic deaths being pedestrians. (Figure 1)

PEDESTRIANS ARE
4 in every 10
PHILADELPHIA
ROAD FATALITIES

Figure 1 : PennDOT, 2013 Pennsylvania Crash

Roads are getting safer for everyone except pedestrians. Table 1 shows the traffic crash, fatality and injury statistics for Philadelphia. From 2009 to 2013 the number of traffic crash fatalities declined 6% but the number of pedestrian fatalities has increased 16%. Figure 2 shows the downward trend of fatalities both overall and for motorists yet an upward trend for pedestrians. Bicycle fatalities are very low, so no significant trend can be accurately inferred from the data.

Table 2 analyzes the number of crashes that result in fatalities for each category of road user. More pedestrian crashes result in death. On average from 2009 to 2013, for every 1000 crashes involving a motor vehicle occupant, 7 die. For every 1000 crashes involving a pedestrian, 19 die and for every 1000 crashes involving a bicyclist, 5 die. Pedestrians are the most vulnerable road users and must be a priority in designing safe streets.

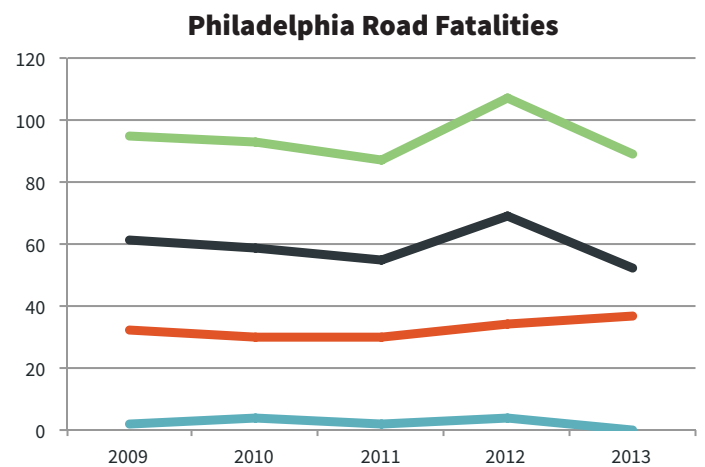


Figure 2: PennDOT, 2013 Pennsylvania Crash Facts and Statistics

- All Modes
- Motorists
- Pedestrians
- Bicyclists

Crashes, Fatalities and Injuries in Philadelphia 2009-2013

	Total Crashes	Motorists	Pedestrians	Bicyclists
2009	10,550	8,341	1,743	466
2010	10,736	8,459	1,713	564
2011	10,667	8,436	1,724	507
2012	11,196	8,956	1,757	483
2013	10,997	8,707	1,749	541
Traffic Crashes 5 Yr Avg	10,829	8,580	1,737	512
	Total Fatalities	Motorists	Pedestrians	Bicyclists
2009	95	61	32	2
2010	93	59	30	4
2011	87	55	30	2
2012	107	69	34	4
2013	89	52	37	0
Traffic Fatalities 5 Yr Avg	94	59	33	2
	Total Injuries	Motorists	Pedestrians	Bicyclists
2009	12,045	9,809	1,768	468
2010	12,042	9,721	1,756	565
2011	11,862	9,614	1,743	505
2012	12,001	9,716	1,797	488
2013	11,549	9,219	1,792	538
Traffic Injuries 5 Yr Avg	11,900	9,616	1,771	513

Table 1: PennDOT statistics compiled by DVRPC

Fatalities per 1000 Crashes in Philadelphia 2009-2013

	Motor Vehicle	Pedestrian	Bicycle
2009	7	18	4
2010	7	18	7
2011	7	17	4
2012	8	19	8
2013	6	21	0
Average	7	19	5

Table 2: Calculated from DVRPC data compilation

FUNDING FOR PEDESTRIAN SAFETY IS IMPERATIVE

The Pennsylvania Department of Transportation (PennDOT) has a Highway Safety Improvement Program (HSIP) to address areas of road safety concern. [PennDOT 2012] The program has seven “areas of focus,” and nine “additional safety focus area.” Improving pedestrian safety ranks 10th among all safety focus areas. We posit that the rate of pedestrian fatalities in Pennsylvania warrants a higher priority on reducing pedestrian crashes.

One of the most important programs that Philadelphia is using to address pedestrian safety is the funding it receives through the Automated Red Light Enforcement (ARLE) program. This program, operated by PennDOT, distributes funds received through red light enforcement fines to municipalities that propose how to use the funds to make low cost safety improvements. Philadelphia has used the funding to conduct audits of intersections, install pedestrian countdown signals, pavement marking improvements, signal retiming, battery backups for signals, and bump-outs.

Analysis of pedestrian crash and fatality data reveals that crashes are concentrated in a limited number of locations. These locations fall into two categories: high volume, often high-speed streets and streets surrounding transit stops. In addition to diligently implementing the Complete Streets Policy adopted by the city in 2012, Philadelphia must develop a targeted program to address the most dangerous pedestrian locations to reduce crashes by 50% by 2020, which is a stated goal of the city’s Pedestrian/Bicycle Plan.

PEDESTRIANS ARE THE ONLY ROAD USERS WITH INCREASING ROAD FATALITIES

For the 5-year period 2009-2013 in Pennsylvania, the number of automobile fatalities dropped 3%, motorcyclist fatalities dropped 11%, and bicyclist fatalities dropped 27%. In the same period, pedestrian fatalities rose 13%. (Figure 3) As a percentage of total fatalities, automobile and motorcycle fatalities are trending downward. Bicycle fatalities are essentially flat. Pedestrians are the only road user group in Pennsylvania whose fatalities, as a percentage of total fatalities, are trending upward. (Figure 4)

Number of Pennsylvania Road Fatalities

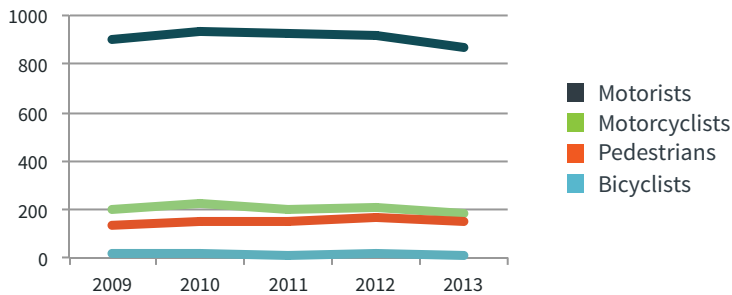


Figure 3: PennDOT, 2013 Pennsylvania Crash Facts and Statistics

Percent of Pennsylvania Road Fatalities

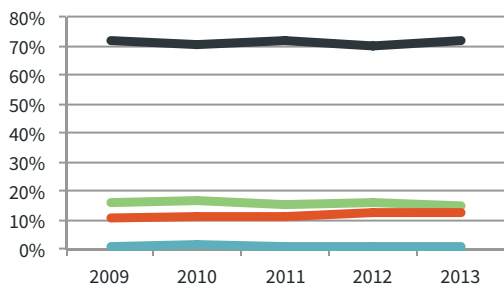


Figure 4: PennDOT, 2013 Pennsylvania Crash Facts and Statistics

CRASHES COST PHILADELPHIANS \$1 BILLION EVERY YEAR

Traffic fatalities and major injuries take a large, but largely unnoticed, toll on our society. The National Highway Traffic Safety Administration estimates that the economic costs of road crashes in 2010 were \$871 billion nationwide (\$277 billion in economic costs and \$594 billion in societal harm), the price our country pays for the deaths of 32,999 persons, 3.9 million injured, and 24 million damaged vehicles. Nationwide, bicycle and pedestrian crashes accounted for approximately \$109 billion. (\$19 billion in economic costs and \$90 billion in societal harm.)

Drilling down to the state level, PennDOT calculates that the economic cost of each road fatality in Pennsylvania is \$6.35 million and each major injury is \$1.39 million. Altogether, the cost of road crashes in Pennsylvania in 2013 was \$14 billion. [PennDOT 2013]

Based on PennDOT’s estimates, motor vehicle crashes in 2013 that led to the loss of 89 lives in Philadelphia cost \$565 million, while 11,549 injuries cost \$450 million. [DVRPC 2013; PennDOT 2013 p.8]

Together, Philadelphia’s traffic fatalities, injuries and property damage in 2013 caused an economic loss of over \$1 billion (Table 3). Investing in safer infrastructure would reduce fatalities and injuries and avoid a portion of these costs. Clearly there is not only a moral imperative, but also a financial incentive to increase the safety of our roadways.

Cost of Philadelphia Crashes

	Incidents	Cost per Incident	Total Cost
Major Injuries	257	\$1,388,032	\$126,310,912
Moderate Injuries	1,278	\$922,765	\$309,126,275
Minor Injuries	5,972	\$7,365	\$8,992,665
Unknown Injuries	4,042	\$7,365	\$5,030,295
Total Injured	11,549		\$449,460,147
Fatalities	89	\$6,349,138	\$565,073,282
Property Damage	10,997	\$2,946	\$32,397,162
Total			\$1,046,930,591

Table 3: PennDOT, 2013 Pennsylvania Crash Facts and Statistics

PEOPLE ON BICYCLES ARE VULNERABLE ROAD USERS

Bicycling is a safe way to travel and the health benefits far outweigh the risks when compared with driving. According to the National Safety Council, the likelihood of dying while driving or riding in a car is ten times greater than the likelihood of dying while riding a bike. [National Safety Council 2014 p 43] The bicycle also provides health benefits. A short daily bicycle commute of 1- 2 miles can fulfill the Surgeon General's recommendation of 30 minutes of daily exercise. (Biking at a moderate pace of 10 mph, a 1.5 mile commute two times per day is 30 minutes of exercise.) This activity can help control the top contributors to death such as cardiac disease, pulmonary disease, high blood pressure, diabetes, and obesity.

Two factors that increase bicycle safety are good road design and simply having more bicycles on the street, known as safety in numbers. Studies have shown that having more cyclists on the street makes the streets inherently safer, partly because it heightens drivers' awareness of the presence of these vulnerable users. [Jacobsen 2003 pp 205-209; Elvik, R. 2009 pp 849-855] Investments in infrastructure and safety in numbers have paid off in Philadelphia. In 2013, there were no cyclist fatalities in Philadelphia.

Nevertheless, bicyclists are still vulnerable road users. Over the past five years (2009-2013) in Philadelphia, bicyclists were involved in twice the number of crashes (4.7% of all crashes) than their road usage (2.3% of all commuters) would suggest. During that same time period, the average number of bicycle fatalities in Philadelphia was two per year, which is 3% of all traffic fatalities, which is greater than the percentage of bicycling commuters (2.3% in 2013). (Figure 5)

CYCLING FATALITIES ARE GREATER IN THE SUBURBS

In the four suburban Pennsylvania counties, bicycles fatalities are **six** times greater than their mode share would suggest. (Figure 6) In the four suburban New Jersey counties, fatalities are **eight** times greater than the mode share. (Figure 7) Overall bicycle fatalities remain relatively low, with fewer than 11 for the greater Philadelphia metropolitan area. Still, cyclists are clearly vulnerable users and improved infrastructure would help prevent crashes.

Philadelphia Bicycles as Percent of Total Road Users 2009-2013

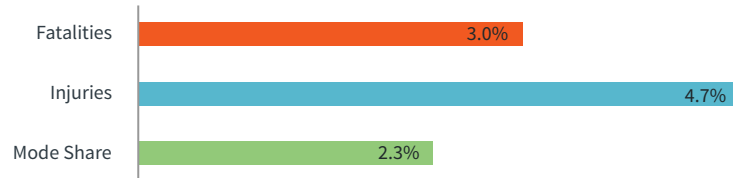


Figure 5: US Census & DVRPC

PA Suburban Bicycles as Percent of Total Road Users 2009-2013



Figure 6: Bucks, Chester, Delaware and Montgomery Counties
Source: US Census & DVRPC

NJ Suburban Bicycles as Percent of Total Road Users 2009-2013



Figure 7: Burlington, Camden, Gloucester & Mercer Counties
Source: US Census & DVRPC

PHILADELPHIA'S BIKEWAY NETWORK: PRESENT AND FUTURE

PHILADELPHIA'S EARLY LEAD

Infrastructure plays an important role in both safety and encouragement. The Bicycle Coalition's manual counts and national surveys confirm that cyclists are attracted to high quality infrastructure that separates them from automobile traffic. [Bicycle Coalition of Greater Philadelphia 2014] Philadelphia made great strides in the 1990s and 2000s. Philadelphia has over 400 miles of on-street bike lanes; the fifth highest number of bike lane miles among large US cities and the highest number among east coast cities.

Prior to the Pedestrian/Bicycle Plan, Philadelphia installed our first 400+ miles of standard bike lanes at the time when a street was repaved. As Philadelphia's repaving backlog grows, there are fewer opportunities to install bike lanes. And streets that are a priority in the bike lane network may not be repaved for many years. Philadelphia is a leader in riding, but the quality of new bicycle infrastructure in Philadelphia is lagging its peers. Simply installing standard or buffered bike lanes is not enough.

Miles of Bikeway in the Bike Plan

Bikeway Type	Miles
Standard bike lanes	130
Marked shared lanes	200
Physically separated lanes	2
"Bicycle Friendly" streets	62

Miles are "centerline miles" that include infrastructure on both sides of the street if needed.

Table 4: PCPC Pedestrian/Bicycle Plan

Through grants from the People for Bikes Green Lane program, twelve cities are implementing **protected** bike lanes using curbs, planters, parked cars or posts to protect cyclists from automobile traffic. (Cities include: Austin, Chicago, Memphis, Portland, and San Francisco in 2012-2013 and Atlanta, Boston, Denver, Indianapolis, Pittsburgh and Seattle in 2014.) Many cities, such as Pittsburgh, are concentrating all their infrastructure efforts on protected bike lanes, while Philadelphia has yet to implement a single one. Table 5 lists the cities that are implementing protected bike lanes.

The Pedestrian/Bicycle Plan, which was adopted in 2012 by the Philadelphia City Planning Commission, is designed to create a truly connected, citywide bicycle network by adding over 400 miles of new bike lanes and other facilities. (Table 4)

OUR PEER CITIES ARE PULLING AHEAD

A comparison with a select group of our peer cities highlights the need for Philadelphia to step up both quality and the rate of implementation of bicycle infrastructure. Figure 8 compares miles of bike lanes added from 2008 to 2013 for seven major cities; Philadelphia ranks second to last. On average, New York City added **five times** the number of bike lanes miles per year (34.4 miles) compared to Philadelphia (6 miles). (Figure 9) These same cities are planning to add between 5 and 20 miles of bike facilities in 2014. Philadelphia added over 8 miles of conventional bike lanes in 2014.(Figure 10)

Despite an early lead, Philadelphia will have to work hard to create and maintain a first-class network as other cities ramp up both the quality of their bicycle infrastructure and the rate of implementation.

Cities with Protected Bike Lanes

- Atlanta
- Austin
- Boston
- Chicago
- Colorado Springs
- Denver
- Honolulu
- Indianapolis
- Las Vegas
- Long Beach
- Memphis
- Minneapolis
- New York
- Omaha
- Pittsburgh
- Portland
- San Antonio
- San Francisco
- San Jose
- Seattle
- Tuscon
- Washington, DC

Table 5: Alliance for Biking and Walking 2014 Benchmarking Report & Boston Bikes

Bike Lane Miles Added 2008-2013

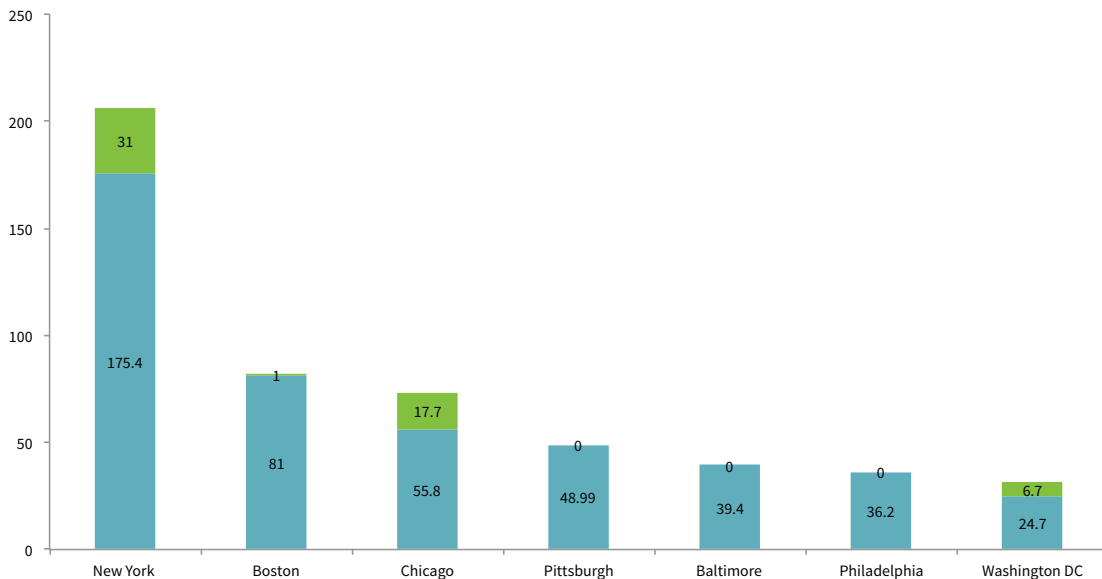


Figure 8: City DOTs

BICYCLE INFRASTRUCTURE IS A LOW-COST INVESTMENT IN SAFETY

When compared with other street projects, bicycle infrastructure is not very costly. And the safety benefits are not just for bicyclists: bike lanes can reduce motor vehicle crashes. After bike lanes were installed on Spruce and Pine Streets, serious motor vehicle crashes on those streets dropped by 26% for the three years after installation, with little to no impact on a motorist’s average travel time on those streets. Fender benders were reduced by 31.5%. [City of Philadelphia, MOTU 2013]

Although there is federal funding for special projects, bicycle infrastructure improvements and maintenance are often dependent upon funds from the Philadelphia Streets Department paving budget. (The Philadelphia Streets Department paving budget is a line item in the City’s Capital Budget.) Philadelphia’s competitive advantage as a bicycle- and pedestrian-friendly city will suffer if implementation of the Pedestrian/Bicycle Plan continues to be constrained by an underfunded paving budget.

Table 6 summarizes the cost of different bicycle facilities in Philadelphia. To meet the goals of the Pedestrian/Bicycle Plan, we recommend that Philadelphia install 75 miles of bicycle facilities over the next five years, or approximately 15 centerline miles per year, for a yearly cost of approximately \$1,000,000.

Annual Average Miles of Bike Lanes Added 2008-2013

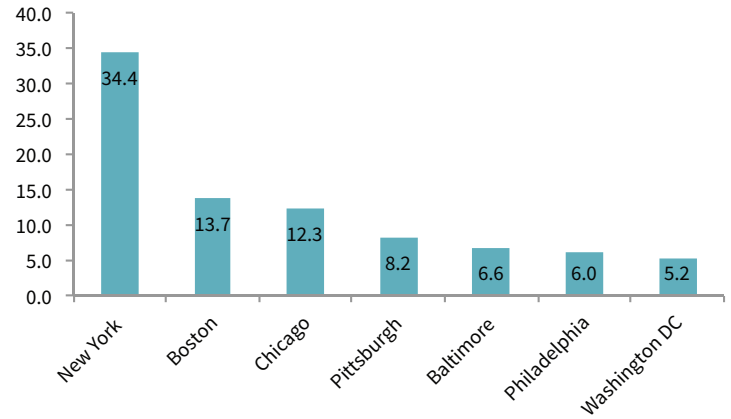


Figure 9: City DOTs

Bike Lane Miles Planned for 2014

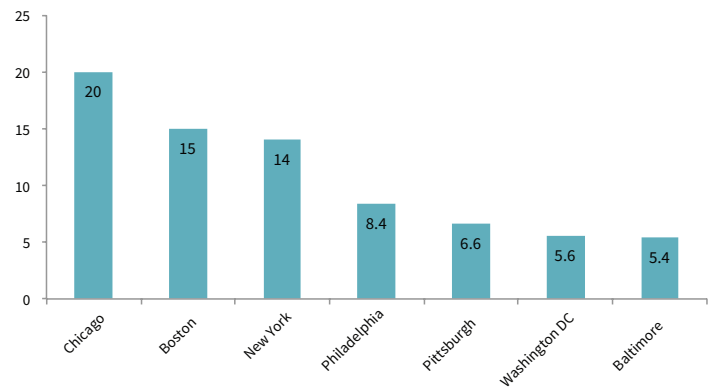


Figure 10: City DOTs

Infrastructure Installation Cost Per Mile

White Sharrows	\$11,000
Green-backed Sharrows	\$17,000
Standard Bike Lane	\$39,000
Buffered Bike Lane	\$49,000
Road Resurfacing	\$236,000

Table 6: Mayor’s Office of Transportation & Utilities

PHILADELPHIA IS NOT INVESTING ENOUGH IN TRANSPORTATION

DECLINING FUNDING LEADS TO A PAVING BACKLOG

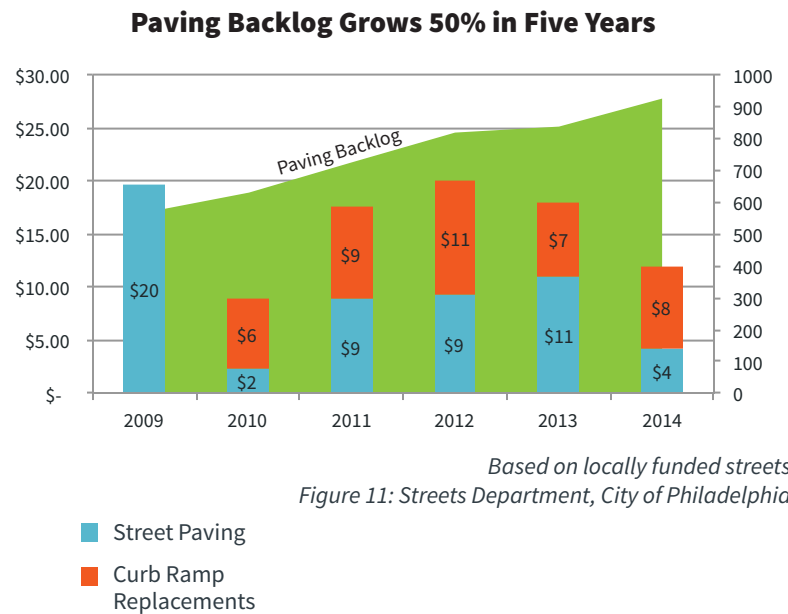
Philadelphia Streets Department-Transportation does not have sufficient funding to keep pace with resurfacing needs, resulting in a current backlog of 900 miles of streets that need repaving. Figure 11 shows the paving budget (in the City’s capital budget) from 2009 to 2014. The budget peaked in 2009 at \$19.6 million, which reflects an infusion of federal funding from American Recovery and Reinvestment Act of 2009 (ARRA).

Since 2010, over half the reconstruction and resurfacing budget has been allocated to judicially mandated Americans with Disabilities Act (ADA) curb ramps, contributing to the backlog of streets that require paving.

Figure 11 illustrates the Streets Department paving budget and resulting paving backlog. The red portion of the stacked bars for years 2010-2014 indicates the money spent to bring ADA ramps into compliance with new federal standards rounded to the nearest million. The blue portion of the stacked bars for 2009-2014 represents the funds available for resurfacing rounded to the nearest million. The green area of Figure 11 shows the increase in miles of paving backlog due to budget short falls.

Figure 11 shows that while the curb ramps provide an important public benefit and must be installed to comply with federal law, they have come at the expense of keeping the city’s streets in a state of good repair.

The Streets Department estimates it should repave 29 miles of federal aid arterials and 130 miles of local streets to maintain the city’s network. Due to fiscal constraints of 2013 and 2014, less than 25 miles were repaved each year. While this number of miles repaved is likely to rise in 2015, it is clear that the paving budget needs to be double or more to repave 130 miles annually. This should be a top priority of the next mayor.



PHILADELPHIA SPENDS LESS PER CAPITA ON TRANSPORTATION OPERATIONS THAN CHICAGO, PITTSBURG OR BALTIMORE

Transportation has not been a priority in the city's operating budget. Figure 12 shows the downward trend of the Streets Department-Transportation Budget as a percentage of the total general fund, which is the City's operating budget. The budget figures represent actual fiscal budgets provided by the Streets Department and reflect non-sanitation operating expenses.

The percent Philadelphia spends on transportation operations has declined 20% over the last 5 years and 37% over the last 10 years. (The increase in FY2010 is a reflection of one-time stimulus funding.)

In comparison with a selection of peer cities, Philadelphia's Streets Department-Transportation budget ranks last, both as a percentage of the general fund and in per capita spending. As a percentage of the general fund, Philadelphia's city streets budget is less than half the budget of Chicago, and one-fifth that of Baltimore. (Figure 13) Philadelphia per capita spending is well below its peers: 20% lower than Chicago, 75% lower than Pittsburgh, and 90% lower than Baltimore. (Figure 14)

Without adequate operations funding, the Philadelphia Streets Department will be unable to keep its roads in a state of good repair, much less implement the new infrastructure needed to accommodate Philadelphia's large and growing bicycling population and better protect pedestrians. Both infrastructure improvements and good repair are key to maintaining safe streets for all users.

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Streets Department-Transportation Budget as Percentage of Philadelphia Budget

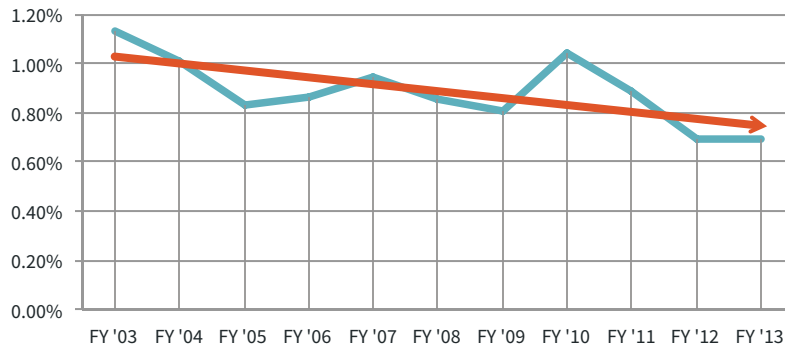


Figure 12: Philadelphia Five-Year Financial & Strategic Plan

City Streets Budget as Percent of City Budget

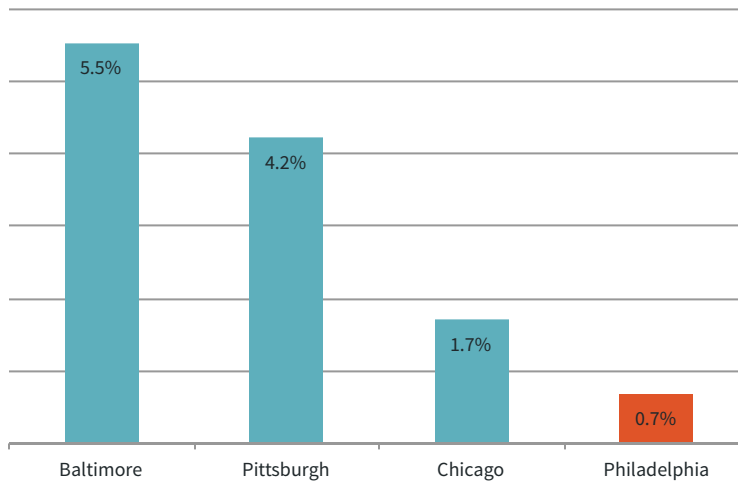


Figure 13: City Budgets

City Streets Per Capita Spending 2013

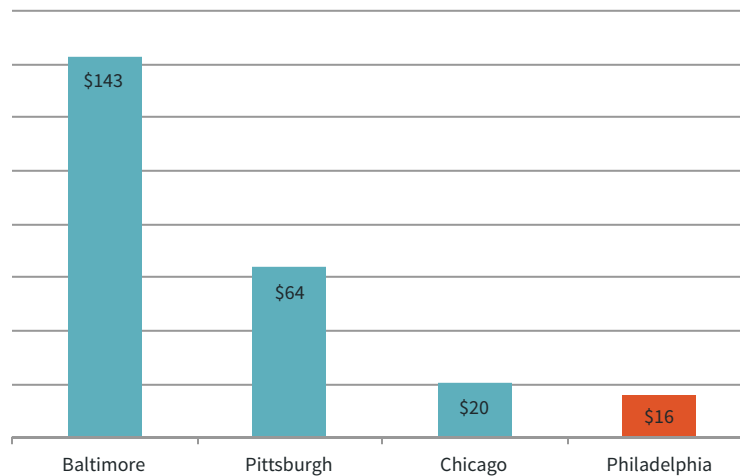


Figure 14: City Budgets

LOOKING FORWARD

Philadelphia must invest in meeting its Pedestrian/Bicycle Plan's goal of reducing bicycle and pedestrian injuries and fatalities 50%.

The Streets Department-Transportation needs more capital and operating resources to reduce the backlog of streets that are in desperate need of resurfacing, complete the ADA ramps, continue the hard work of completing the bicycle network and tackle the intersections and corridors where traffic crashes are concentrated. In particular, it needs enough funding to repave at least 130 miles of streets per year to keep the city's streets in a good state of repair.

The goal of 15 miles of bicycle facilities per year over the next 5 years is achievable with an adequate budget and political will. For an investment of a million dollars per year, bike lanes can provide safe places to bicycle, help to calm traffic on city streets, and reduce crashes. The financial benefits of crash reduction alone will far out pace the expenditure.

For many years Philadelphia has led the nation as a bicycle-friendly and pedestrian-friendly city. Other cities, like Chicago and Washington are making their pedestrian and bicycle infrastructure a priority and are quickly closing the gap. To maintain its competitive advantage, Philadelphia must increase its own investment in its road, sidewalk and bicycle networks.

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SOURCE OF CITY BUDGETS

- 2014 City of Pittsburgh Operating, pp. 8, 231
- City of Baltimore Fiscal Year 2015 Agency Detail, p. 215
- City of Chicago 2014 Budget Overview, pp. 59, 110-121
- [Philadelphia] Mayor’s Operating Budget in Bridge for FY 2014, pp. 2, 68