

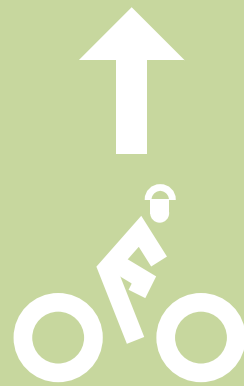
# Mode *Shift*

Philadelphia's Two-Wheeled  
*Revolution* in Progress



May 2011

[bicyclecoalition.org](http://bicyclecoalition.org)





## Contributors

Sarah Clark Stuart  
**Campaign Director**

John Boyle  
**Research Director**

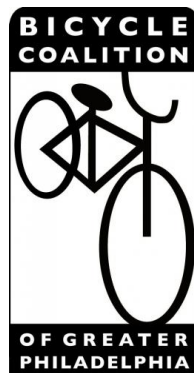
Benjamin Cromie, AICP  
**Research Fellow**

Alex Doty  
**Executive Director**

Mary Duffy  
**Development Director**

### Special Thanks To

Bicycle Coalition volunteers who conducted the bicycle counts,  
without whom this report would not be possible.



### **Bicycle Coalition of Greater Philadelphia**

1500 Walnut Street, Suite 1107

Philadelphia, PA 19102-3506

215-242-9253

[www.bicyclecoalition.org](http://www.bicyclecoalition.org)

Summary of Findings.....	1
Introduction.....	3
<b>What Annual Bicycle Counts Say About Bicycling in Philadelphia.....</b>	<b>4</b>
Bicycling in Philadelphia is Steadily Increasing .....	4
Behavior Improves with Time; Gender Split Remains the Same.....	6
Buffered Bike Lanes on Spruce and Pine Streets Attract More Bicycling.....	7
Buffered Bike Lanes Reduce Sidewalk Riding.....	8
Cyclists Are More Attracted to Streets with Improved Bicycle Facilities.....	9
Streets with Better Bicycle Facilities Attract More Females and Foster Better Behavior.....	10
<b>What the American Community Survey Says About Bicycle Commuting in Philadelphia.....</b>	<b>12</b>
Philly places 1st, 8th and 9th Among Large Cities for Bicycle Commuting.....	12
Core Neighborhoods of Philadelphia’s Bicycle Commuters.....	14
Philadelphia’s Bike Mode Share has Increased Sharply.....	18
Philly’s Neighborhood Bicycle Mode Share Among the Nation’s Highest.....	20
<b>How Suburban Municipalities and Counties Compare to Philadelphia.....</b>	<b>22</b>
<b>Policy Recommendations.....</b>	<b>26</b>





## Summary of Findings

Over the last decade, significant numbers of Philadelphians have shifted to bicycle commuting and positioned Philadelphia as an excellent big city for biking. By building on these trends, Philadelphia has the opportunity to transform itself into a world-class bicycling city.

- Philadelphia has, per capita, twice as many bicycle commuters as any other big city in the US.
- Bicycle commuting increased 151 percent from 2000 to 2009.
- Bike lanes lead to better bicyclist behavior: bicyclists are more than twice as likely to ride on the sidewalk when there is no bike lane.
- Streets with bike lanes have more bike traffic.

**Of the nation’s 10 biggest cities, Philadelphia’s bicycle mode share is twice as high as next-best Chicago.** Philadelphia’s city-wide bicycle mode share (the percentage of commuters who bike to work) for 2009 was 2.16 percent. Philadelphia’s share of female cyclists is also very high, an indicator often used to test how bicycle-friendly a city is. In Center City and South Philly, bike commuting rates are among the highest anywhere in the country, comparable with Santa Barbara, and rank among the Top 25 of 2,100 census neighborhoods. Only Portland, Minneapolis and San Francisco have 2 or more neighborhoods in the Top 25.

**Philadelphia’s rate of growth in bike commuting is astonishing.** Between 2000 and 2009, the percentage of workers who bike to work counted by the US Census grew by 151 percent. This rate is similar to what the Bicycle Coalition documented by counting bicyclists on the street during the morning and evening rush hours; between 2005 and 2010, the average number of bikes per hour counted grew 127 percent. Between 1990 and 2009, the number of bicyclists crossing the Schuylkill River grew by 361 percent

**Bike lanes, and more bicyclists, lead to better behavior.** Sidewalk riding drops from 19.8% on streets with no bike lane to 8.6% on streets with a bike lane to 2.4% on streets with a buffered bike lane. The Bicycle Coalition’s counts document that, between 2006 and 2010, while helmet use has risen, sidewalk riding and riding the wrong way have fallen at all counted locations.

**Bicyclists like bike lanes, and they like buffered bike lanes even better.** The Bicycle Coalition’s counts found streets with bike lanes had more cyclists than streets without them, and had more growth in bicyclists than streets without bike lanes.

They also have more female bicyclists, less sidewalk riding, less wrong way riding, and more cyclists wearing helmets than streets without bike lanes. The buffered bike lanes had the same result, but even more amplified. These results confirm that better behavior goes hand in hand with better bicycling facilities. Facilities like buffered bike lanes make bicyclists feel safer.



## Introduction



In 2008, the Bicycle Coalition of Greater Philadelphia (BCGP) published Double Dutch: Bicycling Jumps in Philadelphia, a report which documented that the number of bicyclists on the street had doubled between 2005 and 2008 based on the Coalition's annual fall counts. This finding was confirmed in 2009 by the American Community Survey, a telephone poll conducted by the U.S. Census Bureau, which also found that Philadelphia's bike mode share - the number of commuters who use a bike three days a week or more to get to work - had nearly doubled between 2005 and 2008. The numbers of bike commuters went from 4,778 to 9,410: a 97 percent increase in 3 years<sup>1</sup>.

BCGP conducted additional fall counts in 2009 and 2010. These were conducted at designated intersections and Schuylkill River bridges by BCGP staff, board members, and volunteers<sup>2</sup>. BCGP's Annual Bicycle Counts are designed to document the number of bicyclists who pass by a particular point, cyclists' gender, helmet usage and behavior such as riding the wrong way or riding on the sidewalk. From this data set, we draw some conclusions about the trend of bicycling in Philadelphia since 2005, including how cyclists use streets with and without bike lanes.



<sup>1</sup> Greater Philadelphia Bicycle News. October 1, 2009. "Philadelphia is No.1 Among Big Cities." <http://blog.bicyclecoalition.org/2009/10/philadelphia-is-no-1-among-big-cities.html>

<sup>2</sup> For a history of the Coalition's bike counts, see Greater Philadelphia Bicycle News posts (April 16, 2010 and April 21, 2010): "Making Bikes Count- Part 1" <http://blog.bicyclecoalition.org/2010/04/making-bikes-count-part-1-dearth-of.html> and "Making Bikes Count-Part 2" <http://blog.bicyclecoalition.org/2010/04/making-bikes-count-part-2-history-of.html>

When the BCGP first began to count bikes, it was conducted as an advocacy tool to fill a void. Neither the City of Philadelphia, Pennsylvania’s Department of Transportation (PennDOT) nor the Delaware Valley Regional Planning Commission (DVRPC), the region’s planning organization, counted bikes when it counted motor vehicle traffic in their regular surveys. By documenting the number of bicycles using the streets of Philadelphia, BCGP has been able to advocate for better and more facilities, making the streets safer for all of us. As Dennis Winters, a long time BCGP board member and Secretary has said, “If you don’t count bikes, then bikes don’t count.”



Over the past several years, this situation has changed. In 2009, Philadelphia’s Parks and Recreation Department installed counters supplied by the Schuylkill River Heritage Area to count users on the Schuylkill River Trail<sup>3</sup>. In 2010, the Center City District (CCD) published a report summarizing a 2009 phone survey and a 2010 manual count of cyclists on north-south streets in Center City<sup>4</sup>. Through this phone survey, CCD found that 10 percent of the residents in four Center City ZIP codes bike to work. Their bike count also found 800 northbound bikes per hour during the morning rush hour into Center City.

In 2010, the Delaware Valley Regional Planning Commission (DVRPC) installed automatic bike counters at 200 locations in Center City, on the Schuylkill River Trail, and some at suburban sites to begin the process of automatically counting. These counters were set out from August 2010 to February 2011, for a week at a time per site. DVRPC will establish 10 permanent locations for automatic bike counters in spring 2011<sup>5</sup>.

The U.S. Census Bureau conducts an annual American Community Survey to collect data on how workers travel to work and has reported the bicycle “mode share” for a number of years since 2004<sup>6</sup>. Previous to 2004, mode share was reported in the decennial census. This data set is the definitive national data set on the use of bikes as a mode of transportation and provides another important trend analysis showing how bicycle commuting has grown. That being said, the mode share is an undercount of the true number of bike commuters. It does not count periodic bicycle commuters, nor does it count cyclists who bike to another mode, such as transit.

In summary, this report presents an analysis of both the BCGP Annual Bicycle Count data and U.S Census data to show how bicycling is steadily climbing in the Greater Philadelphia region.

---

<sup>3</sup> Greater Philadelphia News. June 16, 2010. “Schuylkill River Trail Counters monitor number of uses” <http://blog.bicyclecoalition.org/2010/06/schuylkill-river-trail-counters-monitor.html>

<sup>4</sup> Central Philadelphia Development Corporation and Center City District. July 2010. [Center City Reports: Bicycles](#)

<sup>5</sup> <http://www.dvrpc.org/Traffic/> Look for “bike/ped map” button

<sup>6</sup> [http://www.census.gov/acs/www/about\\_the\\_survey/american\\_community\\_survey/](http://www.census.gov/acs/www/about_the_survey/american_community_survey/)



# What Annual Bicycle Counts Say about Bicycling in Philadelphia

## Bicycling in Philadelphia is Steadily Increasing

The Bicycle Coalition's bike count dataset documents that bicycling rates continue to climb. The number of bikes counted at specific locations is presented in Table 1. The rates of change are presented in Table 2. The data shows that the average number of bikes (per hour) counted rose 17 percent from 2009 to 2010. The average number of bikes (per hour) counted rose 127 percent from 2005 to 2010 and 361 percent from 1990 to 2010.

**Table 1**  
Average Number of Bikes per Peak Hour\* for Select Locations

	1990	2005	2006	2007	2008	2009	2010
<b>Counted Locations</b>							
8th and Pine						85	82
9th and Spruce						120	140
Broad and Chestnut		79	83		126	95	108
Broad and Pine		130	116				259
22nd and Spruce		58	84			180	216
21st and Pine						102	122
38th and Spruce			129	163	188	204	202
<b>Walnut St Bridge</b>	32	74	118	94	137	226	241
<b>South St Bridge</b>	60	70	107	114	160		
<b>Chestnut St Bridge</b>	18	52	74	108	121	179	186
<b>Market St Bridge</b>	19	46	73	68	68	80	86
<b>Spring Garden Bridge</b>			59		115	97	124
<b>JFK Bridge</b>		16	23			25	20
<b>Schuylkill Crossings Total (w/Spring Garden + JFK)</b>			453		601	607	657
<b>Schuylkill Crossings Total (without Spring Garden)</b>	129	258	394	384	486	509	532
<b>Schuylkill Crossings Average Counts (with Spring Garden)</b>		61	86	96	120	145	159
<b>Average Number of Bikes Per Hour for all Counted Locations</b>	32	66	87	109	131	127	149

\* Peak hours counted were 7:30 - 9:00 am and 4:30 - 6:00 pm.

**Table 2**  
Rates of Change in Average Number of Bikes per Hour

	2009 to 2010	2005 to 2010	1990 to 2010
Broad and Chestnut	14%	37%	
Broad and Pine		99%	
22nd and Spruce	20%	272%	
Walnut St Bridge	7%	227%	653%
Chestnut St Bridge	4%	255%	931%
Market St Bridge	8%	86%	352%
JFK Bridge	-19%	25%	
Schuylkill Bridge Average Counts (with Spring Garden)	-10%	117%	
<b>Average Number of Bikes Per Hour for all Counted Locations</b>	17%	127%	361%

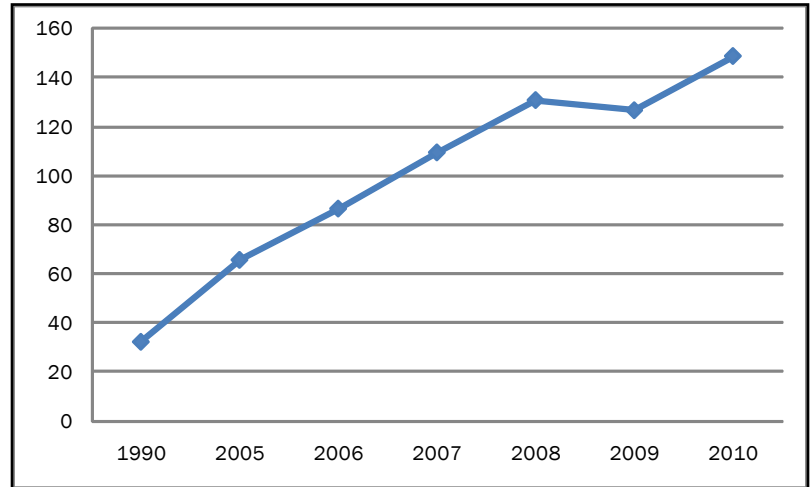
Figures 1 and 2 (page 5) show how the average annual number of bikes at all counted locations and on the Schuylkill River bridges has increased over time. Increases on the Walnut and Chestnut Street bridges during 2009 and 2010 coincided with the closing of the South Street bridge. The busiest intersection during the 2010 count was Broad and Pine; the bridge with the most bikes counted was the Walnut Street bridge. Even with South Street bridge closed for most of 2010, Figure 3 shows that the total number of bikes crossing the Schuylkill River has risen from over 400 per hour in 2006 to over 600 per hour in 2010.



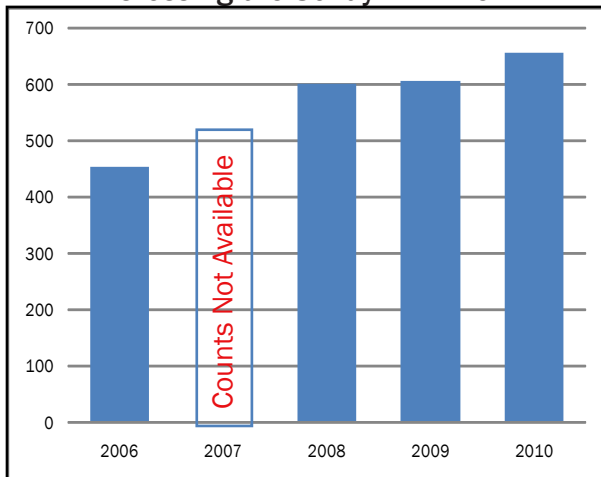
The Coalition count results are confirmed by the upward trend of the bicycle mode share reported by the U.S. Census Bureau. In its annual American Community Survey, the U.S. Census Bureau reports the mode of transportation workers use to commute to work three days a week.

Figure 4 shows the Bicycle Coalition's counts of the average number of bikes per hour for years 1990, 2005, 2006, 2007 and 2008 graphed against Philadelphia's bicycle mode share for the same years.

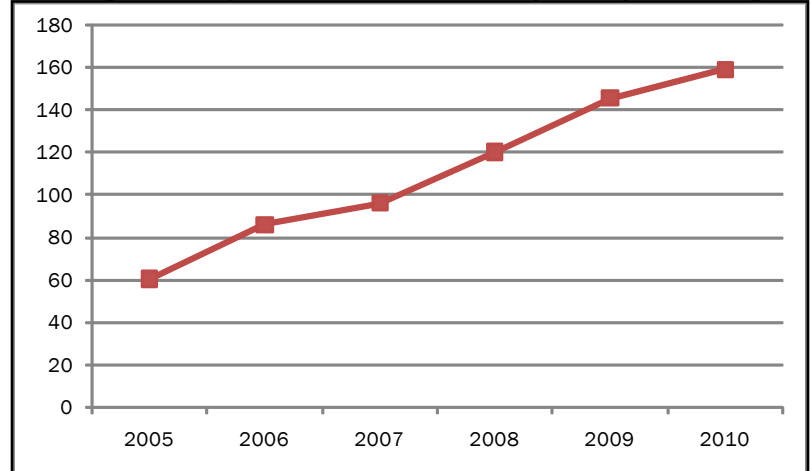
**Figure 1**  
Average Bikes per Hour in all Counted Locations



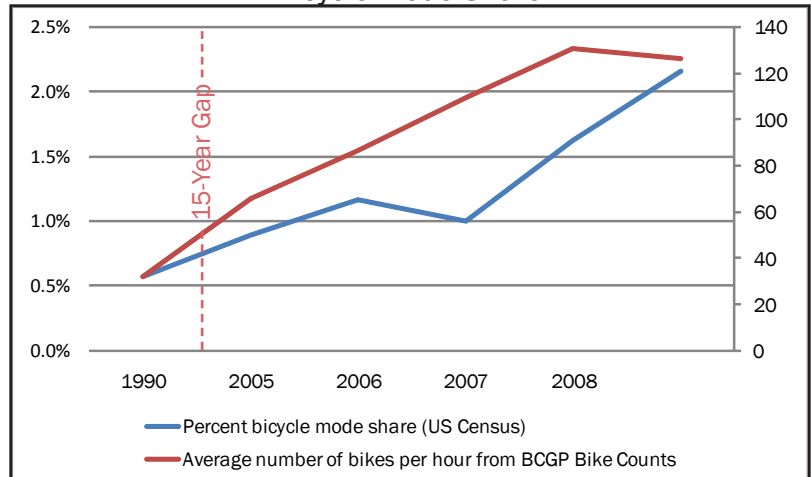
**Figure 3**  
Total Bikes per Hour  
Crossing the Schuylkill River



**Figure 2**  
Average Bikes per Hour for Center City Schuylkill Bridges



**Figure 4**  
Bicycle Mode Share



## Behavior Improves with Time; Gender Split Remains the Same

Table 3 presents the gender split and behavioral differences as documented during the Coalition’s 2010 Annual Count. (The highest percentages are in blue and the lowest are in red.) It also compares the 2010 figures to those from 2006. The percentage of females counted is 32 percent, slightly lower than the 38 percent counted in 2006. But, these percentages are in the same range as the percentage of female commuters (37 percent) found by the 2009 American Community Survey data<sup>7</sup>. Helmet usage rose from 31 percent to 50 percent, repeating the same trend of more females wearing helmets (59 percent) than males (44 percent). Sidewalk riding dropped from 24 percent to 13 percent and wrong way riding dropped from 3 percent to 1 percent.

**Table 3**  
**Helmet Use, Sidewalk Riding, and Wrong-Way Riding**

Location	Percent Female	Percent Helmets	Percent Sidewalk	Percent Wrong Way	Percent Helmets Male	Percent Helmets Female
Spring Garden St Bridge	37%	64%	3%	1%	57%	76%
JFK Bridge	18%	48%	34%	2%	48%	18%
Market St Bridge	22%	33%	43%	0%	25%	61%
Chestnut St Bridge	37%	65%	16%	1%	58%	78%
Walnut St Bridge	38%	48%	7%	1%	44%	54%
38th and Spruce	36%	57%	11%	1%	49%	71%
Broad and Chestnut	20%	28%	14%	2%	23%	48%
Broad and Pine	28%	37%	13%	1%	30%	56%
22nd and Spruce	36%	60%	1%	1%	54%	72%
21st and Pine	37%	60%	3%	1%	53%	71%
9th and Spruce	33%	40%	3%	1%	34%	55%
8th and Pine	34%	42%	9%	2%	37%	51%
2010 Average	32%	50%	13%	1%	44%	59%
2006 Average	38%	31%	24%	3%	N/A	N/A

<sup>7</sup> U.S. Census Bureau. American Community Survey. Table B08006 of the 2009 One Year Estimates.



## Buffered Bike Lanes on Spruce and Pine Streets Attract More Bicycling

In 2009, Philadelphia's Streets Department installed two buffered bike lanes on Spruce and Pine Streets, providing a pair of one-way bicycle corridors across Center City. Installed from 22nd to approximately Front Street (2nd on Spruce), this pair of streets was the first innovative bikeway design installed in Philadelphia.

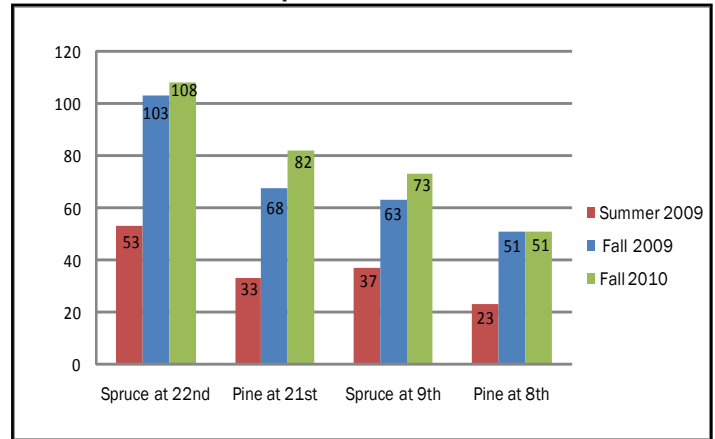
The lanes are 9 feet wide, with 6 feet for cyclists and 3 feet of painted buffer between the bike lane and the car travel lane. They each replaced a motor vehicle travel lane. Installed in September of 2009, they were studied by the Streets Department during a pilot phase and made permanent in December 2009<sup>8</sup>. Although somewhat hampered by poor pavement conditions east of Broad (until repaved in late 2010), these two lanes nevertheless attracted more cyclists and reduced sidewalk riding.

Figures 5 and 6 show the effect the bike lanes have had upon cycling on Spruce and Pine streets. Based on counts of cyclists at each of four intersections conducted: 1) before the installation of the lanes in summer 2009; 2) after installation of the Spruce and Pine bike lanes in fall of 2009; and 3) in the fall of 2010, the numbers show marked increases in number of cyclists using Spruce and Pine Streets.

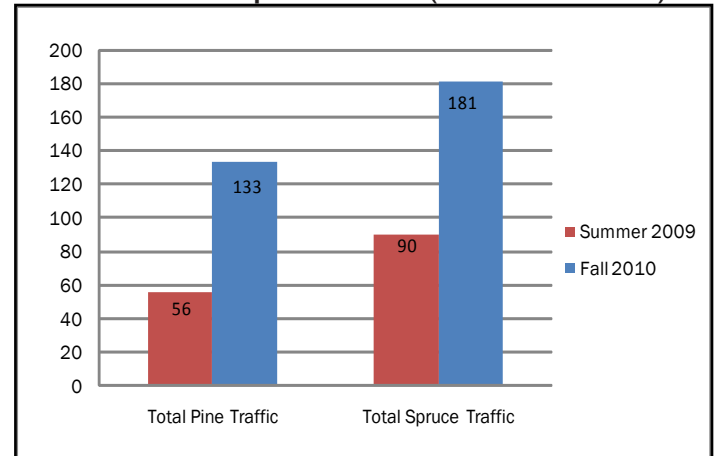
These significantly better bicycle facilities are attracting more cyclists. Figure 7 shows that as a percentage of traffic flow in 2010, bicyclists prefer streets with the buffered bike lanes slightly more than streets with ordinary bike lanes and much more than streets with no lanes. Bikes made up over 12 percent of all traffic in the morning and over 10 percent in the afternoon on Spruce and Pine Streets. Figure 7 was generated by comparing BCGP counts against the hours segments (8-9 am and 5-6 pm) of DVRPC's 24 traffic (motor vehicle) counts (dvrpc.org/traffic).

<sup>8</sup> A detailed summary of the Spruce/Pine bike lanes with links can be found at <http://www.bicyclecoalition.org/spinzone/spruce-pine>

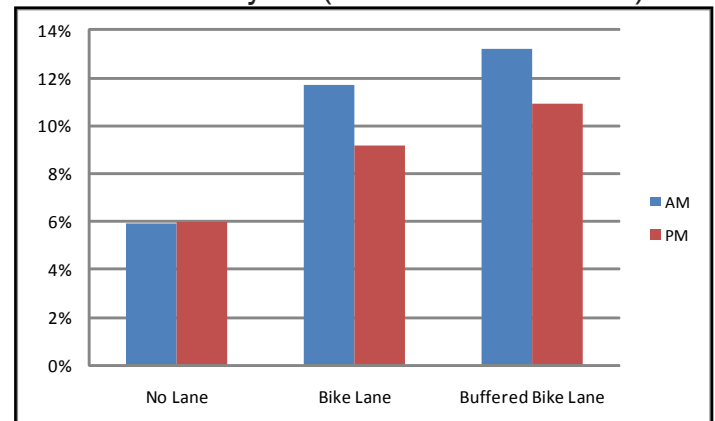
**Figure 5**  
Number of Bicyclists per Hour  
On Pine and Spruce Street Intersections



**Figure 6**  
Total of Bicyclists per Hour  
On Pine and Spruce Street (All Intersections)



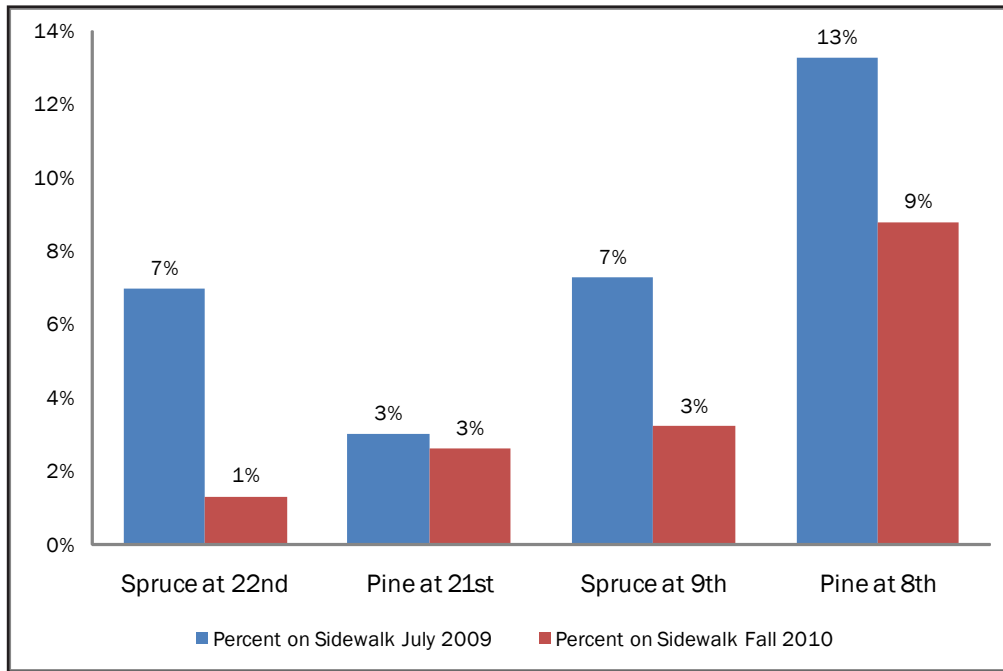
**Figure 7**  
Share of Vehicle Traffic  
That are Bicycles (on all Counted Streets)



## Buffered Bike Lanes Reduce Sidewalk Riding

The buffered bike lanes also contributed to a marked decrease in sidewalk riding. As indicated by Figure 8, the percentage of bikes on sidewalks fell by a range of 30-87 percent on Spruce Street west of Broad, and on Spruce and Pine east of Broad. Pine Street west of Broad didn't see as much of a decrease, but the level of sidewalk riding was already less than 3 percent prior to the bike lane installation.

**Figure 8**  
**Impact of Spruce and Pine Bike Lanes on Sidewalk Riding**  
**July 2009 to October 2010**



## Cyclists Are More Attracted to Streets With Improved Bicycle Facilities

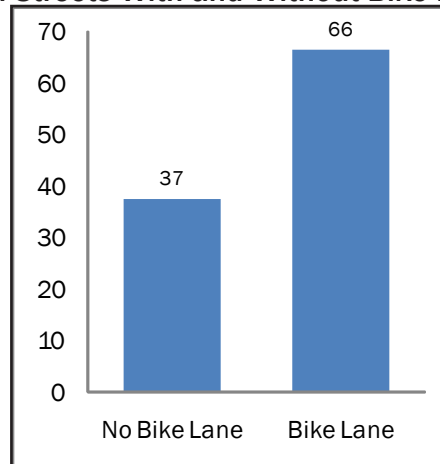
A count of riders on streets with and without bike lanes reveals that cyclists prefer those streets that are designed with cyclists in mind. In a review of the trend in cyclists who use Pine, Spruce and 22nd Streets (streets with bike lanes) compared to Broad Street (without a bike lane), the difference in the increased rate is remarkable. Between 2005 and 2010, the streets with lanes had a doubling or tripling of cyclists, while the number of cyclists on Broad Street only increased by 50 percent (Table 4).

**Table 4**  
Change in Ridership on Selected Streets Since 2005

	2005 to 2006	2005 to 2010
<b>Pine</b>	-1%	237%
<b>Spruce</b>	49%	342%
<b>Broad</b>	-10%	52%
<b>22nd</b>	71%	288%

This finding is confirmed by the number of bikes per hour found on streets with and without bike lanes. Figure 9 shows that almost twice as many cyclists ride on streets with a bike lane whether it is buffered or not.

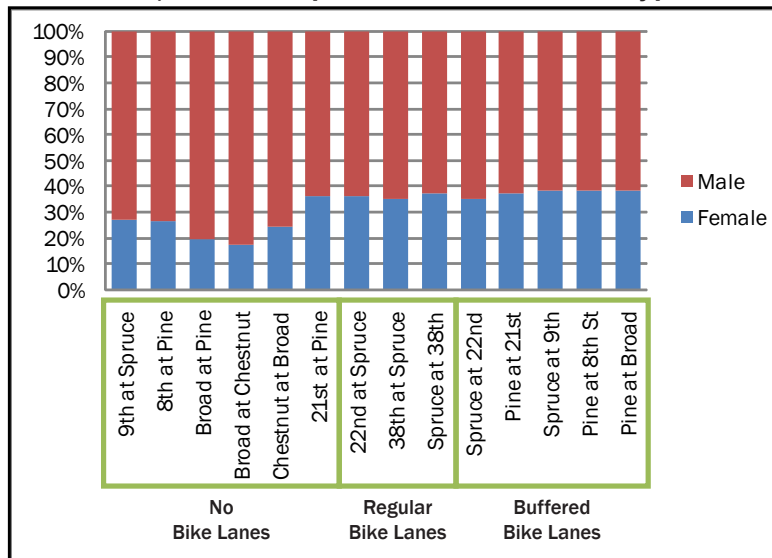
**Figure 9**  
Average Hourly Count of Riders  
On Streets With and Without Bike Lanes



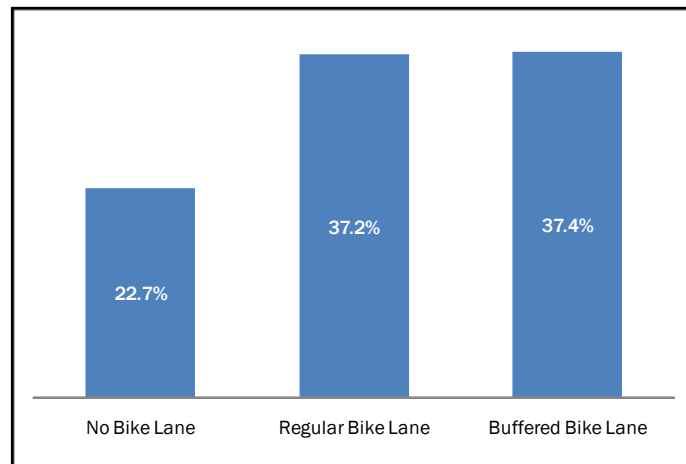
## Streets with Better Bicycle Facilities Attract More Females and Foster Better Behavior

Research has found that women are an “indicator species” for bike-friendly cities<sup>9</sup>. Women are more risk averse and will stay off streets they perceive as being unsafe. When the proportion of women cyclists rises, it reflects that streets are being perceived as safer for bicycling. This has led researchers to conclude that encouraging women to ride their bikes through better bicycle infrastructure and education will lead to more people cycling overall<sup>10</sup>. The 2010 bike counts show that women prefer streets with bike lanes to those without. Figure 10 shows that the male to female ratio on Philadelphia’s streets shifts towards more females on those streets that have bike lanes.

**Figure 10**  
Male/Female Split on Different Lane Types



**Figure 11**  
Female Bicyclists on Street Facilities



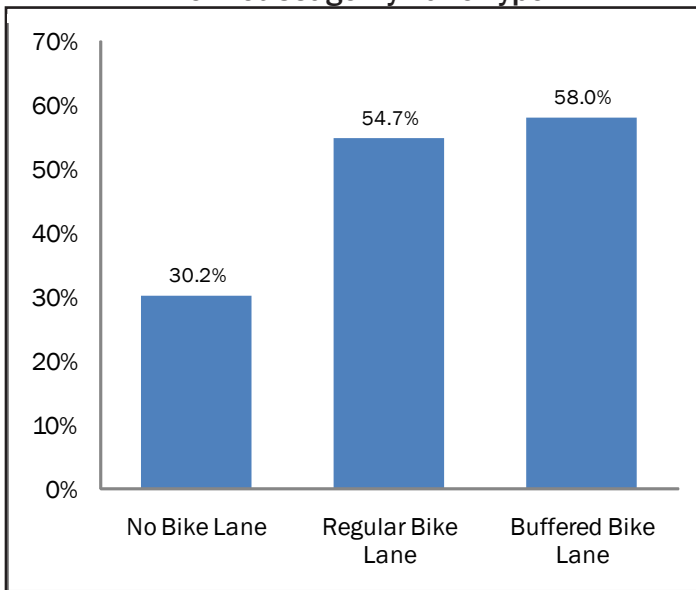
<sup>9</sup> [Scientific American](#). October 2009. “How to Get More Bicyclists on the Road: To boost urban bicycling, figure out what women want”

<sup>10</sup> Pucher, John and Ralph Buehler. “Cycling for Everyone: Lessons From Europe” [Transportation Research Record](#): Journal of the Transportation Research Board, No. 2074, November 2008, pp. 58-65

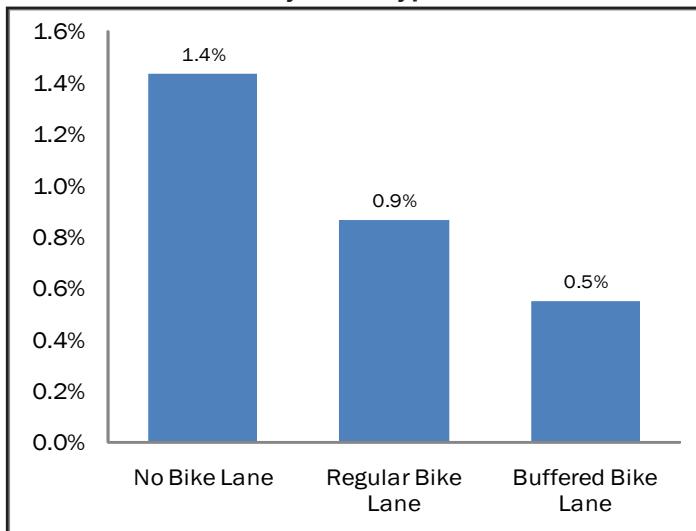
Figure 11 also demonstrates that of the cyclists counted during 2010, the percentage of females on streets with bike lanes and buffered bike lanes is much higher than on those without bike lanes. Clearly, more streets with bike lanes are key to growing the number of women using their bicycle for everyday riding in Philadelphia.

Figures 12, 13, and 14 show that streets with bike lanes were also found to have more helmet use, less sidewalk riding, and less wrong-way riding than streets without lanes. Streets with buffered lanes had even better results with these behaviors. Clearly, better behavior is closely correlated to better bicycling facilities, and that these facilities make people feel safe.

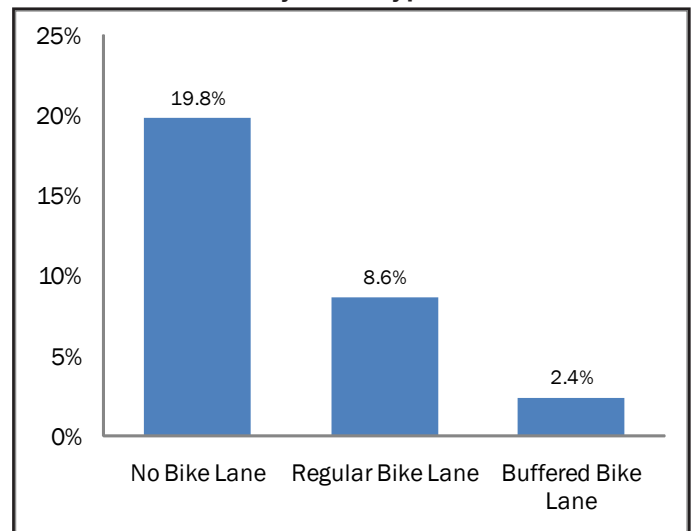
**Figure 12**  
**Helmet Usage By Lane Type**



**Figure 13**  
**Percent of Wrong-Way Riding By Lane Type**



**Figure 14**  
**Sidewalk Riding By Lane Type**



# What the American Community Survey Says About Bicycle Commuting in Philadelphia



Mayor Michael Nutter at the Bicycle Coalition's 2010 Bike Philly Ride

This section analyzes the ACS data sets to better understand how Philadelphia's bicycle mode share ranks in comparison to other cities, how bicycle commuting has changed over time, where bicycle commuters live, and where Philadelphia's bicycle mode share has increased. Altogether, the data shows that Philadelphia is one of the United States' most thriving large urban centers for bicycle commuting.

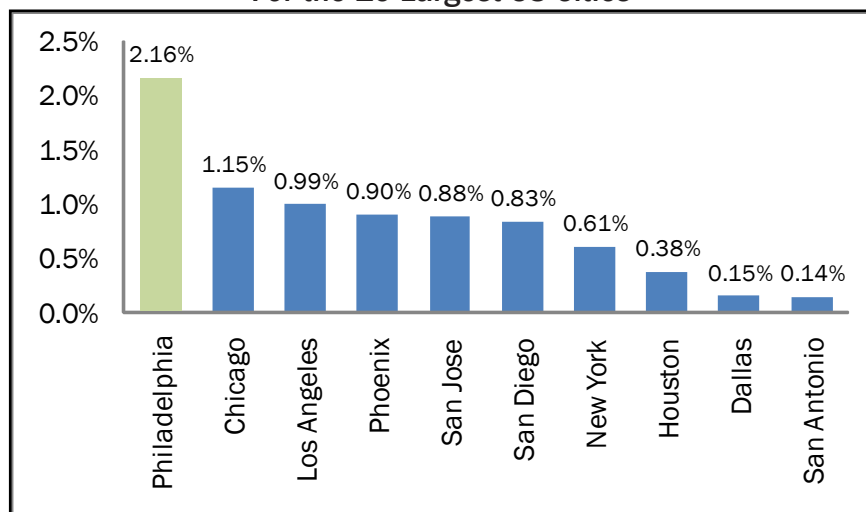
### *Philly places 1st, 8th and 9th Among Large Cities for Bicycle Commuting*

By far, Philadelphia has some of the most impressive bicycling statistics in the country. In 2009, among the ten largest U.S. cities, Philadelphia has the highest bike mode share at 2.16 percent (Figure 15).

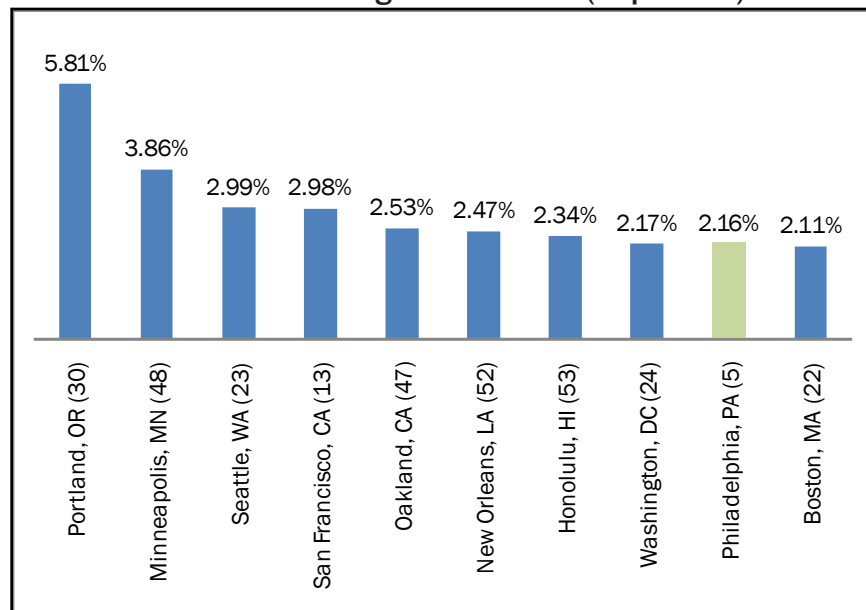
Among the country's seventy largest cities, that mode share placed Philadelphia ninth in the nation (Figure 16).

The American Community Survey (ACS), conducted by the U.S. Census Bureau, provides data on how communities change<sup>11</sup>. One of the many items this survey measures is how workers over 16 years of age get to work, i.e. drive alone, take public transit, walk, etc. This "means of transportation to work" data set is the best method of tracking the level of bicycling in the United States.

**Figure 15**  
**2009 Bike Mode Share**  
**For the 10 Largest US Cities**



**Figure 16**  
**Top 10 Bike Commuting Cities**  
**Out of the 70 Largest U.S. Cities (Pop. Rank)**

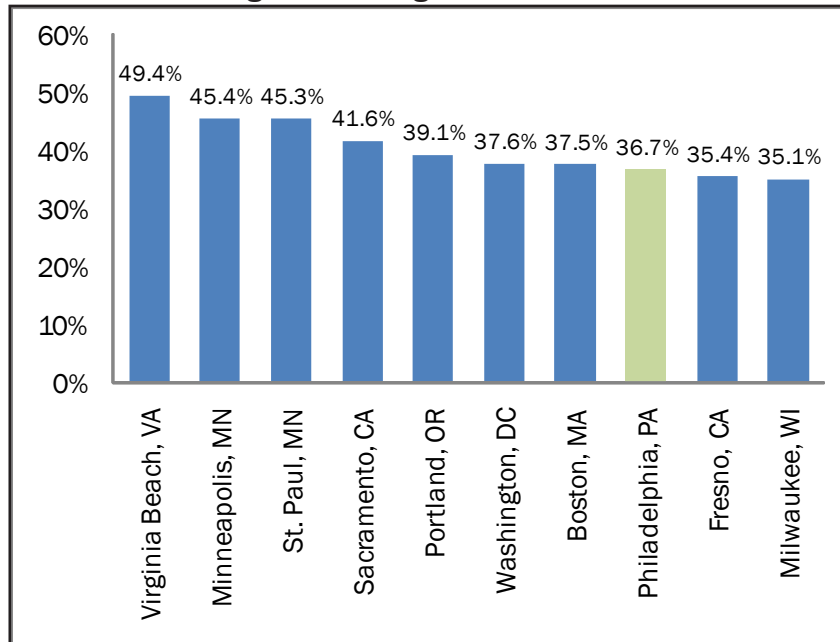


<sup>11</sup> The American Community Survey reports data in annual, three year, and five year increments. The data analyzed in this report includes the 2009 One Year Estimates (City and counties), 2007-2009 Three Year Estimates (PUMAs), and 2005-2009 Five Year Estimates (census tracts, planning districts and municipalities).



The ACS 2009 survey results found that women comprised 37 percent of Philadelphia’s bicycle commuters, which is among the highest in the nation – eighth among the top 70 cities and higher than Chicago and New York (Figure 17). Given that the percentage of female bicycle commuters is indicative of how safe the streets are perceived to be, Philadelphia has done a good job in attracting women to bicycling, compared to many other cities.

**Figure 17**  
**Top Ten Cities with the Highest Percentage of Female Commuters**  
**Among the 70 Largest Cities in the U.S.**



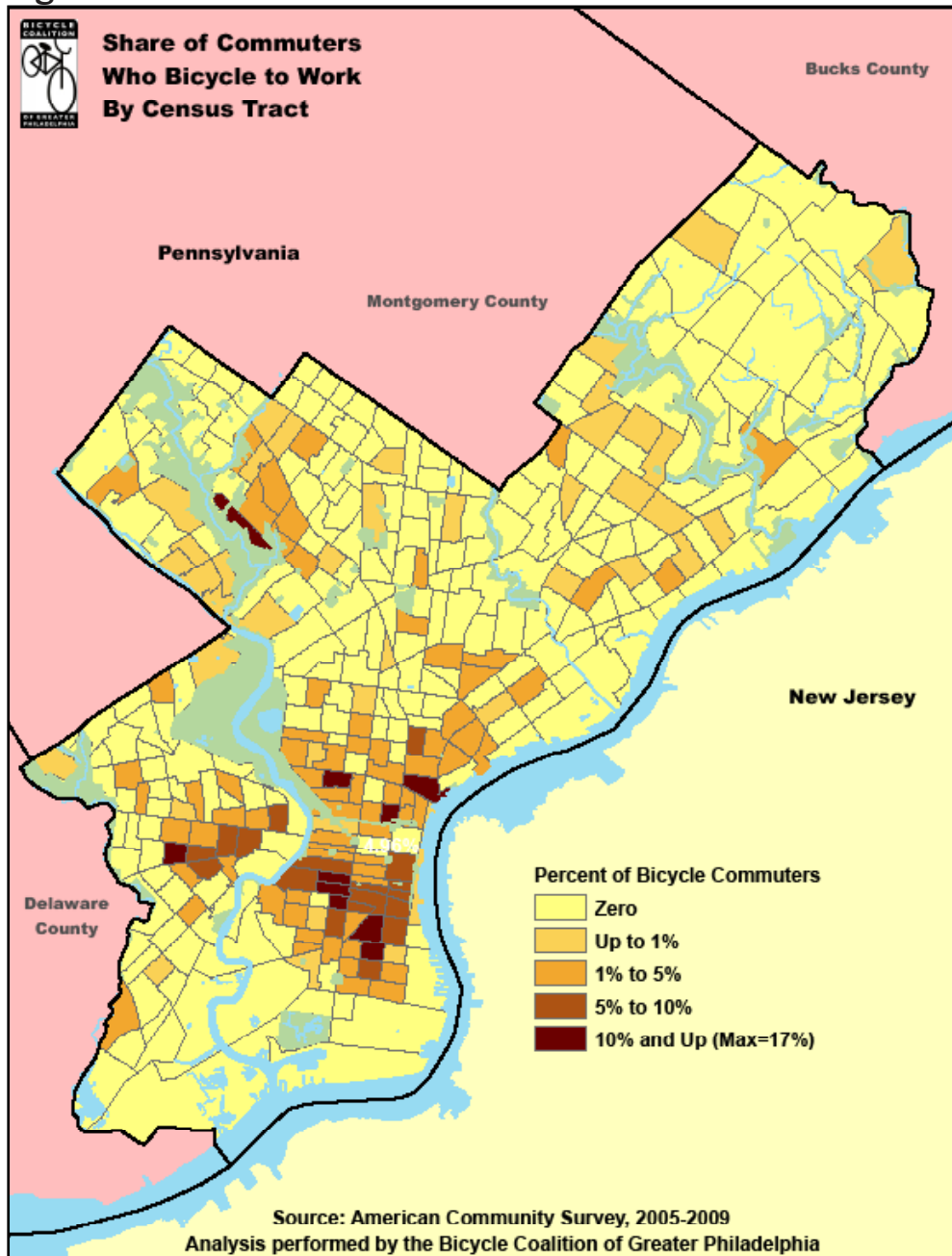
Because of the way Census data on bicycling is presented, it is challenging to analyze Philadelphia’s bicycle commuting rates by race. Looking at several census tract examples, it appears that African Americans commute by bicycle at perhaps one-half the rate of the rest of the Philadelphia population. There does not appear to be a significant difference for Asians or Hispanics. The Coalition will be conducting further research on this topic.



## Core Neighborhoods of Philadelphia's Bicycle Commuters

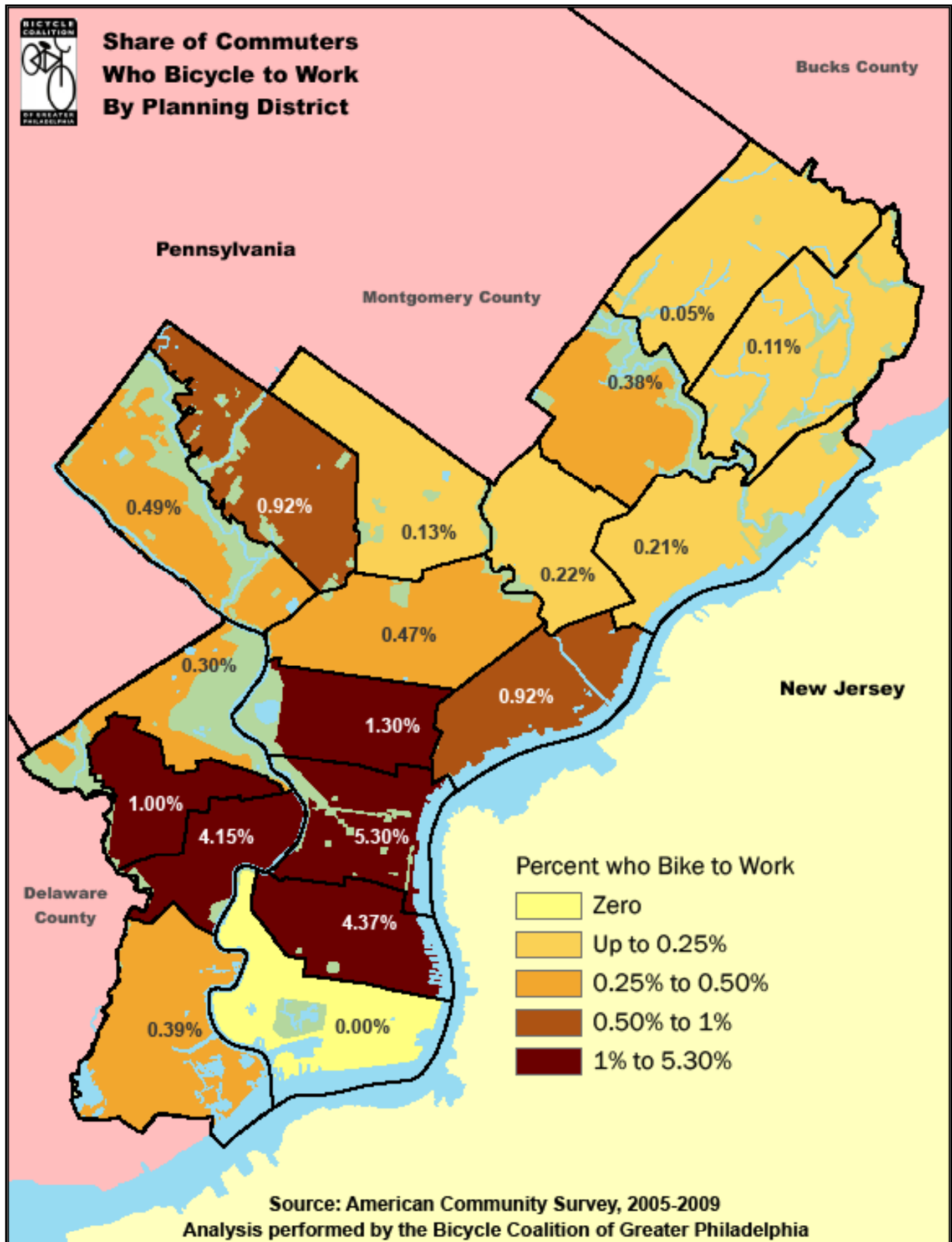
Although Philadelphia's citywide bicycle mode share is 2.16 percent, some parts of the city have much higher rates. By looking at bike mode share on a census tract level, Center City, parts of lower North Philadelphia, South Philly and West Philly emerge as the centers of bicycle commuting (see Figure 18) with rates above 10 percent. The pattern of cycling to work in different Planning Districts<sup>12</sup> (see Figure 19), reveals that Center City, University Southwest, and South Philadelphia have bicycle mode shares between 4 and 5.3 percent, which is in the range of Portland, Oregon's citywide mode share and higher than Minneapolis' citywide mode share.

**Figure 18**



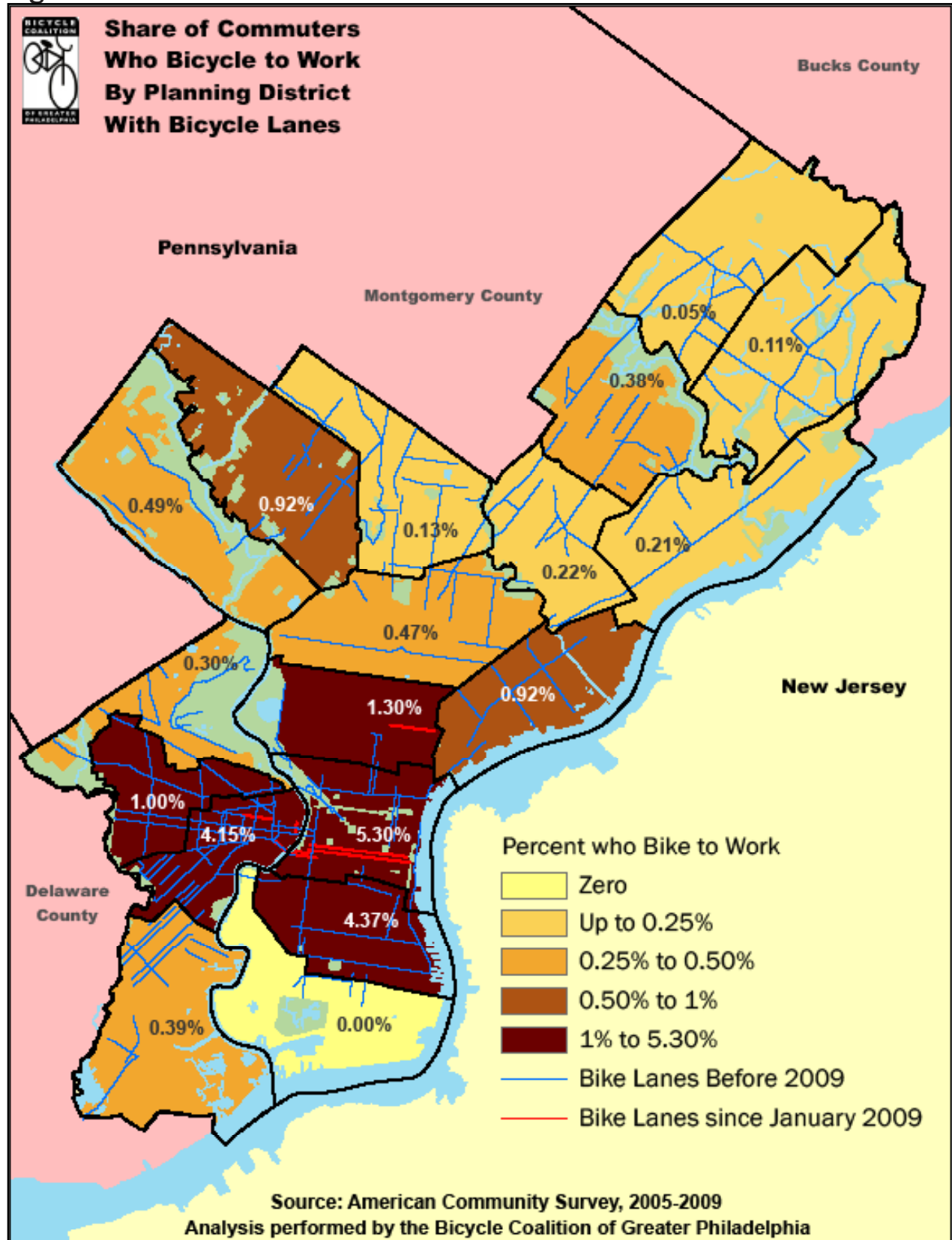
<sup>12</sup> Philadelphia City Planning Commission Planning Districts. <http://www.philaplanning.org/cpdiv/map12.pdf>

Figure 19



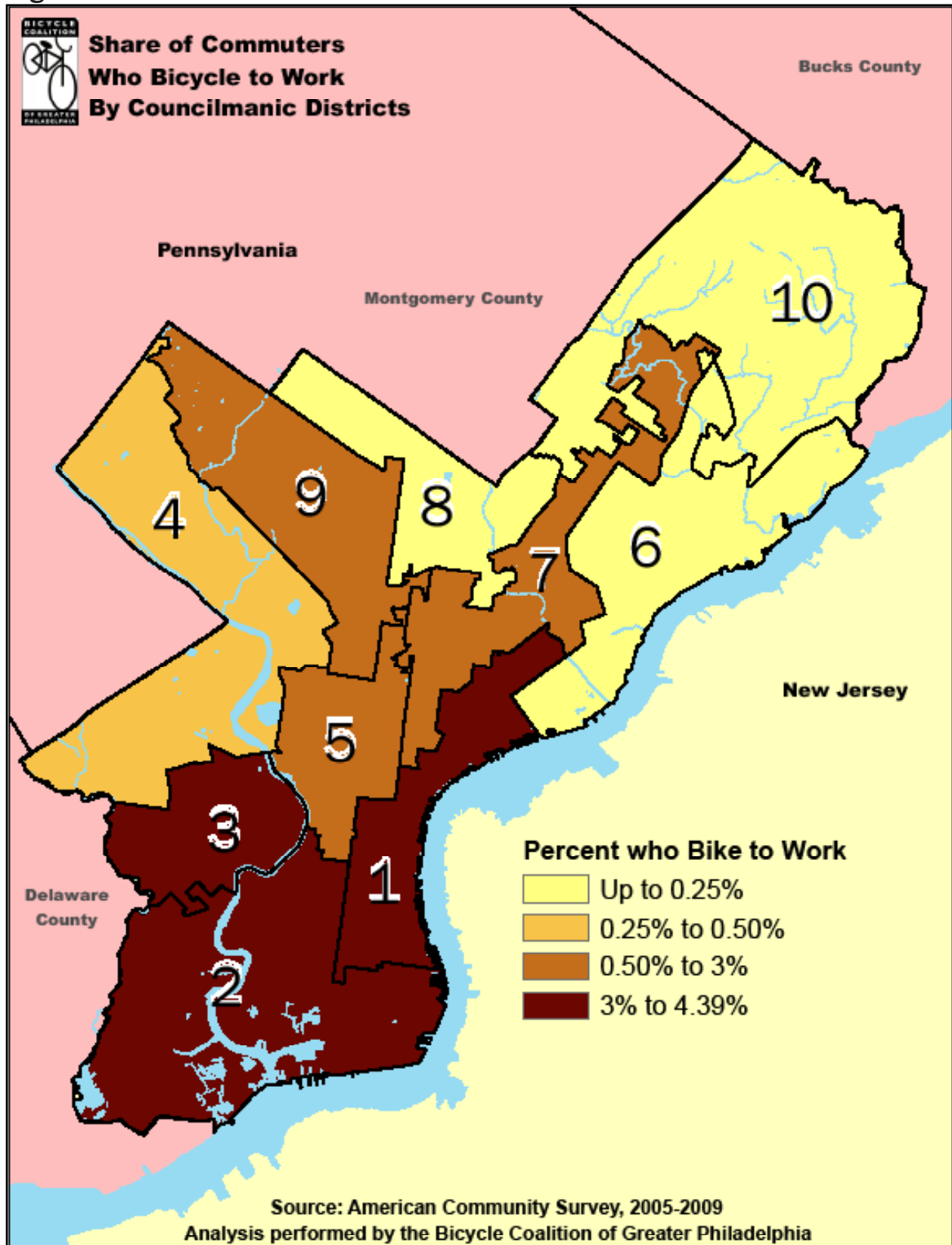
By overlaying the city's bike lane network on top of the Planning District mode share map, one sees that the districts with the most bike commuting have some of the fewest bike lanes (see Figure 20). But, it also shows that the city's newest bike lanes are going where they are needed the most; Center City and Lower North Philadelphia.

Figure 20



This data also reveals that Councilmanic Districts 1, 2 and 3 have the highest bicycle mode shares in the City (3 percent to 4.39 percent); Districts 5, 7 and 9 have ranges of 0.51 percent to 2.46 percent (see Figure 21).

Figure 21



## Philly's Neighborhood Bicycle Mode Share is Among the Nation's Highest

One problem with ranking the bicycle mode share of large cities is that it ignores the smaller communities where bicycle commuting is very high. Smaller university towns are known for high mode shares due to the large number of students, years of progressive planning and the plentiful number of bicycle facilities. Philadelphia's mode share is modest in comparison to those towns. Yet, normalizing areas of population to do an "apple to apple" comparison reveals that Philadelphia is a contender. The U.S. Census has created a standard geographic area called a public use microdata area (PUMA) which has a population of 100,000 or more<sup>13</sup>. A comparison of bicycle mode share of all 2,101 PUMAs helps illustrate the locations of the nation's highest bicycle mode shares.



Out of the 2,101 PUMAs across the United States and its Territories, two PUMAs in Philadelphia are within the top 25 for bicycle mode share (see Figure 22). Center City (5.14 percent) and South Philadelphia (5.16 percent) have mode shares in the range of PUMAs from Boulder, CO (9.69 percent) and Seattle, WA (4.07 percent).

This finding demonstrates that even with an unconnected bicycle network of bike lanes and relatively modest number of bicycle facilities (such as bike racks or separated bike lanes), South Philly and Center City have some of the highest bicycle mode shares in the country.

Why do South Philly and Center City have such high modes shares and why is the swath of Philadelphia from West Philly over to South Philly and the River Wards growing at such high rates? Facilities, such as bike lanes and bike racks, vary widely in these neighborhoods. But the following factors are common across those neighborhoods: affordable housing prices, a tight street grid, a transit system that inconsistently serves these neighborhoods, and a young adult population that is comfortable with bicycling for transportation. These factors, coupled with the lack of large, busy arterial streets that hinder bicycling, and with the presence of a very basic bikeway network, together contribute to a level of bicycling that is among the nation's highest.

The Central, South Philly, River Wards, Lower North, University Southwest, West Philly, and Upper Northwest is where the demand for better bicycling facilities lies. Innovative designs, such as sharrows on narrow streets, separated bicycle lanes, in-street bike parking and bicycle-friendly streets should be targeted to these neighborhoods.

---

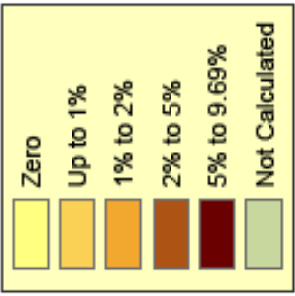
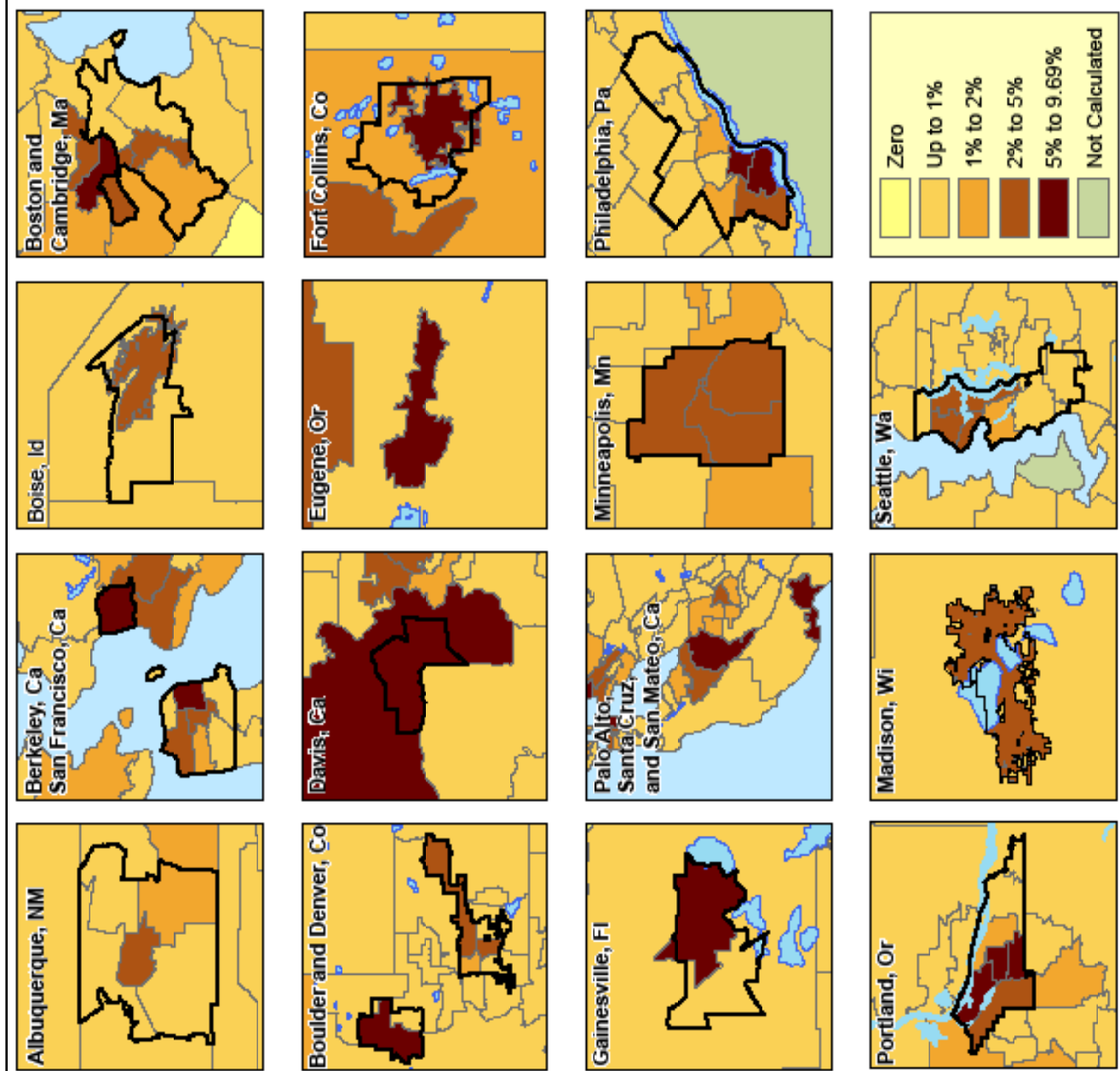
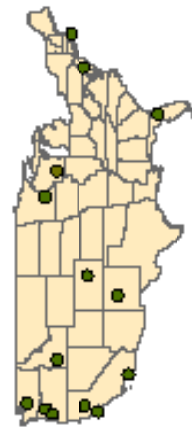
<sup>13</sup> A Public Use Microdata Area (PUMA) is a statistical geographic area of 100,000 or more people defined for the tabulation and dissemination of decennial census Public Use Microdata Sample (PUMS) data, American Community Survey (ACS) PUMS data and ACS period estimates. The 2010 PUMAs nest within states or equivalent entities; cover the entirety of the United States, Puerto Rico, Guam, and the U.S. Virgin Islands; contain at least 100,000 persons; are built on counties and census tracts (PUMA delineations are subject to population thresholds and building block geography), and are contiguous.

Figure 22

### Top 25 Communities for Commuting by Bicycle

The 25 PUMA areas with the largest bike commuter share are found in or around the following locations:

1. Boulder, Co (9.7%)
2. Portland, Or (9.2%)
3. Fort Collins, Co (8.0)
4. Davis-Woodland, Ca (7.4)
5. Berkeley, Ca (6.9%)
6. Cambridge, Ma (6.9)
7. Portland, Or (6.9%)
8. Portland, Or (6.9%)
9. Eugene-Springfield, Or (6.4%)
10. Palo Alto-Stanford, Ca (6.4%)
11. San Francisco, Ca (6.1)
12. Santa Barbara, Ca (6.1%)
13. Gainesville, Fl (6.1%)
14. Santa Cruz, Ca (5.8%)
15. **Central Philadelphia, Pa (5.4%)**
16. **South Philadelphia, Pa (5.2%)**
17. San Francisco, Ca (4.8%)
18. Madison, Wi (4.6%)
19. Boise, Id (4.4%)
20. San Mateo County, Ca (4.3%)
21. Minneapolis, Mn (4.2%)
22. Minneapolis, Mn (4.1%)
23. Minneapolis, Mn (4.1%)
24. Albuquerque, NM (4.1%)
25. Seattle, Wa (4.1%)

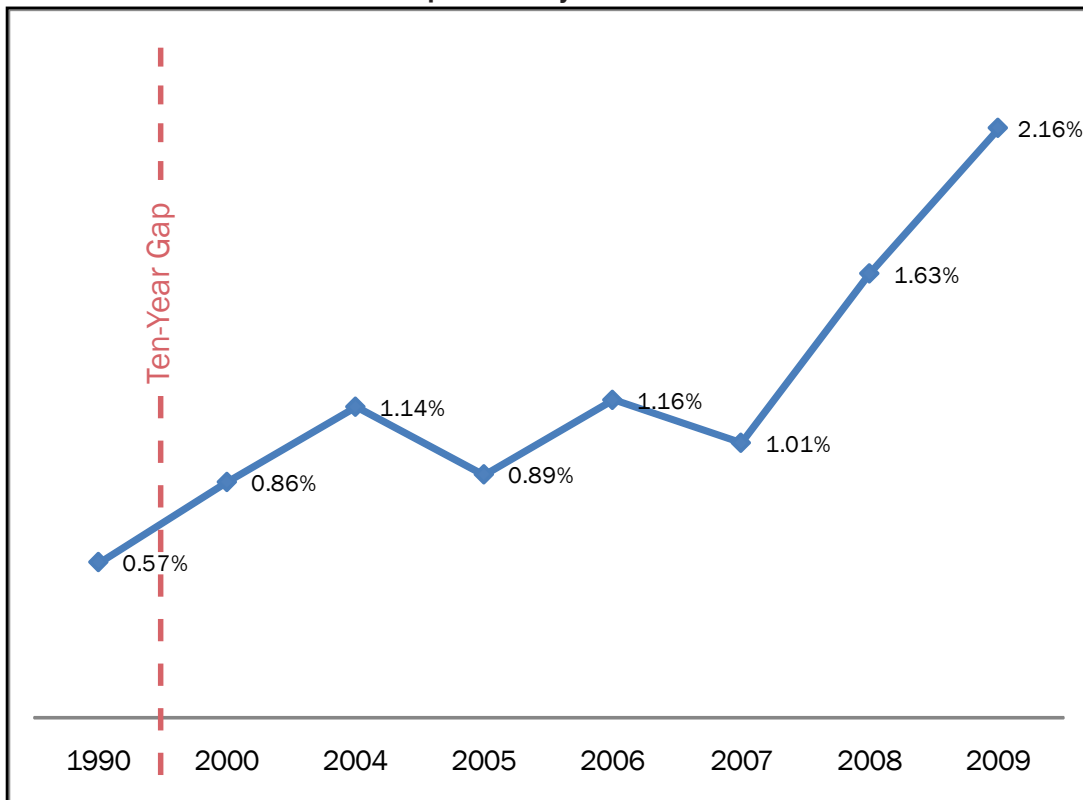


Source: US Census Bureau, Integrated Public Use Microdata Series. Analysis by the Bicycle Coalition of Greater Philadelphia

### Philadelphia's Bike Mode Share has Increased Sharply

Philadelphia's bicycle mode share has increased from 0.86 percent in 2000 to 2.16 percent in 2009, which is a 151 percent increase over a nine year period; over 10 percent annually (Figure 23). This mode share is for the entire City of Philadelphia, across all neighborhoods.

**Figure 23**  
Philadelphia's Bicycle Mode Share

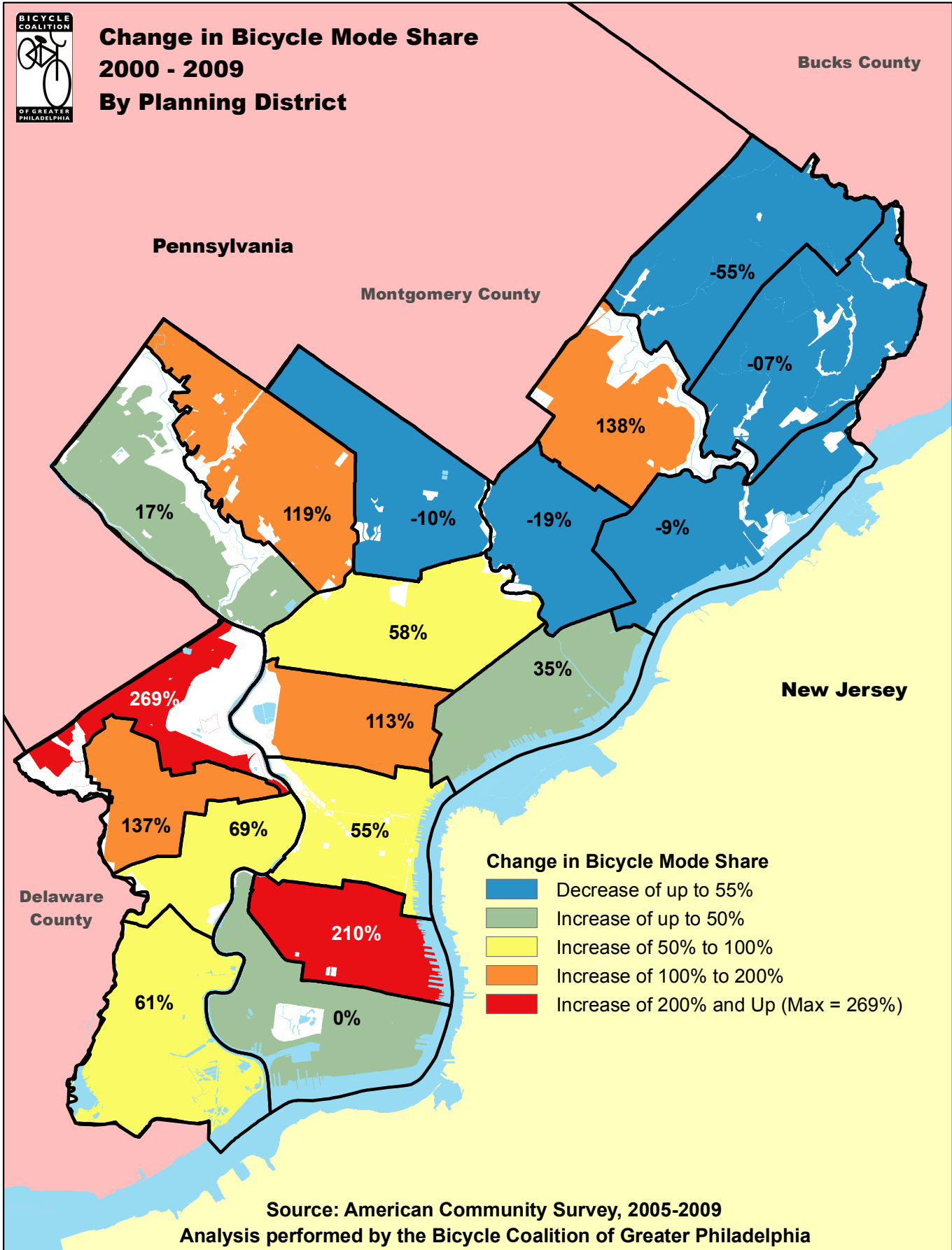


The largest increases in bicycle commuting were in South Philadelphia and West Park which experienced increases above 200 percent (see Figure 24). The Upper Far Northeast experienced the greatest losses in bicycle commuting since 2000.





Figure 24



## How Suburban Municipalities and Counties Compare to Philadelphia



The 2009 (counties only) and 2005-2009 (counties and municipalities) ACS datasets are useful to evaluate how mode share in the municipalities and counties surrounding Philadelphia compare to one another. The counties considered for this analysis are the nine within the Delaware Valley Regional Planning Commission jurisdiction: Delaware, Chester, Montgomery, Philadelphia and Bucks in Pennsylvania and Mercer, Burlington, Camden and Gloucester in New Jersey.

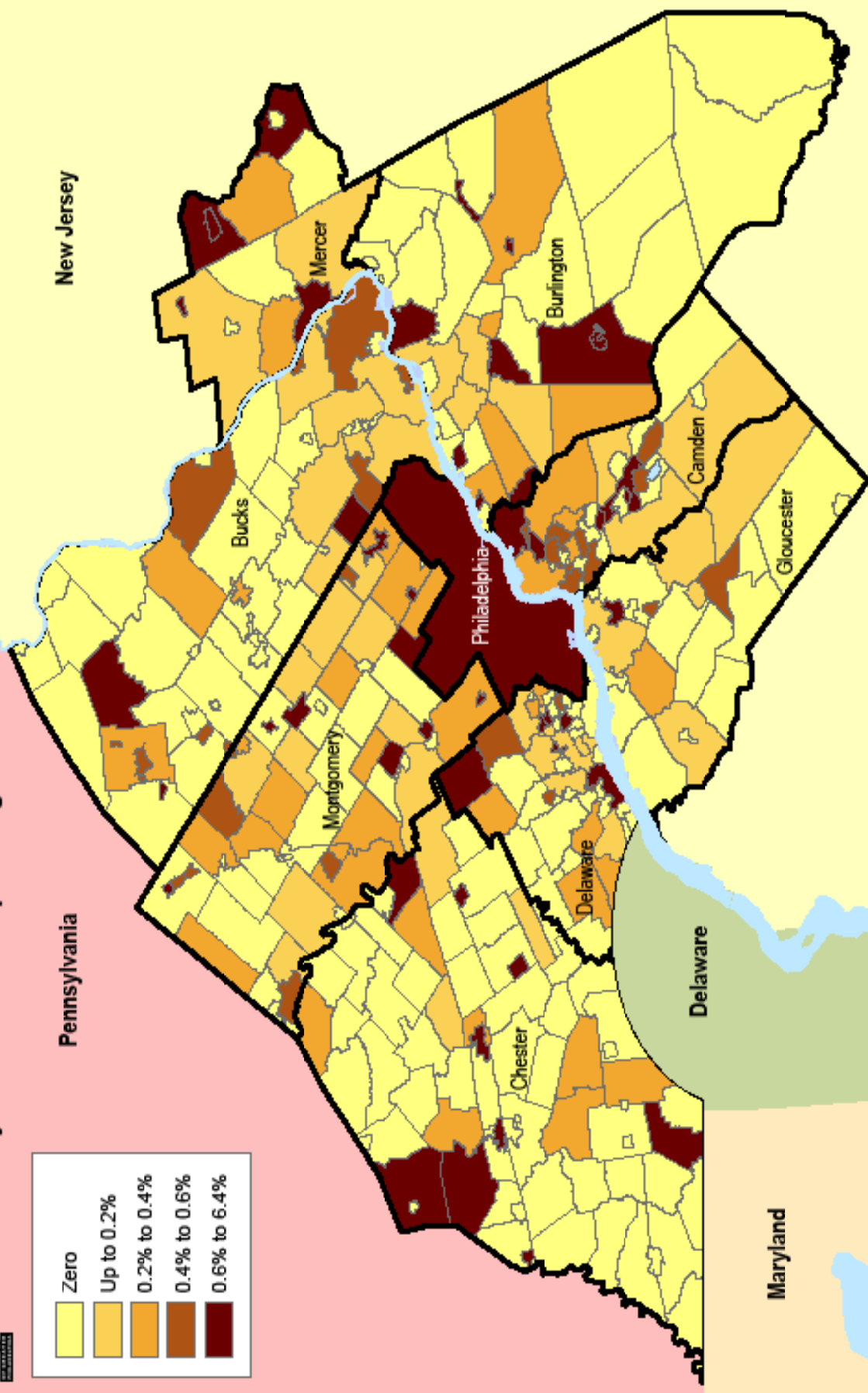
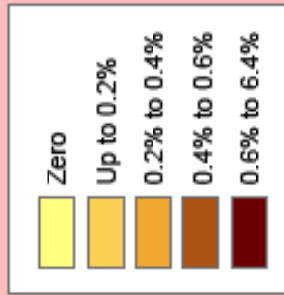
Figure 25 (page 23) shows that only a handful of municipalities have mode shares above the national average of 0.6 percent. Therefore, a majority of communities in the region are underperforming compared to the nation. This may be indicative of a lack of density, municipal involvement, and obstacles associated with PennDOT's Bicycle Occupancy Permit policy (BOP) that municipalities must assume the liability and maintenance of all bike facilities.



Figure 25



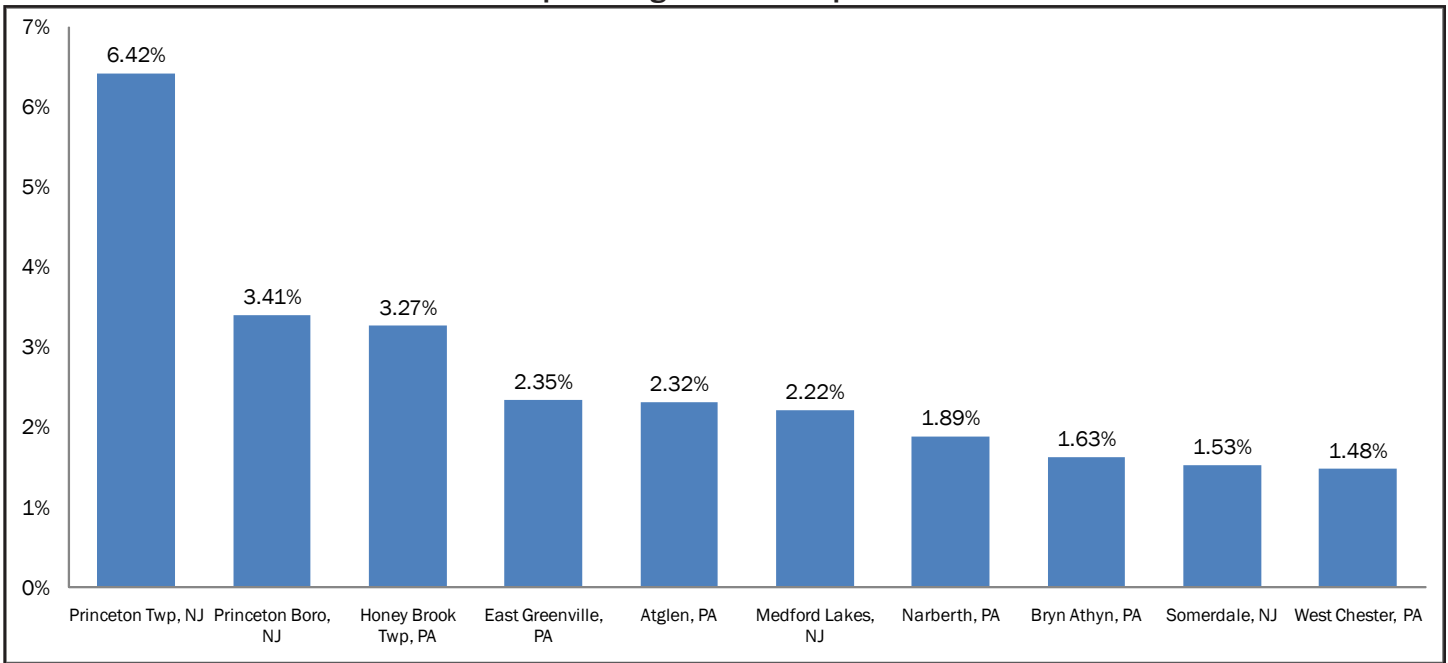
**Share of Commuters Who Bicycle to Work  
In the 9 County Greater Philadelphia Region**



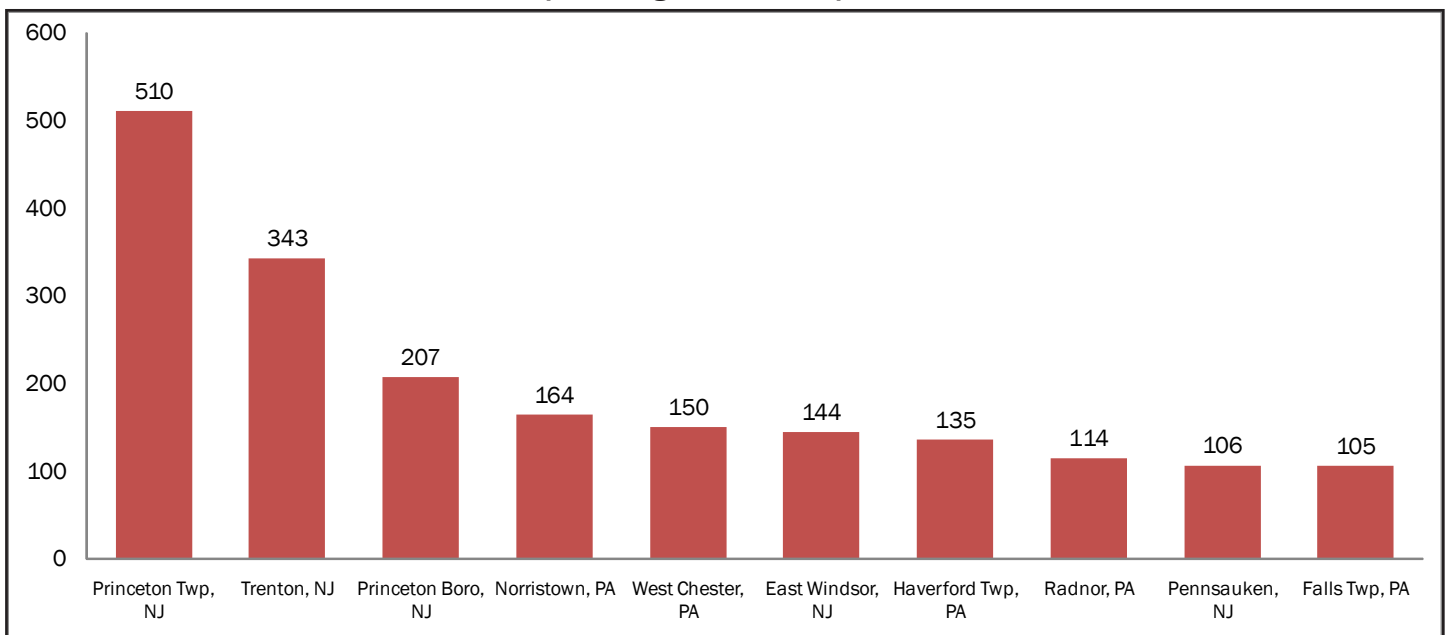
Source: American Community Survey, 2005-2009  
Analysis performed by the Bicycle Coalition of Greater Philadelphia

Figures 26 and 27 list the municipalities that have highest percentage mode shares and the highest number of bicycle commuters in the region. Princeton Township, Princeton Borough, and West Chester are the only three municipalities among the top ten for both mode share and total number of commuters, most likely because these three municipalities have higher populations.

**Figure 26**  
**Percent of Commuters Who Travel By Bicycle**  
**Top 10 Regional Municipalities**

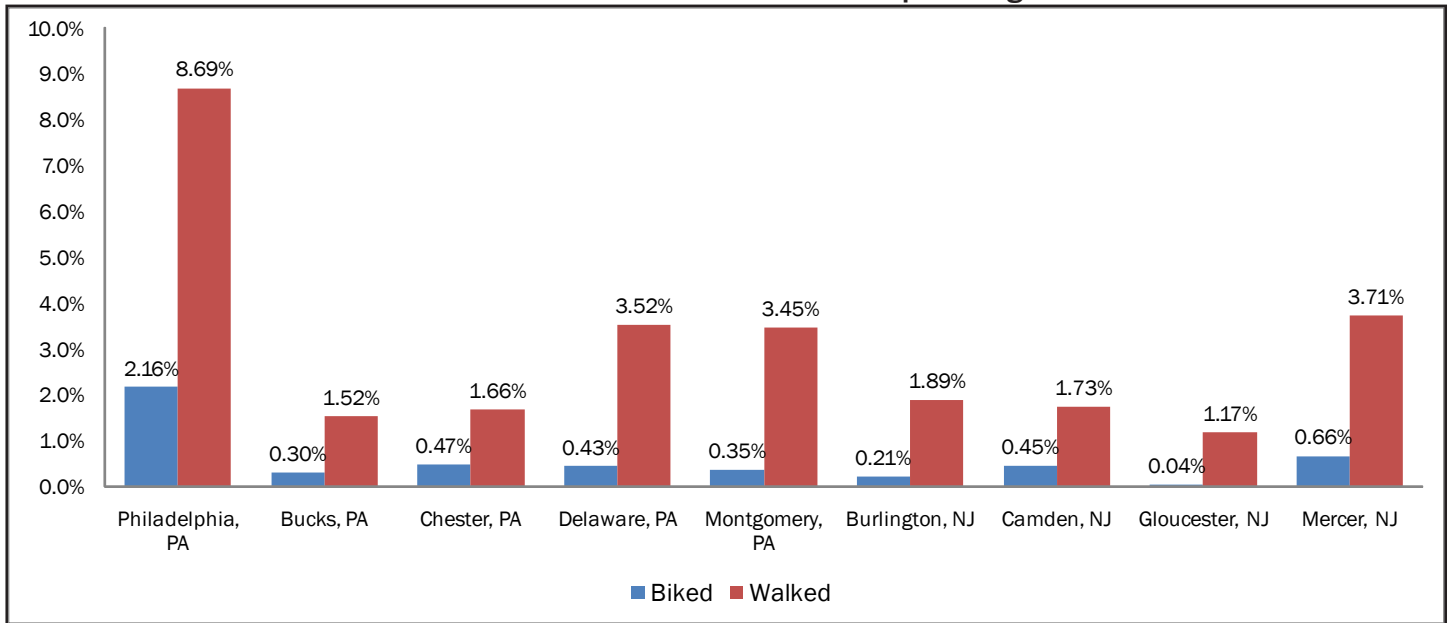


**Figure 27**  
**Total Number of Commuters Who Travel By Bicycle**  
**Top 10 Regional Municipalities**



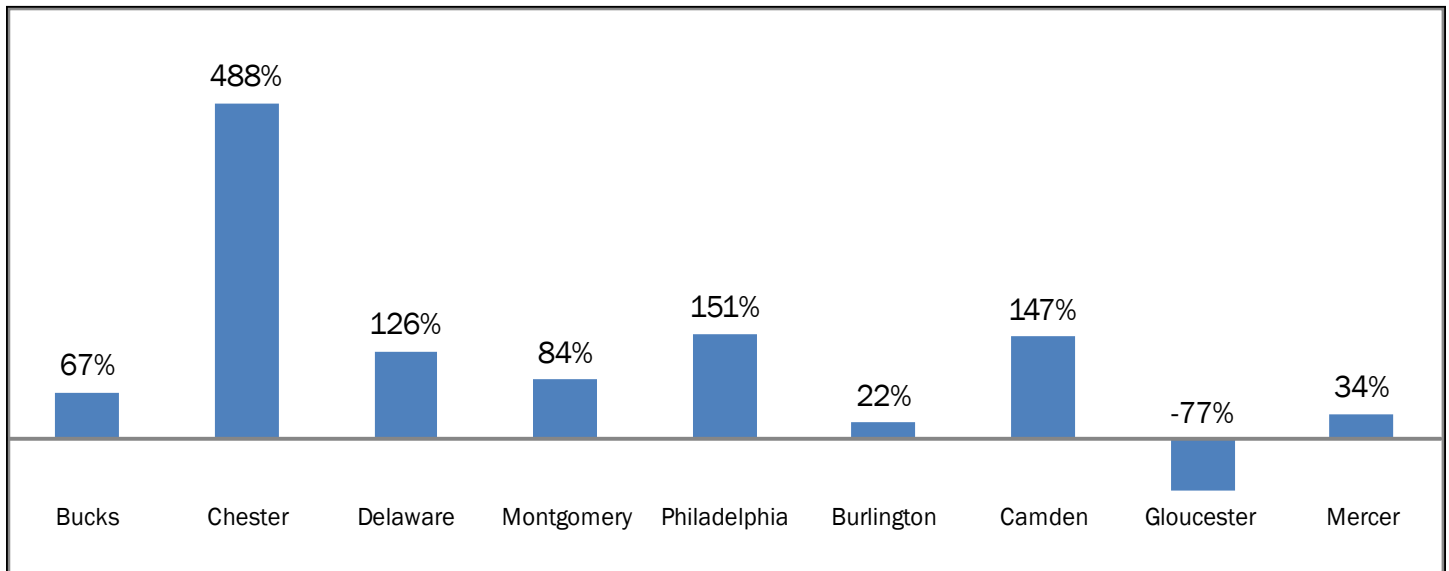
Among the nine counties, Philadelphia has by far the highest bicycle and walk mode share (Figure 28, page 25). The rest of the counties have mode shares below 1 percent and walk shares less than half that of Philadelphia.

**Figure 28**  
**2009 Bike and Walk Commuting to Work Mode Share**  
**For 9 Counties in the Greater Philadelphia Region**



Despite these relatively low bicycle mode shares, many of the commuters in Philadelphia’s suburban counties are switching to cycling at an impressive rate. Figure 29 shows that all of the counties except Gloucester experienced some growth in cycling. Mode share increased in Camden by 147%, almost the same rate as Philadelphia’s 151%. Chester County saw an explosive increase of 488%.

**Figure 29**  
**Growth in Bicycle Mode Share from 2000 to 2009**  
**For 9 Counties in the Greater Philadelphia Region**



## Policy Recommendations

Philadelphia's tremendous bicycle mode share rates and growth have occurred with relatively modest bicycle infrastructure. In 2009 and 2010, Philadelphia added buffered bike lanes on Spruce, Pine, South, and Lombard Streets, and bike lanes on Berks and Market Streets. Philadelphia's bicycling infrastructure pales in comparison, however, to what other cities, like New York City, Minneapolis, and Portland have accomplished in the past five years. The Bicycle Coalition of Greater Philadelphia recommends that Philadelphia pick up the pace to improve its bicycle infrastructure, launch a high profile public education and encouragement campaign, and make enforcement a higher priority.

**Implement north-south buffered bike lanes in Center City.** The east-west bike lanes on Spruce and Pine have been highly successful for all users. Cyclists appreciate the protective space of a full traffic lane. Pedestrians and cyclists enjoy the reduced motor vehicle traffic speeds. Motorists and pedestrians benefit from the reduction of wrong-way and sidewalk bicycle riding. A pair of north-south buffered bike lanes will complement Spruce and Pine and will help the growing population of bicyclists who enter Center City from South Philly and Lower North Philly and the River Wards.

**Develop innovative infrastructure for South Philly.** South Philly below South Street needs better bicycling infrastructure. The city could add buffered east-west lanes to Washington, Oregon and Snyder Avenues. The street grid is narrow and does not easily lend itself to buffered bike lanes going north and south. Solutions for north-south streets could include designating some as "bicycle boulevards," which would involve treating the street so that it functions as a through street for bicyclists.

**Add more facilities to the neighborhoods where bicycling is growing, such as the River Wards, Lower North Philly and West Philly.** These neighborhoods need more east-west (or inbound-outbound) and north-south bike lanes to connect them into Center City.

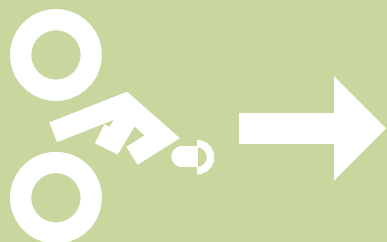
**Launch sophisticated education, encouragement and enforcement programs.** Philadelphia and suburban municipalities need a Bicycle Ambassador program to educate adults about the basics of rules of the road and trail etiquette. A public outreach media campaign to deliver messages about safety, rules of the road and encouragement is needed. Equitable enforcement should be a quality of life priority, especially for those areas of the city where crashes resulting in fatalities and injuries to cyclists and pedestrians are the most common.

**Increase staff capacity and resources in the Streets Department and Mayor's Office of Transportation.** A sophisticated bicycling city needs an appropriately sized office of transportation with engineers, planners, and marketing experts who can deliver transportation options to Philadelphia's residents in a timely, high-tech and savvy manner.

**Increase funding for bicycling and walking for counties and municipalities.** More biking and walking projects could be built if new rounds of competitive funding from Congestion Mitigation Air Quality and Transportation Enhancements programs were made available by PennDOT and Delaware Valley Regional Planning Commission (DVRPC). Opening up those programs for new projects will help increase bicycle and pedestrian commuting in suburban counties.

**Eliminate PennDOT red tape.** The state's Bicycle Occupancy Permit (BOP) is an obstacle to municipalities who want to install more bike lanes. The BOP is counter to PennDOT's smart transportation policy and should be eliminated.





**Bicycle Coalition of Greater Philadelphia**

1500 Walnut Street, Suite 1107

Philadelphia, PA 19102-3506

215-242-9253

[www.bicyclecoalition.org](http://www.bicyclecoalition.org)