

**The Challenge of Youth Smoking in Philadelphia:  
Prevalence, Tobacco Access, and Illegal Sales  
2010**



Philadelphia Department of Public Health  
Tobacco Policy and Control Program  
2010



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## I. EXECUTIVE SUMMARY

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Protecting youth from the harms of tobacco is a key priority for the Philadelphia Department of Public Health (PDPH). Youth smoking can lead to addiction and respiratory disease in the short term and to heart disease, cancers, and early death over many years. Despite declines over the last 20 years, rates of youth smoking have plateaued more recently, highlighting the need for continued public health intervention. For this report, PDPH has compiled data from local investigations and administrative records, national and local surveys, and other U.S. cities to have a better understanding of the use of and access to tobacco products in Philadelphia by youth. Youth are defined as residents who are under age 18.

Key findings include:

- Youth smoking is a critical public health challenge in Philadelphia. As of 2009, Philadelphia had the highest rate of regular youth smoking among large U.S. cities.
- Youth smoking rates vary by racial/ethnic group. White youth are much more likely to smoke (15.6%) than Latino (3.1%) or Black youth (1.2%).
- Philadelphia youth are initiating smoking at earlier ages. Smoking as early as 9<sup>th</sup> grade is on the rise and surpasses smoking rates in 12<sup>th</sup> grade.
- Cigarettes are cheaper in Philadelphia than in many other large cities, and rates of youth smoking are closely associated with price.
- Philadelphia has one of the highest rates of tobacco retailers per capita among large U.S. cities. There are currently 4,398 tobacco retailers in Philadelphia or 27 retailers for every 1,000 youth between the ages 10-17.
- Tobacco products are pervasive in areas where youth live and play. More than 75% of retailers are located within two blocks of a school. Retailers are disproportionately located in low-income neighborhoods.
- More than 1/3 of youth smokers in Philadelphia purchase their own cigarettes – the highest proportion among large U.S. cities.
- Take-out restaurants are the top offenders for illegally selling to youth. Most take-out restaurants sell to youth repeatedly, despite receiving \$100 citations.
- City Council Districts 1 and 5 have the most retailers per capita, and City Council Districts 3 and 7 have the highest density of youth sales violations.

In order to reduce youth smoking rates in Philadelphia, PDPH and Philadelphia's civic leaders should limit youth exposure to tobacco retailers, products, and advertising; strengthen youth sales laws and their enforcement; and advocate for increases in cigarette taxes at the local, state, and national levels.

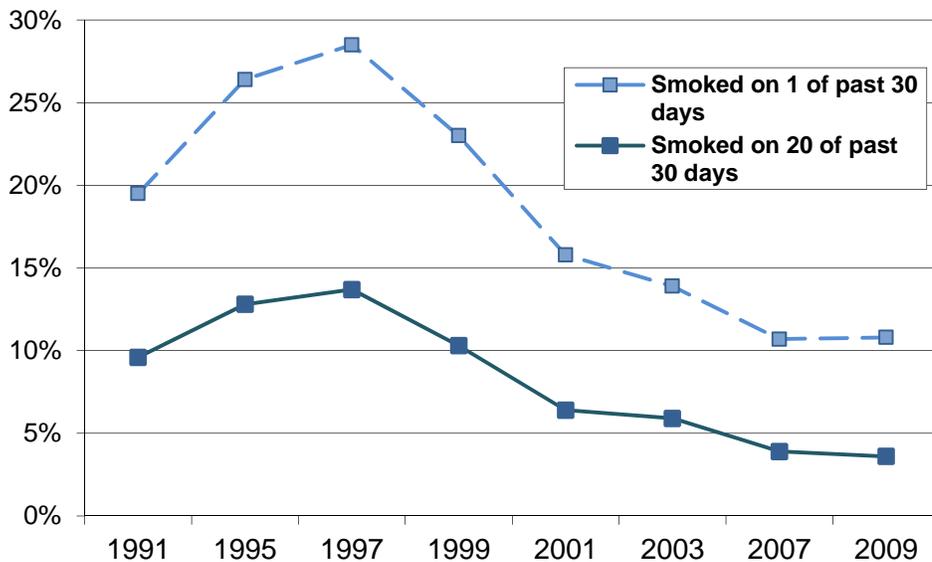
## II. YOUTH SMOKING

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Philadelphia has a large youth population. Twenty-five percent of Philadelphia residents are under age 18, compared to 22% for Pennsylvania as a whole.<sup>1</sup>

According to the 2009 Youth Risk Behavior Survey (YRBS), 7.3% of U.S. 9th-12th graders smoked cigarettes on 20 of the prior 30 days, which constitutes current frequent smoking, or regular smoking. The smoking rate among Philadelphia youth was 3.6%, representing the highest rate among select large cities in the U.S. Moreover, nearly 11% smoked at some point in the prior 30 days (current infrequent smoking or experimental smoking), including 14.4% of 11th graders. Most smokers begin smoking before the age of 18, although this pattern likely differs by race and socio-economic status. According to YRBS 2009, the national average age of youth smokers is 16.5 years old.

**Figure 1. Experimental and regular smoking among high school students in Philadelphia 1991-2009, YRBS 2009.**



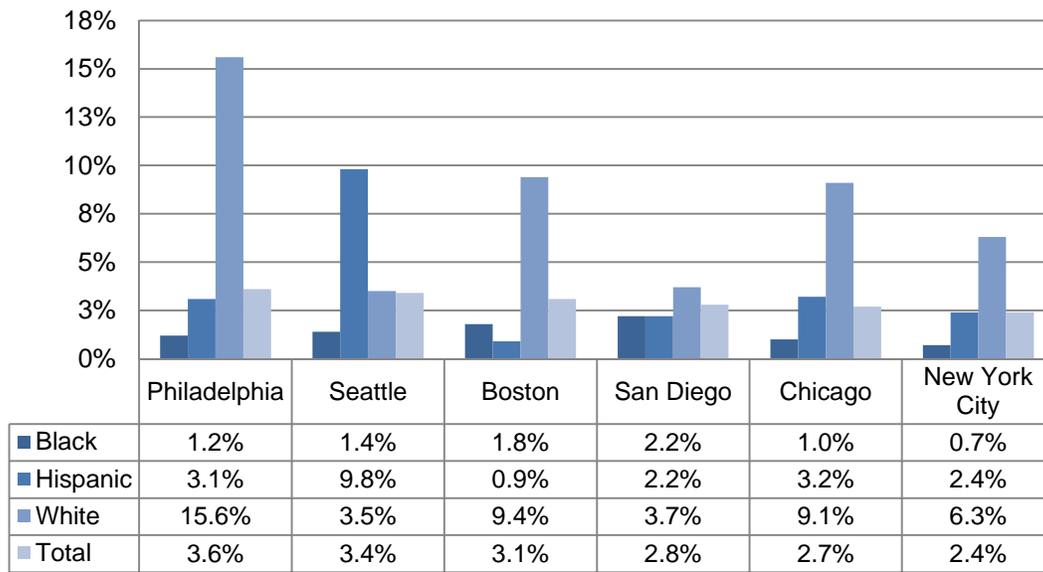
- Experimental and regular smoking rates among high school students increased dramatically from 1991 to 1997. The rates peaked in 1997, and have steadily dropped each year through 2007 (Figure 1).
- However, decreases in the smoking rate have become smaller since 2001 and appear to have plateaued since 2007 (Figure 1).

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<sup>1</sup> Census 2000.

## II. A. Current frequent smoking or regular smoking among high school students

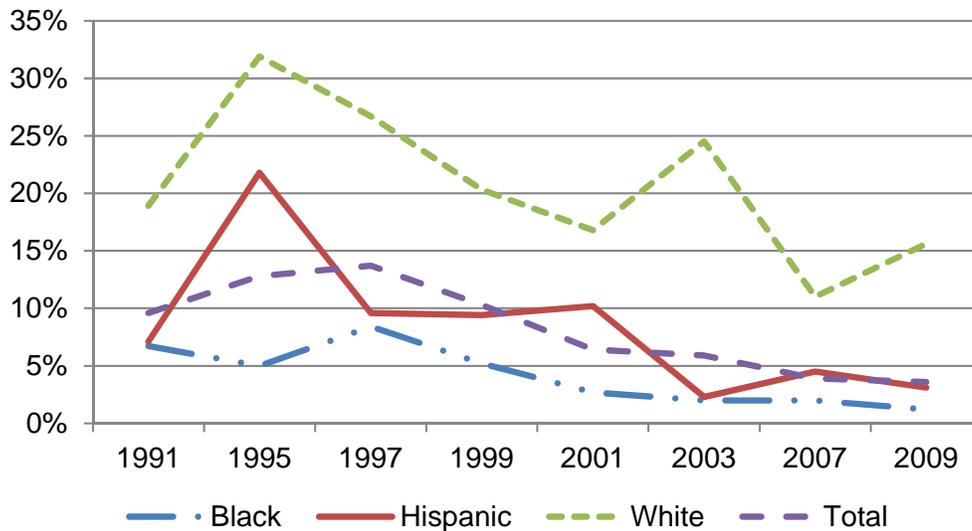
**Figure 2. High school students who smoked on at least 20 of the past 30 days in U.S. localities by race, YRBS 2009.**



\*We attempt to be consistent in the cities we include in our multi-city comparisons. However, limited data availability for particular cities prevents us from being able to compare the same cities for each measure. An effort is made to select cities based on their size and socio-demographic similarities with Philadelphia.

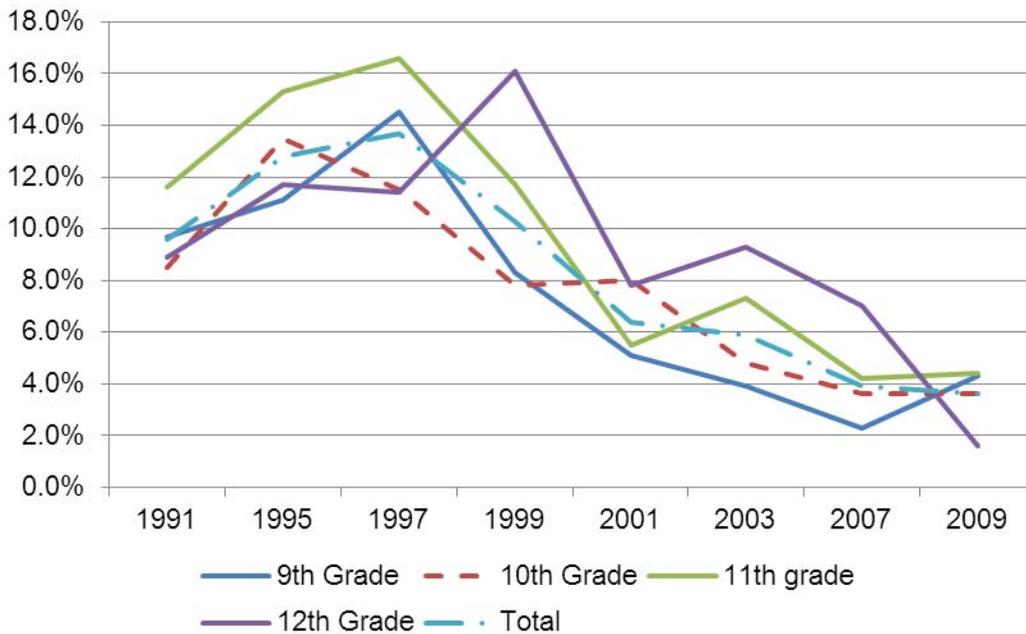
- In 2009, Philadelphia had the highest rates of regular smoking for all high school students (3.6%) and for White high school students (15.6%) among large cities included in the YRBS survey (Figure 2).
- Black high school students in Philadelphia reported a significantly lower regular smoking rate than Hispanic or White students, reflecting a common pattern in large U.S. cities (Figure 2).

**Figure 3. Philadelphia high school students who smoked on at least 20 of the past 30 days by race 1991-2009, YRBS 2009.**



- Rates of regular youth smoking (i.e., smoking at least 20 of the last 30 days) for Whites and Hispanics peaked in 1995 at 32% and 22%, respectively. The Black regular smoking rate reached its peak two years later in 1997, at 8%. The smoking rate for Black youth has steadily declined since 1997, and is now approximately one percent (Figure 3).
- The Hispanic and White regular smoking rates have fluctuated over the past 10 years (Figure 3).
- Since its peak in 1995, the White regular smoking rate decreased during the late 90's, but trended up by 8 percentage points in 2003 and 5 percentage points in 2009 (Figure 3).

**Figure 4. Philadelphia high school students who smoked on at least 20 of the past 30 days by grade 1991-2009, YRBS 2009.**

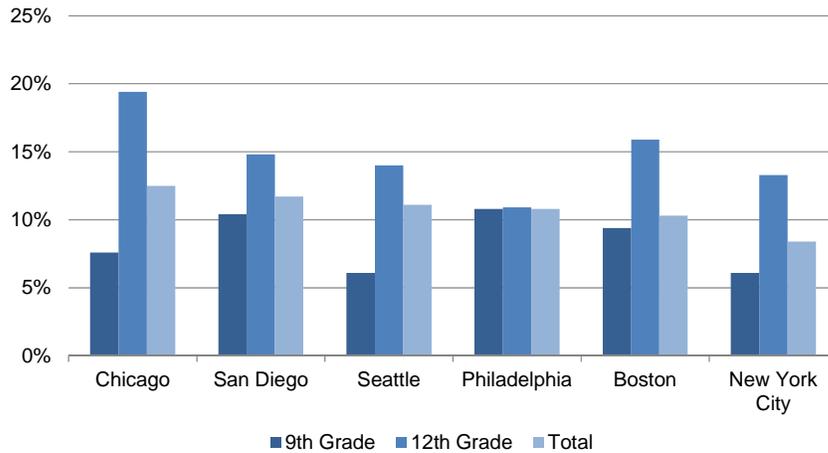


- Although smoking among high school students has generally decreased since 1997, the smoking rate among 9<sup>th</sup> graders has trended upward over the past two years (Figure 4).
- From 2007 to 2009, the 12<sup>th</sup> grade smoking rate decreased significantly by approximately 70% from 7% to 2% (Figure 4).

## II. B. Current infrequent smoking or experimental smoking among high school students

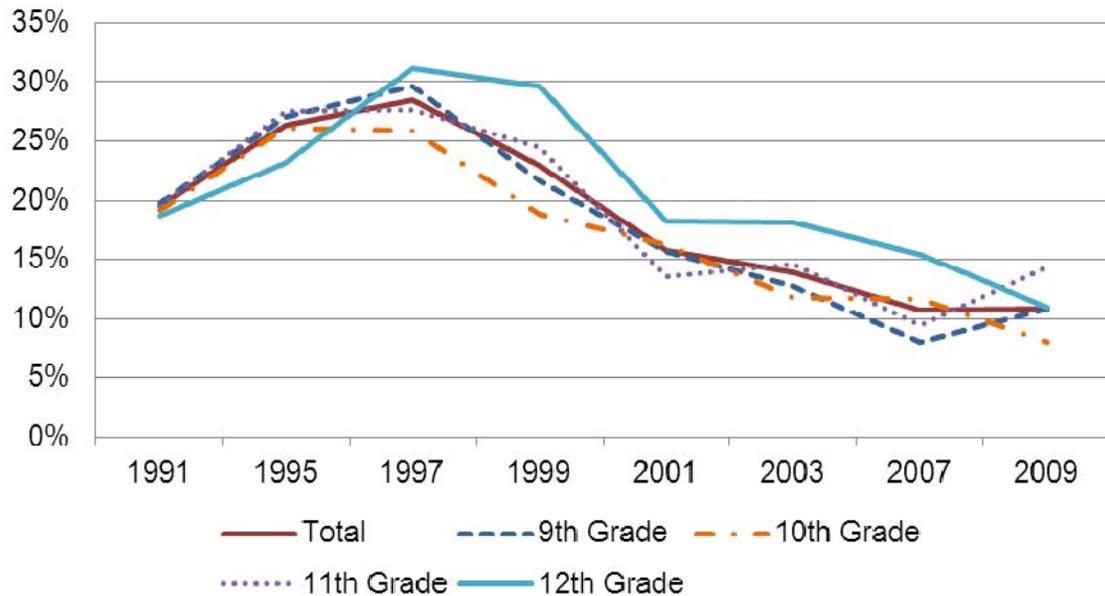
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**Figure 5. High school students who smoked on at least 1 of the past 30 days in U.S. localities by grade, YRBS 2009.**



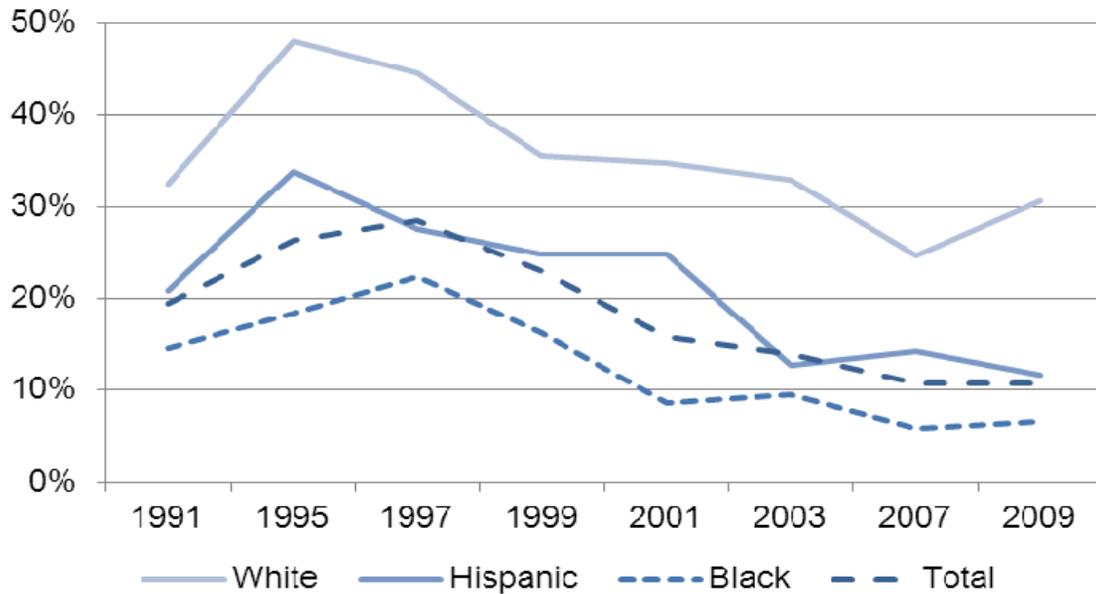
- Experimental smoking among high school students varies substantially by grade level. The general trend across major U.S. cities is an increase in smoking rate by grade level (Figure 5).
- Philadelphia has the highest experimental smoking rate among 9<sup>th</sup> graders (10.8%) among all major cities surveyed (Figure 5).
- The 12<sup>th</sup> grade experimental smoking rate in Philadelphia, which is generally the highest for all grades, is comparable to the 9<sup>th</sup> grade smoking rate (Figure 5).

**Figure 6. Philadelphia high school students who smoked on at least 1 of the past 30 days by grade 1991-2009, YRBS 2009.**



- The trend in experimental smoking among high school students by grade indicates a general decline starting in 1997 (Figure 6).
- However, over the last 2 years, rates have trended upward among 9<sup>th</sup> and increased significantly among 11<sup>th</sup> graders. In fact, 11<sup>th</sup> graders now have the highest rate at 14.4% (Figure 6).

**Figure 7. Philadelphia high school students who smoked on at least 1 of the past 30 days by race 1991-2009, YRBS 2009.**



- The trend in experimental smoking among high school students by race indicates an overall decline starting in 1995 for Whites and Hispanics, and 1997 for Blacks, but within the past 2 years, the rate for White high school students trended upward by six percentage points (Figure 7).
- Moreover, the rate among Hispanic, Black, and all students has not decreased significantly (Figure 7).

## II. C. Smoking Prevalence and Price

**Table 1. Experimental youth smoking prevalence and average price per cigarette pack among U.S. cities.**

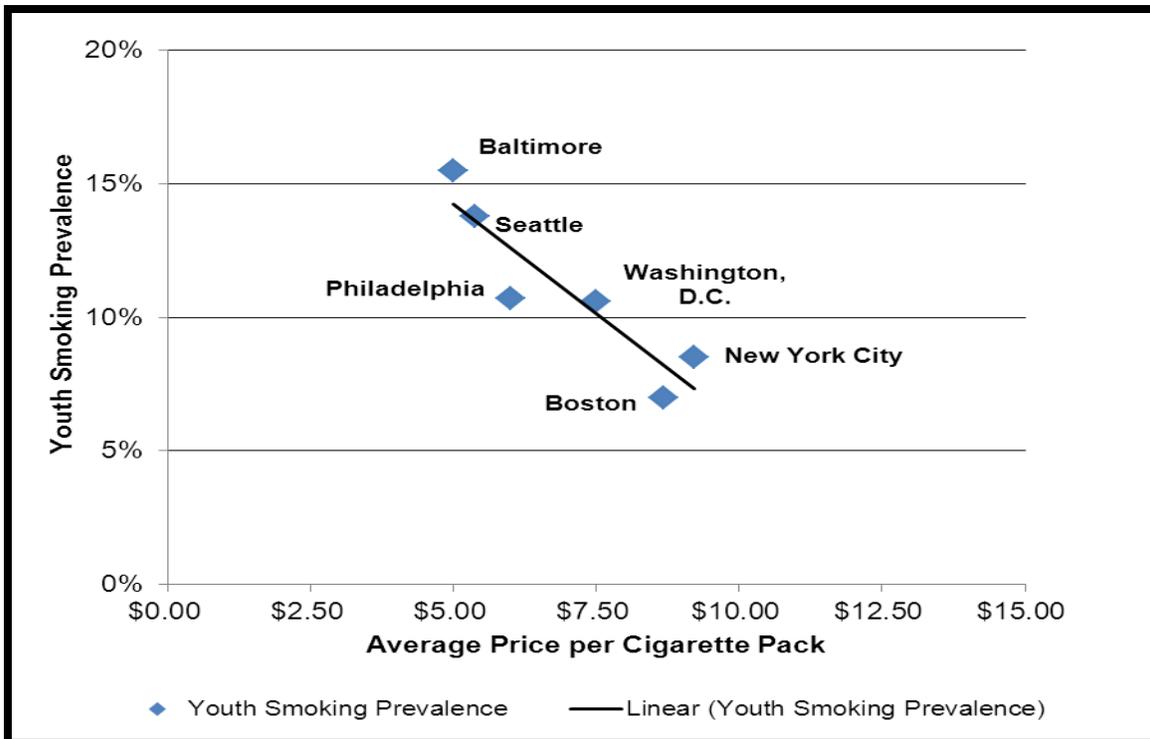
Cities	Youth Regular Smoking Prevalence*	Average Price for Cigarette Pack
Baltimore	15.5%	\$5.00
Seattle	13.8%	\$5.38
<b>Philadelphia</b>	<b>10.7%</b>	<b>\$6.00</b>
Washington, DC	10.6%	\$7.50
New York City	8.5%	\$9.21**
Boston	7.0%	\$8.68

\* Experimental smoking prevalence is defined as smoking on at least 1 of the past 30 days.

Source: Big Cities Coalition Retail Tobacco Sales Survey 2009

\*\*A recent increase in the New York state excise tax has increased the price of cigarettes in New York City to nearly \$11 per pack.

**Figure 8. Youth regular smoking prevalence by average price per pack among U.S. cities.**



- A number of previous studies have reported negative associations between youth smoking rates and cigarette prices, as shown in Table 1 and Figure 8. As the price goes up, smoking rates go down.
- Research suggests that the high price sensitivity among youth smokers is large enough for a tax increase to lead to a reduction in the youth smoking rate. New York City has one of the highest cigarette prices in the country; it also has one of the lowest rates of youth smoking (Table 1).

### III. YOUTH ACCESS AND TOBACCO RETAILERS

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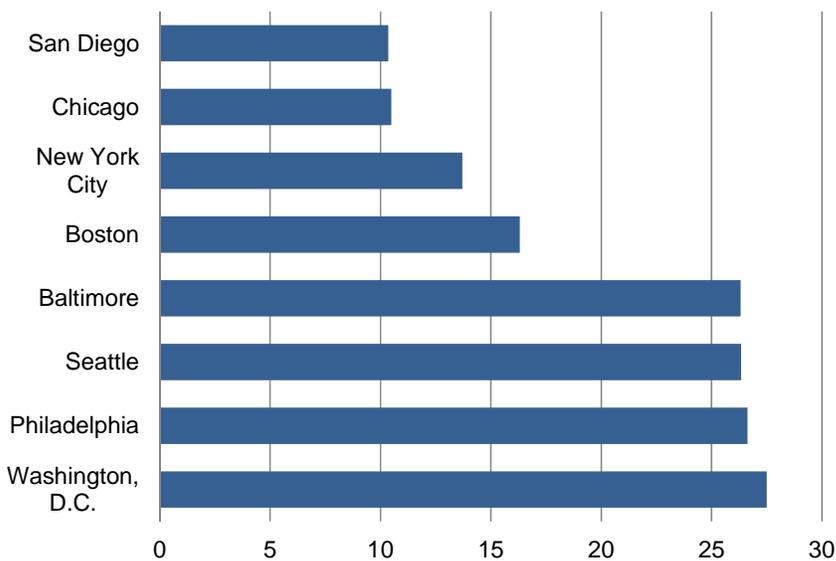
A cigarette retailer (hereafter referred to as “tobacco retailer”) is defined as any business establishment that is licensed by the Pennsylvania Department of Revenue to sell cigarettes and/or little cigars.<sup>2</sup> Tobacco retailer density is measured by the number of tobacco retailers located within a specified distance.

As of June 2010, there were 4,398 tobacco retailers in Philadelphia,<sup>3</sup> or 27 tobacco retailers per 1,000 youth between the ages 10-17. Philadelphia has one of the highest rates of tobacco retailers per capita among large US cities, with a rate twice as high as that of New York City (Figure 9). Evidence suggests that tobacco retailer density around schools is associated with higher rates of smoking among youth, even after accounting for other factors that affect tobacco use, such as peer influence and community smoking prevalence.<sup>4</sup>

#### III. A. Retailers per Capita

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**Figure 9. Tobacco retailers per 1,000 youth in large U.S. cities.**



Data sources: Tobacco retailer data from municipal departments of public health for San Diego, New York City, Boston, Seattle, Philadelphia, and Washington, D.C.; from Big Cities Coalition Retail Tobacco Sales Survey 2009 for Baltimore and Chicago. Population data from U.S. Census.

<sup>2</sup> "CIGARETTES" shall mean and include any roll for smoking made wholly or in part of tobacco, irrespective of size or shape, and whether or not such tobacco is flavored, adulterated or mixed with any other ingredient, the wrapper or cover of which is made of paper or any other substance or material, excepting tobacco, and shall not include cigars. For purposes of licensing under this article only, the term shall include little cigars. 72 P.S. § 202-A

<sup>3</sup> Pennsylvania Department of Health, Tobacco Prevention Reporting System.

<sup>4</sup> Leatherdale S. et al. (2007.) Tobacco Retailer Density Surrounding Schools and Cigarette Access Behaviors among Underage Smoking Students, 33(1)105-111.

### **III. B. Geographic Distribution of Retailers**

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Maps 1 – 3, on pages 15 – 17, display tobacco retailers licensed by the PA Department of Revenue to sell cigarettes in Philadelphia.

#### **Map 1. Tobacco Retailers and Household Median Income (p. 15)**

- Licensed tobacco retailers are disproportionately located in low income neighborhoods.
- While 52% of census block groups in Philadelphia have an average median income below \$30,856, 61% of all tobacco retailers are located in these census block groups.

#### **Map 2. Tobacco Retailers per 1,000 Residents (p. 16)**

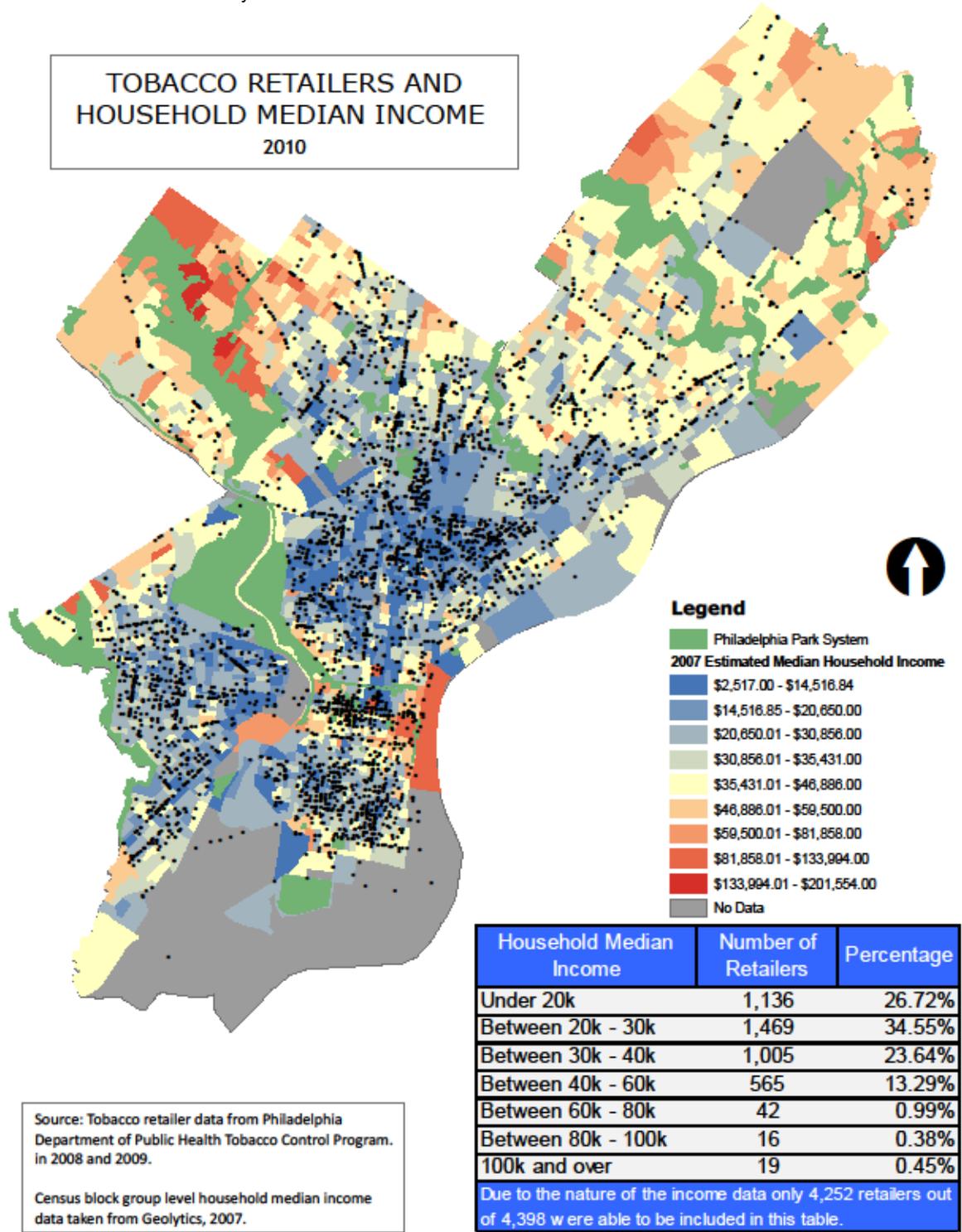
- The City Council Districts with the highest number of retailers per 1,000 persons are District 1 (5.0/1000) and District 5 (4.1/1000).

#### **Map 3. Tobacco Retailers in Close Proximity to Schools (p. 17)**

- More than 75% of all tobacco retailers are located within 1,000 feet (approximately two blocks) of a K – 12 school
- Almost 40% of tobacco retailers are located within 500 feet (approximately one block) of a K – 12 school.

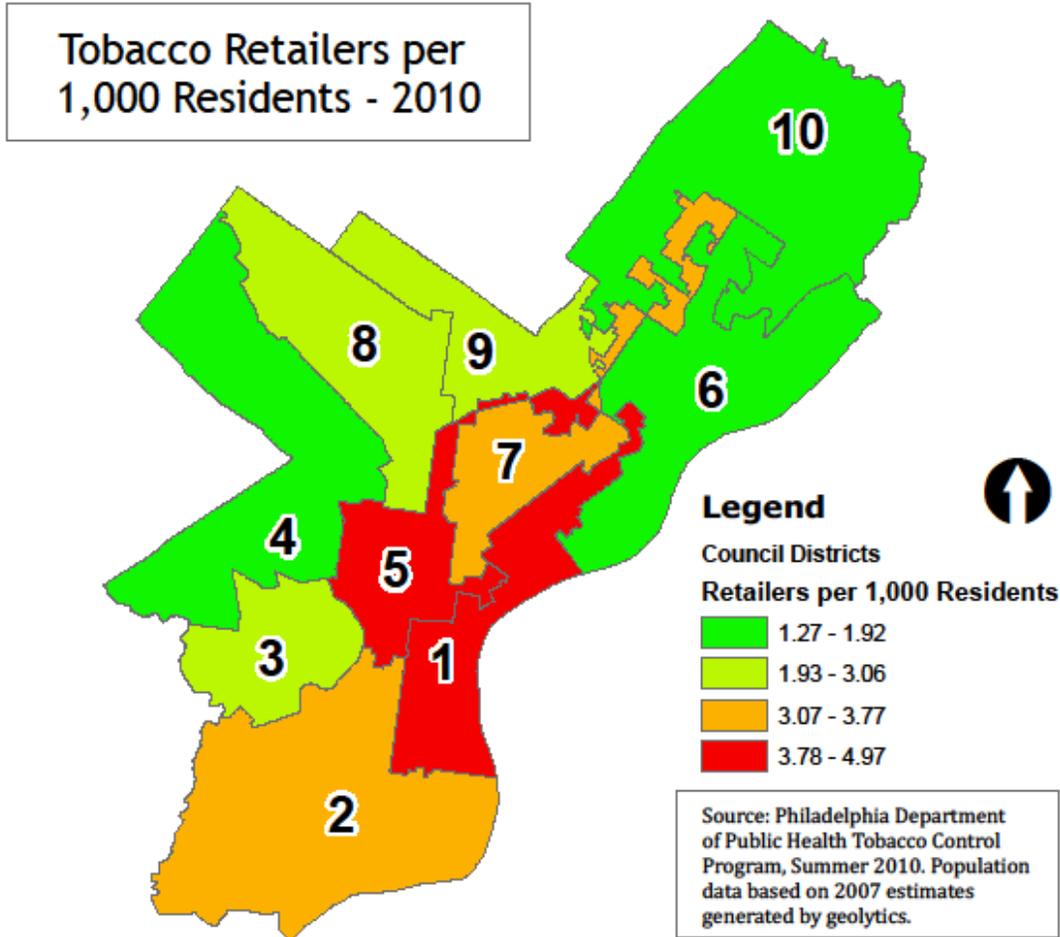
**Map 1.**

The map below displays tobacco retailers that have been licensed by the PA Department of Revenue to sell tobacco products. Each black dot represents one licensed entity. The background colors represent the household median income in each Philadelphia census tract. Blue tracts are the lowest income and red tracts are highest income. This map shows that entities that sell to tobacco are overwhelmingly located in low-income areas of the city.



**Map 2.**

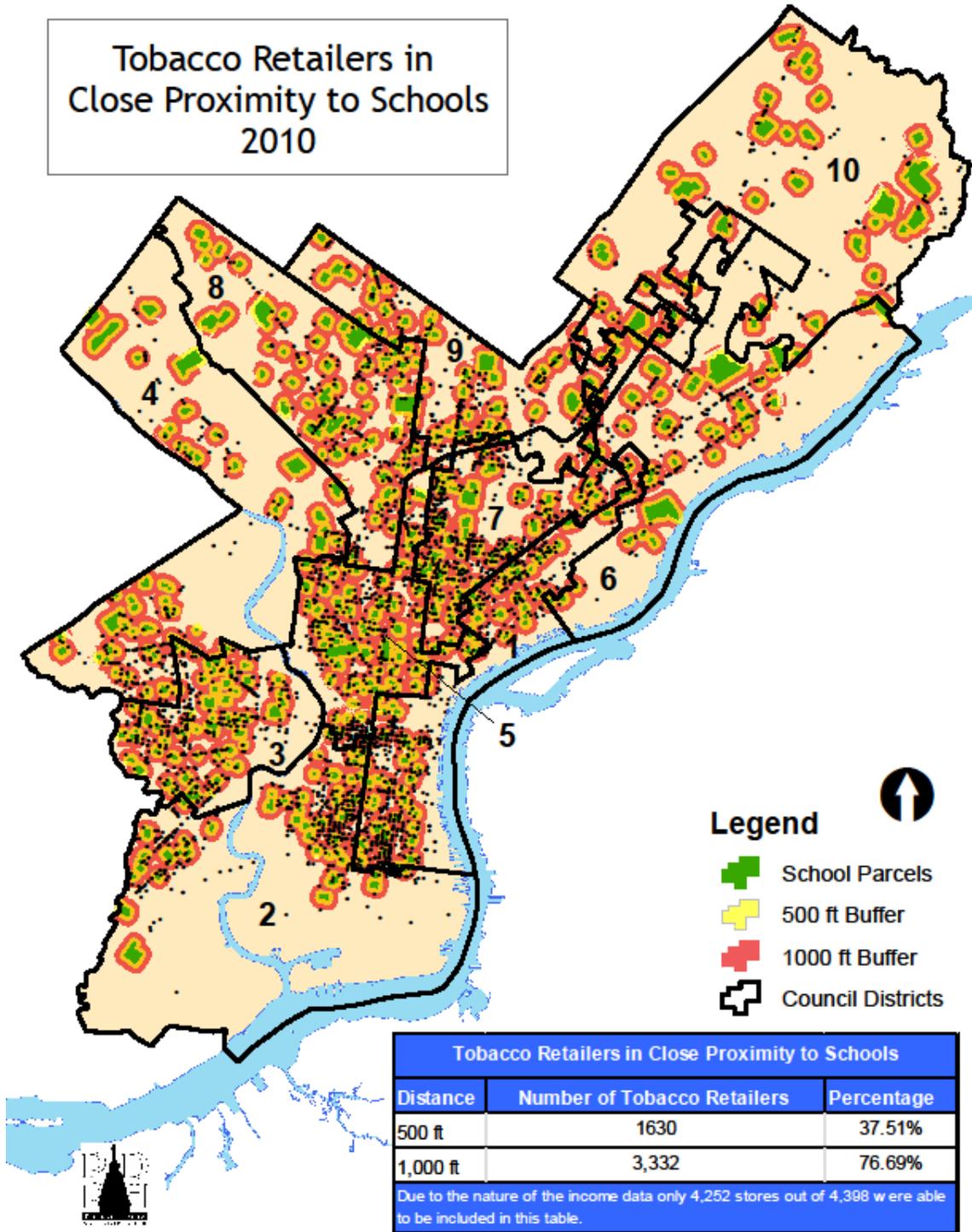
The map below displays the number of tobacco retailers for every 1,000 residents in each City Council District. The City Council Districts in dark green have the lowest density of tobacco retailers and the ones in red have the highest. In red areas, youth and adult residents are the most likely to be exposed to tobacco products



City Council Districts	Tobacco Retailers Located in the District	Estimated Population	Retailers per 1,000 Residents
1st	705	141,772	4.97
2nd	521	144,518	3.61
3rd	474	154,730	3.06
4th	268	139,816	1.92
5th	590	144,412	4.09
6th	270	140,648	1.92
7th	616	163,462	3.77
8th	402	142,801	2.82
9th	341	147,043	2.32
10th	168	131,812	1.27

**Map 3.**

The map below displays tobacco retailers, schools, and 500 and 1000 foot perimeters around schools. Each black dot represents one licensed tobacco retailer. Green areas depict school property, and light and dark blue areas around each green area delineate a perimeter of 500 (approximately 1 block) and 1000ft (approximately 2 blocks), respectively, around the school. More than 1 in 3 tobacco outlets are located within 1 block of a school, meaning that youth may be exposed to tobacco products as they travel to and from school.



## IV. YOUTH SALES

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### Youth Sales Investigation Program

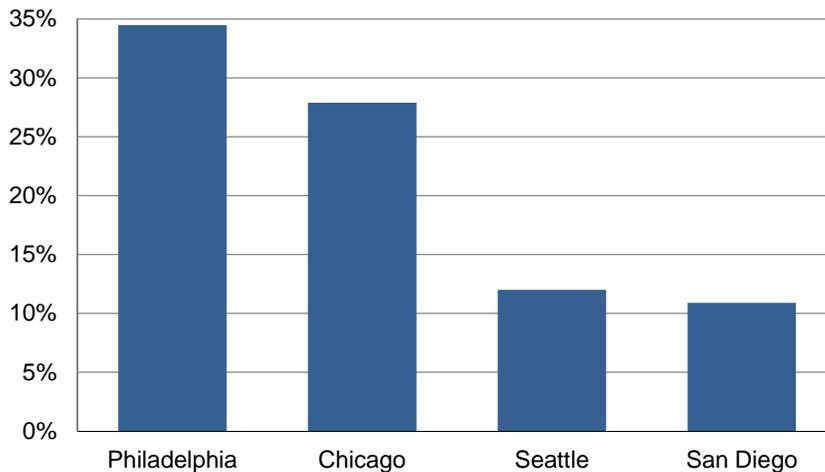
Youth sales investigations and enforcement are an important component of the youth prevention services provided by PDPH's Tobacco Policy and Control Program (TPCP). Through the Health Promotion Council of Philadelphia (HPC), the TPCP conducts thousands of youth sales investigations per year using trained youth who attempt to buy cigarettes from tobacco retailers. Based on available funding, TPCP attempts to visit each accessible retailer at least once per year. In FY09, nearly 900 sales were made to youth illegally, resulting in a youth sales rate of 19.8%.

In the past, TPCP partnered with the City's Department of Licenses and Inspection to issue citations based on City ordinance §9-622. Recently, the TPCP has transferred citation responsibilities to PDPH's Division of Environmental Health Services (EHS). This will ensure that citations are delivered in person within 48 hours of the violation. TPCP also recently launched a program to provide face-to-face education to all merchants that violate the law. Repeat violators can be issued a cease of operation order by Licenses and Inspection.

### IV. A. Youth Self Purchase of Cigarettes

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**Figure 10. Youth smokers who purchase their own cigarettes by U.S. cities, YRBS 2009.**



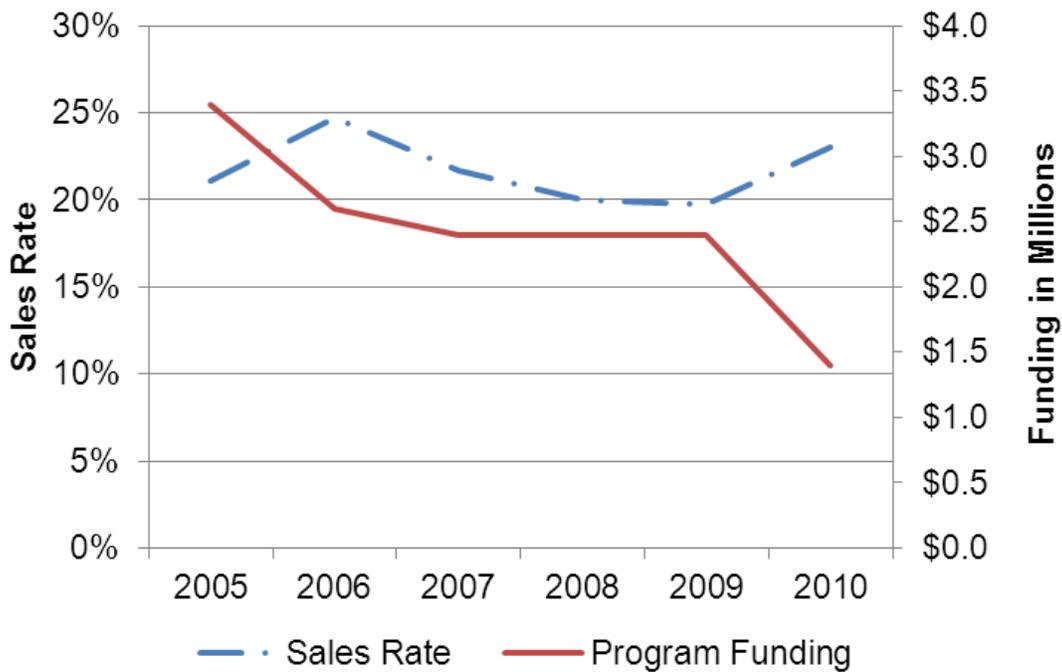
According to the 2009 Youth Risk Behavior Surveillance Survey, Philadelphia has the highest proportion of youth smokers who purchase their own cigarettes among all major cities surveyed (Figure 10).

More than a third of youth smokers in Philadelphia purchase their own cigarettes (Figure 10). Even the perception that cigarettes are easy to purchase can increase a young person’s likelihood of becoming a regular smoker.<sup>5</sup>

#### IV. B. Results of Youth Sales Investigations in Philadelphia

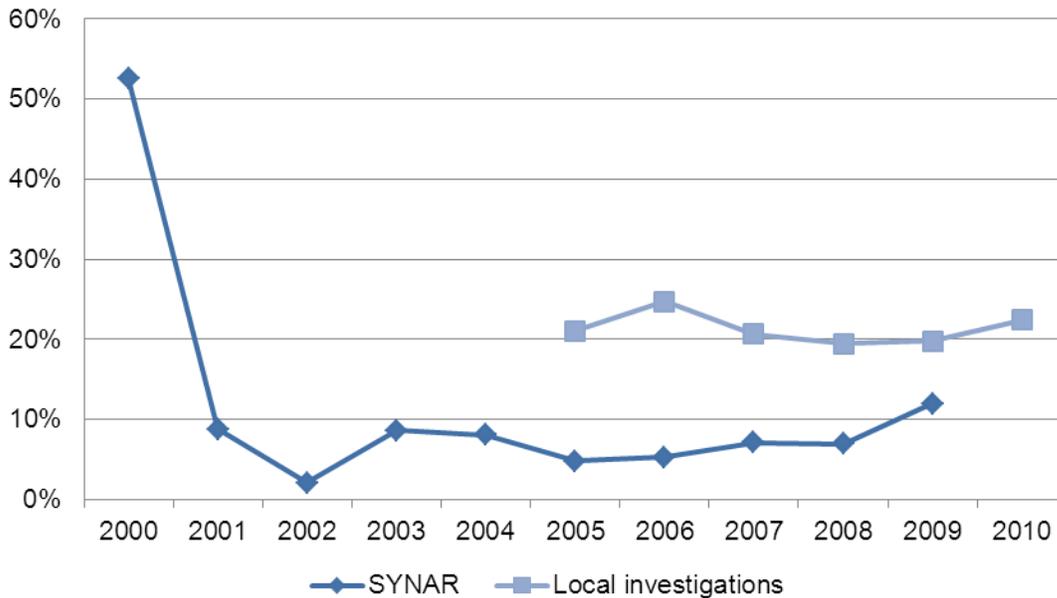
As seen in Figure 11, funding for the Tobacco Policy and Control Program has decreased since 2005. The graph illustrates the relationship between funding and youth sales violations. In 2006 and 2010, funding decreased by \$1 million dollars, and the youth sales rate increased by nearly 5 percent.

**Figure 11. Philadelphia youth tobacco sales rate and tobacco control funding, FY 2005 – FY 2010.**



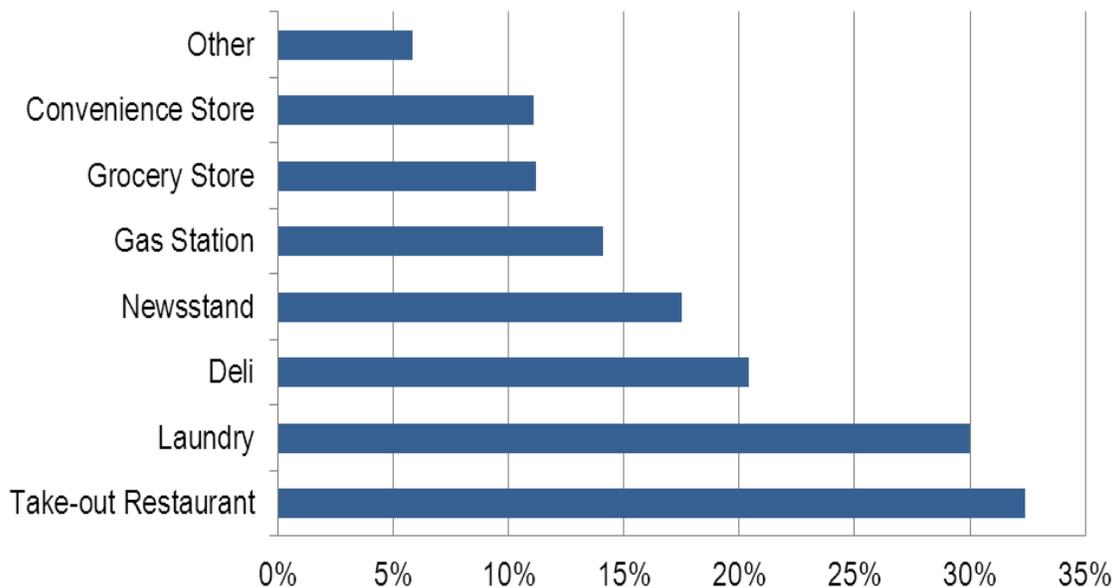
<sup>5</sup> Doubeni C. et al. Perceived accessibility as a predictor of youth smoking. *Annual Family Medicine* 2008;6: 323-330.

**Figure 12. Youth sales: Philadelphia, FY 2001 - FY 2010.**



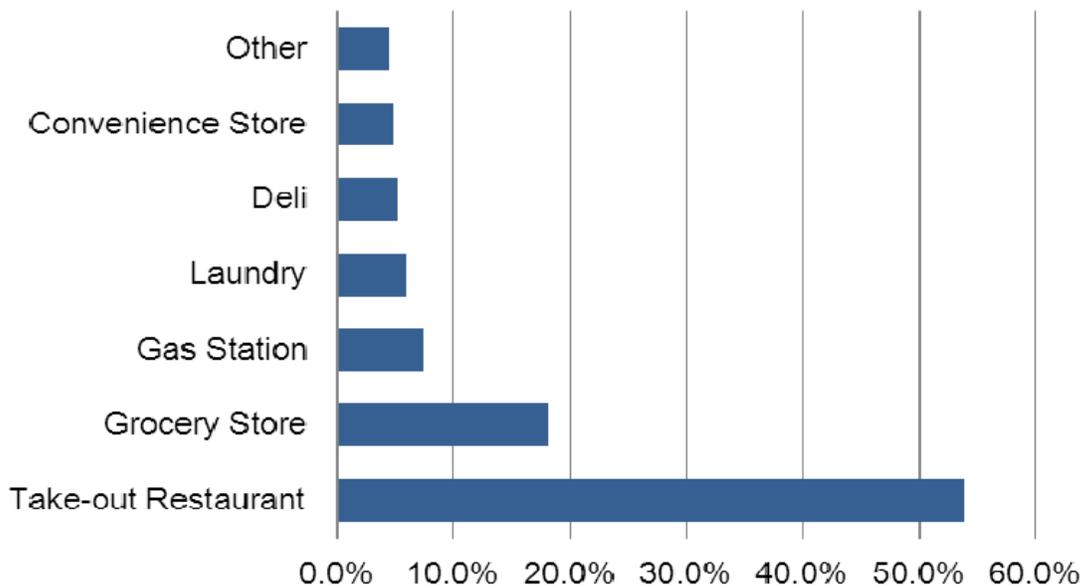
- SYNAR is a federally-mandated survey of a small random sample of tobacco retailers in Philadelphia that is conducted annually. In addition, TPCP conducts ongoing local investigations of tobacco retailers, which include multiple visits to prior violators.
- Local youth sales investigations consistently report a higher youth sales rate than the state-coordinated SYNAR investigation (20% and 12% respectively in 2009). (Figure 12)
- When an outlet is non-compliant by illegally making a sale to a youth, the store owner is sent a code violation notice. In FY 2010, 449 code violation notices were issued for tobacco sales to youth. The City collected a total of \$40,485 from the merchant violators. In FY 2009, there were 778 CVNs issued for tobacco sales to youth. A total of \$66,585 was collected from merchant violators.

**Figure 13. Youth sales rates by type of tobacco retailer, FY 2009.**

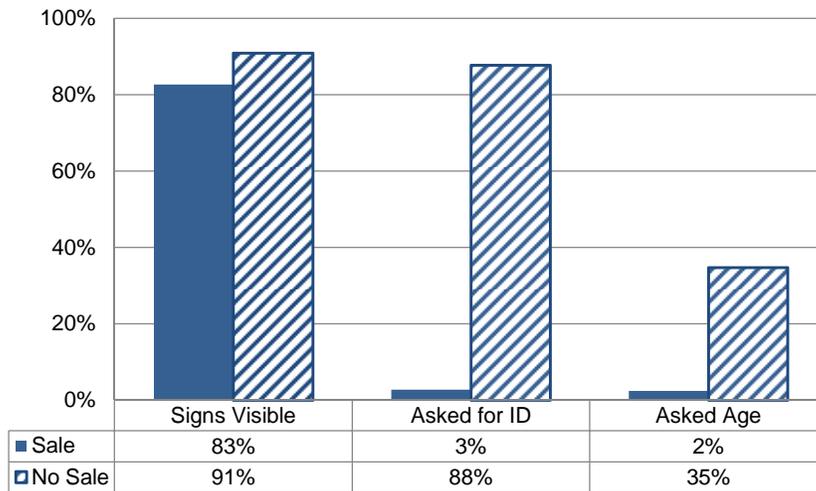


- Of various types of tobacco retailers, take-out restaurants had the highest rate of illegal sales to youth in FY 2009 (Figure 13).
- Although take-out restaurants comprised 20% of tobacco retailers in FY 2009, they accounted for over 40% of all youth sales violations and over 50% of all repeat violations (Figure 14). Analyses indicate that there is a significant relationship between take-out restaurants and tobacco sales to youth.

**Figure 14. Repeat youth sales violators by type of tobacco retailer, FY 2009.**



**Figure 15. Youth sales investigation descriptive characteristics by outcome, FY 2009.**



- Merchants who sold illegally to youth were less likely to display signs about preventing youth sales, less likely to ask for ID, and less likely to ask the youth's age (Figure 15).

#### **IV. C. Spatial Analysis of Youth Sales in Philadelphia**

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Maps 4 and 5, on pages 24 and 25, display youth tobacco sales violations in Philadelphia.

##### **Map 4. Youth Sales Violations and Household Median Income (p. 24)**

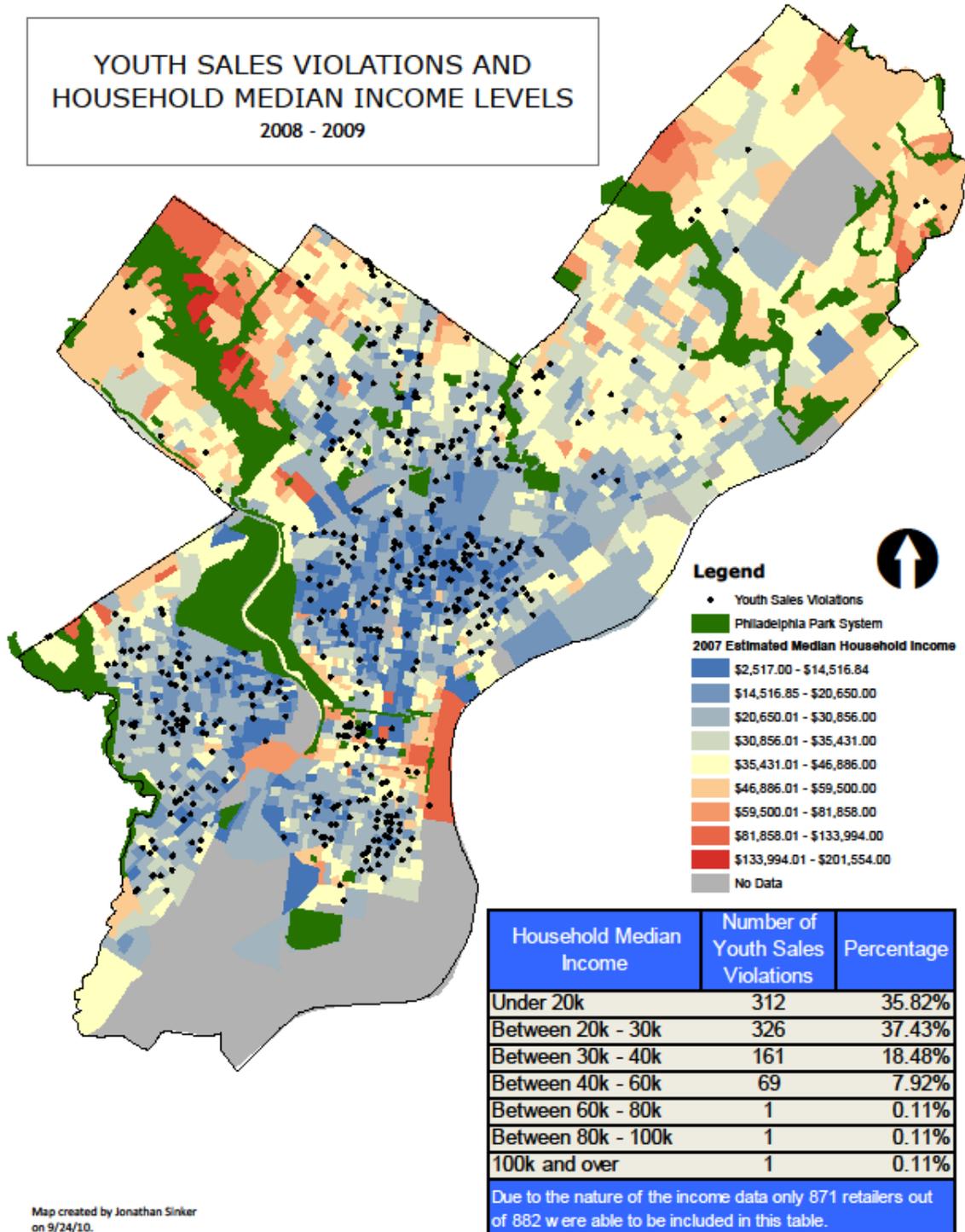
- In FY 2008 and 2009, youth sales violations were concentrated in low-income neighborhoods in Lower North Philadelphia, West Philadelphia, and South Philadelphia.
- While approximately 60% of tobacco retailers are located in census block groups with an average median income below \$30,000, over 70% of youth sales violations occur in these block groups.

##### **Map 5. Youth Sales Violations by City Council District (p. 25)**

- The City Council Districts with the highest density of youth sales violations were Districts 3 and 7.
- Low-income communities, therefore, not only have a disproportionate number of tobacco retailers but also a disproportionate number of retailers that sell cigarettes illegally to youth.

**Map 4.**

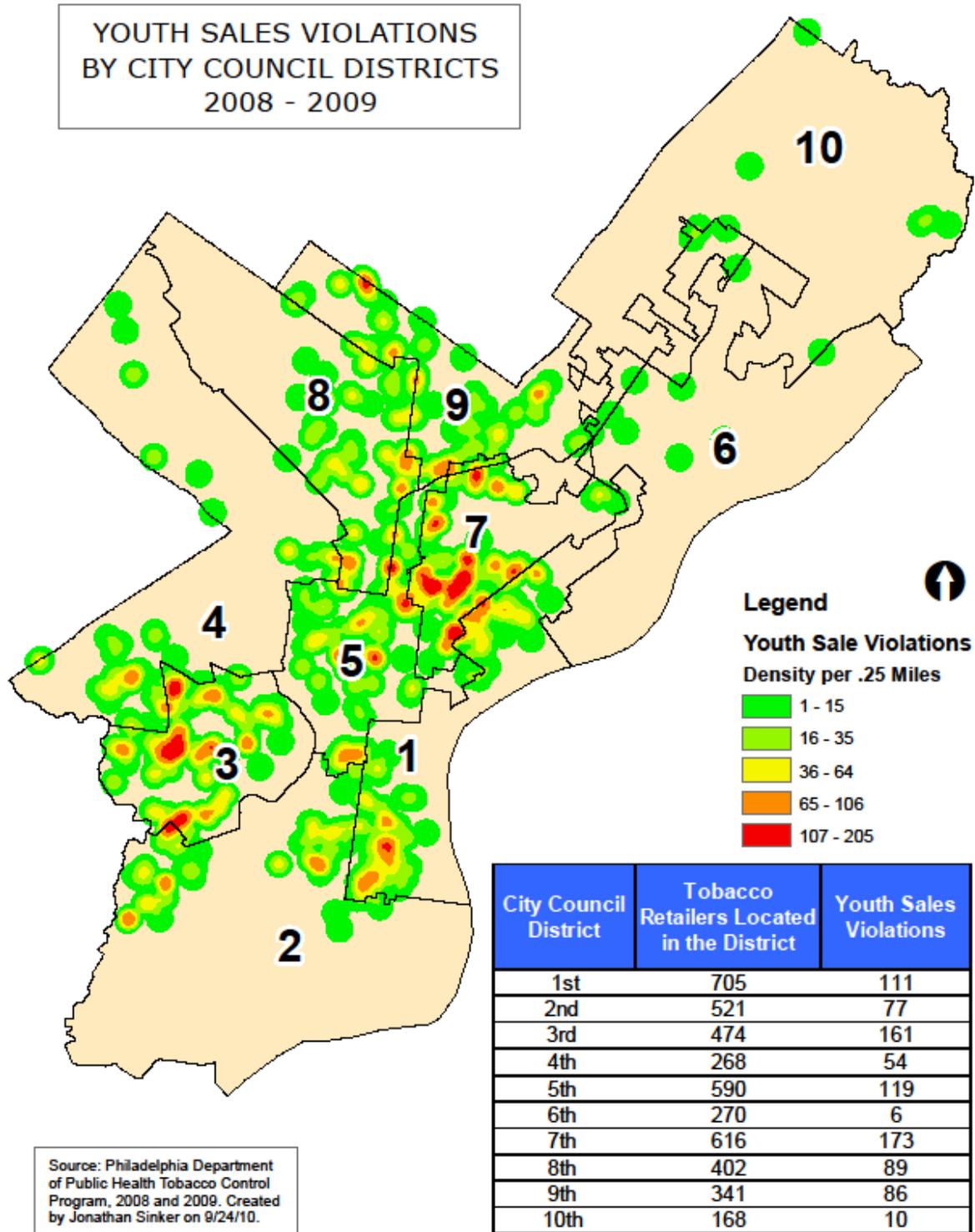
The map below displays tobacco retailers that were cited for violating tobacco youth sales laws by illegally selling tobacco products to youth. Each black dot represents one tobacco retailer. The background colors represent the household median income in each Philadelphia census tract. Blue tracts are the lowest income and red tracts are highest income. According to this map, youth may most easily access tobacco products in low-income census tracts, and may have limited access to tobacco products in high-income tracts.



Map created by Jonathan Sinker on 9/24/10.

**Map 5.**

The map below displays the density of tobacco retailers that have been cited for illegally selling tobacco products to youth. The red areas depict locations where more than 107 violations occurred within a 0.25 mile radius.



## V. Conclusions and Recommendations

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- 1) While youth smoking has generally declined in the last 10 years, rates in Philadelphia have plateaued in the last 2 years and may be increasing among certain groups, including White youth and 9<sup>th</sup> graders

Public health, educational, and civic leaders must remain vigilant about youth smoking and youth initiation as most youth who smoke become adults who smoke. Smoking leads to nearly 2,500 deaths and \$800 million in productivity losses per year in Philadelphia.<sup>6</sup>

- 2) The price of cigarettes in Philadelphia is low compared to other large cities, particularly those that have local excise taxes, like Chicago and New York City, and these low prices make it easier for youth to smoke.

Tobacco control interventions for youth and adults will not be successful without changing the financial incentives around smoking. Currently, it is cheaper to buy cigarettes than to pay out-of-pocket for some smoking cessation medications. Increases in cigarette taxes should be vigorously advocated for at the local, state, and federal levels.

- 3) The number of tobacco retailers per capita in Philadelphia surpasses that of most other large cities, and existing retailers are clustered near schools. As youth go to and from school, they are exposed to countless stores that sell and advertise tobacco products.

Public health agencies should seek ways to locally monitor and limit the number of stores that sell tobacco products, particularly near schools and other child-serving institutions. This could include permitting requirements and land use regulations.

- 4) Youth can too easily purchase cigarettes in Philadelphia, suggesting that the current laws and their enforcement are inadequate.

The Department of Public Health is spearheading efforts to educate merchants about how to comply with existing youth sales laws and to enhance enforcement activities, including issuing citations in person rather than by mail. Pending legislation in City Council would also increase penalties from \$100 to \$250 for merchants that sell illegally to youth.

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<sup>6</sup> Philadelphia Vital Statistics Report, 2007

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