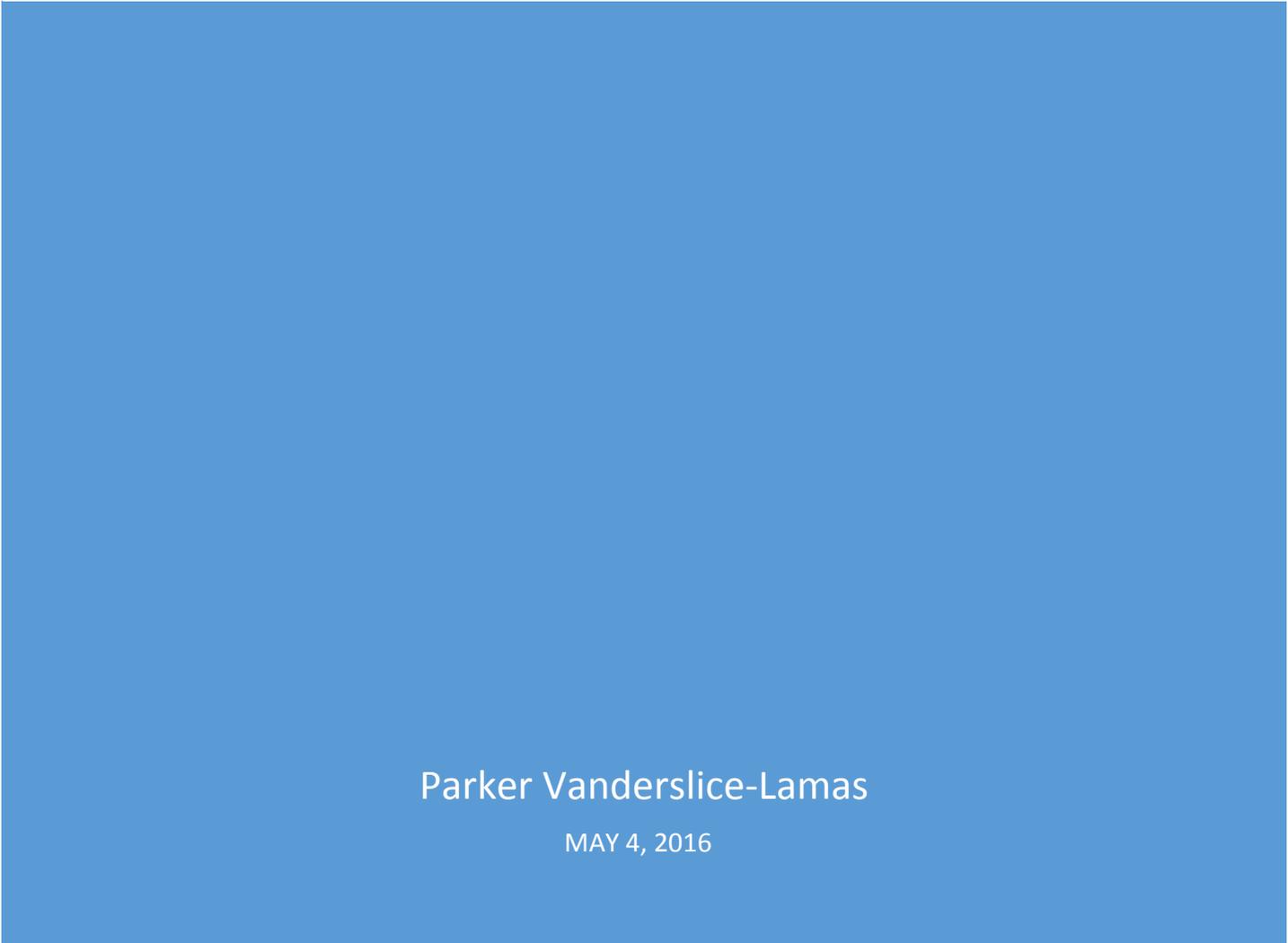




***Prosperity and Health:  
Containment through Neighborhood Boundaries***



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# ***Prosperity and Health: Containment through Neighborhood Boundaries***

## **Abstract**

Neighborhood boundaries are not usually deterministic of the vital aspects of life. In a city like Philadelphia, neighborhood boundaries have meaning within a community but do not have an impact outside their locale. However, the boundary line along Stenton Avenue in Northwest Philadelphia has an enormous impact on the lives of the people living on either side. This one street can have a huge effect on the overall health of the populations in these adjacent neighborhoods. This study will examine the economic, environmental, and physical health of three different neighborhoods bordering Stenton Avenue: Cedarbrook, West Oak Lane, and East Mt. Airy. Our results found that there are distinct differences in each of the three indicators studied and they do have an effect on the overall health of these neighborhoods. The results seem to indicate a racial tilt that unfairly targets minority populations when it comes to home sale price, economic opportunity, air quality, and physical safety. Our society is not post-racial and many of the injustices can be traced back to racial intolerance and the inability of policy to correct for it.

## **Introduction**

Stenton Avenue, a long-standing commercial corridor, demarcates the border between three neighborhoods in Northwest Philadelphia. To the north of Stenton lies West Oak Lane and Cedarbrook, two primarily African-American neighborhoods dating back to the 1960's. Mt. Airy, the third neighborhood along Stenton Ave., is a diverse neighborhood but has been trending toward whiteness over the past twenty years. What is the relationship between Stenton Avenue and these three neighborhoods? This paper will attempt to describe how Stenton Avenue is not just a street that separates neighborhoods, but serves to determine, based on what side one resides, a person's physical and economic health. West Oak Lane and Cedarbrook, both primarily African-American neighborhoods, share a border with Mt. Airy and yet, have completely different racial and economic climates. This is predominantly a result of the historical timeline.

The area currently known as West Oak Lane was originally made up of farms and mills as it was situated in the suburbs of Philadelphia, near Chestnut Hill and Mt. Airy where many of the wealthy residents of the city owned summer homes<sup>1</sup>. Fast forward 150 years, West Oak Lane is incorporated by the City in 1854, though at this time it was still known as part of Bristol Township. At this time, much of the land was still farmed and the population was still quite low. Surprisingly, farms were still the majority of the area even as late as the 1920s<sup>2</sup>. Shortly after 1920, as the population of Philadelphia continued to grow, developers looked to the suburbs to build homes for the influx of people and the steady decrease of available land in the heart of the

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<sup>1</sup> West Oak Lane Redevelopment Plan p.3

<sup>2</sup> West Oak Lane Yesterday/Today/Tomorrow p.5-6

city. Within twenty years the neighborhood was covered in residential homes which were, at the time, “consider[ed] to represent the pinnacle of domestic architecture<sup>3</sup>.” Of course this was the 1940s so nearly all of the residents were white, most of them Jewish immigrants from Germany and Eastern Europe. As one can imagine, this concentration of culture was reflected in the shops and community centers (synagogues mostly). With this increase in population came a need for access to the city. The trolley lines, railroads, and other modes of public transit were expanded to connect West Oak Lane to Center City. As the Civil Rights Movement reached its height in the 1960s, the mostly white residents began to cross over the city border into Montgomery County where they could find larger homes and properties. Within yet another twenty years the demography of the neighborhood had completely altered. By 1980, nearly all of the residents of West Oak Lane were African-American and the old synagogues had become re-appropriated as Christian churches.<sup>4</sup> Many of the storefronts also changed hands as middle and working class African-Americans moved into the recently vacated homes. Presently, many of the shops along Stenton Avenue are occupied and open daily. However, the storefronts are unwelcoming with gates and bars over many of the windows compounded by the dirty and/or unkempt sidewalks and entryways. Recent grants and funding have attempted to revitalize the areas along Stenton but only so much has actually been achieved.

Stenton Avenue is much more than a heavily trafficked commercial corridor between two neighborhoods. It is a dividing line between prosperity and disadvantage. Those who are fortunate enough to reside to the south reap the benefits of racial diversity, economic well-being, physical welfare, and a healthier environment. These differences are not entirely happenstance, they have been produced by a racially charged historical context that has systematically confined those living north of Stenton Avenue to lives considerably worse off than their counterparts to the south.

## Review of Existing Literature

### *Better Health through Passive Exposures? The Case of Urban Greening*

In recent years the Environmental Sustainability movement has become a focus point for many people all across the Globe. In the U.S., many cities have started initiatives to increase sustainable practices and preserve and/or create more “green space”. According to the article, “*Better Health through Passive Exposures? The Case of Urban Greening*”, “green space” is any “open [space] like parks, trails, and playgrounds that include trees, grass, and/or other native or cultivated plantings.”<sup>5</sup> From a conservationist’s point of view, it makes sense to preserve these areas to maintain a healthy environment for the good of the planet as a whole. However, as it turns out, there are many human health benefits to living in areas where there is a large amount of green space.

The article contends that passive exposure to green space has a wide variety of positive health effects. “Passive exposure” is, as defined in the article, “any environmental contact with green space—through living, breathing, viewing--that occurs without effort or intention, during

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<sup>3</sup> West Oak Lane Yesterday/Today/Tomorrow p.7

<sup>4</sup> West Oak Lane "" p.9

<sup>5</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.3

the course of routine activities.”<sup>6</sup> While this may not seem like a complex task for some people, it is actually quite hard to accomplish an adequate level of passive exposure. As of 2008, over half of the world’s population now live in urbanized areas.<sup>7</sup> Urban areas characteristically have less green space and much more “built environment”, sections of asphalt, buildings, and other non-green development. This phenomenon of concentrated urban living conditions makes it very difficult to passively access green space. One solution, which some cities like Philadelphia, Chicago, and New York are undertaking, is to create city-wide initiatives to preserve, create, and expand green space areas. The tangible health benefits of urban greening are quite profound and do not require a large amount of investment. The article outlines several observational findings that all have a positive effect on human health outcomes: higher air quality, improved mental health, and a greater sense of social well-being.

Urban greening can contribute to higher air quality. In many urban environments there is a high level of pollution from cars, busses, businesses, and residences. This pollution can be in the form of particulate matter which “is associated with negative cardiovascular and respiratory health effects.”<sup>8</sup> Urban greening can help to solve this problem through “sequestration”, the capturing of particulate matter in the tree canopy.<sup>9</sup> Another form of pollution is ozone which “is associated with respiratory inflammation, asthma exacerbations, [and] reduced lung capacity...”<sup>10</sup> Increased ozone levels also has an effect on the temperature of an area also referred to as the “urban heat island” effect.<sup>11</sup> This “heat island” effect can cause an increase of 2 to 10°F over rural areas due to the heat absorbing materials used to create much of the urban landscape. Trees and urban greening also help to combat these temperature increases and have been found to dramatically decrease heat-related mortality.<sup>12</sup>

Green space has also been found to improve one’s mental health. Two separate studies in two major cities, London and New York, found that people who had little to no access to outdoor green space have higher rates of depression than those who did have “access to parks and playgrounds.”<sup>13</sup> Other studies have shown that “green views”, or the ability for one to see green on a regular basis, has been associated with reduced mental fatigue and stress. In fact, one study found that college students who could see green space from their dorm rooms “were better able to direct attention than those with built or mostly built views.”<sup>14</sup> Further studies have also advocated for “green play” and outdoor activities to help improve the health of those suffering from ADD and ADHD as they believe outdoor play to be therapeutic for patients.<sup>15</sup>

Lastly, urban greening can also promote social well-being and help create safer communities. Studies have shown that neighborhoods with a large amount of well-kept green space have lower rates of crime. Criminals will tend to stay away from areas where there is surveillance or “implied surveillance”.<sup>16</sup> Furthermore, buildings that were “surrounded by

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<sup>6</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.3

<sup>7</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.1

<sup>8</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.4

<sup>9</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.5

<sup>10</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.4

<sup>11</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.5

<sup>12</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.6

<sup>13</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.7

<sup>14</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.7

<sup>15</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.7

<sup>16</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.8

substantial vegetation had fewer property crimes and fewer violent crimes.”<sup>17</sup> Additionally, neighborhoods with green space have higher rates of social interaction which leads to a stronger community and increases social engagement.<sup>18</sup>

### ***The Contact Hypothesis Revisited: Black-White Interaction and Positive Racial Attitudes***

Racial tensions have been a prevailing theme in the United States for most, if not all, of its history. Today, over three hundred years after the founding of the U.S., racial tension continues to be a topic of conversation in myriad forms: the Black Lives Matter movement, income and wealth inequality, disproportionate criminal sentences for African Americans, etc. An article from 1993 entitled “*The Contact Hypothesis Revisited: Black-White Interaction and Positive Racial Attitudes*” examines the effects of racial integration on feelings of racial tolerance in whites and blacks. The study’s findings support a policy of increased racial integration to increase an understanding of other ethnicities beyond that of the stereotypical.<sup>19</sup>

Of the many findings in this study, a couple stand out above the rest (in terms of relevance for this paper). For one, blacks who reported “having a white friend... [perceived]... whites as less hostile” and were also “less likely to believe that antiblack feeling is increasing in their local area.”<sup>20</sup> Conversely, “[for] whites, neighborhood contact rather than a reported interracial friendship [affected] perceptions of racial attitudes.”<sup>21</sup> However, a reported interracial friendship for whites made them less likely to think antiblack sentiments were increasing in their neighborhood.<sup>22</sup>

Each one of these findings support the theory that integration and interracial contact is a positive step toward the purported “post-racial” society that some claim we live in. Unfortunately, other findings in the study are at odds with the “post-racial” society claim. In fact, over a quarter of black respondents in the study believed that over half of white Americans “share the attitudes of groups like the Ku Klux Klan.” Only one in twenty white respondents believed that over half of white Americans shared Klan views.<sup>23</sup> This suggests that there is a clear difference in perception between these two groups and it has been easier for white people to deny the racial struggle of African Americans rather than to try and fix the problem. Furthermore, nearly half of blacks reported that there is more “antiblack feeling among whites” nationally than there was five years ago (only about 20% said there was less).<sup>24</sup> While integration does not fix the issue of wealth disparity or mass incarceration of African Americans, it provides cross-cultural competency which can further the cause of social justice movements.

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<sup>17</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.9

<sup>18</sup> *Better Health through Passive Exposures? The Case of Urban Greening* p.9

<sup>19</sup> *The Contact Hypothesis Revisited: Black-White Interaction and Positive Racial Attitudes* p.783

<sup>20</sup> *The Contact Hypothesis Revisited: Black-White Interaction and Positive Racial Attitudes* p.788

<sup>21</sup> *The Contact Hypothesis Revisited: Black-White Interaction and Positive Racial Attitudes* p.788

<sup>22</sup> *The Contact Hypothesis Revisited: Black-White Interaction and Positive Racial Attitudes* p.788

<sup>23</sup> *The Contact Hypothesis Revisited: Black-White Interaction and Positive Racial Attitudes* p.787

<sup>24</sup> *The Contact Hypothesis Revisited: Black-White Interaction and Positive Racial Attitudes* p.787

## **Purpose**

This report will examine the health, demographic, and economic differences between people living on opposite sides of Stenton Avenue in Northwest Philadelphia. Data on home sales, crime, demography, built environment, and a variety of other variables will be used to inform these differences. Background research will also be conducted to determine how these differences arose and what can be done to rectify these injustices.

## **Methods**

### ***Scope***

The scope for this study includes both spatial and temporal features. The extent, in spatial terms, of this project is approximately one linear mile along Stenton Avenue in Northwest Philadelphia. Stenton Avenue is not only a major transportation and commercial corridor it also acts as a neighborhood boundary. The particular neighborhoods adjacent to Stenton are: West Oak Lane, Cedarbrook, and East Mount Airy. The study will examine the differences between these neighborhoods with specific focus on the economic, environmental, and physical health. Connections will also be drawn between the historical and contemporary to inform the study's conclusions.

The overall well-being of people in these neighborhoods is a combination of the economic, environmental, and physical conditions. Economic health will be assessed based on Census data relating to the median yearly household earnings, recent home sale values (2013-2015), and educational attainment. Tree coverage and green space will be two of the factors that will be examined as proxies to determine the overall environmental health of the three neighborhoods. The physical health of residents is really a function of a multitude of factors but in this study it will be narrowed to the rates of crime (2012-2014) and how green space and the environment contribute to one's overall mental health. In addition to these three focus areas, the study will also examine the demographic data of study area.

### ***Data Gathering***

The data used in this project was taken from a number of sources: US Census, *Social Forces* Journal, Open Data Philly, and many other online databases and publications. Much of the GIS data was downloaded from both the US Census website and [opendataphilly.org](http://opendataphilly.org). Historical research was gathered from a number of online sources including the Pew Charitable Trusts, New York Times, and Philadelphia's city website. Background literature review on urban greening was provided through a professor at the University of Pennsylvania and was submitted for publication in the *American Journal of Public Health*. Other literature review on racial interaction was found through JSTOR and the article was originally published in *Social Forces*. Additionally, I will be using photos and pedestrian counts that gathered in December 2015. The photos are all from Stenton Avenue traveling from the northwest along the street toward the southeast. Pedestrian counts were taken at a local Dunkin' Donuts on 12/12/2015 from 8:35 AM to 11:35 AM.

### ***Data Preparation***

The main data type that required preparation was those files downloaded from the US Census and Open Data Philly. These files were in the form of both shapefiles and CSVs. Depending on the type of file and the amount of data different transformations and cleaning took place. I will outline below how each data file was cleaned and/or otherwise prepared for use in this project.

### *US Census Data*

The US Census data came in two different forms: census block data from 1990, 2000, and 2010, and the American Community Survey data for the year 2014 (5 year estimate). The census block data from 1990-2010 all had similar attribute tables where only the census tract numbers had changed based on the re-configuration of the tracts from year to year. The American Community Survey data came in four different forms: demography, housing, economics, and social. For this study I will only be looking at the economic and social datasets as I have already done some research and procured other data on demography and housing.

The 5-year estimates from the American Community Survey were much more complex and larger than the census tract data. For instance, in both the economic and social datasets there are over 550 different columns of statistics and numbers. In order to remove just the few factors I was interested in required filtering the data in excel. I pulled out only a couple important factors in each of the two datasets, economic and social. The factors chosen in the economic dataset were the median household income for the neighborhood (as based on zip code) and the percentage of families in each neighborhood living with incomes below the poverty line. These two statistics give a good overall impression of the economic well-being of the people living in each of the three neighborhoods of study. From the social factor dataset I pulled out three statistics all related to education attainment: percentage of high school graduates, percentage of college graduates (bachelor's degree), and percentage of people with a graduate or professional degree. I chose these three in order to provide an additional context for the economic situation of the neighborhood as well as a projection for the future since education is correlated with future earnings.<sup>25</sup>

### *OpenDataPhilly*

Many of the shapefiles/CSVs used in this project were downloaded through [opendataphilly.org](http://opendataphilly.org). These shapefiles/CSVs included: OPA home sales data (2013-2015), crime data (2012-2014), and land cover (2008). All of these files required some manipulation and cleaning in order to be useful to this project and those changes are detailed below.

The OPA home sale dataset came in the form of a very large CSV which detailed sales in Philadelphia dating all the way back to the early 1900s. Obviously, I did not want very old sales data since they would greatly skew the data. I decided to take only those sales which had occurred between 2013 and 2015. Additionally, I took out sales prices that were under \$1,000, since many sales were listed as \$1 and were probably instances of the city reclaiming a property. The remaining sales were then geocoded based on street address using an address locator in

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<sup>25</sup> *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings* p.3

ArcGIS. After they were geocoded they were clipped by neighborhood in order to study the differences in sales price between the study areas. After that, I then took each point and found the distance from it to Stenton Avenue to create an additional variable. The new distance variable, coupled with the home sale price, were then graphed in Excel to show the distribution of house prices across space with respect to Stenton Avenue. I was then able to add a linear trend line in Excel to elucidate a spatial pattern.

As with the OPA property assessment data, PPD's crime data also came in the form of a large CSV file. In this study, I am particularly interested in using aggravated assaults both with and without the use of a firearm to make a claim for the physical well-being (or lack thereof) of the residents of each of the neighborhoods. However, I decided to keep all crime incidents when importing into ArcGIS in case there was another aspect of the crime reports that also supported a claim against the physical health of those living within the study areas. Before exporting from Excel I had to create two new columns, one for latitude and one for longitude as these two were combined in one column and would not be readable in GIS for geocoding. I decided not to use an address locator since I wanted to be sure each incident would be mapped appropriately (address locators can sometimes have issues when placing points on a map). I achieved this by using Excel's built-in function to clip the combined coordinate column into the two new ones that I created. I was then able to import the file into ArcGIS and geocode the crime incidents. These points were then clipped and exported by neighborhood to form three additional shapefiles. I then did a total count of crimes per neighborhood to create a quick crime density field for each neighborhood for comparison. Then aggravated assaults with and without a firearm were selected for each neighborhood and used to generate three more shapefiles. I went back into Excel to create a new table so that I could generate a graphic for the difference in aggravated assaults per square mile in each study area. It is important to note that these points only indicate where the crime happened not where the person responsible was from.

The last file that required manipulation was the 2008 land cover raster. With this file, I was mostly interested in isolating the tree coverage and green space for each neighborhood. The land cover raster has bare earth, water, tree canopy, grass/shrub, and three other types of built environment categories. I began first by reclassifying the raster to isolate only those areas that were part of the "tree canopy" and set those equal to a value of 1 and everything else to a value of 0. This essentially created a layer displayed tree canopy and not tree canopy. I then clipped this raster to each study area and calculated the percent coverage of tree canopy. I was able to calculate the percentage cover by using the field calculator tool in the attribute table of each neighborhood raster layer. However, this task was made more complex by the fact that there was not a column for the total number of grid cells so I was forced to create this column before using the field calculator. I repeated these steps also for "grass/shrub" and found the percent coverage for each neighborhood.

### *Online and Offline Presentations*

In the coming week I plan to create a website that will host some of the data gathered from this project. I intend to create an interactive map that is symbolized similar to that of my visuals used here and host it using Amazon Web Services and/or CartoDB. The shapefiles that will be viewable will include, but are not limited to: crime incidents, census block data, tree canopy and green space, and home sale data.

I will also be creating a Prezi presentation to be used in conjunction with this paper. It will have all the visuals contained here but in a more visually appealing medium. The advantage of a Prezi presentation lies in its ability to be non-linear, which I believe to be helpful when studying a linear street as it breaks up the potential monotony. This presentation will be presented live at the capstone luncheon.

### ***Data Analysis and Visualization***

Data analysis for this project will mostly be in the form of figures and tables. I will mainly rely on ArcGIS and Excel to do much of the processing and visualization of data for this project. Spatial analysis such as kernel density and geocoding will be done using ArcGIS. The creation of maps and displaying spatial data will also utilize ArcGIS. Tabular analysis and the creation of graphs will mostly be done in Excel as it has more capabilities for displaying statistics graphically.

Online visualization will use CartoDB and/or Amazon Web Services while the presentation will use Prezi's free online production tool. There will not be any data analysis conducted online using any of the mediums listed above rather they will be used just for visualization of the data that I have gathered.

## **Results**

The results of this project have been categorized into six different sub-sections: economic health, environmental health, physical health, demographics, and current conditions. Findings for all of the sections save for current conditions will be based on the data gathered from the census and opendataphilly.org. The current conditions section's findings will be based on my our field research using photos and pedestrian counts to give a quick summary of what people currently experience on the ground.

### ***Economic Health***

An analysis of recent home prices, median household income, and educational attainment were all used to describe the overall economic health of each of the neighborhoods in the study. It is important to note that the lower income neighborhoods in this study are probably still better off than many neighborhoods in the city of Philadelphia. Their economic health may not be bad, but their relative health to one another may be perceived as poor. Furthermore, the healthiest neighborhood is also probably not the wealthiest area in the city either but again, it could potentially look wealthy as compared with the small subset of neighborhoods in this study.

### ***Home Sales***

Home sale price can be a good indicator of the economic health of an area. For many people, the home is the one asset which continues to appreciate in value. Unfortunately, it remains the main generator of wealth for most Americans. I plotted all home sales above \$1,000

from 2013 through 2015 to help determine the economic health of these communities. The graph below shows the distribution of home sale prices as well as their proximity to Stenton Avenue (the line between the blue and orange dots). At first glance, this graph shows a startling picture: there is a large difference between the houses to the north of Stenton versus those to the south. Why are the homes to the north stagnated in price? Why is there a jump in price as one moves across Stenton? And finally, why is there a negative trend in the home sale prices of houses to the south of Stenton? Since this graph cannot answer many questions that this image raises, I will do my best to elucidate a response.



The main reason for why the home sale prices to the north of Stenton are so similar to one another is because of their historical construction. Nearly all of the homes were built in the 1940s to accommodate an influx of European Jews. Because of this, a template home was created and all the houses were built using the same template which created a small homogenous housing market. This same housing market has been maintained since the home are still fit for living and very little additional construction has taken place in the last seventy years. It is very difficult for realtors to sell some houses for more than others when they all look very similar.

A very different story took place in Mt. Airy (the area south of Stenton Ave) where the homes have a wide range of price points. Mt. Airy was originally the place where many wealthy Philadelphians had their summer homes. Imagine being a developer in the 1920s and the population of Philadelphia is increasing at an incredible rate so you must meet that demand for housing. However, there are already very large homes in the area and they are spread out from one another. This creates a problem since you don't want to price too many people out of a newly expanded neighborhood, but you want the new homes to fit in with the fabric of the area. The solution was to create an entirely mixed price neighborhood. Some of the areas with existing large homes would be surrounded by more large houses. Other areas where there are fewer large homes would be filled in with slightly smaller twins instead. Flash forward nearly



The homes to the south have prices ranging from ~\$230K all the way to ~\$375K. Contrast that with the homes just feet away to the north where the range is from ~\$170K to only ~\$240K. I agree that neighborhood itself does play a role in the pricing of homes since it can determine school catchment and a number of other important factors not the least of which is race. I am by no means saying that Zillow is racist and prices homes of African Americans \$70,000 less on average, but there is definitely a problem when similar houses are selling for vastly different prices when they are separated by a political boundary.

### *Household Income and Educational Attainment*

Another good way of assessing economic health is of course to look at the median household income. I decided to use the American Community Survey 5-year estimate data to look at the median household income of each of the zip codes in the study area. Two of the neighborhoods, Mt. Airy and Cedarbrook, have only one zip code for the entire neighborhood. West Oak Lane, however, has two zip codes which were each examined for the purposes of this study. Education attainment was also a factor which contributes to economic health as it can have a huge impact on one's future earnings and can forecast an area's economic prospects.

Of the three neighborhoods, Mt. Airy had the highest median household income with \$77,212 per year. Two of the other three remaining zip codes, one from Cedarbrook and one from West Oak Lane, had yearly median household incomes between \$56,000 and \$58,000. The other zip code in West Oak Lane had a median household income of only about \$41,000. Moreover, the percentage of houses with families living under the poverty level in Mt. Airy is less than 9%. Cedarbrook ranks second with 11.4% while West Oak Lane's zip codes have rates of 16.4% and 20.8%. It amazes me that over 1 in 5 families in part of West Oak Lane are living in poverty. West Oak Lane is supposed to be a middle class African American neighborhood, but if 1 in 5 families are impoverished it is hard to believe that it can maintain the image of a middle-class neighborhood.

Not surprisingly, educational attainment of residents in these neighborhoods follows the pattern that higher levels of education correlate to higher future earnings. One important thing to note is that the American Community Survey reports the percentage of residents' highest degree, i.e. you are not counted in the percentage who have graduated from high school if you have a doctorate; you are only counted as one of those who have a doctorate. Cedarbrook and West Oak Lane have similar numbers when it comes to percent of residents who have attained the level of a high school diploma (Cedarbrook: 37%, West Oak Lane: 31% and 40% for the two zip codes). Interestingly, Cedarbrook has a higher percentage of college graduates than any of the other zip codes with 21.7% (Mt. Airy is 19.8%). However, the most telling break is at Profession and/or Doctorate where Mt. Airy has a much higher percentage than any of the other zip codes at 27.6% of residents. Cedarbrook's 6.7% is nestled between West Oak Lane's two zip codes with 8.7% and 4.1%.

### *Environmental Health*

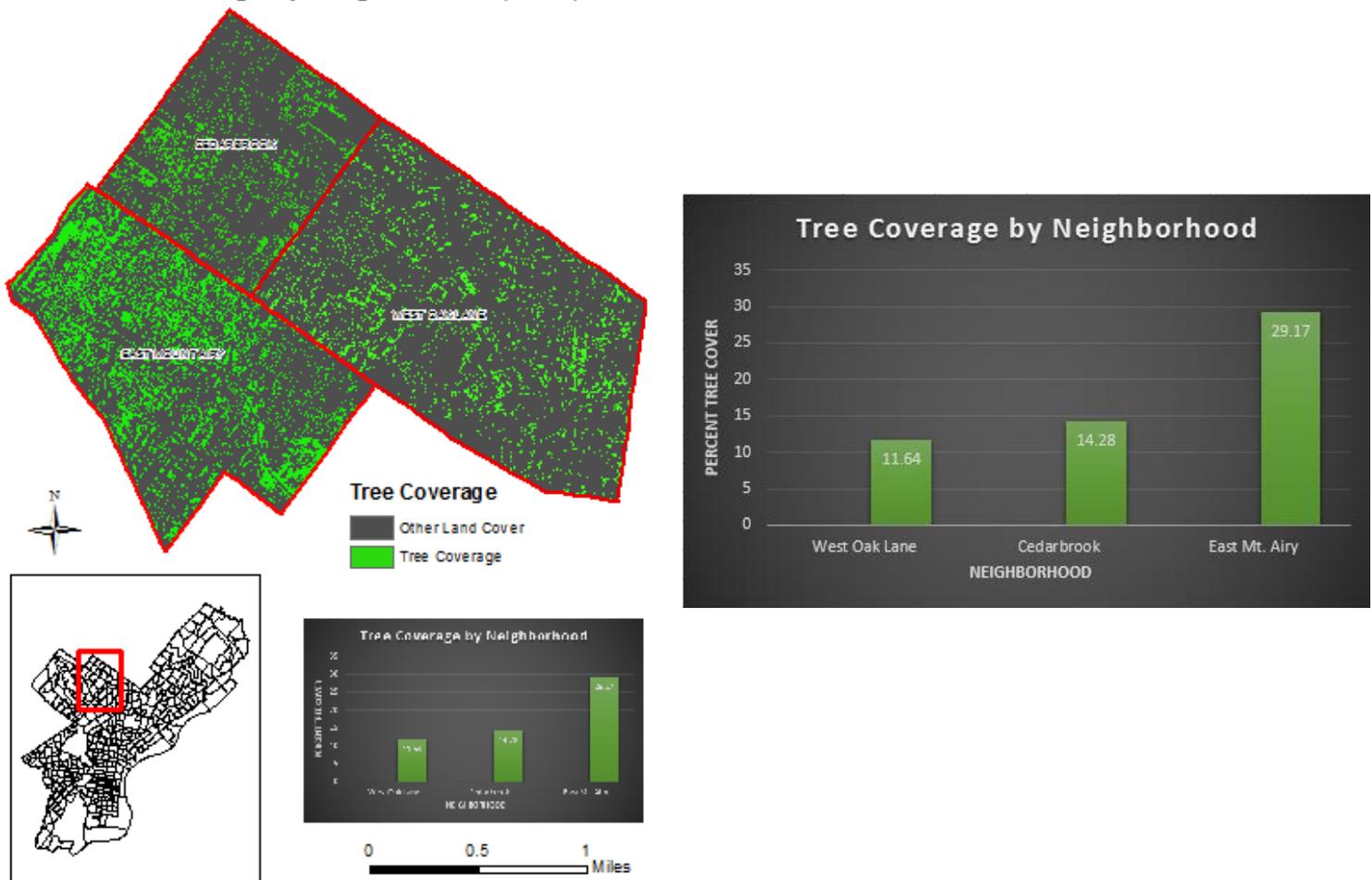
Environmental health, for the purposes of this project, was based on tree coverage. This was gathered from the 2008 Land Cover raster via [opendataphilly.org](http://opendataphilly.org). This factor shows the

level of concern for an area's commitment to the preservation of the environment, which is also a contributing factor to one's overall health.

### Tree Coverage

Tree coverage, as previously determined, is a major factor in both the health of the environment as well as a contributing variable to overall human health. The map below shows the overall tree coverage for each of the three neighborhoods of study. The graph to the bottom of the map (also shown to the right) displays the percent cover by neighborhood.

Tree Coverage by Neighborhood (2008)



Even without the graph which displays the percent of tree coverage in each neighborhood it is very clear that Mt. Airy has a much greater degree of coverage than either Cedarbrook or West Oak Lane. In fact, Mt. Airy has a tree canopy that is more than both of the other two neighborhoods combined. One major question this raises is why there is such a disparity between the two neighborhoods when they are so close to one another. Usually places that are closer to one another are quite similar, especially in terms of natural environment. One answer could be that since West Oak Land and Cedarbrook were historically farm land there were not

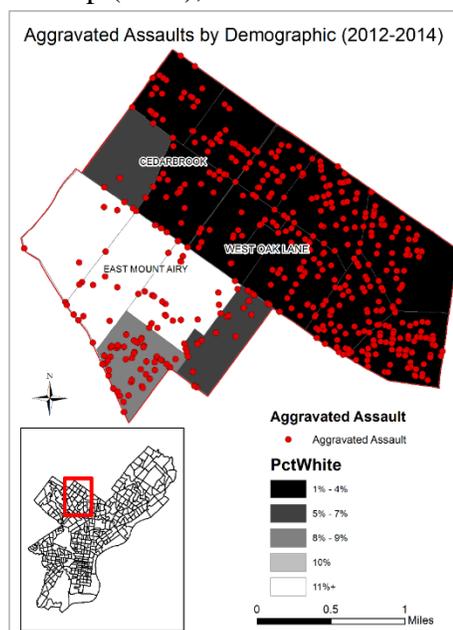
many trees in the area when it started to be developed for the influx of European Jewish immigrants. It is probably very likely that tree planting has been attempted in many areas to replace trees that may have been destroyed to build all the homes in the first place. Whatever the reason, the continued lack of trees can and most likely will have an adverse effect on the health of this local environment.

### ***Physical Health***

Physical health, in this study, will be measured by looking at crime data, specifically aggravated assaults and the proportion of tree canopy in each neighborhood. Aggravated assaults (both with and without the use of a firearm) were used since they pose a great threat to human health and can be used as a proxy for all violent crime. Tree canopy will also be used as an influence on physical health as it has been proven to improve mental and physical well-being (see environmental health section for figures).<sup>27</sup>

### ***Aggravated Assaults and Crime***

Between 2012 and 2014, aggravated assaults accounted for 638 of over 500,000 reported crimes in the neighborhoods of Mt. Airy, Cedarbrook, and West Oak Lane. In other words, aggravated assaults made up around one tenth of one percent of the total crimes for those years. In order to compare the three neighborhoods, which all have different populations and areas, I took the number of aggravated assaults and divided by the area of each neighborhood (in square miles) to arrive at the number of aggravated assaults (AA) per square mile per neighborhood. West Oak Lane had the highest number of AA per sq. mile with just over 234. Cedarbrook and Mt. Airy were much lower with 102 and 98, respectively. While the difference is not very great between Mt. Airy and Cedarbrook, the sheer amount of aggravated assaults in West Oak Lane is cause for alarm. However, the story becomes incredibly more interesting if you overlay the census block data of ethnic makeup (2010), as seen below.



<sup>27</sup> *Better Health through Passive Exposures? The Case of Urban Greening*

Each aggravated assault between 2012 and 2014 is denoted by a single red dot on the map. Immediately I see a very clear spatial pattern in the location of many of the assaults. Nearly all of the aggravated assaults occurred in census blocks, with respect to neighborhood, which had a higher population of African Americans. This pattern seems most stark when looking at Cedarbrook which has 3 tracts with an African American population at or above 96% and only one that is lower than 96%. Only seven of Cedarbrook's 91 (less than 10%) aggravated assaults took place in the "whitest" census tract. A very similar pattern is noticeable in Mt. Airy where 38 out of the total 134 assaults took place in tracts where the white population is at or above 11%, of which there are 3 and they account for over 67% of the total area of Mt. Airy. While the source of the problem of aggravated assaults is not entirely known to me, there does seem to be evidence of a clear association between aggravated assaults and the racial makeup of the area in which they take place.

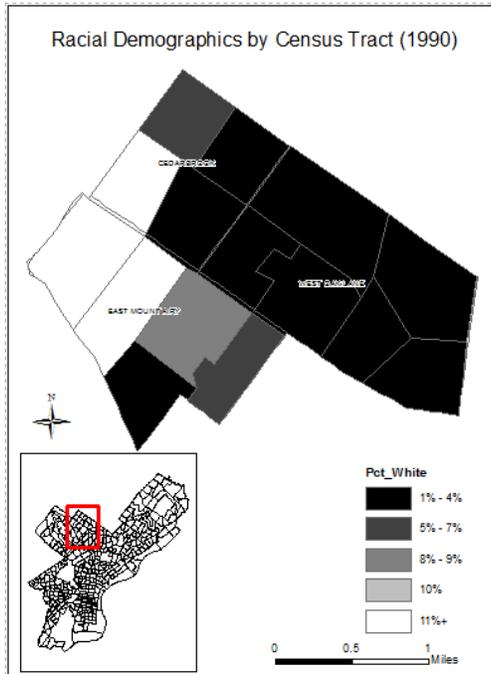
### *Tree Coverage*

Tree coverage was covered in the previous section: *Environmental Health*. Please also refer to the "Literature Review" section for more information on the effects of tree coverage and green space on mental and physical health.

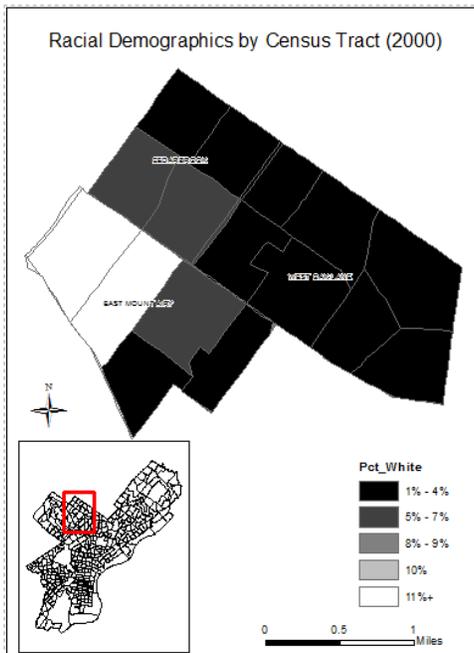
### *Demographics*

Mt. Airy, the neighborhood bordering West Oak Lane and Cedarbrook to the south, has a similar history with a very different result. Though Mt. Airy was actually a section of Germantown Township, it also consisted of large plots of farmland. Mt. Airy, just like West Oak Lane, was incorporated in 1854 as population grew in Philadelphia. The demographics of Mt. Airy were similar in nature to that of West Oak Lane and Cedarbrook as demonstrated by the numerous churches with the "Star of David" on the wrought iron railings or steeples. However, Mt. Airy's history of racial tolerance quelled much of the "White Flight" that was visible in most other areas across the country. According to "Go Mt. Airy", the racial predatory lending and discriminatory practices that were commonplace in much of the United States was subdued through efforts by local organizations. These efforts made Mt. Airy one of the most diverse neighborhoods in the 1990s. Unfortunately, trends are beginning to change as Mt. Airy has seen an increase in White population over the past twenty years. We will examine these effects and how they change the neighborhood itself and the interaction between Mt. Airy and the city on the whole.

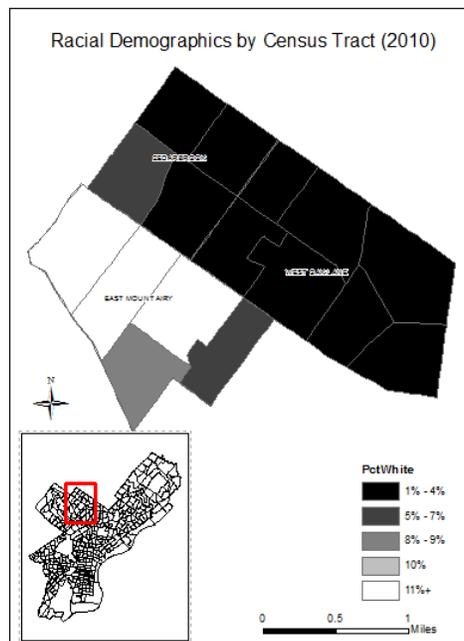
Historically, all three of these neighborhoods are quite similar, but their demographic differences are stark. Note that all of the following figures have the same legend and symbology. The map below shows the 1990 racial makeup of the census tracts on either side of Stenton Avenue. Nearly all of the census blocks in Cedarbrook and West Oak Lane, the neighborhoods north of Stenton Avenue have a white population that is under 5% of the total residents in the tract. Only two of the tracts have white populations at or above 8%-9%. Contrast this to Mt. Airy where half of the tracts have at least a 10% white population. Of those same tracts, one has a white population of 32% and the other over 60%. In 1990, Mt. Airy had a diverse population though the locations of this population was less homogenous as one moved closer toward Chestnut Hill, a historically wealthy and white neighborhood



The next map (shown below) describes the demographic makeup of the three neighborhoods based on data from the 2000 Census. From 1990 to 2000 a visible change happened in the neighborhoods north of Stenon: the proportion of residents in these two neighborhoods became increasingly more African American. In fact, all the census tracts had an increase in the proportion of African American population (though it just isn't visible at this scale in Mt. Airy). In Mt. Airy, the tract that previously had a 32% white population decreased to 21% and the one with 62% white population plunged to under 50%. There was a clear increase in the percentage of African American population in all tracts from these three neighborhoods in the ten years from 1990 to 2000. However, this trend would not continue for the next ten years.



In 2010, the demographic climate again changed, this time bringing with it a bifurcated storyline. In both of the neighborhoods north of Stenton Ave. the demographic changes of the past 10 years continued as the proportion of African Americans in Cedarbrook and West Oak Lane increased across all tracts. However, in Mt. Airy to the south, the Census data paints an entirely different picture than 1990 and 2000. All Mt. Airy tracts from 2000 to 2010 saw an increase in the proportion of white population. Though the overall trend of the city from 1990 to 2010 shows a decrease in the white population, the recent trends in Mt. Airy reveal a story that might suggest a pattern of gentrification.



According to a study by the Pew Charitable Trusts, the non-white population in Philadelphia increased as the non-Hispanic white population decreased by just over 30%, while the African-American population grew 3.3%.<sup>28</sup> This study shows the larger trends in the city as a whole and the trends within each individual neighborhood. In these target neighborhoods we saw a much more dramatic racial change. In Cedarbrook, the white population decreased by over 65%, from 1,138 to just under 400. West Oak Lane experienced a larger degree of white flight as the Caucasian population decreased by over 75%, from 4,114 to under 1,000 by 2010. Mt. Airy, on the other hand, witnessed a white population decrease of only 20%, from about 10,000 to around 8,000.<sup>29</sup> Census data will show that even though the white population in Mt. Airy did decrease from 1990 to 2010 there was an increase in white population from 2000 to 2010 suggesting a new trend toward whiteness in this neighborhood.

The New York Times recently ran a story that compared, and contrasted, where white families and black families tended to live. The article highlighted a study done by three Stanford University researchers which found what they called, “the neighborhood gap.”<sup>30</sup> The study found that middle class White families (and Asian families) tended to live in middle-class

<sup>28</sup> Pew Charitable Trusts Study p.7

<sup>29</sup> Pew Charitable Trusts p. 11-12

<sup>30</sup> New York Times “Middle-Class Black Families, in Low-Income Neighborhoods”

neighborhoods. This obviously makes sense, people are more likely to live in places that they can afford and want to occupy a home that is the best for what they can buy. However, this is not the case for many African American families. These researchers found that middle-class African American families were more likely to live in lower-income neighborhoods.<sup>31</sup> Wait...what? Even more surprising is the finding that “the typical middle-income black family lives in a neighborhood with lower incomes than the typical low-income white family.”<sup>32</sup> What then is the reasoning behind this phenomenon? Don’t people in the middle-class generally voluntarily choose where to live? Yes it is the case that people do choose where to live there are other factors that impact choice of neighborhood other than the home. When buying a home one is not just procuring a structure in which to live, but rather, an environment made up of schools, parks, police and fire departments, grocery stores, and many other places as well. Many people want to a house and neighborhood to feel comfortable, a place where they feel “at home”, a place where they can see themselves (or people who look and think as they do). As it turns out, this is one major reason that middle-income black families tend to live in lower-income neighborhoods.<sup>33</sup>

This trend in home sale value provides a clear picture of what is going on in these neighborhoods and may be a contributing factor to the demographics of each of these respective areas. Knowing all three of these neighborhoods, I can comment on what factors contribute to this disparity. While these neighborhoods share a border, Cedarbrook and West Oak Lane have built environments that are different than that of Mt. Airy. In both Cedarbrook and West Oak Lane many of the homes are either two/three story row homes or two/three story twins. This homogeneity of housing type keeps the prices between neighbors very close together. Contrast this to Mt. Airy where you can find large single homes, twins, row homes, and apartment buildings all in close proximity to one another. Historically, the homogeneity of house type in Cedarbrook and West Oak Lane was a main factor that drew such a robust Jewish community. However, as the suburbs began to develop with new zoning regulations that allowed for much more expansive tracts of land most of the more affluent members of these neighborhoods left. In their exodus they left storefronts behind which changed hands to the new African-American population coming in. This demographic change has made Stenton Avenue both a commercial corridor and a barrier between races.

Since the 1980s, after the white flight, the Stenton Avenue commercial corridor has been overwhelmingly African American, in terms of both proprietors and consumers. I have lived two blocks from Stenton Avenue nearly my entire life and I have only routinely gone to three locations along the corridor: the Sunoco gas station, Rite Aid, and the Unitarian Universalist Church. In each of these three locations the only one in which I regularly see a white population has been the Unitarian Church. Even while driving along the street I rarely see white people walking along the street let alone going into any of the stores. In essence, the primary users of Stenton Avenue as a commercial corridor are African Americans.

There have been several initiatives and grants that have attempted to revitalize the commercial corridor. In 2005, under Mayor John Street, a plan was developed for the revitalization of many commercial retail locations in West Oak Lane and Mt. Airy. One part of this plan was for redevelopment of a part of Stenton Avenue bordering Mt. Airy and West Oak Lane. The plan outlined the blight on the area as mostly consisting of poor landscaping, lack of

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<sup>31</sup> New York Times “Middle-Class Black Families, in Low-Income Neighborhoods“

<sup>32</sup> New York Times “Middle-Class Black Families, in Low-Income Neighborhoods“

<sup>33</sup> New York Times “Middle-Class Black Families, in Low-Income Neighborhoods“

curb appeal and signage, and dilapidated and/or outdated commercial strips.<sup>34</sup> The Stenton Avenue aspect of the plan would strive to correct many of these issues. The solution would involve making the retail stores more uniform in appearance, improve parking areas, and potentially outdoor restaurant seating.<sup>35</sup> Ultimately, the 2005 plan was not fulfilled for Stenton Avenue and the blight has continued for many years. In 2012, the Ogontz Avenue Revitalization Corporation, a local CDC founded in the early 1980s, was awarded more than \$2 million to make improvements to the facades and landscapes along Stenton Avenue.<sup>36</sup> According to the OARC, the money will go to improving lighting, increasing trash bin locations, crosswalk improvements, benches, and façade improvements. Members of the OARC were optimistic of the success of the project as they recently completed a similar project on Ogontz Avenue in West Oak Lane and had seen drastic improvement in the number of people visiting the corridor. However, it is now 2015, and not much has been done to improve the facades, parking, or street lighting along the corridor. Stenton Avenue continues to face blight and still does not feel safe.

## Discussion

The idea that we now live in a post-racial society is completely incorrect. Race informs much of the way people act, whether it influences where we live, who we love, or any number of other factors, people think about race. Mt. Airy, a very diverse and inclusive neighborhood, has better economic, environmental, and physical health indices than either of the other two neighborhoods studied. While Cedarbrook and West Oak Lane do have their shining moments, overall their statistics pale in comparison to Mt. Airy. The differences between each of these three neighborhoods are not simply due to geographic positioning, but rather, have been caused by a history of segregation and discrimination that has escalated to a height that cannot easily be overcome.

Our current-day society prides itself on inclusion and freedom, but does very little to support those living in poverty, those who have fought in wars to preserve that freedom, those who are now able to be turned away from a job in North Carolina because their own personal life choices (made with personal freedom) are disagreeable to an employer. What kind of freedom do we really have? What does it say about our economic policy when people who live across the street from one another, with very similar quality homes, have to settle for a home sale price that is on average \$70,000 less? What about the fact that people who live in areas with a higher percentage of African Americans are more likely to be the victim of an aggravated assault? All of these problems are not confined to this small microcosm in Northwest Philadelphia, they are constant and prevalent all across the United States. Racism has become endemic in the U.S. Presidential candidates are allowed, even seemingly encouraged, to be segregationist, nationalistic, and racist. At what point did we somehow magically fall into a post-racial society? Short answer: we didn't.

A number of factors contribute to Stenton Avenue being a blight ridden commercial corridor. However, most, if not all, of these factors fall under one umbrella: race relations. Stenton Avenue, being a border between a whiter more affluent neighborhood and two nearly entirely African American ones, has been neglected. Ultimately, those people who live close to

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<sup>34</sup> West Oak Lane Revitalization Plan p.6

<sup>35</sup> West Oak Lane Revitalization Plan p.10

<sup>36</sup> OARC Façade Improvements

Stenton have to either go further to do their shopping or they have to deal with the “outdated” and unclean street corridor that is Stenton Ave. It is actually a perfect case study for diffusion of responsibility, the idea that people are less likely to intervene if there are others who could intervene. Since Stenton acts as a border between three neighborhoods, none of the neighborhoods work to improve it since they think the other ones will do it for them. The end result is that of inaction.

Stenton Avenue is not just a struggling commercial corridor, it is a barrier between prosperity and poverty. Those who live in the primarily African American neighborhoods look across Stenton and see people in a similar situation to them who have access to much more. Many of those middle-income African American families could move across the street into Mt. Airy but they might not be able to find a home that would be of similar size nor a community that they have been a part of for years. Stenton Avenue is not a physical barrier between a worse life and a better life, rather it symbolizes the difference between investment and disinvestment. Over the years the people living around Stenton Avenue have seen a migration of whiteness out of the neighborhood that is directly correlated with level of investment. West Oak Lane and Mt. Airy started out with very similar populations and went through nearly the same historical steps, but ended up on different sides of the same coin (or street). The simple fact is that certain races are given advantages over others. Investment is not made based upon ingenuity or ability, but upon the color of one’s skin. This is why it is imperative to see these invisible, yet plainly visible, barriers and deconstruct them. City streets should not be impermeable to one type of people or another, but should be inclusive. Cities, like people, can only grow if they are cultivated and supported through all avenues. We should all be in the business of community development through the dissolution of impermeable barriers for the betterment of all people.

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