NEIGHBORHOOD-BASED DESIGN STRATEGIES FOR LOW-INCOME URBAN AREAS:
A CASE ANALYSIS OF THE HILLTOP NEIGHBORHOOD IN WILMINGTON, DELAWARE

by
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This thesis is dedicated to Daisza Bausby. My hope is that this work will bring us one step closer to creating safe neighborhoods for all children, so they may grow to see adulthood.
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ABSTRACT

This study investigates the ways in which place-based design strategies, including land use, walkability, and pedestrian safety, improves the quality of life for residents living in low-income, urban neighborhoods. Hilltop, a neighborhood in Wilmington, Delaware, is used as a case study to apply a neighborhood-centric strategy of revitalization.

The current conditions of the neighborhood’s main corridor are explored, using an original model that encourages detailed observation to be taken of the characteristics of the area. Design strategies are then suggested to improve the quality of life for its residents, based on the combined knowledge of a complete literature review and an understanding of the neighborhood. Changes in zoning, strategic streetscaping, and improved safety designs are all suggested as ways to create a more inviting and fulfilling space. Creating a built environment that is of a high quality is a necessary component in improving the quality of life for residents. Combined with other social and economic policies, systemic and consequential improvement to the community as a whole is possible.
Chapter 1

IMPROVED DESIGN FOR HIGHER QUALITY OF LIFE

Urban life in America illustrates the juxtaposition between the absolute highest and lowest quality of life possible within this country. High-income residents are able to take advantage of the countless luxuries that are easily accessible in cities, including high-end shopping, cultural experiences, and elegant housing options. On the other hand, many low-income residents living in distressed areas of cities struggle to acquire basic necessities for themselves and their families. Food, shelter, transportation, and safety become tenuous items to procure.

This drastic disparity in quality of life among urban dwellers creates a highly inefficient community. Resources cannot be equally allocated throughout a jurisdiction; low-income neighborhoods require a disproportionate amount of social services and police funding, while access to quality parks and cultural attractions are only accessible in high-income neighborhoods. To create more equitable communities, efforts must be taken to improve the quality of life within low-income neighborhoods. This will result in both more productive and content residents, as well as a reduction of the amount of resources that local governments must spend to provide emergency services to low-income communities.

Quality of life may seem like an abstract or immeasurable concept. In fact, numerous empirical studies have been conducted to study the concept, with results clearly indicating that it can be quantified. Not surprisingly, evidence shows that when
quality of life is improved, individuals experience improved social, economic, and mental
and physical health conditions (Diener, E. & Eunkook S., 1997). One of the most
influential ways in which to do so is by using subjective well-being measurements. “The
field is built on the presumption that to understand the individuals’ experiential quality of
well-being, it is appropriate to directly examine how a person feels about life in the
context of his or her own standards” (Diener, E. & Eunkook S., 1997, pg. 191). The
affect, both pleasant and unpleasant, that a condition or environment has on a person is
deeply important to the satisfaction that a person experiences with his or her life.

Particular efforts must be made to create an environment wherein residents living
in low-income neighborhoods are given the opportunity to enjoy their physical space.
These efforts occur through neighborhood revitalization, which is generally defined as:
“A process to influence and support individual and institutional choices within a regional
context toward investment in a particular neighborhood or neighborhoods” (Schubert,
2001, p. 37). Specifically, design strategies can be implemented that will allow for
sustainable advancements.

Specific types of design are more influential than others when considering the
types of place-based strategies that may be beneficial in revitalizing low-income
neighborhoods. There is significant research suggesting that New Urbanism is a highly
beneficial approach when redesigning the physical environment of a neighborhood (Bohl,
2000; Larsen, 2004; Hanlon, 2010). New Urbanism is broadly defined as:

A movement in architecture and planning that advocates design-based
strategies based on “traditional” urban forms to help arrest suburban sprawl
and inner-city decline and to build and rebuild neighborhoods, towns, and
cities (Bohl, 2000, p. 762).
This paper builds upon the New Urbanism design paradigm, supplementing it with neighborhood-based strategies for selection and design decisions. The overall goal of place-based design that incorporates New Urbanist design is in “organizing development into neighborhoods that are diverse, compact, mixed use, pedestrian oriented, and transit friendly” (Bohl, 2000, p. 762). Implementing place-based design that considers these goals, in conjunction with other social reforms, can have a significant impact on revitalizing distressed neighborhoods.

Failed Models

As early as the 1950s, civic leaders showed interest in improving distressed areas of cities. There are some examples of successful reform efforts, including the Allegheny Conference on Community Development, started in 1944, to increase corporate social responsibility in the urban core (Mershon, 2001). Such efforts continued throughout the 1990s, with the creation of comprehensive community initiatives (CCIs) to improve low-income neighborhoods through community-based initiatives (Kubisch et al., 1997). Oftentimes, however, the methods taken to improve these neighborhoods caused substantial damage.

Urban renewal, one of the most well known efforts involving revitalization, caused devastation in many low-income and minority communities throughout America. This was largely due to the fact that businesses and governments recognized the fact that these neighborhoods with blighted conditions were in highly strategic locations, oftentimes close to downtowns or transportation hubs. “Although urban renewal was
launched and initially justified as an effort to improve the housing conditions of low-income urban residents, it quickly became a massive public subsidy for private business development, particularly downtown commercial real estate interests” (Squires, 1991, p. 121). Showing more concern for private sector development than the quality of life or economic conditions for residents within these struggling neighborhoods, the local, state, and federal government created ways in which massive redevelopment could easily occur.

This schema is a product of the belief that private investment alone will generate economic prosperity in low-income areas. However, the results of such a logic model have shown on numerous occasions to be unsuccessful in attaining the original goals. Many neighborhoods that were subject to urban renewal strategies failed to ever successfully thrive. Cities across the country, including, Chicago, St. Louis, and Brooklyn were marred by efforts to revitalize. The existing built environment was repeatedly demolished in hopes of replacing it with improved structures. Yet new construction generally included luxury housing and a few middle-income projects, along with the expansion of colleges, hospitals, libraries, shopping areas, and interstates (Bonds et. al., 2015). This raised the price of living in an area, and instead of improving low-income neighborhoods, simply pushed poor people to other areas. “A 1961 study of renewal projects in 41 cities showed that 60 percent of the dispossessed tenants were merely relocated in other slums; and in big cities, the proportion was even higher (over 70 percent in Philadelphia, according to a 1958 study)” (Gans, 1965, pg. 4).

Eminent domain was the most commonly used tool in this process to reclaim properties from individuals for “higher and better uses” (Claire, 1959). To do so, the local
or state government would declare a low-income neighborhood to be blighted, meaning that the property values were in decline (Weiss, 1980). The intention of such a declaration was not to provide direct support or assistance in improving the conditions for existing property owners or residents of the neighborhood. Instead, it was to enable completely new development. New developers sought to clear blocks to make way for shopping malls, office buildings, and convention centers (Squire, 1991). These types of businesses did very little to improve the economic conditions in the surrounding neighborhoods, even if portions of the neighborhoods continued to exist. The federal and state governments also regularly used eminent domain to reclaim property to develop the land for interstate use, which had similar devastating repercussions.

Countless communities were transformed through the power of eminent domain, so that “by the 1960s, federal highway construction was demolishing 37,000 urban housing units each year” [emphasis added] (Mohl, 2002, p. 2). The remaining communities suffered great losses in terms of human and social capital. Not only were homes destroyed, but churches, schools, community centers, social clubs, grocery stores, shops, and places of recreation were either removed or lost massive amounts of membership (Mohl, 2002). The fabric of communities had been ripped; thousands of people lost their homes and businesses in neighborhoods across the country in the name of “improvement” and “progress;” yet these neighborhoods had nothing to show for it except for elevated rates of segregation, poverty, and distress.

These patterns of failed urban revitalization continued throughout the twentieth century due to a fundamental flaw in their development. The models off of which they are based operate with the idea that the best ideas for revitalization come from experts
outside of the neighborhoods under consideration. Attempted solutions are then executed uniformly in every neighborhood across the country, without regard for existing conditions within a localized area. This type of externally driven reform typically does more harm than good. The high-modernist architectural structure Priutt-Igoe housing project in St. Louis serves as a clear indication that knowledge of theory does not necessarily translate to success within a community. The building was demolished less than 20 years after construction, despite being initially heralded as an architectural success, because it failed to provide residents with defensible space or clear sight lines necessary to supervise children. The apartment towers quickly became incredibly dangerous and miserable places to live soon after people moved into them (Bristol, 1991).

Conversely, reform that is informed and motivated from within a neighborhood can create more sustained success. To achieve such a mission, outside counsel may be necessary to provide specific technical assistance. However, this counsel must work with—as opposed to on behalf of—the community itself (Bonds, Kenny, and Wolf, 2015). When organizations fail to engage with the localized concerns of a neighborhood, including local politics and racial issues, it becomes ineffective at engaging with the very neighborhood it sought to revitalize (Bonds, Kenny, and Wolf, 2015). The movement towards revitalization must include local interests and engagement in the process.

The source of motivation for revitalization and redevelopment is key in determining if the efforts will lead to lasting improvements for the community in question. When policies have failed, including all urban renewal efforts that used eminent domain as a means of removing blight, the motivation was always emanating from an
external source. Contrarily, when neighborhoods themselves are the agents of change working towards revitalization, the outcomes have the potential to be highly successful and lasting.

The major problem with external forces in revitalization effort is the lack of consideration for the community itself. Private developers commonly seek to exploit an area through redeveloping it for private gain. Even cities can be seen as an external force in many cases when considering the best interests of a single neighborhood. Cities may want to work to improve the economic circumstance of the city as a whole, and in doing so, may exploit a smaller neighborhood. As an example, cities sometimes make the decision to build a convention center in a low-income neighborhood to attract tourists and generate money for the city. That construction does little to improve the lives of the residents remaining in the area. It may even create an inhospitable or vastly expensive environment in which low-income residents cannot continue living.

Disastrous results follow from forcing change on a community. Internal motivation among neighborhood residents is required for successful revitalization. This is due to the fact that residents naturally have an inclination to seek improvements for their overall quality of life, as opposed to solely for economic profit.

However, local residents in low-income neighborhoods generally lack the technical knowledge or financial backing to implement such improvements. Outside assistance from neighborhood organizations and local nonprofits can therefore be helpful in advocating on behalf of the citizens, as well as provide implementation support on some occasions.
Additionally, outside assistance from urban planners and policy scientists can be of service. Experts can lend assistance to make a significant positive impact on the outcomes of redevelopment, as long as their motivations are based on improving the quality of life for residents, as opposed to profiting from them. When outside assistance is used, it is vital to ensure that great effort is made to understand the current conditions of the neighborhood. This type of neighborhood-centric redevelopment is crucial for success.

**A Reformed Model for Redevelopment Strategies**

The model created for this project utilizes a neighborhood-centric framework to implement place-based strategies for improved quality of life. The first step in creating meaningful change for residents in distressed neighborhood is visiting the area and surveying the current conditions. Directly evaluating the community under consideration for revitalization is an essential foundation off of which all strategies must be built. First-hand knowledge is required to fully understand the strengths and weaknesses of a community (Bonds, Kenny, and Wolf, 2015). Utilizing local familiarity to design and implement reforms is a highly effective method of resolving local problems (Kearns and Paddison, 2000). Furthermore, input from the community, either through direct public outreach or an engaged local non-profit that serves the neighborhood is necessary to ensure that the changes implemented are resident-endorsed. This will allow for more effective reforms to occur.
Multiple programs implemented around the country have shown that knowledge of current conditions and resident involvement has led to more successful neighborhood revitalization efforts. Programs such as Neighborhoods First of Austin, Texas; Neighborhood Strategic Planning in Milwaukee, Wisconsin; Philadelphia, Pennsylvania's Neighborhood Transformation program; and Minneapolis, Minnesota's Neighborhood Revitalization Program exemplify the benefits of neighborhood involvement in urban planning and revitalization efforts (Elwood, 2002). Each of the targeted neighborhoods within these cities has shown signs of improvement and revitalization since the implementation of the localized efforts. For example, an independent evaluation of the Minneapolis Neighborhood Revitalization Program conducted almost ten years after its inception shows the benefits of the bottom-up approach. Local participation in the planning process improved services and strengthened many parts of the city, including bettering the housing stock, commercial corridors, public facilities, and schools (Fagotto and Fung, 2006). The study concludes:

More than top-down approaches, which would likely encounter neighborhood hostility, an accountable autonomy approach would use the deliberative model to allow residents to formulate their own preferences within a framework of guidelines and answerability (Fagotto and Fung, 2006, p. 653).

Combining this primary data with research-based theories of redevelopment, it may then be possible to determine the combination of strategies necessary for improvement within the localized area. Place-based design strategies that follow the principles of New Urbanism serves as a solid foundation for the construction of a high quality built environment. It is an important strategy to be integrated within the larger
array of economic, social, and community development programs attempting to revitalize and improve the quality of life in inner-city neighborhoods (Bohl, 2000). Investment in the built environment of the neighborhood provides an opportunity for the lives of the residents living within that community to be improved. Creating more pleasant conditions tends to provide solid foundation off of which further redevelopment efforts and improvements can be made (Larsen, 2005).

Implementing place-based strategies has two notable benefits. Most notably, residents’ quality of life is improved if the physical environment in which they inhabit is bettered. Secondarily, it provides the leading investment that allows for further reinvestment in the neighborhood. Opportunity is created for private investment and residential accumulation of wealth within economically distressed neighborhoods. The implementation of physical improvements may provide the basic conditions required to develop additional assets. The result of such an improvement is a solid foundation off of which economic development and further revitalization may occur.

However, it is crucial to remember that these place-based strategies must be adjusted for each neighborhood and respond to the current conditions of that specific area. Every neighborhood must be considered independently. When attempting to improve the quality of life for residents within a distressed neighborhood, a detailed understanding of its context is a necessary prerequisite component to policy action. This includes understanding both the nuances of the neighborhood, as well as the city in which it is located. Without a firm grasp of the realities that face a neighborhood, revitalization efforts will not be meaningful. Attempting to use the same strategies in different
neighborhoods has been tried repeatedly and the results have proven that such “one-size-fits-all” revitalization does not help, and can even cause more harm.

A deep understanding of each neighborhood is necessary prior to implementing any revitalization strategies to prevent the type of failed renewal that is scattered throughout America’s urban past. A local, cohesive strategy of design features will be most useful in improving the quality of life for local residents (Elwood, 2002; Fagotto and Fung, 2006).

**Case Study: Wilmington, Delaware**

While disparities between low- and high-income neighborhoods are prevalent in cities across the country, this project focuses specifically on a single distressed neighborhood in Wilmington, Delaware. Thousands of people living in Wilmington are ill equipped to live, work, and play in a safe and fulfilling environment, largely due to the conditions of the distressed neighborhoods in which they live. This city presents an interesting setting for an extensive case study due to the fact that the social and economic disparities within the city are highly localized. There are some moderate- to high-income neighborhoods within Wilmington that are thriving, while others, only a few blocks away are deteriorating or are already in complete disrepair. These distressed neighborhoods are exclusively low-income and in grave need for revitalization.

However, as previously noted, it is important to consider the context of a neighborhood before attempting any revitalization efforts so as to identify the tactics that will be the most likely to achieve actualized revitalization. Hilltop, the focus of this
study, is a neighborhood that is highly distressed. Yet Cool Spring, the neighborhood that shares a border to the north, is in a much more stable condition. Cool Spring, when compared to Hilltop, has higher educational attainment levels, higher incomes, lower unemployment rates, and a lower rate of violence (US Census Bureau, 2015). However, Cool Spring lacks a business corridor similar to the one present in Hilltop, which is necessary for sustained economic vitality. The juxtaposition between the two neighborhoods that are separated by one street is important when considering revitalization efforts. Similar strategies for improvement in both neighborhoods would not produce satisfactory results within either. Given the unique conditions of each neighborhood, as well as the conditions of the city as a whole, specific types of localized policies are necessary to be effectively revitalize the community.

In addition to the necessary local knowledge of the specific neighborhood, it is equally important to understand the larger context in which the neighborhood is situated. A city’s market must be interpreted, including whether it is strong or weak, when designing a revitalization strategy within a neighborhood. A strong market refers to a jurisdiction that is able to easily attract populations, companies, and tourists to its city (Mallach, 2005). This contrasts with weak market cities, which continue to lose population, jobs, and businesses regardless of nationwide trends of growing urban popularity. “For weak market cities, the threats are not a shortage of land or affordable housing, but continuing population loss and stagnant economies” (Mallach, 2005, p. 1). There are simply not enough people or jobs in the area to provide economic vitality for such cities. The issues facing cities in each type of market are drastically different and these conditions must be taken into account when crafting solutions.
The City of Wilmington has a complicated economic structure. Its market does not fall succinctly within a “strong” or “weak” classification. Kimberly Furdell and Harold Wolman (2006) created a typology to identify weak market cities using indices relating to both a city’s economic condition and residents’ economic wellbeing. Indicators for the city’s index include: growth in employment, growth in annual payroll, and growth in establishments. The second index measures: per capita income, median household income, poverty rate, unemployment rate, and labor force participation rate (Furdell and Wolman, 2006, p. 3).

Based on the same indicators that the Furdell and Wolman study utilizes, Wilmington cannot be classified as either a strong or weak market. Instead, it is classified as having “average levels of distress” (Furdell and Wolman, 2006, p. 43). While there has been a loss in population since the 1950s, the loss has not been as severe or sustained as in other weak market cities (US Census Bureau, 2015). Furthermore, there are mature industries located in Wilmington, including in the financial and insurance sectors, offering high-wage salaries to employees. Despite the presence of these jobs in the city, there has been an ongoing slow outmigration of these industries.

There are two issues to consider when accepting this classification for Wilmington. First, it does not take into account the fact that people who live outside of the city hold many of these high-paying jobs, resulting in much of the money generated through these industries leaving the area. Secondly, many of these high-paying, high-skill jobs remain out of reach to the residents of Hilltop due to low educational attainment levels.
Analyzing and understanding the context of the economic, social, and physical circumstances of both the city and neighborhood is a precondition for further action. Once these details are ascertained, one is better equipped to create policies that will more succinctly influence positive change within the highly localized area.

This project will identify the conditions of the 4th Street corridor, a main thoroughfare within the low-income urban neighborhood of Hilltop in Wilmington. The neighborhood is highly distressed. Businesses and residents struggle to be successful. After a complete evaluation of these current conditions, place-based economic development strategies will be discussed to determine the best approach for revitalization of the corridor, given the context of the neighborhood and the city.

Design based strategies are one important piece to the holistic approach necessary to improve distressed neighborhoods. When a city can discern current economic conditions and understand how those conditions will both affect and be affected by design features, greater overall success will be produced. Simple changes can lead to significant improvements for the residents and business owners within struggling neighborhoods.

This effort cannot be done in isolation, yet it must be done. While design improvements alone will not solve any problems within a distressed community, they provide a necessary foundation to improve the lives of residents within a community. Improved quality of life is attainable if the physical environment of an area is upgraded. Upon doing so, other positive results may also occur, such as economic investments that lead to further redevelopment.
Chapter 2

LITERATURE REVIEW OF DESIGN POLICIES TO IMPROVE QUALITY OF LIFE

Place-Based Development

There are two major schools of thought regarding the best approach to improve the quality of life for residents in distressed areas. The first is that policies should be targeted towards people; the second is that they should be targeted at places (Gyourko, 1998). People-based policies involve direct transfer payments so as to improve the economic well being of individuals (Winnick, 1966). Place-based policies are designed to invest in the physical infrastructure of the community so as to make a more enjoyable space in which to spend time (Larsen, 2005). Both strategies attempt to achieve the same goal in improving the lives of people, yet follow different methods of doing so with varying degrees of success.

Many people advocate for people-based strategies. Louis Winnick (1966), who pioneered this paradigm, believed that direct transfer of payments to individuals provides the support necessary to improve the lives of residents living in impoverished areas more so than if their physical space is improved. Winnick argues that a people-based approach provides the most direct relief to those in the greatest amount of need due to the fact that there is a great deal of control over whom may receive the direct transfer payments.

However, concluding that people-based strategies are the most efficient way to improve quality of life within low-income neighborhoods fails to recognize the
importance of the place itself. The location must be considered if any sort of improvement to the area is to be made. Two fundamental truths justify the application of place-based strategies.

First, providing transfer payments does nothing to improve the physical conditions of the neighborhood that is distressed. Instead, people-based policies encourages individuals who receive the transfer payments to move out of the depressed area due to their relative advantage. Other low-income residents inevitably move in to the newly vacated areas, thereby continuing the cycle of poor conditions. The root inadequacies of the neighborhood will therefore never be improved. Roger Bolton (1992) summarizes the point this way:

On the one hand, direct transfer payments to individuals or subsidies encourage them to move out of declining regions; on the other hand, expenditures to increase infrastructure and private capital in particular places, such as grants to local governments and business, and education and worker training are oriented toward the place's existing comparative advantage (187).

When policies are only intended to improve an individual’s economic position, places are abandoned and the cycle of poverty is doomed to continue among new inhabitants. Conversely, when physical improvements are made within a neighborhood, conditions can be created wherein both residents and the neighborhood benefit from overall better design. This type of investment provides the leading investment that allows for reinvestment in the community. Instead of focusing only on economic development, an overall concern to improve quality of life for residents will lead to more substantial and sustained success for a distressed neighborhood.
Secondly, community cohesion, which is largely tied to a specific place as opposed to a group of people, is an important asset on which development and revitalization can capitalize. A place provides a sense of identity, and while people may retain pride in their home after migrating, others coming into the area absorb that place-specific identity, as well. Bolton (1992) states that “the sense of place is an intangible, location-specific asset; it is capital” [emphasis original] (p. 193). Because residents appreciate the sense of community, they are therefore willing to pay for it. “Practically every neighborhood, even the poorest, contains residents who insist on remaining in a neighborhood for sentimental or business reasons,” even if they could find more suitable accommodations elsewhere (Winnick, 1961, p. 293). The value of pursuing place-based development therefore includes the significant yet difficult-to-assess value provided by sentimentality and community cohesion. Conversely, transfer payments encourage people to leave a neighborhood, resulting in a loss of capital and weakened sense of belonging among individuals.

This paper argues that a placed-based strategy is the necessary approach to take when attempting to revitalize a struggling low-income, urban neighborhood due to the fact that improving the physical design of an area can significantly increase the quality of life for all residents. It is important to note, however, that when any sort of redevelopment strategy is needed, it is because there has been a significant breakdown of numerous social and economic policies. Therefore, it cannot be expected that a single policy will restore the community to equilibrium. While neither place- or people-based policies can be solely responsible for revitalization of distressed neighborhoods, a place-based approach should be pursued as the foundation off of which other strategies may be
built. A combination of numerous strategies must be fashioned to create a holistic campaign towards comprehensive revitalization. This additional layer is beyond the scope of this project, but it remains something to consider for future work.

Place-based policies imply that design improvements must be made to the physical space within a neighborhood. Numerous aspects of the built environment affect the way in which a neighborhood functions and the feelings it evokes. Design features that account for land use, pedestrian safety, and walkability can directly and indirectly serve an important role in improving the quality of life for residents in low-income, urban neighborhoods.

This is not to suggest that place-based design should be the exclusive means of revitalization. Both strategies can, and should be used simultaneously. The process of revitalization is an iterative one, where the people who live in the area must inform place-based strategies. The socioeconomic conditions of residents, in addition to valuable input they may offer both highly affect the type of design that may be most beneficial for an area. Furthermore, people-based strategies will likely be required for place-based ones to be implemented. A coalition of support is required among residents, municipal officials, and nonprofit agencies to bring about the place-based strategies. Equally, the place will affect the people-based strategies that should be used. The installation of place-based strategies will provide a stronger foundation for pursuing those that are people-based. A balanced understanding and implementation of both strategies will yield the highest benefits for low-income, urban areas.
Land Use

Land use, or the type of development that is on a parcel of land, plays an incredibly important role in the vibrancy of a neighborhood. By varying the ways in which land is used within a neighborhood or along a street more places to live, work, play, and shop are created. This results in a strengthened community; people have fewer reasons to leave the neighborhood, instead spending more time interacting with local residents and businesses.

The degree to which land uses are mixed can be measured in two ways: residential accessibility and destination accessibility. Both types of accessibility are important for various reasons. When evaluating residential accessibility, one must evaluate the “relationship between where people live and their proximity to out-of-home destinations, such as work or shopping” (Vojnovic, et al., 2014, p. 229). If there is a wide array of uses, including residential and non-residential around a person’s home, numerous destinations become easily accessible. It is more likely that errands and trips can be taken by foot, and car travel becomes less important.

This type of accessibility is incredibly important in low-income communities. Oftentimes, poor residents have no other mode of transportation to rely on other than walking. Residential accessibility may be a thing of convenience in middle- and high-income neighborhoods, but it is a necessity for the poor. Car ownership is expensive and oftentimes unattainable. Bus trips can be long, tedious, and again, costly. Walking is sometimes the only way to access basic goods and services.

Rolf Pendall, Evelyn Blumenberg, and Casey Dawkins (2014) recently conducted a study illustrating the disadvantage that low-income residents of high-poverty
neighborhoods experience due to limited residential accessibility. The study argues that accessibility to potential employment, services, and other opportunities within a reasonable travel time is a major contributing force to the economic outcomes of low-income households (Pendall, Blumberg, and Dawkins, 2014). The authors then suggest that the best way to improve access for low-income residents is by providing subsidies to enable car purchases. However, this people-based approach of direct transfer payments does nothing to change the environment to better meet the need of low-income residents.

Zoning for mixed-use development that creates residential accessibility is a highly beneficial way to foster residential accessibility, allowing for the further possibility of economic growth within a community.

Correspondingly, destination accessibility measures the distance between various destinations. If destinations, including retail shops, schools, community centers, and businesses, are located in close proximity with one another, but far from homes, a person can still walk more than if all the destinations are far apart (Vojnovic, et al., 2014). A person would easily be able to drive to an activity center, park their car, and complete several objectives by walking.

This type of accessibility is useful to attract nonresidents to an area, encouraging visitors to spend money and time in a new neighborhood. Low-income neighborhoods can especially stand to benefit from this type of land use pattern. Encouraging people from outside of the neighborhood to visit provides two major benefits. Firstly, negative perceptions of a low-income neighborhood as being dangerous or unwelcoming can be lessened when more people visit and have positive experiences. Providing opportunities for others to experience the area cultivates opportunity for cultural exchange. Secondly,
the neighborhood has the potential to become a hub of economic activity, generating more funds than would otherwise be able to circulate in the neighborhood.

Both residential and destination accessibility measures will be important when evaluating the 4th Street corridor. Many residents of Hilltop live within walking distance of 4th Street, and therefore benefit from residential accessibility. Additionally, the need for this type of accessibility is required due the fact that 26.5 percent of all owner and renter occupied households in the Hilltop neighborhood do not have access to a car (US Bureau of Census, 21015).

Table 1

<table>
<thead>
<tr>
<th>Number of vehicles the household has access to</th>
<th>Census Tract 22, New Castle County</th>
<th>Census Tract 23, New Castle County</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>Margin of Error</td>
</tr>
<tr>
<td>Total:</td>
<td>894</td>
<td>+/-79</td>
</tr>
<tr>
<td>Owner occupied:</td>
<td>342</td>
<td>+/-27</td>
</tr>
<tr>
<td>0 vehicles available</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>1 vehicle available</td>
<td>192</td>
<td>+/-56</td>
</tr>
<tr>
<td>2 vehicles</td>
<td>98</td>
<td>+/-46</td>
</tr>
<tr>
<td>3 vehicles</td>
<td>0</td>
<td>+/-11</td>
</tr>
<tr>
<td>4 vehicles</td>
<td>9</td>
<td>+/-14</td>
</tr>
<tr>
<td>5+ available</td>
<td>0</td>
<td>+/-11</td>
</tr>
<tr>
<td>Renter occupied:</td>
<td>552</td>
<td>+/-79</td>
</tr>
<tr>
<td>0 vehicles available</td>
<td>182</td>
<td>+/-59</td>
</tr>
<tr>
<td>1 vehicle available</td>
<td>251</td>
<td>+/-68</td>
</tr>
<tr>
<td>2 vehicles</td>
<td>112</td>
<td>+/-56</td>
</tr>
<tr>
<td>3 vehicles</td>
<td>6</td>
<td>+/-9</td>
</tr>
<tr>
<td>4 vehicles</td>
<td>1</td>
<td>+/-4</td>
</tr>
<tr>
<td>5+ available</td>
<td>0</td>
<td>+/-11</td>
</tr>
</tbody>
</table>
Others, who do not live in Hilltop, could drive to the centrally located area of Wilmington and benefit from destination accessibility. Fourth Street is a major arterial corridor connecting western Wilmington to the central business district and the Riverfront, which is home to numerous large businesses. Commuters who currently only drive through the area on the way to work could begin to see the area as a valuable place to visit.

To encourage both types of accessibility, mixed land use practices must be implemented. Mixed-use development allows for a variety of necessary amenities to be located within a neighborhood that would otherwise be dominated by a single use, such as residential. By encouraging mixed-use development, an area is positioned to become more vibrant. More destinations in close proximity to each other equates to a more efficient way to meet the needs of residents, thereby increasing overall quality of life in the area.

In addition to a healthier community, individual residents will also experience health benefits. Walking to stores results in accidental exercise; people are not making a concerted effort to work out, and yet the daily movement of shopping can help create opportunity to improve individuals’ health conditions. This benefit is especially important in high-poverty neighborhoods. Low-income residents are disproportionately affected by health risks that can be combated through regular exercise, such as walking to the store (Song, 2009).

Additionally, when people are able to walk to destinations that would otherwise only be accessible when leaving the neighborhood by car or transit, street life becomes more vibrant. “Land-use diversity affects how a given segment of the built environment
serves as a lively and interesting walking environment not only by providing the interaction with the buildings and the activity inside them, but also by contributing to pedestrian density” (Choi, 2012, p. 109). More people begin walking on the street and interacting with their neighbors. Community efficacy and a sense of place can be heightened when people are able to see and speak with others in their neighborhood.

Finally, when more people are on the street, there are fewer incidences of crime due to a more developed sense of unofficial patrol (Vojnovic, et al, 2014). As Jane Jacobs (1961), renowned leader in urban planning, succinctly observed in The Death and Life of Great American Cities, “the basic requisite for surveillance is a substantial quantity of stores and other public places sprinkled along the sidewalks of a district; enterprises and public places that are used by evening and night must be among them especially” (p. 36). Land use and pedestrian safety are clearly interconnected; providing meaningful destinations is a necessary piece of the puzzle when encouraging residents to spend time outside in their neighborhood, which makes for safer streets. However, the opposite is also true. Safer streets embolden people to want to spend more time outside.

**Pedestrian Safety**

Pedestrian safety is a multi-faceted issue with two major avenues that must be addressed with equal zeal. Crime and traffic accidents both affect the safety conditions for people walking in a neighborhood. Because safety has a strong correlation with people’s willingness to walk around a neighborhood, as well as the quality of life for individual residents, this issue must be treated with extreme importance. If people do not
feel safe within their neighborhood, they will not walk to any local destinations, even if they are present.

It is important to note, however, that while crime rates are an important factor in quality of life within a neighborhood, this paper seeks to understand how physical design can improve the overall quality of life for residents in low-income areas; crime is only one aspect in considering that measurement. The primary goal of this research is not, therefore, to reduce crime. By improving the quality of life for residents living within low-income, urban neighborhoods such as Hilltop, crime may be reduced. The inverse relationship may also be true. However, developing strategies to create an environment wherein people feel safe and comfortable enough to want to spend time on a street is key. In doing so, a foundation can be provided for further revitalization efforts in struggling neighborhoods.

To create such an environment, there are numerous planning techniques that can be incorporated into a community. Physical environment plays a large role in creating a safe and inviting environment for pedestrians. Numerous studies have shown the benefits of designing spaces wherein people are able to see others in the area. Entrances and windows that provide high visibility of the sidewalk, in addition to balconies in close proximity them, contribute to surveillance over the street, which supports the feeling of safety (Choi, 2012; Gehl, 2011; Jacobs, 1961). Jane Jacobs (1961) referred to this idea as “eyes-on-the-streets.” The more people walking around a street, the safer the street becomes.

This theory is further evidenced by Newman’s theory of defensible space (1927), which illustrates the correlation between social and environmental conditions and crime.
After conducting a series of studies in housing projects across the country, Newman discovered that when space is clearly defined, people tend to take ownership of it. Defensible space is a term used “to describe a residential environment designed in a way that allows householders to supervise and be seen to be responsible for the areas in which they live” (Mayhew, 1979, p. 150). When such a space is created, people tend to adopt a strong “self-policing” mentality, where people are more likely to step in to stop crime from occurring.

People may be more equipped to patrol their neighborhoods if the design enables incidental surveillance opportunities with no extraneous effort. However, to ensure that people will want to participate and engage in such an informal project, they must first feel a sense of connection to the place. When there is a distressed feeling to a neighborhood, it becomes difficult to feel such a connection. Instead, the conditions invite other forms of crimes to occur. The broken windows theory, introduced by James Q. Wilson and George L. Kelling in 1982 expounds on this observable behavior. By addressing small-scale issues such as broken windows and graffiti, larger scale crimes will be prevented because a signal will be sent to criminals that the area is patrolled and protected.

This theory may explain the psychological ramifications of distressed communities more so than provide an actual crime prevention strategy. According to John MacDonald, Ben Grunwald, Robert J. Stokes, and Ricky Bluthenthal (2013), who conducted a study regarding different ways in which violent crime rates can be reduced, summarized the following results in relation to the broken windows theory:

A series of six small-scale field experiments in the Netherlands found that purposeful spreading of graffiti or trash led to an increased likelihood of
littering and other forms of disorder (Keizer, Lindenberg, & Steg, 2008). While this study is suggestive, it is unclear whether disorder generates serious crime, and there is some correlation evidence suggesting that an association between disorder and violent crime is largely conditional on the level of collective efficacy in a neighborhood (Sampson & Raudenbush, 1999). (p. 629)

The role of social cohesion and efficacy is important to note. When areas appear to be forgotten or abandoned, there is less overall social investment in the area. “As the proportion of the blocks consisting of abandoned stores increases, residents feel much less responsibility for what happens on their block” (Kurtz, Koons, & Taylor, 1998). However, in inverse is also true. By managing and reducing the physical distress of neighborhood, people are more likely to patrol and intervene when small-scale crimes occur.

By creating spaces that allow and encourage self-surveillance, people will naturally feel safer in the area. To do so, many design techniques can be implemented. Visibility is a high priority. Bright lighting, short fences, trimmed trees and bushes, and clear lines of sight are necessary factors to incorporate to allow for easy, natural surveillance (Jacobs, 1961). While people need a place to walk, they also need to be able to see how to get there.

Street lighting is one of the most important tools in creating visibility but it is often poorly implemented. Street lighting is commonly unequally distributed, illuminating the street but leaving the sidewalk in shadows. This creates unwelcoming and dangerous conditions for pedestrians. By equally illuminating the street and sidewalk, people are better able to see and the area becomes more usable at night.
Oftentimes, the perception of crime or danger can be just as large of a deterrent to walking as actual high rates of crime (Hartnagel, 1979; Forgas, 1980). This can be seen when investigating habits of pedestrians on poorly lit streets. When it is difficult to see, either because of low lighting or design features that block sight lines, people are unlikely to want to walk. This is true even if there are destinations that they find desirable (Vojnovic, et al., 2014). Instead, people will either drive, in which case there is little reason to stay within the neighborhood’s boundaries, or simply not make the trip at all. This is true even if individuals have not been personally victim to criminal behavior (McIntyre, 1967). Instead, people will “forego opportunities for pleasure or cultural enrichment, and they become less sociable, more suspicious. The level of interaction and mutual trust in the society is reduced; public places become less safe than they otherwise might be” (McIntyre, 1967, p. 46).
This is a concern that must especially be addressed in high crime neighborhoods such as Hilltop (discussed further in Chapter 3). Feelings of safety and security are vital, and cannot be taken for granted. Because people may feel threatened already, lighting can be utilized to increase feelings of safety. According to the British Crime Survey, most violent crimes that are committed in public spaces occur between the hours of 6 p.m. and midnight (Painter, 1996). “Improving or adding lighting systems has proven to not only increase the feeling of personal safety among men and women, but it has also been found to reduce night-time crime” (Painter, 1996, p. 197). Improved pedestrian lighting “can help provide a safer environment for adult and adolescent pedestrians” (Wollaston, 2015, pg. 6).

Formal surveillance strategies, such as closed circuit television, are also commonly utilized to discourage crime. However, the effectiveness of this strategy is debatable (Cozens, 2002). There is extensive empirical research illustrating that video surveillance of streets is “mostly ignored in everyday urban life both by potential criminals and by the population at large” (Klauser, 2007, pg. 338). There can sometimes be a short-term reduction in crime rates, but eventually, the rates return to higher levels. While the program is ineffective at deterring crime or capturing criminals, there is a potentially a more serious problem to consider. Creating an environment in which people are being watched through video cameras “both spatially and mentally disconnects the watched (monitored individuals) from the watchers (operators)” (Klauser, 2007). Relying on video surveillance as a means to control and prevent crime may create a physical and psychological barrier between police officers and residents, which breeds distrust and hostility.
This does not mean that policing is not an important aspect of reducing crime and ensuring the safety of residents. Community policing has been shown to be an effective strategy for reducing crime (Xu, Fielder, Flaming, 2005). In areas of high crime, people are hesitant to spend any time outside due to fear of becoming a victim. By increasing the number of police officers visible on the streets, and encouraging them to interact with residents, an area may feel safer. This is an important concept to be further explored in other studies.

Both design and policing strategies must be taken into account when creating a safe environment for pedestrians. In an ideal world, a heavy police presence would not be necessary. However, in high crime areas, it would be naïve to assume that design strategies can solve all of the problems. Instead, it is one vital component to a holistic approach to neighborhood revitalization. Substantial effort must be made to create or redesign locations so as to foster a sense of security, value, and pride in the neighborhood. This will create public spaces that are more enjoyable to spend time in, encourage more people to feel invested in the community, and improve the overall quality of life for residents.

Furthermore, residents living in Hilltop, who are predominantly low-income, are more likely to suffer from automobile-related accidents. Based on national statistics, “children who come from low-income families… are at a much higher risk of sustaining a pedestrian injury” than any other group of Americans (American Academy of Pediatrics, 2009, p. 805). This is largely due to the fact that there is limited access to parks, and so children are more likely to play in the streets, where there are more parked
cars creating limited visibility, more traffic moving at fast speeds, and poor lighting after dark.

Cars are a strong deterrent against walking. When there are numerous vehicles traveling down a corridor at threatening speeds, there is little indication that the road was designed with any forethought that pedestrians would be using the space. However, the reality is that people were traveling by foot long before there were cars to assist in transport. Historically, roads were built for everyone to share. “The road was a market, a playground, a park, and yes, it was a thoroughfare, but there were no traffic lights, painted lanes, or zebra crossings. Before 1903, no city had so much as a traffic code” (Montgomery, 2013, p. 69). This is especially true in the inner core of older cities, such as Hilltop in Wilmington. The tight grid pattern of the streets and dense development indicates that the space was built using a human scale, as opposed to that for an automobile, in which roads must be wider and destinations can be more spread out.

When Henry Ford revolutionized the automobile industry, making it more affordable to own a car, more and more vehicles began taking up space on the road. As more cars came into the urban landscape, space became more distinct. Pedestrians were pushed to the sides of the streets while drivers and automobile manufacturers lobbied for a cultural revolution. For example, Charles Hayes, president of the Chicago Motor Club throughout the 1920s, claimed, “the streets are made for vehicles to run upon,” drastically redefining the urban street (Montgomery, 2013, p. 71). These efforts have been widely successful.

Roads today are almost unrecognizable when compared to how they were used during the turn of the twentieth century. The result has been a widely accepted car-centric
mindset in which cars are the predominant factor to consider when designing roads. Roads are now engineered to create the fastest movement for cars possible, with broad streets, signal timings that favor automobile traffic, and wide, smooth turns that do not require slow speeds (Speck, 2013). In doing so, the road has become a dangerous place for pedestrians.

In fact, crime is less of a threat to pedestrian safety than car accidents. According to the US Department of Transportation and the National Highway Traffic Safety Administration (NHTSA), there were 4,743 pedestrians killed in traffic crashes in the United States in 2012, and another 76,000 pedestrians were injured (2014). The two largest groups of pedestrians killed in traffic accidents are children between the ages of 5 and 15, and people age 65 or older (Zegeer and Bushell, 2012). Each group accounted for more than 20 percent of all pedestrian deaths in 2012, despite the fact that each group constitutes less than 20 percent of the total population (USDOT and NHTSA, 2014). Both demographic groups are disproportionately harmed.

Hilltop exemplifies this trend. There have been more pedestrian accidents along the corridor than there have been shootings. The data is available is slightly limited, but the trends are obvious. Between 2011 and 2015, there have been five shootings in the neighborhood along the 4th Street, including one murder (The News Journal, 2016). The most recent data for pedestrian crashes is not yet available, but between 2011 and 2013, 13 pedestrians were in accidents along the same route (WILMAPCO, 2016, p. 6). This equates to an average of 4.3 pedestrian accidents per year along 4th Street, compared to an average of 1.6 shootings a year (WILMAPCO, 2016, p. 6; The News Journal, 2016). The
risk of getting hit by a car as a pedestrian is more than two and a half times the risk of being shot.

Figure 2  The frequency and distribution of major pedestrian safety concerns. The risk of getting hit by a car as a pedestrian is two and a half times higher than being a victim of a shooting.

Poor lighting conditions prove fatal for many pedestrians who walk after sunset. Seventy percent of pedestrian fatalities in 2012 occurred at night, according to the National Highway Traffic Safety Administration (USDOT and NHTSA, 2014).

Furthermore, Delaware is now the most dangerous state for pedestrians, based on the number of pedestrians killed every year. “More than three-quarters of deaths [in Delaware] between January 2005 and December 2014 occurred at night on high-speed roadways, state Department of Transportation data shows” (Baker, 2015). Low-income residents are disproportionately affected by these trends. “Many of the pedestrians killed
live in lower-income housing near crash scenes” (Baker, 2015). Victims are commonly struck by cars in areas with low-lighting and poor crosswalks visibility.

Studies have shown that pedestrians have an elevated risk of suffering injury or death in a crash if they come from areas that have “high levels of unemployment, older housing, lower proportion of families within neighborhoods, and more single-parent households” (Zegeer and Bushell, 2012, p. 6). Furthermore, African American children have some of the highest rates of pedestrian death and injury, “in great part because of the environments in which poor children live” (American Academy of Pediatrics, 2009, p. 803).

These facts illustrate two important points. First, road design is largely responsible for the dangerous conditions that pedestrians must navigate. Second, these dangerous conditions disproportionately affect those who are low-income, minority, young, or old. Therefore, it is important to implement design changes in low-income neighborhoods so as to protect the most vulnerable people.

There are numerous design factors that create the conditions in which pedestrians are put in harm. However, this means that there are also many design features that can greatly reduce such harm. For example, multiple studies have shown that fatal pedestrian crash risk increases as cars travel at a faster speeds and the number of lanes increases. Pedestrian fatalities also dramatically increase when there is no presence of a sidewalk, wide grassy area between the sidewalk and the street, raised median, or median islands for multi-lane roads (Zegeer and Bushell, 2012, Zegeer, et. al, 2005, McMahon, 2002). By providing these design features safety for pedestrians with be increased and lives will
be saved. In addition to simply having a better chance to survive, residents will have a more enjoyable space in which to live.

Many solutions have been suggested and implemented, with varying degrees of success. One of the most effective ways of reducing the risk of pedestrian fatality is to reduce the speed of vehicles. “According to a study by the U.K. Department of Transportation (1987), the probability of pedestrian death is 85 percent when the striking vehicle is traveling at 40 mph. This probability drops to about 45 percent for a 30 mph impact and drops further to 5 percent if the vehicle is traveling at 20 mph at impact” (Zegeer and Bushell, 2012, p. 5). It is in everyone’s best interest if traffic moves more slowly through populated areas.

Multiple strategies can be implemented to slow traffic. Road diets are a very common technique to decelerate speeds by reducing the number of traffic lanes, replacing them with bike or turning lanes, a wider sidewalk, streetscaping, or on-street parking. Another way of slowing traffic may seem counter-intuitive to safety: decreasing visibility at intersections. Currently, sight triangle requirements mandate that “all vertical objects such as buildings and trees maintain a minimum distance from street corners, so that drivers can see around them” (Speck, 2013, p. 175). While this seems logical, it also allows drivers to speed through intersections because it is easy to see if other cars are coming. Drivers are less likely to look for pedestrians (Speck, 2013). By slightly obstructing the sight lines of drivers, roads become safer because cars are forced to look for potential threats.

There are numerous design improvements available for low-income communities that can increase pedestrian safety. These changes can increase residents’ feelings of
safety, so as to encourage them to walk to nearby destinations. Such an improvement is part of the equation that will foster a welcoming environment. Safety is an important piece of the puzzle when developing design-based strategies for increased quality of life within low-income, urban neighborhoods.

**Walkability**

The design features that make an area safer have the added bonus of also making a block look more appealing and welcoming. A road diet that involves adding wider sidewalks creates opportunity to place benches and landscaping along the route, inviting people to linger in the area. This increases the enjoyment of the area, nurturing a feeling of overall walkability, which is a very important characteristic to consider when evaluating ways to increase the quality of life for residents in a neighborhood.

Walkability is a broad term that refers to the extent to which the built environment encourages pedestrian activity. It is affected by “block-level design quality (e.g., whether there are street trees and wide sidewalks, or whether the block is faced with parking lots, blank walls, or glass-fronted shop fronts), as well as street connectivity, traffic volume, density and land use mix” (Talen, 2011, p. 80). There are many facets of walkability that are important, but the result is an environment that encourages people to spent time and money along a specific corridor.

People will generally walk one-quarter to one-third of a mile from home to run errands without thinking of driving (Song, 2009; Vojnovic, et al, 2014). As discussed in relation to residential accessibility, the use of land as it surrounds housing is important. When a street is attractive to many users, there is significant diversity in land uses,
activities, appearance, and people. “It does not exclude motorists, but provides space for vehicles by striking a more equitable balance with other street users, including pedestrians and bicyclists” (Choi, 2012, p. 30). Furthermore, the appearance of the route used to walk is also essential for a walkable community.

If a built environment has mixed uses and slow traffic, but lacks an inviting atmosphere, people are unlikely to want to spend any time on the street (Vojnovic, et al., 2014). Aesthetic aspects, such as the design of the sidewalk, have some influence “in both attracting pedestrians or being selected in the route choices of the residents” (Choi, 2012, p. 115). Furthermore, creating environments in which stores engage with the public space through a variety of measures, such as sidewalk cafes or storefront displays, encourages people to want to spend more time on the street. The perceptible vitality along a street is heightened, and may correspondingly have an effect on the economic conditions along the corridor.

William Whyte (1980), in his seminal work entitled *The Social Life of Small Urban Spaces*, argues that the street is an integral facet of urban life. People want to use the space, they want to be seen, and they want to see others. To encourage a lively atmosphere, zoning incentives and regulations can require developers to use part of the ground-floor frontage for retail and food uses. This “overpowers dullness” and kills “dead space” (Whyte, 1980, p. 57). Poor development along city streets includes businesses without display windows, parking garages, and storage areas with blank walls (Choi, 2012).

By placing valuable destinations along an attractive corridor, more people will be inclined to spend time there. To ensure that people linger, however, streetscaping must
provide them an opportunity to do so. Streetscaping is a term used to describe the “natural and built fabric of the street, and defined as the design quality of the street and its visual effect” (Complete Communities, 2015). This means that by providing wide sidewalks, substantial bus shelters, street furniture, and landscaping, the street is given more curb-appeal, looks more cohesive, and provides a better sense of community. People want to spend time places in with these design features, creating more opportunity to interact with neighbors. For example, when places to sit are provided, such as benches or well-designed planters, people are inclined to spend more time in the area.

This type of infrastructure provides people the opportunity to enjoy public space in a new way that can reshape the way in which they interact with both their neighbors and environment. Research suggests that “the use and characteristics of common spaces may play a vital role in the natural growth of community, and that improving common spaces may be an especially productive focus for community organizing efforts in inner-city neighborhoods” (Kuo F.E., et. al., 1998). A reduction of graffiti, vandalism, and littering has been observed in public spaces that are well maintained, when compared to barren land (Wolf, 2010). Landscaping public lands, including parks and sidewalks, also greatly enhances the surrounding corridor.

The presence of trees and well-maintained lower understory vegetation can transform barren spaces lands into pleasant, welcoming, well-used places. Such common spaces serve to strengthen ties among residents, increase informal surveillance, and deter crime, thereby creating healthier, safer urban communities (Wolf, 2010).

The planting of tall trees, shrubs, and grass has a notable impact on quality of life within a local area. One study found that “public housing buildings with greater amounts
of vegetation had fifty-six percent fewer violent crimes than buildings with low amounts of vegetation” (Kuo, 2001). While tree cover is beneficial to neighborhoods for aesthetic appeal, it also provides shade on summer days when people are most tempted to be outside. However, when the trees are initially planted, they must already be relatively tall and unobtrusive. Short branches could obstruct the view of the street, thereby reducing visibility and potentially increasing crime rates (Wolf, 2010).

In an effort to create an environment where people spend time and money on the street, substantial efforts must be made to create or redesign locations so as to foster a sense of security, value, and pride in the neighborhood. This type of physical design will strengthen the overall appeal of the neighborhood. As “conditions for life on foot are improved, the extent of walking activities increases significantly and even more extensive growth in social and recreational activities can be seen” (Choi, 2012, p. 32). There are numerous studies that show the link between walkability and community and civility building (Boyle, Barrilleaux, and Scheller, 2013).

Place-based design policies can be implemented that will provide a strong foundation off of which future development can occur. This will, in turn, encourage the creation of vibrant corridor along low-income, urban neighborhoods. Ensuring that zoning laws and development policies allow and encourage meaningful mixed-use development is fundamental to creating a thriving corridor in Hilltop. Furthermore, design strategies that encourage community surveillance and incite residents to be invested in self-monitoring techniques are important to increasing the safety of an area by reducing crime. Pedestrian safety can also be improved through design techniques involving road construction to slow automobiles traveling through the corridor. Lastly,
measures can be taken to increase the walkability and appearance of the area by accounting for block-level design quality. These design-based strategies will have positive impacts on quality of life within a low-income community, such as Hilltop. Combined with other social and economic policies, broad-based revitalization in a neighborhood is possible so as to encourage further reinvestment and redevelopment.
Chapter 3

THE CURRENT CONDITIONS OF HILLTOP

The Hilltop neighborhood is one of the most economically depressed areas of Wilmington for various reasons, and therefore will be targeted by the design strategies outlined in this project. The neighborhood is made up of approximately 75 square blocks and is located on the west side of the city. The widely accepted borders of the neighborhood include Lancaster Boulevard on the south; Union Street on the west; 6th Street on the north; and Jackson Street on the east.

Figure 3  Hilltop’s location in relation to the City of Wilmington. Hilltop is on the west side of the city, close to downtown and I-95. 
Source: Google.

While a relatively small area, it has one of the highest densities of people in the city. This neighborhood is predominately populated by minorities and has a median
household income of $22,433, less than $12,000 dollars below the average Wilmington household (US Census Bureau, 2015). Additionally, educational attainment is far below average, with a large percentage of neighborhood residents lacking a high school diploma. Additionally, the crime rates in Hilltop are also disproportionately higher than the rest of the city (Peuquet, S., personal communication 15 May 2015).

Notably, Hilltop, one of the most distressed neighborhoods in Wilmington, is located directly adjacent to a comparably thriving neighborhood. Cool Spring, which shares its southern border of 6th Street with Hilltop, has a much higher median income, lower unemployment, higher education attainment levels, and lower rates of violence. For example, Cool Spring has an unemployment rate of 11.5 percent; while this is much higher than the national average of 4.5 percent, it is substantially lower than Hilltop, which has an unemployment rate of approximately 19.5 percent (US Census Bureau, 2015; Bureau of Labor Statistics, 2015). More than 84 percent of the population of Cool Spring has attained at least high school diploma, while only 49.7 percent of residents of Hilltop have the same educational attainment (US Census Bureau, 2015).

The trends that link educational attainment with income are clearly delineated between Cool Spring and Hilltop. The former neighborhood has a median income of $42,269, adjusted to 2014 dollars, while the later has a median income of $22,433 dollars (US Census Bureau, 2015). Furthermore, and perhaps most importantly, the crime in Cool Spring is dramatically less than in Hilltop. While Hilltop was victim to three murders in 2015, Cool Spring saw none (The News Journal, 2015). However, crime in the neighborhood is on the rise in 2016, which is highly alarming to Cool Spring residents (Duvenay and Pizzi, 2016).
There are significant challenges that Cool Spring must address to truly become a thriving community, including creating a more successful commercial corridor. Cool Spring has specific areas of concern, yet it provides a much higher quality of life for residents than does Hilltop. Many of the highly localized problems that the neighborhoods face are compounded by the problems facing the City of Wilmington. Numerous social and economic challenges are currently plaguing the city, inhibiting participation in necessary neighborhood revitalization efforts.

While crime rates are high in Hilltop, they are also disproportionately elevated throughout the rest of the city, when compared to state and national averages. In 2014, there was a record-setting 29 murders in the city, a rate that has consistently increased since 2004. Currently, there are 77 unsolved murders still under investigation (Wilmington Shootings, 2015). The police force, which has been accused of being mismanaged in the past, struggles to handle the heavy caseload throughout the city (Barrish, C. & Wagner, A., 2015). Vigilant Resources International was hired to conduct a study of the Wilmington Police Department. They worked in partnership with The Police Foundation and a panel appointed by Governor Jack Markell endorsed their findings. The conclusion drawn by Vigilant Resources is that the newly created homicide unit is too small to be effective, and the mayor is hesitant to use it (“Final Report,” 2015; Barrish, C. & Parra, E., 2015). Regardless of whether the police force is, in fact, being mismanaged or ineffective, there is a larger point to be made for the purposed of this paper. The police force is incredibly busy. It cannot possibly focus all its attention on only one neighborhood, because Hilltop is not the only area with an elevated crime rate.
While violence is one area in which the city is struggling to meet the social needs of its citizens, racial disparities are also prominent. African Americans and Hispanics living in Wilmington have the highest rates for asthma, liver disease, infant mortality, cancer, and HIV rates in Delaware (Division of Public Health, 2006). Furthermore, minority students in Hilltop are less likely to graduate than non-white students (Jones, 2014). Poor health and educational attainment creates an overall weak labor pool. Youth are unprepared for the workforce and have limited career outlooks, while many adults in the workforce are unable to reach their full potential because of health concerns.

These social issues can have lasting effects on the economic conditions of individuals, as well as the city as a whole. The entire city of Wilmington suffers the negative consequences of having a dangerous reputation. Many people fear traveling to the city. Businesses and people are sometimes hesitant to relocate within city limits, regardless of the neighborhood under consideration. According to state Attorney General Matt Denn, the high crime rate “does impact the city’s overall image when trying to recruit companies to locate here or convince existing companies to stay here or expand” (Calvert, S. 2015). Recruiting staff can also sometimes prove to be a challenge. Clint Walker, managing director of Barclays US, which employs 1,600 people at the revitalized Christina River waterfront, says that virtually every potential employee brings up the question of violence and crime in Wilmington (Calvert, S. 2015). The hesitation that people feel when deciding whether to relocate to the city can prove to be a large hindrance in growth and development. Marketing and negotiation to counteract these points can also prove to consume a substantial amount of the local government’s time, meaning that less attention can be paid to individual neighborhood revitalization.
Furthermore, there has been a recent trend for large businesses historically based in the city to relocate. DuPont Company, which has been a prominent and stable Delaware chemical and agricultural industry since 1802, has recently faltered. In December of 2015, the company announced a proposed merge with Dow Chemicals, resulting in the loss of 1,700 jobs in Delaware (Bunge, 2015). Many of those jobs are based in Wilmington. The “One DuPont” IT Project, based in the Wilmington office, was recently cut during the restricting project. Three hundred contractual workers lost their positions (Gross, 2015). Additionally, Chemours, the chemical company that was a spin-off of DuPont, has been making significant cutbacks in staffing for the past year, and will continue to do so throughout 2016 (Mordock, 2015). These closings illustrate a troubling trend for the city. The loss of major industries will greatly affect both city and state finances. Resources necessary to implement revitalization efforts stand to become even more difficult to procure.

Hilltop is situated in the middle of a city that is struggling with a variety of issues. This is important information to understand prior to attempting any revitalization efforts so as to fully appreciate the context of the neighborhood. Moreover, it is necessary to understand the causes of such conditions.

The Damage of Urban Renewal

Many of the problems that have caused substantial decline in Hilltop are strongly related to the fact that it is centrally located within the city and close to the interstate. Prior to the 1959 construction of Interstate 95 through Wilmington, the city was full of...
thrusting and stimulating neighborhoods. However, the creation of the interstate caused the destruction of socially robust communities. Areas that were once home to a variety of housing stock, churches, and community centers were torn apart (Burke, 2013). Eminent domain was used to take a two-block wide swath of land through the middle of the city. The effects were cataclysmic; eleven neighborhoods, including Hilltop, were decimated. In Hilltop, 360 homes and at least two churches were destroyed (Burke, 2013).

Of the remaining homes, ownership shifted dramatically. Hilltop followed the same trend as countless other urban neighborhoods, where white flight forever changed the demographics of the area. “Working-class white homeowners rapidly transitioned to ones of poor, black renters” (Burke, 2013). Businesses soon followed the white homeowners. According to a 1972 report completed by University of Delaware economist Blaine G. Schmidt, 38 percent of businesses in Wilmington closed or relocated to the suburbs in Wilmington by 1965 (Burke, 2013). Many of those businesses were located along the main corridors of Hilltop.

This caused a depression in the housing market, weakening property values of homes within Hilltop and decreasing revenue garnered through property taxes. This money is vital in funding schools and infrastructure improvements within the neighborhood. These trends continue today. All of the elementary-aged students who live in Hilltop and attend public school are currently assigned to Warner, Highlands, or Lewis Elementary. Warner and Highlands Elementary Schools are two of the lowest performing schools in the district. Both failed to meet the annual yearly progress (AYP) mandated by the U.S. Department of Education during the 2013-2014 school year (Delaware Dept. of Education, 2016). Lewis Elementary is a dual language Spanish emersion school that met
AYP in 2015, yet is still out-performed by many other schools in the district (Delaware Dept. of Education, 2016). At the high school level, most students from Hilltop attend AI DuPont High School, “where black and Hispanic students’ graduation rates are 15 percent and 33 percent below their white counterparts” (West Side, 2012, p. 63). Because approximately 48 percent of people living in Hilltop are black, and 46 percent are Hispanic, it can safely be assumed that many of Hilltop’s students are not graduating from high school (US Bureau of the Census, 2014).

Furthermore, the built environment in the neighborhood, which was dramatically reshaped due to the construction of I-95, presents numerous problems. Hilltop is built on a grid pattern and has some land zoned for mixed use and commercial uses, implying that it would be very walkable. However, the interstate, which borders the neighborhood to the east, prevents easy or pleasant access to the downtown district, where many jobs and commercial centers are located. This is particularly problematic considering that 26.5 percent of Hilltop residents do not have access to a personal vehicle (US Bureau of Census, 2015). While public transportation is readily accessible throughout Hilltop, such a mode costs money and time that many people do not possess. If more meaningful shops were located nearby, and the route were safer and more pleasant to walk, people would be more equipped to thrive.

Additionally, there is very little open space in Hilltop. In fact, Hilltop has the lowest concentration of parks in the city, while simultaneously having the highest concentration of youth (West Side Grows, 2012). According to West Side Grows, an influential nonprofit agency that works to improve the neighborhoods on the west side of Wilmington, including Hilltop, “the average amount of green space for high-density
communities… is six acres per 1,000 people” (Great Parks, 2015). However, in Hilltop, the ratio is less than one acre per 1,000 people (West Side Grows, 2012). Judy Johnson Park is Hilltop’s only substantial city park, occupying an entire city block. Three other parks are within the neighborhood, but each is approximately the size of a residentially zoned parcel of land. Only two of the four parks offer playground equipment of any type, and the quality of said equipment is extremely poor. Comparatively, Cool Spring, which has a population of 1,837 people to Hilltop’s 6,616 people, has three large parks, each of which are at least one square block in size. The lack of public space in Hilltop greatly inhibits peoples’ ability to spend time outdoors or partake in community activities.

The parks that are in Hilltop “range in quality and safety. This is important especially in Hilltop where kids are limited mainly to their blocks and don’t go far” (West Side Grows, 2012, p. 131). Children living in Hilltop are unable to travel to other areas of the city to enjoy parks, and therefore are unable to enjoy spending time outdoors.

Despite the lack of parks, there is an extreme need for such amenities. Hilltop is the most densely occupied neighborhood in the State of Delaware (Blueprint Communities Team, 2009). Hilltop “has a density that is two times greater than the City of Wilmington, 35 times greater than the State, and 193 times greater than the nation per square mile” (Blueprint Communities Team, 2009, p. 13). This density is largely due to housing policies that allowed for the conversion of single-family homes into multi-family apartments. Additionally, the city created multiple incentives for increased density during development. These policies, along with the economic conditions of Hilltop residents, have led to a disproportionately high rate on renting within the neighborhood.
According to the 2010 Census, 61 percent of people living in Hilltop rent, compared to 39 percent that own their homes (West Side Grows, 2012). This is somewhat comparable to the rest of Wilmington, where 52 percent of people rent, while 48 percent own. However, this is far below the countywide average, where only 30 percent of New Castle County residents rent (West Side Grows, p. 73, 2012; US Census summary file 1, 2010).

The large number of rental units, combined with numerous vacant buildings, has led to a deterioration of property. There is a relatively small proportion of distressed buildings (11 percent of the total housing stock) on some blocks; however, these buildings pose a significant threat to their surrounding area, weakening the housing stock of the entire neighborhood (West Side, Grows, p. 73, 2012). Between 2010 and 2013, “well over a third of all sales transactions in Wilmington were distressed properties selling at sheriff’s auctions or short sales (Blumgart and Scruggs, 2013). Properties in Hilltop were common to see up for auction.

The recent housing crisis did further damage to the neighborhood. Delaware had one of the highest foreclosure rates in the country in 2011. “Wilmington’s New Castle County, was hit hardest, with housing values in some parts of the city losing three-quarters of their value between 2006 and 2013” (Blumgart and Scruggs, 2013). This has resulted in many people losing what little wealth that they had accumulated through homeownership. It has also made homeownership even more inaccessible to many people. Between 2000 and 2010, the percentage of renters increased by one percent in Hilltop, illustrating that most people remain unable to buy a home (West Side Grows, 2012).
Easy Access for Crime

While the construction of Interstate 95 created an outflow of white middle-class residents that created a ripple effect of negative consequences, it also established an equally easy way for drugs to enter the city, further harming those still living in Hilltop. According to special agent David Dongilli, who oversees the Drug Enforcement Administration for Pennsylvania and Delaware, most of the drugs entering Wilmington are coming by way of New York City through I-95 (Taylor, 2015).

Heroin is the most common drug to be trafficked through the city, creating a serious and growing health concern for all Delawareans. The current patterns show that Wilmington has become a type of wholesale hub, wherein many people from the region travel to Wilmington to pick up bulk quantities of heroin to then take elsewhere to distribute (Taylor, 2015). Because of the regional distributional power of Wilmington’s drug trafficking patterns, there is a lot of money to be gained. This causes gangs and other drug trafficking organizations to seek power and control throughout the city.

Hilltop has become one of the key distribution centers, due to its easy access from the interstate. “It is too easy for regional travelers to hop off of I-95, loop through the neighborhood, and hop back on the highway” (West Side Grows, 2012, p. 100). By overlaying the quickest routes off and back onto I-95 and a map of shootings, one can see the correlation between two. (West Side Grows, 2012). West Center City, another Wilmington neighborhood directly to the east of Hilltop, has a similar situation, where off-ramps from the interstate feed directly into its neighborhood. The same crime pattern can be detected in that neighborhood.
Wilmington consistently ranks “third among the most violent cities of comparable size, according to FBI statistics” (Barrish and Parra, 2015). Hilltop suffers one of the highest rates of violence within the city. In 2015, there were three murders that took place in the neighborhood that occupies less than 1 square mile. Fourteen other people were shot in the same amount of time, many of whom were teenagers (The News Journal, 2015). With a total neighborhood population of approximately 6,616 people, this high rate of violence has drastic repercussions on all residents. While some other neighborhoods in Wilmington, such as West Center City, have similarly high rates of violence, others do not. Cool Spring, which shares Hilltop northern border, did not have a single incidence of violent crime reported in 2015 (The News Journal, 2015).

Drug related violence is rampant throughout the neighborhoods in which drug trafficking is common. According to State Prosecutor Kathleen Jennings, who grew up in
Wilmington and now leads the Delaware Department of Justice’s Criminal Division, innocent people are often caught in the cross-fire between gang violence, creating a situation where people are unwilling to leave their homes, or even step outside (Jones, 2014). After the sun goes down, many streets remain pitch black because people do not turn on porch lights (Taylor, 2015). The fact that people are generally unwilling to serve as unofficial patrols for the neighborhood means that there are even fewer deterrents for crime.

Despite the problems that I-95 has created for Hilltop, the neighborhood’s position can also be seen as an opportunity. The City of Wilmington’s Neighborhood Comprehensive Plan (2009) highlights its location as a positive attribute:

The West Side’s strategic advantages include its prime location adjacent to the Wilmington Central Business District; easy access to the Christina Riverfront which is experiencing increased growth and redevelopment; and easy access to interstates I-95 and I-295 for access to New Jersey, New York, Maryland and other points north or south. In addition, the West Side contains a variety of state routes providing efficient travel to New Castle County locations along with a collection of neighborhoods with well kept homes and unique residential characteristics which makes it very attractive (pg. 11).

Discovering ways to capture the benefit of easy access will help to market the neighborhood as a positive place to spend time for those who are passing through on their way to some place else.

While some may dismiss the area as dangerous, there is still a strong sense of community pride. A recent community survey of residents living in the West Side, which includes Hilltop as well as two other adjacent neighborhoods, 83 percent were “satisfied
with living in the West Side and three quarters would recommend the neighborhood to others” (West Side Grows, 2012, p. 73). While this data includes a wider sample than only Hilltop residents, it does indicate that the area as a whole is a desirable place to live. One of the top reasons cited as to why people feel positively about the area is that they are able “to be close to family or friends” (West Side Grows, 2012, p. 65). This indicates that residents feel a strong connection to their community. The built environment of Hilltop certainly allows this type of interaction, given the close proximity of housing, front porches, and the absence of driveways. By implementing design strategies that can increase comfort and safety on the streets, these social connections could become stronger and more noticeable, encouraging people to want to spend time in the public spaces within the neighborhood.

However, the community bonds do not carry over to relations with police. Witnesses of crimes that take place in Hilltop are highly unlikely to share information with the police. This is due to the fact that there is substantial and justified fear that the police will not be able to protect them from retaliatory action. Corporal Geiser [first name withheld] of the Wilmington police force acknowledges the fact that it is rare that a person come forth with any knowledge of who committed a crime, even when it is known, because of fear of retribution for “snitching.” “When we leave, there’s no telling what’s gonna happen. Their house will get shot up, egged, vandalized” (Jones, 2014). People are unwilling to risk their own safety and security to cooperate with police, due to the fact that they do not feel protected by police.

Despite the high crime rate, most people in Hilltop hold legitimate jobs to support their families (Willauer, personal communication, 10 December 2015). However, these
jobs are generally in the low-paying service sector. Because there are numerous convenience stores, beauty salons, and restaurants in Hilltop, and the neighborhood is in close proximity to downtown, there are opportunities to participate in the economy. The problem, however, lies in the fact that the wages being brought in are simply not enough to cover the needs of individuals or families. The median income for Hilltop residents, age 25 or older, adjusted to 2014 dollars, was $22,433. This compares to a median income of $34,288 for residents over 25 for the entire city of Wilmington. When comparing Hilltop to nearby neighborhoods, the difference in income becomes even more noticeable. The median income for residents in Cool Spring is $42,269 (US Bureau of Census, 2015); residents only a few blocks away are making $20,000 more than Hilltop residents.

Neighborhood Economic Conditions within City Economic Conditions

While the economic conditions of Hilltop are relatively easy to understand, Wilmington is far more complicated to classify. Hilltop is a low-income neighborhood with little economic opportunity within the community. Yet the city in which it is located has a robust finance and insurance industry that provides many high-paying, high-skilled jobs. This may imply that there are ample opportunities for residents to partake in a healthy job market. However, people who do not live in the city fill many of these positions. This creates many layers of disparities; first between those who live in the city and those who travel there to work, and second between city residents who can travel to high-paying jobs and those who must work in local low-paying jobs.
More than 43,600 people live outside of Wilmington’s boundaries and travel into the city for work. Over 30 percent of those jobs in are in high paying sectors, including finance, insurance, or health care (US Census Bureau, 2015). The result of such a pattern is that very little of that money stays within the city.

![Inflow/outflow of workers who live and work in Wilmington. 43,647 people do not live in Wilmington but come to the city for work. 7,336 people live and work in Wilmington, and 21,396 people live in Wilmington but leave the city for work. Source: US Census Bureau. OnTheMap Application.](image)

Wilmington boasts the highest concentration of Fortune 500 Company headquarters in the world, but the economic benefits to the immediate area is minimal. “In practical terms… the one million companies using Delaware addresses have only created 51,335 jobs in Wilmington” (Blumgart and Scruggs, 2015). In addition to fact that the large industries have failed to create a significant number of jobs, city residents hold few of the jobs. In fact, only 25.5 percent of city residents are employed in the city.
(US Census Bureau, 2015). Instead, a large majority of residents must travel out of the city to find employment.

This creates the other layer of disparity previously mentioned. While many people living in Wilmington travel outside of the city for work, they are still able to earn a good income. Over 43 percent of Wilmington residents earn over $3,333 a month, or a yearly income of approximately $40,000 (US Census Bureau, 2015). However, more than 32 percent of people travel over ten miles to their place of employment, and over nine percent travel more than fifty miles to work, going to places such as Dover, Baltimore, and Washington D.C. (US Census Bureau, 2015). The positive relationship between long travel distances and high incomes illustrates the fact that people who make more money are highly mobile. When earning a high wage, it is possible and sometimes even advantageous to travel great distances for work.

When evaluating the economic conditions within Hilltop, however, a much different pattern emerges. Only 23 percent of people earn more than $3,333 a month, almost half of the percentage for the city as a whole (US Census Bureau, 2015). Almost 70 percent of Hilltop residents live within ten miles of their place of employment, and only five percent travel more than fifty miles to work (US Census Bureau, 2015). For low-income individuals who must rely on public transit or walking to get to jobs, employment options are greatly limited. When long travel distances to jobs exists, it is generally to low-paying positions in suburban malls (Blumgart and Scruggs, 2015).
Hilltop residents are largely ineligible for high paying jobs due to the lack of education and specialized training required for careers in these industries. More than a third of all Hilltop residents have a high school diploma or less, making it difficult to find employment outside of the service sector. Earning a living wage is therefore challenging, especially due to the fact that wages have been stagnant in this sector for years. “In 1999, the median household income for African Americans was $29,569 — which would translate to a little bit more than $40,000 today. Twelve years later in 2011, despite substantial inflation, that amount remained frozen at $29,594” (Blumgart and Scruggs,
2015). Based on the fact that 48 percent of Hilltop residents are African American, it is clear that this neighborhood is facing a declining economic situation.

Hilltop is struggling with a variety of economic conditions, including low-wage jobs, poor housing conditions, and a lack of opportunity. There are numerous reasons for such circumstances, including zoning laws that allowed for the conversion of housing stock to multi-family units, the construction on Interstate 95, elevated crime, high drug usage, and poor educational opportunity. Furthermore, these problems are also reciprocated by the struggling economy. All of these issues translate to difficult living conditions and poor quality of life.

Regardless of the problems that the community is facing, it is possible to envision a brighter Hilltop. To do so, the proper foundation must be laid to create the assets required to establish conditions in which quality of life can be improved. One of the necessary steps to do so is by implementing specific place-based physical design strategies.
Chapter 4

MODEL DEVELOPMENT AND METHODOLOGY

To properly evaluate the current conditions of a distressed low-income, urban neighborhood, a complete model must first be constructed. Existing models were heavily consulted and modified to fit the needs of this study. Modifications were required because the scope of these existing models focused primarily on walkability. While this is a large portion of the new model, it is not the only important element. Specifically, issues related to land use and safety are more highly prioritized in this new model than in existing templates.

A complete study of eight existing models was conducted to determine the categories that are most important to include in a model. Local, state, or federal governments have sponsored many existing models. Nonprofit agencies and universities have sponsored others. Six models were created for use in the United States, while two surveys were consulted from Canada and Australia. The following is a complete list of the models evaluated:
Each model was the form of a checklist. Therefore, the model created for this study follows the same format. However, the new checklist provides more questions with specific responses, allowing for deeper analysis after observational data is collected.

The existing walkability measurement tools share many commonalities. They are all intended for citizen use, with a simple design where residents can register observational data into a simple spreadsheet. Generally, each model is in the form of a checklist and is no more than two pages. The questions of each checklist attempt to gain a lot of information through simply worded, broad questions. For example, one question states, “Was it easy to cross the street?” with multiple choice answers offering varying
types of impediments that could have been encountered, including different types of safety and design flaws (BikePedInfo, 2015). Another asks yes or no questions, such as if crosswalks and pedestrians signals are present (Safe Routes to School, 2015). The simplicity of the design for these models illustrates that engaged citizens are the intended users. No prior knowledge or background information is needed to conduct these walkability audits.

One of the most common checklists for walkability was created in partnership with the U.S. Department of Transportation, the U.S. Environmental Protection Agency, the Partnership for a Walkable America, and the Pedestrian and Bicycle Information Center (BikePedInfo). Many local government and nonprofit websites link to this checklist instead of creating their own. The checklist’s intended user is a citizen who does not have extensive planning or design knowledge. However, it provides a uniformed way of engaging with planning staff and traffic engineers regarding desired improvements, and guides citizens to look for specific issues related to walkability.

This specific checklist asks five questions relating to sidewalk and crosswalk conditions, driver behavior, pedestrian safety, and overall pleasantness of the route. Within each category, there are multiple-choice answers that participants may select identifying specific concerns they may have with the corridor. When prompted to explain the overall pleasantness of the walk, for example, possible responses included problems relating to a lack of grass, scary dogs, scary people, poor lighting, litter, and polluted air (BikePedInfo, p. 2). The options are specific enough so that people can identify the issues without providing technical classifications. This makes it easy to use, as it highlights specific issues that residents should be looking for when completing the
evaluation. However, it also makes the survey less precise and accurate. When lighting is classified as “too dim,” there is no indication as to the proper measurement a light should be emitting. Furthermore, people will classify a scary dog or person differently and therefore results are not reliable.

While there are flaws with this checklist, it provides a robust platform off of which a new model may be built. The categories mentioned in this model are seen in every other model. This is important to note when explaining which areas of urban life are the most important when evaluating walkability. Other models, while varying slightly, share the same core areas of evaluation.

“Fire Up Your Feet,” a central program within the National Safe Routes to School National Partnership, seeks to encourage parents and students to participate in active transportation methods of getting to and from school. To do so effectively, the program has created a checklist, similar to the previously discussed model, which attempts to evaluate walkability conditions. Additionally, the target audience of the checklist remains residents.

This model offers four areas of concern, including sidewalks, crosswalks, traffic, and overall surroundings (Safe Routes to School National Partnership). The National Parent Teacher Association (NPTA) and Kaiser Pemanente have endorsed the checklist, lending further credibility to its function. This model has fewer questions, and does not ask about cosmetic features of the area, such as grass, art, or street furniture. However, many of the same descriptive words are used in both checklists.

The concern for increased walkability is not only felt in the United States. Canadian and Australian nonprofit entities, including local advocacy groups for
walkability and aging-in-place, have also created well-respected and often cited checklists. The City of Edmonton, Alberta and The Heart Foundation of Australia have developed checklists that reflect similar concerns as those highlighted in models used in the United States (2013; 2011). All of the categories included in the aforementioned checklists are also included in these models. However, personal safety is highlighted more as a concern for aging-in-place residents, reflecting the commonly held belief that elderly people rank safety as a major concern (Piro, Øyvind, and Claussen, 2006).

These models, whether they are created by nonprofit or governmental agencies in the United States or abroad, reflect the need for only a basic level of analysis required to understand the current conditions of a neighborhood. Other, slightly more complicated models have also been created. Multiple institutes associated with universities, including the University of Delaware, have created checklists. These checklists tend to be longer, yet still targeted towards citizen use. They also incorporate the same general categories: sidewalks, crosswalks, traffic, and appearance. However, other issues are given more prominence as issues of concern, as well. For example, the presence or absence of various types of pedestrian amenities is strongly highlighted in the more specific checklists. Multiple questions ask about land use and appearance of design (Institute for Public Administration, 2010).

The models with the highest level of sophistication and nuance are generally created by city planning departments. The cities that tend to have the resources to create their own such models tend to be large, such as San Diego and Los Angeles. The walkability checklist created by the City of Los Angeles is a highly detailed and sophisticated 74-page document. The target audience for this document includes
developers, architects, and engineers, but community member use is also taken into account. Many more technical aspects for assessment are included to provide detailed information needed when designing a walkable community, as opposed to examining the existing built environment.

Analysis of Existing Models

To properly evaluate each model, the subject of every question within each checklist was identified. The subjects were then categorized into groupings, including conditions of: sidewalks, crosswalks, traffic, and safety, as well as the design features present and items of comfort provided. The results were graphed and are shown in Appendix A.

There are nine subjects identified as areas of concern in all eight models. The most common area of concern is sidewalk conditions, which has four categories included in every model. According to all eight models, sidewalks should be of an adequate width, a continuous network, and have no blockages from poles or other impediments. There should also be an adequate buffer between the sidewalk and street. The condition of the sidewalk pavement is mentioned in seven out of eight surveys, illustrating the importance of smooth surfaces. Also noteworthy is the fact that five out of eight models include an evaluation of the slope of sidewalks. This is especially relevant due to concerns with compliance to the Americans with Disabilities Act (ADA).
Crosswalk conditions are the next most common area of concern. All models inquire as to the presence of a pedestrian crossing signal and curb ramps at all intersections, as well as if adequate time to cross the street is provided. This last issue again relates closely with ADA compliance. Six out of eight models also include questions that evaluate pedestrian visibility in and around crosswalks through the provision of clearly marked facilities and clear lines of sight.

The most significant concern with safety relates to adequate street lighting. All eight models reference street lighting, some asking multiple questions about this topic. The remaining subject that all eight models agree is important when evaluating walkability is the presence of grass, trees, and flowers. This is striking because it does not relate to any safety or physical design concerns, but instead highlights the fact that routes should be enjoyable spaces to spend time. In fact, issues related to comfort are mentioned more than design features, and significantly more than safety concerns. For example, the provision of benches along the route is mentioned four times more than concerns with graffiti, vandalism, or crime.

The results of this evaluation are useful in creating a new model. Any subject included in all existing models is automatically included in the new model due to the fact that it has been proven to be an important element of proper walkability evaluation. Furthermore, most other topics are also included based on specific concerns for this study and the neighborhood in question. A small number of items listed in existing models are not evaluated in the new model due to the fact that they are related to new development and beyond the scope of evaluation for Hilltop’s current conditions. Some newly developed questions are required for the model because existing models fail to provide
evaluation on the subject. These questions almost exclusively relate to crime. The newly created model allows for information to be gathered using non-observational methods, making questions about crime feasible to answer. Because successful existing models were heavily consulted, the newly created model has strong internal validity, measuring the exact conditions that it sets out to identify.

**Existing Hilltop Model**

While there are multiple models used to measure walkability, they vary as to the degree of usefulness for the research conducted in this project. The most beneficial in this context are those that are locally based. This is because they have already established legitimacy in the area. The Walkability Checklist published by the Institute for Public Administration has been utilized and referenced by multiple municipalities in Delaware (2010). Because it is already seen as a reliable means of evaluation, the model created for this project utilizes many of the same components. Furthermore, it is the only study that features land use as a major contributing factor in neighborhood walkability.

There have also been other studies conducted on the corridor of Hilltop that have created a useful foundation for this study. WILMAPCO, the federally mandated Metropolitan Planning Organization (MPO) that oversees transportation planning for New Castle County, recently completed a walkability study of the 4th Street corridor of Hilltop. The complete report will be released in the spring of 2016. The fact that other
agencies have profiled the exact same area as selected for this project illustrates that it is a vital part of the neighborhood, and in dyer need of revitalization.

The audit was conducted with planning professionals, as well as interested residents. Participants received a short training regarding the issues relating to “sidewalk design, crosswalks, traffic calming, community design and other tools communities need to create walkable communities” (WILMAPCO, 2016, p. 3). WILMAPCO did not use any formal model or checklist when conducting the audit. Instead, staff recorded all observations and recommendations offered by residents throughout the walking audit (Dunnigan, 2016).

The major recommendations addressed in the WILMAPCO audit can be broken down into six categories: economic development, public finance and maintenance, land use and physical improvements, public transit, pedestrian connections, and bicycling networks. Some recommendations are specific, while others remain ambiguous. For example, the final report recommends specific locations where low-hanging wires should be removed. However, it also recommends to “target crime in the neighborhood” without any guidance as to the types of efforts that should be undertaken to achieve such an aim (WILMAPCO, 2016, p. 8). The audit also does not provide any quantitative evaluation of crime levels in the neighborhood; residents mention the concern anecdotaly as a serious problem.

The results of the walkability audit are useful in providing resident feedback and background information necessary for further analysis. The data allows for a more nuanced understanding of the current conditions, resulting in more effective design policies that can improve the quality of life for Hilltop residents. Research from existing
models, combined with the results of the WILMAPCO’s study establishes a useful foundation for future model development.

**Newly Created Model**

The model created by this researcher attempts to do two things. First, it builds upon the models already in existence to understand the current conditions of a neighborhood, while adding detail and sophistication. Secondly, it hopes to use the recommendations provided by the WILMAPCO walkability audit already conducted to develop legitimate and useful solutions for improved quality of life in low-income, urban neighborhoods. To accomplish these tasks, an intermediate model was created that fits between the levels of detail displayed in existing surveys. It is more nuanced than ones intended for laymen use, yet less sophisticated than those developed by city planning departments. The balance allows for straightforward data collection, yet a holistic understanding of the area.

There are four major categories of street design that affect and are affected by the walkability, pedestrian safety, and land use of the area. Convenience, comfort, atmosphere, and safety make up the areas of concern for the model. These categories vary slightly from those in existing surveys. However, many of the items listed in the new model are based on equivalent items in other checklists. For example, issues relating to sidewalks are clearly important, based on the fact that they appear in every existing model that was evaluated. Therefore, those issues are included in the new model, yet not
all questions relating to sidewalks are grouped together. Instead of isolating issues into a section called “sidewalk conditions,” questions relating to sidewalks fall within multiple categories. This new classification system allows for a deeper understanding of the way in which urban design is nuanced and multifaceted. Sidewalks are not isolated issues of concern, but instead affect many aspects of walkability.

Some concerns that are included in existing models are purposefully excluded from the new model. This is because the new model is only designed to look at current conditions, as opposed to provide guidance for future development. This means that there are fewer building design guidelines than the model provided by the City of Los Angeles. It does not go into extensive detail about design of individual buildings, as those buildings in existence cannot easily be altered.

Items that are included in the new model that were not in existing models generally involve issues where data is difficult to ascertain through observation. Because most models intend residents to be the target user, data requiring GIS or other technical skills are not required. However, professionals, as opposed to laymen citizen, are the intended users of this new checklist. Therefore, higher levels of detail and accuracy can be applied using specific measurements and scales.

When creating a scale for the new model, research was done as to the ideal measurements needed in each category. The numbers provided are based on the results of best practices stated in literature. For example, according to the school of New Urbanism, block lengths should be between 300 and 600 feet to encourage the most amount of walking (Boer, et al., 2007). Furthermore, studies show that when the number of land uses increases from three to four types within a neighborhood, walking increases by a
ratio of 1.34 (Boer, et al., 2007). Therefore, both of these factors were used as ideal walking conditions, and the basis for an exemplar design of a walkable urban corridor.

Ideal tree coverage, which is a very specific measurement in the model, was grounded by guidelines provided by the U.S. Green Building Council, which is the governing agency that considers LEED certification for all building projects in the United States. According to the agency, a successful tree canopy “encourages walking and bicycling and discourages speeding.” It also “reduces urban heat island effects, improves air quality, increases evapotranspiration, and reduces cooling loads in buildings” (USGBC, 2015, para. 1). To create a meaningful tree canopy, guidelines state that trees must be at intervals of no more than fifty feet, along at least sixty percent of the total block.

Crime is the one item that is consistently left off of other checklists, appearing in only two of the eight existing models. According to Marcia Scott, a Policy Scientist at the Institute for Public Administration at the University of Delaware whose research involves walkability, this is because such measures are not observable to laymen (2016). The chance of a crime occurring during an actual walkability audit is very small. Therefore, the question cannot be asked. Furthermore, the perception of crime, in addition to the actual occurrence of crime can strongly dissuade people from wanting to spend time in an area.

While such points are valid, this model is able to capture crime history using GIS mapping and criminal reports. While this does not address the concern regarding perception of crime, the reality is that the specific area addressed in this model has a high crime rate. Evaluating the current crime rate may provide enlightenment as to the ways in
which design features can affect criminal patterns. With such information, it will then be
possible to develop and implement changes to deter crime from occurring in the first
place. When crime rates decrease, the perception may also begin to change. Conversely,
worrying about improving the perception of dangerous areas without addressing the
reality of high crime will not solve either problem.

Point System

This model attempts to define an exemplar neighborhood: one where all
conditions create a perfectly walkable, safe, and useable community. While there are no
neighborhood corridors in the country that can be considered perfect, it is beneficial to
imagine what such a neighborhood would look like, and then work backwards. Therefore,
a scale was created with ideal conditions being the highest possible scoring descriptors.

Many existing models use a point system, the results of which are categorized into
classifications of overall walkability. The point system for this model, however, is
intended more so to identify areas of strength and weakness within each category that can
be used later in the analysis of the results. There are scores within each subcategory, as
well as an overall score. The subcategory scores are actually more useful in terms of
developing next steps. After the evaluation of current conditions of a corridor, major
flaws in the corridor will be identified and policy and design recommendations can be
made for improvement. See Chapter Five for further discussion about steps to take once
the analysis has been completed.
How to Use the Model

The completion of the checklist was carried out in a variety of methods. First, observational data was collected. The researcher walked the corridor of 4th Street, between Union Street and Jackson Streets, carrying the checklist with her. As she walked, she marked the appropriate boxes in the checklist, upon making an observation. She also photographed and took field notes as needed.

When specific measurements were required in the field, geolocation was used. The Android Application ESRI ArcMap was downloaded, which allows the user to mark specific locations and corresponding measurements, such as distance between blocks, width of sidewalks, and number of land uses. That information was then uploaded to an ArcMap GIS file, where other observational data can be input.

For questions relating to data that could not be easily observed, data was collected off-site. The News Journal, Delaware’s major newspaper, tracks all crimes that occur in the City of Wilmington. The information is provided by the Wilmington Police Department and then uploaded through an online platform for the public to view. The information provided from that platform was then imported the existing ArcMap GIS file. Crash data was provided by WILMAPCO, in conjunction with DeIDOT. All information is compiled into a complete overview of the current conditions of the neighborhood’s corridor, and can then be analyzed.
Table 3  Newly Created Model.

<table>
<thead>
<tr>
<th>Convenience</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of blocks</td>
<td>Over 1000 feet</td>
<td>Between 601-1000 feet</td>
<td>300-600 feet*</td>
<td></td>
</tr>
<tr>
<td>Signal length to cross the street</td>
<td>A healthy adult has to walk quickly/run in order to make it across the street before the light changes</td>
<td>A healthy adult has enough time to walk across the road before the light changes</td>
<td>Long enough that a child/elderly person could easily walk across the road before the light changes</td>
<td></td>
</tr>
<tr>
<td>Number of bus stops along route</td>
<td>1 bus stop every 5 blocks along route, or less</td>
<td>1 bus stop every 4 blocks along route</td>
<td>1 bus stop every 3 blocks along route, or more</td>
<td></td>
</tr>
<tr>
<td>Number of unique destinations within a 5 min walk</td>
<td>Less than 2 unique land uses along the route</td>
<td>3-4 land uses along the route</td>
<td>More than 4 unique land uses along the route*</td>
<td></td>
</tr>
<tr>
<td>Total Category D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Category D + Total Category F = Total Convenience

<table>
<thead>
<tr>
<th>Atmosphere</th>
<th>Present</th>
<th>Not Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storefronts on first floor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows present on first floor buildings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art/Points of Interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outdoor seating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrian directional signs (appropriate height)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variation in building height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No empty space (vacant lots, parking lots, garages, fences)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Category A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Category A + Total Category B - Total Category C = Total Atmosphere Score

<table>
<thead>
<tr>
<th>Subtotal</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Style of homes</td>
<td>Apartments</td>
<td>Townhouses/row homes</td>
</tr>
<tr>
<td>Street furniture</td>
<td>Benches</td>
<td>Bus shelters</td>
</tr>
<tr>
<td>Landscaping</td>
<td>Grass</td>
<td>Trees</td>
</tr>
<tr>
<td>Building facades</td>
<td>Varying colors</td>
<td>Varying textures</td>
</tr>
<tr>
<td>Street lighting</td>
<td>Dark sky compliant</td>
<td>Directed light to sidewalk</td>
</tr>
<tr>
<td>Total Category B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Category A + Total Category B - Total Category C = Total Atmosphere Score
### Comfort

<table>
<thead>
<tr>
<th>Assign the proper number of points for each category below.</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of sidewalk</td>
<td>Less than 3 feet</td>
<td>Between 3-5 feet</td>
<td>Greater than 5 feet</td>
<td></td>
</tr>
<tr>
<td>Continuous path</td>
<td>More than 2 interruptions in sidewalk</td>
<td>1-2 interruptions in sidewalk</td>
<td>No interruptions in sidewalk</td>
<td></td>
</tr>
<tr>
<td>Blockages in the pathway (poles, trashcans, dumpsters, shrubbery, signs)</td>
<td>More than 2 items blocking the path of the sidewalk</td>
<td>1-2 items blocking the path of the sidewalk</td>
<td>No items blocking the path of the sidewalk</td>
<td></td>
</tr>
<tr>
<td>Distance between traffic and sidewalk</td>
<td>Less than 2 feet</td>
<td>Between 2-4 feet</td>
<td>Greater than 4 feet</td>
<td></td>
</tr>
<tr>
<td>Physical buffer present between traffic and sidewalk (Can include parked cars, planters, grass, etc.)</td>
<td>No buffer</td>
<td>No physical barrier, but at least 2 feet of space is provided (grass)</td>
<td>Physical barrier present</td>
<td></td>
</tr>
<tr>
<td>Quality of Pavement</td>
<td>4 or more cracked or broken segments of sidewalk per block of path</td>
<td>Between 1-3 cracked or broken segments of sidewalk per block of path</td>
<td>No broken or cracked portions of pavement</td>
<td></td>
</tr>
<tr>
<td>Tree coverage</td>
<td>No canopy trees present</td>
<td>Canopy trees placed more than 50 feet apart along route, covering less than 60% of block length</td>
<td>Canopy trees placed no more than 30 feet apart along the route, covering at least 60% of block length</td>
<td></td>
</tr>
</tbody>
</table>

**Total Comfort Score**

### Safety

<table>
<thead>
<tr>
<th>Assign the proper number of points for each category below.</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>3 points</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crosswalks</td>
<td>Not marked</td>
<td>Marked</td>
<td>Distinguished markings</td>
<td>Raised</td>
<td></td>
</tr>
<tr>
<td>Other people present on each block</td>
<td>No one</td>
<td>1-3 people</td>
<td>4-5 people</td>
<td>6 or more people</td>
<td></td>
</tr>
<tr>
<td>Street lighting</td>
<td>Fewer than 6 lumens</td>
<td>6-15 lumens</td>
<td>16-19 lumens</td>
<td>20+ lumens</td>
<td></td>
</tr>
</tbody>
</table>

**Total Category F**

**Assign 1 point to each item that is present.**
- Police/security walking street at time of survey
- Curb extensions or bump outs at pedestrian crossings
- Island in middle of street for pedestrians
- Traffic calming measures
- Clear line of sight at intersections
- Ability to view other pedestrians from at least 50 yards away *

**Total Category G**

**GIS and News Journal Data: List the number of crimes that occurred along the corridor in the past year**
- Violent crime x 2
- Non violent crime

**Total Category H**

**Assign 1 point to each item where MORE THAN 80% of drivers are behaving in the following ways.**
- Drivers follow the posted speed limit
- Drivers stop at all red lights and stop signs
- Drivers yield to pedestrians in crosswalks
- Drivers look for pedestrians while turning in or out of driveways/cross streets

**Total Category I**

**Total Category F + Total Category G - Total Category H + Total Category J = Total Safety**

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Chapter 5
MODEL APPLICATION IN HILLTOP

The first survey was completed on Wednesday, February 7, 2016 between 1 p.m. and 3 p.m. The second was completed on Wednesday, March 13, 2016 between 9 p.m. and 10 p.m. The third was completed March 20 from 10 a.m. until 11 a.m. The completed audit form can be viewed in Appendix B. Three quarters of a mile of 4th Street, between Union Street and North Jackson Street, were included in the audit. There were many assets to the corridor that provide a strong foundation of a walkable and safe area. There were also many areas that pose threats and illustrate weaknesses in the safety, comfort, convenience, and atmosphere of the corridor.

Convenience

The category in which the 4th Street corridor scored highest in the audit was convenience, with a total of 10 out of 14 points possible. The skeleton of a community is the street grid. The length of blocks, determined by the placement of streets, is vital in determining walkability. Fourth Street is part of a very good grid network. While this may seem like a basic condition, it is a necessity for a walkable community. Given the fact that altering a street grid is almost impossible due to the fact that the area is almost entirely built-out, such a basic condition is a prerequisite for further improvements. All
bocks along the corridor are between 300 and 600 feet, which is ideal for walking routes. Due to the short blocks, mid-block crossings are neither present nor necessary.

Because of the concentrated grid pattern, the side streets are not very wide. Each cross street is approximately 30 feet across. This short distance makes crossing the street relatively easy. However, these smaller cross-street intersections are missing pedestrian signals, making it difficult to tell the appropriate time to cross the road. The only lights that have pedestrian activated push signals are those where the pedestrian is crossing 4th Street, due to the fact that 4th Street is much wider and busier. In these situations, the length of the signal allows adequate times for a healthy adult to walk across the road without feeling rushed.

Additionally, there are numerous bus stops along the route, making the area highly accessible to both residents and people visiting the neighborhood. It was common to see numerous people waiting at bus stops, regardless of the time or location. This reflects the heavy dependence that residents of Hilltop have on public transportation.

![Figure 7](image.png)

**Figure 7** A bus stop made with high quality materials and neighborhood branding. Three of such facilities exist in the 4th Street corridor. Other bus stops consist only of a sign indicating that it is a bus stop.
When evaluating the conditions of bus stops, the juxtaposition of the corridor becomes evident due to major inconsistencies. In three cases, the facilities are highly attractive and provide protective shelters and benches. They have lettering and provide a sense of identity for the area, clearly labeling the bus stop with “W. Fourth Street” in gold lettering. Accompanying each of the three bus shelters are high quality, black metal trashcans. However, eight bus stops along the 4th Street corridor do not offer any type of facility for passengers waiting to board. Instead, signage is used to notify people of the stop, and people are forced to wait on the sidewalk, exposed to the elements.

The corridor surveyed is comprised of three different zoning classifications. Both entrances along the corridor are zoned C-2, secondary business commercial center. This includes the three most western blocks of the corridor, beginning at the intersection of 4th Street.
and Union Streets and continuing until Dupont Street, in addition to the most eastern block between Van Buren and N. Jackson. This type of zoning allows for numerous types of businesses that range in levels of intensity. Laundromats, hotels, funeral homes, and day care centers are all allowed by right (Code 1968, § 48-4; Ord. No. 92-028, § 1, 1992). However, some relatively high intensity uses such as gas stations, radio towers, used car lots, and car service and repair shops are also allowed.

There are both positive and negative repercussions to the wide range of land uses along these blocks. Because so many uses are allowed, there are numerous destinations to which people can walk. This creates a convenient center of shopping that encourages people to spend time in the area and allows them to walk between businesses as opposed to having to drive. However, because high-intensity uses are allowed, the area becomes less inviting and the atmosphere is affected. Walking passed used car lots on 4th Street where many parked cars impinge on the sidewalk adds undue stress to pedestrians.

In addition to the areas zoned C-2, there is one small section zoned C-1, neighborhood shopping. The uses allowed in this zone are less intense, generally allowing for personal services and retail. This has enabled numerous local businesses to operate along a small portion of the corridor. The majority of the corridor, however, is zoned R-3 residential. This allows for single-family row houses. The houses may be attached or detached. The overwhelming majority of houses are attached. This type of construction allows for close connection to neighbors and the multiple benefits that are related to high-density as identified by New Urbanism theory (Larsen, 2004; Hanlon, 2010). Additionally, many homes have front porches, which encourages convenient neighborly interaction (Jacobs, 1961).
Atmosphere

As was previously noted regarding the street furniture at various bus stops, the difference between high and low quality fixtures is continually an issue along 4th Street, affecting the overall atmosphere of the corridor. The east and west entrances to the corridor, at the corners of North Jackson Street and Union Street, have many high-quality physical design features that are lacking along the rest of the street. This includes street lighting provided through attractive black fixtures. They are dark sky compliant, meaning that they direct light towards the ground, as opposed to lighting 360 degrees around the fixture. They are also placed so as to equally illuminate the sidewalk and street, creating a safe and inviting look. However, these lights are only present for two of the twelve-block corridor. The other ten blocks are lit with unattractive fixtures that are placed directly over the road, leaving the sidewalks in shadows.

When crossing Union Street to enter 4th Street, there is new construction that is reconfiguring the crosswalk. Bulb outs and curb ramps are being installed to make crossing the street safer and easier, while complying with ADA requirements. In this situation, the infrastructure on 4th Street is benefiting from the development and revitalization that is occurring along Union Street.
While there are many infrastructural improvements being made at the corner of 4th Street and Union, the private shops are not keeping up with the progress. Many businesses have storefront windows that are covered with posters or boards, so it is impossible for customers to see out into the street or passersby to see into the stores. This creates separation, which sends uninviting signals. It is also common for businesses to utilize metal gates to cover doors and windows, creating an unwelcoming atmosphere. Additionally, none of the restaurants offer outdoor seating, despite the acceptably wide sidewalks that would accommodate for such a configuration.

Seating is not common anywhere along the corridor. Only sparsely spaced bus shelters have benches inside of them at either end of the corridor. Within the inner corridor, the only benches that are provided in public space are those that surround the

Figure 9 Different types of streetlights. The high quality fixtures provide equal amounts of lights to the sidewalk and street. Conversely, the lights that are less aesthetically pleasing only seek to illuminate only the street.
Tot Lot Park at the corner of Rodney and 4\textsuperscript{th} Streets. However, this area is in very poor condition and the benches do not provide a desirable place to sit. The only playground equipment present is a small jungle gym and a swing set that is missing the swings. The ground surrounding the equipment is concrete. In addition to the benches around the perimeter of the small park, there are also tables and chairs positioned in such a way as to facilitate chess playing. The area is neither functional nor inviting.

![Figure 10](image)

Figure 10  Poor quality open space. The Tot Lot provides places to sit, but does not create an inviting atmosphere for children or adults.

The wall that encloses one side of the park has some nondescript yellow paintings. In this area that serves as the only place for public congregation, there is a lack of public art or interesting points of interest to draw people into the area. While there is a lack of high quality engaging art, the architecture of buildings along the corridor is attractive and noteworthy. All buildings are between two and three stories tall, with varying textures and colors. Over 70 percent of the housing stock in Hilltop
was constructed in 1939 or earlier (US Census Bureau, ACS 5 Year Estimates, 2014).

This creates a historical scene with unique architecture that is rare in most modern cities.

![Figure 11](image)

Wide array of housing quality. The housing stock can both add to, and detract from the atmosphere along 4th Street, depending on its level of repair.

<table>
<thead>
<tr>
<th>Percentage of Housing Stock Built During Each Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>1.25%</td>
</tr>
</tbody>
</table>

Table 4 Age of housing stock in Hilltop. The houses of Hilltop have a unique architectural style that can only come from being constructed in a different time period. More than 70% of houses are at least 77 years old.


Unfortunately, the curb appeal of the area is greatly hindered by the conditions of a few of the houses and business. Some houses are in major disrepair, including
buildings with boarded up windows and doors, as well as some buildings that are covered in graffiti. There are also multiple places where buildings may have once existed, but have since been torn down and have not been replaced. Instead, chain-link fences keep people out of the now barren parcel of land.

Figure 12  Neglected empty lots. Numerous exist along the corridor, creating a feeling of abandonment and seediness that harms the overall atmosphere of the corridor.

While these open spaces present a hindrance in attempting to harbor a friendly atmosphere, there are many aspects of the street that create a welcoming environment. There is a limited number of driveways, as cars either park on the street or in back alleys. This means that there are very few empty spaces to walk next to, overall. Additionally, a majority of the houses along the route have porches. It is not uncommon to see residents sitting outside, providing the very important unofficial patrol that is necessary for a welcoming and safe atmosphere.
Additionally, there are some areas along the corridor that make good use of trees. However, similarly to the quality of streetscaping, this is highly inconsistent. Some trees are tall and mature, providing the proper environmental and aesthetic appeal. However, numerous trees along 4th Street are very short, creating situations where branches can actually hinder visibility. There are very few other landscaping features. Two planters are present, both of which lacked distinctive branding or uniformed spacing. Also, there are neither buffers next to the sidewalk nor lawns present where grass may grow. It is important to note that this audit was conducted in February and March, so any growth that may be present during other seasons was not seen at this time.

The eastern entrance to the corridor, at the corner of 4th Street and North Jackson, illustrates a unique challenge facing the neighborhood. There are numerous high quality streetscaping fixtures, including bulb outs, very nice streetlights, and a protective bus shelter. However, the area also feels uninviting. Garbage litters the area, and broken glass is a common sight. Interstate 95 is across the street, with massive parking lots under the overpass. There is a gas station on the corner, with large amounts of traffic entering and exiting the business from all directions. The area is very congested and noisy due to the large volume of traffic. Additionally the church across the street from the gas station operates a soup kitchen for those in need, creating cause for many homeless people to wait outside of the building. This can add to an intimidating or uncomfortable atmosphere for those who are unfamiliar with the area.

Overall, the atmosphere of the corridor is poor. It received a score of 6 out of 27 possible points from the survey. While there are many aspects that are highly desirable
and could be cultivated to create a distinctly welcoming area, they are hard to initially identify. Instead, attention is drawn to the many features that present the area as threatening or otherwise lacking investment.

**Comfort**

Sidewalks are an important component to any corridor. The quality of the pavement, as well as the path’s width sends an important message to pedestrians regarding the ease with which one may traverse the area. The width of the sidewalk along 4th Street is highly desirable for a walkable neighborhood. There are areas that are slightly narrow, averaging approximately three feet wide. Many sections of the sidewalk, however, are approximately five feet. This relatively wide sidewalk means that trees, utility poles, trashcans, and signs that are placed along the roadside do not block the walking path. Furthermore, the spacious pathway provides a beneficial buffer from the road. Pedestrians do not need to walk directly next to traffic. Parked cars scattered throughout the corridor also serve as additional protection for pedestrians. While this is not the most attractive form of a buffer or protection, it does serve a useful role.

Importantly, the sidewalk is in extreme disrepair along the route, with rare exception. While the path is technically continuous, there are parts that are difficult to navigate. There are large swaths of sidewalk where the pavement is so broken that pedestrians are essentially walking on dirt. There are also large cracks, creating multiple-inch wide chasms in the path, making it difficult for anyone in a wheelchair or
pushing a stroller to navigate the route. This sends a message to people that the area has not been invested in, nor is worth maintaining.

Furthermore, curb ramps that are required at every intersection, in accordance with ADA regulation, are in poor condition. In many cases, no curb ramps exist at all. In some cases, the curb has become so dilapidated that the sidewalk simply falls into the road. Still in other cases, curb ramps are present, yet they are positioned incorrectly. This is a common mistake in many communities across America. To save money, a single curb cut will be placed at a corner, positioned diagonal to both crossings (McNeal, J., personal communication, 3 March 2016). ADA requirements state that two
curb cuts should be used at every corner to direct pedestrians in the route of travel that they intend to take (Access Board, 2002). This is highly important for visually impaired pedestrians, who depend upon physical cues in the curb ramps to indicate when they are approaching traffic.

The sidewalk is in comparably better condition along the east and west entrances of the route, where cosmetic improvements have been made, than along the middle blocks. However, the material used for this refurbishment is brick, which is notoriously difficult to maintain. The surface, which may have been smooth at one point, has become uneven in many places. A much better design strategy has been employed in front of a recently constructed health care center, where newly built sidewalks were constructed using concrete. This construction provides space for trees and landscaping, leaving mature trees in place and areas of open soil available for planting.

There are indications that some effort has been made to create a comfortable corridor within the neighborhood. However, the execution and maintenance of those efforts have failed. Overall, the corridor received 8 out of 14 possible points in the comfort category. Much work must be done to transform this area into a truly comfortable space in which people want to spend time.

**Pedestrian Safety**

The physical design of the street lends itself to relatively safe walking conditions. Due to the fact that blocks are so short, there are numerous narrow streets
that intersect with 4th Street. These cross streets are generally much less traveled and cars approaching the corridor generally proceed with caution. Drivers tend to behave well, following posted speed limits and stopping at red lights. Most drivers stop behind the marked stop bar and look for pedestrians before turning right on a red light. This pattern continues along 4th Street, where drivers tend to accelerate slowly at stoplights so as to account for any pedestrians who may be running across the street. Additionally, when pedestrians are seen jaywalking, a common occurrence along the corridor, drivers generally react by slowing down to provide space.

The reason drivers may be conditioned to pay close attention to pedestrians may be because there are comparably more people on the sidewalks along 4th Street than on many other streets throughout Wilmington. On each block during the audit, there were at least four people present. In some cases, lone individuals were sitting on their front porch or stoop. Other times, groups of people, mostly males, were standing in front of stores or on corners. Individuals of all ages and genders were regularly seen walking up and down the corridor. Areas around bus stops generally had groups, sometimes as many as six people, waiting for public transportation.

The ability to easily see other people allows pedestrians to feel as though they are never alone on the street, increasing feelings of security. Consistent building setbacks also allow pedestrians to see the entire length of a block without having any built structures causing obstructions. However, there are many instances of poles and trees placed in such a way as to block sight lines along the sidewalks. Newly planted trees along the corridor present a threat in that the branches are low and make it difficult to see passed them.
During nighttime observations, it was obvious that much of the corridor has insufficient lighting. The lighting is very unevenly distributed. The east and west entrances of the corridor have numerous poles with bright, efficient LED lighting installed. The measure of brightness in this area consistently measures at approximately 15 lumens, which provides enough light to easily see details in the surrounding area. However, blocks in the middle of the corridor do not have the same treatment. A measurement of brightness of these lights reveals that the area is illuminated by less than five lumens, meaning that some spaces are completely in the dark. The inability to see down the street, alleyways, and into abandoned spaces increases feelings of insecurity.
While certain blocks along 4th Street have design features that increase pedestrian safety, the area as a whole cannot be said to feel safe. The corridor is a wide, heavily traveled east-west connection for many drivers traveling through the city. Fourth Street is 50 feet wide in many areas. Most drivers follow the posted speed limit of 25 miles per hour, yet others proceed through the corridor quickly in an attempt to avoid being stopped by the frequent traffic lights. Because there are no traffic calming devices, such as a median, the wide street with speeding cars can prove to be an intimidating space to cross.

Bumps outs provide some relief to this problem by reducing the width of the road that pedestrians must cross. The design is present along the entrances of the corridor, on Union and Jackson Streets, allowing pedestrians to safely enter further into the street to view around parked cars. However, other crosswalks along the street do not have similar

Figure 15  Differences in lighting along 4th Street. These two areas along 4th Street illustrate the difference that lighting can make in harboring feelings of safety. The block pictured on the left lacks the correct number and quality of lighting fixtures, leaving half of the block in darkness. The houses across the street cannot even be seen. Conversely, the lighting provided on the left pictured block allows for high visibility long the whole block and a pleasant-looking space.
treatments. These crosswalks in the middle of the corridor are inadequately marked, with paint sometimes completed worn away. This can make it difficult for pedestrians to discern that they have a space designated for them. It also fails to signal to drivers to be constantly vigilant for pedestrians in the area.

Figure 16  Safe pedestrian crosswalk design. Bulb outs on the corner of Union and 4th Streets narrow the crosswalk, shortening the amount of time pedestrians need to spend in the street.

Based on an evaluation of the data, almost half of the pedestrian accidents that occur along 4th Street are not at intersections. Instead, they occur in midblock areas. This may be because pedestrians are not using the crosswalks at all, choosing instead to jaywalk. There are numerous design strategies that can be used to deter this type of behavior to increase safety for everyone along the corridor.
There are also some security cameras along the route, in an attempt to provide security to pedestrians and residents. Their presence proves to be intimidating and hinders the atmosphere of the neighborhood. However, it highlights the ever-present concern in the area regarding high rates of crime, which plays an important role in pedestrian safety.

Crime reports within a highly localized area, such as the 4th Street corridor, are difficult to obtain. However, reports published by the state through The News Journal provide some insight for the crime statistics in Hilltop as a whole. In January 2016, there were 19 serious crimes committed in the neighborhood, including: six arrests relating to theft and burglary, five assaults, one arrest related to drugs, and seven other various crimes relating to misconduct, vandalism, and obstruction of justice (Crime...
Map, The News Journal, 2016). These high numbers within one month reflects the ongoing trend for the neighborhood. Serious crimes, including theft, violence, and drugs continues to be an area of concern. Existing conditions are doing little to change these trends, despite the fact that the Wilmington Police Department have implemented numerous programs targeting the reduction of crime, including the Shared Vision Camera program (City of Wilmington Police Department, 2015).

While crime is a serious issue in the area, it is not the only issue preventing a high quality of life for residents of Hilltop. Deciphering and implementing the correct policies to reverse the struggles of the neighborhood is incredibly challenging. Yet, after the completion of a proper evaluation of current conditions, it is possible to identify the areas of improvement that may yield the most promising results. The implementation of specific place-based improvements can improve the quality of life along the corridor and in so doing, serve as part of a greater effort to revitalize the neighborhood.
Chapter 6

POLICY PROPOSALS TO IMPROVE CONDITIONS

It is possible to increase the quality of life for people living within low-income urban neighborhoods. Improved physical design features are one necessary ingredient in this process of revitalization. Such investments will create a more enjoyable and fulfilling neighborhood in which people can live, work, and play. Place-based design investments provide a solid foundation off of which the overall community can be strengthened. This type of improvement can prompt other types of improvements, as well.

This study was conducted by a single graduate student, and did not include resident surveys or feedback. However, a deep understanding of the area, its current context, and the desires of residents were gained through extensive research. In addition to numerous site visits to survey the area, public comment used in the WILMAPCO walkability audit was also considered in developing design strategies for improvement along the corridor. In addition to the design strategies suggested in the following sections, a charette or other intensive public engagement tool should be used to integrate resident desires into redevelopment plans.

Based on the research of this project, numerous design strategies have been identified as ways in which to improve the quality of life for residents living in Hilltop. They include improvements to land use, walkability, and pedestrian safety.
Land Use Improvements

The first design-based improvement to be made is in developing land use patterns that allow for expanded areas within the neighborhood in which businesses can operate. In practical terms, this means increasing the zoning intensity in parts of the corridor, from residential to mixed-use development. Currently, the majority of 4th Street within Hilltop is zoned R-3 for one-family row houses (Code 1968, § 48-5; Ord. No. 05-083, § 1, 2006). The intention of this type of zoning is to ensure that neighborhoods remain resident-orientated. However, it also prevents the numerous benefits that come along with mixed-use development.

The most welcoming and vibrant areas along the 4th Street corridor include the western-most two blocks between N. Union and N. Lincoln. This area has a C-2 zoning, which seeks to create a secondary business commercial center (Code 1968, § 48-4; Ord. No. 92-028, § 1, 1992). The permitted by-right uses include both businesses and residences. Because of the allowed mixed-use, the area is livelier; there are more destinations worth walking to, and people to see along the way. The opposite end of the corridor, at the intersection with N. Jackson Street, also has the same C-2 zoning. This area is also just as busy, but due to other design features, including the presences of Interstate 95 across the street, the space is less welcoming. There may be other design features that can help to improve that area further.

Furthermore, there is a one-block area of the corridor, between Claymont and Rodney Streets, zoned C-1 for neighborhood shopping. This is a slightly less intense zoning standard, allowing for fewer types of businesses, while still encouraging
residential use. Most commonly, restaurants, convenience stores, and personal service shops, such as hair salons, are located in this area. There are no gas stations, car dealerships, or other heavy commercial uses, making it a quieter place to walk with fewer entering and exiting parking lots.

While the C-2 zoning is useful at the ends of the corridor, it would be most beneficial for the neighborhood as a whole if C-1 were expanded throughout the 4th Street corridor. This would create opportunity for a wider variety of small, local businesses to open in the area without having to apply for variances in residential zoning or waiting for existing commercial space to become available for lease. However, it would not induce traffic volume to the same degree as a C-2 zoning would create due to the inherently smaller nature of the businesses allowed in C-1 zoning.

According to the City of Wilmington’s Planning Department, “C-2 zones are generally recommended for locations along primary transportation routes,” which describes 4th Street very well (Dept. of Planning and Development, 2010, pg. 17). However, the planning department also states, “the location of [C-2] within a residential area is not recommended due to the adverse impacts resulting from the auto repair businesses and the unlimited hours of operation” (Dept. of Planning and Development, 2010, pg. 17). Therefore, a less intense version of a similar zoning, namely C-1, which allows for commercial uses but limits the types and hours of operation, is extremely fitting.

In 2009, a rezoning map was suggested by the Planning and Development Department of the City of Wilmington for the West Side area, including Hilltop. Unfortunately, 4th Street received no rezoning suggestions (Dept. of Planning and
Development, 2010). This was a missed opportunity, but can be rectified with the forthcoming 2016 Update that is due to the Office of State Planning and Coordination.

Rezoning land to enable mixed-use development has been an effective way to create more vibrant neighborhoods in many cities across the country. This type of development has been used with much success in middle- and high-income areas, where strong markets encourage luxury condominiums on top of high-end restaurants and shops. However, application of mixed-use zoning is becoming more effective in low-income neighborhoods, as well. The St. Clair neighborhood of Cleveland, Ohio, is leading example to the success that may be possible.

St. Clair shares many of the same characteristics as Hilltop in Wilmington, including high crime and poverty rates, as well as close proximity to an Interstate. The residents are also largely minority groups, including a large percentage of African Americans (St. Clair Superior Development Group, 2016). The neighborhood had a highly segregated zoning map, where retail and residential were separated by rather large distances (Cleveland City Planning Commission, 2007). This created a situation wherein residents could not walk to grocery stores or access necessary shops. Therefore, the City of Cleveland rezoned large portions of the neighborhood from strictly retail to mixed-use, encouraging second-floor housing options and adaptive reuse of abandoned businesses (Hub 55, 2013). A local nonprofit called the St. Clair Superior Development Corporation is also working to attract useful businesses to the area, such as grocery stores and restaurants in hopes of creating a food-hub for the neighborhood. While the efforts are relatively new, there is already evidence that both new residents and businesses are
relocating to the area, and the area is becoming a more enjoyable place to spend time (Simmons, 2015).

The goal for Hilltop’s zoning change would be to attract businesses into a predominately residential area, as opposed to the inverse; yet the results would be similar. This difference reiterates the fact that every neighborhood is unique; the same strategies will not work for all low-income neighborhoods. However, it is true that there are numerous ways in which revitalization efforts can be modified so as to create a thriving community. Furthermore, there can be ripple effects in other aspects of life, such as the benefits related to job creation in the neighborhood. Those benefits, however, are secondary to the gains in improved quality of life for residents.

An additional step in creating such a business-friendly environment is in ensuring that vacant lots are available for purchase. In Wilmington, a land bank is currently being planned that will, if executed properly, make this process simple. Because acquiring vacant land or abandoned building is time-consuming and costly, it is often dismissed as a bad investment. However, when the land is acquired, and the buildings are either repaired to working condition or demolished, it becomes a much more tempting investment for developers (Porter, 2008).

**Pedestrian Safety**

Providing destinations that encourage residents to want to spend time walking in their neighborhood is important. Yet, if they do not feel safe, all of these land use efforts will be worthless. Many efforts can be taken to increase pedestrian safety. Street lighting
must be highly prioritized and implemented consistently throughout the 4th Street corridor. There are high-quality lighting fixtures positioned at both entrances of the corridor; yet the middle is grossly neglected. The number and brightness of streetlights placed at both entrances is sufficient for proper levels of visibility. However, the heart of the corridor is greatly lacking in quality lighting features. One blocks between Clayton Street and Delamore Place does not have any light fixtures on either side of the street. The poor lighting down the heart of 4th Street makes it difficult to see past dusk.

Figure 18 Street lighting quality. Nine out of 12 blocks within the 4th Street Hilltop corridor lack the necessary high quality street lighting required to provide necessary nighttime visibility.

Limited visibility makes pedestrians feel unsafe, which greatly reduces their willingness to walk (Zegeer and Bushell, 2012). Low lighting also prevents proper community patrolling, both by police and residents (Painter, 1996). Additionally, based
on the fact that the middle of the corridor is where the majority of residents live while the businesses are at the periphery, a message is conveyed that the businesses are more deserving of protection and patrol than are residents.

The lighting that is currently present on 4th Street at the intersections with Union and Jackson should be replicated throughout the entire corridor. Placing more lighting that is clearly intended to serve the residential sections of the street will increase visibility and make people feel safer while walking at night. It may also reduce crime rates in the area, as it will be more difficult to remain unseen while committing a crime.

In addition to increasing the quality and quantity of street lighting along 4th Street, it is important to reevaluate the number and size of street trees. The placement of the existing trees, all of which are between the sidewalk and the road, is ideal. The problem is that there are simply not enough of them present. There are whole blocks that do not have a single greenery feature. This creates an unsafe and unwelcoming environment in which to walk. Trees play an important role in an urban environment, creating a canopy of shade for pedestrians, cleaning the polluted air, and slowing traffic (American Academy of Pediatrics, 2009). By increasing the number of trees, the area will become safer and healthier for everyone.
Oftentimes, tree branches are low and impinge on the sight lines of pedestrians. A trimming should be conducted for the current trees. Branches should begin no lower than seven feet from the ground, so as to ensure everyone has a clear field of vision. Many of the trees currently planted are very small and may take many years to grow to a size that will provide the necessary shade. In the mean time, those branches serve as safety impediments. Efforts should be taken by the Parks and Recreation Department to tend to regular trimming and shaping of the trees as they grow. This long-term investment will eventually provide huge dividends to the quality of life for residents in the area.
Another design feature that is necessary along the 4th Street corridor is a well-landscaped median. This design serves two purposes. First, it will provide a much needed road diet, narrowing the width of each lane, thereby reducing the speed at which cars can travel through the corridor. Second, it will create a safer environment for pedestrians. The median can serve as a pedestrian safety island, reducing the exposure time that a person faces when crossing a street (NACTO, 2013). Landscaping techniques also can be employed to deter crossings at highly dangerous locations. Due to the high rate at which pedestrian crashes occur, including this median allows for safe passage, while simultaneously deterring jaywalking (TCRP Report 33, 1998). As with any design implementation, it is important to use high quality construction so as to convey a message of worth and significance to the community.
While constructing a median will deter jaywalking in certain areas, it is equally important to make it easier for pedestrians to cross in designated spaces. Increasing the number of bulb outs is necessary in making it safer and more comfortable to cross the street. Bulb outs allow pedestrians a better view of oncoming traffic while still standing on the curb, which increases their visibility and reduces the amount of time they must spend in the street (Zegeer and Bushell, 2012; Zegeer, et. al, 2005, McMahon, 2002). As is the case with street lighting, this design features is already present at the intersections on the periphery of the corridor. It is now necessary to place them at other major intersections throughout 4th Street in Hilltop.
These design features are a required component to creating a safer environment for pedestrians; however, they cannot be done in isolation. Non-physical changes must accompany these strategies, including improvements to community-based policing and neighborhood-based patrolling. When efforts are combined, the effects are immense.

Neighborhood in Bloom (NiB), a nationally renowned strategy created by the City of Richmond, Virginia exemplifies how design-based strategies, in conjunction with social policies, can translate into meaningful revitalization. The city uses federal and local money, in addition to support provided by a local nonprofit agency to oversee the redevelopment of “6-to-12 block areas in seven neighborhoods suffering from crime and economic disinvestment” (The White House, 2011, p. 9). The goal was to create more

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**Figure 22** Crosswalk configurations along 4th Street. Bulb outs are only present at intersections near the entrances of the corridor. Intersections in the middle lack the necessary design, and some do not even have completed crosswalk markings.
livable neighborhoods by addressing the prevailing concerns of residents, namely the poor condition of housing structures and feelings of insecurity while walking in the neighborhoods (Accordino, J., Galster, G., & Tatian P., 2005).

Increased police patrolling and strict code enforcement were used simultaneously with redevelopment efforts to transform vacant buildings for ownership. These combined efforts have continually resulted in significant improvements for the neighborhoods. Areas are safer, more welcoming and charm has been restored to historic neighborhoods (City of Richmond). Furthermore, the neighborhoods that were selected for the NiB program have experienced a reduction in blight and crime incidents have decreased (Accordino, J., Galster, G., & Tatian P., 2005). Home values in targeted areas have also appreciated 10 percent more per year than the citywide average (The White House, 2011, p. 9).

While Richmond, with a population of approximately 214,000 people, is much larger than Wilmington, the neighborhoods selected for NiB were similar to Hilltop, in terms of resident income, education levels, crime rates, and percentage of abandoned buildings (City of Richmond). Many of the lessons are transferrable. Design strategies that make a neighborhood safer, in conjunction with other social strategies, can be greatly beneficial in increasing the quality of life and reducing blight within neighborhoods.
Walkability Improvements

Investing in safety improvements within Hilltop will have the added benefit of making the area more aesthetically appealing. Further improvement of basic infrastructure and physical design of the street will allow for improved resident quality of life to be realized.

Initial investment is required to create a more walkable 4th Street corridor within Hilltop by installing better physical design features to create a more cohesive streetscape. Currently, the area has the basic features required for the foundation for a walkable community. Short blocks, sidewalks, various destinations, interesting architecture, and housing density already exist along 4th Street. Because these features are the most difficult to cultivate, Hilltop is in a good position to make relatively small changes that can lead to huge gains in quality of life.

Sidewalk and street furniture provision must meet both the practical and aesthetic needs of residents. In providing such amenities, a space will be created in which people want to spend time. Currently, the sidewalks are in complete disrepair; the majority of the concrete is broken and shows signs of disinvestment. Repairing the sidewalks throughout the entire corridor is a necessary improvement that will make it easier for everyone to navigate the route. This includes people in wheelchairs, who currently are forced to traverse surfaces that are nearly impassible. During the process of sidewalk construction, code compliant curb ramps must be installed. This includes considering the proper slopes at which ramps should be built, as well as the size of acceptable landing pads, in accordance with the ADA Accessibility Guidelines (Access Board, 2002). Furthermore, concrete sidewalks, as opposed to brick, should be constructed. While brick may have the
historical charm, it is more difficult to maintain and can quickly become warped (McNeal, 2016; Kirschbaum, et al., 2001).

While functional sidewalks allow for people to travel through the corridor easily, street furniture will entice them to linger by creating a welcoming environment. Benches should be spaced throughout the corridor. Currently, they are only located at three bus shelters and in a large cluster in one small park. Offering more seating options will meet the needs of the residents who are already spending a lot of time on the sidewalk, as well as...
as encourage more to do so. Special attention must be paid to the center of the corridor, where existing design features are especially lacking. Benches in this specific area will be especially useful. Because the sidewalk is already wide in this area, introducing seating areas would be unobtrusive, yet beneficial.

In addition to public benches, outdoor seating at restaurants should become more prevalent along the corridor. The zoning already allows for its existence; yet based on the fact that obtaining the permit is a cumbersome process, it is clear that the city is not encouraging this business practice. There are multiple forms that must be completed, and discerning which ones to complete is a complicated endeavor. The city should work to streamline this process, encouraging new restaurants to complete the application when obtaining the other necessary license and zoning paperwork. Outdoor dining opportunities signals to other pedestrians that the area has been deemed a worthy place to spend time and money.

Increasing the amount of vegetation throughout the corridor is also a necessary enhancement to improve walkability. There are presently only two planters along the route, and neither is well maintained. The number and quality of these planters should be greatly increased. Landscaping beautifies an area, making it a more enjoyable space in which to spend time. While trees exist along much of the corridor, a much more deliberate plan must be created to cultivate green space that works in conjunction with the surrounding built environment. Many of the recently planted trees along the corridor are too small to provide shade, and may actually inhibit visibility. While planting larger trees is a more expensive process, it is highly desirable to ensure that the community can benefit, as opposed to suffer, from their cultivation. Shrubs, flowers, and other greenery
should also be placed along the route and in the median. Grass should be planted along any open spaces, including the Tot Lot park at the corner of Rodney and 4th Streets.

Figure 24 Greenery improvements needed. The current efforts to foster a welcoming atmosphere through vegetation are minimal. Attractive planters can increase a sense of place and show investment in the community.

Enhanced greenery along 4th Street allows for a greater sense of place to be developed among residents of the neighborhood, encouraging people to want to walk the streets more. Art and public displays is another important aspect to this development. Currently, there is only one small mural that can be described as public art along the 4th
Street corridor, adding nothing to the sense of place or local culture. By increasing the amount of art visible to residents, neighborhood engagement and pride can be developed.

Other cities have seen how this type of placemaking has increased the walkability of their neighborhoods. Philadelphia, seeing the value in public art before many other cities, created the Percent for Art program in 1959. “The program stipulates that any project using land acquired through the Philadelphia Redevelopment Authority must put one percent of the hard construction costs towards public art” (Ryan, M., 2014, para. 3). The result has been a diverse public art collection throughout the city, including in low-income neighborhoods that would otherwise never have such amenities. This is a worthwhile program to investigate for Wilmington, especially if developers will be encouraged to increase mixed-use development along 4th Street.

Enhancing the condition and number of public spaces and functional parks in the residential and mixed-use area is also vital to creating a better quality of life within the Hilltop community. Playground improvements to the Tot Lot will encourage kid and parents to utilize the facility. An inviting atmosphere depends upon creating space that shows that residents are valued. When space is provided for children, parents will be more inclined to have them play outside. This is especially important in areas of perceived high crime. The sight of children signals to residents and passersby that the area is safe.

The connection between walkability, pedestrian safety, and land use are intrinsically linked. Numerous design improvements in these areas can be made along 4th Street to improve the physical condition of Hilltop. Such improvements will go a long way in improving the quality of life for residents. Residents will both respect and feel
respected within an area that provides high-quality design features. Creating such an environment could then translate to other social and economic improvements for the community.

Table 5  Necessary design improvements for 4th Street.

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<thead>
<tr>
<th>Design Improvements Necessary to Improve Quality of Life along 4th Street</th>
<th>Design Strategy</th>
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</thead>
<tbody>
<tr>
<td><strong>Area</strong></td>
<td><strong>Design Strategy</strong></td>
</tr>
<tr>
<td>Land Use</td>
<td>Rezone more of the corridor from R-3 to C-1</td>
</tr>
<tr>
<td></td>
<td>Utilize land bank effectively</td>
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<tr>
<td>Pedestrian Safety</td>
<td>Increase number of street lights and improve quality of fixtures, especially along the blocks in the heart of the corridor</td>
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<td></td>
<td>Construct median, with fence, along the corridor</td>
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<td></td>
<td>Maintain clear lines of sight along sidewalks, ensuring that trees are trimmed properly</td>
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<td></td>
<td>Construct more bulb outs at intersections throughout corridor</td>
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<tr>
<td>Walkability</td>
<td>Repair all sidewalks and construct ADA-compliant curb ramps</td>
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<tr>
<td></td>
<td>Include landscaping, including evaluating placement and size of trees</td>
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<tr>
<td></td>
<td>Increase the amount of public art</td>
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<td></td>
<td>Improve quality of parks</td>
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Chapter 7

FUNDING DESIGN IMPROVEMENTS

Providing design-based strategies is an expensive undertaking. It requires a large investment in capital, as well as a relatively large maintenance budget. However, there are partnerships that can be utilized, both existing and newly formed, to assist in the financing of projects. Implementation of these place-based design strategies is important for the betterment of the community, and therefore cost cannot be thought of as an insurmountable barrier.

Many of the costs will be absorbed by the city and state. A partnership between these two governments is required for successful implementation. For example, almost all of the sidewalks in Wilmington are within the right-of-way of the state. This means that any repairs to sidewalks must be coordinated with the State Department of Transportation (DelDOT). Furthermore, bus stops are all maintained by the Delaware Transit Corporation, a department of DelDOT. To enhance features surrounding either of these design features will require coordinating with these agencies. However, the agencies are known to work well together, so this should not be seen as an insurmountable hindrance (Smith, C., personal communication, 4 March 2015).

The city is currently facing difficult economic times, as mentioned in Chapter 2. Many of the staple industries in the community are facing layoffs and closures. This may cause the city to be less willing to provide financial support for projects. If the City is unable to procure the funding for the design improvements through its budget, the State
must take the lead role in doing so. To do this, money can be re-appropriated from the Delaware Strategic Fund. According to the procedures governing the Strategic Fund, “grant proceeds can be used for, but are not limited to, working capital, renovation, construction, or any other type of improvements to roads, utilities and related infrastructure and public facilities” (Delaware Economic Development Office, 2012). The Mayor and City Council members can use their positions as local government officials to apply for the grants from the Fund. In doing so, they must adamantly and thoroughly explain the value of such an appropriation to the Governor.

Ten million dollars has been recommended for the Fund for fiscal year 2017 (FY 2017 Capital Budget, 2016). This amount is equivalent to the amount that was apportioned in last year’s budget, but far lower than totals offered in previous years’ budgets. However, the Strategic Fund is projected to have 15 million dollars in the Fiscal Year 2018 (FY 2017 Capital Budget, 2016). Due to the amount of time required to properly execute the design and construction tasks associated with this project, it is possible that 2018 would be a more appropriate time to request funds. Regardless of the year the funds are requested, the City will have to put forth a significant effort to convince the State to fund this project. It will be essential to convey the benefits of such highly targeted funding.

Using the funds to invest in place-based development is a strategically advantageous way to improve the quality of life for residents living in Hilltop, while simultaneously creating an inviting environment for future businesses. This would enable a strong foundation for further economic development and social improvements, as will be discussed in Chapter 8.
The Office of State Planning Coordination (OSPC) is another avenue to pursue in receiving the necessary funds for the implementation of these design strategies. OSPC has created a State Strategy for development that prioritizes funding for growth based on a categorization. The goal is to encourage development in certain areas, such as urban cores and exurban areas, while discouraging development in more rural areas. The entire city of Wilmington has been identified as a Level 1 Area, meaning that it is the top priority for the state’s development strategy. “In Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity” (“Capital Budget Requests,” 2014). Because of the nature of these design-based strategies that seek to create walkable neighborhoods and enhance community identity, this project should be highly prioritized by the OSPC.

However, there are many areas that are deemed to be Level 1 Areas by OSPC, including all 57 of Delaware’s incorporated cities (Delaware Office of State Planning Coordination, 2015). There are no policies in place to prioritize funding assistance be given to low-income areas that are in the greatest need of revitalization. To combat this shortcoming, it would be valuable for the OSPC to adopt a policy similar to the State of Maryland’s Department of Planning, which created Priority Funding Areas (PFA). These PFAs are more targeted than the broad levels put into place in Delaware. Areas can receive the distinction in a variety of ways, but one is by being categorized as a neighborhood revitalization area (Maryland Department of Planning, 2016). This means that low-income neighborhoods are more highly prioritized for funding and planning.
services than more affluent areas of the state. It would be beneficial for Delaware to adopt a similar strategy.

In addition to state funds, nonprofit and private funds will also be required. After the initial implementation of high-quality streetscaping features, ongoing upkeep will still be required. The local government can provide ongoing support for the maintenance, sanitation, and patrolling of the area (Porter, 1995). Yet, this can oftentimes be managed effectively by creating a separate entity, such as a Main Street Program, to provide ongoing management. These types of nonprofit entities can serve an important role in the ongoing funding of programs. By relying on private donations, the maintenance is not subject to city or state budget approvals.

A Main Street Program already exists in Wilmington, called Downtown Visions. It serves the central business district, including the area that has been identified as a Business Improvement District (“About Downtown Visions”). Because the city is already familiar with the partnership process with an affiliated nonprofit, implementing such a program for the Hilltop neighborhood would be relatively simple. This Main Street Program would be slightly different, however, in that a creation of a Business Improvement District (BID) would not necessarily be forthcoming. According to Christian Willauer, Director of Community and Economic Development at Cornerstone West CDC, who works extensively with the Hilltop community, BIDs would be less helpful in a low-income, distressed neighborhood like Hilltop. This is because such a strategies works best in places that have new development and fast-paced growth. BIDs require an extra tax for the businesses, which can be prohibitive for small businesses that do not have the available cash flow. Also, BIDs serve as an administrative approach to
maintaining a community, as opposed to using the natural strengths of the community and building out from there.

Instead, the utilization of a Main Street Program by itself works well for distressed communities achieving incremental changes. “The Main Street Approach is most effective in places where community residents have a strong emotional, social, and civic connection and are motivated to get involved and make a difference” (Main Street America, 2016). Given the strong sense of pride that Hilltop residents currently have for their neighborhood, such a program has the potential to thrive. Furthermore, a Main Street Program has a way of continuing engagement with residents by providing opportunities for people to stay involved in their community.

This will extend the process as it began with community involvement. Remember that residents must be brought into the process from the beginning. Charettes and public forums should be used to provide the necessary platform for resident participation that is fundamental to this policy implementation. Residents must be given a platform from which they may voice their opinions and concerns regarding the types and styles of design features that will be implemented. Ownership is necessary in creating an area where residents feel respected. Community support is vital for the continued success of any design features.

Failing to bring people into the process could prove to create disastrous results. Improvements could be vandalized and need to be repaired or replaced often, increasing the cost of the overall project. Due to the extremely poor quality of physical design features in the neighborhood at the moment, it would not be surprising that residents may not trust the intentions or motivations of outside actors. To prevent such a mindset,
inclusion is vital in the process. While funding may come from outside sources, including the City and State, community members must facilitate the motivation for design improvements.
Chapter 8
IMPROVED QUALITY OF LIFE AS A FOUNDATION FOR FUTURE GROWTH

Distressed neighborhoods have long been subject to failed strategies for revitalization. Numerous strategies have unsuccessfully attempted to transform low-income communities into places that can offer a high quality of life for their residents. However, effective revitalization is possible. By using neighborhood-based strategies to investigate current conditions, it is possible to identify specific design strategies that can provide necessary improvements to the built environment of the neighborhood.

Meaningful changes can create a space that is more useable, safe, and enjoyable, all of which improve the quality of life for those utilizing the space. More people will want to spend time outside and a stronger sense of pride in the community can be cultivated.

Investing in the neighborhood sends an important signal to residents and visitors alike that the area has value.

Basic design improvements can dramatically improve the space, creating better use of the land, as well as more walkable and safe spaces. Relatively small changes can yield massive benefits if done in a tactical manner. In the case of Wilmington’s Hilltop neighborhood, there are numerous design strategies related to land use, walkability, and pedestrian safety that can significantly improve the quality of life for residents.

Reevaluating zoning policies to enable more mixed-use development can enable more efficient use of space, creating opportunities for people to shop locally. This is vital within low-income communities where reliance on public transit is common and access
to personal vehicles is not. Additionally, assembling the vacant lots and abandoned buildings into a cohesive land bank that will prepare the area for further redevelopment will be fundamental in revitalizing the area. Fewer distressed lots will reduce dilapidated appearances, safety concerns, and wasted opportunity for community investment.

Reducing the number of vacant lots or repurposing them into attractive parks while they sit vacant also serves to increase the walkability of a distressed neighborhood. Creating an inviting and enjoyable space in which people will want to spend time is key to creating a walkable community. To do so, investments must be made in the physical infrastructure along the street including the installation of high quality sidewalks, lights, and street furniture. It also requires special attention be paid to landscaping, ensuring that trees and other greenery are the appropriate size, appearance, and distance apart. Parks and open spaces must also be properly maintained so as to allow kids and adults to enjoy the possible benefits within the neighborhood.

To further improve the quality of life for residents in a distressed community, it is vital to improve pedestrian safety in the area. Implementing various strategies that reduce crime and traffic accidents is required in order to see meaningful improvements. First, efforts in streetscaping must include improving the number and quality of street lighting fixtures along a corridor. There should be no spaces that are inadequately lit so as to prevent pedestrians to see where they are walking or the faces of those people who are approaching. Furthermore, design improvements must be implemented to will slow traffic and make it safer to cross the street. Efforts to narrow the street using a median will deter drivers from speeding through the area, while fencing will prevent pedestrians from jaywalking across the busy street. Providing bulb outs at all intersections will make
crossing the street as a pedestrian safer and more enjoyable, providing more visibility and dignity when occupying the space.

While these design strategies will improve the quality of life for residents in Hilltop, the same strategies cannot be applied to all other low-income urban areas. Every neighborhood is unique; the most pressing problems in one area will not be of concern to residents in another. To determine the most useful and effective design strategies, a combined understanding of the literatures and the current conditions of the neighborhood is required. After creating a full picture, a holistic design strategy can be devised to improve the quality of life for a specific neighborhood.

**Part of a Whole**

Establishing a built environment that is of a high quality and meets the needs of residents may enable other improvements within a distressed community. It is vital to recognize, however, that the built environment is not the only force at work in determining the success of a low-income neighborhood. Countless other variables affect the outcomes of a neighborhood. Education, crime, employment, housing, and transportation issues, among others all play an important role in neighborhood success. Despite the fact that physical design strategies cannot solely affect the success of a neighborhood, it is also true that success of a neighborhood is not possible without some attention paid to the built environment.

The place-based design model creates a method to overcome highly localized inefficiencies and externalities in the market (Bolton, 1992). In areas that are prosperous
or growing, such inefficiencies are not nearly as prevalent because the private market is well equipped to provide quality infrastructure. As an example, this can be done when developers create attractive housing options that reflect highly desirable walkable designs and mixed-use amenities. While these items have numerous positive externalities, the market in low-income communities is unable to capture them due to buyers’ inability to pay. “Market processes often serve to exacerbate social inequality” (Mintrom, 2012, p. 151). The market cannot be relied upon to improve the lives of residents in low-income neighborhoods. Therefore, the government must intervene in the market to provide incentives for developers to create this type of development in areas that would otherwise be unaffordable to low-income residents. Governmental and nonprofit agencies, with input and support from the community, can assist in bringing more design features that will create a more pleasant neighborhood.

Based on an evaluation of the current conditions of the community, in addition to feedback from residents, specific design features can be identified that will greatly improve quality of life within the neighborhood. Government spending in this area can be hugely effective. Public funds must be spent to create an area where people enjoy spending time. Efforts to increase mixed-use development, walkability, and pedestrian safety are important in themselves, but also provide a foundation for further improvements to be made. Namely, this may create a favorable environment for business (Porter, 1995). The result of such a series of events would be appreciated by both residents and businesses.

Physical improvements to the built environment of a neighborhood can have significant positive impacts on economic development by encouraging reinvestment in
the neighborhood. Michael Porter (1995), renowned economist within the Harvard Business School, notes that “a sustainable economic base can be created in the inner city, but only as it has been created elsewhere: through private, for-profit initiatives and investment based on economic self-interest and genuine competitive advantage - not through artificial inducements, charity, or government mandates” (p. 56). In other words, place-based economic strategies can be used to empower a neighborhood by creating a climate that is more apt for private investment, which can further the economic vitality of the area.

**Design Improvements Encourage Economic Development**

Providing a higher quality of life for residents within distressed neighborhoods can have immense implications for other types of improvements, as well. Namely, investing in the built environment of an area can provide the leading investment necessary to encourage further economic development.

Adjusting zoning laws to enable more mixed-use development creates massive opportunity for economic growth within the area. There is substantial research to suggest that when destinations are less than one-third of a mile away from home, at least 45 percent of Americans are willing to walk (Vojnovic, et al., 2014). This is an essential characteristic when determining economic vibrancy of a neighborhood; when many destinations are nearby, residents are likely to visit them frequently. Pedestrian shoppers, while they spend less than shoppers who arrive by car, shop more often. This results in overall increased spending over the course of a year (Transportation Alternatives, 2012).
When land uses encourage local spending, the neighborhood’s economy is better equipped to thrive.

Economic benefits are realized when money is spent at local businesses. People do not have to waste time and energy to drive or take public transit to other areas of the city when purchasing essentials. Additionally, businesses may become more willing to locate within a low-income neighborhood to take advantage of relatively affordable rents and clientele that are already walking past the location, so little advertising effort must be executed to bring people into the store.

Many argue that businesses do not locate in low-income urban areas because there is no profit to be made. However, this is a claim based on a deep misunderstanding of the market. “According to the US Department of Housing and Urban Development (HUD), in the year 2000, America’s inner-city neighborhoods possessed an unrealized potential purchasing power of $331 million, or nearly one third of the retail capacity of the nation’s urban cities” (Leigh and Blakely, 2010, pg. 88). While residents in inner cities may commonly have low incomes, the density of said residents makes for significant buying power. Furthermore, businesses are likely to capture a large percentage of local residents as loyal customers due to the fact that residents have limited access to personal vehicles and are more likely to shop locally (Leigh and Blakely, 2010).

In addition to creating an environment in which businesses may open, it is also important to attract the correct type of entrepreneurs to open for operation. To ensure that residents are capturing the highest possible gains from business development, it is crucial that residents are opening their own businesses. “The inner city market itself represents the most immediate opportunity for inner-city-based entrepreneurs and businesses. At a
time when most other markets are saturated, inner city markets remain poorly served—especially in retailing, financial services, and personal services” (Porter, 1995, pg. 58).

When business owners who are in touch with the community in which they operate, they are more likely to financially and emotionally invest in the neighborhood. Residents, correspondingly, are more likely to protect the business from vandalism and robbery (Porter, 1995).

Additional improvements in land use policies, specifically addressing vacant lots and abandoned buildings leads to higher property values for adjacent buildings. The newly formed land bank in Wilmington, if managed properly, can reduce the number of vacant lots. Furthermore, design features related to walkability can improve vacant lots through basic streetscaping techniques. “Such efforts as the removal of discarded trash; grading and amending the soil; planting grass, trees, and shrubbery; and even adding such amenities as benches, sidewalks, and fences... [can] reverse the negative impact of adjacency to neglected vacant lots and impart an additional 17 percent of value to surrounding homes” (Watcher and Gillen, 2006, p. 4).

Cultivating a walkable neighborhood through various techniques creates a highly desirable atmosphere. There is extensive research to suggest that walkable communities cause a rise in property values. One study that looked only at the effects of enhanced greenery found that property values saw a 28 percent gain in value relative to similar homes in comparable areas without improvements (Watcher and Gillen, 2006, p. 5). This does not include the additional benefits that street furniture could also provide to the area.

It can be reasonably assumed that implementing design features that make the neighborhood safer and more enjoyable, may have a substantial positive effect on the
economic vitality of a distressed neighborhood. Residents are more likely to feel secure walking to stores, encouraging greater local spending. Drivers traveling through the well-lit area at a slower speed may be more inclined to stop to shop. On a larger scale, safer neighborhoods result in a better overall image, which could encourage more people to move into the area, resulting in increased property values. New businesses may also be more tempted to open due to a heightened sense of security in the area. This type of effect could be incredibly beneficial to an area where low-income residents reside, especially if many of them are homeowners, as it would result in an accumulation of wealth through increased property values.

However, as is oftentimes the case in low-income areas, when the majority of people rent, they could easily end up being priced out of the market (Talen, 2011). This is commonly discussed as the phenomenon of gentrification. Because such an outcome is a possibility, it is important to proceed in improvements carefully, paying special attention to the ways in which it affects current residents. Gentrification can become a serious threat when design improvements occur at a rate that outpaces economic development for residents in the area.

However, in neighborhoods such as Hilltop, where economic conditions are so far below average, gentrification is unlikely to occur in any sort of rapid speed. Concerns of gentrification are therefore not addressed in this study, but should be considered in future research. Despite the potential negative externalities that can result from design improvements, they are important to make. Policies that can create an environment in which low-income communities become safer and more desirable is an important step in creating the foundation necessary for economic improvement.
It is possible to imagine far-reaching implications of a community with high quality infrastructure that has increased the quality of life for residents. Economic development can more easily take effect, increasing property values and the number of local businesses in the neighborhood, which in turn, increases employment. This can increase homeownership rates, as well as community efficacy, which could decrease crime rates. All urban issues are intrinsically linked; it is impossible to affect one concern without causing a ripple effect throughout the fabric of a community. Design-based strategies are a fundamental aspect to improving low-income urban neighborhoods. The effects are hard to predict, and yet, when properly executed by considering the unique conditions of a neighborhood, the community will benefit in immeasurable ways.
REFERENCES

About downtown visions. Downtown Wilmington. Retrieved from
http://downtownwilmingtonde.com/about/

Access Board. (2012). ADA accessibility guidelines for buildings and facilities

Accordino, J., Galster, G., & Tatian, P. (2005). The impacts of targeted public and
nonprofit investment on neighborhood development. Richmond: The Federal
Reserve Bank of Richmond, 37.

Baker, K. and Wilson, X. (30 July 2015). Connect Delaware suburbs, planners say. The
News Journal.


Blueprint Communities Team. (2009). Hilltop/Little Italy revitalization plan. University
of Delaware: Delaware Center for Community Research and Service.

Blumgart, J. and Scruggs, G. (2013 November 18). Fortune 500 companies, a central
location and low taxes can’t fix Wilmington. Next City. Retrieved from
https://nextcity.org/features/view/fortune-500-companies-a-central-location-and-
low-taxes-cant-fix-wilmington


Department of Planning and Development, City of Wilmington. (27 August 2009). A city-wide plan of land use. Wilmington, DE: Adopted by City of Wilmington City Council.


Main Street America. (2016). The main street approach. Retrieved from
http://www.preservationnation.org/main-street/about-main-street/main-street-america/the-main-street-approach.html#.VuReFIwrLFY


McMahon, P. J. (2002). An analysis of factors contributing to “walking along roadway” crashes research study and guidelines for sidewalks and walkways. DIANE Publishing.


Transportation Alternatives. (1 October 2012). East village shopper survey: A snapshot of travel and spending patterns of residents and visitors to the east village. Washington, D.C.


West Side Grows Together. (June 2012). Neighborhood revitalization plan. Wilmington, Delaware: Cornerstone West.


Appendix A

EXISTING MODEL EVALUATIONS

The following is the analysis conducted to determine the importance of specific design features in conducting an audit of a neighborhood corridor. A complete explanation of the process can be read in Chapter Four.

The tables show all of the categories of concern for each design feature, as well as which of the existing models made reference to it. The corresponding graph illustrates the rate at which each design feature was mentioned.

Table 6 Evaluation of existing models.

<table>
<thead>
<tr>
<th>Crosswalks Conditions</th>
<th>Find Your Foot</th>
<th>BlueBlaze</th>
<th>Institute for Public Administration</th>
<th>City of San Diego</th>
<th>State of New York</th>
<th>Walkable America</th>
<th>America Walks</th>
<th>The Heart Foundation</th>
<th>City of Los Angeles</th>
<th>Total mentions of each crosswalk condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian crossing signal provided</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Length of signal to cross is adequate</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Curb ramps are provided</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Crosswalks are clearly marked or raised</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>6</td>
</tr>
<tr>
<td>Visibility is clear when entering a crosswalk</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Pedestrian activated button present</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Wait time to cross is reasonable</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Road width is reasonable</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Frequency of crosswalks is adequate</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Median is provided on wide street</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Crosswalks are present</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Street signs are visible</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Under/overpass is provided to cross busy streets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
## Sidewalk Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Fire Up Your Feet</th>
<th>Bikeexpo</th>
<th>Institute for Public Administration</th>
<th>City of San Diego</th>
<th>William Allen Foundation</th>
<th>Foundation North Carolina</th>
<th>Total mentions of each sidewalk condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>No blockages</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Continuous Network</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Adequate Width</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Adequate buffer between sidewalk and street</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Sidewalks are in good condition</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>6</td>
</tr>
<tr>
<td>Few or no unmanageable slopes</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>5</td>
</tr>
<tr>
<td>Sidewalks are present</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>4</td>
</tr>
<tr>
<td>Sidewalks are present on both sides of street</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Street parking is used as buffer</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Bike lane is used as a buffer</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Stairs are safe or eliminated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>Sidewalk is part of larger network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>1</td>
</tr>
</tbody>
</table>

### Sidewalk Conditions

#### Percentage of Models with Condition Present

- Adequate width: 100%
- Continuous network: 100%
- No blockages: 100%
- Adequate buffer between sidewalk and street: 86%
- Few or no unmanageable slopes: 71%
- Sidewalks are present: 57%
- Sidewalks are present on both sides of street: 43%
- Street parking is used as buffer: 29%
- Bike lane is used as a buffer: 29%
- Stairs are safe or eliminated: 14%
- Sidewalk is part of larger network: 14%

**Conditions Highlighted in Model**
### Traffic Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Stanford</th>
<th>Bikesafe</th>
<th>Institute for Public Administration</th>
<th>City of San Diego</th>
<th>Shape Your World</th>
<th>Norris County</th>
<th>Walkable Plan</th>
<th>The Healthy Foundation</th>
<th>City of Los Angeles</th>
<th>Total Mentions of Each Traffic Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drivers are not speeding</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>6</td>
</tr>
<tr>
<td>Amount of traffic is comfortable</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Drivers do not turn into crosswalk</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>4</td>
</tr>
<tr>
<td>Drivers yield to pedestrians</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Drivers are respectful</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Drivers stop at all stop lights/signs</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Drivers look before backing up</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Traffic calming measures are present</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Drivers are not inattentive</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>Drivers do not stop inside crosswalk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>Angled street parking is present</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

### Traffic Conditions

- Drivers are not speeding: 86%
- Amount of traffic is comfortable: 57%
- Drivers yield to pedestrians: 57%
- Drivers are respectful: 43%
- Drivers stop at all stop lights/signs: 29%
- Drivers look before backing up: 29%
- Traffic calming measures are present: 29%
- Drivers are not inattentive: 14%
- Drivers do not stop inside crosswalk: 14%
- Angled street parking is present: 14%

**Conditions Highlighted in Models**
Safety Features Present

<table>
<thead>
<tr>
<th>Feature</th>
<th>Survey 1</th>
<th>Survey 2</th>
<th>Survey 3</th>
<th>Survey 4</th>
<th>Survey 5</th>
<th>Survey 6</th>
<th>Survey 7</th>
<th>Survey 8</th>
<th>Survey 9</th>
<th>Survey 10</th>
<th>Total Mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street lighting adequate</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Dogs are well managed</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>5</td>
</tr>
<tr>
<td>Pedestrians feel safe</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>3</td>
</tr>
<tr>
<td>No presence of intimidating people</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>3</td>
</tr>
<tr>
<td>Other people are around for &quot;eyes on the street&quot;</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>3</td>
</tr>
<tr>
<td>No crime/vandalism/graffiti</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>Police/security is visible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>Absence of panhandling/homeless people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>1</td>
</tr>
</tbody>
</table>

Safety Conditions

- Street lighting adequate: 100%
- Dogs are well managed: 71%
- Overall feeling of safety: 43%
- No intimidating people: 43%
- No crime/vandalism/graffiti: 43%
- Police/security is visible: 29%
- Absence of panhandling/homeless people: 14%
- Absence of panhandling/homeless people: 14%

Conditions Highlighted in Models
<table>
<thead>
<tr>
<th>Design Features Present</th>
<th>Fire up your Feet</th>
<th>Break:Info</th>
<th>Institute for Public Administration</th>
<th>City of San Diego</th>
<th>City of New York</th>
<th>City of North Carolina</th>
<th>City of San Diego</th>
<th>City of Los Angeles</th>
<th>Total mentions of each design feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate number of destinations nearby</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variety of land uses present</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No vacant lots, rundown buildings, parking lots</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public bathrooms/water fountains are present</td>
<td>x</td>
<td>x</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities are hidden</td>
<td>x</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building design and placement accounts for easy pedestrian access</td>
<td>x</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number/width driveways is limited</td>
<td>x</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Façade material, height is varied</td>
<td>x</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roads are in a grid pattern</td>
<td>x</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playground equipment is present</td>
<td>x</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Design Features Present**

![Bar chart showing the percentage of models with different design features present](image-url)

**Conditions Highlighted in Model**

144
### Items of Comfort Provided

<table>
<thead>
<tr>
<th>Item</th>
<th>Five year feet</th>
<th>Bike/Pedinfo</th>
<th>Institute for Public Administration</th>
<th>City of San Diego</th>
<th>Shape Your World</th>
<th>North Carolina</th>
<th>Walkable Edmonton</th>
<th>The Heart Foundation</th>
<th>Australia</th>
<th>Total mentions of each items of comfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>More grass, flowers, trees needed</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>7</td>
</tr>
<tr>
<td>Benches present</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>6</td>
</tr>
<tr>
<td>No trash/litter</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>6</td>
</tr>
<tr>
<td>Street trees are present to provide shade</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>4</td>
</tr>
<tr>
<td>Bus stop shelters present</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>4</td>
</tr>
<tr>
<td>Art/interesting things to look at are present</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>4</td>
</tr>
<tr>
<td>Transit stops are frequent</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>3</td>
</tr>
<tr>
<td>Air is polluted</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>3</td>
</tr>
<tr>
<td>Bike racks are available</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Bike racks are on buses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>No and smells, orders</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Appendix B

COMPLETED MODEL FOR 4th STREET

This checklist was completed on Wednesday, February 7, 2016 between 1 p.m. and 3 p.m. Two additional visits were done to collect additional data and assist in formulating a complete understanding of the corridor. The second was completed on Wednesday, March 13, 2016 between 9 p.m. and 10 p.m. The third was completed March 20 between 10 a.m. and 11 a.m.

The following are the results as I recorded in the field. Further analysis was required to understand the implications of the design features that are both present and missing. Additionally, crime data was collected after the site visits were conducted. The full analysis can be read in Chapter Six.
Table 7  Evaluation of 4th Street using new model.

### Atmosphere

<table>
<thead>
<tr>
<th>Atmosphere</th>
<th>Present</th>
<th>Not Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snowfronts on first floor</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Windows present on first floor buildings</td>
<td></td>
<td>X (covered)</td>
</tr>
<tr>
<td>Art/Points of Interest</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Outdoor seating</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pedestrian directional signs (appropriate height)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Variation in building height</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>No empty space (vacant lots, parking lots, garages, fences)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assign 1 point to each item that is present within each category.

<table>
<thead>
<tr>
<th>Assign 1 point to each item that is present within each category.</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Style of homes:</td>
<td></td>
</tr>
<tr>
<td>Apartments</td>
<td></td>
</tr>
<tr>
<td>Townhouse</td>
<td></td>
</tr>
<tr>
<td>New homes</td>
<td></td>
</tr>
<tr>
<td>Single Family homes</td>
<td></td>
</tr>
<tr>
<td>Retirement communities</td>
<td></td>
</tr>
<tr>
<td>Street furniture</td>
<td></td>
</tr>
<tr>
<td>Benches</td>
<td></td>
</tr>
<tr>
<td>Bus shelters</td>
<td></td>
</tr>
<tr>
<td>Bike parking</td>
<td></td>
</tr>
<tr>
<td>Water fountains</td>
<td></td>
</tr>
<tr>
<td>Landscaping</td>
<td></td>
</tr>
<tr>
<td>Grass</td>
<td></td>
</tr>
<tr>
<td>Trees</td>
<td></td>
</tr>
<tr>
<td>Bushes</td>
<td></td>
</tr>
<tr>
<td>Flowers</td>
<td></td>
</tr>
<tr>
<td>Building façades</td>
<td></td>
</tr>
<tr>
<td>Varying colors</td>
<td></td>
</tr>
<tr>
<td>Varying textures</td>
<td></td>
</tr>
<tr>
<td>Distinct architectural features</td>
<td></td>
</tr>
<tr>
<td>Street lighting</td>
<td></td>
</tr>
<tr>
<td>Park sky</td>
<td></td>
</tr>
<tr>
<td>Consistent lighting</td>
<td></td>
</tr>
<tr>
<td>Total Category A = Total Category B - Total Category C = Total Atmosphere Score</td>
<td></td>
</tr>
</tbody>
</table>

Total Category A = 10, Total Category B = 5, Total Category C = 0

### Comfort

Assign the proper number of points for each category below.

<table>
<thead>
<tr>
<th>Comfort</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of sidewalk</td>
<td>Less than 3 feet</td>
<td>Between 3-5 feet</td>
<td>Greater than 5 feet</td>
<td>1</td>
</tr>
<tr>
<td>Continuous path</td>
<td>More than 2 interruptions in sidewalk</td>
<td>1-2 interruptions in sidewalk</td>
<td>No interruptions in sidewalk</td>
<td>1</td>
</tr>
<tr>
<td>Blockages in the pathway (poles, trashcans, dumpsters, shrubbery, signs)</td>
<td>More than 2 items blocking the path of the sidewalk</td>
<td>1-2 items blocking the path of the sidewalk</td>
<td>No items blocking the path of the sidewalk</td>
<td>2</td>
</tr>
<tr>
<td>Distance between traffic and sidewalk</td>
<td>Less than 2 feet</td>
<td>Between 2-4 feet</td>
<td>Greater than 4 feet</td>
<td>1</td>
</tr>
<tr>
<td>Physical buffer present between traffic and sidewalk</td>
<td>No buffer</td>
<td>No physical barrier, but at least 2 feet of space is provided (grass)</td>
<td>Physical barrier present</td>
<td>2</td>
</tr>
<tr>
<td>Quality of Pavement</td>
<td>4 or more cracked or broken segments of sidewalk per block of path</td>
<td>Between 1-3 cracked or broken segments of sidewalk per block of path</td>
<td>No broken or cracked portions of pavement</td>
<td>0</td>
</tr>
<tr>
<td>Tree coverage</td>
<td>No canopy trees present</td>
<td>Canopy trees placed more than 30 feet apart along route, covering less than 60% of block length</td>
<td>Canopy trees placed no more than 50 feet apart along the route, covering at least 60% of block length</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Comfort Score = 8
### Convenience

<table>
<thead>
<tr>
<th>Assignment</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of blocks</td>
<td>Over 1000 feet</td>
<td>Between 601-1000 feet</td>
<td>Less than 2 blocks along route, or less</td>
<td>Over 600 feet*</td>
</tr>
<tr>
<td>Signal length to cross the street</td>
<td>A healthy adult has to walk quickly/run in order to make it across the street before the light changes</td>
<td>A healthy adult has enough time to walk across the road before the light changes</td>
<td>Long enough that a child/elderly person could easily walk across the road before the light changes</td>
<td></td>
</tr>
<tr>
<td>Number of bus stops along route</td>
<td>1 bus stop every 5 blocks along route, or less</td>
<td>1 bus stop every 4 blocks along route</td>
<td>1 bus stop every 3 blocks along route, or more</td>
<td></td>
</tr>
<tr>
<td>Number of unique destinations within a 5 min walk</td>
<td>Less than 2 unique land uses along the route</td>
<td>3-4 land uses along the route</td>
<td>More than 4 unique land uses along the route</td>
<td></td>
</tr>
</tbody>
</table>

| Total Category D | 7 |

### Safety

<table>
<thead>
<tr>
<th>Assignment</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>3 points</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crosswalks</td>
<td>Not marked</td>
<td>Marked</td>
<td>Distinguished markings</td>
<td>Raised</td>
<td></td>
</tr>
<tr>
<td>Other people present on each block</td>
<td>No one</td>
<td>1-3 people</td>
<td>4-5 people</td>
<td>6 or more people</td>
<td></td>
</tr>
<tr>
<td>Street lighting</td>
<td>Fewer than 6 lumens</td>
<td>6-15 lumens</td>
<td>16-19 lumens</td>
<td>20+ lumens</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Present</th>
<th>Not Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police/security walking street at time of survey</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Curb extensions or berm outs at pedestrian crossings</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Island in middle of street for pedestrians</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Traffic calming measures</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Clear line of sight at intersections</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Ability to view other pedestrians from at least 50 yards away</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

| Total Category G | E |

### GIS and News Journal Data: List the number of crimes that occurred along the corridor in the past year

<table>
<thead>
<tr>
<th>Violent crime</th>
<th>Nonviolent crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>2</td>
</tr>
</tbody>
</table>

| Total Category H | E |

### Assign 1 point to each item where MORE THAN 80% of drivers are behaving in the following ways.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drivers follow the posted speed limit</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Drivers stop at all red lights and stop signs</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Drivers yield to pedestrians in crosswalks</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Drivers look for pedestrians while turning in or out of driveways/cross streets</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

| Total Category J | 2 |

| Total Category F + Total Category G - Total Category H + Total Category J = Total Safety | 7 |

---

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