

**Planning for Crime:
Crime Prevention through Environmental Design
in Bishop Arts District Neighborhood, Oak Cliff, Dallas**

By

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ABSTRACT

Planning for Crime:
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SCHOOL OF URBAN AND PUBLIC AFFAIRS
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There is a lack of emphasis in the planning world, both academically and in the real field, on preventing crime. Defensible Space and Crime Prevention through Environmental Design (CPTED) has been the two main approaches taken by planners and criminal justice officials that is design-based and that has brought some level of collaboration between the two professions. This study analyzes the built environment of select crime hotspots in the Bishop Arts District Neighborhood from a design-based crime prevention perspective in order to draw correlations between high crime areas and elements of design-based theories. Using GIS software, crime map is plotted to find the high hotspots crime areas in study area from the crime data gathered from the Dallas Police Department. Pictures taken during field observations of the hotspots are used to compare strong and weak examples of design-based crime prevention theories. Lastly, the report delivers the recommended changes and suggestions for planners and designers that may help deter crime and make spaces for more defensible or less prone to crime.

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CHAPTER 1

INTRODUCTION

“If planning is about making places better for people, then it has to address those elements that make places problematic for people, and crime and the fear of crime are high up in this list”(Schneider & Kitchen, 2002, p. 233).

1.1 Background

Increased population growth and rapid urbanization all over the world has increased the crime rate thus, degrading the quality of life, indirect effect on real-estate and economy of an area etc. Crime has become one of the most serious social problems. In fact, governments and other authorities are trying to overcome this phenomenon by investing a lot of money for crime prevention measures. However, this problem is still unresolved as crime rates around the globe continue to escalate. Finding solutions for crime has been a struggle for law enforcement, policy makers, and local government throughout the 20th century. According to the National Crime Victimization Survey total violent crime offenses decreased from a little over 4 million in 1993 to just below 2 million in 2003, and reached the lowest level ever recorded in 2005 (Bureau of Justice Statistics, 2006). Similarly, property crime has also declined within the same period. Nonetheless, both violent and property crime increased in 2006, before declining slightly in 2007. However, there are areas throughout the country where crime rates have either remained steady or increased during the same period as seen in cities with populations less than 100,000 inhabitants. The trend of smaller urban areas increasing in crime is a phenomenon that has been occurring since the 1980s in the United States and in other parts of the world during similar time periods (Ackerman and Murray, 2004). Frequent spurts of particular crimes can also occur in certain times of the year, such as the summertime and holidays, representing a high percentage of the year’s total in a given area (Schworm, Sunday, July 6, 2008). An increase of youth on the streets during school

breaks is also a major factor in the escalation of crime rates during the summer. Defensible Space and Crime Prevention through Environmental Design (CPTED) has been the two main approaches taken by planners and criminal justice officials that is design-based and that has brought some level of collaboration between the two professions. Thus, my project first studies the occurrence of crime in **Bishop Arts District Neighborhood, Dallas**. It reviews and recommends planning-related concepts from Crime Prevention through Environmental Design (CPTED) and other fields of crime prevention study such as Environmental Security Planning, Defensible Space, and Routine Activity Theory. The project uses data from a range of sources including the CPTED literature, the U.S. Census, and a past study of the neighborhood. GIS is used to conduct spatial analysis to identify areas that have experienced a dense concentration of selected crimes against persons and property over a three-year period (2010- June 27, 2012). It then analyzes the physical built environment of selected crime hotspots from a design-based crime prevention perspective in order to draw correlations between high crime areas and elements of design-based theories. And lastly, my report comes up with some changes and suggestions for planners and designers that may help deter crime and make spaces for more defensible or less prone to crime.

1.2 Statement of Problem

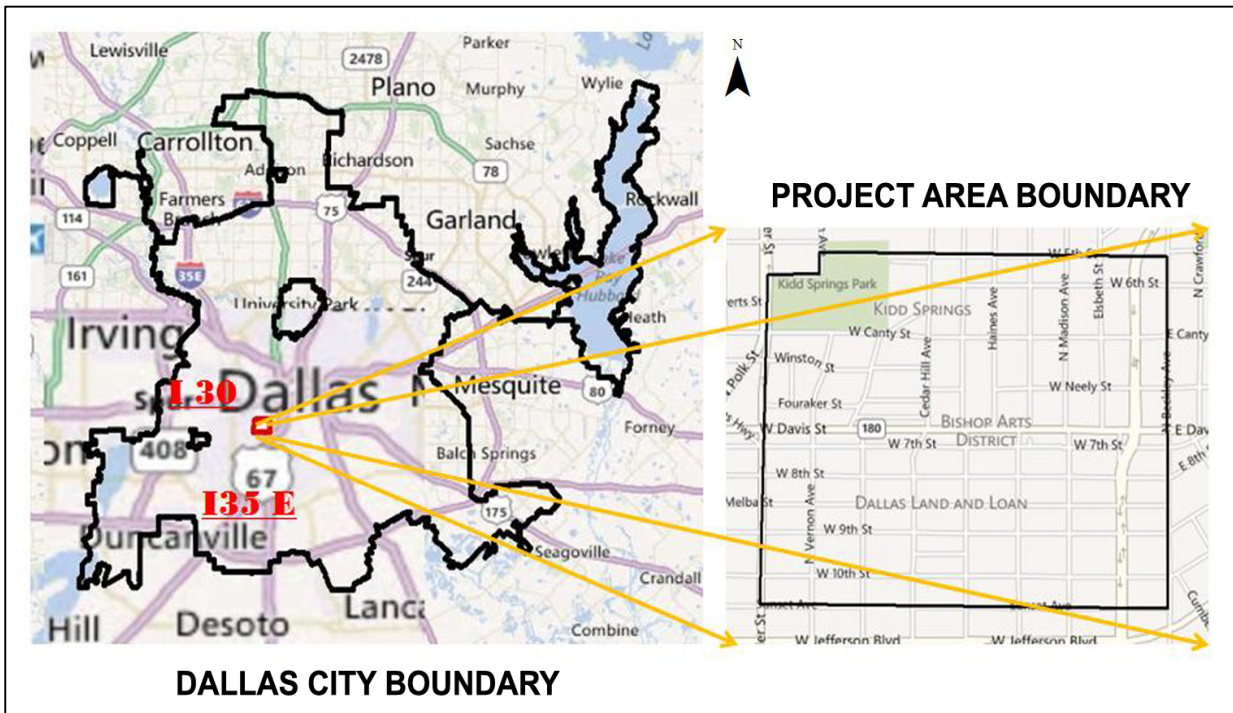
Research shows that United States has the highest rate of violence in the world, with homicides “from four to twelve times higher than in other countries (Bureau of Justice Statistics, 2000). Crime is one of the most important factors that influence a person’s decision to move in or out of the area. Research shows that high crime rates of an area have an indirect affect on the real-estate market as well as the economy of an area. Crime can degrade the fiber of communities; turning neighborhoods into neglected pockets of poverty and misery. Preventing crime is a key to saving lives, maintaining the

peace, and harmony of communities, and preserving economic resources and human effort. Such unplanned and unattended communities can ruin the efforts of planners seeking to develop surrounding communities and regions into sustainable, economically prosperous areas of controlled growth.

Different design-based crime prevention through environmental design (CPTED) theories written by Jeffery in 1977 asserts that crime can be reduced with well-thought-out design which is intimately associated with the physical environment. But literally CPTED does not prevent offenders from committing crime but it relies upon changes to the physical environment that will bring behavioral changes in offenders. Supporting this view, my professional report intends to analyze crime hotspots of selected **Bishop Arts district neighborhoods** with CPTED theories as guiding principles. What are the physical factors in the urban settings that affect the incidence of crime? How can those factors be altered or changed to bring behavior changes in offenders to deter crime environment? While studying those crime hotspots neighborhoods, these are the questions that are expected to be answered.

1.3 Study Area Boundary

Bishop Arts District Neighborhood is located on the south west of Downtown Dallas, a hilly area that has undergone gentrification in recent years. It is adjacent to Downtown and Uptown Dallas. The study area is surrounded by Fifth Street on north, Beckley Avenue on east, Ninth Street on south and Tyler Street on west.



Map 1: Dallas City and Project area Boundary. (Source: ESRI Business Analyst 2010)

1.4 History of Oak Cliff

Oak cliff began as a suburb to the city of Dallas in the late 1800's and was developed by John S. Armstrong and Thomas L. Marsalis. The major driving factor behind the rapid development of Oak Cliff was the Oak Cliff Elevated Railway, the first elevated railway in the south, which provided service between Oak Cliff and the

merchant locations several miles away in Dallas. This transit route evolved into a more predominant street car system by the turn of the century allowing Oak Cliff to become Dallas's first "street car suburb."

At the turn of the century, Oak Cliff began experiencing somewhat of an economic recession. Financial strains on the community's ability to provide services allowed the rapidly growing City of Dallas to annex Oak Cliff. Partly due to annexation regulations, as well as financial troubles after the depression of 1983, Oak Cliff housing began to be marketed more towards the middle and working classes resulting in the current prevalence of smaller sized bungalow style homes within the area.



Pic 1: Wall Arts in Bishop Arts District. (Source: www.google.com)



Pic 2: Musical festival in Bishop Arts District. (Source: www.google.com)

The decline of industry in Dallas during the Great Depression resulted in a period of economic decline and physical decay for oak cliff as well. This was further exacerbated by the growing national trend of suburbanization. The advent of the automobile led to a rapid growth of Dallas towards the north, away from Oak cliff. New neighborhoods, such as Highland Park, became more attractive for residents to live

and therefore business activity continued exiting the area in favor of more attractive locations.

A rediscovery of the Davis Street corridor, which runs through the center, began in the 1970's when developers began buying dilapidated, price-depressed bungalow style frame houses in Winnetka Heights, Kings Highway, and Kidd Springs which lay perpendicular to Davis Street. Rising gasoline prices during the 1970's made living close to work more attractive. Additionally, "tabula rasa" planning policies led to the urban renewal development of downtown Dallas, rapidly increasing the employment base located downtown. These two features began making North Oak Cliff more attractive once again, albeit for only a short period of time.

By the late 1970's, thousands of immigrants began moving into the area. This changed the ethnic composition of North Oak Cliff from predominantly Anglo and African American, to predominantly Anglo and Hispanic. By the 1980's, the Hispanic community became the dominant ethnic group in the area. In the 1980s the beginnings of redevelopment in the Bishop Arts District, Davis Street, Hampton Road, and Fort Worth Avenue areas were beginning due to an emerging music scene and a rise of artists, attracted to the area as a result of the physical character and cheap rent. Even with a rise in the areas attractiveness, many neighborhoods continued to be littered with disrepair and aged streets.

By the mid 1980's, Developer and land investor Jim Lake began buying up run-down buildings along Bishop Avenue. His first tenants were artists who came to join sculptor Stu Kraft and his wacky art studio. So many artists began moving into the area that Lake began referring to this as the "Bishop Arts District." Before long, as renovation costs spiraled upwards and the rents rose accordingly, a majority of the artists moved out but the name remained. Over the past twenty years, a strong middle-age gay community

began developing in the area due to business ownership opportunities in the Bishop Arts area. Currently, the vast majority of businesses located in the Bishop Arts area are gay owned and operated. Prior to the economic downturn of the mid 2000's, the area was poised to be a major center of redevelopment and gentrification, especially due to its unique physical environment and its prime location adjacent to Downtown and Uptown Dallas.

1.5 Value and need



Pic 3: Bishop Arts District. (Source :photograph by Sharmila Gurung)

The Bishop Arts District in Oak Cliff is of historic character. This historic neighborhood should be livable if it is to be worth preserving. High crime neighborhoods are generally undesirable places to live because residents do not feel secure.

This application of CPTED in the Bishop Arts District is meant to serve as a reference for officials and residents who seek a better understanding of how and where CPTED principles could be applied to the Bishop Arts District. One stark indication that the area experiences high crime is the extreme measures of protection residents have taken to protect themselves



home. (Source: Photograph by Sharmila Gurung)

from real or perceived danger. The following images show cases of the “fortressing” of homes in the Bishop Arts District neighborhood. “Fortressing” is a target hardening

measure to prevent unwanted entry. Another method of mechanical deterrence is a home security system; there are numerous signs posted on the exteriors of houses displaying a home security system logo.

The following pictures are examples of citizen reactions to crime of the perception of crime in their neighborhood. All photos were taken within the core area of the Bishop Arts District Neighborhood. Most of the retail stores have reinforced their doors and windows with iron bars.



Pic 5: Retail doors and windows reinforced by iron bars along Davis St. (Source: Photograph by Sharmila Gurung)



Pic 6: Retail doors and windows reinforced by iron bars along Bishop Ave. (Source: Photograph by Sharmila Gurung)

1.6 Explanation of Project

This project generates recommendations for the prevention of crime through Environmental Design on targeted areas of **the Bishop Arts District Neighborhood**. The recommendations are made according to analysis of crime data in conjunction with demographic data, and information on the physical/spatial environment within the neighborhood from observations, and consultation of the literature. CPTED principles are introduced and examined in the literature review, and are applied in the following chapters. The focus of the recommendations is crime hotspots identified through GIS analysis of crime data collected by the Dallas Police Department over a period of three years from 2010 to June 27, 2012. Recommendations also include related strategies from other theories related to CPTED, such as Defensible Space and Environmental Security. The project follows steps that are recommended in Gardiner's Design for Safe Neighborhoods. The procedure has been adjusted to fit the time line and scope of this study. Additionally, a literature review precedes these steps because a solid background in Crime and Crime Prevention through Environmental Design is needed before beginning such study.

1.7 Methodology

This project analyzes the built environment of select crime hotspots in **the Bishop Arts District Neighborhood**, Dallas from a place-based crime prevention perspective in order to draw correlations between high crime areas and elements of place-based theories. I expect that the greater evidence of design-based crime prevention techniques, intentional or not, in such neighborhoods will be related to both weaker (less dense hotspots) and better socioeconomic conditions. Therefore, the socioeconomic and land use context of each hotspot is studied to account for the differences between the hotspots.

Then I use crime statistics for the Bishop Arts district Neighborhood to analyze crime trends which is obtained from the Dallas Police Department. With the crime data that is gathered from the Dallas Police Department, locations are plotted on a map to show crime “hotspots”. After areas are selected, I use thematic maps of statistics from the U.S census to attain a socioeconomic profile of the selected neighborhoods. The main source of these statistics is US Census Data. The literature review is then used to explain how the crime data may be related to the socio economic context of the neighborhood.

The next step is to show the physical design of crime hotspots and analyze what design modifications can be made to prevent crime from occurring. Photography is used to show what these “hotspots” look like in person. However, the aim of the research is to not merely recommend design modifications without acknowledging the socioeconomic context in which these designs would be implemented. Therefore, based on the socioeconomic study of these neighborhoods, and the literature review, I complete the next step of recommending changes to the socioeconomic environment that will likely positively affect crime rates. Mapping tools can be used to not only understand and analyze the patterns of crime but also to test crime theories. In this study, “hotspots” is created using mapping software to track the locations of crime.

Once the hotspots are developed and examined using relevant data and indicators, I visit these hotspots to conduct a field study. The field study entails taking pictures of the physical environment of these neighborhoods. From the categorization of pictures, a matrix is used to gauge the advantages and disadvantages of the hotspots of the neighborhoods visited from where areas are analyzed. I come up with some design guidelines and suggestions for physical alteration.

Step 1: Literature Review

A review of crime analysis and crime prevention literature is first necessary to develop and understanding of principles and strategies and how they have been used in the past.

Step 2: Target Area Selection

Step two includes describing the boundaries, significant features, and characteristics of the area and its people.

Step 3: Data Collection and Mapping

Step three requires various kinds of data about the area including crime information, land use information, and a territoriality analysis. The territoriality analysis gives a general reference when considering spatial influences.

Step 4: Data Analysis, Target Area Selection

Crime hotspots are identified, and their immediate areas are analyzed according to CPTED principles. Analysis is also conducted at the neighborhood scale with specific focus on access and egress to the neighborhood. This step will include a user analysis and a physical environment analysis of target areas.

Step 5: Diagnose Environmental Problems

An evaluation of each target area based on the environment and how it may contribute to the presence of crime.

Step 6: Develop CPTED Strategies in Target Areas

Select CPTED strategies are developed based on the environmental features of the target areas.

1.8 Project limitation

There are many types of crime like violent crime, burglary, murder, rape, vandalism etc and causes for crime can be various as well, like social factors, economic factors, education level, family household income, etc that can contribute to high crime rates. Thus, factors influencing crime is broad and varies with the different environmental situations. This report does not take the consideration of socio-economic factors that too contributes to high crime rates. Methodology will be restricted to Geographic information system (GIS) mapping for crime hotspots and physical field survey of those areas. Other statistics methods like spatial regression calculating social and economic factors are not done while analyzing the factors. In my professional report, the discussion of crime is restricted to the main violent and property crimes that are statistically tracked by the Dallas Police Department. Violent crimes are primarily homicide, rape, robberies, and assaults and major property crime are typically burglary, larceny, and auto thefts. White-collar crimes, identity theft and cyber related crimes, while important, are not addressed directly in report since they operate on a different time and spatial scale than crimes that are more closely associated with the built environment. Since the features of the environment in crime event locations can be explained and supported or opposed by crime prevention techniques through environmental design theories, the urban form of selected locations are analyzed and compared with reference to different theories, to find out the factors that lead to and influence crime. Due to time constraints, only three crime hotspots in Bishop Arts district Neighborhood are selected and CPED theories are applied.

CHAPTER 2

LITERATURE REVIEW

2.1 Theories of crime and methods of control

Crime has been a problem in for urban residents since the development urban environments and laws. What is considered criminal varies from one state to the next, and even between municipalities. Dr. W. Steve Albrecht found that “30% of the public will steal or be dishonest on a regular basis. 30% of the public will steal or be dishonest depending on the situation (and risk) and 40% of the public will never steal or be dishonest, regardless of the situation” (Crowe, 2000,) There is potential for Crime Prevention Through Environmental Design practices to reduce the level of crimes against property and people. All crimes are defined according to the laws of the municipality, state, or nation in which they occur and these definitions often vary (Lerch, 2004). A United Nations study of crimes committed in 64 countries found that 72% of crime was committed against property and 20% against people (Crowe, 2000). The punishments for the crimes also vary between municipalities. There are many theories as to what causes crime, how crime can be reduced, and what punishments are the most effective at re-introducing criminals into mainstream society, but this study is focused on what planners can do to reduce or prevent crime. In the planning and architecture fields, Jane Jacobs, Oscar Newmann, and C. Ray Jeffery are among the most influential theorists on crime and the built environment. The theories of each, along with theories from other experts such as Marcus Felson and Lawrence Cohen will be examined. Each of these experts is responsible for different theories on the topic of crime in cities. Jeffery and Newmann take an approach that considers the physical environment and how it can be altered to reduce the opportunities for crimes to take place. Jacobs is well known for her theory of “eyes on the street,” and observations of the social fabric of sidewalks,

neighborhoods, and cities. Felson and Cohen take an approach of analyzing people's daily activities and how those activities affect the likelihood of becoming a victim of crime. Most of these approaches toward addressing crime issues were conceived during the 1960's and 1970's during a period when crime was increasing. The discussions that began in the 1960's and 1970's were an extension of a long history of residents protecting their property (Crowe, 2000, p 65-91). Today's urban environment requires the same measures of security that were used in ancient cities, but also demands that new technologies be utilized for crime prevention.

2.1. Eyes on the Street and the Uses of Sidewalks

In 1961, Jane Jacobs published her classic *The Death and Life of Great American Cities*. She wrote "The bedrock attribute of a successful city district is that a person must feel personally safe and secure on the street among all these strangers" (Jacobs, 1961, p 40). In the first few chapters, she discusses sidewalks and the various purposes that they serve in the urban environment. According to her observations, one of the uses of sidewalks is safety. On the issue of security in the urban environment, Jacobs extends the discussion of neighborhood or urban security beyond the scope of the contribution of sidewalks to physical and psychological security. Jacobs focuses on the activities and social relationships that form the intricate web that is urban life. Her term "eyes on the street" is synonymous with human activities that bring a street to life and increase natural surveillance of public space. The opposite of a safe lively street is a deserted, dead street where no one is likely to intervene in the event of a crime against person or property. Jacobs also refers to the need for a clear demarcation of private and public space (Jacobs, 1961, p 52). This concept was used later by Oscar Newmann, and included in all subsequent literature. Jacobs criticizes single-use, "nine-to-five" areas of

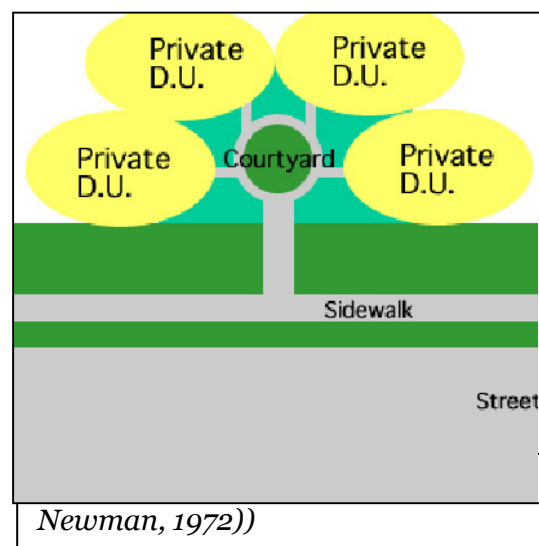
cities, claiming that such areas leave a void of “no man’s land” after the workday ends at five-o’clock. The void is then filled with undesirable users of space.

Jacobs determined that in order for a city street to be successful it must have three main qualities:

1. *Demarcation*: There must be a clear demarcation between what public space is and what private space is. Public and private spaces cannot seep into each other as they do typically in suburban settings or in projects. (Jacobs 1961, 30)
2. *Ownership of Public Space*: Second, there must be eyes upon the street; eyes belonging to those we might call the natural proprietors of the street. (Jacobs 1961,32)
3. *Constant Users*: And third, the sidewalk must have users on it fairly continuously, both to add to the number of effective eyes on the street and to induce the people in buildings along the street to watch the sidewalks in sufficient numbers (Jacobs 1961, p. 35).

2.3 Defensible Space

Newman’s *Defensible Space* is a work that focuses on how the concept of territoriality. Newman defines “defensible space” as a model that inhibits crime by creating the physical expression of a social fabric that defends itself. All the different elements which combine to make a defensible space have a common goal— an environment in which latent territoriality and a sense of community in the inhabitants



can be translated into ensuring a safe, productive, and well-maintained living space (Newman, 1972). The key to territoriality is the need for people to feel responsible for an area, as if it were their own. Much of Newman's research was conducted on large public housing developments such as the high-crime Pruitt-Igoe development in St. Louis. This is also one of the weaknesses of the theory, as the primary study of the theory was not done on a comprehensive range of housing types and neighborhood compositions (Gardiner, 1973, p 65)

The theory states that if people can identify a space as their own they become more likely to intervene directly, or at least notify the authorities in the event that disorder or illegal behavior is occurring. Newman states that differentiation between realms of space is necessary. He discusses public, semi-private and private space. Defensible Space seeks to arrange the built environment in a manner that increases the ability of residents and passersby to observe others in the course of their daily lives; this is the idea of natural surveillance. If one were to imagine the different feelings one has as they move from the street into the courtyard, and then up to a front door, one might observe increasing levels of surveillance. One goal of Defensible space is to design the built environment and arrange activities to maximize the feeling that their surroundings without making an effort to know what is going on outside.

There are four general tenets that frame the theory of defensible space. First is "the capacity for the physical environment to create perceived zones of territorial influence" (Newman, 1972, 50) and to encourage residents to consider these areas as their own. This is known as the concept of "territoriality" and holds the most relevance to the topic of this study. Second, the physical design of an area should be fashioned to "casually and continually survey the non-private areas of their living environment, indoor and out." (Newman, 1972, 50). This is known as "natural surveillance" and is also

critical to this study because the existing built environment can be modified to encourage natural surveillance for relatively little cost. Third, the minimization of opportunities to stigmatize public housing projects will reduce “the image of isolation and the apparent vulnerability of inhabitants” (Newman, 1972, 50). The final tenet concerns the location of public housing and is beyond this study’s scope. There are no easily identifiable public housing projects in the Bishop Arts District Neighborhood.

2.4 Crime Prevention Through Environmental design (CPTED)

Crime Prevention Through Environmental Design (henceforth referred to as CPTED) is an approach that considers how the structure of urban space affects the occurrence of crime and thus, quality of life. The primary thesis of CTPED is the following: “The proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime, and to an improved quality of life” (Crowe, 2000, 1).

Crime prevention through environmental design is an approach to problem-solving that considers environmental conditions and the opportunities they offer for crime or other unintended and undesirable behaviors. CPTED attempts to reduce or eliminate those opportunities by using elements of the environment to (1) control access; (2) provide opportunities to see and be seen; and (3) define ownership and encourage the maintenance of territory.

CPTED is related to many other crime prevention movements. They include: Defensible Space, Environmental Security, Security by Design, Situational Crime Prevention, and Natural Crime Prevention. These paradigms overlap. Defensible space has been discussed previously. Environmental Security considers many strategies for defeating crimes. The major difference between CPTED and Environmental Security is that the later approach considers two additional components - social management and

coordination with law enforcement. An example of a social management component in an Environmental Security plan is the inclusion of and close collaboration with neighborhood associations in order to achieve the “buy-in” of local residents as well as to garner their insights into their own neighborhood. Security by Design takes a more micro-level approach by looking at how physical security improvements (i.e. locks, bars, and mirrors for blind-corners) can be used to make a location safer. Natural Crime Prevention shares the concept that human behavior can be influenced through designing the physical environment in such a way that it is likely to discourage certain behaviors. Situational Crime Prevention is a place-specific strategy for reducing crime. It may often take a location of high crime, and consider a broad range of strategies for reducing crime in that area including policing strategies in addition to CPTED principles.

CPTED is a crime reduction strategy that can be applied to a range of spatial environments from the interior of convenience stores, to environments such as neighborhoods. Three major strategies that make up a CPTED program. They are Natural Access Control, Natural Surveillance, and Territorial Reinforcement. “Access control is a design concept directed primarily at decreasing crime opportunity” (Crowe, 2000, p 36). According to Crowe, the method of decreasing opportunities employed by CPTED is to create layers of “space,” much like those mentioned in Defensible Space theory. Creating a gradient of spaces, each with a stronger level of controlled access, will presents the potential offender with an ever-increasing sense that his or her activities will be met by a challenge from the legitimate users of that space. Natural Surveillance is related to the theories of Jane Jacobs. The goal of this strategy is to increase the amount of surveillance in a given area through harmoniously designing spaces, uses of space, and peoples’ daily lives. Crowe provides an example of moving safe activities to unsafe places in order to present a legitimate challenge to the illegitimate users of the space. This is

applicable from the site level to the city level. The third strategy, territorial reinforcement, is almost identical to the concept of Defensible Space. Territorial reinforcement is a combination of both Access Control and Natural Surveillance, The concept is to design layers of access control in a way that will prompt legitimate users of space to respond to an illegitimate user instead of ignoring the illegitimate activity as “someone else’s problem.” If a crime occurs in the neighborhood and no one reports it, did it ever happen? In theory, this is what territorial reinforcement seeks to remedy.

To make good choices when designing a CPTED program, Crowe recommends five sources of information be used: Crime data, demographic data, land use data, observations, and resident interviews (Crowe, 2000, p 32). The first four sources of information are used in this study. Crowe also outlines nine considerations that all CPTED programs should consider, and provides additional recommendations specifically for residential areas. Consequently, in this study when hot spot areas are identified, the hot spot areas are analyzed under whichever of these considerations is appropriate given the character and form of the built environment.

The three D’s of CPTED

While using “Crime Prevention through Environmental Design.” [On-line]. Available: <http://www.stpete.org/police/cpted.htm> as a guide, any given space may be evaluated by asking the following types of questions:

Designation:

What is the designated purpose of this space?

For what purpose was it originally intended?

How well does the space support its current use or its intended use?

Is there conflict?

Definition:

1. How is space defined?
2. Is it clear who owns it?
3. Where are its borders?
4. Are there social or cultural definitions that affect how space is used?
5. Are the legal or administrative rules clearly set out and reinforced in policy?
6. Are there signs?
7. Is there conflict or confusion between purpose and definition?

Design:

1. How well does the physical design support the intended function?
2. How well does the physical design support the desired or accepted behaviors?
3. Does the physical design conflict with or impede the productive use of the space or the proper functioning of the intended human activity?
4. Is there confusion or conflict in the manner in which physical design is intended to control behavior?

CHAPTER 3

DATA ANALYSIS

3.1 Types of Crime Data Analysis

Lersch defines two types of crime analysis, tactical analysis and strategic analysis. These two types of analysis are not the only strategies used to study crime but they are the most pertinent to this study because these deal directly with the geographic location and nature of crime. Figures 1.0 through 6.0 are individual crime maps that show the distribution of specific types of crime within a defined geographic area over a given period of time. These maps also qualify as Hot-Spot maps because they show “the concentration or cluster of crimes in space” (Lersch, 2004, 190). Each map represents a different type of UCR crime. The maps tell the map-reader how many crimes occurred in the area; and also serve as a relative comparison. This review represents a preliminary study of crime “hotspots” that will be used to determine target areas within the Bishop Arts District Neighborhood later in the study. These maps can be found in the appendix.

Figure 1.0 Auto Theft

Auto theft crime from 2010 to Jun 27, 2012 is distributed evenly all over the study boundary

Figure 2.0 Burglary

There is high amount of burglary crime along the West Davis Street corridor which is a commercial corridor and a high cluster of burglary is found at Cedar hill Ave and West Davis Street intersection.

Figure 3.0 Lost property

There is less number of lost property crime found in the study area as per crime from 2010 through Jun 27 2012.

Figure 4.0 Robbery

High cluster of robbery is towards the south east corner of the study area. No robbery crime is found towards the northern part of the neighborhood as per 2010 through Jun 27 2012 crime data provided by the Dallas Police Department.

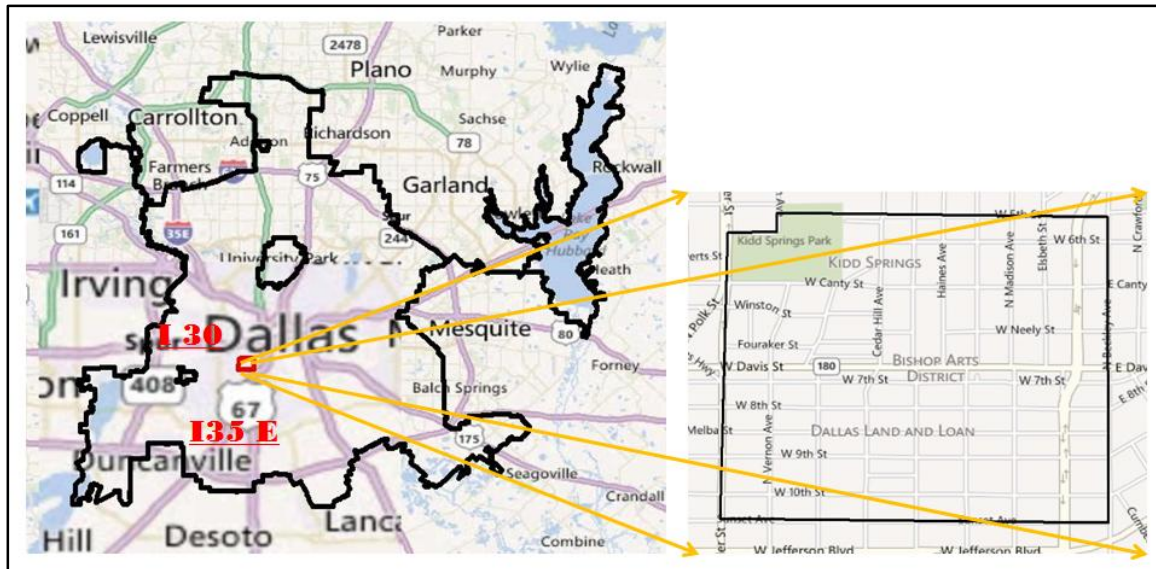
Figure 5.0 Theft

There is high number of theft all over the study area. West Davis Street has the highest number of theft.

Figure 6.0 Vandalism

Vandalism is the second highest crimes occur in the study area. The southern part of the study area experienced this crime than the northern part.

3.2 Step one: target Area selection



Pic 8: Dallas City Boundary and Study Area map. (Source: Esri Business Analyst 2010)

The Bishop Arts District neighborhood which is located in the heart of North Oak Cliff, one of Dallas most unique neighborhoods, was selected as a study area. The Bishop Arts district at the intersection of Bishop Street and Davis Street is a small shopping and entertainment district which is home to over 60 independent boutiques, restaurants, bars, coffee shops, theaters and art galleries. Bishop Arts District is so old that it was listed on the National Register of Historic Places in 1990. The building in this area is protected by a conservation district that requires developers to respect and retain the allure of the neighborhood and many of the buildings and homes maintain their original and antiques characteristics. Areas like this should be desirable places of pride rather than places that are avoided. Crime index is one of the factors that determine people and market to move in or out of the area. Demographics profile show that this area has experienced decrement in total population and increment in housing vacancy rate which will be discussed later.

3.3 Step two: Data Collecting and Mapping

The demographics data was obtained from ESRI Business Analyst 2010 which has current 2010 census information. The crime data was obtained from the Dallas Police Department website and those data were brought into Geographic Information System (GIS) for geo coding, mapping and further analysis.

The study area is 0.683 square miles with total population of 6987. The population density is 10,239 people per square mile which is much more low density as compared to Dallas which has 3470 people per square mile. The average family size of the study area is predominantly 4 members as compared to Dallas City whose family size is 3 members. Among all households, 50 % are married couple families and among them 37% are with children.

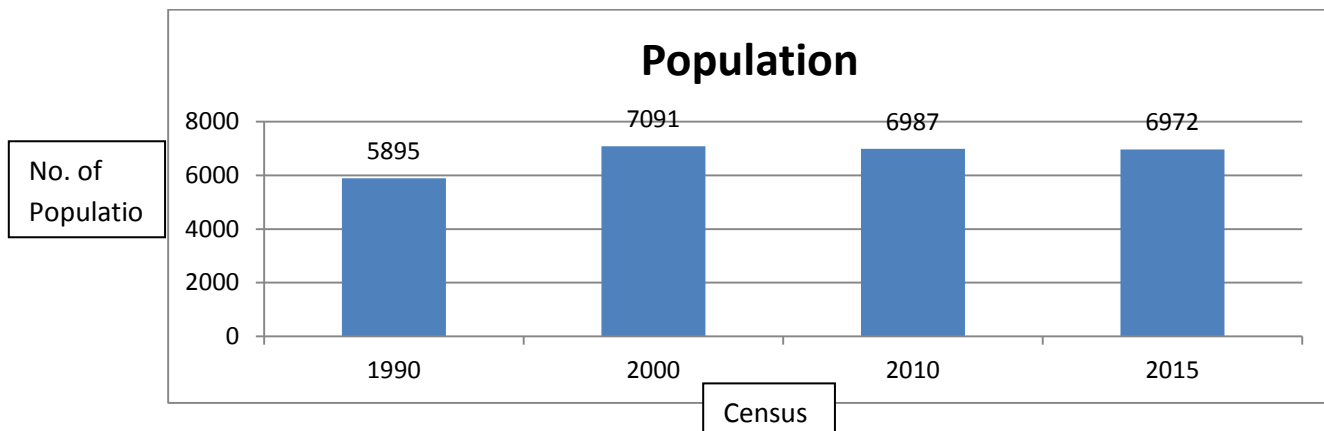


Fig 1: Total population of Project area. (Source: Esri Business Analyst 2010)

The above chart shows that the population of the study area has declined from 2000 to 2010 and further projected to be declined by 2015. There was certain increment of 16 percent in total population from 1990 to 2000 but the long term trend shows the decrement in total population. The total population for 2010 is 6987 for the study area and this data will be used for the considerations made in this study.

Racial Composition

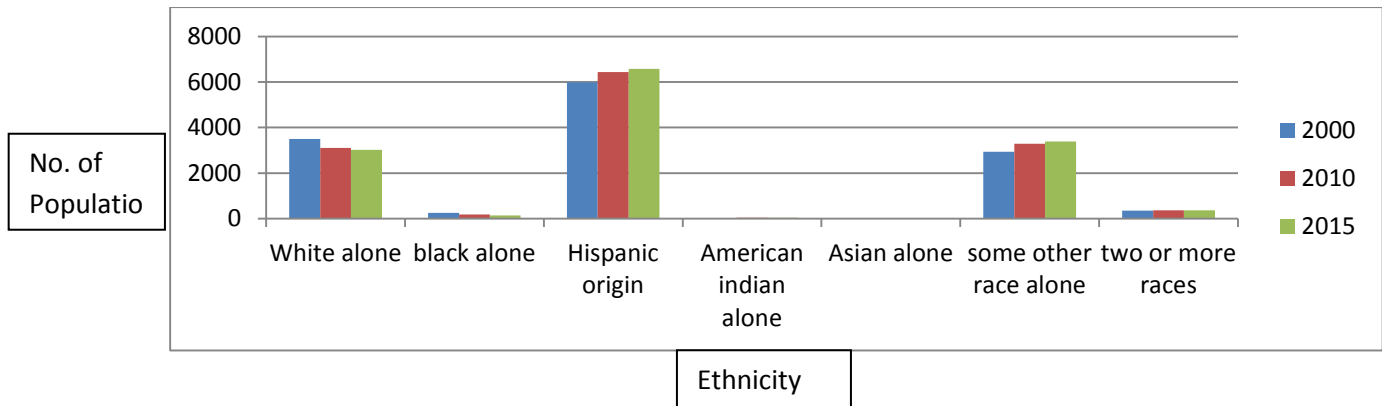


Fig 2: Racial Composition within project area (Source:ESRI Business Analyst 2010)

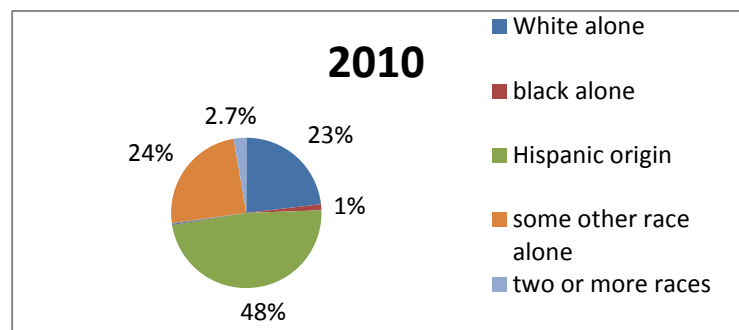


Fig 3: 2010 Racial Composition within project area (Source:ESRI Business

The 2010 census indicates that the Hispanic origin is the dominant race comprising 48% of the total population followed by the white alone with 23% and some other race alone with 24% in our study area. Black alone population comprises only 1% of the total population. The 2000 to 2015 growth trend shows that the hispanic population and some



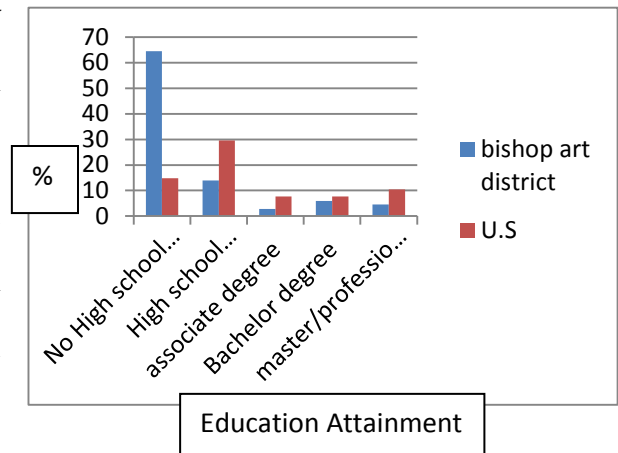
Fig 4: 2010 Distribution of ages within project area. (Source: <http://www.city-data.com/neighborhood/Bishop-Arts-District-Dallas-TX.html>)

other race alone population is gradually increasing while the white population is gradually decreasing over the years.

24-35 age group and 0-5 age group is highest in number. Male and female population are approximately equal at age less than 20 but male population is much higher at age group 20-40 as compared to female population.

Education Attainment

Educational attainment in the study area appeared equally split between those with associate degree, bachelor degree and master/professional degree. 64 percent of the total population in the study area is without high school diploma and only 13 percent are high school graduates.



*Fig 5: 2010 Education Attainment within project area.
(Source:ESRI Business Analyst 2010)*

As compared to the national educational attainment where only 14.8 % are without high school diploma, there is 64 percent of total population in study area without high school diploma.

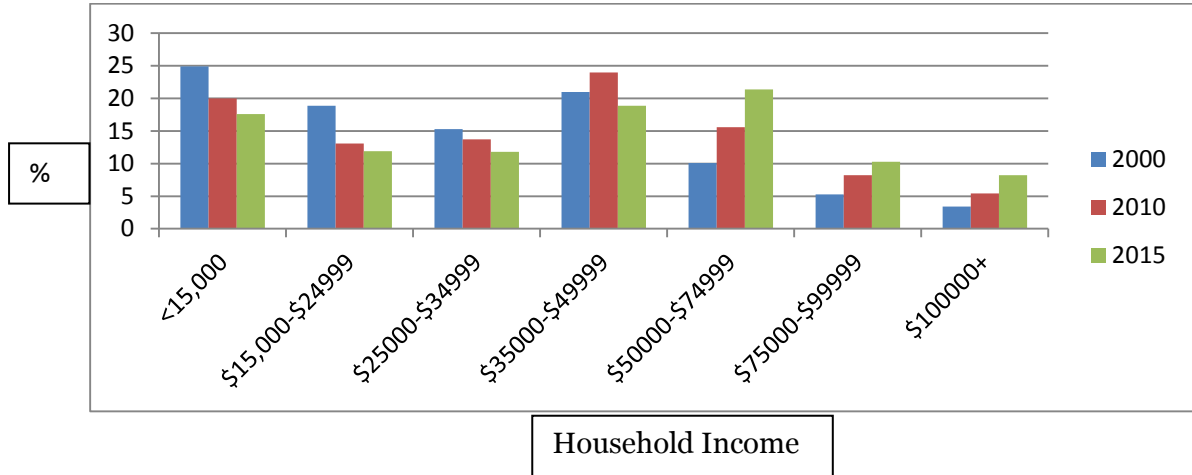


Fig 6: Household Income with in Project Area. (Source: ESRI Business Analyst 2010).

In the year 2000, 25 percent of the neighborhood work-aged population earned \$15000 or less following 21 percent of the neighborhood whose household earning was \$35000-\$49999. The population of the neighborhood earning less than \$35 k is in decreasing trend whereas the population earning more than \$50k is gradually increasing over the years. Analysis of this household income chart shows that household income has been rising in the neighborhood.

Housing Occupancy

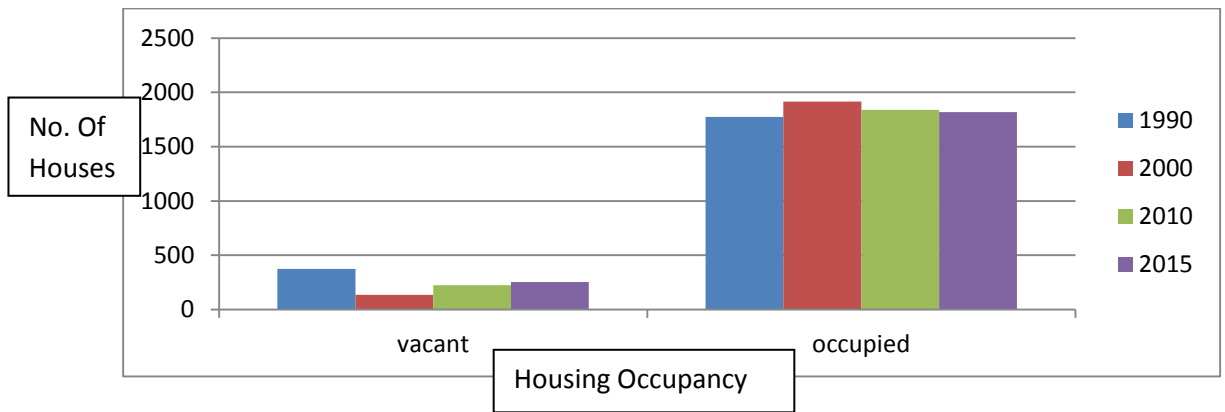


Fig 7: Housing Occupancy with in Project Area. (Source: ESRI Business Analyst 2010).

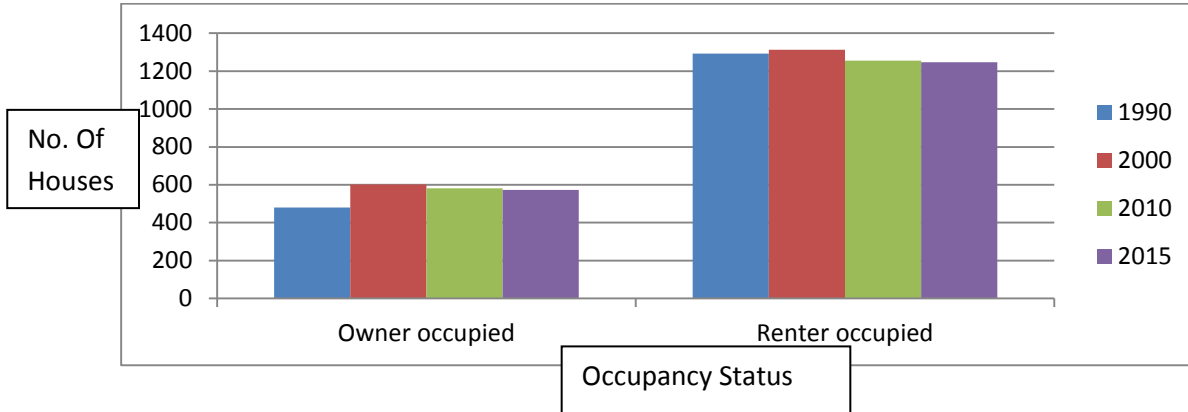


Fig 8: Housing Occupancy Status with in Project Area. (Source: ESRI Business Analyst 2010).

Analysis of housing occupancy chart shows that housing occupancy rate is decreasing as from 2000 and housing vacancy rate is increasing from 2000. Housing tenure chart shows that renter occupied population is double the owner occupied population. The growth trend is slightly decreasing in both groups over the years from 2000.

Vacancy Status

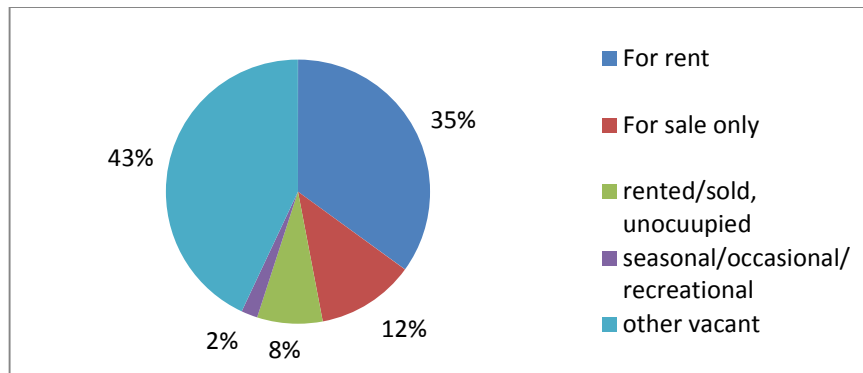


Fig 9: 2010 Housing Vacancy Status with in Project Area. (Source: ESRI Business Analyst 2010).

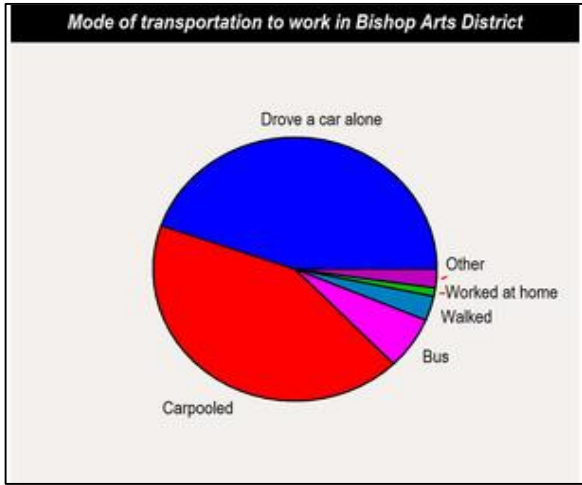


Fig 10: 2010 Modes of Transportation to work in Project Area. (Source: <http://www.city-data.com/neighborhood/Bishop-Arts-District-Dallas-TX.html>)

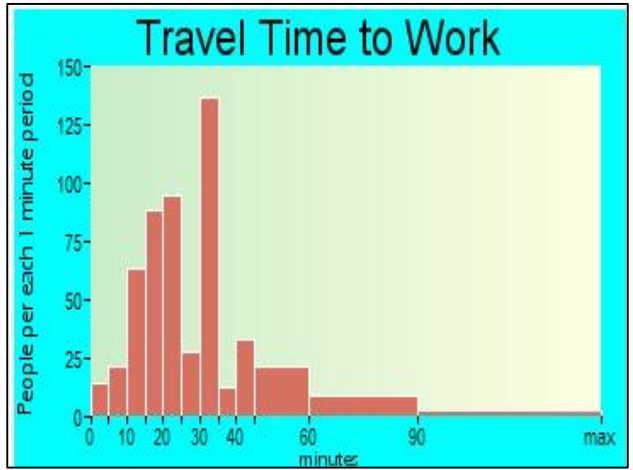


Fig 11: Travel time to work in Project Area. (Source: <http://www.city-data.com/neighborhood/Bishop-Arts-District-Dallas-TX.html>)

35 percent of the vacant housing in the study area was in good enough condition to be rented. 12 percent of the housing was for sale only, 8 percent of the housing was rented and sold but unoccupied and 43 percent of vacant housing was considered other. Other status is given to housing units that are vacant at the time of census interview. The definition of “other vacant” is “units held for settlement of an estate, units held for occupancy by a caretaker or janitor, and units held for personal reasons of the owner.

Car pooled and drove car alone is the highest mode of transportation that residents take to travel to work. The highest number of commute 30-35 minutes to work followed by 15-25 minutes.

3.4 Step Three: Data Analysis and Target Area Selection

Methodology

Crime Studied: Auto theft, burglary, lost property, robbery, theft, vandalism.

Robbery: This category is defined by the Uniform Crime Reporting (UCR) handbook as the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear.

Burglary: UCR handbook defines burglary as unlawful entry with intent to commit a larceny or felony, breaking or entering with intent to commit a larceny, house breaking, safecracking and all attempts at these offenses.

Theft: Described by the URC as Larceny-Theft, this type of crime is the unlawful taking or leading away of property.

Vandalism: This type of crime is described as willful or malicious destruction or defacement of public or private property.

This study analyzes the occurrence of all crimes in specific areas within the Bishop Arts District neighborhood, rather than the places where specific crimes most often occur. This method was chosen for a number of reasons. First, the study seeks to apply CPTED principles to areas in which crime affects both people and property. If the study's objective were only to reduce burglary (a crime against property) in the Bishop Arts District, the location of burglaries and a study of the homes burglarized would be of highest importance. Additionally, a specific range of countermeasures for defeating

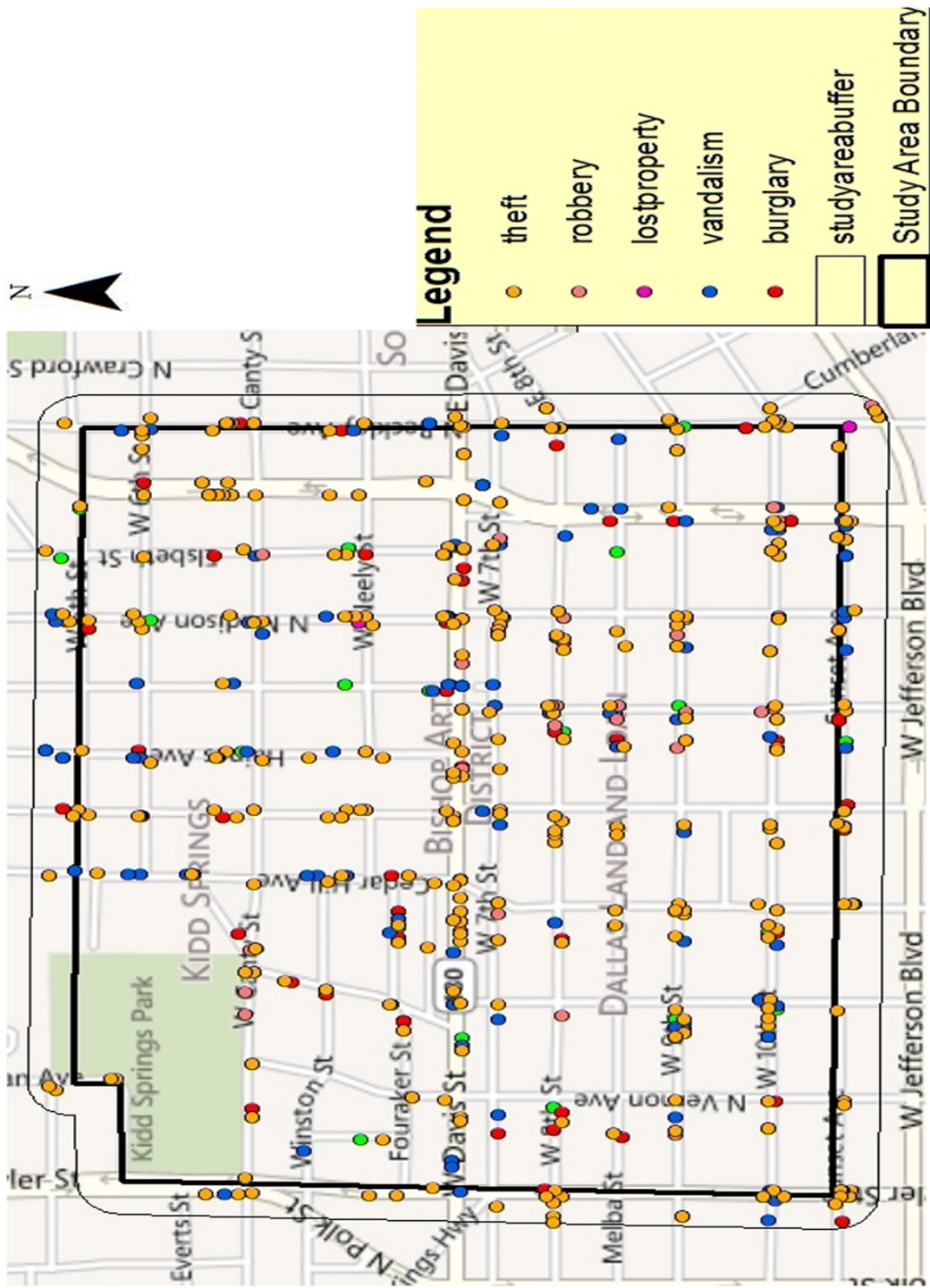
burglaries could be employed. However when multiple types of crime of inherently different nature are studied in the same location, a broader environmentally focused strategy can be applied to the study of the area in hopes identifying structural issues associated with crime.

The methodology used to identify the crime hot spots within the study area is simple and intended only to justify the further study of the selected. The crimes chosen were chosen exclusively because information about them is available through open records from Dallas Police Department (DPD), accurate, and they affect both people and property.

Crime data is collected from the Dallas Police Department from the open records section. Crime data from the year 2010 to Jun 27 2012, a three year period is used in this project to identify the areas in which the most crime occurred. Arc GIS 10 software is used to do some crime data analysis. Since all those crime data are within Dallas city so first all those data are geocoded using GIS within Dallas City to see where exactly the crime occurred. Bishop Arts District Neighborhood study boundary is then created and crime data is clipped from the Dallas City boundary just to get the total crimes within our study area. All those individual crime is geo coded and later merged into single total crime file.

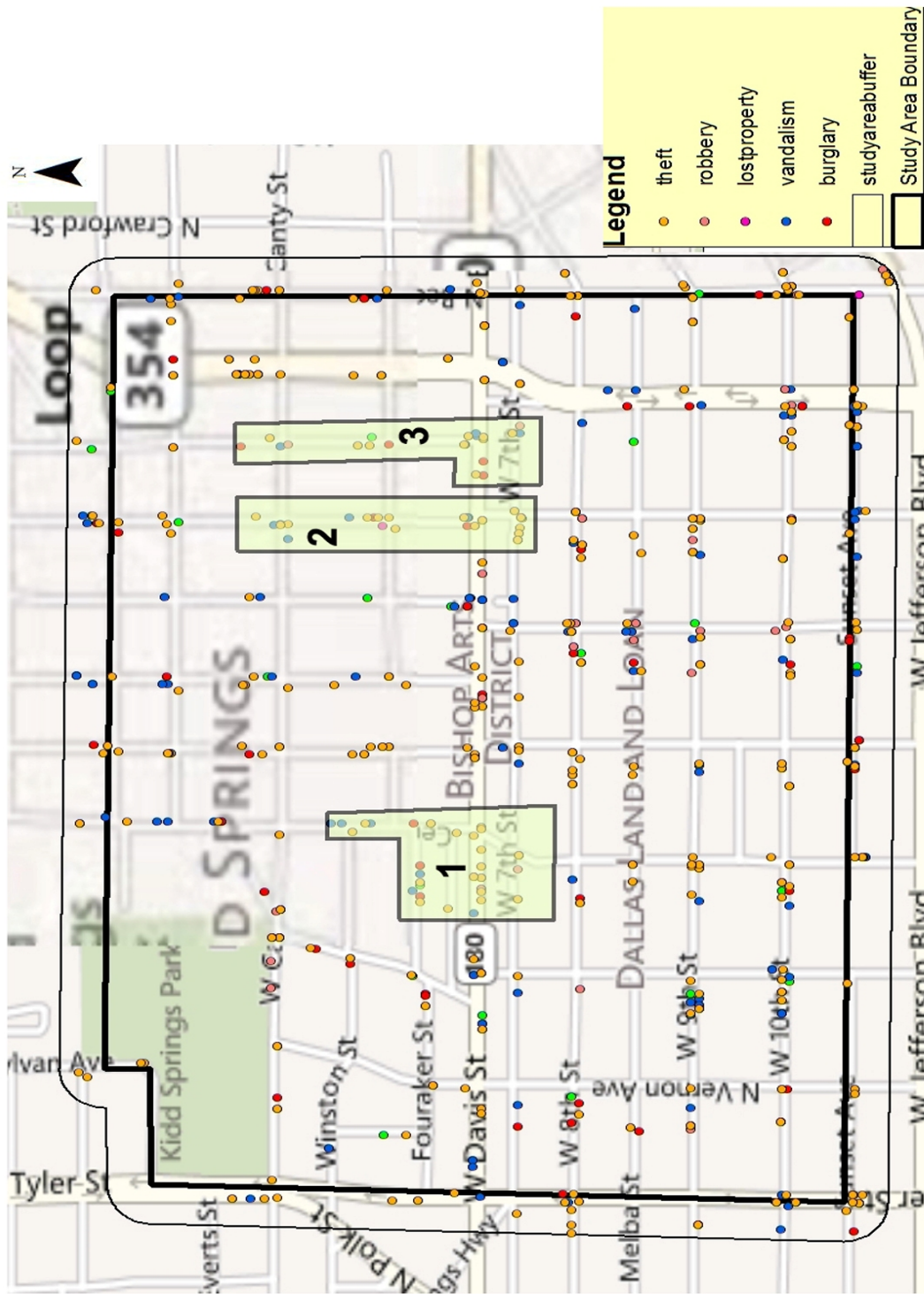
The map 2 below shows total crimes within the study area boundary. Area around the intersection of Davis Street and Cedar Hill Ave are with high clusters of crimes. Crimes reported with the same address are overlapped and therefore the map shown below may not show the actual count of crimes. GIS query is done to find the actual crime counts within the selected target areas. Detailed overview of selected target areas is discussed later.

ALL CRIMES (2010-2012)



Map 2 : All crimes within Project area (Source: Esri GIS)

SELECTED TARGET AREAS



Map 3: Selected Target Areas (Source: Esri GIS)

Step 4: Diagnose Environmental Problems

Problems at the Neighborhood Level:

Problems are identified through demographics profile data and site evaluation on the concepts of CPTED.

Social:

- High percentage of rental housing.
- Residents away from home often (working many jobs to pay rent).

Environmental:

- Lack of code enforcement, for both property and structures.
- Street Network and amenities.
- Substandard housing and blight (abandoned buildings, unsafe house and slumlords) increase the “opportunity” for crime.”
- No gathering places



Pic 9: Abandoned Retail Space in Davis Street. (Source: photograph by Sharmila Gurung)



Pic 10: Abandoned Housing in Madison Ave and Davis St intersection. (Source: photograph by Sharmila Gurung)

3.6 Site Level Territoriality Analysis

Study area is divided into four categories: Public, Semi-Public, Semi-Private, and Private. The area least controlled by residents or local stakeholders is the public area. Public areas are unregulated, or stakeholders expect regulation to be conducted by a

public authority such as the police. In the case of the Bishop arts District Neighborhood, all streets are designated as Public Areas. Public streets are ruled as “public.” Sidewalks, public



(Source: photograph by Sharmila Gurung)

yet closer to private dwellings, and often maintained by private residents, are ruled as “semi-public.” “Semi-Private” areas include yards. “Private” areas are considered exclusively as the areas inside structures.

A high percentage of rental housing also affects the ability of neighborhood residents to determine who has legitimate business in the neighborhood and who does not. Bishop Arts Districts Neighborhood has large number of rental occupied buildings. The built environment of the Bishop Arts district Neighborhood has many examples such as the one pictured above. Here it is seen that a multi-family building is almost within arm’s reach of a single-family home.

3.7 Target Area 1

Crime Occurred: 72

Time Period: Jan 2010 to Jun 27 2012.

General Description:

This target area is located around the intersection of West Davis Street which is a commercial corridor, and Llewellyn Ave. This area is largely residential in character with single family and multifamily residences. There is large number of multifamily houses with some vacant lots on northwest and southeast corner of the intersection. The both sides of the Davis Street are with retail uses. There is a convenience store at the intersection which is a draw for



Map 4: Target Area 1 Land Use map.
(Source:www.dfvmaps.com)

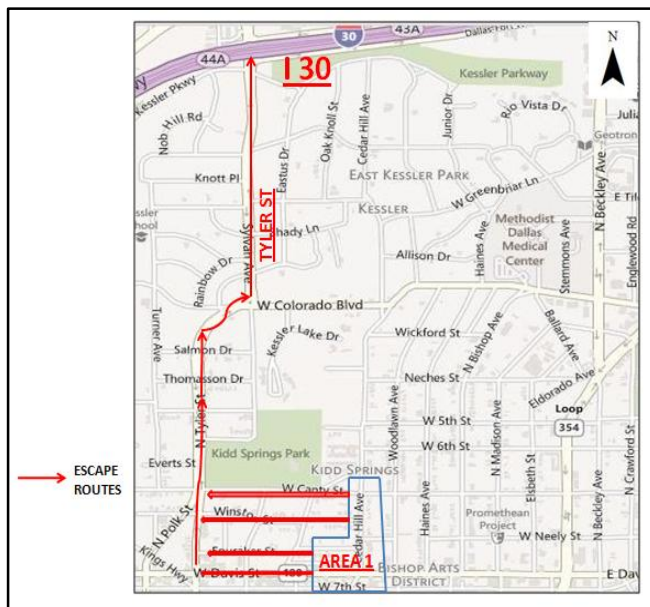
a range of people from outside and inside the neighborhood because it is the only such store for blocks and is located on a major arterial. This intersection also has restaurants/ fast food store that draw number of people from outside in the area. There is a small Mexican To-Go fast food store at the Davis St and Cedar hill Ave intersection which also draws a range of people from inside and outside the neighborhood as the convenience store. There are retail stores and restaurants to the southern side of Davis St. The residential neighborhood towards the northern side of Davis St is under crime watch area.



Pic 12: Crime Watch Area in target area 1. (Source: photograph by Sharmila Gurung)

Access:

Neighborhood traffic reaches the center of this area easily by foot, bicycle, or car. Both the Davis street and Llewellyn Ave are with high traffic volumes with 10672-13882 and 7197-9434 vehicles per day respectively. As both the sides along the Davis Street are with retail spaces, this area has large amount of public parking spaces.

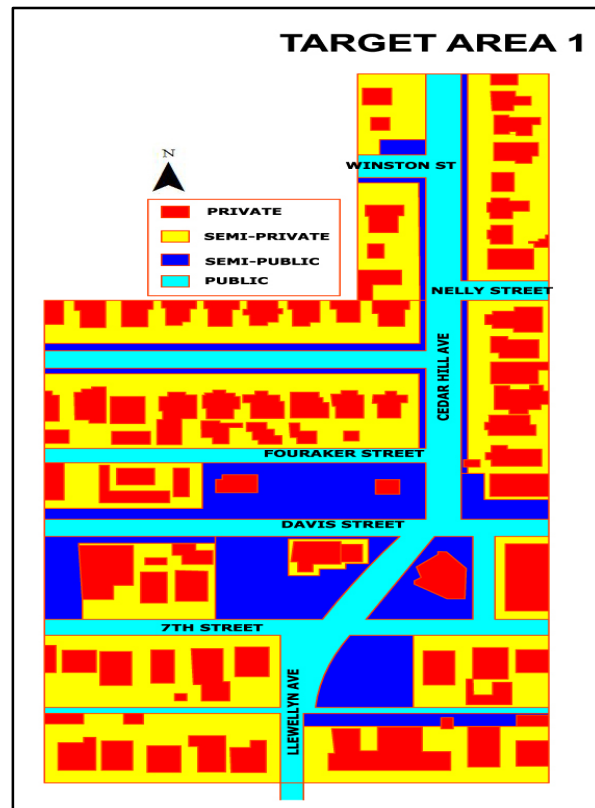


Map 5: Escape routes in target area 1. (Source: www.bingmaps.com)

The area is easily accessed from outside the neighborhood via Canty St, Winston St and Fouraker St which connect the Tyler Street which acts as a movement generator. Tyler street, one of the streets carrying high traffic volumes, connects I 30 to the north which makes the offender easy to enter the neighborhood, victimize its residents, and easily escape from the neighborhood.

Territoriality Spatial Analysis:

The territoriality spatial analysis map of target area 1 shows that the intersection of Davis St and Cedar Hill Ave is entirely semi-public. The area is divided into private, semi-private, semi-public and public zone. All streets are designated as public; sidewalks, parking lot are designated as semi-public; private lawns and yards are designated as semi-private and built in structures are designated as private zone. The neighborhood area around the Davis St and Cedar Hill Ave intersection are highly designated with private and semi-private zone. Private and semi-private zone are the one that can be controlled by residents and local stakeholders.



Map 6: Target area 1 Territoriality Spatial Analysis. (Source: Drawings by Sharmila Gurung)

This study interprets the convenience store on the northwest corner to be an entirely semi-public area because people are encouraged to enter and exit the establishment; however it remains under the surveillance of the store staff (and video

cameras). It is worth noting that the convenience store acts as a “service generator,” thereby attracting potential victims and offenders. Residents in the area see many people entering and exiting the area, and would have a more difficult time discerning familiar people from strangers. There are multifamily housing buildings in the North West and south east areas of the site. The presence of multifamily housing buildings increases the possible “eyes on the street.”

3.8 Target Area 2 and 3:

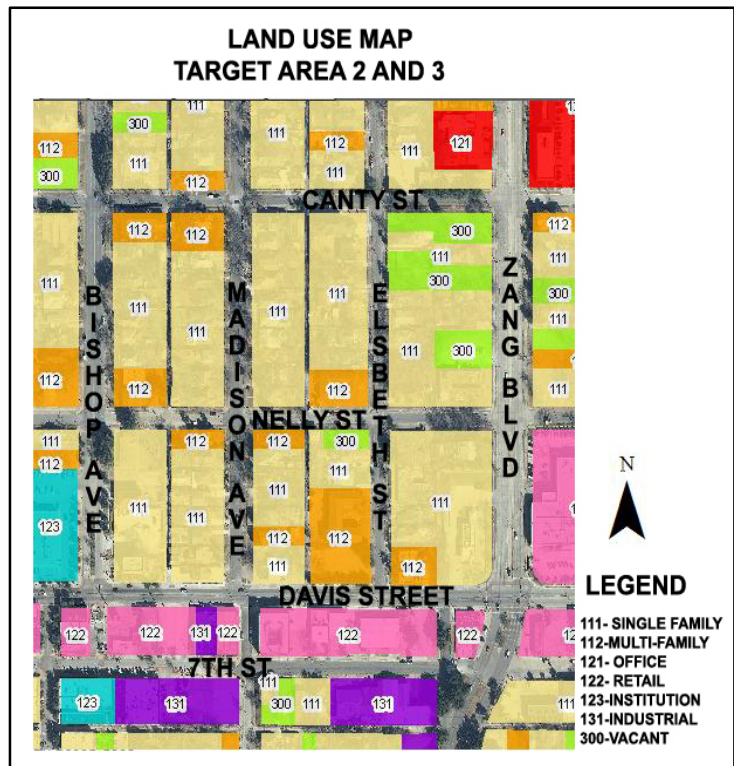
Crime Occurred in target area 2: 53

Crime occurred in target area 3: 34

Time Period: Jan 2010 to Jun 27 2012.

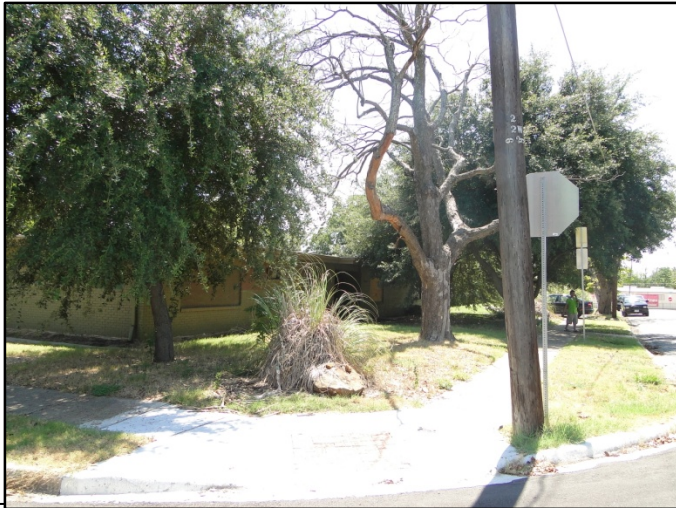
General Description:

The target area 2 is located at the intersection of West Davis Street which is a commercial corridor, and Madison Street, Madison Ave and 7th St, Madison Ave and Nelly St, and Madison Ave and Canty St. The Madison St corridor running from 7th Street to Canty St falls under this target area 2. This area is largely residential in character with single family and multifamily residences to the northern side of the Davis Street. 1 retail use and industrial use.



Map 7: Target Area 2 and 3 Land Use map. (Source:www.dfwmaps.com)

Target area 3 is located at the intersection of Davis St and Elsbeth St, Elsbeth St and Nelly St, Elsbeth St and Canty St. The Elsbeth St corridor running from Davis St to Canty St falls under target area 3. Target area 2 and 3 are similar in land uses but target area 3 has more vacant land towards eastern side of Elsbeth St. There are high number of abandoned buildings in target area 2 and 3 as compared to target area 1 which is also one of the factors for creating crime opportunities.



*Pic 13: Abandoned Building at Target area 3
(Source: Photograph by Sharmila Gurung)*



*Pic 14: Abandoned Building at Target area 2
(Source: Photograph by Sharmila Gurung)*



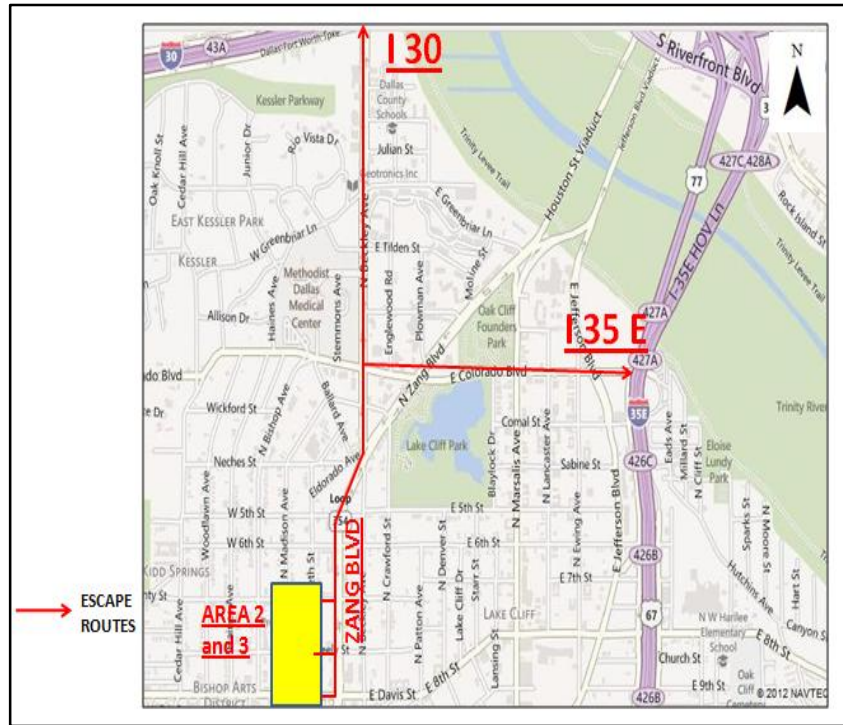
*Pic 15: Fortressed Building at Target area 2
(Source: Photograph by Sharmila Gurung)*



*Pic 16: Home security service badges at Target area 2
(Source: Photograph by Sharmila Gurung)*

Access:

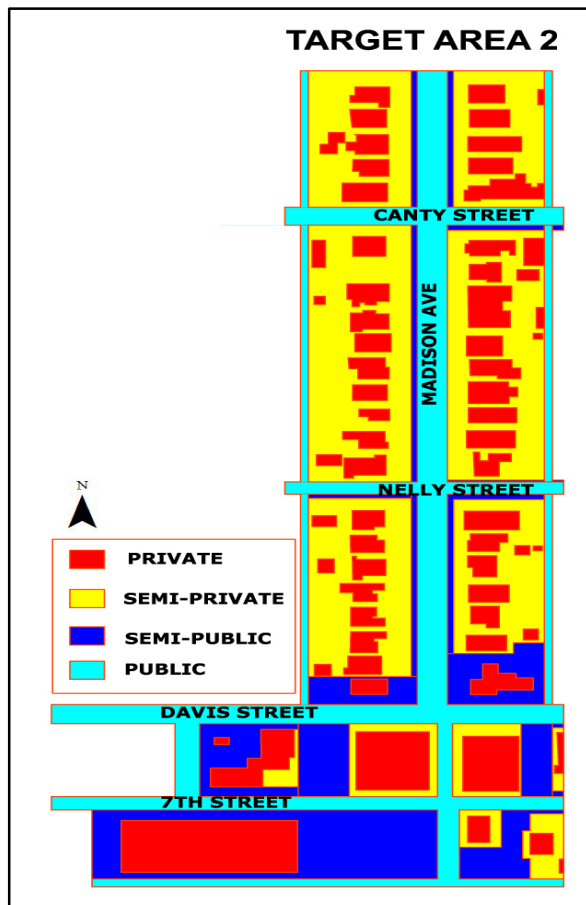
West Davis Street is a commercial corridor having the high volume of traffic flow that is 10672-13882 vehicles per day. West Davis Street is a two way four lane street that links Zang Blvd which connects Highway I 30 and I 35 E.



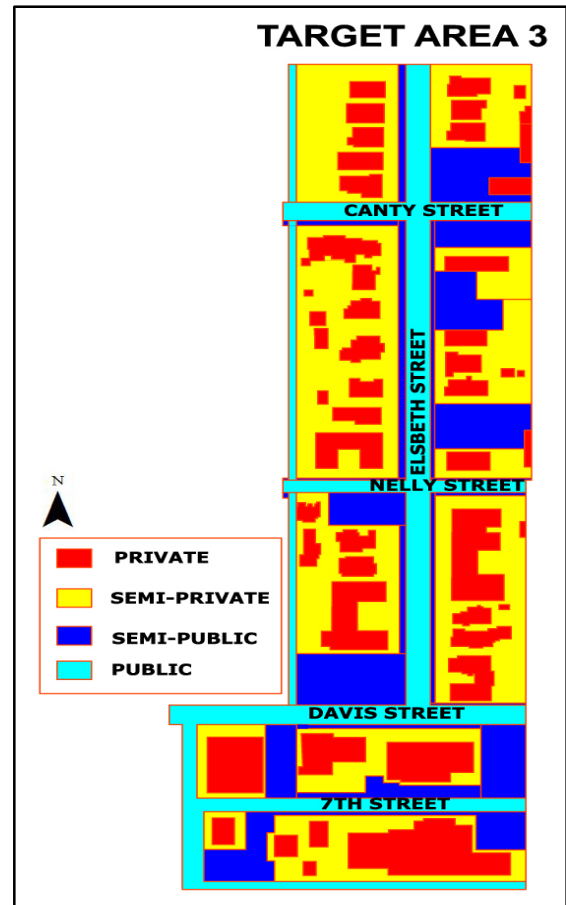
Map 8: Escape routes in target area 2 and 3. (Source: www.bingmaps.com)

The area is easily accessed from outside the neighborhood via Canty St and Nelly St which connect the Zang Blvd which acts as a movement generator like Tyler Street in target area 1. Zang Blvd is a two way street carrying high traffic volumes that connects I30 and I 35 E making the offender easy to enter the neighborhood, victimize its residents, and easily escape from the neighborhood.

Territoriality Spatial Analysis:



Map 9: Territoriality Spatial Analysis in Target area 2. (Source: Drawings by Sharmila Gurung)



Map 10: Territoriality Spatial Analysis in Target area 3. (Source: Drawings by Sharmila Gurung)

The territoriality spatial analysis map of target area 2 shows that the intersection of Davis St and Madison Ave is entirely semi-public. The neighborhood area around the Davis St and Cedar Hill Ave intersection are highly designated with private and semi-private zone. Likewise, semi-public zone is dispersed in target area 3. There are number of vacant lots and parking lots along the Elsbeth St which are designated as semi-public zone. Residences are densely concentrated to the north side of Davis Street in target area 2. The vast majority of this area is considered semi-private space, which holds some

hope for a high level of resident control over the activities in this area. However, photographs of the area show overgrown bushes and landscaping that obstructs a clear view of the sidewalk and street. This reduces the natural surveillance capacity of the homes, and thus the semi-public/semi-private areas near the homes are not as controlled and create less of a feeling that one's activity is observed.



Pic 17: landscape obstructing street view in Madison St, Target area 2 (Source: Photograph by Sharmila Gurung)



Pic 18: Overgrown bushes obstructing street in Elsbeth St, Target area 3 (Source: Photograph by Sharmila Gurung)

CHAPTER 4

RECOMMENDATION

Step Five: Recommendations

The following pages lay out initial steps, as well as some long term objectives, that can add to the security of the Bishop Arts District Neighborhood by changing the environment to enhance natural surveillance, territoriality, access control, and physical security. Some of the steps are simple and can be done with minimal budget and time. Other long-term objectives may take a significant investment of time and money. An example short term recommendation is to increase visibility of areas used at night through improved lighting and visibility from neighboring homes. A long term recommendation would be to locate a small park on one of the neighborhood's vacant parcels. Each makes positive changes to the neighborhood, but the amount of time needed to plan and execute the activities involves different amounts of time and investment. Each Target Area which has been previously identified through this study's methods has a number of long term and short term objectives.

4.1 Target Area 1 Recommendations:

BEFORE



Pic 19: landscape obstructing street view in cedar Hill Ave, Target area 1 (Source: Photograph by Sharmila Gurung)

AFTER



Pic 20: House with clear street view (Source: www.google.com)



House with overgrown landscape (Source: www.google.com)

Pic 21: House located at cedar hill and Winston intersection (Source: www.bingmaps.com)

Pic 21 shows a location of a single –family home along the Cedar hill Ave corridor at the intersection of Cedar hill Ave and Winston St. There is cluster of crimes at this intersection. The view between the residence and street is fully obstructed by the overgrown bushes and landscaping. Dense vegetation shields the fronts of homes from traffic noise, but also prevents a clear view of those entering and leaving the area.

Although the trees in the grass median between the sidewalk and street are well maintained, shrubs and bushes inside the private property are not well maintained. Reducing vegetation that screens homes and creates blank corners will create good natural surveillance making it transparent view between street and residence. The picture 19 above shows the dense vegetation in front of the residence blocking the complete view of the street and picture 20 above shows the trimmed vegetation in front of the residence creating good natural surveillance. Thus, creating transparency helps in reducing the crime opportunities.



view from Cedar Hill Ave, Target area 1 (Source: Photograph by Sharmila Gurung)



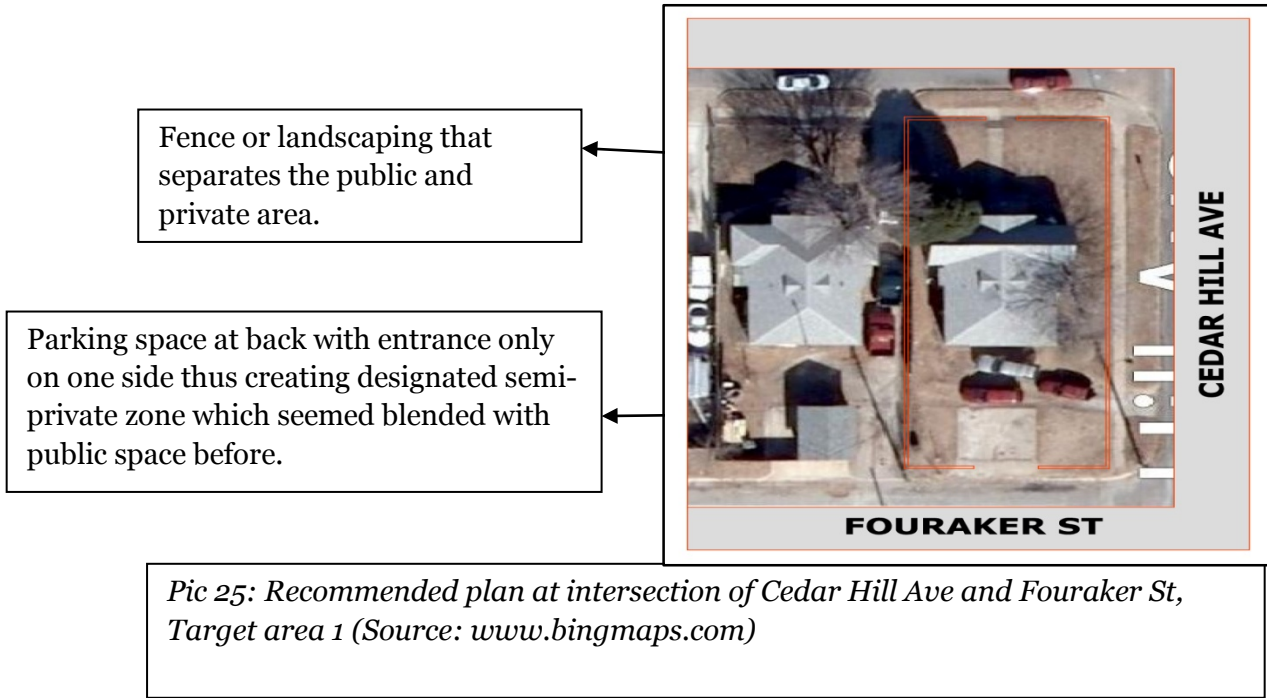
intersection Target area 1 (Source: Photograph by Sharmila Gurung)



Pic 24: Location of House at Cedar Hill Ave and Fouraker Street intersection Target area 1 (Source: www.bingmaps.com)

The picture 24 shows the location of a single family house at the intersection of Cedar Hill Ave and Fouraker St. Fouraker St is next street north to Davis Street. The back space of house is used for parking and there is lack of space demarcation between public and private space. The distance between the sidewalks, streets and house is only fifteen feet which make offender easy to enter or exit into the private property. As this house is located next to the busiest Davis Street, the commercial corridor having high number of people flow from inside and outside the neighborhood, there is high chance of crime being committed around this area. Map 2 in page 32 (All crimes within project area) shows the cluster of crime around this area. Sidewalks, designated as semi-public space, and lawns designated as semi-private space most often in United States are blended together with no demarcation which may invite offenders to enter into semi-private and private zone with no any hesitation. Lacking demarcation does not make offender being in other's territory and hence create crime opportunity. Like the one here (pic 24) that promote to such intrusion may be fenced (picket fence) or separated by landscaping creating clear view between the street and house. Parking at back should be maintained so that it looks semi-private space rather than public space which makes easy

for anyone to enter into the zone, so the separation as discussed above would help this problem too. The pic 25 below shows the recommended plan for this property.



Pic 26: Fouraker street corridor lacking street lights, Target area 1 (Source: Photograph by Sharmila Gurung)



Pic 27: Nelly street corridor lacking street lights, Target area 1 (Source: Photograph by Sharmila Gurung)



Pic 28: Nelly street and Fouraker street corridor, Target area 1 (Source :www.bingmaps.com)

The pic 26 and 27 show the street corridor along Fouraker Street and Nelly Street that are located west of the Cedar Hill Ave. Map 2 in page 32 shows the high cluster of crimes in Nelly Street. Both the street corridor has common features, single family houses along the street with big lawns at front and sidewalks provided at both sides of street. These street corridors are lacking street lights for night time security. The distance between houses and sidewalks are more so that sidewalks do not have enough lighting from the houses and have poor visibility during night time. Lack of street

lighting along the street is one of the factors which influence the offender to commit crime during nighttime as there is less visibility. Added street lights would enhance



nighttime security on the street,

Pic 29: Recommended street corridor, Target area 1 (Source:www.google.com)

but only if the vegetation issue is addressed. The vegetation along the street should be clear enough for transparent view between the houses and streets. Making street more pedestrian friendly by adding street amenities like street lamps, creating small public gathering spaces with benches where people can socialize are some of the factors that make the street complete. When the street is more pedestrian friendly, there is more flow of pedestrian walkers creating “Eyes on the Street”. The picture 29 shows the recommended night time lighting along the Nelly and Fouraker Street corridor.

This unlit parking lot (pic 30) in the southwestern portion of Davis Street in target area 1 would have improved security if it were illuminated at night. Fencing is installed to separate the private space from the public thus buffering the residence from alley traffic and it also creates a barrier between the residence building on left and the



Target area 1 (Source: Photograph by Sharmila Gurung)

retail building on right. This would give illegitimate users the feeling they are in someone else’s territory, no matter which side of the fence they are on. Having the number of windows facing towards the parking lot is a good level of natural surveillance. The picture above shows the lot is obscured from view by vegetation that is between the street and the parking lot. Thus, reducing the amount of vegetation surrounding the parking, especially which is growing between the street and the lot, would also add to the natural surveillance of the lot.

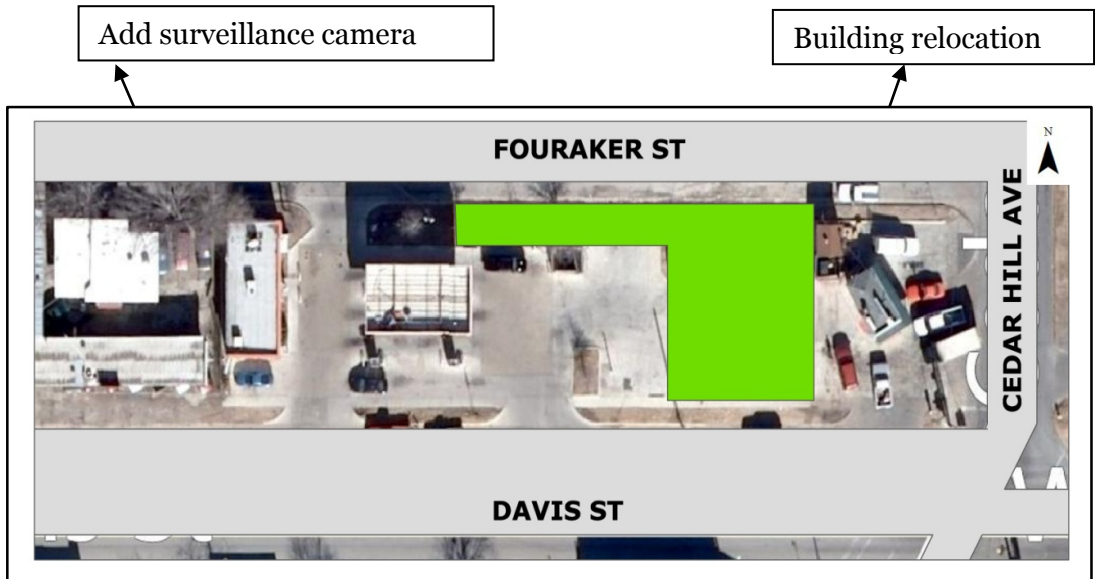


Pic 31: House attached to retail store at intersection of Davis St and Cedar Hill Ave, Target area 1 (Source: Photograph by Sharmila Gurung)

Intersection of Davis Street and Cedar Hill Ave are with high clusters of crimes. The picture (pic 31) above shows house and retail store close to each other and there is no demarcation between these two different uses. Retail store generates flow of public people from inside and outside the neighborhood. Lacking demarcation of designated spaces may ease offenders to enter and exit into the private zone. So, there should be clear demarcation of spaces. The space should be defined and showcased its uses. The picture (pic 32) shows the recommended picture where fence (picket fence) is added that separates the semi-public space like sidewalks, retail space from the private zone. The vehicle entry and exit point is narrowed allowing the passage for one vehicle at a time. This kind of target hardening strategies will reduce the crime opportunities thus, decreasing the offender easiness in entering the private property.



Pic 32: Added fence in front of house at intersection of Davis St and Cedar Hill Ave, Target area 1 (Source: Photograph by Sharmila Gurung)



Pic 33: Davis St and Cedar Hill Ave intersection plan ,Target area 1 (Source:www.bingmaps.com)

The above picture (pic 33) shows the plan view of Davis St and Cedar Hill Ave intersection. The number 1 shows the convenience store, 2 shows the open vacant lot and 3 shows the to- go Mexican fast food store. The convenience store and fast food are the

one that draws public people in and out of the space. The convenience store is only with one surveillance camera at front. The side corner parking space facing the Davis Street might be the place for the offender to hide and wait for the victim to attack. Since, this corner is not provided with surveillance camera, the convenience store's staff may not be aware of the danger that might take place. Providing cameras around all possible corners will help reduce the crime opportunities and help staff watch surroundings and take action before any danger occurs .The fast food at corner creates chaos during peak time bringing in lots of people at once. The building located diagonally and customer being able to access from all three sides creates crime opportunities. It increases the high risk to store's staff by allowing the offender chance to hide and attack from different sides. Providing surveillance camera around will aware staff before any action takes place. Relocating building at corner will allow staff wide perspective of the area and hence helps staff with natural surveillance.

4.2 Target Area 2 and 3 Recommendations:



Pic 34: Lacking demarcation (rear view), Davis St and Madison Ave intersection ,Target area 2 (Source:Photograph by Sharmila Gurung)



Pic 35: Lacking demarcation (front view), Davis St and Madison Ave intersection, Target area 2 (Source: Photograph by Sharmila Gurung)



Open space with no demarcation

Vacant retail space

Pic 36: Location of vacant retail space and unmanaged open space, Target area 2 (Source: www.bingmaps.com)

The pictures (pic 34 and pic 35) show the lack of clear demarcation of public and private space. The right side of the building (pic 35) is vacant. Abandoned buildings are one of the factors for creating crime fear and these spaces may be the one for the offender to hide. The semi-private zone of the house is blended with the vacant lot at back that is semi-public zone. It is hard to distinguish who owns the space as there is no

any border marking the space. There is conflict between this private and public space. Untrimmed trees, abandoned buildings corners, undefined vacant spaces at back are the physical features that supports the offender to hide, victimize and escape. To make the space more defensible, features that support the criminal behavior should be cut off. Thus, defining the territory creates a boundary which makes illegitimate users hard to enter into the area. Fencing with picket fence or with vegetation can be one of the options to define the space.

Solid Boundary obstructing the view



Pic 37: House lacking demarcation of space at Elsbeth St and Nelly St intersection, Target area 3 (Source: Photograph by Sharmila Gurung)



House lacking demarcation of space.

Pic 38: Location of house at Elsbeth St and Nelly St intersection, Target area 3 (Source: www.bingmaps.com)

The picture (pic 37) shows the condition of house located at intersection of Elsbeth St and Nelly St. This intersection is one of the crime prone zone. The house is located so close enough to the sidewalks and there is no any demarcation of the spaces, which ease the offender to enter into the private territory. The yard is with untrimmed trees and unmanaged space. The boundary wall at the right corner is too high with overgrown vegetation on top blocking the clear view of the other side. The small corridor between the boundary wall and the other building might be the space for the offender to hide and victimize the residents when they get chance. Replacing the solid boundary wall to the boundary that is transparent such as iron bars, wooden picket fence and trimming the overgrown vegetation that blocks the view, would create more natural surveillance and make space more defensible. The picture below shows the building with added fence and narrowing down the paved space for vehicle entrance. Defining the space in such way creates individual territory, where semi-public space is close enough but clearly defined and separated. This creates illegitimate user's feeling of being in someone's territory and when physical environment can bring such changes in behavior, it automatically deters the crime opportunities.



*Pic 39: Recommended at Elsbeth St and Nelly St intersection, Target area 3
(Source: Photograph by Sharmila Gurung)*



Pic 40: Parking lot along Davis St, Target area 3 (Source: Photograph by Sharmila Gurung)



Pic 41: Recommended Parking lot plan along Davis St, Target area 3 (Source: Photograph by Sharmila Gurung)

This parking space (pic 40) at the south west corner of the area 2 along the Davis Street is under a good level of natural surveillance due to the number of windows directly facing it. The area is also provided with the lights which aids the ability to observe parking lots at night. The numbers of window openings towards the parking lot make offender hesitate to commit crime but make victim safe with the feeling of being watched by people. Building number of windows opening in left buildings create full natural

surveillance to the parking lot area. Map 2 in page 32 shows that there is lot of crime occurred in this area. The parking lot is between the Davis St and Seventh street which is near to Zang Blvd that connects to I 30 and I 35 E. There is lack of definition of space which may allow the illegitimate users to be in the area. At present, parking lot is accessible from both sides of the street but making entry only from one street and exit from another street (pic 41) creates restriction which brings only legitimate users into the area.



Pic 42: Street corridor lacking street lights along Madison Street, Target area 2 (Source: Photograph by Sharmila Gurung)

The corridor along the Madison Ave and Elsbeth Street are with some common features. Both the streets are with single family houses with some multi-family houses at intersections, both the streets are provided with sidewalks with the median creating the buffer between the vehicle and pedestrian path but there is lack of street lighting for night time security. Street lights creates clear vision for the walkers and make them aware of any danger helps residents to keep clear vision on street and offender. It is hard for the offender to commit crime when there is good natural surveillance between the

private, semi-private, semi-public and public zone, as there is chance of offender being caught.



Pic 43 : Parking lot at Madison Street and 7th street intersection, Target area 2 (Source: Photograph by Sharmila Gurung)

Parking Lot lacking enough night lighting



Alley blocked with untrimmed trees and vegetation.

Alley blocked with untrimmed trees and vegetation connecting Zang Blvd.

Pic 44 : Madison Street and 7th street intersection, Target area 2 (Source: www.bingmaps.com)

The alley to the parking lot is a potential access/egress location for those wishing to enter or leave the area without being detected. It is not observed or claimed by anyone, as demonstrated by the overgrowth on both sides. It is an example of an area that could potentially be dangerous for someone at night. It is not in clear view of any windows. The alley connects the back side of the houses. This area is provided with restaurants and retail space which might be the offender's target area to victimize. Map 2 shows the clusters of crimes at this intersection. Lighting system is not enough to light the whole parking lot area and the overgrown bushes can be the spaces for the offender to hide and attack without letting the victim know about the upcoming dangers. Thus poor visibility does not allow the victim to be aware of the upcoming danger. So clearing the bushes and making the street clearly visible with the adequate lighting system can help deter the crime providing better natural surveillance.

CHAPTER 5
CONCLUSION

Overall, there exist many opportunities to address the crime-related environmental concerns of the Bishop Arts District Neighborhood. Unfortunately, the existence of so many opportunities to improve the environment creates as many opportunities for crime to persist if these issues are not addressed. High crime neighborhoods are generally undesirable places to live because residents do not feel secure. The neighborhood is a historic one, featuring many carefully maintained homes that are sources of pride and positive change in the neighborhood. This historic neighborhood should be livable if it is to be worth preserving. Due to time constraints, it is not possible to identify and analyze the issues within the whole study area. However, the issues identified within this study cover only a small portion of the entire neighborhood. If residents or city wish to address more than the three areas studied herein, they should be able to find the methods and ideas in this study helpful for further analysis of other areas.

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APPENDIX

Fig 1: Auto theft crime in Bishop Arts district Neighborhood

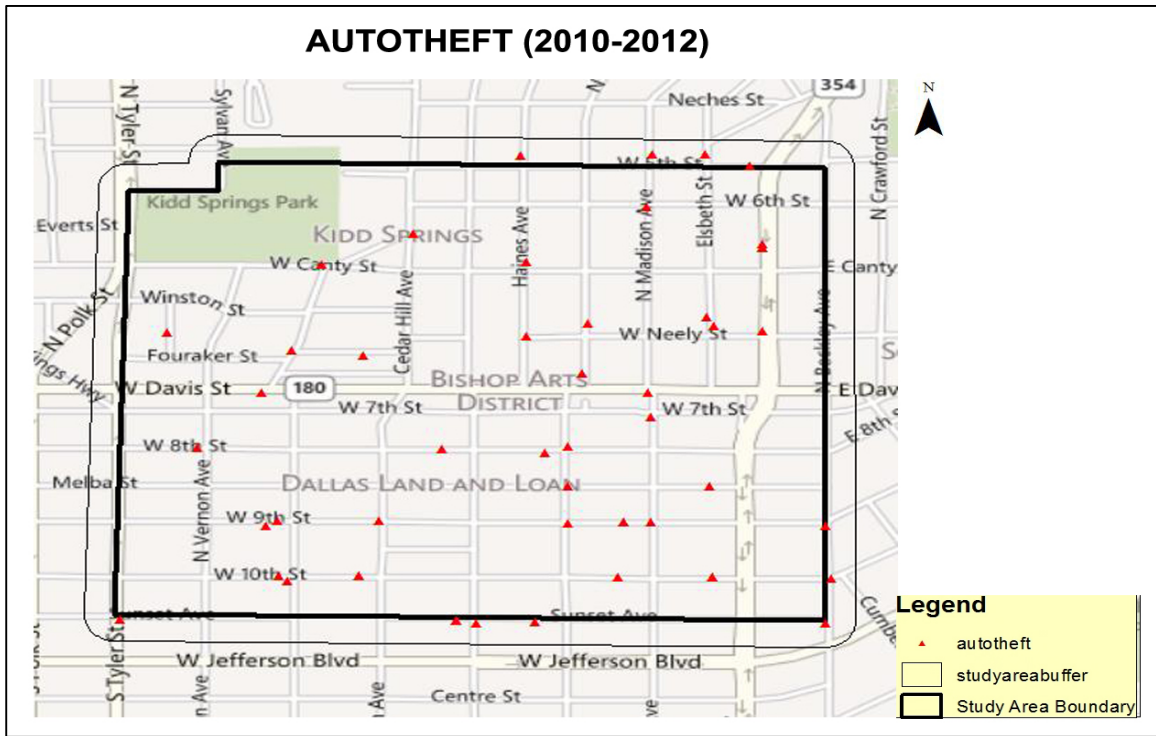


Fig 2: Burglary crime in Bishop Arts district Neighborhood

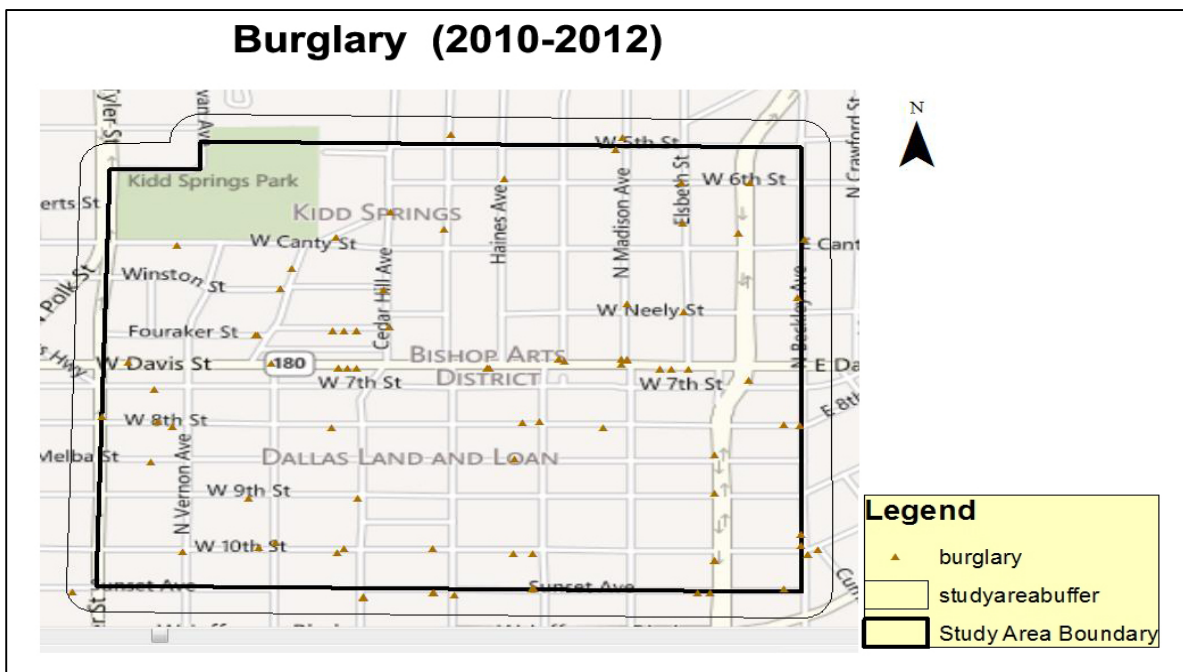


Fig 3: Lost Property crime in Bishop Arts district Neighborhood

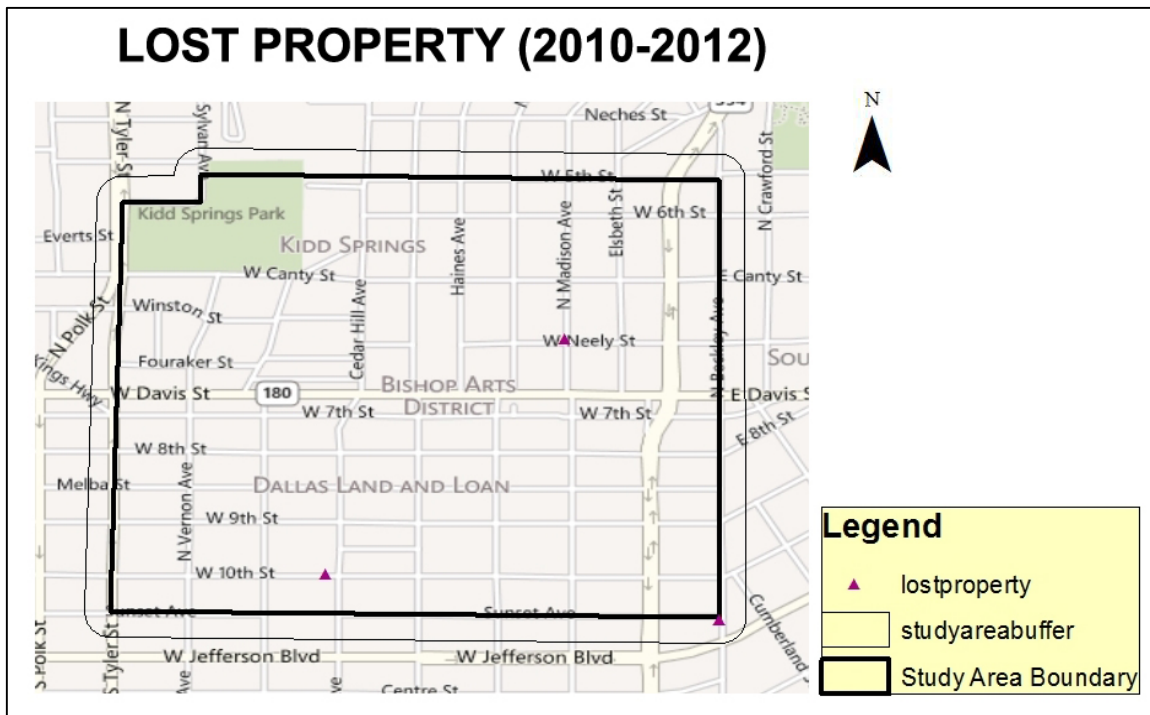


Fig 4: Robbery crime in Bishop Arts District Neighborhood

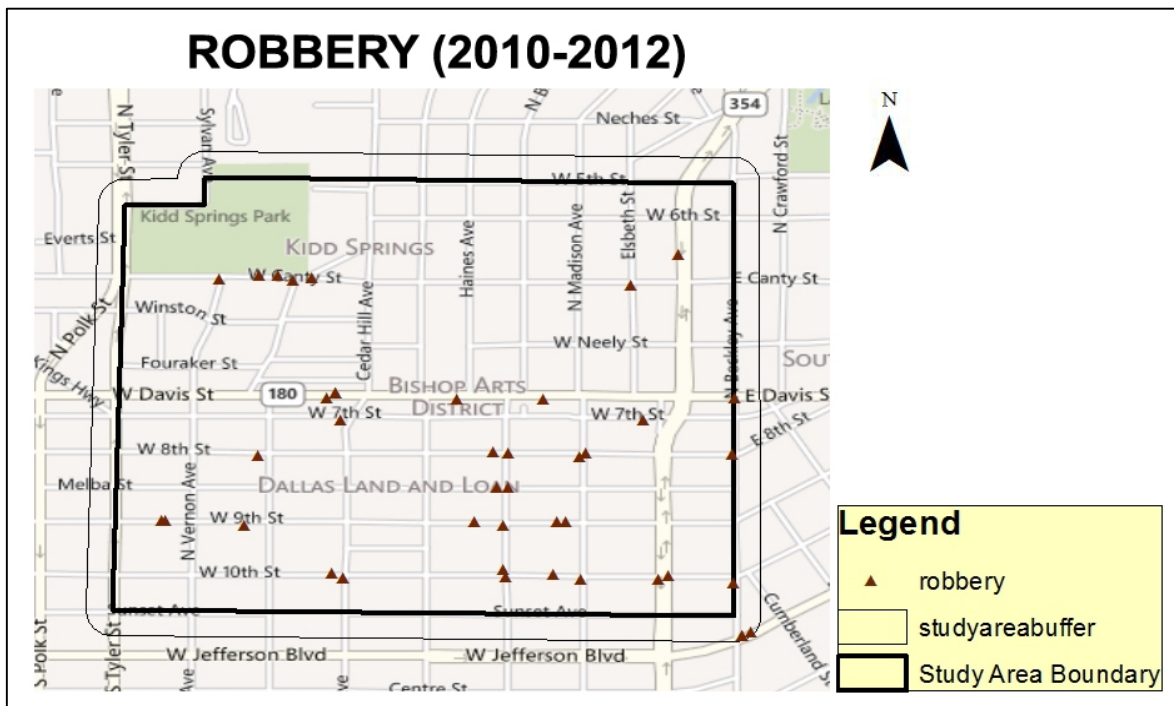


Fig 5: Theft crime in Bishop Arts District Neighborhood

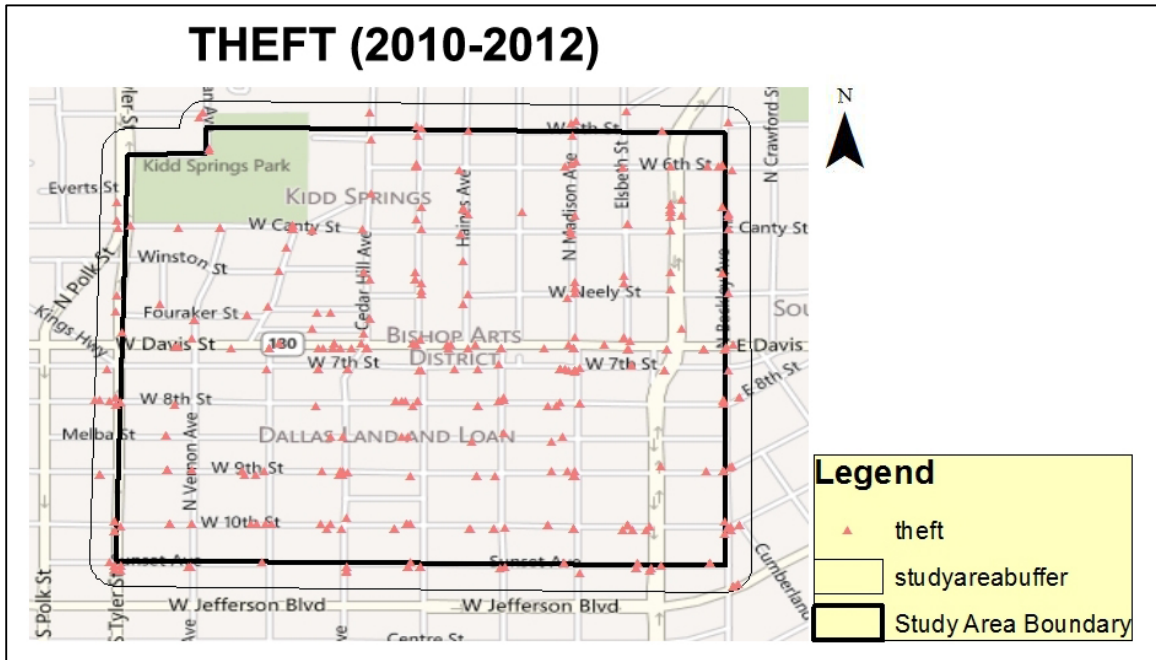


Fig 6: Vandalism crime in Dallas Arts District Neighborhood

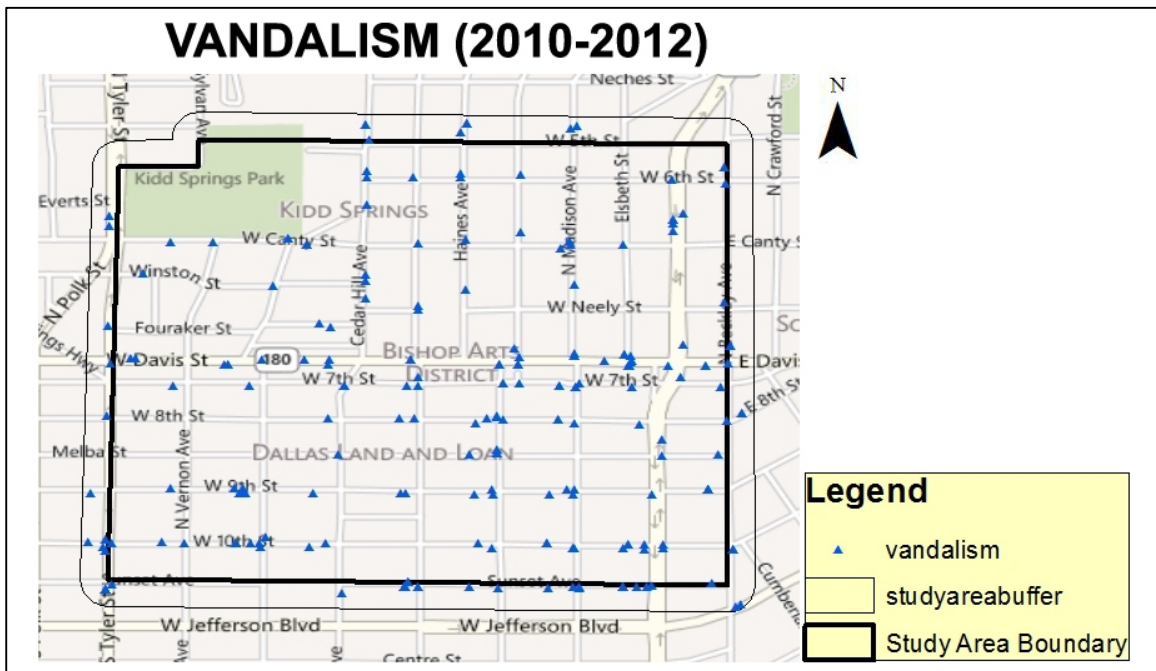


Fig 7: Land Use map of Study Area

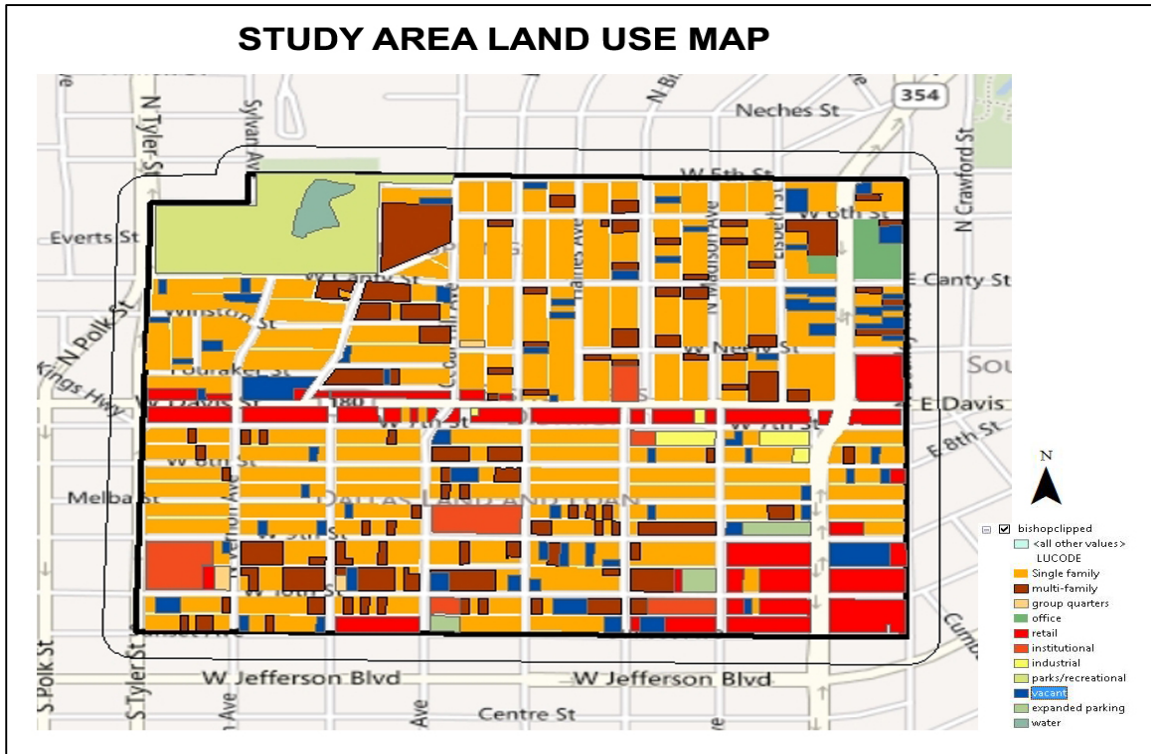


Fig 8: All Crime Clusters within the study area

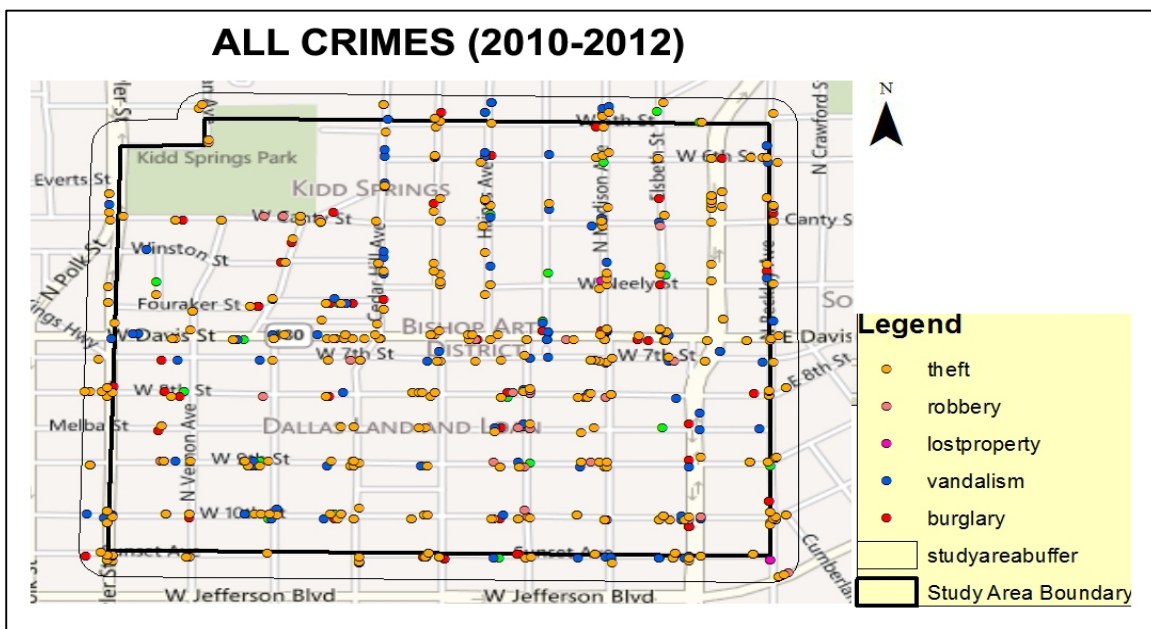


Fig 9: Traffic volume with Bus Stop location

