University of Natal

Master of Housing

Dissertation

Implications of housing design and layout systems for crime prevention in housing residential neighborhoods in the metropolitan areas of Durban

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Abstract

It is believed that housing designs and layout systems for crime prevention have either positive or negative implications on the actual prevention of crime. Therefore this research explores the exact implications that housing designs and layout systems have in relation to crime especially in neighborhoods of Durban. In this regard, the concepts, assumptions surrounding work on the field, including defensible space principles, crime prevention through environmental design and the housing design principles are thoroughly discussed. Various principles especially defensible space principles are emphasized in this study: Surveillance, territoriality, access control, image and melieu. Hence other supporting paradimes like housing design principles including housing structures, support activities and gated communities are highly elaborated.

These analytical criteria were used to examine two neighboring residential areas characterized by different planning and design systems in the area of Woodlands in terms safety. The assessment is mainly a comparison of the gated residential neighbourhood and the non-gated residential neighbourhood. Procedurally the evaluation entails analyzing both areas in terms of layout and housing design, observing both areas in terms of behavior and reaction of residents within their areas and analyzing the views and perceptions of people living in both areas.

The findings indicate that in comparing the two areas in terms of safety the gated residential neighbourhoods displays high level of safety as compared to the non-gated community. Overall housing design and layout systems for crime prevention have positive implications on crime reduction in residential areas. However different recommendations are made in an attempt to improve crime free housing designs in offering both real and perceived safety.

Dedication

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1.0 Chapter 1

1.1 Introduction

South African people are affected by crime in many ways everyday. It has become, unfortunately, a fact of life, as high crime prevalence is problematic in South African residential areas. Napier, et al, in Pinto (2000) argues that in post- apartheid South Africa, generally, all this country's population display high levels of victimization. Therefore with dramatic increases of crime, the crime prevention issue is firmly on the agenda and the biggest challenge facing South Africa is to reduce the level of crime especially in residential areas. Hence according to people greater safety is the priority above all other needs

However attempts has been made in an effort to reduce and prevent the increasing level of crime in South Africa. One of the attempts as a way of reducing rising crime has been to devote more resources to law enforcement and introduction of tough penalties in the hope of deterring offenders from committing further crime. Welford and Amos (1967) support this by explaining this kind of prevention as a punitive prevention. According to them punitive prevention means forestalling further criminal acts of an offender by punishing him so that he learns his lesson. This is associated with the pain represented by punishment, which is believed to cause an offender to avoid repetition of the act that became associated with the pain. But, by almost every account the increases of this type of crime prevention have done little to stem the tide.

Furthermore, emphasis has been placed on preventing crime from the source, through programs, which attempt to create economic and social opportunities in distressed communities. According to Werkerle and Whitzman in Pinto (2000) this is an approach that involves tackling the root causes of crime–discrimination, disadvantage and neglect, by means of economic development, job creation, education and training programmes. However it is evident that in order to resolve these root courses, broad systemic change is required that involves a significant amount of public funding together with the co-ordination of several levels of government and community co-operation. These programs are usually costly and often have no direct benefit in solving the desired problem.

Other preventative measures have been tried, for instance, the use of publicity to persuade the public to take basic precautions to reduce crime. Yet another well-established solution to crime prevention, in the minds of public and policy makers alike, is the use of routine police patrolling. But all attempts have failed to produce desired results of reducing crime.

Most importantly many policy makers looked at the crime problem only focusing on the social side, rather than drawing a relationship between the physical environment and crime. In particular, Jeffery (1977) argues that the human ecology as a branch of sociology always studies the issue of crime with the relation of man to man, and never the direct relation of man to the environment. This means criminals, not crimes are usually the objects of their study, where they not only ignore the offense but they ignore the physical setting within which crimes occur.

However, researchers that have related the physical setting of the place and crime contend that some types of physical and spatial design are more likely than others to precipitate certain behavior that result in either a greater incidence of crime or reduction of crime. Moreover it is argued that an appropriate housing design and effective layout planning can lead to a reduction in the opportunity for crime to occur, as well as the fear of crime in residential areas. These plans have been implemented internationally and have worked to reduce the incidence and perception of crime. However according to Qhobela (1997) appropriate design and relevant layouts have not yet been fully utilized in a South African context especially in Durban housing neighborhoods. Therefore the research is primarily concerned with the built environment and crime. This is based on the feeling that effective housing designs and relevant layouts, which are environmentally and defensive conscious can support crime prevention in reducing certain types of crimes in the neighborhoods of Durban in South Africa. Moreover this research sets out to show that by careful thought during the design and layout stage, crime free housing is possible.

1.2 The problem statement

The main problem is the prevalence of crime in South African residential areas as a result people move from one place to the next because of their unsafe environments. This also results in residents being unable to invest freely in their houses because of fear of crime and vulnerability to criminal activities. Sometimes it is not because of lack of financial power that leads to residents unable to invest and consolidate their houses but because they don't feel safe and feel vulnerable to criminal activities in places where they live. It is not only crime that is hindering people from utilizing their houses in their choices, but fear of crime is also a huge problem. This is because the South African planning systems has never focused on preventing crime through environmental design in residential areas; it is also a pity that the implementation of the housing policy ignores the issue of safety in their housing delivery efforts. Hence the biggest challenge facing the post apartheid South African housing policy is to provide not only houses but also safe environments for people to live in, to show concern of the reduction of crime and building confidence for residents to stay in their places without fear of crime. In reality it is not only important to house people but considering their safety is also very critical in creating a sustainable and habitable environment to live. Sustainability of residential areas is measured by meeting all the needs of the people including their safety. According to the international literature, appropriate housing designs and layout systems to prevent crime are believed to be appropriate measures for the reduction of crime in housing neighbourhoods. The research in the international literature particularly by Newman (1972) stipulated that such planning reduces crime in other places but it is uncertain that this can work quite well in the South African context. It also appears that there is generally little awareness about how the layout and housing design can assist in the reduction of certain types of crimes in South Africa. Therefore we are left with a huge task of finding out if relevant and appropriate housing design and layout systems reduce certain types of crimes in the South African neighbourhoods especially in Durban. The types of crimes of focus in this research are theft, robbery and property crimes. These types of crimes are going to be discussed in detail later on.

1.3 Research question

Can housing design and layout systems play a role in reducing crime in residential areas in the metropolitan area of Durban?

1.3.1 Sub-questions

- What are different types of criminal activities that often occur in residential areas?
- What types of features or characteristics of housing design and layout systems are useful in reducing crime?
- What is the link between layout and design of houses with crime prevention?
- What effect does layout and housing designs have on crime?
- Is the community within the area homogenous?
- How are public spaces used and to what extent are they used?

1.4 Objectives of the study

- To investigate if the housing design and layout systems play a role in preventing crime in particular areas of the metropolitan area of Durban housing neighbourhoods.
- To find out what characteristics and improvements need to be put in place for designs to be effective in preventing crime in the Durban context.
- To contribute in assisting the local authorities in drafting the policy of crime prevention through environmental design by making use of the relevant information on the techniques of crime reduction.
- To develop some recommendations to solve the problem after considering all contributors of crime and assist in the installation of the best strategies appropriate in the context of housing neighbourhoods of Durban to prevent crime from happening.

1.5 Hypothesis

Housing designs and layout systems can play a role in reducing or preventing the occurrence of crime in housing neighbourhoods in the metropolitan areas of Durban.

1.6 Research done before

Internationally in the area of Asylum, in Hartford there was a research related to this topic, which was done by Poyner (1983). The background of this research was that this area became an undesirable neighbourhood, Landlords became reluctant to maintain the housing stock and long-term residents were leaving. The major factors in this incipient decline were thought to be rising rates of robbery, burglary and the fear they engendered. After the identification of those problems there were proposals of changing the physical environment in order to encourage residents to take more interest in their neighbourhood. Physical changes were performed in the streets. Access to some side streets was narrowed to discourage use and to symbolize some degree of territoriality or at least symbolize privatization. Some streets were closed to make cul de sacs.

The research relied on the victimization data from residents because residents were the only people to give honest responses on this particular matter. Essentially the findings were that both burglary and robbery had been reduced in the year after the physical changes were completed. Therefore this implies that the physical changes of that place into preventing crime posed some threat in the offenders and also played a very crucial role in reducing crime in the Asylum hill neighbourhood.

Furthermore there is also a research on this topic done by the CSIR in South Africa in 1997. A multi disciplinary team conducted this research. It aimed at reviewing the debate on environmental design and the implementation of this notion in South Africa. This included a comprehensive and sobering assessment of the international experience, which involved both a scan of the available literature as well as consultation of international experts. The findings of this research revealed that the theory of crime prevention through environmental

design is very interesting but very problematic to implement in a South African context. The reason being that environmental design may be seen as a quick solution–a simple question of designing physical environments correctly to reduce crime, rather than a long and experimental process. But overall the research found that crime prevention through environmental design is very important if fear of crime and crime is to be reduced in this country.

In the South African context, the other research related to this topic was researched by Pinto (2000) on recreational spaces. The research explores the relationship between the physical features of recreational open spaces, together with their layout context and the opportunities available for the occurrence of criminal activities and incivilities. Her research relied much on the principles of the defensible space and crime prevention through environmental design. The central argument of this research was that detailed recreational open spaces design conscious to crime reduction could play a significant role in crime prevention and enhancing feelings of safety in relation to open spaces considering the defensive designing principles. According to Pinto (2000) through assessment and the findings it was concluded that the findings of the research validate the core argument propounded in this study that, recreational open spaces, together with their layout context, have an integral part to play in crime prevention and enhancing feelings of safety in open spaces. However Pinto further suggest that in future, appropriate and well thought layout of open spaces is recommended for the struggle against crime. Crime free open spaces needs to be promoted through the use of designs and layouts, which are seen to be successful after this assessment.

1.7 Position of the research.

In relation to existing research work taken in other countries including South Africa it is imperative that this research forward its position. Having other researchs given us insight that the concept of preventing crime through environmental design is possible and successful in other countries through the use of the principles of the defensible space. Therefore the position of this research is to find out if housing designs and layout systems play any role to reduce certain types of crimes in the South African neighbourhoods especially in Durban.

However the basic position is investigating how well or possible is the concept of crime free housing given the South African context. This is from the understanding that the success of crime free housing through designs is not universal. This means using designs and layouts to fight with crime might work entirely well for other countries and completely fail for other countries. This is because countries operate in dissimilar ways furthermore, the factors influencing their successes and failures are also different. It would be imprudent for one to think that because "defensive housing designs" were successful in America therefore it will be successful in South Africa while the environments are not the same. That is why this research is necessary in order to find out the possibility of the concept first before its implementation is recommended in South African future projects.

1.8 Assumptions

This research bases the whole argument on the assumption that the following crimes occur in the residential neighbourhoods.

1.8.1 crimes that occur in neighborhoods

It is highly impossible that crime prevention through environmental design can be able to prevent all crimes. Obviously there are types of crimes that don't fall under the auspices of housing designs and housing environments. The crimes that are assumed relevant in housing neighborhoods are property crimes meaning theft, burglary and damaging of property (vandalism) robbery in public areas, and hijacking especially in driveways and in intersections. Designs and layout of housing can also play a role to reduce the level of violent crimes, especially murder, rape and robbery.

1.8.2 Property crimes

A property crime refers to the punishable taking of another person's personal property with the intention to permanently withhold it from the owner (Mahlangu, 2000). As mentioned above under property crimes theft and other property associated crimes are found. Theft is

defined as the unlawful, intentional taking of someone else's property, or the misappropriation of an object that belongs to the possessor in circumstances where the possessor has a special right of possession. Burglary is defined as the intentional use of force or opening of the building and enters it with the intention to commit a crime inside the building. Whereas damaging of property is referred to the unlawful damaging, destruction, demolition or depreciation of value of another's property with the intention to destruct it. It is therefore believed that the above-mentioned crimes are assumed to take place in neighborhood areas and can be prevented through housing designs.

1.9 Proposed chapters for a dissertation

1.9.1 Chapter one- Introduction

This chapter gives the background of the study as to where exactly is it coming from and what is its focus and the position. This chapter also includes the Research question, sub questions, the hypothesis, assumptions and the types of crimes happening in the residential areas.

1.9.2 Chapter two- theory

Chapter two includes the literature review where the theoretical perspective of the study for it to be informative is forwarded. This involves bringing forward the approaches of crime prevention for example defensible space, CPTED and housing design. Definition of concepts is also part of this chapter.

1.9.3 Chapter three –Research methodology

Chapter three is composed of the research methodology. Ways of gathering information are prevailed which includes the strategies of data collection. This includes the secondary data collection, primary data collection that is composed of housing layout analysis, housing design analysis, observations, questionnaires and interviews. This chapter also illustrates

who are the respondents and how information will be elicited to them. The sampling procedure is also part of this chapter.

1.9.4 Chapter four – historical background of the case study

This chapter will focus on explaining the case study and the information collected from analysis and observations of both researched neighborhoods. This includes the analysis of both area's layouts and housing designs and the behavior observations of residents within the area. This is where the photos taken from the sites will be forwarded for readers to understand what exactly was analyzed and what was the motivation of the interpretations. It will also look at the background of the case study and also the character of the area.

1.9.5 Chapter five –Research Analysis

This chapter will focus on analyzing data collected during the interviews from both neighborhoods relative to the responses of residents about the feelings of safety in their areas. Interpretations of the findings will also be made here so that conclusions could be drawn if crime prevention through environmental design play a role in preventing certain types of crimes in residential areas or not. To add this chapter will actually determine the gist and the exact argument of this research considering what the research has found.

1.9.6 Chapter six

Recommendations and conclusion will be dealt with in this chapter

2.0 Chapter 2

2.1 Literature review

2.2 Introduction

Preventing crime in residential areas has become a key challenge to government in post apartheid South Africa. Although the National Crime prevention strategy has been put into perspective in full implementation of crime prevention through environmental design in housing but there is little experience to draw from in South Africa. Crime in South Africa affects different people and parts of the city in different ways. This has important implications for planning and prioritization of design interventions. Hence the notion of adapting and exploiting the environment, particularly the residential built environment, to assist with crime prevention is not new. Research internationally has been going on for years in which many of them were successful in implementing the concept. However little research has been done as yet in South Africa. Countries like Canada, the United States and the United Kingdom have used crime prevention through environmental design as one of their best design strategies in order to reduce crime. Nevertheless a careful regard of the extent to which environmental design is being utilized to prevent crime is crucial if environmental design changes are to address the real problems. Therefore as a way of informing the study international literature will be used relying on the experiences of other countries to set out the principles of the concept so that the research will test them. Besides forwarding the principles and elements of a crime free housing design, the literature review will also set out the conceptual framework, which is very crucial in the understanding of this research. Above that the literature review's main concern is to put forward the way crime free housing operates so that the research will be able to test it in a South African context.

2.3 Conceptual framework

2.3.1 Environmental design rational

The international experience has shown that there are many ways in which crime can be reduced or prevented through housing design and layout systems. Johnson (1987) discusses the environmental design rationale arguing that in keeping with victimization prevention the

environmental design rationale concentrates on reducing the likelihood that people will become victims. Emphases are placed on characteristics of the built environment that favours delinquency and crime and the modification of the environment for defense against victimization. The neighborhood environment and building design may either hinder or assist surveillance by residents to detect intruders. In this case prevention becomes a matter of removing the hindrances and increasing chances for surveillance. Johnson further discusses target hardening, arguing that instead of worrying about causes of criminality and about identifying potential delinquents and criminals through study of predispositions, situational crime prevention concentrates on manipulating opportunities for a particular kind of crime to occur.

As regard to the social control theory Jackobs (1961) argued that streets are populated by strangers and that natural or passive surveillance (unconscious social control) will result from diversity of use. Defensible spaces are believed to create cohesive neighbourhood, which therefore results in increased levels of informal social control in that particular area. This fits into this study in the sense that places with natural surveillance are the ones that can reduce opportunities for strangers to commit criminal activities because people tend to take control of their places unconsciously. However the point of this theory is that places with passive surveillance promotes social control because as much as residents are unaware that they are guarding the place but unconsciously they are guarding the place. In other words social control is possible through people's abilities to see whatever activity taking place within the area because of the way the area is designed.

However Stollard (1991) argued about access control theory that if good security is provided at the perimeter of community or multi occupancy dwelling, the potential for live social interaction with the community increases and thus the likelihood of a stranger gaining access and committing crime diminishes. The environment can be designed to discourage, even prevent criminal access. In other words the point about this theory is that by limiting access to the place strangers will be discouraged to enter with bad intentions and residents will be able to identify strangers trespassing in that privatized area. Therefore certain types of crimes will be decreased through this approach.

Hence according to Newman (1972) "Defensible Space theory states that crime is less likely when potential anti social acts are framed in a physical space that is under surveillance". The effect of surveillance in a mechanism of social control increases when observers from each other or when they are linked by some common territorial marker. This theory goes on to suggest that potential criminals are more reluctant to commit crimes in the areas, which are perceived to be under the influence of a surrounding community. This implicitly suggests that a number of crimes are spontaneous, occurring in response to opportunities, which prevent themselves in anonymous settings. Through the creation of an environment in which access is limited and surveillance is maximized through means, residents can create social security blanket, which reduces crime.

Furthermore as far as criminal justice theory is concerned Stollard (1991) argue that this approach focuses on the presence of a security force as a primary deterrent to crime and housing design as the secondary assistance to crime prevention. The logic of this approach focuses on the design of housing to provide through roads giving optimum access for security patrols. Streets are laid out on a grid in order to provide clear unambiguous access allowing the opportunity to reduce crime in low-income housing areas or neighbourhoods.

Notwithstanding the above-mentioned theories, for Stollard (1991) crime theory argued that "for a crime to occur both an opportunity and motive is needed". It follows that if a crime is to be prevented both the opportunity and the motive must be removed or addressed. It comes from the fact that criminals are rational at times. Criminals are assumed to often operate in a rational fashion, meaning they prefer to commit crimes that require the least effort, provide the highest benefits and pose the lowest risks. This view suggest that crimes are most likely to occur when potential offenders come into contact with a suitable crime target where the chances of detection by others are thought to be low or the criminal, if detected will be able to exit without being identified or apprehended.

It is further assumed that criminals decide to commit a crime after they have determined the following:

- How easy will it be to enter the area?

- How visible, attractive or vulnerable targets appear.
- What are the chances of being seen?
- If seen, will the people in the area do something about it?
- Is there a quick direct route for leaving the location after the crime is committed?

Therefore provision of building security through design attempts is to eliminate or reduce intruders' ability and opportunity to commit crime. This also is believed to reduce their motivation. Further more, crime is at least partially deterred through fear of apprehension rather than punishment, and that the greater the chance of apprehension the less likely a criminal is to commit a crime.

Nevertheless Fenelly (1989) forwarded the neighbourhood watch theory arguing that "the theory have a potential to produce the social contact and social interaction necessary to strengthen informal social control bands and community social cohesion". Perhaps the biggest hope for the watch model is that it will reduce fear of crime via this collective process. Residents would be stripped of their reasons for social isolation and distrust after developing friendship patterns with neighbours and working jointly towards reducing the common problem of crime. This could be achieved through housing design.

2.4 Definition of concepts

✓**Crime prevention** - Taking it from Fenelly (1989) there are many ways in which crime prevention is defined, but the working definition fitting this context is called primary crime prevention, which means the techniques which are directed at modification of criminogenic conditions in the physical and social environment at large, and more importantly modification of the physical environment to reduce criminal opportunity. In such a context in a more criminal illustrative way crime prevention is the anticipation, recognition and appraisal of a crime risk and initiation of action to remove or reduce it. In clarity for using this definition of crime prevention requires the practice of reducing opportunity rather than attempting to deal with the potential criminals desire or ability to commit a crime.

However various psychologists and sociologists exist, focusing on ways to reduce the need or desire of certain individuals to commit crime for example better educational systems, full employment reducing racism and discrimination but non-provides the immediacy needed to protect assets or reduce crime now. This failure is only because the ability of a criminal to commit crime is controlled by the criminals' own ingenuity and access to the tool required, which means the only element that a potential victim controls, is the opportunity for the crime to occur. That is when someone would have prevented crime, if only the opportunity of the crime to occur is controlled.

Environmental security - according to Naude and Stevens (1988) environmental security is defined as an urban planning and design process, which integrates crime prevention with neighbourhood design and urban development. Emphasis put on the neighbourhood defines a specific spatial social entity as opposed to a more general reference to the environment. He further pointed out that the fundamental object of environmental security is to maintain or improve the quality of urban life by means of planning and replanning the city environment so as to reduce crime and the fear of crime.

Social control - According to Zimbardo (1977) "social control in this context means the organized way in which society responds to behaviour and people it regards as deviant, problematic, worrying, threatening, troublesome or undesirable in some way or another". This response appears under many terms like deterrence, prevention and social defence. In other words according to this definition the physical environment of the area influences the behaviour of the people within that area to have unconscious social control.

Ownership - According to Jeffery (1983) the term *ownership* when used in this context does not necessarily mean actual legal ownership. It can be, and very often is, a perceived ownership resulting from an individual's relationship with the environment. Office workers, for instance, may feel a sense of ownership for the office in which they work in. In this context residents may feel ownership of the environment they live in for example places they share within the area.

Housing design/housing layout - Housing design can simply be defined as a means of creating a physical environment to reach the desired goals of the entire community whether that desire be efficiency, beauty, behaviour, modification or control. Infact the two concepts are distinct in that housing design is about the actual built form. This includes the positioning of buildings, wall structures, doors, windows, spaces between houses and access points. While the housing design is concerned about built environment, the housing layout focuses on the arrangement of lot, block and street pattern. In this context the focus is on the use of closed/privatized streets, cul de sac, loops and gated villages.

2.5 Approaches to Crime Prevention

There are two approaches of crime prevention as far as housing designs and layout systems are concerned. Those approaches are the Defensible Space and Crime prevention through environmental design. The two approaches focuses on crime prevention though they differ in their actual implementational setting but they further overlap each other in using different and the same approaches. These approaches will be dealt with in details below starting with Defensible Space.

2.5.1 Defensible space

Newman (1972) in trying to achieve his goals of promoting the kind of design that can allow the environment to defend itself, he developed the concept of the defensible space as a way of housing design and layout that is believed to be a solution to the problem of crime. According to Newman (1972) "defensible space is a model for residential environments, which inhibits crime by creating the physical expression of a social fabric that defends itself". He defines the concept as a surrogate term for the range of mechanisms –real and symbolic barriers, strongly defined areas of influence, and improved opportunities for surveillance- that combine to bring an environment under the control of its residents. All the different elements that combine to make a defensible space have a common goal, that is an environment in which latent territoriality and sense of community in the inhabitants can be translated, into ensuring a safe productive and well maintained living space. The potential

criminal for Newman perceives such a space as controlled by its residents, leaving him as an intruder easily recognized and dealt with.

Conversely Newman (1972) further argues that the form of buildings and their arrangement could either discourage or encourage people to take an active part in informal policing while they go about their daily business. Hence this has the implications that, it depends on the way the physical environment is arranged that, residents can easily take control of the place. Newman (1972) continuously argues in support of a defensible space that, "a defensible space is a living residential environment, which is potentially sound to be employed by inhabitants for the enhancement of their lives while providing security for their families, neighbours and friends". For Newman, by grouping dwelling units to reinforce associations of mutual benefit, by delineating paths of movement, by defining areas of activity for particular users through their juxtaposition with internal living areas and by providing for natural opportunities for visual surveillance, a clear understanding of the functions of a space and who its users are and ought to be can be created by planners. This according to Newman can lead residents of all income levels in that particular area to adopt extremely potent territorial attitudes and informal policing which can act as the string deterrent to potential criminals.

To continue with his argument of a Defensible Space, Newman (1972) puts forward that physical structure is an important aspect of creating a secure environment. To add Newman further argues that the degree that a space is considered private influences whether that place would be secured. Very public places in which no one can claim ownership are very dangerous in that not even one community has a stake enforcing security. The key point in this argument is to privatize many public places around where people live. For example what he argues is that multi family housing complexes should be designed in which only a small number of units share common entrance and door, windows all facing this common area. Through this physical modification, the lobby, stoep and sidewalk area usually very public becomes much more privatized, as residents know who should be there and are aware when intruders are present. Hence potential criminals will see the area as less accessible and less an opportune environment for criminal activities. It even comes from the points

forwarded by Jeffery (1977) supporting Newman's argument by saying that a design that makes use of semi private and private space, as opposed to public space is much more defensible. Jeffery mentions that it is because it has the character of a territory or sense of belonging and ownership, which makes it a crime-deterring environment.

For Newman it was never enough to forward the approach of a defensible space but he further proved the concept in his research, which he conducted, in the private streets of St Louis. The idea being that the residents of the private streets claim that the physical closure of the streets creates cohesion, stability and security. Newman (1980) argues that closing the street gives the area a different feeling. If the street is closed, one has the feeling of control and that one is living in his/her own turf. However the research tried to measure the difference in crime rates between private and non- private streets. As a result the study showed in the findings that the non- privatized streets had more street crime than the privatized streets. Therefore it was concluded that privatization of streets played a very crucial role in reducing crime in St Louis. Thereafter Newman recommended types of planning which promotes crime prevention features e.g. closed streets.

Newman further collected information on resident's feelings about safety. Residents in the private streets felt that their streets were safer than the neighbourhood as a whole, while those in public neighbourhoods streets felt that their streets were unsafe. Newman also made observations of the streets to record the behaviour in two kinds of streets. He found that residents in private streets were more likely to leave windows open facing the street, more likely to leave possessions unguarded on their lawns, porches or sidewalks. However this gave the impression that the private streets of St Louis do have less crime and the residents feel very safe, which therefore means closed streets are much more safer than open or public streets.

The defensible space is composed of many elements, which characterizes it. Those elements include territoriality, surveillance, image and milieu but these elements will be discussed in details below together with other adding defensible measures.

2.5.1.1 Territoriality

Territoriality as an element of a Defensible Space is defined by Fenelly (1989), as "the capacity of the physical environment to create for each individual perceived zones of territorial influence that result in a proprietary interest and felt responsibility". In other words, territoriality simply means a sense of ownership to every individual living within a defined private environment. Newman further states that territoriality emerges through site planning and building design subdivided in a way that occupants and outsiders will perceive various portions of the area as being under the sphere of influence of particular groups of occupants. It is further possible to structure this subdivision hierarchically so that at the level of housing projects, the grounds are subdivided into closed streets in which the whole community of the area shares a commonly defined entry.

Newman further stresses his belief that "such physical subdivision if clearly defined and related to access paths, amenities and entries encourage occupants to adopt proprietary attitudes and exert potent territorial prerogatives which serve as natural and significant deterrent to criminal activities". It therefore implies from his argument that once people or the physical environment is arranged to emphasize privacy all inhabitants of that area feel the sense of belonging and responsibility that they become very active in the well being of their place.

According to Fenelly (1989) "a design that promotes territoriality also enforces the power of community connection and promotion of social interaction among residents". This is a connection among people who share common space on a regular basis. Such a share of the common space by residents is a contributing factor to criminal deterrence because it becomes very difficult for an intruder to start contemplating entry. Such designs are very advantageous because as the people share common space there is a friendly environment created among inhabitants, which works very positively on crime deterrent strategies. Therefore for Fenelly (1988) through housing design that promotes proprietorship of the whole community crime prevalence in housing neighborhoods can be reduced.

2.5.1.2 Surveillance

Globelaar (1988) defines surveillance "as referring to both formal and natural observations with the purpose of timeously identifying any potential criminal so that action can be taken against him or so that he can be warned".

For Globelaar (1988) "formal surveillance is based on the design and planning of surroundings and structures so that observations of certain situations can occur in an organized way". This includes physical equipment such as cameras, one-way windows and monitors that are maintained continuously. He further argues that formal surveillance can also be conducted by people specially employed for the task such as security watchman in buildings, police who patrol and the neighborhood watchers who perform the necessary observation. He therefore added an important requirement of this type of surveillance that the environment be planned so that scenes or areas that need to be observed are visible to all. This includes the elimination of blind sports and the improvement of lights.

Naude and Stevens (1988) define "Natural Surveillance as the observation of premises and people by residents and casual passers-by". They then stress that both environmental planning and housing design plays an important role in this. Hence Newman (1972) argues that natural surveillance will never work alone, but its effectiveness depends on whether the area under surveillance is identified by the observer as falling under his/her sphere of influence. Newman's point here is that it is easy for a person to take action against intruders when he feels responsible and when a place is defined under his sphere of influence. Newman supported this argument by further stressing that improved natural surveillance operates most effectively when linked with the territorial subdivision of residential areas allowing the residents to observe those public areas which they consider part of their realm of ownership and responsibility.

Jacobs (1961) supports the argument by stating that housing designs promoting natural surveillance (eyes on the street) are needed to reduce the opportunities of crime and to decrease the level of motivation from the offenders. Newman goes on to make a point that

through social rather than physical means, watches seek to encourage intentional surveillance instead of creating natural surveillance opportunities. However through design promoting natural surveillance, neighborhood watch hold the promise of increasing collective surveillance of the neighbourhood where residents become the eyes and the ears of the police and actively report any suspicious or criminal activity-taking place in the area.

In support of the above arguments O'Block (1981) stresses that the objectives of the design of the physical objects or structures are of such a nature that they allow residents the greatest possible chance for observation. In this way an area becomes protected and a feeling of safety fostered among the inhabitants. According to Rand (1984) natural surveillance in the physical environment can be achieved by the improvement of lighting to increase observability, reduce the amount of open space that is not assigned to any particular function and storehouse windows to assure visibility. To promote natural surveillance will also help parents to keep an eye on their children when playing, in preventing child abuse, which might occur.

2.5.1.3 Image

According to Newman (1972) image refers to the relationship between the building form and design to influence perceptions and stigma that may be attached to a building or group of buildings. The point is, visible evidence of decay such as, litter, broken windows, and deteriorated building exteriors, will contribute to a downward spiral signaled by residents feeling vulnerable and retreating into their homes (Pinto, 2000). Furthermore residents tend to become less willing to intervene in maintaining public order or to address the physical deterioration of their place. Therefore sensing this decline, offenders from outside the area will be attracted to commit crime. Most importantly the focus of the whole argument is that the design of buildings must work against giving the impression that the inhabitants are vulnerable to crime so that fear of crime is reduced.

2.5.1.4 Milieu/Environment

Stollard (1991) defined milieu "as referred to the juxtaposing of housing areas with safe zones in adjacent areas". However Fenelly (1989) explains this as "Three D approach" meaning an approach to space assessment that provides a simple guide to determine how space is designed and used. He further suggested that all human spaces have some designated purpose and all human spaces have a social, cultural, legal and physical definition that prescribes the desired and acceptable behaviors. Most importantly all human spaces is designed to support and control the desired behaviors. In clarity Naude and Stevens (1988) further explain that dwelling units must be constructed so that they front on to areas that can be considered safe such as streets with heavy traffic or busy through fares used by many passers-by. They should also be sited so that natural surveillance for example (by the police is assisted and find it easy to patrol in the place). For him the sitting of buildings is considered one of the most important factors in the implementation of the concept of environmental security and crime deterrence through design and layout. It is through sitting that a human space is designed to control desired behaviors within a given area. In addition in order to prevent crime houses must be designed to face a common area so that easy natural surveillance on the common area (human space) can be achieved. Therefore a place designed in that fashion will be much safer.

Although layout systems have the potential to reduce crime but they cannot do it alone. The support of the housing design in crime prevention is very important in designing out crime. This means housing design and layout systems are both equally important in designing out crime, therefore it is important to forward the housing design precedents. Those precedents include the housing structure and other principles of housing design.

As much as Newman's Defensible Space concept together with its principles are seen to be effective in crime reduction as far as designs are concerned but there are limitations on their work. Mawby (1976), Stollard (1991), Meyer and Qhobela (1998) and Poyner (1983) have been highly critical of the theories and projects developed by Newman. However it is not

about denying the whole work of Newman's strategies but to look at the critics and the loopholes.

2.6 Limitations of defensible space elements

The limitations of the defensible space concept are even more serious. Hence the most common criticism is that Newman prescribed an oversimplified and fix-all solution to a range of design problems and crime prevention strategies (Kruger, et al, 1997). However evidence prevails in Newman's argument that defensible space categories were treated as fundamental prerequisites of the ideal type of the defensibility elements whereas Mawby (1976) argues that, Newman like Jacob fails to evaluate critically the possibility that the four elements of the Defensible Space might contain contradictions within themselves and that one category might include some factors which threaten security. Mawby further forward these contradictions below.

Looking at the capacity of the physical environment to create perceived zones of territorial influence, Mawby (1976) illustrates and argues that this defence is directed implicitly at strangers and outsiders but to the extent that it allows an environment in which resident's presence is further legitimized. It could therefore be argued that the possibility of crime by residents against other residents is enhanced, at any rate it is not decreased! In clarity this means territoriality principle focuses on preventing strangers or outsiders and leave the residents with a free chance of committing crime within the area.

Still in territoriality Newman (1996) argued that territoriality's success depends on the limited number of houses built in a particular area. This further explains that a family's claim to a territory diminishes proportionally as the number of families who share that claim increases. The larger the number of people who share a territory, the less each individual feels he/she has rights to it. Therefore once the number of people who share a communal space increases, the more it is difficult for people to identify the area as theirs or to feel they have a right to control and be responsible for its safety. This explains that the concept of territoriality is unlikely to work if there are a large number of families.

Crime free housing design has been realized to have the bad tendency of crime displacement. Bennett and Wright in Stollard (1991) indicated that casual burglars who seek targets are flexible and more likely to be displaced (i.e. will move onto another dwelling if prevented from entering the intended target), than those offenders who planned one particular crime. To a large degree it is problematic that crime free housing designs result to crime displacements to the non defensive housing but on the other hand one cannot recommend that all housing developments be inclusive of crime free housing designs because of topography and affordability especially in Durban.

To suggest that better housing designs and layout systems alone can offer solutions to the problems of crime and security on new and existing housing developments is to consciously ignore a whole range of social and economic factors that can affect the levels of crime in a particular area (Stollard 1991). To a greater extent defensive housing design has a role in crime prevention, but factors such as unemployment, poverty, social stress and bad management simply cannot be designed out. In addition, Meyer and Qhobela (1998) argue that it is important that crime prevention through housing design and layout debate does not take place in isolation but that it is considered as one aspect of the broader crime prevention debate in South Africa. However, central to the above argument it should therefore be clear that design changes to the physical environment can no longer be seen as the only vehicle through which crime can be addressed at the neighbourhood level.

Nevertheless in substantiation of the above arguments Stollard further stated that even on large public sector estates, residents rarely identify crime as their only problem, even in areas with high crime rates: unemployment, housing conditions and poverty are usually cited as major concerns, though crime prevention is usually high on resident's list of priorities. This further explains that in any way one looks at crime prevention automatically poverty and unemployment is on that agenda, mainly as major courses of crime especially in residential neighbourhoods. It is an undeniable fact that poverty and unemployment are on top of the list of the fundamental determinants of crime, which therefore demands a careful

consideration if any kind of crime prevention is to be effective, but above all it cannot be ignored.

Poyner (1983) recognizes Newman's work of environmental design and defensible spaces but he disagrees with the fact that they are independent. He therefore added that design and layout measures combined with community action or development are appropriate tools for crime prevention. In support of this argument he stresses that in dealing with the relationship between opportunity crimes and physical environment, the neighbourhood is the natural geographic and social unit to work with. Stollard added by stating that current work on community safety emphasizes that design has to be reconciled with a number of factors, crucial among which may be resident's involvement in local management and decision making so that planning can conform to the needs of the beneficiaries. In other words the community is the base of the successful crime prevention by designs.

To a greater extent community participation is important and to another degree community co-operation is also very crucial. Since housing designs are created for a standard influence of resident's behaviour for instance defensible space is created so that residents can be able to control and be responsible for the safety of their area but if residents cannot conform to the behaviour that is expected by that particular design, the whole purpose of designing defensively fails. To a larger extent the success of crime free housing designs greatly depends on the co-operation of residents to the standard behaviour reflecting expectations of the design. However this further explains that designs has its part to play in crime prevention, but it is unlikely to be the whole solution except consideration of other contributing factors.

2.7 Crime prevention through environmental design (CPTED)

Pinto (2000) argues that as a spin-off of Defensible Space, Crime Prevention Through Environmental Design (CPTED) is regarded as the most well developed crime opportunity reduction approaches to crime prevention. As much as Crime prevention through environmental design and Newman's Defensible Space concept do have several common

elements but crime prevention through environmental design approach extends beyond the residential context to include for example commercial areas and also take cognizance of human behavior. These fundamental aspects of Crime prevention through environmental design include the following: Surveillance and visibility, Territorial and motivational reinforcement, movement control and activity support.

However Jeffery (1977) put forward that the goal of CPTED is the reduction of opportunities for crime to occur. Newman (1972) suggested that this reduction could be achieved by employing physical design features that discourage crime while at the same time encouraging legitimate use of the environment. Many authors and researchers together with planners have contributed with their extensive skills in solving the problem of crime in housing neighbourhoods in different ways. However, Newman (1977) focuses on the physical environment in restructuring the residential environment of our cities so that they can again become livable and controlled, controlled not by police but by a community of people sharing a common terrain. Newman (1972) further argues that design can make it possible for both inhabitants and strangers to perceive that an area is under undisputed influence of a particular group, that they dictate the activities taking place within that area and who its users are to be. It is evident that in such a place resident's will not only feel confident, but also that it is incumbent upon them to question the comings and goings of people to ensure the continued safety of their area. He further argues that in such places an intruder will be made to anticipate that his presence will be under question and open to challenge, so much so that a criminal can be deterred from even contemplating entry.

Surveillance and visibility - According to Poyner (1983) the purpose of surveillance is to increase the risk of a potential offender being observed, and therefore identified and apprehended. Suggested tactics included improved lighting, the removal of blind spots in movement areas, the use of windows or electronic surveillance devices, locating vulnerable areas near busy places and introducing supervisory personnel or a block watch. These are the ways that surveillance and visibility are achieved in neighborhoods with the aim of reducing crime.

Territorial and Motivational Reinforcement - Poyner (1983) suggests that "this is necessary alongside the physical changes to enhance the desire of people to engage in crime prevention activities". The tactics although clearly stated but include the encouragement of personalized environments, better maintained public areas, co-operation between business men, community development programmes, improved police community relations and the involvement of citizens in setting police priorities. With the integration of some of these tactics crime reduction can be possible. Although territoriality has been looked but it is necessary to briefly go through it as Newman maintains that territoriality refers to the relationship between the physical design and the creation or extension of feelings of proprietorship beyond the private realm so that residents can assume ownership of their neighborhoods.

Access control - According to Fenelly (1989) access control refers to a design concept directed at decreasing crime opportunities. There are access control strategies typically classified as:

- Organized (guards, receptionists and police patrols)
- Mechanical (locks and physical security)
- Natural (spatial definition)

For Fenelly an objective of access control is to deny access to a crime target and to create a perception of risk to offenders.

Newman (1972) suggests that, as a way of controlling access a design planned in a way that streets are blocked off decreases excuse for potential offenders to be wandering or driving about looking for targets to burgle. He further suggests that the lack of through traffic might also change the character in terms of noise and patterns of use so that again there is less cause for strangers to be in the street and those who use it become known. Such a design is a strong recommendation of controlling access that intruders find the maximum risk, which closes the opportunities for strangers committing crime in the area. Newman further stresses that designs should take into consideration that access on foot and by car to residential streets or groups of streets should be limited to avoid through movement, recommending a (cul de sac) or return loop layout form. Any access point should be narrowed and formed as

a gateway to symbolize privatization. This design is seen advantageous to crime prevention because intruders are allowed one entry and one exit, which increases the chances of intruders being deterred if committing crime and it becomes difficult to find an easy way out. As a contribution to the argument Stollard (1991) put forward that the environment can be designed to discourage, even prevent criminal access for example airports are designed with security checks in order to prevent weapons being taken on board, same to housing, security measures can be implemented through designs and layout systems that control access within the area to prevent crime from occurring.

2.8 Gated Communities

According to Kleman and Storveen (2000) new models of spatial segregated cities that are missing the quality of public life are outcomes of increasing crime rates. New forms of fenced-protected areas, called gated communities or fortified enclaves, have been built in many cities. They are privatized, enclosed, and monitored space for residence, consumption, leisure, and work.

Living in these areas has come to represent a new alternative for the middle- income classes, because they are associated with high status. The majority share the same basic characteristics; private properties, not for collective use; physically isolated, either by walls or empty spaces or other design devices; turn inward and not to the street; and controlled by armed guards or other advanced security systems that enforce rules of inclusion and exclusion. The main concept is that isolated areas should create a feeling of "happiness", harmony and even freedom, but often they tend to be socially homogeneous environment that besides providing protection from crimes, also create segregated spaces in which the practice of exclusion is carefully and rigorously exercised.

These types of residential enclaves have also been built in Sherwood. There are two gated areas, which strengthen the feeling of exclusion and isolation.

2.9 Activity support

Kleman and Storveen (2000) write that housing designs and layout systems that include planning of different activities, especially in public spaces help in reduction of crime. This is from the fact that different activities attract people and increase the natural surveillance in the area. They therefore suggest a football field in a public park to create recreational opportunities. At the same time it catches people's attention to what is going on in the place. This kind of planning is believed to be successful because it targets the very people believed to commit crime e.g. the youth to be always preoccupied by other good activities instead of criminal activities.

Although layout systems have the potential to reduce crime they cannot do it alone. The support of housing designs in crime prevention process is very important in designing out crime in residential areas. This means housing design and layout systems are both equally important in designing out crime, therefore it is important to forward the housing design precedents. Those precedents include the housing structure and other principles of housing design.

2.10 Housing design precedents

As forwarded above housing design precedents are concerned with the principles of housing design with the objective of designing out crime. It is very important for housing design to be included in a project of crime prevention in residential areas because it will render assistance to the layout of the area to effectively and efficiently reduce crime. However this section will forward principles of housing design in reducing crime.

Colquhoun (1991) suggest that houses should be designed to create a sense of security and local belonging. This means houses should not face the main through roads rather they should face each other and be accessed on each side of the road.

The plan should create a pattern of roads and footpaths, which relate to the buildings. The segregation of traffic and pedestrian ways from the buildings they serve will reduce the level of surveillance for residents. The plan also must make sure that a relationship between a front door of a house and a street is maximized so that criminals will be threatened. It is important also for houses to be appropriate to a site. This means plans have to avoid building small houses in big sites because that becomes a vehicle for criminals to find hiding opportunities and easy escapes for their criminal activities

Central to the point of housing design's necessity to prevent crime but more imperative is what generates design. The single most significant constraint to housing designs and housing delivery process is affordability. Affordability is two-dimensional. On the one hand the government has limited capacity to finance a sustainable housing programme; while on the other hand individual households face severe financial difficulties (Kester 1995, 31). This further explains that the possibility of housing design and the whole concept of crime free housing design depends on the affordability of potential beneficiaries. In clarity the concept of crime free housing designs goes with appropriate maintenance in which certain groups or classes cannot afford to keep up with. This goes on to the question " who are we designing for" meaning the different class categories of household for instance low income, middle income and high-income households. This does not mean good design is determined by how high one's income is but crime prevention designs really calls for affordability because not all different income classes can afford a continuous maintenance that occurs in such designs. Basically it is not only the question of housing design but central to this is the affordability of beneficiaries.

2.10.2 Housing Structure

Kleman and Storveen (2000) argue that in the design it is crucial for physical structure to avoid unprotected places, especially in public spaces where intruders might lurk undetected and act unobserved. For them the design of housing within the neighborhood is also of importance when trying to prevent crime. Kleman and Storveen (2000) further pointed out that it is vital to remember that high wall and fences are not necessarily safe. Instead high

walls and fences contribute to unpopulated and unsafe areas by reducing the opportunities for the residents to observe actions outside the property. Nobody can hear the screaming or see if something terrible happens to anyone. Residents feel safe if they have the ability to see who is moving around and what is happening outside the house. The subdivision of buildings into easily perceived areas enables residents to readily identify each other and notice intruders or strangers and neighbors can keep an eye on what is going on around the house across the street (Kleman and Storveen, 2000, p 96). They further pushed the idea that the space between the street and the house is very important when a sense of natural surveillance is to be promoted. Hence rooms, as kitchen and sitting room where people spend most of their time should have windows against the street. Additions such as small verandas where people can sit on and observe the street encourage surveillance too for criminals to be seen and attended too timeously.

2.11 Conclusion

The literature review section successfully dwelled on thoroughly giving an insight to the principles of the defensible space and revealed versions of crime free housing design, what it look like and what elements it consist of. The literature review has proved that crime prevention through environmental design is the option for crime reduction in residential areas. It is important to note that in this literature, although crime prevention through environmental design may be the key factor in solving residential criminal problems but it cannot work successfully in isolation to major social factors. Above that it was evident in the literature review that crime free housing can solve crime problems but it also carries with it some limitations which were set out above. It was also touched in this research that as much as crime free housing designs are capable of preventing crime but without the activity support and manipulation of housing structures to offer less opportunities to intruders the devise cannot be effective. It was found that the key concepts and elements of both approaches are surveillance, image, territoriality and milieu in which the case study will base its assessment on

Having forwarded the principles of the Defensible space and Crime prevention through environmental design, the next chapter will come with research methodology. The research method is going to test the above-mentioned principles in the case studies identified to check whether they work in the South African context or not and reveal the implications of this particular design. Although there are many elements of the two approaches but it is impossible to find them all in the areas under study. Therefore the research will test against those that are available to find out whether crime free housing is possible through designs or not. All unanswered questions will be answered by the coming research methodology.

Chapter 3

3.1 Research Methodology

With an effort to find proof of the hypothesis that housing designs and layout systems play a role in crime prevention, both qualitative and quantitative research methodologies were deemed suitable to answer the research questions of this study. A variety of empirical methods such as case studies, interviews, questionnaires, and observations were used to get the information to stabilize the research. It was also important that the two methods of data collection were addressed called primary and secondary data sources. However the information above will be discussed in details below.

3.2 Case study

It is believed that the two approaches called Defensible Space and Crime Prevention Through Environmental Design are the basics of crime prevention in housing neighborhoods. Therefore the gist of this research is to analyze the case studies using these principles to find the truth about whether the two approaches can really play a role in crime reduction in residential neighborhoods or not. Due to lack of places characterized of crime free housing elements, which are potentially, sound to eliminate opportunities for crime to occur, the study was forced to work with the identified area characterized by crime free housing elements. An area that was found is a gated residential neighborhood called Westwood gardens situated at the end of Woodlands next to Yellowood park suburb. To find the information that was needed, there was a comparison of that gated community with the neighboring ordinary non-gated or non-privatized residential neighborhood in order to find out if the design with defensible features really does play a role in crime prevention. This place is believed to have potential of representation of the whole Durban because it is the street with appropriate features and it is also capable of drawing conclusions on the future recommendations in housing projects.

3.3 Data collection

3.3.1 Secondary data

It was very crucial for this study to employ the secondary data collection practices to inform this study. Secondary data was very important for the concretization of the literature review through the use of books, journals, websites, newspapers and official documents as the basis for the creation of the conceptual framework. In other words the secondary data was generally important in obtaining the view of what other authors say about the topic. However secondary data was also used to get the theoretical framework and definitions of concepts in order to make the study informative. These devices were believed capable of collecting reliable information to inform the study.

3.3.2 Primary data

Primary data is data to be collected by the researcher himself in order to prove the hypothesis that housing design and layout systems can play a role in crime reduction in residential areas especially in Durban. Proving this hypothesis relies on reliable and visible primary data. Collecting primary data, which is the crucial information in this study included strategically using the layout analysis, housing design analysis, observations and questionnaires. This was done with an effort to stabilize the reliability of information for generalizations to be made about whether crime free housing plays a role in reducing crime in residential areas or not. It is important to note that it must never be forgotten that the issue here is finding implications of housing designs and layout systems to crime prevention. This poses a question of whether crime free housing designs have positive or negative implications. In spite of the belief that crime free housing designs may have positive implications in other countries we are generally uncertain about the context of South Africa which therefore calls for going out to do such local studies to find out if crime free designs are possible in Durban localities and can thus be recommended in our context or not. This calls for a thorough research to be conducted like this one so that relevant recommendations can be done. That is why the primary data collection was very thoroughly pushed in order to

make sure that the information that was collected was reliable and valid to draw conclusions on the findings.

3.3.2.1 Layout analysis

As one of the strategies to make the information reliable and visible a constructive analysis of the street pattern was used. This was possible through utilizing a strategy of familiarity with the case study first so that analysis would be easy. Having been familiar with the place made it easy to find information that was needed like, whether the area is a closed street/privatized street, cul de sac, a loop or a gated village. This also entailed analyzing lots and blocks as to see how they are arranged. In trying to achieve this, analysis of a map of the place and the plan of the place was also of crucial importance. This analysis was to help the researcher to find out if the area reflects a defensible layout. This was also important for the researcher to be able to see for himself if the relevant features of a defensible space in terms of layout were evident in that area or not. Nevertheless this would be a vehicle to determine his conclusions about crime free design and layout systems.

3.3.2.2 Housing design analysis

Having the layout analysis satisfactorily completed it was therefore imperative that housing design analysis was also thoroughly done as housing design to a greater extent is a determining factor to crime reduction in the area. In context a thorough and detailed analysis or description of the study area in terms of the form relative to its design or Defensible Space concepts was made. In this case the information that was needed entailed finding the physical environment in terms of housing design and crime deterrent features in the area and also fundamentally assessed the opportunity for crime occurrence in the area. However the analysis was made using the defensible space criteria. The criteria included the elements such as territoriality, surveillance, image and milieu. Housing design analysis focused on the built environment, looking at how houses are located and where are they facing, how many houses surrounding the area, what types of rooms are facing the common space, how much space is left between houses, are there any hiding places and what types of windows are

facing the common area. Here it is not only a question of how houses are located and facing but it depends on the closeness of houses to the road that they can fall under a crime free housing category. By this analysis it was seen easy for the researcher to find out if the houses are designed to fight against crime.

3.3.2.3 Observations

Analyzing the area and finding out that it is a closed street and is composed of a cul de sac does not mean people use the area therefore it was important that observations in the area take place. The observations were used to find out if people use the area and if they use it who, how and why they use the area. In addition observations were exercised with the aim of finding out how people use or react in the area for example watching people entering homes and walking in the street. Finding out how often people walk in the area and when most do they walk or use the area. It was also very important to look at why people use the area, with the aim of finding out what are the reasons that make people use the area. For example may be they use it to go for shopping, others going to their working places or for chatting. Places could be used differently by different groups of people therefore it was important to find out how different groups of people use the area like pedestrians, children, elders and cars. This is all because the strength of a crime free design is the reaction of people within that area. It is pointless to design closed streets if residents would not support the idea and would not use the area as manipulated and set out for them. However through the use of observations it was easy to find all the information needed about the use of the area by different residential groups which is the strength of this kind of research. People would act differently in any given setting which therefore means by using observations in this setting helped the researcher to interpret reactions of people to inform his conclusions about the concept.

For an effective observation and analysis of the area the sites were visited in a number of times. Firstly familiarity with the area was thoroughly done. After a complete satisfactorily familiarization about the place the second session moved to a thorough layout analysis. The third session focused on the housing design analysis thereby looking at the physical

environment and opportunities for crime. The fourth session focused on the observation of the reactions of users and residents of the area. Observations were sometimes performed at night so that the behavior of residents at night was witnessed. Photos were taken in all the above-mentioned exercises as proof and for the easy understanding to readers about the concept of designing out crime in residential areas what it looks like.

Having analyzed the area and observed the utilization of the area by different groups the second part of data collection involved the community or residents of the so-called gated community and non-defensible residential neighborhood themselves. This was very crucial for this study because as much as the analysis and observation of the area was important but the information from the people of the area about the safety of their area was much more critical. This would also help in making generalizations as to whether the designs and layout systems play a role in making places safer or not. The primary function of the survey involved eliciting information pertaining the feelings of the people concerning a safe environment, how much do they know about the place as a safe environment, but overall the information that was imperatively needed from residents was that if the area according to the principles of a safer neighborhood is designed to be a crime deterring environment, is it therefore safe according to the residents? Are they feeling safe living in that area? The respondents were specifically residents because they are believed to be informed of whatever kind of event and activities taking place within their area on a daily basis. Hence they were also the ones that could give the honest and reliable feelings about their physical environment in relation to crime.

3.3.2.4 Questionnaires

For the purposes of understanding the feelings of residents and users of the area as a safe environment questionnaires were undertaken. Questionnaires were prepared in a form of structured and unstructured questions. There were a series of closed questions and open-ended questionnaires to accommodate the qualitative and quantitative data analysis and give respondents opportunities of flexibility and to elaborate on their responses. The questions that were asked at this stage focused basically on the feelings of the residents about their

areas, whether it is a safe environment to live or not. It was very important for questions to focus on the resident's feelings about safety because other stages had thoroughly dwelled with analysis of the areas and observations. Choosing questionnaires was a difficult task but in this research, questions were chosen purposively based on the principles of a defensible space, which are set out above. As stated above that there were structured questionnaires, therefore there was distribution of questionnaires to the relevant residents. Since there are different groups of residents, the distribution of questionnaires varied according to different users for example children, elders, youth, men and women. The researcher personally was distributing questionnaires household per household. The researcher in person also collected questionnaires so that where there would be errors those errors were corrected instantly.

3.4 Sampling procedure

It was therefore hardly possible to include all the variables, which could be relevant, and it was not possible to interview everyone who could provide useful information. Therefore sampling became an appropriate procedure in terms of selecting the relevant respondents and avoiding biases in this study. However the sampling procedure that was used in this study is a systematic sampling. Systematic sampling means selecting from a large area the specific area that the study will deal with. Because there is a shortage of areas characterized by defensible features and gated communities therefore it called for the research to work with the gated residential neighborhood called Westwood garden that was found. Systematic sampling was used because the areas are composed not of large communities but a few households' estimatingly 85 housing units. This means out of 82 housing units 40 households were taken to work with. At this stage a stratified random sampling was used in terms of selecting the relevant respondents. This was used because respondents are different in terms of age in which it was believed crime affects different age groups in different ways. The research included input of different age groups like children, adults, teenagers, old aged residents and young adults. The use of sampling was important in order to find the general feeling of residents about their place's safety. Above that it was believed that the research would be able to generalize about the feelings of the whole community having interviewed

40 residents. This is also because it is impossible to interview everyone in the areas considering time factors.

As a procedure of the whole conduct of research survey and for observation purposes communication was very vital with the participants. In this case asking for permission to the so-called leaders of the community to conduct analysis and observations was done for acceptance by residents.

3.5 Data analysis

For the purposes of analyzing data the use of both qualitative and quantitative data analysis were utilized. The computer programme (excel) was used especially when the quantitative data was dealt with. For analyzing the qualitative data interpretations were made based on the information collected. It is also evident in chapter 5 that a lot of tables in analyzing quantitative information were used. The use of percentages as representative of the whole population of the neighborhoods was very high. Through the analysis and interpretation of information the conclusions were reached which are believed to be appropriate to the findings of the research.

3.6 Limitations of the study

What was identified to be problematic in this study is the lack of literature to adequately inform the study. Books, on this topic are limited and those books that are available mostly dwell on similar points

The second problem is the shortage of areas characterized by the defensible physical features in especially in Durban. This limited the study to focus on one identified gated residential neighborhood compared to a non-gated residential neighborhood, which might somehow not be representative of the whole of Durban. It therefore become uncertain if generalizations could be made from the information collected from few people found in those areas.

Other obstacles were confronted in the process of conducting this research. To mention a few, crime statistics pertaining to areas under study could not be included due to difficulty of finding such information from police. It was also very difficult to find the original planner of the area. As a result such information was not included, important as it could be.

The following chapter will focus on the case study that was chosen. In the focus of the case study it is imperative that the historical background of the study be forwarded together with describing the character of the place at the present moment. As mentioned previously layout analysis and housing analysis not ignoring the observations of the reactions of residents will be crucial to be made in both areas as a comparison with an effort to find out which of the two areas is a crime free housing design.

Chapter 4

Historical background of the case study

4.1 Description of the case study

It was a tremendous effort to find a case study with relevant crime free housing features for an effective performance of such a research. Besides having a problem in finding a relevant case study, fortunately there was only one area that was identified as being relevant for the successful conduction of this study. However the case study was chosen due to the fact that it was believed it had all the necessary features that should be carried by a crime free housing design. The identification of this area was a very difficult task because South Africa is composed of not many places reflecting a crime free housing, which therefore means one identified area became an automatic choice.

After hard times in quest of the best case study in order to test the hypothesis, at last the case study that was found is called West wood Garden and the neighboring street. The location of the area is in Woodlands suburban residential area near Yellowwood Park. The case study is standing on the line of Kenyon Hawden road number 381 in Woodlands. Woodlands is a suburban area with mixed residents in terms of race situated in the South central of Durban city center. It is in line with the freeway heading to Pot Shepstone.

Coming to the character of the area it was found that the place is a gated residential neighborhood surrounded by fence right round the whole cluster (**figure 4.1**). The gate is situated in the front of the area with a security guard whose soul responsibility is to control access to the area. Access control services by security guards are rendered for 24 hours, which means there is always security at the gate. It is important to note that the place is a cluster housing characterized of three different closed streets with approximately 14 houses per closed street. Closed streets are composed of cul de sacs closed by houses, which determines their separation away from other neighboring streets. In the privatized streets houses are

built close to each other and facing to one another with access roads in between. The place is also surrounded by facilities like schools, open spaces for children to play, a shopping complex and different amenities. These serve as support in the reduction of crime in both neighborhoods because both neighborhoods have access to these facilities and the maximum use of the facilities by residents result to reduction of crime. It is also due to the fact that residents become pre-occupied with the use of these facilities especially the youth and have no time to attempt engaging themselves in criminal activities.

Figure 4.1: Showing gated community and access control by security.
Photo: Researcher.

4.2 Typology and grouping of housing

There are many different types of housing but this research focus on the single family housing because both study areas are characterized of this type of housing. Single-family housing comes in three basic types: detached houses, semi detached houses and row houses (row houses are also called town houses). Among the three kinds of single-family houses the area under study is composed of detached houses **(figure 4.2).** According to Newman (1996) detached housing refers to a building sitting fully by itself in its lot, not touching any other building. What was also

witnessed in that area is that the grouping of houses is mainly a detached housing format. On a different note both compared areas are composed of homeowner housing not rental housing.

Figure 4.2: Showing detached houses as typology of housing for the study. Photo: Researcher

4.3 Location of Woodlands

Woodlands is situated South of Durban near Clairwood. The location of the area is very opportunistic since it is near the industrial area called Clairwood. There is potential for residents of Woodlands to get jobs in the near industries. In addition Woodlands is located in the surroundings of Montclair shopping mall where job opportunities for residents are available. Woodlands location is also not very far from the city center, which gives Woodlands people a lot of job opportunities because Durban is about 15 minutes away by taxi from the place. All in all the location of the area is very advantageous in terms of employment opportunities.

4.4 Support facilities

It was mentioned in the previous discussion that the area is composed of many supporting facilities such as parks, schools, fields, shopping centers and churches.

Therefore Woodlands is an integrated planning because all the necessary facilities and amenities needed by the community are there. From the observations that were made it was found that there is maximum use of those facilities because people were seen in parks, shopping centers, children going to school and people going to churches.

4.5 Community profile

The area is a mixed residential area in terms of race. There are Coloreds, Indians, Blacks and Whites residing in that area. Most residents' in the area fall under a middle class category. This was concluded because the whole cluster is composed of five roomed houses, which therefore implies that people of non middle class category cannot afford to stay in those houses. Most of the area's residents are Professional teachers, nurses, police, soldiers and other different business related professions. It is also a combination of people coming from different townships and rural backgrounds. Most of the residents come from black townships like KwaMashu, Ntuzuma, Inanda, Lamontville and Umlazi. The only reason they wanted to stay in this area is they believed the area is much safer compared to their previous townships.

Previously whites only owned the area, until blacks and other racial groups started flocking in and that was after 1994 when democracy came into the picture. However the area is now black dominated due to that, when segregation in terms of residential areas was completely over, blacks that afforded to stay in white residential areas sniffed those opportunities, which led most of the whites to move to other more white dominated areas. Although the place is now black dominated, it is still dominated by the white values due to the fact that even today the chairman of the place is a white person.

4.6 Layout analysis of the gated community

Although the site plan and the layout of street patterns are furnished here, it will be of necessity to explain in details how the layout of this area's street patterns are characterized. Having analyzed the area in terms of road layout, it has been witnessed that the place is a gated village as mentioned earlier on, which therefore promotes territoriality on the residents. This means there are no through roads leading to other neighboring streets. It has also been witnessed that cul de sacs defined as public open spaces are surrounded by houses, which further imply that even the pedestrian through pavements are not at the peoples disposal, meaning they are strictly closed (**figure 4.3**). Such public spaces were mentioned as one of the most important social arenas in that area. The spaces have an ability to offer unexpected meetings and the opportunity for spontaneous contacts to take place. Still in the layout analysis, the lots and blocks are arranged to leave a small space between the access roads. This is believed to offer surveillance to the common space and among houses in that area. The layout patterns of roads and pedestrian ways are not placed in segregation with the buildings they serve. Above that the streets are designed with traffic calming elements of different kinds for example speed harms to make residents feel safe on the street. Furthermore the layout offer some privacy to the streets because the streets are arranged to separate from other streets thereby providing responsibility and full ownership to residents of that particular street. However the area is also composed of parking areas in front of the houses within the enclosed streets. Through fencing, a gate and closed streets it is enough to declare this place a privatized street. Above that with the above-mentioned features it is courageous to conclude that the place offers a safe environment and the implications of this kind of layout system is positively a safe leaving environment. The layout of that area is without doubt in line with the principles forwarded by the defensible space.

Figure 4.3: Showing cul de sac in a crime preventive layout form.

Photo: Researcher

4.7 Sketch of the defensible space layout.

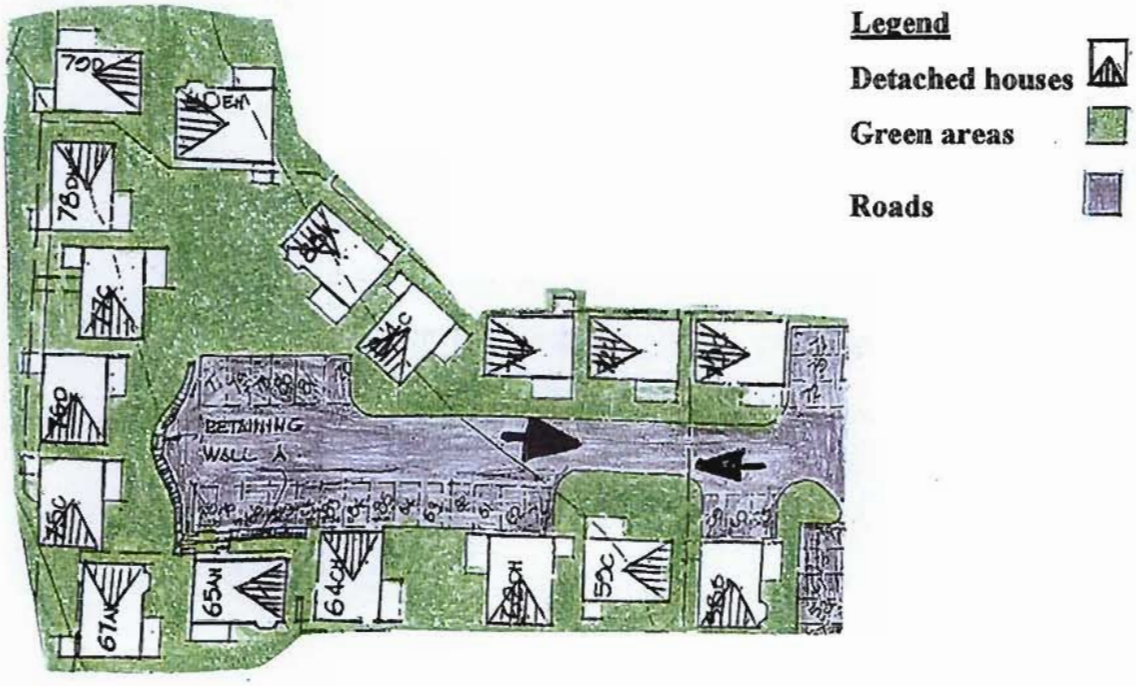


Figure 4.4: Showing sketch of the above Cul de sac in full.

4.8 Housing design analysis of a gated neighborhood

The area is composed of a cluster of detached houses. What have been witnessed in the housing design is that houses are located around small and enclosed yards close to each other. In spite of the closeness of houses, houses are placed facing each other and the common space making it easier for the residents to recognize and know their neighbors. It was also evident in the analysis that windows that are facing the road are for those rooms that residents spend most of their daytime in, like kitchens and the sitting rooms. Houses relate well with the streets or roads because they are placed very close to their roads, which offer physical surveillance on the road and also keeping criminals threatened (**figure 4.5**). There are also no spaces left on sites to offer criminals places to hide, above that houses were seen appropriate to their sites, which could discourage easy escapes and hiding opportunities for criminals. Close houses as they are, it was further witnessed that the space difference between houses facing each other is approximately 11 metres which proves that houses have close proximity to each other providing surveillance which has an ability to add eyes on the street and discourage criminality. Hence the space left in between houses on the sides is about 3 metres, which therefore disapproves hiding spaces and easy escape routes for criminals. It was also seen that there are strictly no places to hide as houses are very close on the sides and at the back there is a fence right round the area which offers no free space for criminals. Most of the house's fronts are characterized by verandas that allow residents to spend most of their time sitting and relaxing in the outside environment as a result intruders get threatened to enter with bad intentions

Figure 4.5: Housing design showing closeness of houses to the road, to each other and facing the road.

Photo: Researcher

Considering the image of the area relative to the houses it was found that there is no visible evidence of decay such as litter, broken windows, and deteriorating building exteriors (figure 4.6). According to the analysis there is nothing that has an ability to attract the criminals as far as housing image is concerned. From the housing analysis it is believed that this kind of design reflects and implicate a positively safe and crime-reducing environment because houses are well maintained and show no sign of decay (figure 4.6).

Figure 4.6: Showing the image of the area and houses offering no attraction to intruders concerning a commitment of criminal activities within the area. Photo: Researcher.

4.9 Observations on the gated residential neighbourhood

Having done the analysis of the place, it was then important to do observations of people's behaviour within the area. Considering the conclusions from housing design analysis and layout analysis that, the area is a crime free design, it is not complete if reactions of residents are not observed. The safety of housing designs is determined by the appropriate use of the area by the residents. This means as much as the area can have all features of crime free housing, but if people will not support that by using the area appropriately it is therefore ineffectual to have such a design because the intended purpose will not be served. Different people could use places differently therefore it was important for each and every group of residents' behaviour within the area to be thoroughly observed.

Firstly it was witnessed that the common spaces and streets are very busy. To support this it was witnessed that children usually use the area for playing their childish games. It was further evident from the observations that, there is a lot of walking up and down of residents going to shopping, works and visiting

neighbours refer to (figure 4.3). Hence an additional observation was of the use of the public space for relaxing and chatting among residents.

Through observations it was found that in each and every 15 minutes not less than 3 people are on the street either chatting or walking to their desired places mostly mornings and afternoons. It was also found that people are able to talk with their neighbours while in their houses because of the way houses are closely placed. This promotes natural surveillance on the streets, which might discourage intruders from contemplating entry

Other observations that were performed focused on the behaviour of residents within the area. It was found that residents have a tendency of leaving their houses opened when visiting their neighbours like 100m away from the house. It is alarming to find that in nowadays there are still places where you can leave your house unlocked let alone opened. It was also found in this area that residents leave their clothes unguarded during the day. It was further found that residents in this area are much likely to leave windows open facing the street (figure 4.7), more likely to leave their clothes outside on the line overnight. Residents with cars were observed leaving their cars unlocked in the parking area. A friendly environment was also concluded through the observations because residents were seen on the streets chatting and talking to each other even when they are in their front doors. This proves that the area is a well functioning social environment because residents are able to co-operate in issues concerning the neighbourhood or the community. According to the observations they know and trust each other and they also look after each other's properties. This is only a result of the physical structure that supports the development of the social atmosphere leading to integration and friendliness of the whole community.

Figure 4.7: showing observations that people leave windows, doors facing the road open and fearless of crime.
Photo: Researcher

4.10 Analysis of Woodlands non-gated neighborhood (North Ridge Park).

It is important to note that it was very crucial for both areas to be analyzed in order to be able to easily assess the crime rates and the implications of housing designs and layout systems in both areas. Through comparing the two areas as they are designed differently to each other, it will be easy to find out which design have the positive implications for reducing crime in residential areas.

4.11 Layout analysis of non-gated community

Firstly the layout of this area is composed of open loops. By open loops it means the street does not have dead end of the road instead the road is in loop form. The sites are standing adjacent to each other facing the road. One most important thing that was analyzed in the siting is that there is a big space separating sites from the road, which is believed not to offer sufficient natural surveillance to residents, that they can be able to spot criminal activities happening in their neighbor's houses

(**figure 4.8**). According to the analysis the area does not offer territoriality to its residents because it is not privatized. Everyone is worried about his/her own area and there is no collective ownership of the area. Therefore it is very easy for criminals to find a place to burgle or steal. The streets are not designed with traffic calming elements like speed harms so that people will feel safe. This stems from the idea that the speed of cars has impact on the street life in the sense that high speed makes pedestrians feel uncomfortable and unsafe. This alone can lead to residents not being on the streets because they feel uncomfortable and unsafe from cars speeding (i.e. 60km/h) in their streets therefore leading to empty streets. As a result crime takes place easily because of emptiness of the street.

Figure 4.8: Showing the layout of the non-gated neighborhood in one of the streets and a bunch of trees surrounding houses, which offers hiding spaces for intruders.

Photo: Researcher

4.12 Housing design analysis

Figure 4.9: Showing non-gated community houses with high walls and fences depriving natural surveillance a chance to take place.

Figure 4.10: Showing non gated community houses surrounded by trees offering hiding spaces to intruders

Photo: Researcher

In terms of housing design it was found in the analysis that the sites are located adjacent to each other with houses facing each other or the road. Most of the houses are built facing the sides and in most of the houses, front elevations are not facing the road instead the back is facing the road. Other houses are placed on the sites with the side elevations facing the road. It was further witnessed that windows facing the road are not mostly for habitable rooms like kitchens and sitting rooms instead its other rooms like children's sleeping room or visitor's rooms. Although there is a small space left in between houses on the sides but it was found that most of the houses are surrounded by a bunch of big trees (**figure 4.10**), which are likely to offer hiding spaces for intruders. According to the analysis the houses are appropriate to their sites leaving no space for criminals to hide within the site. It was also witnessed that most of the houses use their own security measures that they can afford. High fences and walls guarded by electronic devices and sometimes even by armed security guard, alarm systems and "stop nonsense" are being used in this area with the hope of deterring criminals (**figure 4.9**). High fences and walls are surrounding the majority of houses in Woodlands and on most of the walls there are signs with pictures of angry dogs and of machineguns (**figure 4.9**). The message is "keep out! We do not want any intruder or stranger in our property". Although these strategies are believed to offer safety to residential houses, instead they make the street unsafe by reducing the opportunities for passive surveillance (natural guarding by residents themselves) that in turn leads to the street being less populated. Through these security measures the house become enclosed enclaves, which separate people from each other, and finally a segregated neighbourhood is developed. The development of a segregated neighbourhood leads residents' inability to collectively fight against crime. In clarity this means there is no collective process of security that involves the whole community but individual efforts are being implemented in the whole area, which therefore separates the whole community.

Figure 4.11: Showing high walls and electric wires used by individuals in North Ridge Park (non-gated neighborhood).

Photo: Researcher.

4.13 Observations of non-gated community

What was witnessed in the observation on this area is that the streets were found not to be busy. This is only because in all the times when the observations were done streets showed a sense of emptiness. It was also observed that most of the people were inside their high walled and high fenced houses, with no vision to the outdoors. There was no chatting that was witnessed among residents because of segregation of houses to one another. According to the observations the area proved to be a non- functional social network in the sense that there are no bonds evident between the residents and no looking after each other's properties. The residents have an attitude that nobody will intervene if something happens to a neighbour. Hence the general opinion becomes "He or She doesn't care if something happens to me, why should I bother if something happen to them?" In

essence as the area is defined a non-functional social environment, a fragmented and segregated neighbourhood is created as evident in a non-gated street.

Other observations that took place concerned the behaviour of residents within the area in relation to their belongings. It was found from the observations that many house's gates are always locked whether day or night **(Figure 4.12)**. This was evident in the process of dropping questionnaires to household where it was difficult to get hold of households because of the gates being locked. It was also evident that residents are really afraid of strangers because most of the residents wanted to find out who one is and what one has come for asked one while still outside the locked gate before they would let one in. In this area residents would never leave their possession unguarded or windows open facing the road. Clothes on the line would be there if only there is a person in the houses, which means they are unlikely to leave the clothes on the line and go for shopping. Cars are always locked in parking and they are never left out side the yard.

Figure 4.12: Showing that gates in the non gated community are locked every time

Photo: Researcher

As far as image of the area is concerned relative to the housing structures and living environment it was observed that the houses look attractive in terms of

appearance **(figure 4.13)**. The houses conform to the aesthetic standards, which therefore makes the houses not vulnerable to criminal activities as far as appearance is concerned.

Figure 4.13: Showing good image of the non- gated community with no decay and deteriorating building exteriors

4.14 Conclusion

This chapter has given the character of the case study. On a different note the study went on to give insight on the findings of both housing, layout analysis and observations of reactions of people on both areas. According to the analysis of housing design and layouts of both areas it was found that a gated community is composed of crime free housing design features. This says that the gated residential neighborhood according to the analysis conforms to the principles of a defensible space, which are territoriality, surveillance, image and milieu. It is a pity that the analysis has proved that the non-gated residential neighborhood lacks the defensible space elements instead it is composed of individual efforts of crime prevention. However as much as the analysis would draw conclusions that the gated community is a crime free housing design as compared to the public residential neighborhood but that does not grant the research authority to conclude

that the area is a safe living environment unless the perceptions of residents consent with such findings.

It is important to note that as observations of reactions of residents were exercised, it was evident that the gated community has a potential to close opportunities for intruders to perform their criminal activities. It was proved that the gated community has a functional social network, as residents are seen chatting and that friendly environment and social integration being observed existing within the area, which therefore proves the conformity of the design to the defensible space elements. It was also observed that these residents are likely to leave their possessions unguarded which therefore further proves trust to one another among the neighborhood as a whole. Hence the non-gated area from the observations of reactions of residents has proven that there is no homogeneity among residents. They also proved that they are really afraid of crime by always locking their gates, which proves there is no trust among residents living together. In conclusion the gated community proved to follow the defensible space elements over the non-gated community, which therefore would make one only speculate that the area is a safe living environment but conclusions cannot be drawn from that.

The next chapter will focus on the research analysis, taking it from the responses of residents of the area about their feelings and perception of the safety of the area. Methodologies that are going to be of maximum use are both qualitative and quantitative methods. Qualitative analysis will, in effect take a form of various graphs and tables. The quantitative method will be utilized to interpret information that was collected and as a support for the qualitative information furnishing out reasons for the responses. The chapter will tackle the gated residential area information first then the public neighborhood street analysis will follow. This will be done with an effort to come to a conclusion about which plan best contributes to crime prevention in residential areas. This is where the conclusion of the whole research will come up and this will also determine the recommendations and suggestions for a more effective crime prevention plan in residential areas.

5.0 Chapter 5

5.1 Introduction

Having completed the analysis of housing designs, layout systems and observations of residents' reactions on both areas it is therefore of crucial importance that the information collected from the residents is analyzed. The analysis is based on the responses of the sampled residents. The whole analysis is basically a proof of the hypothesis that, housing design and layout systems contribute to crime prevention in residential neighborhoods in metropolitan areas of Durban. This is where the answers to prove the hypothesis will be found. The analysis as mentioned above is a comparison of responses of residents of the gated residential neighborhood and the non-gated residential neighborhood. Through this comparison it will be concluded which kind of planning best contribute to crime reduction in residential areas. The analysis will show detailed responses in table and graph forms and it will follow the questionnaire format but the results will not all be included in the graphs. Both areas had 40 residents interviewed; therefore all the responses will determine the conclusion and recommendations of this research.

5.2 Research Analysis

5.2.1 Personal Details of Westwood Gardens' residents

Age		**Occupation**		**Sex**		**Yrs residing in the area**	
10-13yrs	0%	Clerical	25%	Female	38%	1-3yrs	37%
13-19yrs	5%	Professional	50%	Male	62%	3-6yrs	63%
20-35yrs	53%	Not working	10%				
35-65yrs	40%	Scholar	5%				
65>yrs	2%	Other	10%				
Total	**100%**	**Total**	**100%**	**Total**	**100%**	**Total**	**100%**

Table 5.1: Showing Personal details of respondents like age, sex, occupation and years living in the area.

Having asked people of ages, which had an impact on the research as a whole especially in view of the fact that crime is believed to be experienced differently by different age groups. This table is trying to show how many people responded in each an every group. It is evident in the above table that there were no children from 10 to 13, only 5% of respondents in the age of 13 to 19, 53% of respondents were from the ages 20 to 35, and 40% of respondents were from the ages 35 to 65 and 2% of respondents were above 65. This table shows that most of the people who responded are adults in which their responses are found reliable and valid because they are the people responsible for the security of the area and that they are owners of the houses.

The table also shows the number of respondents in terms of sex. It is shown that 38% respondents were females and 62% were males.

The same table further shows the difference of respondents in terms of their occupation. It is illustrated that 25% of respondents are clerical workers, 50% of respondents are professional workers, only 10% of respondents are not working, 5% of respondents are scholars and 10% falls under business related jobs.

It was important in this research that the number of years for residents living in the area was found so that the validity and reliability of responses will be determined. The research has found out that the development of this area was in 1995, which means the area is only about 6 years old. The table above illustrates that 37% of respondents claimed to have stayed for 1 to 3 years whereas 63% of residents have stayed for 3 to 6 years. Through the analysis of this information it was found that the highest percentage of respondents is the one with people that have stayed many years. However this means if many respondents are the old citizens of the area it gives assurance to the researcher that the information elicited from those people is valid and undoubtedly reliable. This stems from the

fact that since they have stayed for so long (3-6yrs) in that area, they understand and know activities taking place within the area from time to time.

5.2.2 Income brackets of the gated community

Income	Respondents
0-1000	15%
1001-2000	0%
2001-3500	0%
3501-4500	35%
4500>	50%

Figure 5.2: Showing income brackets of residents of a gated community.

The table above shows the income brackets of the gated-community as it is evident in looking at the table that 15% of respondents are in the income brackets of 0-1000. This is actually 0 income because respondents who responded in a bracket of 0-1000 are scholars and those who are not working. However this means 15% of respondents is counted out in the income brackets. It is also shown in the table that there are no residents who earn from 1000-3500 since the percentage of respondents in those income brackets is 0%. Nevertheless the table further illustrated and showed that 35% of respondents are earning from 3501-4500. Notwithstanding that most residents earn from 3501-4500 it is also evident in the table that the highest percentage of respondents (50%) earn 4500 and above. This means residents in that area falls under a middle class category, which further proves that the area is a middle-income housing.

5.2.3 Perceptions of the safety of the area

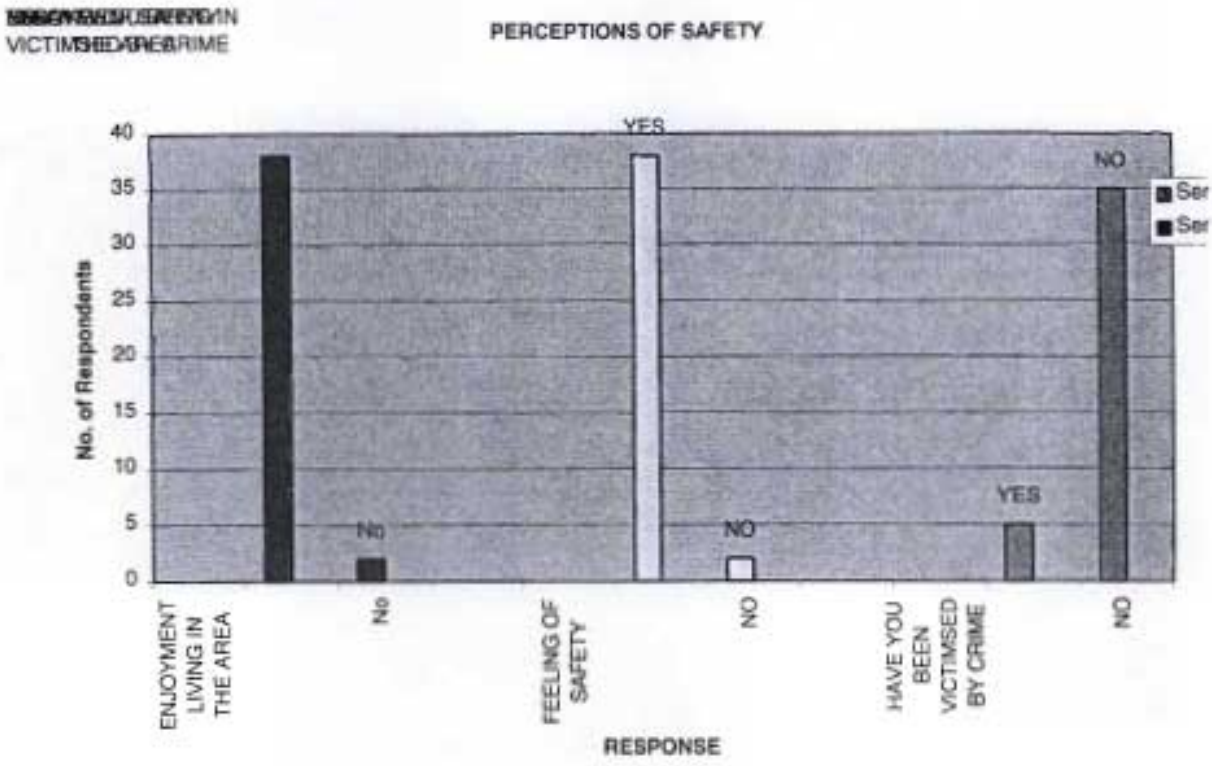


Figure 5.3: Showing the perceptions of residents about the safety of the area e.g. enjoy living in the area, feeling of safety and victimization level.

Having asked the residents if they enjoy living in the area, the graph above shows that 95% of respondents claimed they enjoy a lot living in the area while 5% of respondents strongly claimed and confessed their discontent living in that area. Though there are a few respondents stressing high level of misery concerning lack of safety, but the information found in this research provokes the research to conclude that generally people enjoy living in that area. When people were asked to give reasons for their answers most of the respondents tensely stressed that they enjoy living in their area because it is quite and safe. Others confessed that they never heard of any crime around the place. Nevertheless others forwarded that the place is surrounded by vast facilities and amenities which they make use of everyday. Two respondents who claimed not to enjoy living in the area stipulated that it is only because crime lives within the area. It is believed that

these respondents are those that once were victims of crime. But generally the place is regarded as enjoyable according to the residents.

Residents were asked about their feelings of safety in the area and 95% of residents responded positively voicing that they feel safe living in that area. Only 5% of respondents responded negatively claiming they don't feel safe living in the area. When the follow-ups were made to the asked questions from the positive residents most of them praised the layout of their area in feeling safe within the area. Others pointed out access control as a major contribution to their safety further praising the existence of the gate and the security patrolling timeously. Most of them touched on the contribution of being close to each other and also the existence of common space that they believe offers surveillance to the whole area. Those that don't feel safe addressed the issues of inside crime, confessing that crime is an internal job, which increases the level of crime fear to the residents and the feelings of safety diminishes. These people pointed out that they are not afraid of outside intruders because the security of the area is very tight that intruders cannot easily enter but their main problem is the residents staying within the area. Although there are few residents with strong negative feelings about the safety of the area but because most residents feel safe living in the area generally residents feel safe within the area.

Having wanted to find out the level of residents who once been victimized with an effort to exhaustively determine if a place is full of criminal activities or not, 88% of residents responded they never were criminal victims within the area. Only 12% residents responded they once been victimized in terms of crime within the area. They counted criminal activities such as Burglary, theft and robbery stressing that these crimes occur mostly at night. According to this information it is obvious that this place has lesser crime victims, which therefore means the area is safe if only 12% of respondents had ever been criminal victims.

5.2.4 Perceptions of safety of the area

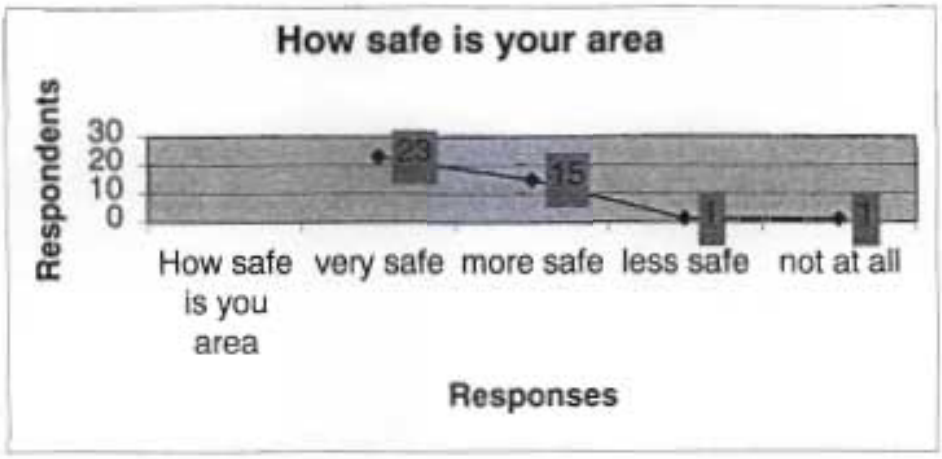


Figure 5.4: showing the level of safety of the area

Residents were asked of their perceptions about the level of safety in their area 57% of residents regarded their area as very safe, 38% regarded the place as more safe while 2% of respondents claimed the place as less safe and another 3% respondents regarded the place as not safe at all. This graph shows that many respondents take their area as a very safe place to live, which therefore means the gated residential neighborhood is the safest environment to live in. When people were asked why they regard their place as very safe most of their responses included stating that they never had heard of any criminal incidents within the area. Others stipulated that its because their area is fenced and there is also a security guard at the gate who also patrols from time to time. Many more pointed out that the area is composed of a few houses that residents know each other. They even argued that criminals don't come because they know they have to use one gate entering and exiting and they are afraid they will be easily identified.

5.2.5 Perceptions of Social control within the area.

Identification of strangers		Easiness of observing your neighbors house		Responsibility to guard the area	
Yes	65%	Very easy	88%	Yes	78%
No	35%	Not easy at all	12%	No	22%
		Not so easy	0%		
		Difficult	0%		
Total	**100%**	**Total**	**100%**	**Total**	**100%**

Table 5.5: Showing the responses of identification of strangers, easiness of observing neighbor's houses and responsibility to guard the area on the side of residents.

This table shows how many residents are able to identify strangers entering the area to prove that this kind of layout makes people know each other that they can even identify strangers if entering the place. In answer to this question 65% of respondents said they are able to identify strangers if entering the area. On the other hand 35% of respondents highlighted that they can't identify strangers when entering. When follow ups were made in giving reasons for their answers. Most of the respondents stated that they identify strangers because their area is small and houses are built close to each other, which gives them a chance of knowing everyone living within the area. They further stipulated that it is easy to see a stranger due to that residents know each other because the closeness of houses allow them to chat and the common space offers them a place to relax and do community social gatherings. Those who responded negatively on this question pointed out that they cant identify strangers because they are always at work so they wouldn't know of any new arrivals

The table further illustrates the responses of respondents on the question of easiness of observation to the neighbors' houses. It is evident in the table that

88% of respondents stressed that it is very easy to observe your neighbor's house when she/he is not present. Most of them put forward the reason that they have close proximity to each other in terms of placement of houses. Others touched on the issue of their houses closely facing each other offering surveillance to the whole area and other neighbors' houses. The table also shows that there is only 12% of residents who stipulated that it is not easy at all to watch your neighbor's house while he/she is not in. They forwarded the reasons that they are always at work during the day and they can't be able to watch other people's houses.

When residents were asked if they feel responsible to guard the area 78% of residents responded positively, saying they feel responsible. Most of them pointed out the reasons that their area calls for a collective effort and responsibility for the security of the area. They further postulated that their area is not segregated in terms of layout form, which requires the whole community to look for each other within the area. They even continuously pointed that its because they all want to live happily. Only 22% of residents responded negatively to the question, claimed they don't feel responsible to guard their area. When follow up questions were posed to these respondents they didn't answer the questions so it was not understood why they don't feel responsible in guarding the area.

5.2.6 Perceptions of crime and fear of crime within the area

Common crime		Fear of crime	
Theft	21%	Yes	25%
Robbery	0%	No	75%
Burglary	32%		
Vandalism	5%		
Other	42%		
Total	**100%**	**Total**	**100%**

Table 5.6: showing different crimes, commonness and fear of crime

It was asked in the questionnaire what is the crime that occurs commonly in this area. The responses that were found were very vast but specifically 21 % of respondents said its theft, 32 % pointed burglary, 5% said its vandalism, 0 % said robbery and 42% said its other criminal activities for instance most of them said they don't know in this question because they said they have not yet experienced so much crime in the area. This table tried to show that the common crime in this area is other criminal activities followed by burglary thereafter theft, which are the crimes expected in residential areas. Therefore this means from that small number of crimes that occur in the area but the common crime is other criminal activities. By this small number of people responding on the common crime it shows the place is not composed of so many criminal activities and there are very few people who experience crime in the area. It is therefore conclusive that because the common crime is not one of the residential crimes such housing designs and layouts have a major contribution in residential crime prevention.

Having asked the residents if they fear crime within the area the responses came this way. Only 35% residents responded they fear crime within the area. They forwarded the reasons that residents within the area are the thieves and policemen are also involved in criminal activities within the area. On the other hand 75% of residents pointed that they don't fear crime within the area. Many of them said there is enough security on the gate. Others said it is because they haven't heard of any crime in the area. Others said the plan of their place is very effective in preventing crime. Others highlighted that their security is very tight. On a general note residents in this area do not fear crime.

5.2.7 Perceptions of the possibility of socialization

Making friends or interacting with neighbors		How easy is interaction		The place of interaction	
Yes	85%	Very easy	80%	In the street	55%
No	15%	Difficult	20%	In their homes	15%
				In common space	25%
				Other	5%
Total	**100%**	**Total**	**100%**	**Total**	**40**

Table 5.7: showing if residents are able to interact, how easy is interaction and the place where they interact.

Residents were asked if they can make friends or interact with their neighbors and 85% responses were positive and 15% responses were negative.

When residents were asked how easy is the interaction 80% residents said the interaction is very easy while 20% residents said the interaction is difficult. Residents that responded negatively pointed that it is because of racism. This is due to the fact that the area is a mixed residence. They say people are too moody that is why it is not easy to interact with neighbors. Of the 80% that responded positive they forwarded the reason that the closeness of their houses makes their interaction very much easy. They stated that this allows even a door-to-door interaction. They continuously stipulated that they can interact with neighbors while they are in their houses. Others added that they usually meet on the street and in the common space for chatting because they are now friends within the area. In conclusion this kind of area allows residents to interact easily with their neighbors

In the question of the place of interaction with an effort to find out where do people most interact, this table shows that 55% of respondents use the street for

interaction which means the street is mostly busy. 15% of respondents said they interact in their homes with their neighbors, 25% of residents use the common space for interaction and 5% of residents use other places. This table shows that there are different places people use for interacting but this proves that a friendly environment is being created in this kind of layout which offers residents so many places of performing their social activities thereby increasing feelings of safety within the area.

5.2.8 Perceptions about the use and knowledge of the public space

Do you have public space?		**How often do you use it?**		**What do you use the area for?**	
Yes	100%	Everyday	55%	Chatting	15%
No	0%	During weekends	15%	Playing	10%
		Community gatherings	20%	Relaxing	20%
		Other	10%	Walking	50%
				Meeting neighbors	5%
				Other	0%
Total	**100%**	**Total**	**100%**	**Total**	**100%**

Table 5.8: Showing the responses pertaining the existence of the public space, how often it used and what is it used for.

When people were asked if they have public space within their area 100% of respondents said they have the public space in which they strongly stipulated that they use it a lot for chatting and doing social gatherings. This question was asked with an effort to know if they understand that the area is a crime prevention set up. It was found here that residents understand that their area has a public space and the purpose of it.

When residents were asked how often they use the public space 55% of respondents stated that they use it everyday, 15% voiced that they use it during

weekends, 20% stipulated that they use it when there are social gatherings and 10% said they use it for other reasons. It was said previously that what determines the safety of the area is the level of appropriate use of the area as intended. Therefore this graph shows that the public space is used in different times, which can therefore prove the determination of the areas safety.

Different people use common spaces for different reasons; their reasons vary according to their age. There were no respondents who are 10-13yrs and only5% respondents who are 13-19 yrs that is why there is such a low amount of people who use the common area for playing. The other 5% of respondents two who use the area for playing are adults who are between the ages of 20-35 who say they use the area for playing their extra mural activities. Most of the respondents use the area for walking, mostly when going to work or other desired destinations. It is obvious that the common space is usually busy with people walking the whole day to their destinations. If we look back at table 1 we notice that the majority of residents can identify strangers, this is thus another advantage of having a common space, because strangers have limited opportunity to enter the area. The reason why there is such a low amount of residents who use the area for chatting and meeting with neighbors is because they prefer interacting with each other at their homes. Most of the residents regarded relaxing as socializing and doing such activities as braai and other entertaining activities. The use of the common space every time determines the vibrancy of the area, leading to the safety of the area.

5.2.9 Perceptions of layout regarding safety of the area

Opinion about layout in terms of crime prevention		**Are there residents who leave the area because of crime**	
Effective	88%	Yes	12%
Ineffective	12%	No	88%
Total	**100%**	**Total**	**100%**

Table 5.9: showing the responses in the opinion about safety of the layout and if there are residents known who leave the area because of crime.

When residents were asked about their opinions of the layout of their street in terms of crime reduction 88% of respondents confessed that their layout is effective in crime reduction. When they were asked what needs to be improved most of the respondents said everything is already done nothing else needs to be done. Only 12% of residents regard the layout as being ineffective in crime reduction but they never forwarded the reasons for the answer except saying its because the area is not safe. According to the analysis it is obvious that the layout of the area is very effective as far as crime reduction in residential areas is concerned.

The table further shows that 88% of the residents responded they don't know people who leave the area because of crime, while 12% stipulated that they know people who left the area because of crime. This obviously says that generally there are a few people who leave the area for crime fear reasons. However this further confirms that the area is a safe environment to live in.

5.3 North Ridge Park (Woodlands Non-gated residential neighborhood analysis)

The same research was conducted on a Public Street, the same questioner was used, and the following is the analysis of the findings of the research. 40 residents responded in the research. It is important that there were the same number of respondents as in the gated village so as to make a comparison.

5.3.1 Personal details of the non-gated community

Age		Sex		Occupation		Years living in the area	
10-13yrs	10%	Females	60%	Clerical	25%	0-5yrs	60%
13-19yrs	10%	Males	40%	Professional	50%	6-10yrs	40%
20-35yrs	20%			Not working	5%	11-20yrs	0%
35-65	55%			Scholar	10%	20>	0%
65>	5%			Other	10%		
Total	**100%**	**Total**	**100%**	**Total**	**100%**	**Total**	**100%**

Table 5.10: Showing age, sex, occupation and a period of respondents living in the area.

The table above shows the respondents according to age. Different crimes affect different age groups of people. Therefore this table is trying to show the number of respondents in different age groups with an effort to find out what perception different age groups have on the safety of the area. This is also important for the reliability and validity of information depending on the age group. The table above shows that 10% of respondents were from ages 10 to 13, 10% of respondents were from the ages 13 to 19, 20% of respondents from the ages 20 to 35, 55% of respondents from age 35 to 65 and only 5% from age 65 >. It is evident in the table that the highest percentage of residents who responded are adults from age 35 to 65 followed by young adults from ages 20 to35 years which undoubtfully will make the information reliable because firstly they are the owners of houses, secondly they are also responsible for the security of the area. This does not necessarily say other respondent's information is unreliable but because adults know exactly what is happening within the area everyday and what ever happens within the area whether bad or good touches them and they are always automatically inclusive in every event taking place within the area.

Respondents varied in terms of sex in which 60% of respondents were females while 40% of respondents were males. It is illustrated in this table that respondents are mostly females in which the reason would be usually women were the people easily got hold of because they are mostly at home. In spite of the fact that men are usually not at home but attempts were made for most of men to be found and contribute in the research.

Respondents were asked of their occupations in which 25% of respondents were found to be clerical, 50% were found being professional, 5% were found not working, 10% were found being scholars and 10% were found involved in other occupations. This on the other hand illustrates and proves the statement previously made that the area is regarded as a middle working class since it is evident in the table that there is high percentage of professional workers in that area, following that is the higher percent of clerical workers.

As many people as there are in that area, they have been living there for different years, which have an impact in the analysis of this research because years will determine the experience of that particular person about the safety of the area. According to the analysis 60% of residents were found to have stayed there from 0 to 5 years, 40% of residents have stayed for 6 to 10 years and there are no residents who have stayed there for more than 11 years and above. It was enough in this research to find people who have stayed from 1 to 10 years, as they are many because they have the experience and knowledge of activities occurring in the area for the years they stayed there. This makes their information reliable because the research needs people who have stayed for long in that area.

5.3.2 Income brackets of North Ridge Park (non-gated community)

Income	Respondents
0-1000	10%
1001-2000	0
2001-3500	10%
3501-4500	25%
4500>	50%
Total	**100%**

Table 5.11: Showing income brackets of the non-gated community

It is shown in the table above that 10% of respondents earn 0 income solely because they are scholars and most of them doesn't work. On a different note it is illustrated by the table that no respondents earn from 1000-2000 in that area. While no residents earn less than 2000, 25% of respondents claimed to earn from 3501 to 4500. On top of that 50% of respondents revealed that they earn 4500 and above. However this means residents of the non-gated community earn above R3.500 00 which is why they can afford to stay in suburbs and provide themselves with extremely protective security measures of their choice.

5.3.3 Perceptions of safety of the area

Enjoy living in the area		Feeling of safety		How safe is the area		Have you ever been victimized	
Yes	45%	Yes	37%	Very safe	25%	Yes	68%
No	55%	No	63%	More safe	5%	No	32%
				Less safe	45%		
				Not at all	25%		
Total	**100%**	**Total**	**100%**	**Total**	**100%**	**Total**	**100%**

Table 5.12: Showing responses on enjoyment of living in the area, feelings of safety, the level of safety of the area and victimization of residents within the area.

When residents were asked if they enjoy living in the area 45% of respondents illustrated that they enjoy living in the area whereas 55% of respondents confessed that they don't enjoy living the area. Respondents pointed that they don't enjoy because it is not a safe place to live. Others stipulated that patrollers do not regularly visit the area and the layout is too segregational in terms of roads and sites in the sense that the area is not collectively laid out instead it consist of many separated streets. Those residents who said they enjoy living in the area stipulated that its only because the area is a safe environment to live in. From the observations most of these residents have built high walls and fences together with other security measures like alarms. They therefore claimed they themselves are secured because they afford provision of their own security measures to prevent intruders from entering their houses. Generally for many residents the area is not a safe living environment unless one puts effective alarm systems in isolation.

Having asked residents about their feelings of safety in the public street the table shows that only 37% of respondents said yes they feel safe and 63% of respondents bravely confessed they don't feel safe. When the residents were asked of the reasons those who said they feel safe thought its because they make sure themselves that they feel secured around the place by building themselves high walls, fences and installing alarm systems for tight security in their houses. Others say they never experienced crime in the area. One respondent said she feels safe because only God is her saviour. If people would say they put their safety in Gods hands that means the area is not safe which is why they would leave everything in Gods hands. Respondents that said they don't feel safe living in the area stated that its because there is too much crime within the area. One respondent stipulated that "there are so many intruders in this area we even consider handling them in our own suitable ways". He even further asked if we

have a plan for criminals to share it with them. Others confessed they don't feel safe because they have seen so many house break ins in that area.

The table above further shows the responses of the perception of respondents about the safety of the area. It is evident in the table that most of the respondents regard the place as less safe in which 45% of respondents stipulated so, while 25% of respondents confessed the area is not safe at all whereas another 25% oppositely stated the area is very safe lastly the other 5% of respondents regard the place as more safe. It is obvious from the table and the analysis that many residents' perceptions about the safety of the area are negative. Therefore it is conclusive that the area is not a safe environment to live as compared to the gated residential neighborhood.

The table above continuously illustrated that a lot of people in the public street have been victims of crime as it is shown that about 68% of respondents said they were victims of criminal activities within their area and in their properties too. There are 32% respondents who confessed they never were crime victims before in their area. Generally the table is trying to show the analysis that most of the residents in a public street have experienced victimization within their residential area. If the area is composed of 68% of residents once victimized that obviously illustrates the area as less a safe living environments.

5.3.3 Perceptions of social control within the area

Identification of strangers		Easiness of looking after your neighbors house		Responsibility to guard the area	
Yes	20%	Very easy	10%	Yes	5%
No	80%	Easy	0%	No	95%
		Not so easy	63%		
		Difficult	27%		
Total	**100%**	**Total**	**100%**	**Total**	**100%**

Table 5.13: Showing responses on the resident's identification of strangers, easiness of looking after their neighbors' houses and responsibility to guard the area.

When residents were asked if they are able to identify strangers in their area only 20% of residents responded positively stating that they area able to identify strangers entering the area. The other 80% of respondents said they are unable to identify strangers. There were follow up questions like why? In which most of those who said no supported by saying its because the area is very big that they can not know everyone who is deemed to live in the area. Others said the area has become so dangerous that they cant even see strangers because if they are in their houses they don't go outside, which makes them unable to know who are other residents of that area. Residents who said they are able to identify strangers said sometimes someone would ask directions or ask someone living in the area. Those respondents that claimed they can identify strangers in this area are young adults from ages 20 to 35 because they use the street a lot visiting their friends and chatting with different people, that's why they have a chance of knowing most of the people in the area and in a position to identify people who do not live in the area. Generally the analysis says that most residents in a public street are unable to identify strangers because the area is very big.

The table further illustrates how easy it is for residents to look after their neighbours houses. It is exposed in this table that most of the respondents said it is not so easy since about 63% said so, 27% of respondents confessed that it is difficult, while10% of respondents said it is very easy and no one said it is easy. According to the analysis it is obvious that the highest percentage of respondents stipulated that they cannot watch each other's houses. Most of the respondents, who said they can't, highlighted on the issues of the layout and the segregation of houses to each other. They exhaustively dwelled on the issue of lack of relationship between houses opposite each other. Others raised the issue of high walls and fences hindering neighbors to look for the properties of each other as a result of isolation of houses from other houses. Respondents that said yes didn't furnish the reasons for saying so.

When residents were asked if they feel responsible to guard their area 5% of respondents confessed they feel responsible guard their area. 95% of respondents stipulated that they don't feel responsible to guard their area. It is obvious most of the respondents said they don't feel responsible because there is no collective security measures but only individual efforts when it comes to security. They further stressed they don't feel responsible for the security of the area but they are responsible for the security of their houses. Others touched on the segregation of houses through walling system that is used there, which release the burden on residents in being responsible to guard the whole area. This means generally there is no responsibility for securing the area among residents but only to secure their own properties.

5.3.4 Perceptions of crime that is common within the area and the fear of crime.

Common crime		Fear of crime within the area	
Theft	30%	Yes	72%
Robbery	20%	No	28%
Burglary	47%		
Vandalism	3%		
Other	0%		
Total	**100**	**Total**	**100%**

Table 5.14: showing common crime and fear of crime on the side of residents.

According to the respondents the most common crime occurring in the area is burglary since 47% of respondents stipulated so, theft follows up, as there is 30% of responses pointed theft, 20% of respondents raised robbery, 3% of respondents pointed vandalism and no other crimes were mentioned. Overall the most common crime in the area is burglary, which is basically a crime that often occur in residential areas. This shows that the area is not safe if the highest percent of respondents raises burglary and theft as common criminal activities within the area.

Residents were asked if they fear crime within the area in which in this table it is illustrated that most of the residents responded they fear crime since 72% of respondents stipulated so. Only 28% of respondents said they don't fear crime in their area. Most of the residents stated that they fear crime because they have seen so much criminal activity within the area. Those that voiced that they do not fear crime said its because they haven't experienced crime within the area. But since the table shows that most residents fear crime in the area that says there is high level of crime occurring in the area. It is true that one would fear crime only if he once been a victim or have seen crime occurring on his/her sight, which

therefore says that all these respondents say they fear crime because they have seen this before which further means the area is full of criminal activities.

5.3.5 Perceptions of possibility of socialization

Making friends or interaction with neighbors		How easy is interaction		Place of interaction	
Yes	48%	Very easy	32%	In the street	20%
No	52%	Difficult	68%	In their homes	50%
				Common space	0%
				Other	30%
Total	**100%**	**Total**	**100%**	**Total**	**100%**

Table 5.15: showing responses about possibility of interaction, easiness of interaction and where residents interact.

When residents were asked if they make friends or interact with their neighbors 48% responded positively and 52% of respondents stated that can't interact. It is very difficult to generalize if respondents overlap like this. However it is obvious that interaction or making of friends within the area is minimal due to that a majority of respondents said they don't interact with their neighbors.

This table clearly shows that 68% of respondents confessed that the interaction among neighbors is very difficult. On the other hand 32% of respondents said it is very easy. When respondents were asked to support their answers most of those that said the interaction is difficult forwarded the reasons that houses are too isolated through fencing and walling systems as previously mentioned. Others pointed out the issue of lack of a public space where community gatherings can take place. Others raised issues of racism because of a racially mixed residence thereby further raising that the social dynamics and cultural differences are taking its tole among residents. Others complained about houses

not in proximity to each other. Residents that said the interaction is easy pointed that most of the residents are friendly so they are able to easily interact. Generally interaction of residents in the public residential area is of very limited amount.

As it was illustrated in the previous table that residents find it difficult to interact with their neighbors because of lack of public spaces to interact it is evident in this table that most of the residents interact at their homes as 50% of respondents stipulated so, very few residents said they interact on the street about 20% of them and 30% of them said they use other different places. Not even a single respondent counted the public space. On a different note it says that as a way of communication residents have to visit each other so that they can interact with their neighbors. As much as they visit each other but they said they find it difficult to visit because most houses have big dogs, which hinder them in making visits regularly. Generally there are no neutral places for these people to interact and have social gatherings except visiting each other in their homes, which sometimes is problematic.

5.3.6 Perception about the layout of the area

Do you have public space		Opinion about the layout		Residents left the are because of crime	
Yes	0%	Effective	0%	Yes	58%
No	100%	Ineffective	100%	No	42%
Total	**100%**	**Total**	**100%**	**Total**	**40**

Table 5.16: Showing the responses of the existence of the common space, opinions about the layout in terms of security and knowledge of residents who left the area because of crime

When residents were asked if they have a public space all of them said they don't have the common area in their place. This was illustrated in the previous table that there is no public space in that area as people confessed their way of

interaction is visit each other and meeting in the street. But most of those who said they interact in the street are young adults who have friends in the area. Overall the table shows the area lack the public area where people can be able to meet from time to time and chat.

If 100% of respondents stressed that the layout of the area is ineffective in reducing crime it is therefore conclusive that the public residential neighborhood is not a safe environment to live unless one can afford to put his/her own tight security for the reduction of crime.

The above table shows the number of people who know other people who left the area because of crime. It is evident here that 58% of residents strongly stressed that they know people who have left the area for high crime reasons within the area. On a different note 42% of respondents argued that they don't know of people who left the area for high crime reasons. However taking a closer look at the analysis it is evident that the highest percentage of respondents are those who said they know than who responded negatively. Therefore this means if the public street has so many residents confessing they know people who leave the area for crime reasons, the area definitely and honestly have a high level of crime and is not a safe place to live unless major improvements are made tackling this problem.

It was also revealed from the residents opinions about community participation that community consultation was not considered mostly because people came to buy the houses and the reason that it is a private suburb area which means by the time the development is put in place the community does not exist. Therefore it was found that in the implementation of this development community participation was not considered.

5.4 Findings of the research

In examining and finding out whether housing design and layout systems for crime prevention contains negative or positive implications to crime prevention

in the comparison between gated community and non-gated community, certain tentative conclusions for the key issues of the research can be drawn from the whole analysis. While most of the residents regarded the gated community as very safe, there are few residents claiming that the area offers limited amount of safety. Residents who claimed the area is not safe postulated that crime is an internal job in that area. Therefore it is argued that crime prevention through environmental design is directed implicitly at strangers and outsiders, allowing chances for residents to commit crime within the area. This on the other hand proves the point rose before which stipulated that crime prevention is not a fix-all solution to a range of design problems and crime prevention strategies.

As a token, the whole research was done following the principles and approaches of the Defensible space and Crime prevention through environmental design. The basic idea was to experiment all those principles together with the theories whether they play any role in crime prevention given a South African context or not. The research witnessed and therefore argues that a defensible space is practically a model for residential environments, which inhibits crime by creating the physical expression of a social fabric that defends itself. Hence in comparing the two neighborhoods it was revealed in the case of Westwood Garden that the layout of the area is physically designed to defend itself distinct to the non-gated community. On that note this research approves of the hypothesis that crime free housing plays a role in crime prevention and Defensible space principles (gated community) are safe and feasible in South Africa.

It is found in the case of Westwood garden that territoriality has had an important bearing upon the safety, both real and perceived. However the research would therefore argue that residents and users feelings of safety are related to the sense of predictability and control experienced within the neighborhood. In support of the above argument it was found from most of the residents of the gated community in the question, which asked "Do you feel responsible to guard your area" that most of the residents responded positively and cited the reasons that they feel responsible because it is their private area and they want their area to be safe. Hence residence based control is facilitated by social cocooning evident in

the area due to the layout of buildings or tight contextual setting, and limited permeability of the area. Territoriality was further witnessed in the observations of the areas where it was concluded that the area offer residents a sense of ownership. For this reason the argument stating that the capacity of the physical environment to create for each individual perceived zones of territorial influence result in a proprietary interest and felt responsibility is maintained in this context. It can therefore be argued that such signs of proprietorship contribute to crime prevention and simultaneously bolster neighborhood confidence, which therefore explains that territoriality, plays a role in making residential areas safer.

Additionally from the observations of Defensible features it was witnessed that the collective neighborhood fencing is a powerful security feature in crime prevention. This means the presence of a fence as it was evident in the case of the gated community explains that would-be intruders will have to make a deliberate effort to enter and that the occupant is determined to keep them out. The fence shows high signs of a private property and it also postulate itself as a feature that discourages trespassing in the interest of convenience and burglary within the neighborhood. Taking the case of Westwood garden the fence shows two general perceptions in promotion of territoriality. Firstly a fence made a clear separation between private and public territories and carefully set up a physical obstruction to entrance into the private area. Therefore an uninvited presence requires some explanation. Secondly the erection of a fence represented a deliberate effort on the part of an occupant to keep outsiders out. This means that occupants resent the intrusion of outsiders and would confront them. Moreover this explains that features that promote territoriality, which reflect continuing care are decoded by residents as reflecting stronger residential territorial attitudes and behaviors resulting to a safe living environment. Arguably according to this research collective fencing in residential areas is a strong deterrence of criminal activities.

On the same footing the research further discovered that a design that promotes territoriality also enforces the power of community connection and promotion of social interaction among residents. When residents were asked about their social interaction most of the respondents claimed they easily interact because their

houses are close to each other. Others stated they even interact while in their front doors. On this note it is further argued that such a friendly environment leads to residents able to easily look for each other's houses when they are not in, which bounds the research to argue that designs and layouts that promote friendship created by closeness of dwelling units among residents result in socially viable and safe living environments. Additionally it was also found that the encouragement of feelings of proprietorship is related to the size of the neighborhood. Community involvement tends to be greater the smaller the neighborhood as it appears to be more controllable.

The contribution of support facilities is enormous in terms of crime prevention. When people were asked if they enjoy living in the area most of them responded positively forwarding the reasons that the area is safe and there are different facilities at their disposal, which they spent most of their time in. From this information the research would argue that the support facilities have an integral part to play in the enhancement of feelings of safety to the rest of the residents in the area.

It is then realized from this research that territoriality is interrelated with surveillance because it was established that one is not effective without the presence of the other. In regard to this issue it was witnessed that improved natural surveillance operates most effectively when linked with the territorial subdivision of residential areas allowing the residents to observe those public areas which they consider part of their realm of ownership and responsibility, it was further apparent in this research that territoriality and surveillance can not be designed separately. This was proved when most of the residents responded very positive when they were asked "how easy is to look after your neighbors house if he/she is not in". Furthemore respondents cited the reasons that they can easily watch each other's houses because their street is privatized therefore it gives them easy surveillance to the whole residence. On this note the research argues that surveillance in terms of crime prevention works effectively entangled with territoriality.

In accordance with the issue of the image of a residential area it was found that image plays an important role in making places vulnerable to criminal activities. Though both areas proved to present good image of houses where houses were seen not offering downward spiral contributing to residents feeling vulnerable and retreating into their homes but image proved play a very crucial role in terms of safety in the gated community. This is because image was not placed to work alone but with other supporting defensible features it proved to be very effective in adding value on the whole defensible planning system. From the observations that were made both areas proved to have good maintenance because there were no visible evidence of decay such as litter, broken windows and deteriorated building exteriors attracting intruders to enter with bad intentions. It is therefore argued in this study that good image of houses does contribute to the safety of the area coupled with other defensible features because outsiders are discouraged to commit crime.

Having researched about the feelings of residents in regard to the safety of the area it was evident in the analysis that most residents regard the gated community as safe compared to the public neighborhoods. However drawing everything from the analysis of the layout and the observations of reactions of users to the time of consideration of residents to voice their perceptions about the safety of the area, real conclusions and arguments are bound to be forwarded that neighborhoods with Defensible Space designs are safe than the non-defensive residential neighborhoods.

This research also found that the presence of occupants or the users play a very crucial role such that it provides a deterrent of comparable strength to a fence. As it was evident in the observations and in the frequent use of the common space the research therefore argues that the strength of an effective Defensible space depends on the presence and behavior of the occupants. As much as the physical form of housing in this research has shown to play an important role in reducing crime and in assisting residents to control their behavior within housing environments but the conformance of the residents to the behavior reflecting the standard set by Defensible space principles determines the safety of the area.

Therefore according to this research it is argued that the existence of the physical Defensive features is imperative if community co-operation also exist for an effective crime reduction.

Chapter 6

6.1 Conclusion

This research was undertaken in order to understand some of the roles of housing designs and layout systems for crime prevention and what implications do they have in crime prevention. More specifically, impacts of physical environment on residential housing neighborhoods in terms of crime. Extant theories were drawn on to support the hypothesis that "housing designs and layout systems for crime prevention play a greater role in crime reduction in residential neighborhoods in the metropolitan areas of Durban. Basically this approach aims to reduce the opportunities for criminal activities and incivilities by modifying the physical context in which the criminal events occurs. Different design principles were forwarded particularly the Defensible space elements, Crime prevention through environmental design and housing designs. The aforementioned principles were fundamentally used to test the local experience of crime free housing in order to reveal what kind of implications do they have in a South African context.

Having used the principles to test the hypothesis a comparison of the two different neighborhoods was utilized. In clarity residential neighborhoods that were involved in the process were the gated residential neighborhood and the non-gated residential neighborhood. However according to all the observations completed and the questionnaires conducted through to the findings from the analysis, the research witnessed that the gated community is regarded as the safe living environment as compared to the non –gated community. As a result of the findings the research is bound to make conclusions that the implication of housing designs and layout systems to prevent crime in housing neighborhoods contains the positive impacts. Furthermore the layout and housing design that incorporates the physical designed defensive features that promotes territoriality, surveillance, access control, good image and Milieu by and large has a major role to play in crime prevention in residential neighborhoods, but not effective without the support of: integrated development, community co-operation, community participation, social and economic factors, maintenance,

management, poverty alleviation and job opportunities. Conversely the research continuously conclude that crime prevention through environmental design is a way to go and is feasible in the South African context if crime prevention in residential neighborhoods needs to be maximally achieved. On top of that the research therefore practically approves the hypothesis that housing designs and layout systems to prevent crime play a critical role in crime reduction in residential areas. Although the research recognized some limitations of the concept but basically the concept proved to be effective except that improvements are needed for a more effective implementation as recommendations are still underway.

6.2 Recommendations and conclusion

Although the research has found that defensive housing designs and layout systems carries positive implications in crime reduction and play a very significant role in crime prevention, recommendations are still crucial for crime preventive designs to play a much greater role in achieving an improvement of a more effective crime prevention goal. This means as much as the concept has proved to do its work but nothing is absolutely perfect meaning there might be some loopholes there and there which needs to be fixed as the conclusion has highlighted that crime prevention through environmental design is not effective when used in isolation.

It was apparent after the interviews and the whole analysis that community participation was not considered in implementing crime prevention through housing designs in the gated community. Therefore this research maintains and recommend that in order to ensure preventive designs are safer, communities needs to be involved from the initial planning and design stages through to management. Irin Vilakazi (Pers comm., 2001) argues that in order to stimulate greater feelings of proprietorship in residents, community's needs and preferences call for prioritization. This is believed to facilitate or motivate residents' co-operation and conformance to the standard behavior reflecting the defensive design principles. Community involvement from the first stages of the

project will boost their motivation to support the project. In support of this argument Mayor and Qhobela (1998) would argue that any prevention programme's chances of success depends largely on a community's cohesiveness, motivation and empowerment. The key general issues for an effective crime prevention programme stand as follows:

- The community should be the focal point of effective crime prevention.
- The community needs to identify and respond to short-and long term-needs.
- Crime prevention efforts should bring together individuals from a range of sectors in order to tackle crime.
- Strategies for preventing crime should be supported by the whole community in that particular neighborhood.

This means future projects with the aim of implementing crime prevention initiatives should take community involvement seriously as it determines the effectiveness of the preventive housing programme.

In accordance with the findings it was revealed that the success of the physical features for crime prevention is not the only solution but it is dependent on the size of the neighborhood. It is therefore recommended that at any given time the implementation of a preventive housing is put forward, a careful consideration of the size of the project is extremely undergone. The more residents who have to share common areas, the more difficult it is to lay claim on them, the more difficult it is to distinguish other residents from intruders and the more difficult it is to agree with other residents on the care and control of these areas. Therefore it is obvious that the project size should be small (16 houses surrounding the area) in order to offer residents an opportunity to control, know each other and easy surveillance to the whole neighborhood so that the purpose of the design stands.

It is also recommended that Cul-de-sac configurations should also be small because if they are too large, they take residents too far out of their way and produce too much of their own internal traffic. As much as the concept of crime free housing design says a busy street offer safety in the area but the internal traffic is also not opt for and in any way it should be avoided by closing the Cul-de-sacs.

It was also revealed that crime prevention through environmental design cannot work alone. The importance of an integrated development programme is recommended where crime prevention initiatives will have to incorporate the design, policing, management and maintenance of built environment. What is important and needed now is an integrated and partnership approach in which the affected communities actively define their needs and take part in providing solutions. The days of design changes to the physical environment being seen as the only vehicle through which crime could be addressed at the neighborhood level are over. However the above mentioned issues are very crucial in an effective implementation of the crime free housing because in this research such issues have showed to have a major role to play on top of the physical setting of the area.

From doing this research it was apparent that such crime preventive designs are implemented habitually in suburbs where they are easier to implement rather than those areas with the greatest need and where the most impact is likely to occur. Although the research didn't go through a low cost housing scenario in terms of specifically looking at the impact of design in relation to crime but to have an insight in the suburbs case provoked the researcher to recommend crime free housing concept in all spheres of housing developments. It really doesn't matter where the research actually took place but central to this is the exact concept of crime free housing because crime happens everywhere. Therefore if crime prevention through environmental design shows signs of effectiveness in suburbs 'why not in low cost housing? Because that is where crime is likely to be great. On top of that the research didn't occur in low cost housing because crime free housing does not exist. Ideally safety and security is not a luxury; it is a necessity. Therefore safer environments for the few are not good enough. For that reason the greatest challenge is to achieve safe residential neighborhoods for all the residents and along with them viable and sustainable communities. However if crime free housing can be implemented in areas with high levels of crime like townships and informal settlements the benefit would be enormous. Therefore it is recommended that state interventions in the built environments should

prioritize those areas where this planning has been lacking or where existing features are conducive to criminal victimization not only wealthy neighborhoods.

The above recommendation prevails because if one looks closely at the importance of crime prevention through environmental design it is realized that its appropriateness is in low cost housing. This is only because residents who live in low cost housing can not afford to put the security measures of their choice while the suburban residents afford to put high walls, alarm systems, big dogs and securities. Implementing the Defensible space concept in low-income families will give them self- respect they don't have and an opportunity, in the case of the housing integration programme to become part of the social mainstream. This will also give low income people a new respect for the work and territory of others by giving them territory of their own to prize and to wish to see respected. For these reasons it is maintained that the appropriate place for this design is low cost housing. Therefore the recommendation that crime prevention measures of this nature must be implemented where there is greatest need is maintained.

It needs to be stipulated or emphasized that crime prevention measures are likely to have the greatest effect when applied in the initial stages of new developments. Development programmes aimed at an improved quality of life should be supported as the most effective way of addressing both the causes of crime and the opportunities for crime. For example adequately spacious housing with privacy for the residents and appropriate communal spaces for community socialization would go further in addressing crime than attempts to intervene at a later stage. This suggestion stems from the fact that crime prevention through environmental design is possible in three forms:

- Preventive action (proactive crime preventive development) on undeveloped sites or areas.
- Inner city restructuring as part of overall urban restructuring.
- The upgrading of informal settlements incorporating crime preventive principles.

Conclusively the basic idea is that a preventive action is recommended for an effective environmental design to prevent crime because crime prevention is valuable when utilized proactively and at an earlier stage.

In the issue of crime displacement the suggestion stipulates that the whole neighborhood should be incorporated with preventive streets. It is found useless to discriminate streets by installing defensible space features such as territoriality, surveillance, image and milieu in other streets and ignoring the installation of the same features in other neighboring streets is the cause of crime displacement. What needs to be done is to defensively develop the whole neighborhood collectively to avoid streets vulnerable to criminal activities. In addition this is a very difficult issue but if crime prevention is needed to be maximally achieved this is the way to go.

The limitations of Defensible space have previously recognized that crime free housing designs and layout systems cannot work independently. Therefore deliberation of social and economic factors as they animate or cause crime to occur is required. To a large degree it is undeniable that unemployment, poverty, human stress and social exclusion are the great courses of crime. However it is important that in implementing crime free housing a careful thought of including the core determinants of crime is important if real crime prevention needs to be achieved. Above that it is an indisputable fact that crime prevention through environmental design cannot effectively work without tackling the root causes of crime. For that reason the support of government in poverty alleviation and increasing job opportunities so that people will be able to support themselves and forget about committing crime is needed. The concept of crime prevention through housing designs can work very effectively if all contributing factors of high levels of crime are also dealt with.

It was found in the observations that within the Defensible space area there are houses surrounded by security walls. This was seen to obstruct natural surveillance from the street, which fails the whole purpose of designing out crime. However it is recommended that at least residents replace security walls

with more transparent fences because the purpose of enclosing residential areas is promotion of natural surveillance and easy control of the area by residents. There is really no need for the incorporation of high walls if defensible space features already exist.

The lack of crime prevention principles in current development projects and in the South African housing policy is a course for concern. Here in particular there is little to learn from elsewhere and research needs to focus on current South African development realities. Therefore it is suggested that crime prevention through environmental design principles be included in the housing policy for sustainable and safe living environments to be achieved. Above that development reviews should not necessarily aim to influence current development projects but should seek to learn how crime prevention through environmental design can best be incorporated into the housing development process in future. The importance of this initiative is stressed by the fact that many housing development projects are still under way for implementation.

It is also realized that the co-operation of local authorities and other stakeholders like police (SAPS) will be critical for the success of crime prevention through environmental design. A failure to encourage local authorities to take up the challenge of crime prevention through environmental design will mean, in effect that the concept will remain unimplemented.

Crime prevention through environmental design is a long-term initiative, which therefore means it is cost effective because its implementation will last for the lifetime as long as proper management and maintenance is maximized. It is recommended and encouraged on the part of government that crime prevention through environmental design be the major investment and is a sustainable tool if crime prevention is to be achieved. Although it may be expensive to implement crime free housing but its sustainability is worth investing in. On top of that the physical setting of the area in order to prevent crime is a long-term and sustainable crime prevention initiative.

Bibliography

Personal communication

Vilakazi I, An interviewee from the gated residential area, (2001).

CSIR and ISS (1997) Safer by design: Towards effective crime prevention through environmental design in South Africa, NCPS.

Fenelly L.J (1989) Handbook of loss prevention and crime prevention: Butterworths, London.

Grobbelaar M.M (1988) crime prevention and architectural planning: De jager-ham, Pretoria.

Jackobs ,J (1961) The death and life of Great American Cities, Vintage book, New York.

Jeffery C.R. (1977) Crime prevention through environmental design: SAGE publications, London.

Johnson E.M. (1987) Handbook on crime and delinquency prevention: Greenwood press, New York.

Kester L (1995) Building the rainbow nation: Housing needs and affordability in the new South Africa: Honours dissertation in Surveying Department, University of Natal

Kruger T (1997) Effective Crime Prevention Through Environmental Design, ISS Monograph series, pp.35.

Mahlangu L.I (2000) Impact of crime in the settlement of Georgedale: Kwazulu-Natal: Honours thesis in geography department, University of Zululand Umlazi campus.

Mawby R.I (1977) Defensible space: Theoretical and empirical appraisal: Urban studies, pp. 169-179.

NAUDE C.M.B and Stevens R (1988) Crime prevention through environmental and architectural planning De Jager HAUM, Pretoria.

Newman O (1972) People and design in the violent city: Defensible space, London.

Newman O (1996) Creating Defensible Space: Center for Urban Policy Research, Rutgers University, pp. 46.

Pinto V (2000) Designing safer recreational open spaces in the Brea: masters thesis in Town and Regional planning, University of Natal Durban

Poyner B (1991) Crime free housing: Cambridge, Butteworth.

Poyner B (1991) Design against crime: Beyond defensible space: Cambridge, Butterworth.

Qhobela M and Mabena T (1998) History of crime prevention through environmental design: Pretoria, CSIR.

Rand G (1984) Crime and environment. Review of the literature and its implications for urban architecture and planning Elsvier, New York.

Stollard P (1991) Crime prevention through housing designs. Cambridge, London.

Storveen K and Nina M (2000) Sherwood tomorrow: The development of upper low income housing in Sherwood, Durban. Karsrona.

Stratton J.R and Terry R.M (1968) Prevention of delinquency problems and programmes: Macmillan, New York.

Wellford C.F and Amos W.E (1967) Delinquency prevention: Theory and practice: Engecliff, New jersey

Wekerle G.R and Whitzman C (1995) Safe Cities: Guidelines for planning, design and management, Van Nostrand Reinhold, New York.

Zimbardo G.P, Ebbesen E.B and Maslach C (1977) influencing attitudes and changing behavior: Addison- Wesley, London.

Appendices

Appendix 1

Questionnaires for the residents of the gated community about the safety of the area.

Biography

1. Age

Children	10-13	
Teenager	13-19	
Young adult	20-35	
Mature adult	35-65	
Elder	65>	

2. Sex

Female	
Male	

3. Occupation

Clerical	
Professional	
Not working	
Scholar	
Other specify	

... ...

5.How much do you earn per month?

0-1000	
1001-2000	
2001-3500	
3501-4500	
4500>	

6. For how many years have you been living in this place?

1-3 years	
3-6 years	

Perceptions of residents about the safety of the area

7. Do you enjoy living in this place?

Yes	
No	

8. Why?

... ...

Less	
More	
Very safe	

12. Give a reason for your answer? ... ...

Very easy	
Not easy at all	
Difficult	
Easy	

18. Support your answer? ... ...

... ...

... ...

34. Were you involved in the planning, decision-making and implementation of this area?...

35. What would you say about the management and maintenance of the area in terms of residents' involvement?

...

36. According to your assessment how is your area managed generally in terms of safety?...

...

37 What do you think is needed to improve the effectiveness of the security of your place?...

...

Appendix 2

Questionnaires for the residents of the public non-gated community about the safety of the area.

Biography

Tick the appropriate box and answer to your best knowledge in the open-ended questions

1. Age

Children	10-13	
Teenager	13-19	
Young adult	20-35	
Mature adult	35-65	
Elder	65>	

2. Sex

Female	
Male	

3. Occupation

Clerical	
Professional	
Not working	
Scholar	
Other specify	

... ...

3501-4500	
4500>	

6. For how many years have you been living in this place?

0-5 years	
6-10 years	
11-20 years	
20> years	

Perceptions of residents about the safety of the area

7. Do you enjoy living in this place?

Yes	
No	

8. Why?

... ...

Not at all	
Less	
More	
Very safe	

12. Give a reason for your answer? ... ...

17. How easy is to look after your neighbors' house when he/she is unavailable?

Very easy	
Not easy at all	
Difficult	
Easy	

18. Support your answer? ... ...

22. If yes why?

... ...

In the street	
In their homes	
In the common space	
Other (specify)	

... ...

33. Are there any people you know who leave the area because of crime?

Yes	
No	

34. Were you involved in the planning, decision-making and implementation of this area? ... ...

Appendix 3

Guidelines for Crime prevention through environmental design.

Appendix 4

Site plans for both neighborhoods.

Residential

Residential areas are the heart of a city. Our homes are the centers of our lives, where we should feel most safe. And, while we may have multiple choices when it comes to walking through a certain part of town or using public transportation, we have few choices when it comes to the streets where we live.

The guiding principle here is "know thy neighbor." Street and homes should be designed to encourage interaction between. neighbors: good examples of these design elements are the front porch and property lines that are define simply by low shrubbery instead of high fences.

CPTED Guidelines

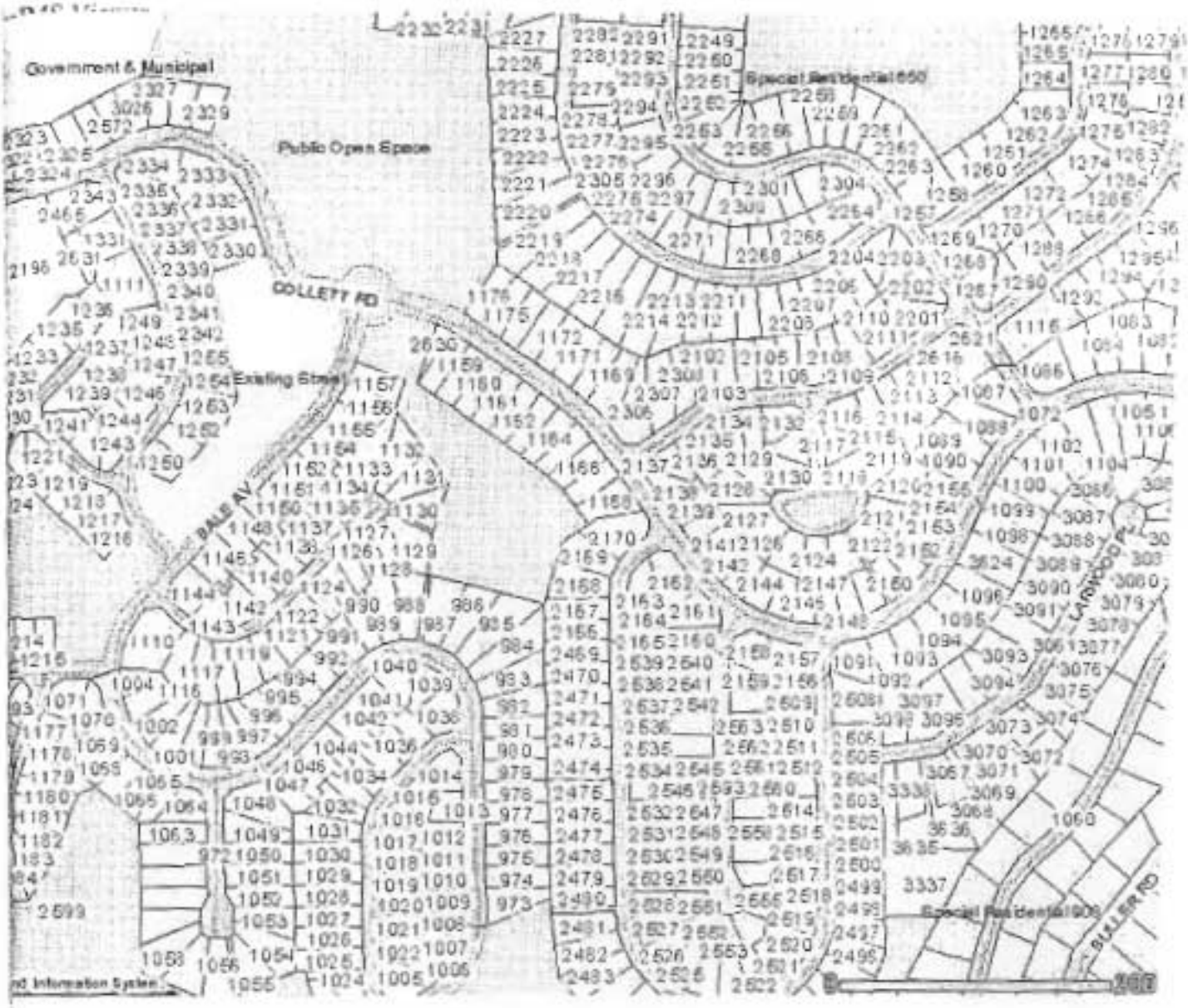
1. Natural Access Control

- walkways and landscaping direct visitors to the proper entrance and away from private areas.

2. Natural Surveillance

- all doorways that open to the outside should be well lit.
- the front door should be at least partially visible from the street
- windows on all sides of the house provide full visibility of property
- sidewalks and all areas of the yard should be well lit
- the driveway should be visible from either the front or back door and at least one window
- the front door should be clearly visible from the driveway
- properly maintained landscaping provides maximum viewing to and, from the house

3. Territorial Reinforcement


Government & Municipal
Public Open Space
Special Residential 650
COLLETT RD
Existing Street
BALE AV
LARWOOD PL
BULLER RD
Special Residential 908
nd Information System

has been app
of information

ENGINEERS DETAILS

DEVELOPMENT CONTROL DEPT.
TOWN PLANNING AUTHORITY
Signature
Checked

LOFFELSTEIN WALL.

SECTION B-B.

S-W ELEVATION.

LOFFELSTEIN WALL.

PLAN.

RETAINING WALL B.
SCALE 1:100.

Legend

Detached houses

Green areas

Roads

PLAYLOT

3.00 Footway

KENYON HOWDEN RD.

REMUERA AVENUE

SITE PLAN
- SCALE 1:500
- SITE AREA 3,4506 m²
- TITLE NO. YZ1 B 35210 745