Ease of Mobility of the 'Vulnerable' as a Contributor to Social Equity: An Examination of an Activity Street Versus a Non Activity Street

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CHAPTER 1: INTRODUCTION

> "Places have an impact on our sense of self, our sense of safety,
> the kind of work we get done, the way we interact with other people.
> In short, the places where we spend our time affect the people we are and can become".
>
> (Dewar, 1991:2)

1.1 BACKGROUND

It has been six years since South Africa's first democratically elected government came to power and the nation has been gripped by the vision of a constitution which protects the interests of all South African's *equally.* The application of this in planning terms embraces a number of strategies. The restructuring of South Africa's segregated, fragmented and dualistic Apartheid landscape is a critical focus. According to Harrison and Oranje (1999,19), there is also a need to ensure more dynamic, more life enhancing, more choice generating and sustainable settlement forms. On a more local scale, it is recognised in the DMA that, "the city must help diminish inequalities, empower the historically disadvantaged and *protect the vulnerable*" (Durban's Tomorrow Today, 1996). There is a need to recognise the rights of all citizens including the vulnerable. The DMA, for instance, has decided to adopt the concept of *corridor development* and densification in an attempt to address some or all of the above issues (Hindson et. al., 1996).

This study aims to reinforce the vision of the DMA,

- which is to redress social imbalances and enhance capacities so that social inequality is reduced.
- investigate the design and layout of an Activity Street against that of a non-Activity Street in order to determine whether the design and nature of Activity Corridors are contributing to higher levels of equity, with specific reference to the vulnerable groups within society, namely, the elderly, women, disabled and children.

The Organisation for Economic Cooperation and Development (OECD) conference was held in Canada in 1994. One of it's aims involved investigating the manner in which the urban environment responds to the needs of all residents men, women and children, so that cities can begin to work for all citizens. One of the outcomes of this conference was that the actual design and layout of shops and shopping areas etc. often fails to meet the needs of women, particularly those with children and disabled relatives. Furthermore, the trend is moving towards developing initiatives which make cities and neighbourhoods safer for all women and children with the emphasis on transportation systems and the built environment. The issue of enhancing mobility for the vulnerable elderly, women, disabled and children is especially significant for achieving greater levels of equity. One of the criteria for determining relative levels of equity is to address one's physical access to the resources of the DMA, by all groups.

A way to mobilize the DMA's resources to meet community needs can be identified within the area of transportation. The *mobility* of the aforementioned vulnerable groups, in terms of to their *physical access* to transportation and *access to facilities* as a measure of the relative equity, will be assessed by the contributions made as a result of corridor development. The Corridor approach aims to increase levels of mobility, accessibility and convenience for all. This will provide an opportunity to re-examine the concept of Activity Streets (an element of activity corridors), a spatial framework proposal for development within the DMA that seeks to enhance the democratic rights of all South Africans.

This dissertation will look at a purely residential neighbourhood environment as a control to compare the results against a mixed-use corridor environment to determine the ease of mobility. Creation and meaning of individuals' social experiences (reality and perception) are derived through a process of structural analysis as will be elaborated later in the study. This is done by taking a case based position and focussing on the specifics within each area with the sole aim of getting closer to the subject's perspective. It is hoped that this approach will provide a rich and valuable description of each of the study areas in terms of their social worlds.

1.2 RELEVANCE OF TOPIC

Further practical study of corridor development is needed as it is criticized as being theoretically based. Urban designers have confined it to research and theorising over the past two decades and have failed to consider the practical implications of this concept. Given the need, firstly, for appropriate restructuring policies to deal with the aforementioned fragmented nature of South African cities, the Activity Corridor approach does have much to offer. This concept, referred to as the "hottest concept" when it comes to integrated land use and transportation planning, has begun to dominate development planning (Harrison and Oranje, 1999). Furthermore, Harrison and Oranje (1999) state that Activity Corridors have made their way "onto center stage" in government thinking in all spheres of government in South Africa, at international level, as well as at the level of action and interaction. The study of Activity Corridors may receive the greatest acclaim and award for its contribution to South African city planning if it is to be used as a tool offering a variety of development related solutions to some of South Africa's problems on a metropolitan and regional scale. In this case, to promote levels of equity in terms of mobility.

Much of the literature on "Corridors" make mention of the benefits for 'all', however, it must be acknowledged that individuals experience their environments differently. Hence, some may benefit more than others. Women, children and the elderly, or even the disabled, for that matter are typical groups of people who require special needs with regards to mobility and this will be

explored later. This study will provide an insight into how to increase livability on corridors for these 'vulnerable' groups. This will then help stimulate new thought in enhancing the extent of national resources allocated to urban regions in making corridors more livable.

Thus far, studies conducted have focussed strongly on the built and natural environment with disregard for the impact of Activity Streets or the entire Activity Corridor on the human environment. This study would also be relevant to the vision of the DMA of reducing social imbalances and perhaps promoting corridor development. On completion of this dissertation, it is hoped that:

- identifiable shortcomings of the Activity Street can contribute to improving the design and implementation and
- promote the creation of more humane and functional environments by accommodating the elderly, women, disabled and children with regards to their mobility, as well as include
- appropriate modifications to corridor and transport applications/implementations in order that they work more equitably.

It has been suggested that a high degree of individual planning is necessary if people are to use different modes of transport. The lack of private vehicle ownership, the costs of travelling long distances, together with the fear to travel to gain access to amenities as a result of crime, all serve to seriously limit ones mobility. The implication is that mobility is restricted. This study will help contribute to a discussion on how to achieve an acceptable level of convenience in terms of mobility for the 'vulnerable', with a focus on design and layout. The lessons to be learnt with respect to each of the case studies are expected to contribute to a general understanding of the concept of equity in terms of mobility and access to opportunity. Hopefully the current exposition of issues, approaches, problems and solutions will assist those engaged in the corridor betterment process as well.

1.3 DEFINITION OF TERMS/GLOSSARY

Before delving into the theories and ideas informing this study, the clarification of key terms/concepts is necessary. The following sub-section will clarify the terms as used within this context.

Mobility

The ability to move around space using modes of transport, pedestrian cycle, private car, bus and trains, accessible to the majority of people (Outlined by the CSIR).

Connectivity

The degree to which transportation systems connect origins and destinations (Outlined by the CSIR).

Proximity

The 'closeness' of destinations to origins (Outlined by CSIR).

Mixed land use

This refers to the mixing of residential land uses with other uses.

Pedestrian scale

Urban environments that are scaled to the pedestrian, that is, ease with walking within certain distances. The need to maximize access to those on foot, so that most needs are met and the daily activities carried out within reasonable walking ranges.

Social groups

A collection of individuals who interact in systematic ways with one another. It is a defining feature of a group that its members have an awareness of a common identity (Giddens, 1989:730).

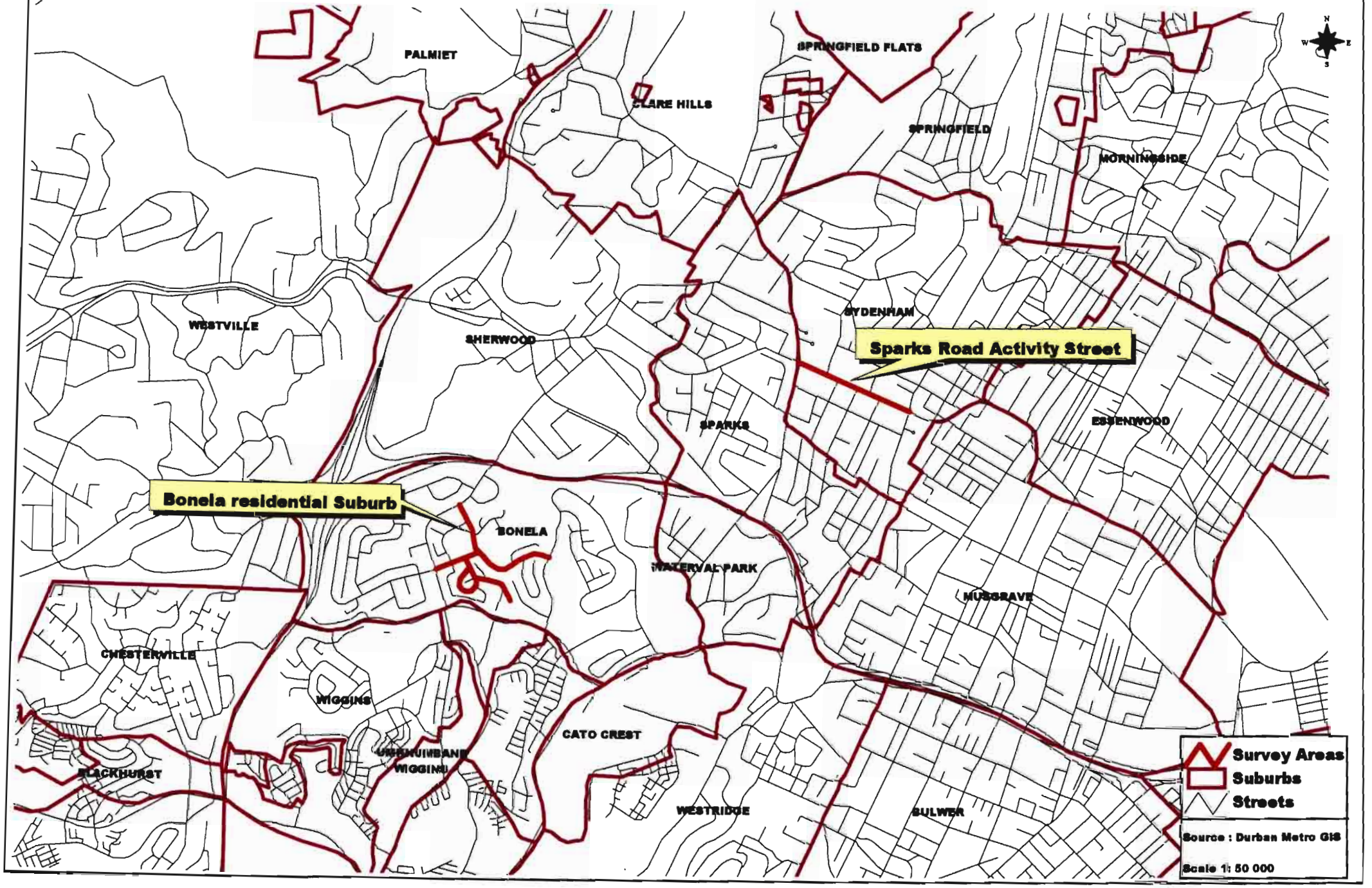
Social position

The social identity an individual has in a given group or society such as gender roles (Giddens, 1989:731).

Ageism
Discrimination against people on the basis of their age. It is an ideology just as sexism and racism (Giddens, 1989:599).

Mugging
The term 'mugging' is used to describe a person who has been robbed sometimes with violence, especially in a public place.

LOCALITY PLAN



1.4 RESEARCH QUESTION

Of importance to this dissertation is the nature of mobility of vulnerable groups, that is, elderly, women, disabled and children and their ease of access to opportunities and facilities within different parts of an urban area, namely an Activity Corridor and Non Activity Corridor in a suburban residential area. It would be of little use generating economic, social, cultural and recreational opportunities if access to them were limited to only a few. Within the concept of access to opportunities is the issue of equity. Dewar and Uytenbogaardt (1992) state that all inhabitants require relative ease and equitable access to urban opportunities.

The aims of this research are:

- To test the theoretical concept of Activity Corridors, specifically Activity Streets against a conventional residential neighbourhood.
- To offer greater understanding of the concept of Activity Corridors.
- To learn of the elements that restrain mobility and access to facilities of the vulnerable groups under study.
- To make recommendations regarding the urban design and layout of the respective environments under investigation.
- To assist Activity Corridors to achieve an acceptable level of convenience in terms of mobility of the vulnerable.
- To explore the reality and perceptions of the aforementioned vulnerable groups of people in terms of their modal capacity (What are their mobility needs and how do they negotiate the environment in terms of transport? What are the obstacles that make accessing opportunities difficult?)

These groups will be chosen from two specific locations, an Activity Street and a Non-Activity Street in Durban, with the sole intention of examining how an Activity Street performs comparatively with regards to levels of equity.

The research question is:

Do Activity Streets contribute towards increased equity for all in terms of physical access to opportunities?

1.5 RESEARCH SUB-QUESTIONS

Tolley and Turton (1995) indicate that generally the population is becoming more youthful, and changes in cultural attitudes would lead to more work trips by women. In order to accommodate this future growth, urban design and layout needs to be developed and modified in order to deal with these emerging trends. To do this would mean to understand the existing problems and what are causing them.

While this research will generate explicit recommendations for the elderly, women, disabled and children within an Activity Street, it will also raise both specific and general lessons and issues for planners and urban designers. Although very different, it is anticipated that the Activity Street and Non-Activity Street will raise both similar and unique issues about mobility for vulnerable groups.

The entire research will be structured around the following sub-questions:

- What does equity and social justice mean?
- What are the mobility needs of the social groups of elderly, women, disabled and children?
- What are the characteristics of current urban spatial frameworks?
- How is equity defined in light of this topic?
- How does the design of Activity Streets promote mobility for the vulnerable groups, theoretically stated?
- What local contextualisation of activity corridor development is there?
- What is the nature, debates and concerns of mobility for vulnerable groups?
- How does pedestrianisation enhance mobility?

- What are the performance criteria that will determine the quality of mobility for the vulnerable (i.e. permeability, legibility, variety robustness etc)?

1.6 CONSTRAINTS AND LIMITATIONS

There was a need to scale the areas under study down to a manageable size due to the limited time frame. Hence, only a segment of an Activity Street would be investigated as a part of an area of the corridor. The exact dimensions of the Activity Street embraces the portion of Sparks Road in Overport from Randels Road to Brickfield Road. Similarly, only a small portion of the residential area will be examined and the roads include Bonela and Candella Roads, Wyndene Circle, Chorley Close and Eskotene Grove (Refer to the Locality Map on page 12). In addition it is anticipated that both case study areas may not consist of sufficient disabled residents to interview.

1.7 CHAPTER OUTLINES

This study is divided into three sections. The first section contains the introduction to the research and background. The second section is the research, which comprises two parts, that is, the conceptual framework and spatial framework. The conceptual framework consists of the social theoretical perspective (a discussion of the social concepts that frame this investigation such as the concept of social justice, equity, characteristics of the elderly, women, children and the disabled in terms of their status in society and mobility needs). The spatial framework outlines approaches to planning including the theoretical concepts surrounding Activity Corridors (Neo-Traditional planning) and residential/suburban development (Neo-Classical planning). Finally section three concludes with the case study findings, the evaluation, recommendations and conclusions.

Chapter 1 outlines the introduction to the research, key definitions, and relevance of the topic, research questions, sub-questions, constraints and limitations.

Chapter 2 gives an outline of the research methodology, the research approach, sample design, criteria for eligibility, questionnaires, interviews, participant observation and visual methods.

Chapter 3 discusses the social theoretical framework of social equity in terms of gender, age, youth and the disabled.

Chapter 4 defines the spatial framework of an Activity Corridor and Non-Activity Corridor within a context of neo-traditional planning or fashionably known as new urbanism and neo-classical layout which embraces suburbia and edge city concepts.

Chapter 5 is the analysis, a description of the case study areas and the assessment of this survey.

Chapter 6 provides the evaluations surrounding mobility and equity as two principles of Activity Corridors.

Chapter 7 attempts to provide recommendations regarding the design and layout of Activity Streets and residential neighbourhoods as well as some guidelines to planners and urban designers

Chapter 8 provides concluding remarks.

CHAPTER 2: RESEARCH METHODOLOGY

2.1 INTRODUCTION

This research was undertaken using primary and secondary data to assess the research topic. The primary data consisted of questionnaires, interviews, observations and performance criteria specifically designed for the purpose of assessing questionnaire responses (Refer to Appendix 3 and 4). A pilot study was also undertaken as a necessary step towards data collection (Refer to Appendix 1 and 2). Therefore, analysis of the primary data was included as an evaluation of the two case study areas according to the predetermined criteria devised within each investigative stage. A qualitative research approach was adopted, as this was deemed most appropriate in terms of deriving the perceptions of people. The secondary data consisted of theoretical literature, maps and photographs.

2.2 QUALITATIVE RESEARCH APPROACH

This approach is a field of inquiry that is associated with various methods of interpreting such as interviewing, participant observation and visual methods. All three methods will be applied in this research. This approach has been selected as it allows one to study peoples' experiences of their environment. It allows the researcher to make sense of the world in the way that the people understand it. This method may be merely a collection of individuals routine actions, associated events and problems encountered on a daily basis. This approach is aimed at adding rigor, breadth and depth to this investigation in an attempt to obtain an understanding of the meaningful relationships that exist between vulnerable groups and their social worlds/environment. Qualitative research places emphasis on the relationships between the

socially constructed reality, the researcher and situational constraints (Denzin and Lincoln, 1998).

2.3 CHOOSING THE CASE STUDY AREAS

To test levels of equity in terms of mobility and access to facilities, it was felt that the performance of an Activity Street against a Non-Activity Street or purely residential area would be the appropriate approach. According to literature relating to Activity Corridors, the living and built environment is meant to offer increased livability. Hence, Activity Corridor environments would and should perform better than non-activity corridor environments.

The question that immediately arose was the defining the boundary of the Activity and Non Activity Street. How many plots from the street and beyond would need to be surveyed? It was decided that plots immediately adjacent to the streets would be surveyed (Refer to Existing Land Use Maps for both case study areas). However, it has been acknowledged that the Activity Street does serve a larger number of people more directly and who live even further than the proposed boundary. As for the Non-Activity Streets, only three connecting streets will combine to embrace that portion to be studied.

2.4 SAMPLE DESIGN

A random sampling survey technique will be utilised as it gives each of the units an equal chance of being selected. The number of households and the total number of samples were entered into a SPS computer system to give a list of households in random order. The sample covered the vulnerable groups mentioned above.

2.4.1 Criteria for eligibility:

- **Women** between the ages of 21 and 50, both employed and unemployed.
- **Children** between the ages of 10 and 15 will be interviewed as it is likely that this age group are more independent and hence more likely to travel alone. They are also most likely to answer questions posed to them than children who are younger.
- **Elderly men and women** over the age of 60, and who are retired and a pensioner. They need to be pensioners as this ensures that they can afford to travel.
- **Mobile, physically disabled individuals** of any age and sex. "Mobile" was defined as being able to get around with or without assistance of an escort, walking cane, crutches but not confined to a wheelchair. Thus, only mobile or active persons were included in the sample. The rationale for this was that severely handicapped or disabled persons generally have specific problems and needs that would have required a set of measures differing from those that were to be used in the investigation among the mobile elderly population. However this does not exclude individuals who use prams, shopping bags on wheels and tricycles.

Due to the low number of physically disabled people in the study areas, it was accepted that a sample below 10 of available disabled people would be interviewed. 10 questionnaires would be undertaken for each of the other sub-groups which will give a total of approximately 60 sample units for each case study area. Replacements would need to be randomly sampled from the remaining names on the list of households, should certain of the sampled respondents be unavailable for interviewing or not meet the criteria for eligibility for inclusion in the sample.

2.5 PILOT SURVEY

A pilot survey was undertaken (Refer to Appendix 1 for pilot questionnaire) in order to determine the relevance and accuracy of questions, to test out the degree to which the questions made sense to the respondents, and whether they were appropriately phrased to achieve the outcomes or framework of the analysis. This was indeed one of the most crucial tasks undertaken as it highlighted some biases that had been adopted, as well as to bring to the fore the need to use simple questions that did not require further explanation. With the pilot questionnaire, there was a need to prompt people or rephrase sentences. Some questions needed to be broken into smaller questions in order to derive the outcomes for evaluation. In addition the questions asked needed to ensure that they were not contrasted and/or confused with other factors that did not form part of the equation. Interviews were also undertaken as a pilot survey to test the appropriateness of a range of questions. Pilot questionnaires and interviews were also seen to be limiting and leading. Changes were made and questionnaires and interviews were reworked (Refer to Appendix 3 and 4 for final Questionnaire and Interview schedule)

2.6 QUESTIONNAIRES

The questions were categorised into five broad themes. These were personal details, general questions based on transport and facilities, nature of mobility, distance traveled and surveillance. The questions had to focus on the specifics in order to gain a clear perspective of individual experiences. The questionnaires and interviews undertaken began with explaining to interviewees the nature and purpose of the investigation, how they were selected for interviewing, assuring the respondent of anonymity and confidentiality of the information provided.

School children were interviewed after 2:30pm in their homes, whilst 50% of the women were interviewed before 12:00am (unemployed and housewives). The remaining questionnaires were undertaken after 4:30pm for working women. Elderly people were interviewed throughout the day. There were very few disabled people and these were contacted using the snowball method of sampling, that is, by word of mouth.

2.7 INTERVIEWS

Interview questions were based on general open-ended questions relating to the mobility of elderly, women, children and the disabled. This process entailed probing for substantial responses. Interviews were also conducted with people who observed the street activity for most of the day and/or night. These included shop-owners, street vendors, security guards etc. A schedule of issues was confined to the nature of movement/mobility and access to facilities for the four categories of people under investigation. The feedback obtained would enable a more accurate account of women, children, the elderly and disabled transit deficiencies/shortcomings and strengths. In Bonela, such interviews were undertaken with tuck-shop owners and a security guard at one of the surgeries. However, within this Non-Activity Street there was often a lack of people to interview.

2.8 PARTICIPANT OBSERVATION

The questionnaire surveys are not expected to provide a very holistic account of the experiences of these vulnerable groups of people, hence, participant observation was a way to piece together a holistic experience. Schwartz and Jacobs (1979) advise that if one wants to find something, one needs to look for it in the world in different places. Participant observation would test some of the derived feedback as these will measure against the actual experiences of individuals. It would, therefore, be a very powerful tool.

Performance criteria established by Bentley et al (1985) will be used to evaluate the study areas. Select criteria will be used as a means to evaluate to what extent environments are inhumane and repressive. It begins by observing these criteria against the urban design or built form. Essentially these performance indicators are practically useful in providing an evaluation of the opportunities offered in terms of maximising choice , thus increasing an areas' responsiveness. The responsiveness of both the case study areas to the 'vulnerable' group will be observed in relation to their access to facilities, the choices offered thereof, as well as the extent to which their movement is enhanced or mitigated. The movement of pedestrians would be noted throughout the day and into the evening, patterns of movement of other modes of public transport, behaviour of these groups in accessing facilities will be closely observed. The visibility of these groups in terms of formal and informal surveillance provided by the public would need to be observed. A close observation of both Bonela and Sparks Road would be made at various times in the day and at night with regards to their design and street layout. These will occur especially during peak hours in the morning and at night.

2.9 VISUAL ANALYSIS

Firstly, locality maps would be useful in interpreting connectivity and proximity to other major metropolitan scale activities, roads and nodes. The destination and origin factors can be identified to assess how far people are travelling. Inspection of the signage, streetlights, entrapment areas (an enclosure on three sides), street layout, pavements would be visually examined to assess safety and mobility factors. Some of these would be pictorially or photographically captured to depict the barriers to mobility.

Visual analysis was necessary to identify a number of issues such as:

- Road design- showing pavements, lighting, activity etc.

- Bus stops and taxi pick-up points- showing location, description and condition.
- Facilities- that can be reached on foot/car (within the study area).
- Negative and positive elements of the study area, such as street benches, bus shelters, road signs, good lighting, pedestrian crossings, orientation of buildings, topography of land etc.

2.10 METHOD OF ASSESSMENT

The data obtained was tabulated for evaluation and then analysed according to the theory provided. Photographs and information from personal observations and interviews combine to support the findings. This then resulted in an evaluation of Sparks Road as an Activity Street and Bonela a Non Activity Street, in terms of the built form, transport services and access to facilities. Some recommendations and guidelines will be offered. Finally the conclusion answered the research question on whether Sparks Road as an Activity Street does contribute greater social equity for the vulnerable groups.

SECTION 2: CONCEPTUAL FRAMEWORK

CHAPTER 3: THE SOCIAL THEORETICAL PERSPECTIVE

3.1 INTRODUCTION

The conceptual framework is a summation of related theories, concepts, debates and precedence that underpin this research, and will therefore serve as a basis for analysis and evaluation. The conceptual framework will consist of two broad components, that is, the *social* as well as a *spatial* component. The latter component will focus on the spatial framework for Activity Corridors. Neo-traditional and neo-classical planning paradigms will be utilised in this component. Salient reasons advanced for developing Activity Corridors, as an urban spatial strategy will focus on mobility and access to facilities. The social component examines the theory of social justice as this is associated with equity and underpins this entire dissertation. This is then followed by a discussion relating to the needs of the elderly, women, disabled and children in terms of their nature to be mobile and ability to access facilities.

3.2 BACKGROUND

In order to assess levels of equity in terms of the opportunities provided by Activity versus Non-Activity Corridors, it became obvious that the principles of social justice had some relevance. David Harvey (1973), a key proponent of the need for social justice, noted that people interacted differently with the built environment. Similarly other advocates such as Howard and Abercrombie, Weber, Lynch and Hall, called for greater sensitivity to the relationship between social dynamics and spatial form. One of the principles of social justice states that the needs of the population should be fulfilled in terms of spatial organisation and patterns of investment. Generally speaking,

the difference between an individuals basic social need and the actual allocation of resources can measure the degree of injustice in an existing system.

According to Harvey (1973:200), a 'just' distribution implies inherent equality whereby all individuals have equal claim to benefits irrespective of their contribution. In essence, Harvey is proposing that the resources of a city should be evenly spread among the greatest amount of people and that every individual has an equal right of access to such a resource (Harvey, 1973). To determine whether resource allocation is justly distributed, the three criteria of need, contribution to common good, and merit would need to be considered.

Equity, on the other hand, implies inclusiveness. To value equity is important as it makes many things possible, especially when our activities are integrated, coordinated and harmonious. This means that one is able to access facilities easily with minimal effort and/or inconvenience. Equity enables one to feel complete and provides us with an opportunity to view ourselves and others as a 'whole', thus increasing our accountability for our lives, society and the universe. Hall (1990) adds that equity is a constructive life-enhancing goal. According to Dewar and Uytenbogaardt (1992), positive urban environments exists when they allow all people easy access to the opportunities that they generate. Therefore if an environment is equitable, it should provide easy and equal access to all evenly.

In terms of investigating equity levels within Activity Streets and Non-Activity Streets, specific reference needs to be made to mobility. If an Activity Street is contributing to the greatest good, then according to Harvey (1973), it would be justifiable to improve this facility by allowing extra resources for its support. To assess whether Activity Corridors are contributing to the common good of

people, one would need to determine the mobility needs of vulnerable groups (women, children etc) and the extent to which these needs are being met.

3.3 THE ASPECTS OF MOBILITY

The DMA is presently faced with the challenge of improving the inefficient use of transport systems. It has been suggested that the heavy dependence on automobiles is contributing to the ills of the cities. Many cities and countries are faced with the problem of making automobiles and cities compatible (Bookout L, 1992). In addition, case studies undertaken reveal that transportation or the lack of adequate transport seems to be a major concern for residents (Hindson et. al., 1999). However, it is believed that transport will help reshape the city into a more equitable and efficient form and improve sustainability. To grasp the ease of mobility of any urban area it is also important to not only look at the capacity of the public transport systems, but to understand the capacity of the residents to be mobile. For the purpose of this investigation, the nature and concerns of mobility for the vulnerable need to be understood.

Many people use public transport, which is required for almost every activity necessary for daily life, getting to work, school, to do shopping, visiting relatives, etc. However, for the vulnerable groups in particular, who are referred to as *"transit captives"* by Wekerle and Whitzman (1995), dependence on public transport can be a very fearful experience especially when they do not have access to alternative forms of transportation. In fact public transport is considered to be the unsafe option. Their fear of crime has a major effect on ridership patterns or trip frequency. Overall fear of crime impacts upon mobility and the use of public transport. It affects the quality of life for urban dwellers and their access to employment opportunities.

Other categories of "transit captives" are the poor and the physically disabled. Unfortunately, these groups of people experience significant stress whilst using public transport. They are expected to wait long periods of time if queuing for a bus and are therefore exposed to street crime. Hence they are very often referred to also as '*vulnerable*'. In addition, the vulnerable are also exposed to other negative elements of the built environment, which hamper their movement. Important means of transport for these vulnerable groups are private vehicles, taxis, buses, bicycles and most often walking.

3.3.1 Walking

Walking is considered to be the most basic means of transportation and it is a primary mode of transport. It is free, consumes no fossil fuel and often every transportation trip begins and ends by walking. Walking, according to Fruin (1976), forms the backbone to urban transportation, permits human interaction and contributes to city formation. However, vehicles have begun to intrude into pedestrian space occupying more space for movement and parking. Hence, vehicles are taking priority whilst pedestrians are given little attention. Fruin (1976:28) adds that, "pedestrian crossings are phases that are very often inadequate because they are not adjusted for the full range of walking speeds which include the elderly and handicapped.....". He believes that the rights of pedestrians are slowly being eroded. These rights are related to human interaction together with sociological and cultural development which are essential components contributing to one's quality of life. Thus far, the intrusion of vehicles into urban design is affecting human processes and affecting man's safety. A Bill of Rights has been outlined in California where such problems became more evident through increased road accidents. This Bill states that pedestrians should have the right to:

- Walk safely in crosswalks without threat from vehicles;

- Have priority over vehicles because of the environmental, energy conservation and many other benefits of walking;
- Weather protection wherever possible;
- Adequate, direct, non-circuitous pathway systems conveniently serving this generally shorter and more important trip needs;
- Pleasant pathway spaces designed for human needs and aesthetics;
- Pedestrian assist systems to extend walking range and pedestrian area effectiveness

3.3.2 Traffic Calming

The above factors can be succinctly captured within the concept of "traffic calming" which according to Russell (1990:111) can be defined as an "attempt to achieve calm, safe and environmentally improved conditions on streets". "Traffic calming is in fashion" (Russell, 1990:111). It is gaining recognition in Britain and within South Africa it's popularity is slowly, but definitely increasing. At the heart of this concept is speed management, which does not only include reducing the speed of traffic, but rather it is 'calming' of all traffic elements and of pedestrian safety. These elements embrace traffic restraint, pedestrian concern and the promotion of public transport.

The main goals of traffic calming are seen as follows:

- To improve road safety;
- To reclaim space for pedestrian and non-traffic activities;
- To achieve slower speeds;
- To promote feelings of greater security particularly among residents, pedestrians, cyclists; and
- Create an improved environment.

Implicit in these goals is a shift in priorities from a concern with traffic to that in favor of the pedestrian with respect to motor vehicles. For instance, reducing traffic speeds has the advantage of directly tackling the main source of the problem that being the intrusion of vehicles into pedestrian space while retaining local access. It is believed that low speeds will in any case deter 'rat-run' traffic, especially at off-peak times when local activity is most intense (Pharoah and Russell, 1991). Moreover, the design of traffic schemes serves to give priority to vulnerable road users such as pedestrians, cyclists, children, the elderly and those with handicap. The term "traffic integration" may also be used when priority is given to enhancing other functions of the urban streets rather than traffic. Traffic calming is potentially useful where shopping and commercial activity is concentrated due to the greater intensity of pedestrian and other activities.

3.4 THE NATURE OF VULNERABLE GROUPS

3.4.1 Elderly

The problem of mobility may be associated with decreasing agility. Of late, a legal definition has been given which states that old age occurs when most people retire from work and can thereafter claim particular welfare benefits such as pension (Giddens, 1989). Several factors suggest that research into the levels of mobility for the aged is both relevant and desirable. Most western countries including South Africa are experiencing an aging of the population as they become a large proportion of the population (Mostert et al., 1982). It is believed that the total number of aged South Africans by the year 2035 will amount to 7 million (Mostert et al., 1982). The majority of this figure is females over the age of 80 years. The White component of this elderly group is expected to diminish, the Black component to increase and very small changes are projected for the Asian and Colored component. Giddens (1980) argues that resources are unevenly distributed and benefits are being

monopolised by the middle age people and the young. This is seen to be problematic as the elderly and young sector of the population are likely to make the most demands on health, social and economic resources.

Hofmeyer and Ferreira (1986) add that an expanding aging population in South Africa would have far reaching implications for the planning and provision of a wide variety of services. Whilst the problem of lack of mobility may be connected to decreasing agility and a nervousness at coping with streets and systems which are not friendly, or the halting or stopping of public transport, old age was falsely associated with changes in physical health (Allen et al., 1999). However within western countries too, the aged are getting healthier and are being assisted via general policies to continue living independently for as long as possible.

Signs of the aging process although not synonymous with illness and debility include: impaired mobility, mental confusion, postural instability and handicaps such as impaired vision and hearing. According to a survey undertaken by Ferreira and Mostert (1986), the elderly need to obtain a facilitatory response from the environment in order to lead an active and independent life and to meet their essential needs. It is for this reason that mobility becomes critical and this relates to an elderly persons physical, social and psychological well being. According to Wachs (1979), psychological well being is enhanced by mobility through freedom from isolation and the ability to choose one's range of activities.

Fine (1975) concludes that many elderly people have difficulty in obtaining a level of mobility that is comparable with that of the general population. Since older people are currently less likely to own a car, any failure of the public transport system or built form to cater for them will greatly reduce their mobility (Allen et al., 1999). An accumulating body of evidence has shown that

lack of transportation can have far-reaching implications for the quality of life of older persons. Access to enabling community resources, such as health and social services (Giddens, 1989) and food shops (Wachs, 1979) are made problematic. It has been found that social interaction and psychological well being have been related to transportation and higher life satisfaction and greater involvement in voluntary associations (Kart, 1994).

3.4.2 Women

Women are also confronted with a number of factors that discourage them from being mobile. Hall (1990) claims that women become isolated in their families due to their domestic responsibilities and this deprives them from making contact with the wider community, hence society. She therefore fails to experience opportunities for a richer life, however this trend is changing and increasingly we find that women are working within and outside of the home. For these women, their feelings of isolation and restriction diminishes, and a sense of well being develops. They benefit community activities and are more productive in their lives. A life of greater satisfaction is evident. Women therefore need to challenge these socially held imperatives that are restricting them in terms of mobility and fulfillment in order to live a more meaningful life. Hall (1990) suggests that there is a need to discover ways in which they can escape their confining roles as well as the need to develop supportive contacts, networks and increase the frequency of interaction with others. They need equal opportunities to lead full lives. Therefore, there is a need for planners to create urban environments that are income generating (Beall, 1997) and encourage access to more opportunities for women.

The fragmented nature of South African cities (as alluded to earlier) makes it difficult for women to manage daily tasks. Beall (1997) noted that women differed in their need to travel from men. Women usually need to travel outside of rush hours, to destinations that differ from men to go to shops,

schools, clinics etc. A reduction in off-peak services because of cost-cutting and in some cases private operators are not willing to take on routes and times that are inconvenient, poses some of the endless array of problems women face with regards to transportation. In addition, women are particularly sensitive to security concerns. It should also be noted that employed women are 2 to 3 times more likely to use public transport than employed men who are most likely to drive to work. The fact that more women earn less than men, women as a group are more likely to use public transport despite their fear and personal preferences. (Wekerle and Whitzman, 1995).

According to the OECD conference, planners fail to include the social impact and place little value on the journey women make in the context of their reproductive responsibilities. As mothers and carers, women are frequently burdened with heavy or awkward loads such as shopping bags and wheelchairs which buses are not designed to accommodate. As a result, women tend to walk when they can, however planners also often neglect the needs of pedestrians. In Vienna, for example, two thirds of pedestrians are women who are constrained. For some this has meant that women either stay out of the labour market or seek work in jobs with shorter hours. The study found (National Institute survey 1993) that women are less mobile than men, travelling close to home and even choose jobs on the basis of this criteria rather than in the evenings (OECD, 1995).

3.4.3 The physically disabled

Getting from place to place is one of the greatest and most frustrating difficulties faced by disabled people. A simple journey that takes an able-bodied 5 minutes by bus may pose an insuperable problem for a disabled person (Nichols, 1981). According to (Brechin, 1981), one of the greatest physical barriers that disabled people face is an architecturally structured

society built to able-bodied norms and specifications. A formal sample survey on the mobility of disabled people in America concluded that:

- Disabled people go out infrequently for short periods.
- The type of trips made are largely restricted to essential shopping and visiting of friends and relatives.
- There is a serious need to improve mobility of disabled people.

The disabled are conceptualised as a disadvantaged or minority group and are usually treated as an inferior group. This may be because they are also likely to be cut off from well-paying and most prestigious jobs. They also do not experience a wide range of interpersonal relations with non-disabled persons. Disability is very much a social problem and it is believed that social relationships take little account of people who have physical impairment. The concern lies with planning for their needs and to design buildings and urban environments to suit their physical situation.

An overall consequence of all this is that opportunities to participate in ordinary everyday pursuits are often denied to disabled people. Their problems are often hindered by design problems which involve buildings. The access to buildings is made difficult by steps leading to the main entrances which is impossible for wheelchair users to negotiate alone. They are also restricted to only one floor of the building because they can not negotiate internal stairs or no lifts are provided (Brechin, 1981).

Doctor Philip Nichols (1981) asserts that in many cases of physical disability personal mobility is reduced, which limits freedom of choice in almost every activity from the type of school one goes to, to the type of friends one has. He strongly advocates that even a small improvement in mobility will make a considerable difference to the quality of life of someone with a severe

disability. Kerbs can also be problematic when using a wheelchair. In his book titled 'Disabled-An Illustrated Manual of Help and Self-Help', doctor Nichols (1981) provides an entire paragraph of guiding a disabled in a wheelchair on how to strategically get onto and off of a kerb. This is also done with steps, slopes and uneven surfaces and narrow doorways.

Doctor Nichols (1981) advises that it is best to find the nearest place to shop and visiting small shops nearby several times in a week may help to reduce the burden of having to carry a large amount at one time. The advantages of small shops is that there is no need to stretch for goods, no need to hunt for particular items, no need to walk far, some shops may deliver and some items can be put aside for you. This he contrasts with supermarkets, which are problematic, because they are too large to walk round. Secondly they are often overcrowded and with long queues to pay, insufficient space at tills for wheelchairs (sometimes) and no delivery service. Goods will not be put aside for the disabled since the urban built environment is not really designed for him/her.

3.4.4 Children

Allen et al. (1999) firmly states that age is a contributing factor to mobility. Children are perhaps the most vulnerable people in the city and at the same time, the most visible (Beall, 1997). They have restricted access to transport in cities (Allen et al., 1999). Beall (1997) discusses the plight of children in cities and concludes that the lives and life chances of children in the city is shaped by the environment in which they live. For example, due to fear, parents in Britain and the United States of America increasingly refuse to allow their children to travel to school or anywhere else on their own. This has resulted in a lack of independence. A survey in England conducted in 1971 and 1990 showed dramatic falls in their independence. The study revealed that in 1971 three quarters of all children surveyed were allowed to cross a main road on

their own, whilst in 1990 only half were allowed to (Hillman, 1993 in Allen et al., 1999).

As a result of natural increase and migration, this sector of the urban population is growing. Hence the urban population is becoming increasingly youthful. As increasing urbanisation is becoming a world trend, there is also increasing social deteriorisation or cutbacks on social sector spending with declines in infrastructure and services and increase in urban violence, which impacts greatly on children. In addition, children are the hardest hit by the extreme inequities in resource distribution in cities faced with neglect and exploitation. Beall (1997) states that this affects 40% of urban children in the developing world because an environment with unequal distribution of resources can mean poverty, inadequate housing and food, lack of basic services and an institutional and legislative framework that does not adequately support diverse interests and needs. Such an environment is often hostile to children. Children become disadvantaged in terms of attendance and performance in schools, and are also compelled to earn an income for themselves and their families. They adopt strategies and mechanisms in order to cope with these problems.

The United Nations declared the Declaration of the Rights of the Child in 1959 (Fruin, 1976) with a variety of policy approaches. One way of acknowledging their rights was to incorporate it in "urban basic needs" in the 70's. The 1980's were witness to an increasing focus on asserting the rights of children and addressing their needs under different circumstances. It was found that those who design policies often overlook a child's positive contribution to the city. One can not categorize children by where they live, since they often move between different areas. Children have a basic right to play and their play patterns in space and time are moderated by access. It has been suggested that to be more effective the transport approach and design of the built

environment needs to be informed by children's preferences based on the results (Michelson et al., 1979). Ensuring safe, secure, cheap and convenient access to facilities or transport to those facilities would be in the interest of children, who like women would allow children to be empowered and to better contribute to community well being.

3.5 CONCLUSION

From the above literary description of women, children, the elderly and the disabled, it can be concluded that in order for these social groups to be able to adequately negotiate their environments, which is their right as an element of social justice, *mobility and physical access* is of critical importance. The provision of an adequate and supportive built environment or transport system contributes to these groups quality of life, who generally are regarded as having a lower status in society and hence are 'invisible' participants of society. Increased mobility would imply that cities are becoming more enabling and equitable. However, it is not only good transportation that will enhance mobility among the vulnerable groups but safer, convenient environments with crime prevention designs as well. Furthermore, social isolation would be reduced. Pedestrian movement is also essential and therefore 'street-wise' design is necessary. Built environments that encourage minimal traveling (in time and distance) would greatly benefit these groups of people. Perhaps more emphasis should be placed on the quality and organisation of services in the city and the adequacy of architectural and urban design factors. The aim of this dissertation is to now visit an "enhanced multi-sectoral approach" to urban development, that is, the corridor approach which provides such a facilitatory environment. It resulted from the realisation that urban reorganisation, which also achieves social equity, can not be achieved by rationalisation and linear approaches alone.

CHAPTER 4: THE SPATIAL FRAMEWORK

4.1 INTRODUCTION

Spatial frameworks are a necessary element of development and equity. Inequality, according to Fair (1982) may also be spatial in terms of who gets what where. The focus of this study is to assess equity between two different spatial forms, namely, a separated residential neighbourhood area and a mixed land use area, in an attempt to test the equity levels of each. A major concern for countries is to achieve a more balanced or equitable spatial system. This depends largely on the spatial framework adopted. The structure of South African cities has been influenced by a suburban/urban sprawl rather than a more compact city development as is evident in the British Garden City and the American Neighbourhood Unit models (Hindson, Watson and Mabin, 1993). These then represent a neo-classical layout, one type of spatial framework, which adopts a suburban philosophy. The more recent spatial framework is termed neo-traditional or New Urbanism, which encourages inter alia, activities to be located within walking distance of each other. A brief description of neo-classical and neo-traditional planning will follow as the Activity Street and Non-Activity Street era derivatives of these spatial forms (Refer to Figure 1 and 2).

4.2 NEO-CLASSICAL PLANNING

Neo-classical planning was associated with suburban development and can be characterised by low densities, fewer public facilities with little commerce and work opportunities, separation of work, shopping and public facilities from residential areas and a strong emphasis on private car ownership (Watson et al., 1993). These were some of the criticisms put forth by proponents of mixed-use activity (Watson, Hindson and Mabin, 1993)). These communities

were also characterised by curved and wide streets, meandering sidewalks, open spaces, enclosed malls and single use neighbourhoods. Duanny (Bookout, 1992) a leading spokesperson for Neo-traditional town planning argues that current flaws with mid-century suburban development are inappropriate street standards and other traffic provisions as well as the requirement that plenty free parking be provided adjacent to each land use thus encouraging use of the car.

The British Garden Neighbourhood Unit was developed on Neo-classical principles. According to Clarence A. Perry in 1929, a neighbourhood unit was designed to render it unnecessary for a child to walk more than one and a half miles to school. It can be described to have minimum traffic streets used mainly by children to cross streets to school and are meant to be within an easy walk of school and a shopping center. A well- equipped playground is located centrally. 10% of the area would be allocated to recreation and through traffic arteries and would be confined to the surrounding streets, internal streets being limited to service access for residents of the neighbourhood. It was partially an 'overlapping' cellular system in that all the facilities were in the center with shopping on the edge on an arterial. To a degree, the US model has a partial form of a Corridor in that local shopping is located in major roads with public transport. The British translation built 'regular' cellular neighbourhoods with all facilities in the middle. The unit would be served by shopping facilities, churches, a library and a community center located in conjunction with the school. This suggested form does however vary with the essential characteristics remaining fairly consistent. Use of cul-de sacs and loop streets may used be with a circular or hammerhead 'turn-around'.

4.2.1 International Context

The spatial division of functions (the concentration of houses, commercial activity, industries, recreation etc. in separate locations) has been the credo in physical planning in the Netherlands for quite some time. Under the influence of the increase in scale, this split between living, working and recreation has grown larger. Corner shops have been replaced by large supermarket. This has led to important facilities being situated at even greater distances from each other. The concept of the spatial division of functions were easily accepted as the concept of the family and was strongly supported in the Netherlands. The man was regarded as the breadwinner in this model and as the central figure of the family. Attention was paid to movement between home and work but not to the everyday pattern of activities of housewives.

4.3 NEO-TRADITIONAL/ NEW URBANISM

New Urbanism was a reaction to the sprawling city and placeless suburbs. Suburbs were lacking in a finer mix of land uses, higher densities, pedestrian activity and a more local character. Neo- traditional planners are calling for local scale areas where children and the elderly can walk, where a town center exists within walking distance intermingled between homes, jobs and commercial services. Residential units are encouraged above shops, and shops are considered appropriate along residential streets with small offices interspersed throughout the community (Bookout, 1992) There is an emphasis on urban design and architecture at a local scale. Some principles for New Urbanism are listed below:

- Civic space.
- Streetscapes- size of streets are reduced therefore safe, a traffic calming measure, pleasant for pedestrians and contributing positively to the environment because of fewer cars on the streets.

- Sense of place, creating identity, architecture, style, common language and set of rules and encompasses a planning vision as a whole.
- Community- creating livable, walkable spaces centering on public use and anti-city notions.
- Land use mix- in a much finer grain, dispersed offices, residential on top of shops with locations for decentralised offices.
- Density and mix.
- Street rejection of curvilinear layouts as these increase traffic and results in long distances which forces people to travel more. There is a strong argument in favor of the grid or baroque/renaissance plan, structured by a network of Activity Streets, encouraged by location of public spaces at various scales (Duanny and Plater-Zyberk, 1991).

The New Urbanism will be at work according to Scully (in Bookout, 1992) when cars are kept in perspective, that is land use patterns, street layouts and densities make walking, bicycling and public transit viable options to driving, especially for routine everyday trips. Streets should be safe, interesting and comfortable for pedestrians. Networks must have intersections at regular intervals to create a sense of scale and order and to improve ones sense of orientation.

4.3.1 International Context

The OECD conference provided excellent examples of planners who are 'people-centered' with a gender perspective and who are confronting these changes (Poyner, 1983). In Australia, for example, planners are looking for ways to create more human scale Australian cities, in which people can move easily, travel to work, access services and go about their daily lives comfortably. In Germany, ideas are being explored around the idea of "the city of short journeys". Behind this notion, lie three main ideas:

- Compact settlement structures.
- Multifunctional areas, and
- Better spatial arrangements for living, working, shopping and leisure infrastructure.

The idea is to reduce traveling between work and other activities and to regain streets and open spaces as public spaces with social functions, and to induce a feeling of community control and a greater sense of cohesiveness and security. This turns on it's head traditional planning philosophy which separated functions, keeping apart residential, commercial, industrial and even leisure areas. The following paragraphs will look at these multifunctional areas more closely by viewing an Activity Corridor, of which the Activity Street is an element.

4.4 ACTIVITY CORRIDORS

4.4.1 Background

Presently, a solution to restructure the fragmented and segregated South Africa has been proposed in terms of "corridors" as an urban Apartheid restructuring device (Oranje, 1999 and Poulsen, 1991). Although the concept of "corridors" and "nodes" has been under discussion in South Africa since early 1980's as part of the Neo-traditional town planning approach, there still remains much confusion surrounding it's nature. According to Seneque, Smit and Maughan Brown (1994), effective implementation of the Activity Corridor concept requires more research and detailed planning. Furthermore, South Africa has not seriously implemented corridors and hence there is very little precedent to base Activity Corridor development on. The following discussion will provide an overall definition of Corridors in terms of mixed land use, mobility and equity and will conclude with a description of a local contextualisation of an activity corridor which will serve to highlight innovative techniques of design to promote mobility.

4.4.2 Definition

"Corridor is...a linear strip of land or area, connecting large activity nodes, traversing urban or inter-urban areas. Surrounding a major transport facility or facilities providing an appropriate regional level of mobility and accessibility to adjacent areas, and containing a high concentration of population and mixed land uses".

In addition the corridor will:

"... accommodate major linear transport routes like heavy and light rail and/ or freeways, large shopping concentrations etc, social, cultural and sporting facilities as well as large amounts of residential accommodation" (Anderson and Burnett, in Lilleby, 1992:2).

Components of the Activity Corridor comprise of the Activity Spine, Activity Street and Nodes however only the Activity Spine and Activity Streets will be defined below.

4.4.3 Activity Spine

The Activity Spine is represented as the main road containing concentrations of activities which make it possible for greater access to a mix-use of high intensity facilities of retail, cultural, employment and residential nature. Opportunity exists for varying types of transport modes thus increasing accessibility. A familiar example of an Activity Spine is Voortrekker road to Bellville through the Northern suburbs of Cape Town (Chittenden, 1990).

4.4.4 Activity Streets

This can be likened to the old English "high street" and is a lower order Activity Spine with activities concentrated along either side of the street in a linear direction, however, the levels of opportunity are lower than the Activity Spine (Chittenden, 1990). A concentration of activities along the strip results in higher thresholds to serve better public transport and services along the strip. There is a continuous stop-start flow of public transport and several interchange points allowing people to change their mode of transport or direction so that access to services are quicker. With regular public transport stops, this secondary road becomes rapidly congested and speed consequently decreases. One of the case studies within this investigation will be based on the Activity Street of Sparks Road in Sydenham.

to generate thresholds to support a mix of land use of social, commercial, cultural, residential and other kinds of activities. It is based on the premise that these activities *should be reached on foot*, that is, an environment that facilitates *the person on foot and hence values walking* as a significant transport mode. If people can not reach all facilities on foot then the use of public transport would be the alternative and must be easily accessible on foot, affordable, safe and quick. Jane Jacobs (1960) was also in favor of mix land use as she observed the separation of land uses was a contributing factor to the 'death' of American cities.

Jacobs claims mixed land use creates diversity provided the following conditions prevail:

- Pedestrian flows at different times since people use the facilities;
- Building blocks are short;
- The presence of a dense concentration of people due to their proximity to home or for other purposes; and
- A close grain of buildings both old and new.

Vertical mixed land use can occur in the same building (Refer to Figure 4 and Plate 1). Horizontal mixed land use occurs in buildings within close proximity to each other. There can be a mixture of both. Such close mingling of activities allows people to conclude more errands in one trip rather than many. For example, the spatial location of a doctor, chemist and shop near to each other makes it possible for one when walking to the doctor to pick up medication that is prescribed from the chemist in close proximity
and carry out the grocery shopping within one trip.

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and carry out the grocery shopping within one trip.

Diagram A Diagram B

Vertical mixed land use

Horizontal mixed land use

FIGURE 4: Types of mixed land use within a building

PLATE 1: Vertical mixed land use in Sparks Road

4.5 MOBILITY

Mobility is a principle that characterizes Activity Corridors and Nodes. It is an important part of ones existence because it is a means of accessing facilities to obtaining basic services. Therefore Corridors with mixed land use should promote different modes of transport which will help maximize the generative effects of such a Corridor and hence facilitate access. According to Seneque, Smit and Maughan-Brown (1994), Corridors must transcend local areas and suburbs and therefore have a metropolitan significance and link to other metropolitan nodes. They should connect areas and places that people want to go to and therefore routes and end points must be interrelated.

4.5.1 Pedestrian Movement

Corridors give an important consideration to pedestrian movement. They are therefore seen to be able to create an enabling environment, which provides daily requirements and a wide range of facilities and activities within walking distance of residences. If this is difficult to achieve then at the very least, Corridors must provide public transport for access to these facilities and activities. In this case, pedestrian routes should coincide with bus stops. Public transport within corridors are meant to integrate the local community within the urban areas as a whole. To achieve this Corridors promote pedestrian access to a variety of public transportation modes.

According to the South African Institute for Town and Regional Planners (Poulsen, 1994) the Corridor creates high levels of accessibility and opportunity for all and therefore promotes levels of equity. The design concept encourages the creation of a quality environment, which will enhance facilities. This should imply that transport facilities must be convenient, easily accessible, affordable and safe for all people including the old, young, women, and the disabled. However, all of these merits have not been assessed. To exclude these social groups would mean that the Corridor is not promoting equity and discriminating a majority of the people, where 'people' is not limited to working men but includes the elderly, women and children and the disabled whose primary work is centered on the home. They would want, and need to move as quickly as possible to discreet commercial, educational, entertainment, employment and other areas.

4.7 EQUITY

Dewar and Uytenbogaardt (1991:50) describe the system as, "the complex integration of a variety of activities which would occur within easy reach of a great many people". Rather than to be embedded within local residential areas, community facilities are exposed, thus generating greater efficiency. Corridors aim to promote equity by way of enhancing the potential to reach as many people as possible or rather to take the activities to the people. Corridors do not discriminate and serve to generate equal opportunities from which all groups can benefit.

Watson, et al (1992) acknowledge the following major advantages of Corridors, which portray a sensitive nature to the vulnerable groups:

4.6 TRANSPORTATION

To encourage high volumes of traffic, Corridors should also embrace a variety of modes such as heavy and light rail, bus and taxi modes, private vehicles, bicycles, pedestrian movements and goods that is linked to a high speed route. In addition, Corridors aim to facilitate and encourage the use of public transport as this a way of promoting sustainable development and social interaction. A key feature of corridors is the public transport orientation of the transport system. It is believed that a multi-modal transport system caters for varying people with different needs and preferences.

The movement of different types of modes of transport should coordinate their " stopping rhythms" in order to make it easier for commuters to change modes. This will also encourage commuters to access different modes at different points however, not too far apart from each other (Seneque and Maughan-Brown, 1994)

Green (2000) an important proponent of Corridor development, has proposed a number of design implications for a multi-modal public transport–orientated Activity Corridor. This will provide a basis on which to analyse the case study area of Sparks road (an activity street).

- Public transport modes should be accommodated on the route via necessary capacities.
- Public transport and interchanges should be located at 1 kilometer intervals and the spacing.
- The road width should not exceed 20 to 22 metres or 4 lanes, in order to maintain a 'human scale'. This will allow later proclamation of that road as a limited access road.

4.8 LOCAL CONTEXTUALISATION

4.8.1 The case of Old Main Road, Cape Town

The 'high street' concept with an identifiable variety of land uses in close proximity to modal transport, with direct access to land uses located on either side and slow moving 'pedestrian friendly traffic' is exemplified in Cape Town's Old Main Road. The activities serve not only the local people but also passing traffic. Due to a congestion problem, bypass routes namely the M4 now provides an alternative route for those not requiring access to the Old Main Road. There has been very little literature that provides any description of the benefits to women, children, the elderly and the disabled. However the following detail may benefit these vulnerable groups:

- A semi-continuous strip of commercial activities located in Wynberg is further strengthened by the narrow width of the road that has encouraged business on both sides. This has created a street where due to its width, traffic is slowed down, allowing pedestrians to conveniently enter and leave.
- Colonnades on either side of the street provide pedestrians with a covered walkway.
- Wide mix of activities appeal to many kinds of people at different times resulting in higher levels of sales, choices, even to the poor.

The above three design strategies may be good examples to follow for developing future Activity Streets especially as they appear to be sensitive to the needs of the vulnerable groups of people. The following chapter will introduce the two case studies and the findings from investigations.

According to the South African Institute for Town and Regional Planners (Poulsen, 1994) the Corridor creates high levels of accessibility and opportunity for all and therefore promotes levels of equity. The design concept encourages the creation of a quality environment, which will enhance facilities. This should imply that transport facilities must be convenient, easily accessible, affordable and safe for all people including the old, young, women, and the disabled. However, all of these merits have not been assessed. To exclude these social groups would mean that the Corridor is not promoting equity and discriminating a majority of the people, where 'people' is not limited to working men but includes the elderly, women and children and the disabled whose primary work is centered on the home. They would want, and need to move as quickly as possible to discreet commercial, educational, entertainment, employment and other areas.

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Watson, et al (1992) acknowledge the following major advantages of Corridors, which portray a sensitive nature to the vulnerable groups:

4.7.1 For women

An integration of activities, including residential, allows for some individuals to work close to their homes, thus reducing travel costs and inconveniences. Sometimes people may operate their business activities simultaneously.

4.7.2 For Children

An environment that exposes a variety of activity mixes is a quality environment especially for the growth of children. Watson, et. al (1992) notes that a uni-functional environment can have a retarding effect on a child's development due to a lack of exposure to the 'real world' and this may result in a slowing down of a child's acquisition of knowledge (for example activities may be embedded in residential areas).

4.7.3 In terms of safety

Corridors promote safety because the design of mixed land use with sidewalk activity throughout the day, and short blocks provides security through surveillance. Users feel safe to use such an environment. This view is strongly supported by Jacobs (1960) who writes on safe city issues. She suggests that well used streets and sidewalks are likely to be safe streets and sidewalks. The bedrock to any successful city district is that a person must feel personally safe... a fundamental task of a city's streets and sidewalks" (207:1960) Corridors with its mixed land use contribute to sidewalks being constantly watched due to the presence of users, residents and constant activity on the streets. These are forms of voluntary surveillance.

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CHAPTER 5: CASE STUDIES AND FINDINGS

5.1 INTRODUCTION

This chapter introduces the case study areas, namely a segment of the Activity Street of Sparks Road, and a part of the residential neighbourhood unit of Bonela. The individual characteristics regarding access to facilities and mobility is discussed as it is fundamental to this dissertation. In addition a somewhat lengthy discussion of the findings obtained from the investigation will be conveyed. This chapter will also begin to introduce the behavior of the vulnerable groups of people under investigation as they negotiate their individual built environments and access public transport.

5.2 SPARKS ROAD

5.2.1 Location of the study area.

The area under study can be described as a segment of the Activity Corridor of Brickfield Road in Overport. Proponents or researchers of the Activity Corridor theory would describe the study as that of an Activity Street called Sparks Road. In this case, the segment of the activity street under study is a multifunctional area that is clearly demarcated as a broken line on the Existing Land Use map (Plan no.3). The area under investigation is approximately 150 meters in length and extends from a major traffic intersection or node at Randels Road through to another major node at Brickfield Road intersection. The Activity Street of Sparks Road is located within the DMA and can be reached within 10-15 minutes using public transport (bus or taxi) from the inner city of Durban.

5.2.2 Description of facilities.

The segment of Sparks Road is a strip of retail, commercial, residential, worship, recreational and cultural land uses as outlined in the Zoning map (Plan no. 2) (refer to Plate no 2 to view Sparks activity street under study). Relative to the surrounding residential areas of Overport and Sydenham,

densities along Sparks Road are decidedly higher. These land uses are integrated and are clearly compacted with mixed-use facilities to service not only Sparks Road/Brickfield Road but also the surrounding DMA and beyond. The study area itself as indicated in the Existing Land Use map no 3 has one Primary school, one active park and two worship areas (church and mosque) and a petrol filling station. Two street vendors sell sweets, stationery and hair accessories. The sum total of shopping, household and medical facilities can be found within the Existing Land Use map no 3 are listed below:

- 2 pharmacies
- 7 doctors (optician, dental, general practitioner, psychologist etc)
- 3 bakeries
- 3 butcheries
- 14 restaurants (Milky Lane, J'mos, Steers, Wimpy, Debonairs etc)
- 3 superettes
- 4 green grocers
- 4 clothing shops
- 2 fabric shops
- 2 hair salons
- 2 hardware stores
- 3 public phone facility
- 2 banks

Included along this area are specialist facilities such as the following:

- Postnet
- dry cleaners and shoe repairs
- flower stall
- Travel and Tours office
- Beauty clinic
- Disposable nappy shop
- Cellular phone shop

The adjacent area of Brickfield Road compliments and enhances the aforementioned activities by providing additional shopping, household and medical facilities. In addition to this are recreational facilities (a public pool, active-park, soccer field and stadium), educational facilities (a Secondary school) and a worship site (temple) are located within walking distance of residents within the study area. Upholstery, furniture warehouse, panel beaters and tyre sales are some of the light industrial activities located Southward at the tail end of Brickfield Road. The entire Corridor itself provides an endless array of services and shops, thus meeting most if not all the needs of residents and passer-by (including those within the study area). The spine of the Corridor, that is, Brickfield Road provides residents with a fuller range of possibilities therefore residents may not have to leave the vicinity often to access facilities. It should also be noted that the Corridor does not consist of every single activity, facility and service such as popular supermarkets (Game, Checkers, The Hyperama etc.) or popular clothing shops (Edgars, Truworths, Foshini etc). Residents will therefore still need to leave the area to access such services. These higher order facilities are mainly located within the CBD or in shopping malls in other areas and therefore can not be reached on foot (walking) instead there is a dependence on bus, taxi or use of private vehicles.

5.2.3 Description of mobility

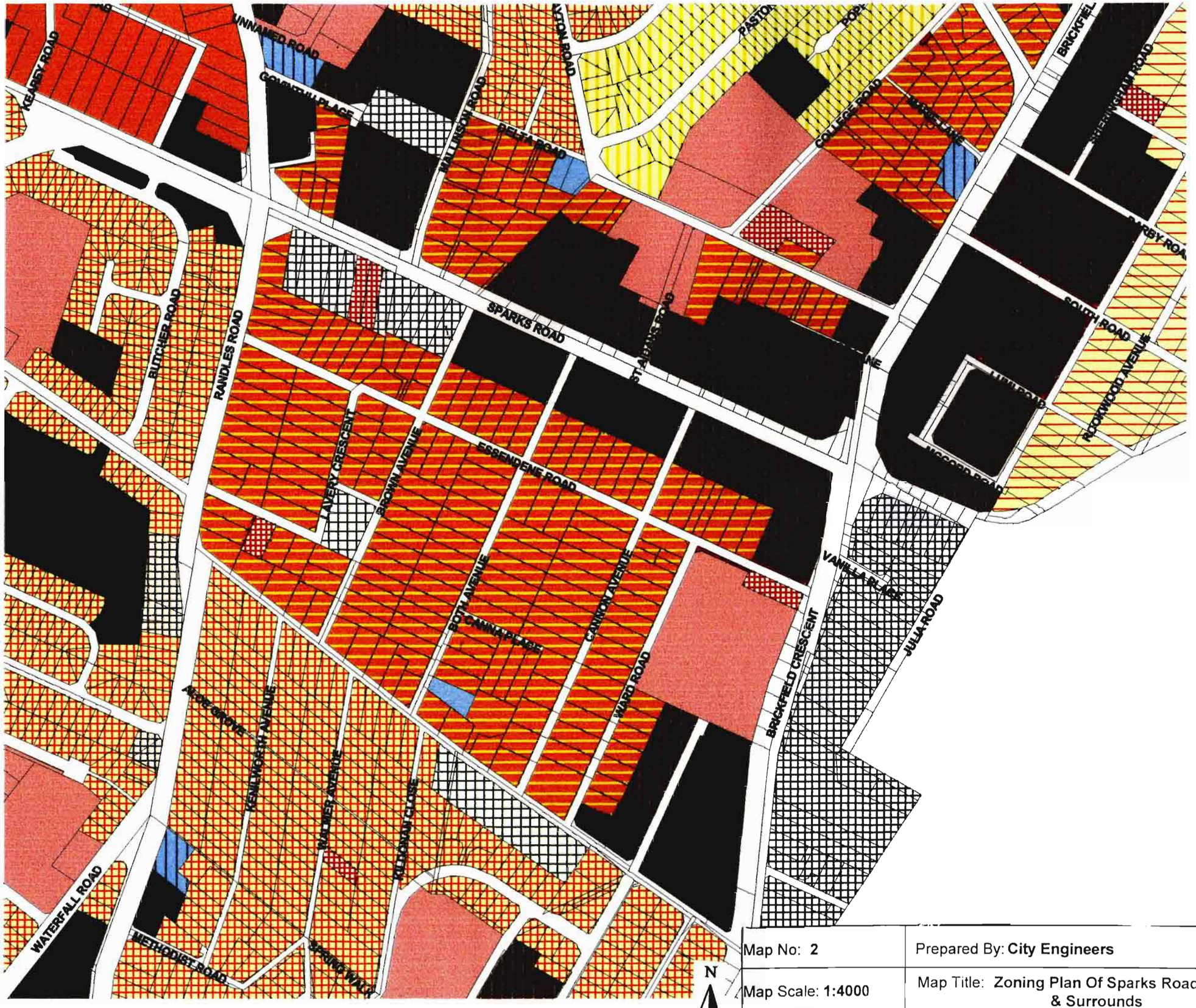
Bus or taxi pick-up points are non-existent on Sparks Road since buses and taxis do not service this road. The dominant and only available taxi/bus route is along Brickfield Road providing a minimum number of destination routes, that is to Springfield, Overport, Berea, Ntuzuma, Kwa-Mashu and to the inner CBD (refer to Public Transport overlay). Residents within the study area use a combination of transport modes namely, private car, bus, taxi and walking. The dominant mode of public transport along Sparks Road however is walking since most facilities are within walking distance of residents of this street. Traffic lights can be found at four interceptory points. A significant pedestrian crossing appears midway of this segment in front of the Primary school. Nevertheless,

most residents within the study area are within walking distance to a bus or taxi pick-up point on Brickfield Road.

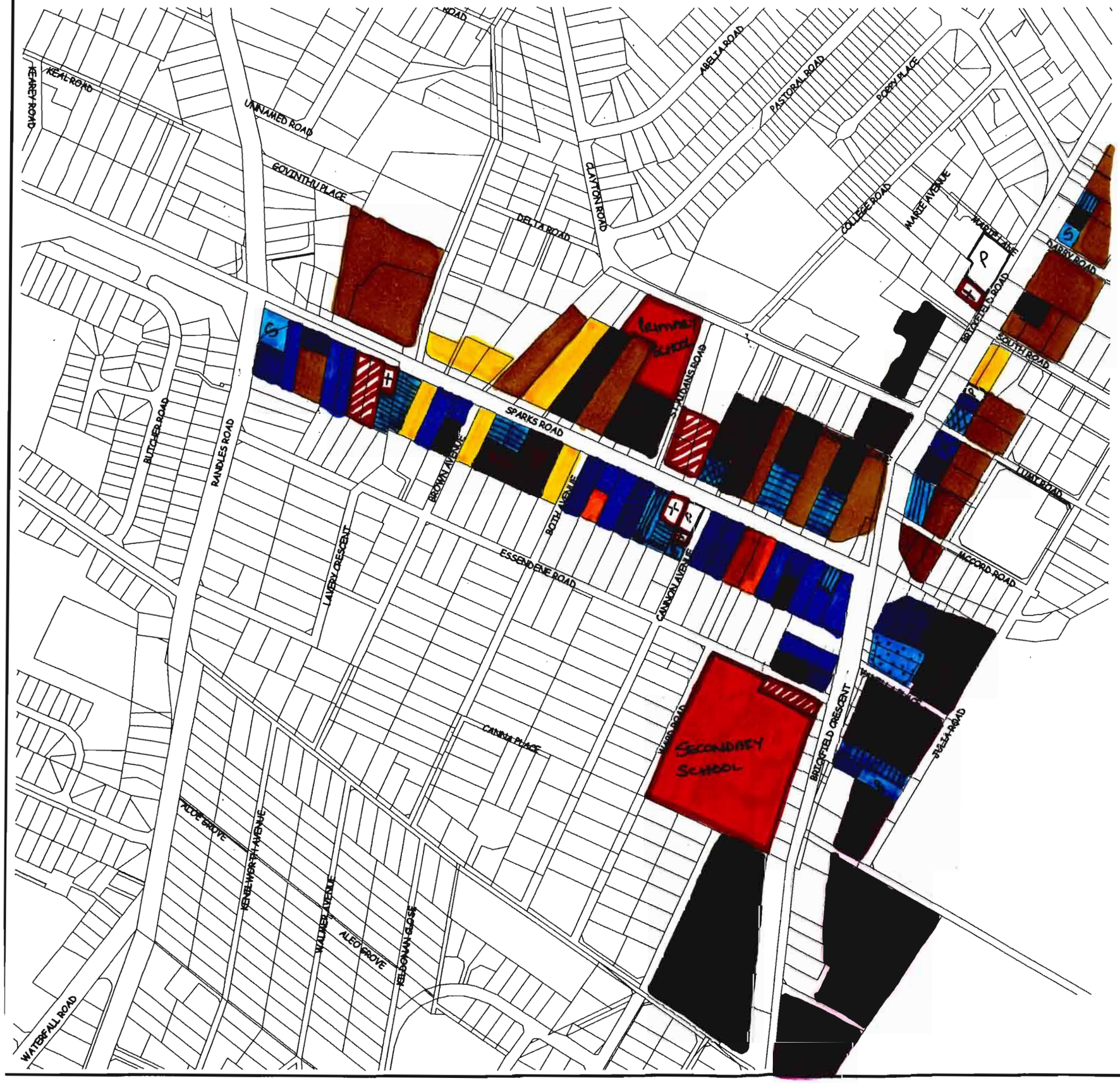
PLATE NO. 2: The segment of Sparks activity street under study

Umgeni_south_roads.shp
Umgeni_south_zoning.shp

- NOT ZONED
- SPECIAL RESIDENTIAL 1800
- SPECIAL RESIDENTIAL 1400
- SPECIAL RESIDENTIAL 900
- SPECIAL RESIDENTIAL 650
- SPECIAL RESIDENTIAL 400
- SPECIAL RESIDENTIAL 180
- MAISONETTE 1400
- MAISONETTE 900
- MAISONETTE 650
- EXTENDED RESIDENTIAL
- DUPLEX 900
- GENERAL RESIDENTIAL 1
- GENERAL RESIDENTIAL 2
- GENERAL RESIDENTIAL 3
- GENERAL RESIDENTIAL 4
- GENERAL RESIDENTIAL 5
- CRECHE
- PLACE OF WORSHIP
- SPECIAL SHOPPING
- GENERAL SHOPPING
- MINOR SHOPPING
- PETROL SERVICE STATION
- GENERAL BUSINESS
- GENERAL BUSINESS 2
- GENERAL BUSINESS 3
- GENERAL BUSINESS 4
- INDETERMINATE
- AIRPORT
- HARBOUR
- CULTURAL & ENTERTAINMENT
- CEMETERY
- EDUCATIONAL 1
- EDUCATIONAL 2
- EDUCATIONAL 3
- INSTITUTIONAL 1
- INSTITUTIONAL 2
- INSTITUTIONAL 3
- PRIVATE OPEN SPACE
- BEACH
- GENERAL INDUSTRIAL
- LIGHT INDUSTRIAL
- EXTRACTIVE INDUSTRIAL
- NOXIOUS INDUSTRIAL
- GOVERNMENT & MUNICIPAL
- TRANSPORT
- PUBLIC OPEN SPACE
- CONTROLLED AREA
- AGRICULTURE
- EXISTING STREET
- STREET CLOSED
- NEW STREET
- NEW STREET TO BE DONATED
- SPECIAL



Map No: **2**	Prepared By: **City Engineers**
Map Scale: **1:4000**	Map Title: **Zoning Plan Of Sparks Road & Surrounds**
Map Date: **August 2001**	



Legend

- -Detached dwelling unit
- -Duplex
- -1 to 3 Storey walk up flats
- - 3-6 Storey walk up
- -Shop
- - Green Grocer
- - Superette
- - Restaurant
- - Bakery
- - Butchery
- - Hardware Supply
- - Clothing Shop
- - Flower Stall
- - Cellphone Shop
- - Video Shop
- - Factory Shop
- -Beauty Clinic
- - Salon
- - Shoe Repair
- - Pharmacy
- - Fabric Shop
- - Doctor/Optician
- - Primary/Secondary School
- -Worship (Temple, Church or Mosque)
- - Park
- - Light Industry
- - Street Vendor
- - Public Phone
- - Petrol Filling Station

N

Prepared By: **City Engineers**

Map Title: **Existing Land Use Sparks Road & Surround**

Map No: **3**

Map Date: **August2001**

Map Scale: **1:4000**

Legend

- Bus & Taxi Route
- Bus shelter
- Pedestrian crossing
- Traffic Lights
- Sparks Rd. Activity Str.
- Bus & Taxi Route
- Restaurant
- Bakery
- Butchery
- Hardware Supply
- Clothing Shop
- Flower Stall
- Cellphone Shop
- Video Shop
- Factory Shop
- Beauty Clinic
- Salon
- Shoe Repair
- Pharmacy
- Fabric Shop
- Doctor/Optician
- Primary/Secondary School
- Worship (Temple, Church or Mosque)
- Park
- Light Industry
- Street Vendor
- Public Phone
- Petrol Filling Station

N

Prepared By: City Engineers

Map Title: Bus & Taxi Route Sparks & Butchery Road

Map No: 3

Map Date: August2001

Map Scale: 1:4000

5.3 BONELA ROAD

5.3.1 Location of the study area

The area under survey, Bonela, is situated within the Durban Metropolitan Area (DMA) and can be reached within 10-15 minutes using public transport (bus or taxi) from the inner city of Durban (refer to Plate no 3 for a birds eye-view of Bonela). The study area is indicated by a broken line on the Existing Land Use map no 6 and forms part of a residential neighbourhood unit, which has minimum traffic streets. Bonela is however bounded by through traffic arteries, namely the four major roads of the Outer Ring Road (N2) to the west, the Western freeway (N3) to the North, Wigins Road to the South and Bellair Road to the East. Minor/internal streets that are linked to service access for residents within the study area are Candela Road, Eskotene Road, Bonela Road, Wyndene and Chorley Close.

5.3.2 Description of facilities

Bonela performs primarily as a residential neighbourhood, consisting of a Primary school on Candela Road and a Secondary school on Bonela Road servicing Bonela and the surrounding areas of Wiggins and Cato Manor. Three parks (one active park and two passive parks) are within 5-10minutes walk from the study area. The study area is dispersed with eight tuck shops that provide the barest essentials such as bread and milk. These tuck shops may also sell a few other necessary grocery requirements such as candles, matches, teabags, biscuits, tinned foods and cool-drinks. Sweets and cigarettes are also easily obtainable. Although the area is zoned to include a shopping center, this has not been built as yet. A doctor's surgery is located within the study area as well as a second surgery outside of the study area, in Adelphi Place. Specialist doctors (dentists, optician's, etc) and other healthcare facilities can only be sought outside of Bonela. A worship site in the form of a church is also limiting as there are no temples or mosques within the Bonela area itself. A few homes are being used to conduct worship activities. The study area does contain "cluster" boxes on the corner of Eskotene and Bonela Road where residents can collect their mail. The area is also serviced with public telephones. Very evident

is the large areas of open spaces some of which although zoned for open space have been left undeveloped to become vacant land or have been developed for residential use. Sites for other places of worship, crèche, post office and petrol filling station have also been zoned but have not been developed (refer to Zoning map no5). A few homes have been converted into commercial activity such as a hair salon, television repairs and shoe repairs. A green grocery van supplies fresh vegetables weekly and a street vendor sells additional vegetables adjacent to the study area.

5.3.3 Description of mobility

Residents within the study area use a number of transport modes. However, the dependency on public transport is great. The area is serviced with buses and taxi's which move into the study area in a one-way direction. The buses and taxis operate along two routes throughout the Bonela area (see public transport overlay) and these coincide with each other. The buses and taxi's enter from Bonela Road move through Eskotene and then onto Candela Road, exiting onto Wigins Road. Alternatively the bus or taxi will move along Bonela Road, pass Eskotene Road to meet Candela Road and then move off onto Westmeath Avenue to service the Western areas of Bonela. There are no traffic signs or warning signs such as speed limits or stop signs, however one pedestrian marking along Bonela can be found in front of the Secondary school to assist school children in crossing the road. Bus and taxi pick-up points can be identified and the entire Bonela area is serviced by one bus/taxi shelter on the corner of Candela and Wigins Roads. Within the study area, only Bonela and Candela Roads have an undilineated pavement. These are unpaved areas of stone and gravel. The other internal streets lack pavements. A bus or taxi can be obtained once every 10-15minutes from 6:30am to 5: 30pm and these travel directly into the inner central business district (CBD) via Wigins and Cato Manor. Interchange points are only obtained in the CBD therefore residents of Bonela can access any other services or facilities outside of the CBD by obtaining a bus/taxi within the CBD.

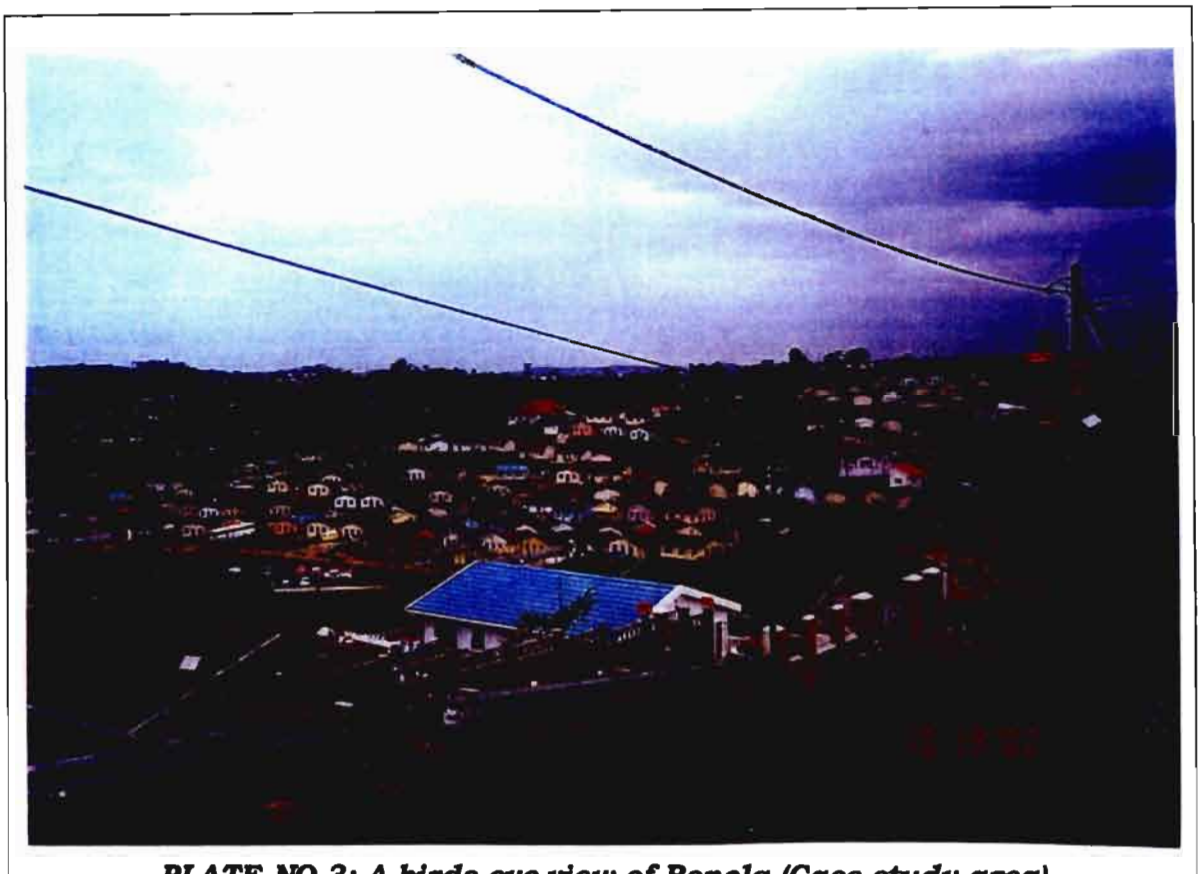
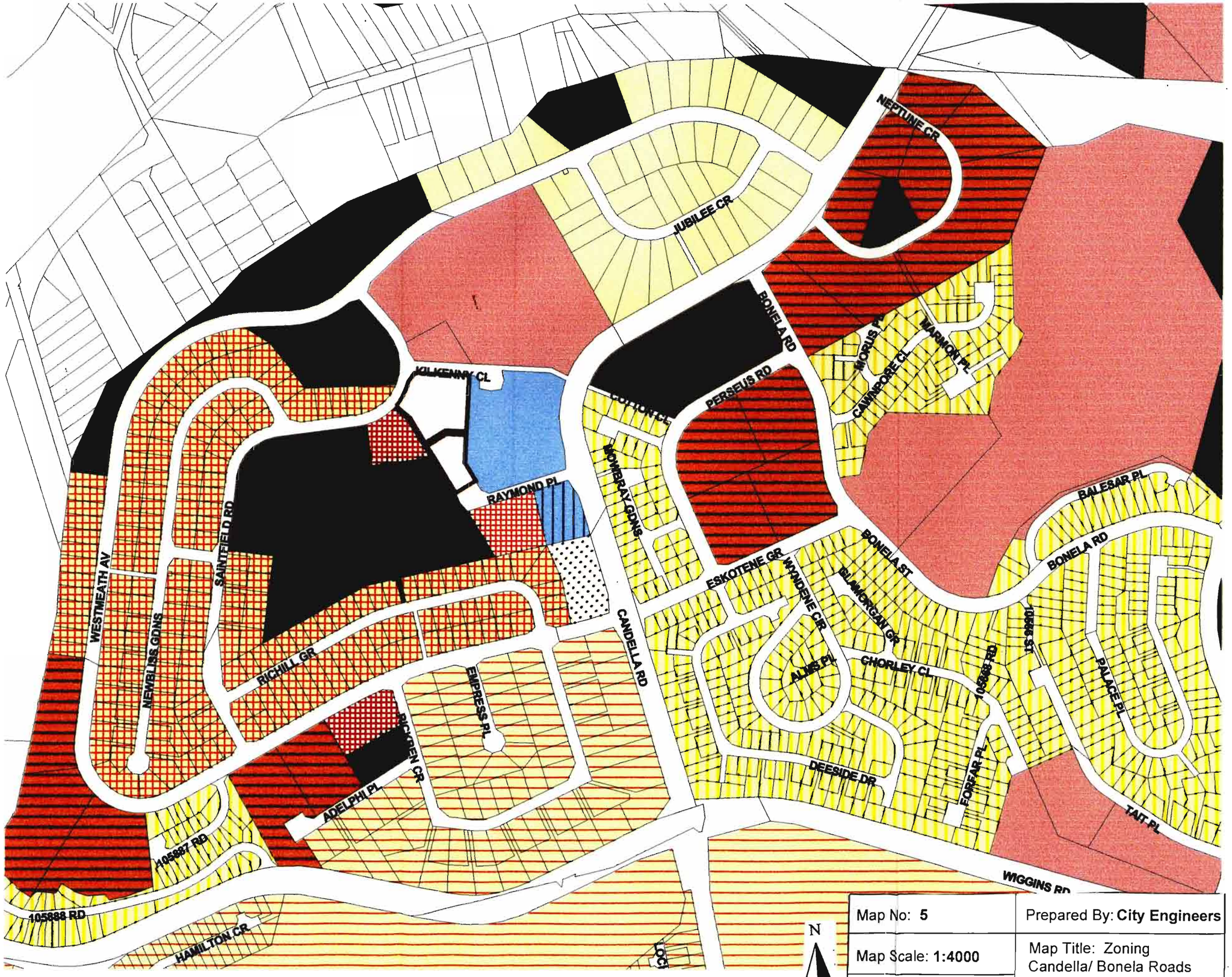


PLATE NO 3: A birds eye-view of Bonela (Case study area)

Cato_manor_roads.shp
Cato_manor_zoning.shp
NOT ZONED
SPECIAL RESIDENTIAL 1800
SPECIAL RESIDENTIAL 1400
SPECIAL RESIDENTIAL 900
SPECIAL RESIDENTIAL 650
SPECIAL RESIDENTIAL 400
SPECIAL RESIDENTIAL 180
MAISONETTE 1400
MAISONETTE 900
MAISONETTE 650
EXTENDED RESIDENTIAL
DUPLEX 900
GENERAL RESIDENTIAL 1
GENERAL RESIDENTIAL 2
GENERAL RESIDENTIAL 3
GENERAL RESIDENTIAL 4
GENERAL RESIDENTIAL 5
CRECHE
PLACE OF WORSHIP
SPECIAL SHOPPING
GENERAL SHOPPING
MINOR SHOPPING
PETROL SERVICE STATION
GENERAL BUSINESS
GENERAL BUSINESS 2
GENERAL BUSINESS 3
GENERAL BUSINESS 4
INDETERMINATE
AIRPORT
HARBOUR
CULTURAL & ENTERTAINMENT
CEMETERY
EDUCATIONAL 1
EDUCATIONAL 2
EDUCATIONAL 3
INSTITUTIONAL 1
INSTITUTIONAL 2
INSTITUTIONAL 3
PRIVATE OPEN SPACE
BEACH
GENERAL INDUSTRIAL
LIGHT INDUSTRIAL
EXTRACTIVE INDUSTRIAL
NOXIOUS INDUSTRIAL
GOVERNMENT & MUNICIPAL
TRANSPORT
PUBLIC OPEN SPACE
CONTROLLED AREA
AGRICULTURE
EXISTING STREET
STREET CLOSED
NEW STREET
NEW STREET TO BE DONATED
SPECIAL



Map No: **5**	Prepared By: **City Engineers**
Map Scale: **1:4000**	Map Title: Zoning Candella/ Bonela Roads
Map Date: **August 2001**	

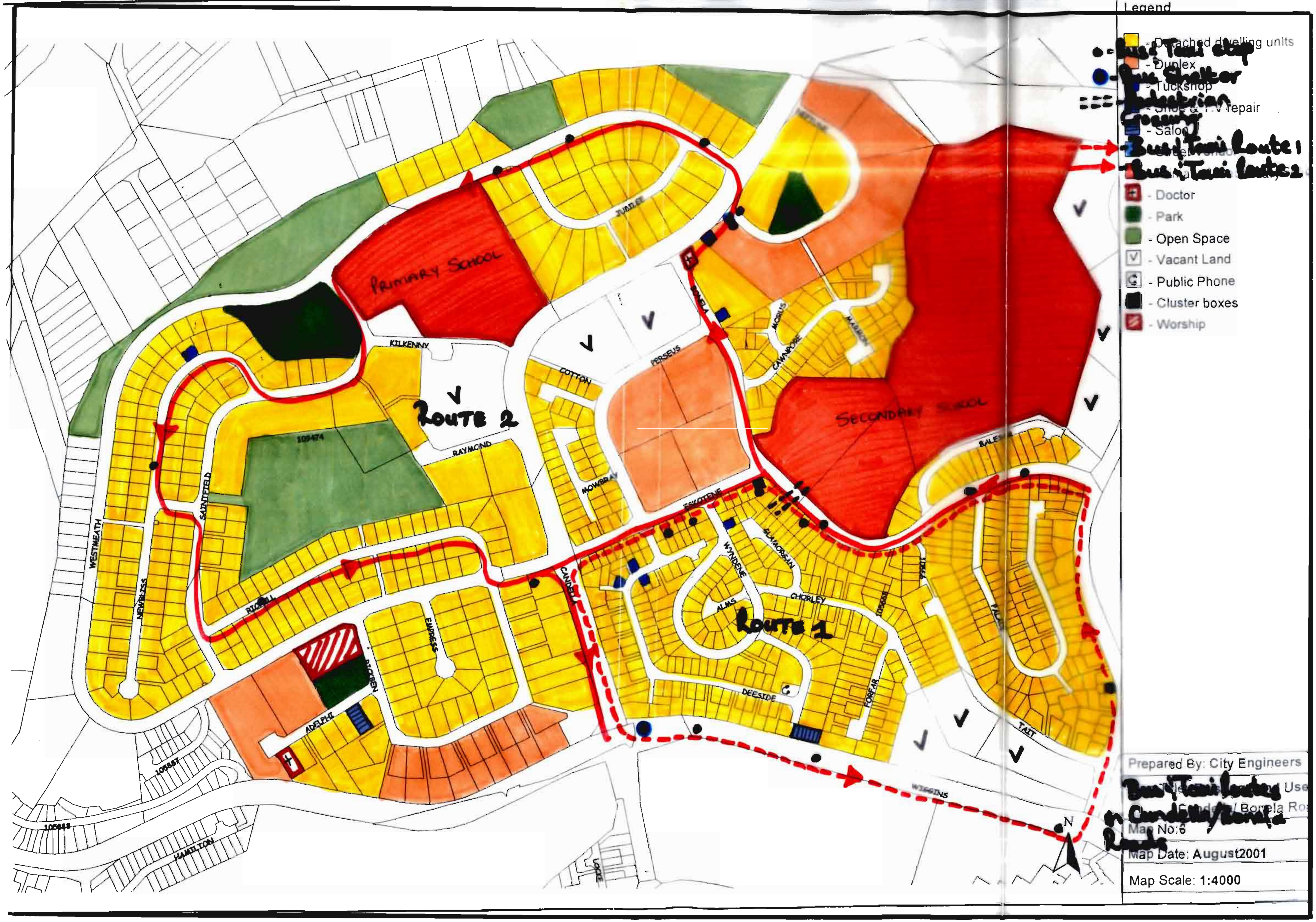
Prepared By: **City Engineers**

Map Title: **Existing Land Use Candella/ Bonela Road**

Map No:**6**

Map Date: **August2001**

Map Scale: **1:4000**



Legend
- Detached dwelling units
- Duplex
- Tuckshop
- Salon
- Doctor
- Park
- Open Space
- Vacant Land
- Public Phone
- Cluster boxes
- Worship
Bus Shelter
Bus/Taxi Route 1
Bus/Taxi Route 2
PRIMARY SCHOOL
SECONDARY SCHOOL
ROUTE 2
ROUTE 1
JUBILEE
KILKENNY
RAYMOND
COTTON
PERSEUS
MOWBRAY
CANDELLA
WESTMEATH
SAINTFIELD
EMPRESS
ADELPHI
DEESIDE
FORFAR
ALMS
CHORLEY
WYNDENE
CAWNPORE
TAIT
WIGGINS
HAMILTON
109474
N
Prepared By: City Engineers
Map No:6
Map Date: August2001
Map Scale: 1:4000

5.4 EVALUATION ACCORDING TO BENTLEY'S PERFORMANCE CRITERIA

5.4.1 Introduction

The following evaluation is a consequence of the observation made of the study areas of Bonela and Sparks Road which were derived in light of the performance criteria established by Bentley et al. (1985). The main focus of this evaluation will be based on the visual aspect and use of the built form. An ability to visually perceive an area is fundamental to a responsive environment approach. The aim of the following discussion surrounding the selected criteria is to make comparisons of both the performance of the Activity Street against the Non Activity Street. The outcomes will hopefully substantiate the findings obtained from the interview responses that will follow later.

5.4.2.1 Permeability

The diagram of the street layout for both case study areas below begs evaluation as this is a large part of the built form.

(A) Sparks Road

Sparks Road street layout (refer to Figure 8 above), allows the user to access the study area using a choice of seven routes. According to Bentley etc. Al (1985) the greater the access points, the greater is the potential to access facilities, hence increasing the user's choice. Therefore there is greater permeability with the road system of Sparks Road than with Bonela.

Furthermore, the alternative entry points are clearly visible as one moves along Sparks Road since all seven routes run off Sparks Road. The study area is also divided into blocks that are smaller and surrounded by these alternative routes. Small blocks enables one to easily identify and access the facilities located within it which together increases one's choice. The visual permeability of Sparks Road is therefore increased.

The short local access roads that run perpendicular to Sparks Activity Street gives one a sense of direction and each minor street draws people from the surrounding areas to where facilities were concentrated. This meant that it was

(B) Bonela

The above diagram shows Bonela's street layout (Figure 8), offering two alternative routes to reach any point, within the study area, that is, one can move in one of two routes to get to any point within the study area. These routes are not only too few to ensure physical permeability, but are not visible to users, except to those who are familiar with the area. Hence, the area is also deficient in visual permeability.

The Bonela case study area is deeply embedded, surrounded by public routes and therefore requires a lot of effort, time and cost borne especially by the pedestrian when and if they need to leave the area and join the main roads. The area does not allow one to see in all directions, hence the user of the street can easily be confused and lost.

Furthermore, the curvilinear roads, dead-ends and cul-de-sac's make the experience of moving through the area of Bonela confusing. There is no knowledge of whether one is walking/driving towards a dead-end or a cul-de-sac until one gets there. For the elderly, the disabled and children, this can be rather frustrating and confusing since they can easily lose their way. This can be tiring, especially if one is ill. Women who need to get from one place to another in a short space of time because of time constraints (with having to undertake domestic and work responsibilities), would also find moving through the area tiring and time consuming. Clearly the physical permeability of the study area of Bonela is problematic, since the area does not make it easy for anyone to move through and hence to access facilities easily.

Visual permeability describes the ease with which an area can be accessed using ones sense of sight. For instance, the facilities within the study area of Bonela are scattered, and therefore separated from each other which requires that the vulnerable need to move in different directions to access a park, school or doctor etc. To access a doctor on Candela Road, for example, would only be possible if one knew how to get there. The surgery is not visible from most places within the study area. In the face of locating facilities, it is clear that they

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The Bonela case study area is deeply embedded, surrounded by public routes and therefore requires a lot of effort, time and cost borne especially by the pedestrian when and if they need to leave the area and join the main roads. The area does not allow one to see in all directions, hence the user of the street can easily be confused and lost.

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are not quite easily visible, hence difficult to access. This implies that visual permeability is poor within the study area of Bonela.

5.4.2.2 Legibility

Legibility of an area can be evaluated by assessing the nodes, paths, edges, landmarks and districts of an area. These factors offer a person the abilility to grasp the layout of a place (Bentley et al. 1985).

(A) Sparks Road

Sparks Road on the other hand is legible according to (Bentley's 1985) definition of legibility. Nodes, edges, paths and landmarks are identifiable. Firstly, the area has two major Nodes at the intersection of Sparks and Randels Roads and the intersection of Sparks and Brickfield Roads where activity is pronounced.

Secondly pavements can act as paths and are easily distinguished by users. Parked vehicles along the street, a continuity of tarred pavements and trees lining the street all serve to make the pavements distinguishable. In addition, the width of the pavements further increases the importance of the pavements. Traffic lights located at intervals along this street and high curbs helps the user to discern between the pavement and street, thus separating vehicular traffic from pedestrian traffic.

Buildings of approximately equal heights and are unique to this street, act as an edge of this Activity Street. Sparks Road Activity Street is an edge situation. This is clearly visible, since Brickfield Road can be seen as an extension of Sparks Road and vice versa hence the Activity Corridor of Brickfield Road are easy to grasp.

Finally, the mosque located closer to Randels Road is a familiar landmark on Sparks Road and serves to make this strip of area under study legible to it's users.

(B) Bonela

The ability to grasp the layout of Bonela is problematic. As alluded to earlier, the study area within Bonela has a street layout which is difficult to understand, as it can be confusing to move through. The area comprises a density of houses that are a duplication of each other and are arranged monotonously along the curvilinear roads, cul-de-sacs and dead-ends. Although this links the study area to the district due to it's unique form, there are no significant nodes, paths, edges or landmarks which one can identify with and be guided through the area. Unless one is familiar with the area, it is difficult to move through the area.

Pavements which can act as paths that separate pedestrian and vehicular movement are not clearly demarcated and, as a result, the road and pavement overlap and become one. This is not only confusing to the users of both the road and to pedestrians, but increases the danger of pedestrian and vehicular accidents.

5.4.2.3 Variety

Variety offers the user many purposes and meanings which can be derived from varied building types which attract varied people for many different reasons and at different times in the day. This is a key to development as it gives the user many ways to interpret a place and hence provide a perpectual mix of meanings. Variety increases one's choice which depends on a close grain of activities (Bentley et al. 1985).

(A) Sparks Road

The built form of Sparks Road offers a variety of uses and meaning. The study area is a combination of primary uses, that is, residential dwelling units, workplace for some, shopping facilities, schools etc, together with secondary uses which are dependent on these primary uses. The range of smaller shops and activities exist because they are supported by the existence of these primary uses in the area. Users have a choice of restaurants, superettes,

salons, doctors, bakeries etc. to choose from. This is an indication of the variety that exists within Sparks Road.

Accessing these facilities becomes easier as they can be accessed with minimal effort, time and cost. Within a building a lawyer's office, doctor's surgery and a residential unit exists thus increasing one's choice. These activities mutually support each other since the existence of the lawyer and doctor in this block of building depends largely upon the residents within the building and adjacent buildings all within close proximity to each other.

However conflict of uses do occur mainly due to pedestrian and vehicular movement where there is a conflict of space, resulting in congestion and pollution. Nevertheless, Sparks Road does offer a variety of choices and therefore assists the vulnerable groups in their ability to access them.

(B) Bonela

The built form of Bonela is monolithic offering predominantly residential developments. According to Bentley et al. al. (1985, 27), "variety within districts is reduced as they become specialised zones of single use". With the exception of a minimum of basic services and facilities, the area offers very little Variety. The building types for example, are all the same, that is, dense low cost housing. The area is made up of primary uses (used solely by residents) and therefore does not attract people from outside the area. This implies that the area has few activities to serve or to attract more people. Therefore residents need to access a variety of activities outside the area. Mobility therefore becomes an integral factor to accessing facilities. Secondary uses, for example shopping malls, with a variety of shops must be accessed outside the area as well.

Buildings are used solely for residential use with the exception of primary uses of the schools, tuck-shops, surgeries and light industrial activities conducted from a few houses (salon, television and video repairs). Pavements can barely support pedestrians as a result streets are used for pedestrian and vehicular

movement. Bonela therefore has very little Variety, offering residents little choice.

5.4.2.4 Robustness

A person's choice when increased in an area is described as Robust. Robustness of a building for example can occur inside and outside of the building. The robustness from within may be affected by room size, access building height etc. The outside of the building may be influenced by active and passive areas (Bentley et al. 1985).

(A) Sparks Road

Sparks Road is considerably robust when one considers the opportunities offered on this strip of area under study. It provides residents with many choices (social, cultural, residential, recreational, educational, commercial functions) as well as giving residents an opportunity to access these facilities easily. The discussion on Permeability, Legibility and Variety above pertaining to Sparks Road have outlined the many attributions of this road which therefore makes Sparks Road a robust area. The uses are endless, right through to the use of pavements.

Pavements according to Bentley et al, can offer many experiences thus enhancing a places variety (Bentley, 1985). It was noted that whilst Sparks Road is abundantly provided with approximately 4.5-5 meter wide pavements (refer to Plate no. 4 below), the study area of Bonela lacked formalised pavements in all streets with the exception of Candela Road which comprised a 2 meter wide pavement. The pavements of Sparks Road can accommodate many uses thus providing a variety of experiences which makes the area robust. The activities along the pavements of Sparks Road will be discussed later under participant observation.

PLATE NO 4: Wide pavements along Sparks Road encourage pedestrianisation

(B) Bonela

From the discussion of Permeability, Legibility and Variety, it can be concluded that Bonela does not offer the user many choices and therefore is not robust in its design of the built form. Choices are reduced due to the dominance of primary uses, which entails a small range of uses. Even the basic primary use of a corner shop is lacking within Bonela. Essentially the built form of the area makes accessing facilities difficult. One must be mobile to access facilities outside the area. In addition, the area has fewer entry points and the monolithic developments limit what can be offered. Small-scale Robustness is taking place within Bonela, however at a slow rate. This is visible with three homes already operating a salon, television and video repair businesses.

PLATE NO 5: So called 'pavements' of stone, gravel and sand within Bonela

5.4.3 Conclusion

Firstly in regards to Permeability, a plan of the street layout indicates that Sparks Road and Bonela are distinctly different which creates two different experiences for the vulnerable group of people under investigation. It was therefore necessary to assess the difference in street layout of the two case study areas. Sparks Road offers greater Permeability both physically and visually than Bonela. Not surprisingly, Legibility and Variety is also greater within Sparks Road. This conforms to the theory on Activity Streets of offering greater choice, convenience and opportunity. Secondly, Bonela Non-Activity Street on the other hand, unlike the mixed use offered along Sparks Road, has a monolithic development and offers very little choice and opportunity to users as compared to the Activity Street of Sparks Road. Access to facilities is therefore more convenient within Sparks Road, however ease of access or mobility is still in question.

5.5 PARTICIPANT OBSERVATION

5.5.1 Introduction

Further investigation required that a close observation be made on the activities and behaviour of the vulnerable. This entailed that the researcher be present at both case study areas at various times during the morning, day and at night, at stationary and specific points to gain a good view of the vulnerable. Observations of the participants required that particular forms of studies be conducted to identify how the area is used, that is, the "activity patterns" through observation. The following aspects were observed:

- Behaviour of the vulnerable groups of people particularly with regards to their movement and shopping activities.
- The impacts of the built form on the mobility/movement of the vulnerable.

5.5.2 Behaviour of the vulnerable groups of people

Observations of their behaviour towards accessing facilities provided valuable information that contributed to disempowering or empowering the vulnerable in their quest to be mobile. The study on behaviour covered simple observations of where and when the vulnerable were seen, how they used facilities, crossed roads, caught buses, got to school, bus stops, and shops etc. The following is a brief summary of the observations made:

Elderly:

(A) Sparks Road case study area

- The elderly were visible very early in the day until midday.
- They were not visible after 2:00pm.
- Generally the elderly were the least visible on Sparks Road.
- The curbs along Sparks Road were difficult to negotiate.

(B) Bonela case study area

- The elderly had difficulty walking along the sidewalks due to the condition of the pavement.

- Benches and bus/taxi shelters were non-existent. Instead the elderly stood long hours in the cold and heat at a deserted pick up point.
- They were often seen accompanied.
- Elderly people were more visible at the doctor's surgery than at the tuck-shops.

Women:

(A) Sparks Road case study area

- They were mostly seen to be in a hurry.
- Often seen with parcels.
- Could be seen in and out of shops.
- Many women returned home after 5:00pm from work.

(B) Bonela case study area

- Women were seen to carry heavy parcels from the bus/taxi stops to their homes (refer to Plate no 6 below).
- They waited long periods for buses and taxis.
- They walked long distances from the bus/taxi stops to their homes.
- Women were picked up at any point along the bus/taxi route (refer to Plate no 7 below).
- They walked accompanied and alone.
- Women were not frequently seen at the tuck-shops but were commonly seen at the doctor's surgery with their children.

Children:

(A) Sparks Road case study area

- Mostly visible all through the day and occasionally during the evenings between approximately 7pm to 9pm.
- Normally seen on the street in groups and at times alone.
- Children were also a familiar sight at the bus/taxi stops along Brickfield Road.
- They could be seen darting from behind parked vehicles onto the street.

PLATE NO 6: Women in Bonela carry heavy parcels

PLATE NO 7: Women picked up at any point along bus/taxi route in Bonela

(B) Bonela case study area

- The children in Bonela were frequently seen at the tuck-shops
- The older youth traveled alone whilst the younger children were seen to travel accompanied on bus/taxis.
- Most were seen to walk in groups to access friends, parks, schools etc.
- They were visible at night socialising with neighbours on the 'pavements'.

Disabled:

(A) & (B) Sparks Road and Bonela Road case study area

- The disabled within Bonela walked along the uneven surfaces of the sidewalks and around parked vehicles with some difficulty whilst the disabled within Sparks Road looked much more at ease as they walked along the pavements to their destination.
- The curbs along the pavements within Sparks Road were difficult to negotiate, as they were high whereas curbs were low or non-existent within Bonela and therefore did not seem to cause an obstacle to the movement of the disabled.

General observations for both case study areas.

- Bonela was livelier at night than Sparks Road with all groups of people interacting freely.
- Shift workers returning home after 6pm were greater in numbers in Bonela than within Sparks Road.
- Not all parts of the streets within both case study areas are lit, hence there are patches of darkness in both areas.
- When it rained most of the vulnerable were seen to run across the street, weaving in between traffic at any point to avoid being caught in the rain within Sparks Road.

Clearly, the above observations reflect that both case study areas do not facilitate free and easy movement of all groups of vulnerable, as each experience different levels of mobility. The Activity Street and Non-Activity Street is designed with strengths and weaknesses, however the Bonela Non-Activity

Street appears to be offering increased levels of mobility for all day and night. A large part of these shortcomings are as a result of the form of the built environment. Bonela has inadequate pavements and parking whereas Sparks Road has high curbs, lack of maintenance to street lights and pavements. An evaluation of the built form will follow regarding the use of the built form by the vulnerable and the impact it has on the movement of the elderly, women, disabled and children.

5.5.3 The impacts of the built form on the mobility of the vulnerable

Aside from the street layouts, pavements offer a range of experiences and according to Bentley (1985) they enhance a places variety. In addition, the walking environment is meant to be seen as an extension of the public transport system because use of the public transport generally involves longer walking trips than one using the private car. The vulnerable groups of people in Bonela could be seen walking along the roads and occasionally along the strip of uneven sidewalk. This so called 'pavement' consisted of tall grass in some parts, gravel, stones and sand washed onto the road creating confusion as to where the road began and ended. It appeared to be difficult for women, elderly and children to walk along these 'pavements' because most were seen opting to walk along the edge of the road instead (refer to Plate no. 5 above). Due to the fact that roads are narrow, cars moved slowly and this gave the vulnerable some time to get back onto the 'pavements'.

Pavements along Sparks Road relative to that of Bonela, boasts ample space to allow for pedestrian movement, planted trees, parked vehicles and space for garbage bins. In some parts of the pavements street vendors have set up stalls. A telephone kiosk is also positioned out of the path of pedestrians. Moreover children can be seen roller-skating without getting in the way of pedestrians. The surfaces of pavements are tarred and even, with the exception of a few areas of pavement that require maintenance. The vulnerable were seen to be walking comfortably along Sparks Road (Refer to Plate no 4 above), with the exception of some obstacles.

Parked vehicles on the sidewalks or in designated parking areas, is one such obstacle which made it difficult for the disabled and elderly to walk comfortably. They were seen to walk around the vehicle, sometimes even onto the road to pass the parked vehicles before accessing facilities. This was observable for both case study areas. However, within Sparks Road the parking areas stood as an obstacle in the path of the elderly and disabled. To access the next block of buildings these vulnerable people had to walk all the way around the parking areas, onto the pavement and then around the next parking area before accessing facilities. Moreover the arrangements of tables and chairs outside some restaurants hindered the movement of the elderly and disabled. They could be seen taking longer periods to stop and rest before advancing. This is a crucial observation, which recognises that despite the positive elements of permeability, and robustness of Sparks Activity Street, these very elements can also function to negatively impact on the mobility of the vulnerable.

Nevertheless, the concentration and close grain of facilities located integratedly along Sparks Road allows one to accomplish many errands in a single trip. A mother was able to pick up her children from a bus stop after school and then purchase milk, bread and some vegetables from the superette and green grocer, before visiting a doctor and then made their way home across the street from the doctor's surgery. It was common to see school children undertaking shopping errands after school, whilst meeting friends for a friendly conversation on the pavements before making their way home. Consequently Sparks Road can as such be described to embrace a variety of experiences and uses and therefore increase one's choices. For the vulnerable this may be an ideal situation in terms of meeting as many needs as possible within a short walking distance.

Despite the close grain of facilities, the area of Sparks Road appeared to be lacking in surveillance. Even though flats looked onto the street, thus providing the opportunity for the streets to be watched, there was very little pedestrian activity. Unlike the activity in the day, Sparks Road did not encourage activity during the night. In fact, the vulnerable groups would only be seen very rarely

entering and leaving their flats in a car. Pedestrian movement was therefore minimal despite the area being lit at night by passing vehicles and street lighting. The lack of activity at night was an indication that mobility was limited at night when compared to the activities in the day.

The situation in Bonela was evidently different. All categories of the vulnerable were seen walking along the street, chatting on the front lawn or pavements with neighbours at night, despite insufficient lighting. Little children sat on the 'pavements' on their own under the street light deep in thought whilst parents and older siblings watched from their front lawns. This freedom of movement is a reflection of the increased surveillance provided by the design of the houses. The houses within Bonela are close to each other. In addition, they overlook a narrow street and together promote pedestrianisation at night

5.5.4 Conclusion

The built form of both the Activity and Non-Activity streets under investigation provide varying mobility experiences for the vulnerable. The robustness of Sparks Road Activity Street increases a person's pedestrian movement during the day as a result of the facilities located in a concentrated manner and wide pavements. However these uses may also negatively impact on pedestrians in terms of parking areas, obstacles on pavements, lack of surveillance and so forth. Even though Bonela does not offer greater choice, nor encourages pedestrian movement during the day, its built form appears to promote a substantially greater pedestrian movement at night when compared to Sparks Road. Such a study of the built form and the behavior of the vulnerable in their natural settings are beneficial to this study, however this can not be confirmed without any real input from the vulnerable people themselves. For this reason, the questionnaire survey of the vulnerable commenced soon after the above observations were made.

5.6 QUESTIONAIRE SURVEY OF THE VULNERABLE

5.6.1 Introduction

The next stage of the investigation involved conducting questionnaires within the two case study areas. A total of 32 respondents for each case study area, all within the category of vulnerable, were carried out to provide information pertaining to a single questionnaire which was personally administered (refer to Appendix 1 for Questionnaire). These included 10 women, 10 children, 10 elderly and two disabled for each case study area resulting in a total of 64 respondents for both case study areas.

The questions were divided into five sub-categories as outlined in chapter 1. With the exception of the disabled, all respondents were questioned in their homes. The disabled were interviewed whilst on errands outdoors since they were referred to the researcher by other people. This method of 'snowballing' was necessary since it was difficult to find many disabled people in the study areas. Due mainly to the fact that only four disabled people were available within both study areas, the findings of the disabled were too small to substantiate and conclusively confirm strengths and weaknesses of their mobility and their ability to access facilities. They did, however, provide some basis from which a reasonable analysis could be made. The elderly and women were interviewed all through the day, although working women were interviewed after 5:00pm until 7:00pm and again in the morning from 5:00am to 8:00am. Children were interviewed after school closed, that is, after 2:30pm. The respondents were selected using a list of random sampled numbers provided by the SPS computer system.

5.6.2 Personal details

Approximately equal numbers of male and female, elderly and children were questioned so as to avoid too much discrepancy with responses. All children were students from both the High and Primary school, whilst all elderly were retired with the exception of 1-2 men in both study areas who continued to work. Of the 6 employed women respondents in Sparks Road, 4 were employed

within Sparks Road whereas the 6 women respondents in Bonela that were employed worked outside of Bonela. The four disabled respondents comprised of two women, an elderly man and a child, all of which experienced a disability of the limbs.

5.6.3 General

Arising out of this second sub-category were advantages and disadvantages experienced and perceived by the vulnerable groups of people with regards to public transport and access to facilities. The table below is a tabulation of the data received as contributed by respondents for both case study areas in terms of their mobility.

5.6.3.1 Advantages and disadvantages of mobility experienced by the vulnerable

An assessment of the concerns for each category of vulnerable regarding the positive and negative elements influencing their mobility will be discussed below. The differences, although subtle, between each of the elderly, women and children, are significant to this study in terms of ensuring that social equity of each category is upheld and facilitated.

(A) Elderly

Table 1.1: ELDERLY, Sparks Road- Positive and negative factors of mobility

Disadvantages	**No**	**Advantages**	**No**
1. Traffic congestion	2	1. Bus and taxi's are frequent	8
2. Lack of pedestrian crossings	2	2. There are no problems	2
3. No bus and taxi along Sparks Rd.	2		
4. High speeds	2		
5. Too wide streets	1		
6.Fear of drug-lords	1		
TOTAL	**10**		**10**

Table 1.2: ELDERLY, Bonela- Positive and negative factors of mobility

Disadvantages	No	Advantages	No
1. No pavements	4	1. Bus and taxi's are frequent	5
2. No benches	1	2. Safe to travel	1
3. Taxi to come into the area	3	3. A short trip to town	2
4. Need pathways	1	4. Bus/taxi drop off near home	2
5. Need bus shelters	1		
TOTAL	**10**		**10**

The disadvantages and advantages contributed by the elderly with regards to mobility appear to be associated with vehicular control, the built form, public transport system and general points.

The elderly experience the following disadvantages within Sparks Road:

Vehicular control

- Traffic congestion, associated with a noisy and busy street.
- High speeds make it difficult to cross or to walk on pavements.

Built form

- Lack of pedestrian crossing (refer to Plate no 8 below)
- Street is too wide to cross
- Poor street lighting
- Lack of street signs and safety measures

Public transport system

- No bus or taxi's come into Sparks activity street

General

- Fear the presence of drug-lord

The following are disadvantages experienced by the elderly within Bonela:

Built form

- Lack of pavements

- There are too few pathways to make walking trips shorter
- No benches
- No Bus shelters

Public transport system

- Bus and taxi's do not come into the area and restricted to Brickfield Road.

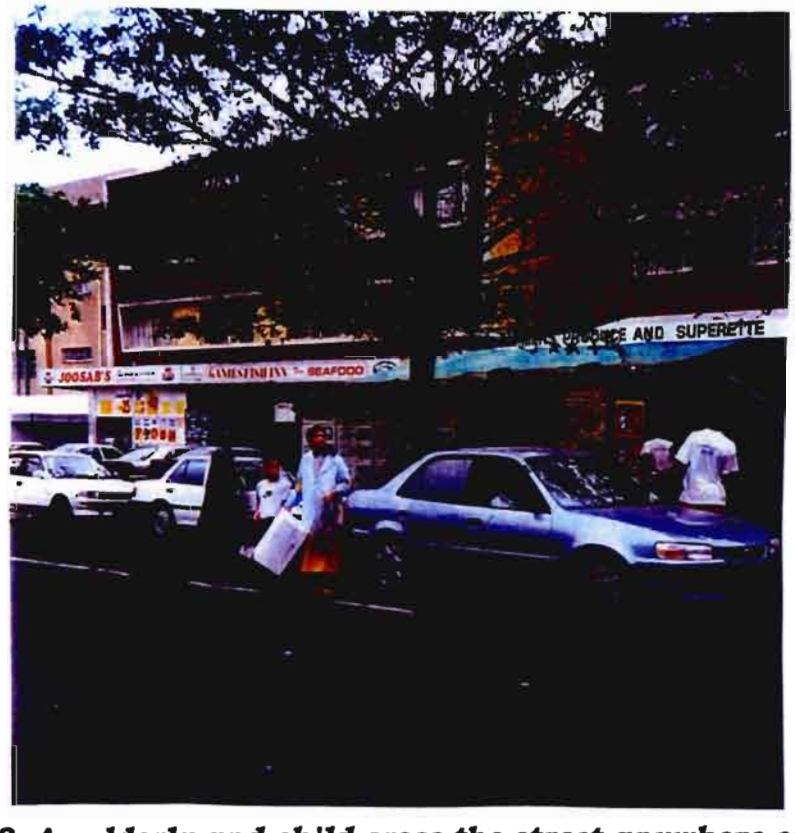

PLATE NO 8: An elderly and child cross the street anywhere on Sparks Road

Nearly all the elderly respondents within Sparks Road (80%) commented that transport was frequent and 20% could find no problems with the public transport. The elderly respondents in Bonela, however were more specific with regards to the advantages of public transport within their area. These were:

- Frequent bus and taxis
- Safe to travel

- It was a short trip to town
- Bus and taxis dropped and picked up the elderly near their home.

(B) Women

Women respondents differed a little from the other categories of vulnerable in the way they experienced mobility within the respective case study areas.

Table 1.3: WOMEN, Sparks Road-Positive and negative factors of mobility

Disadvantages	**No**	**Advantages**	**No**
1. Insufficient pedestrian crossings	3	1. Safe to walk	1
2. Traffic congestion	1	2. Streets are well lit	1
3. Buses and taxis do not come into the area	3	3.It is a pleasure to walk	1
4.Diffiult to walk on an incline	1	4. Pavements are wide	2
5. Need more destination points	1	5. Bus and taxis are frequent	5
6. High speeds	1		
TOTAL	**10**		**10**

Table 1.4: WOMEN, Bonela- Positive and negative factors of mobility

Disadvantages	**No**	**Advantages**	**No**
1.Tiring to walk from bus/taxi stop to home	3	1. Frequent bus/taxis	6
2.Bus and taxis do not go into the area.	2	2. Short distance to town	1
3. Need more destination points	2	3. Public transport rotates well	1
4. There are buses/ taxis between 6:20pm-6:00 am	2	4. Safe to walk	2
5. There are no bus/taxis on Sundays	1		
TOTAL	**10**		**10**

The disadvantages with Sparks Road with regards to mobility of women respondents appears to be a combination of problems associated with vehicular control, built form and the public transport system.

On the other hand, problems within Bonela are mainly related to the public transport system. There are no buses or taxis available to those women who work irregular hours due to shift work, nor are there buses or taxis on Sundays. Some of these women find it tiring to walk from the drop off point to their homes therefore many requested to have public transport come into the embedded areas.

The advantages of Sparks Road are mainly mainly pertain to pedestrian movement whilst women respondents within Bonela acknowledge more the public transport system. Women in Bonela appear to depend more upon the public transport system rather than on walking as a means to be mobile.

(C) Children

The tables below indicate that the children respondents in both case study areas acknowledge elements relating to the built form, the public transport system and general factors as advantageous and disadvantageous to their mobility. Children respondents within Bonela are also interested in the operation of the public transport system, rather than with the manner in which pedestrianisation can be promoted.

Table 1.5: CHILDREN, Sparks Road- Positive and negative factors of mobility

Disadvantages	**No**	**Advantages**	**No**
1. Need for more destination points	4	1. Bus/taxis are easily accessible	2
2. Too much violence	2	2. Presence of a scholar patrol	1
3. Bus/taxis do not come into Sparks Rd	4	3. A pleasure to walk	3
		4. Presence of special buses	1
		5. Wide pavements	1
TOTAL	**10**		**10**

Table 1.6: CHILDREN, Bonela- Positive and negative factors of mobility

Disadvantages	No	Advantages	No
1. No pedestrian crossings	2	1. Bus/taxis are frequent	6
2. No pavements	4	2. Safe to walk	3
3. No scholar patrol	1	3. Streets are well lit	1
4. No transport on Sundays	2		
5. Public transport is expensive	1		
TOTAL	**10**		**10**

5.3.3.2 Advantages and disadvantages of access to facilities

The success of accessing facilities depends upon the nature of mobility of each respondent and the proximity of facilities to the respondents. The following discussion will first explore what is available within each case study area to test the theory of Activity Streets, which claim to offer improved convenience, and access to opportunities.

(A) SPARKS ROAD

"Nothing is lacking" was a common expression used by all 3 groups of elderly (70%), women (50%) and children (30%) respondents. The remaining percentage of respondents indicated the following:

- Elderly- A post office and recreational facilities were lacking.
- Women- A library and recreational facilities were lacking.
- Children- A library, clothing shop and recreational facilities (entertainment) were lacking.

When asked what were the positive aspects regarding access to facilities, the common expression was that **"the area has everything"** with 80% of the elderly, 60% of the women and 80% of the children respondents. The remaining respondents suggested the following positive aspects of the area:

- Elderly- Within a short walking distance are a variety of shops (salons, butchery, banks, restaurants etc).
- Women- Shops are near, easy to access and are open until late.
- Children- Shops are convenient and nearby.

(B) BONELA

In quite the opposite expression, all three groups of elderly (40%), women (40%) and children (60%) exclaimed that **"the area has nothing"** or that **"nothing is good"**. The remaining respondents suggested the following:

- Elderly- the area needs shops, places of worship, a library and post office.
- Women- the area needed shops, a library and more recreational facilities.
- Children-the area needed more shops, a clinic, a library and additional recreational facilities.

A list of very basic facilities were contributed by the three groups of elderly, women and children when asked what was good about their area in terms of facilities. The following were the responses:

- Elderly- Schools, tuck-shops, post delivered, salon and a doctor.
- Women- Schools, cluster boxes, call boxes, vegetables sold in a mobile van and tuck-shops.
- Children- Schools and tuck-shops.

Sparks and Brickfield Corridors offers a reasonable range of 'local' facilities that exceed the facilities within Bonela. However this is acceptable and in accordance with the theories of neighbourhood and Activity Corridor developments which propose that Activity Corridors offer increased opportunity whilst neighbourhoods provide basic community facilities and a corner shop. In order to determine how the vulnerable access these facilities in both areas, it was necessary to study the nature of mobility. The ability to access public

transport is particularly vital to answering the research question of ease of mobility.

5.6.4 Nature of mobility

The first question under this sub-section questioned the respondents on the number of modes of transport available to them. An increase in the number of modes available would imply an increase in the choice available to the users of public transport. The following were the findings for Sparks Road and Bonela:

5.6.4.1 Dominant modes of transport

(b) Sparks Road:

- **Elderly**- 80% used cars whilst 20% walked.
- **Women**- 70% walked, 20% used the car and 80% used the bus/taxi.
- **Children**- 60% walked, 30% used the car and 70% used the bus/taxi.

The dominant mode of transport for elderly within Sparks Road is the car whilst women and children walk and use bus/taxis more frequently, although children rely on the car more than women do.

(b) Bonela:

- **Elderly**- 100% walk, whilst 80% use the bus/taxi and 20% travel by car.
- **Women**- 100% walk, whilst 100% use bus/taxis and car ownership or use is zero.
- **Children**- 100% walk, whilst 80% use bus/taxis and 20% travel by car.

The above data for Bonela suggests that walking is the dominant mode of transport for all respondents followed by the use of the bus and taxi. The use of cars is very low when compared to the use of cars in Sparks Road.

5.6.4.2 Elements relating to access of public transport

The next question allowed each respondent an opportunity to reflect on his or her access to public transport in terms of:

- Modes of transport available;

- Safety in accessing public transport;
- Distance between home and pick-up points;
- Waiting time for bus/taxi; and
- Distance between pick-up points;

5.6.4.3 Performance criteria regarding access to public transport

The criteria used to establish performance can be measured in terms of good, fair and poor access to public transport. The researcher has formulated the following criteria.

Good access to public transport entails:

1. More than two modes to choose from.
2. Access to public transport is safe.
3. One can access public transport within 5 minutes walk from one's home.
4. Public transport is available every 10-15 minutes.
5. Pick-up points are 5 minutes apart.

Fair access to public transport entails:

1. Two modes to choose from.
2. Access to public transport is safe.
3. One can access public transport between 5-10 minutes walk from one's home.
4. Public transport is available every 15-30 minutes.
5. Pick-up points are between 5-10 minutes apart.

Public transport is poor if:

1. There is only one mode of transport to choose from.
2. Access to public transport is unsafe.
3. One can only access public transport more than 10 minutes walk from one's home.
4. Public transport is available after 30 minutes.
5. Pick-up points are more than 10 minutes apart.

Responses were tabulated and assessed below in accordance with the above criteria. The responses for each aspect of access to public transport are derived out of a total of 10 for each category of vulnerable. For example the first line within the table reads that eight elderly out of a total of ten that were questioned had the opportunity to choose from more than 2 modes of public transport within Sparks Road.

The aspects of public transport listed within the table are desirable elements according to the researcher and have been selected to determine the convenience of public transport for both case study areas. It is accepted that there may be other important elements as well, however, these are considered essentially appropriate to determining the contributions of public transport to the mobility of the vulnerable.

5.6.5 Access to public transport

Table 1.7 Description of access to public transport

	SPARKS ROAD			BONELA		
	Elderly	Women	Children	Elderly	Women	Children
More than 2 modes to choose from	8/10	7/10	9/10	10/10	10/10	9/10
2 modes to choose from	2/10	3/10	1/10	-	-	-
One mode to use						
Access to pub. Transpt. Is safe	8/10	7/10	7/10	9/10	10/10	9/10
Access to pub. Transpt is unsafe	2/10	3/10	3/10	1/10	-	-
Can access pub. Transpt. Within 5 min walk						
Can access pub. Transpt. Between 5-10 min. walk	5/10	10/10	10/10	10/10	10/10	10/10
Can access pub. Transpt. More than 10 walk	5/10	-	-	-	-	-
Available between 10-15 min.	-	-	-	10/10	10/10	10/10
Available between 15-30 min.	10/10	10/10	10/10	-	-	-
Available after 30 min.						
Pick-up points are 5 min. apart	-	10/10	10/10	10/10	10/10	10/10
Pick-up point are between 5-10 min. apart	10/10	-	-	-	-	-
Pick-up points are more than 10 min. apart						
GOOD ACCESS			*	*	*	*
FAIR ACCESS	*	*				
POOR ACCESS						

The above table clearly reflects the nature of accessing public transport experienced by the vulnerable groups of respondents for both case study areas. The above data suggests that all respondents within Bonela experience more modes of transport than those within Sparks Road thus increasing one's choice. The respondents within Sparks Road, however, had greater access to cars and this probably explains the low figures for use of bus/taxis. More women and children within Bonela experienced accessing public transport safely than those in Sparks Road did. More elderly, women and children access public transport in a shorter walking time from their home than those in Sparks Road thus public transport appears to be more easily accessible within Bonela.

With regards to the waiting period of a bus/taxi, it has been shown that public transport was more frequent in Bonela with a bus/taxi arriving every 10-15 minutes. Within Sparks Road a bus/taxi was quicker during peak hours (between 7am-9am and 4pm-6pm) every 10-15 minutes and slower throughout the day every 15-30 minutes and more. There were very few formal bus/taxi pick-up points that were equidistant from each other within Bonela since respondents were picked up anywhere along the bus/taxi route. Operators of buses and taxis were very flexible and stopped wherever there was a passenger along their route.

The next question was related to how respondents themselves perceived access to public transport, by indicating if access was good, fair or limited. The aim of this question was to test the accuracy of the results obtained for the above question. The following were the recorded results:

Table 1.8: SPARKS ROAD- Performance of public transport

	Elderly	**Women**	**Children**
Good access	6	8	9
Fair access	4	2	1
Poor access	-	-	-
TOTAL	10	10	10

Table 1.9: BONELA –Performance of public transport

	Elderly	Women	Children
Good access	10	9	10
Fair access	-	1	-
Poor access	-	-	-
TOTAL	10	10	10

Generally respondents perceived access to public transport as far better within Bonela than within Sparks Road.

5.6.6 Distance traveled

The third sub-section of the questionnaire tested the distance traveled for basic trips that needed to be made. To achieve this it was deemed appropriate to enquire how far each respondents traveled to meet their basic needs, for example, shopping, recreational, doctor, worship, school, work, etc., as well as to access higher order goods such as banks, hairdressers, clothing shops etc. This section also tested how far one would travel (within or outside the study areas) to meet these needs together with the number of destination points available using public transport.

The criteria to be used in measuring performance of each of the case study areas would be achieved by establishing which area allows one the least distance to be traveled to meet the above mentioned needs, as well as the area that offers the most destination points. This would imply that minimal effort, cost and time would be required to fulfill these needs and therefore must be the most suitable scenario for the vulnerable groups of respondents. The greater the number of destination points available the greater would be the potential for the vulnerable to access many opportunities, increasing their choices and hence their ability to travel widely with minimum effort, cost and time.

The table below appears in the questionnaire, and lists some basic needs that the vulnerable are most likely to access. It also makes provision for the vulnerable to indicate where these facilities are accessed, whether within the

study area or outside the area. If facilities are met within the Bonela area itself or within the Sparks/Brickfield corridor then needs are still considered to be within the area.

Table 1.10: Basic needs met within and/or outside study area

Needs	Tick	Within	Outside
School (primary and high school)			
Doctor/clinic/hospital			
Shopping (daily items)			
Shopping (topping up items e.g. household goods, salon, banks, clothing)			
Worship (church, mosque, temple)			
Recreational (park, cinemas, sports facilities)			
Other (work, visiting relatives etc)			

The table below is a summation of the responses obtained from the above question indicating the distance traveled by elderly, women and children:

5.6.6.1 Needs met within and outside the study areas.

Table 1.11: ELDERLY, Basic needs

Elderly	Sparks Road	Bonela
Within	60%	37%
Outside	40%	63%
TOTAL	100%	100%

Table 1.12: WOMEN, Basic needs

Women	Sparks Road	Bonela
Within	69%	24%
Outside	31%	76%
TOTAL	100%	100%

Table 1.13: CHILDREN, Basic needs

Children	Sparks Road	Bonela
Within	66%	54%
Outside	34%	46%
TOTAL	100%	100%

The elderly within Sparks Road met most of their needs within the study area however, they did need to visit the hospital (Addington and King Edward) and relatives outside of Sparks Road. Their 'topping-up' shopping was usually undertaken by other family members. They often visited the doctor, park, mosque and friends within Sparks Road. They seldom visited the CBD (once in 4-6 months) when family members were available to transport them with cars. This was a general pattern for all 9 respondents with the exception of an elderly male who owned his own vehicle and was therefore more mobile than the rest.

The different destination points available were restricted to the city (CBD), Springfield, Berea, Kwa-Mashu, Ntuzuma, and Musgrave for those vulnerable repondents traveling from Sparks Road. In order to access the hospital or relatives, elderly within Sparks Road had to take a bus/taxi into the city and then get onto a second and possibly third bus/taxi to reach their destinations in the event that family members are unable to transport them by car.

The elderly respondents within Bonela met all their needs outside of Bonela with the exception of a doctor and/or worship which were both accessed within Bonela. Most of the needs of the elderly were met within the city and again required that the elderly obtain one or even two buses and/or taxis to transport them into the city.

Women respondents of Sparks Road, like the elderly also met most of their needs within the area except that they still needed to meet some of these needs outside the area in areas like Springfield, Chatsworth, Phoenix etc. They sought mostly higher order goods within the CBD. Women respondents therefore had to make trips outside Sparks Road using public transport. These respondents

listed the same destination points as the elderly and as an aside all respondents commented that there should be more bus/taxi routes. To reach other areas one had to access the main interchange point was within the city (Warwick Avenue, Centenary Road and opposite the Workshop bus/taxi ranks).

A completely different scenario exists for women respondents within Bonela since they met all of their needs with the exception of recreation outside of Bonela. These needs included the doctor, worship, shopping for groceries and clothes as well as to work etc. They are all completely dependent on buses /taxis for transport and their destination points (as with Sparks Road) is limited to a few routes. These are to Asherville, Claremont, Berea and the city. Interchange points are the same as with those mentioned above for Sparks Road. Respondent who had to travel to work in Westville or Jacobs needed to obtain a bus/taxi into town, get onto a second and/or third bus/taxi in order to reach their areas of work.

Children within Sparks Road had also to travel outside of Sparks Road to meet some of their needs, however most of their needs such as schools, worship, doctor and recreation are all met within the study area and they greatly appreciated this. Most of these children respondents did shop within the area for household and grocery items required by their parents. Although most children attended the school within the study area there were a few who attended schools outside of Overport example Asherville, Reservoir Hills and Springfield. These respondents would also leave the study area to buy clothes (since there is a bigger selection in the city and in malls), to visit the cinemas, relatives, specialist doctors or to attend places of worship and recreation. They were dissatisfied with having few destination points, however they acknowledged that whilst accompanied (by friends and relatives) it felt safer to travel to town to get onto desired routes.

Within Bonela, every child respondent felt that they had to leave the area to do shopping for clothes, groceries, to visit restaurants, cinemas etc., however this was not achieved regularly and they were happy to pass their time using

whatever facilities were available example parks, worship, school, the doctor etc.

A general observation made was that more respondents within Bonela than Sparks Road felt the interchange points within the CBD was convenient and cost-effective since it usually took one trip into the CBD to meet the necessary needs.

5.6.7 Surveillance

The object of this sub-section was to determine to what extent respondents were restrained in their movement due to fear of crime and to what extent they were encouraged to be mobile due to the surveillance offered by the nature of the respective built environments. More specifically questions pertained to travelling behaviour (accompanied/unaccompanied, to be seen or heard or both and one's ability to travel day and/or night). To offer a description of their traveling behaviour, respondents were invited to make suggestions on how to curb any shortcomings with respect to their traveling behaviour. An environment that performs well in terms of surveillance would allow respondents to be seen and heard, travel both during the day and night and be able to travel unaccompanied since this describes a person who travels with ease and without much restraint. The following three tables are tabulated responses of elderly, women and children in regards to these three criteria within each of the case study areas:

5.6.7.1.Degree of surveillance established through traveling patterns

Table 1.14: ELDERLY, surveillance

	Sparks Road	Bonela
• Seen	-	-
Heard	3	-
Seen and heard	7	10
• Night	-	-
Day	7	7
Night and Day	3	3
• Accompanied	4	6
Unaccompanied	3	1
Both	3	3

The elderly respondents have similar traveling behaviour within both case study areas with the exception of Bonela where a total of ten elderly respondents believe that they would be seen and heard as compared to seven of the ten respondents for Sparks Road.

Table 1.15: WOMEN, Surveillance

	Sparks Road	Bonela
• Seen	-	1
Heard	3	-
Both	7	9
• Night	-	-
Day	7	6
Night and day	3	4
• Accompanied	6	6
Unaccompanied	1	1
Both	3	3

Women respondents are less restrained in Bonela than in Sparks Road. Nine women respondents in Bonela compared to seven women respondents in Sparks Road indicated that they would be seen and heard. Similarly more women respondents within Bonela felt that they would travel during the day and night.

Table 1.16: CHILDREN, Surveillance

	Sparks Road	**Bonela**
• Seen	-	-
Heard	-	1
Both	10	9
• Night	-	-
Day	3	6
Night and day	7	4
• Accompanied	5	6
Unaccompanied	3	1
Both	2	3

More children respondents within Sparks activity street than within the case study area of Bonela experienced higher levels of surveillance indicated by their traveling pattern reflected in the responses above. This indicates that the built environment of Sparks Road facilitates the movement of children respondents more than the movement of the elderly and women.

Four disabled respondents were both questioned and interviewed. Their individual responses to the questionnaire provided a poor account of their individual traveling behavior and access to facilities. Their suggestion for improvement overlaps with those of the elderly since many of their responses were also similar to the elderly. They therefore did not appear to contribute information that was any different to that contributed by the elderly respondents

The suggestions offered by individual respondents regarding improvements for each case study area to increase safety on the streets so as to increase the mobility of the vulnerable is specified according to the elderly and disabled, women and children below:

(a) Elderly and Disabled

- Benches
- Bus shelters
- Lower curbs
- Need pathways in Bonela
- Taxis to come into the area due to physical stress.
- Reduce vehicular speeds
- Introduce pedestrian crossings

(b) Women

- Taxis to come into the area due to physical stress.
- Increased destination points.
- Public transport system to provide transport during irregular hours within Bonela.
- Incline in Sparks Road needs benches.
- Need traffic patrol.

(c) Children

- Police control to decrease crime in Sparks Road.
- Need more destination points.
- Bus and taxis to come into the area for safety reasons.

5.6.8 Conclusion

The questionnaire appears to be providing data that differs somewhat from those obtained within the participant observation. The interview report, which follows, however may be able to account for this contradiction. Examples of this may be that observations of Sparks Road reveal the area to be lively with many experiences to offer, thus promoting opportunity. People within Bonela travel

more easily at night despite a lack of lighting. They even access public transport more conveniently than those respondents in Sparks Road (refer to table 1.7 above). Bonela does, however, lack some basic facilities which are obtained mostly from within the inner city and therefore requires that the vulnerable be mobile. Respondents are within walking distance to most facilities within Sparks Road, however their access is determined by a number of factors such as pedestrian crossings, street lighting crime etc.

5.7 INTERVIEWS WITH ACTUAL USERS AND OPERATORS

5.7.1 Introduction

On completion of the questionnaires and collation of the data received, interview surveys were necessary with each of the vulnerable as well as with operators of the study areas. It was necessary to get personal feedback from the vulnerable regarding their mobility and facility needs. In addition, it was felt that people who are observant of the street activity or study areas throughout the day and perhaps at night, will be able to give this study depth and to offer a more rich account of the mobility of the vulnerable and their access to facilities. The information gained would also ensure that the data obtained above is substantiated and verified. A total of 12 interviews were undertaken per case study area. The users of the street included two elderly females, two disabled, two women, and two children (one from a Primary and one from a High school). The operators included a street vendor and shop assistant along Sparks Road and a security guard and tuck-shop owner within Bonela.

All the users were interviewed on the street whilst the street vendor, shop-assistant, shop owner and security guard were interviewed at their places of work. The interviews were conducted by asking questions and prompting each interviewee to answer questions and elaborate on them pertaining to movement of the vulnerable groups of people (their behaviour in accessing facilities and their ability to negotiate the built environment in regards to their mobility). The following chapters will merely relate the responses obtained from each of these operators of the street.

5.7.2 Actual Users of the street

Users of the street include the vulnerable people under discussion. The account that each provides reveals their actual experiences in terms of accessing facilities and being mobile. Due to the time constraint it was only possible to interview two per category of vulnerable.

5.7.2.1 Elderly

The two elderly people interviewed indicated that they lived on Sparks Road all their lives and believe that it is a good area to live in, however, the area is busy and sometimes dangerous. Traffic congestion and drug-traffickers in the area affected them. They feared for the safety of their children and grandchildren and hoped that the drug-lords would be removed. One of the elderly ladies's was hit by a vehicle on Sparks Road a month prior to this interview and was laid in bed with a plaster to a fractured leg for three weeks. These elderly women wanted taxis and buses to operate through Sparks Road so that they could access them more easily and avoid being exposed to traffic on Brickfield Road. They wanted to see more bus shelters and benches, as walking to shops was tiresome. They, therefore, did not walk much even though they did enjoy walking. The elderly preferred to observe passing traffic from their flats than to be on the streets. For most of the elderly this meant that they would request the neighbours, grandchildren or their own children to carry out their shopping for them. The only time that the elderly would travel at night was by car and would leave Sparks Road to visit relatives or doctors. The elderly, therefore, did not use the bus or taxi services much unless forced to. On prompting the elderly it was mentioned that they did not want to inconvenience their relatives to use their cars whenever they needed to go somewhere. An additional factor that discouraged the elderly from walking was the fact that the roads were too wide to cross and impatient drivers alarmed them.

The elderly couple interviewed within Bonela commented that one of the reasons they enjoyed living in Bonela was due to the convenience of being located so close to the CBD. They were quoted as saying " it is only a 10 minute bus ride into town where you can get everything". Other positive factors noted

about within Bonela was that Bonela was safe to live in and all residents knew each other. Still they were very aware that the area did lack a shop or superette and a few other facilities such as a library, worship facilities etc, however, they felt that these were easily substituted by a short trip into town. Although close to the CBD they were not happy to inconvenience other family members to accompany them into town. They often travel accommpanied. Whilst one would be ill the other needed to go out to pay accounts and to do the shopping. They preferred to travel with someone who would help them carry parcels and bags. Furthermore, if they fell ill during these trips there would be someone with them to help.

Both of the elderly people interviewed indicated that they disliked standing and waiting in the cold, rain or heat for a bus/taxi. They complained that there were no bus shelters to stand under and the pavements were not conducive to walking. It would be very easy to trip and fall on the uneven surfaces of the strip of 'pavement' created by gravel, bush and stones. They did appreciate that a bus or taxi would pick them up anywhere along the bus/taxi route. This meant that their walking time was reduced. They liked the fact that buses and taxis passed by regularly which meant that they need not wait too long, however, waiting was inevitable as it was a habit to get to the bus/taxi stop earlier than the arrival of the bus or taxi. They hoped to see bus shelters and benches with improved pavements. They also wanted a shop/superette to be developed in the area. The area needed speed bumps to slow vehicles that drove at high speeds and traffic patrols to help children cross the road in front of the school.

5.7.2.2 Women

Of the two women interviewed within Sparks Road, one worked within the area whilst the other was a housewife. Both women preferred to live in the area since they were born there and enjoyed being a part of Sparks Road community. These women have adapted to the increasing traffic in the area, however, they did not adapt to the drug trafficking which is a growing phenomena. This certainly prevented them from feeling safe to use the streets and therefore

prevented their movements. They feared their children would fall victim to the drug related crime in the area. They therefore insist that their children travel accompanied at all times. These women indicated that they often did not have to leave the area since they were able to conduct all if not most of their shopping within Sparks Road and Brickfield Road. These facilities were easy to reach and could be achieved within a short space of time. Higher order goods such as the banks, household goods, etc could be obtained in the city if not obtainable along the corridor. Pavements were wide and safe to walk along. However, walking the incline was problematic especially if one is carrying parcels or a baby. Cars parked on the pavements were an obstacle to walking. These women as did those respondents of the questionnaire survey were concerned that the area lacked pedestrian crossings. These were believed to be of utmost importance to the area since crossing the road was a daily trip often made several times a day. Very often they needed to get across the road to shop since most facilities were located on one side of the street and residential facilities (flats duplexes, houses etc) were located on the opposite side. In addition, they suggested that cars on pavements and the drug-lords in the area be removed to facilitate their movement. The women who worked outside of Sparks Road commented that it would be great if more destination points were offered. Both felt that their walking time would be reduced if the buses and taxis operated through Sparks Road and not only along Brickfield and Randels Road.

Both women interviewed within Bonela worked outside of Bonela. The information contributed was quite informative in terms of their traveling patterns. They enjoyed living in Bonela because of its central location to the CBD. They appreciated the fact that bus/taxi operated regularly, however the times were not consistent with their working hours especially shift work. One of the women interviewed worked shifts and complained that it was difficult to obtain public transport after 6pm in the evenings or as early as 5am in the mornings. The other women needed to travel by bus/taxi into town, get onto a second bus to reach work in Westville.

5.7.2.3 Children

Both the children respondents that were interviewed agreed that Sparks Road was a good area to live in. All their friends lived close to each other, everyone within Sparks Road knew each other and almost anything they needed could be bought along Sparks Road. They indicated that a trip into town was expensive and therefore they were grateful to be close to the amenities provided along Sparks Road. These children did however make trips into the CBD occasionally, and like the elderly and women they felt that it would be a good idea if buses and taxis operated through Sparks Road. This would reduce their walking distance thus making it easier and would also be safer especially for other children as well who would otherwise have to walk to the busier main street of Brickfield Road to obtain public transport. They also hoped to be able to access entertainment facilities closer to home than to have to travel into the CBD to places such as the Workshop, the Wheel, Musgrave Center and to the Pavillion. It was an agreed opinion that since public transport did not travel to all these areas directly but required that one get onto a second bus or taxi, more destination points be offered to a variety of places from Brickfield Road. One of the two boys felt that there should be special buses to transport the elderly directly to the facilities that they require access to such as the hospital, banks, pension offices etc. The children also suggested that the shops remain open later than 7pm so that a night atmosphere would be created and this would allow more people, including themselves to go out at night. Presently it was only a few older youth that would venture outdoors at night. In addition to the above suggestions these children felt that curbs of pavements were too high for elderly and the disabled to ascend or descend from and should be reduced.

The children within Bonela were interviewed outside their school as they made their way home. The very common description given to Bonela by these youth as well as from many children respondents of the questionnaire survey was that the area is "dead". They meant that there was very little activity within the study area. Moreover, the area was being labeled as dead due to a shortage of shopping and recreational facilities. However with regard to mobility these children felt that the area performed very well because they could easily travel

into the CBD. Taxis and buses were frequent. The buses and taxis did not however operate on Sundays and this confined the children and their families to the area when instead they could visit relatives and access places of recreation. The streets were safe to walk during the day but not at night. Streetlights failed to work in some areas creating shadows which increased one's fear, and discouraged people including the children to walk at night. Often these children see the elderly and women struggle to carry parcels from the bus/taxi drop-off point. In light of this and the sheer necessity for shopping facilities, these children suggested that a shop in the area would ease their situation since tuck-shops do not.

5.7.3 Operators of the area

The following four operators interviewed on Sparks Road and within Bonela were chosen because they provide a constant pair of extra eyes in these areas largely as a result of their work and it's location. It was hoped that they would be able to contribute some valuable input on the mobility of the vulnerable. They were a shop owner and street vendor on Sparks Road and a security guard and tuck-shop assistant on Bonela and Wyndene Road respectively. The following discussion will outline briefly each operator's contributions.

5.7.3.1 Shop-keeper (Sparks Road)

The shopkeeper noted that there were too few pedestrian crossings especially for the elderly and children. When it rained people would run across the road at any point along the road to avoid standing in the rain too long. Some entrances to shops and flats have high steps and pavements with high curbs making it difficult for the elderly and disabled to climb. Again with regards to the elderly he had noted that special deliveries of groceries are made to them and to the homes of disabled people if requested. This service was not provided by all the shops in the area. Most of his customers are old residents of the area and they buy most of their monthly groceries from this particular shop thus these customers do not have to make frequent trips into town.

5.7.3.2 Street vendor (Sparks Road)

The street vendor sells sweets especially to schoolchildren outside the primary school. He has observed that most children walk home from school in groups. They seldom cross at traffic lights or at the only pedestrian crossing. Instead, they cross anywhere. A very dangerous habit observed is that children especially dart out from behind parked vehicles onto the road. After school children are seen on errands and sometimes accompanying parents to the bank, salon, doctor etc. Very few elderly people are visible and they will seldom cross the road anywhere. The elderly are careful and cautious when walking as they are usually concentrating on the direction to take or a street they are to cross. A very friendly and active street atmosphere prevails. There are always people on the pavements. Residents are often crossing the street from the flats on one side of the street to the opposite side of the street.

5.7.3.3 Security guard (Bonela)

The security guard of the surgery sits on the premises of the surgery and looks onto Bonela Road. He describes the area as quiet but busy in the morning and evenings when workers and students leave and arrive home from work and school or university. Often these people are seen boarding or alighting a bus or taxi. The bus/taxi will stop anywhere along its route and not necessarily at a formal drop-off or pick-up point. Pavements are not in good condition and street lights do not work the entire length of the road and therefore some areas are dark and dangerous especially for the elderly, women and disabled who walk to the surgery alone (this sometimes happens). People are usually accompanied at night. He suggested that street lighting be improved for all. The elderly feel tired when they arrive after climbing the hill. The area needs benches along the street for the elderly and sick to sit on. Not many of the vulnerable groups of people own cars since most walk long distances to the surgery.

5.7.3.4 Tuck-shop assistant (Bonela)

The tuck-shop which sells limited low order goods (bread; milk; paper; matches; tinned food; cool-drinks and biscuits) is supported by all three groups of elderly, women and children throughout the day. All of these people do however

have to meet the bulk of their shopping needs in the city or other areas. This is why it is common to see the elderly, women and children carry heavy parcels returning home after shopping in the town. Most often women returning home after work are seen with parcels arriving home late in the evenings. They are presumed to have shopped after work. The pavements in the area are lacking and this makes it difficult for these people to walk although the narrow roads are safe and easy for the elderly to cross the roads. Houses are close to the street therefore providing surveillance (as with the tuck-shops). The tuck-shops are open until 9pm and people are constantly coming in to buy goods.

5.7.4 Conclusion

A variety of information regarding the mobility and access to facilities of the vulnerable have been contributed via the three stages of participant observation, questionnaire and interview surveys. The substantial amount of evidence now provides the basis from which to evaluate exactly how the Activity Street of Sparks Road and the residential neighbourhood unit of Bonela contribute to a facilitatory response for vulnerable people in terms of their ability to be mobile and to access facilities conveniently. The mobility of the vulnerable are, however, not only confined to the nature of the built environment but also to the operation of public transport (buses and taxis in the case of both case study areas). The following chapter will also test the theory of Activity Streets (in relation to the Sparks Activity Street) and offer a greater understanding of the concept of the Activity Street.

CHAPTER 6: EVALUATIONS

6.1 INTRODUCTION

The evaluation below will establish to what degree the urban environments of Sparks Activity Street and Bonela neighbourhood unit responds to the mobility and facility needs of the vulnerable, elderly, women and children as well as the disabled. Does it consider the human dimension of urban living? Do they work well for the vulnerable people? In interpreting the findings provided earlier via participant observation, questionnaire and interview surveys, evidence of the merits and demerits of the activity street of Sparks Road and the neighbourhood unit of Bonela can be drawn with respect to each category of vulnerable people. What was easy for them and what was not with due respect to the nature of elderly, women, children and the disabled provided within the conceptual framework. The findings will be evaluated according to different criteria established within each stage of the investigation.

The two case study areas have been subject to different dynamics and so different levels of facilities and different needs to travel exist for each area. They do not provide adequate examples for the illustration of social equity amongst the vulnerable groups. A comparison of the elements of the two case study areas with regards to mobility and access to facilities is expected to highlight issues which would contribute to determining levels of social equity provided by the Activity Street under discussion. The analysis of the case study areas has been carried out in such a way so as to test them against the concepts discussed in chapter 3 of the Social Theoretical Perspectives.

The performance of Sparks Road can be described as meeting some of the expectations of an "activity street" as outlined in chapter 4, however there are some aspects that are not consistent with the theories of Activity Streets which have surfaced and will be discussed below. The following analysis is discussed around the issues of the built environment, the public transport system and access to facilities.

6.1.1 The built form

In assessing the built form of both case study areas the following related elements will be discussed:

- The street layout
- The distribution of facilities
- The impact of roads and pavements on walking

6.1.1.1 The street layout

Firstly, mobility appears to be encouraged within Sparks Activity Street due to the good permeability of the area as compared to Bonela where the ability to move through the area is limiting. Sparks Road has more entry points into the area than does Bonela. The street layout of Bonela has little choice of routes and this therefore reduces one's physical and visual permeability. The fine grain of facilities located alongside each other within Sparks Road and within Brickfield Road allows for these facilities to be visually permeable. This makes for shorter traveling time and distance which helps to facilitate movement especially of the elderly and disabled who commented that they have everything within this road and appreciated the ease of accessing facilities along Sparks Road. The scenario within Bonela is completely different since nearly all facilities, especially that of shopping, must be accessed over a longer distance entailing one or more trips by bus/taxi in order to reach them. Even those facilities within the area itself are difficult to locate because they are hidden in the depths of cul-de sacs, pan-handles and curvilinear streets.

6.1.1.2 Distribution of facilities

(A) Sparks Road

Sparks Road together with the facilities on Brickfield Road, is a strip of road that has a mix of facilities within walking distance of each other. The area offers a variety of uses and choices created by locating mixed uses close together. The more mobile a person the greater are his/her chances of taking advantage of the opportunities and facilities offered. The area meets most or all of the needs of respondents and the ability to meet most needs along Sparks Road and Brickfield Road were much appreciated. The access to these facilities are however not distributed equally amongst the vulnerable groups of elderly, women, disabled and children. Women and children seem to

experience less difficulty with accessing facilities than the elderly and disabled. The following analysis will therefore focus mainly on the elderly and disabled.

To access facilities along Sparks Road, the vulnerable often have to cross the street since most of the shopping facilities are located on one side of the street whilst more residential units are located on the opposite side. Most of the elderly respondents could not, however, easily access these facilities safely since the area had a combination of obstacles. The main obstacles preventing or restraining the mobility of the elderly and children for example are few pedestrian crossings to enable one to easily and safely cross the street.

Even though it is a short trip to the shops from their flats, for the elderly, it is often a fearful one. With just two traffic lights on opposite ends of the segment under survey, the elderly are forced to walk at least 10-15 minutes or approximately 150 meters in order to cross safely at a traffic light. Hence as an Activity Street, Sparks Road fails to ensure easy access to facilities or improved safety on the street, which thus far seems to affect the elderly most. It is little wonder then why most of the elderly avoid leaving their flats to go out shopping. They much rather get a family member to undertake their shopping or travel by car when this becomes available. Increased mobility, convenience and equity are principles of Activity Corridors however the above analysis of Sparks Activity Street seems to fail in increasing mobility, convenience and equity.

(B) Bonela

Within Bonela, however, the vulnerable have to leave the study area to access most facilities which are located outside of Bonela. This is quite normal and expected for a neighbourhood unit such as Bonela. The vulnerable are prepared to make the trip/s to access facilities, however their means of mobility (walking and use of bus and taxis) has some shortcomings which hinder their movement. The vulnerable respondents access the existing facilities within Bonela on foot but pedestrianisation is not encouraged as much as vehicular movement. Furthermore, the public transport system, however good, does not meet all of their needs.

Bonela severely lacks shopping facilities since the available tuck-shops are inadequate. Public telephones in the study area are disconnected as a result of vandalism. The area could improve on the availability of services to ensure that the very basic services are present and maintained.

Clearly what is emerging is that not only is there a difference between Activity and Non-Activity streets in terms of their layout, built form, facilities etc. But a lot depends on the detail of implementation for example, roads, pavement development, crossings points etc. This implies that it is not the concepts alone but the level of implementation, hence the need to consider design issues such as "traffic calming" to ensure sustainable development.

6.1.1.3 The impact of the roads and pavements on walking

The design of the roads and pavements impacts greatly on the ease of mobility as discussed earlier. Walking is to be encouraged if the vulnerable are to access facilities within each of the case study areas especially within the Activity Street of Sparks Road where facilities are concentrated. The activity on the road impacts on the adjacent areas therefore pavements must also be evaluated. In order to facilitate walking pavements should be as comfortable as possible to walk along. This can be encouraging by implementing street furniture such as benches and bus shelters etc.

(A) Sparks Road

Firstly, Sparks Activity Street is approximately 12 meters wide. This has many consequences. The elderly and disabled have noted difficulty with crossing this street. From observations it was noted that a lack of pedestrian crossings resulted in many people having to run across this wide road at various points thus increasing the likelihood of road accidents. In addition, a wider street allows more vehicles to pass resulting in greater traffic movement, which is negatively affecting some elderly and women respondents. The wide Activity Street of Sparks Road therefore appears to be facilitating vehicular movement and may therefore encourage drivers to drive at high speeds, to the dismay of many elderly within Sparks Road. Sparks Activity Street is not ensuring traffic is slow moving as outlined within the theory on Corridors. The street is therefore not enabling to the elderly and disabled pedestrians particularly,

therefore this Activity Street is not facilitating pedestrian movement for all. Clearly this is an issue of "traffic calming".

The dominance of vehicles over pedestrians is further indicated in a lack of road signs and safety measures for both case study areas which assist pedestrians (including the vulnerable) to use the road safely. However, bus and taxi pick-up signs and no parking signs are the only visible signs within Sparks Road. There is a lack of stop signs, yield signs, pedestrian crossing signs and speed limits. Traffic is guided by traffic lights alone and there are no other controls which cater for pedestrian movement. Drivers are not made aware of the one pedestrian crossing along Sparks Road until they get to that point by which time it may be too late to slow down as it becomes visible. Here again the Activity Street of Sparks Road has not set in place measures to promote pedestrian from easy, safe and comfortable movement, thus hampering their access to facilities along Sparks Road.

The Activity Street of Sparks Road encourages walking to a degree. Pavements along Sparks Road are wide enough for one to walk comfortably and are clearly legible. The pedestrian lane can be discerned from the parked vehicles and planted trees. Walking is further enhanced by shade cast onto the pavement by these trees, however, there are also aspects of the pavement that negatively affects one's ability to walk comfortably. For some of the elderly and disabled respondents within Sparks Road parked vehicles on pavements occupy space and makes it problematic to walk around. Children dart out from these parked vehicles onto the road to cross and this can cause accidents. In addition high curbs along Sparks Road also contribute to discouraging pedestrian movement of the elderly and disabled. Pavements within Sparks Road are long with uneven surfaces in some parts due to a lack of maintenance.

Finally, one other inconvenience in accessing facilities for the elderly and disabled along Sparks Road are the familiar parking areas in front of buildings. An individual will need to walk around the parking area, get back onto the pavement before walking around yet another parking area to access a shop or facility in the next block. This again is inconvenient and tiring for both the disabled and elderly respondents. To a greater extent Sparks Road

appears to accommodate vehicular movement rather than pedestrian movement.

The above analysis on the roads and pavements of Sparks Activity Street indicates that they are inappropriately designed to accommodate the needs of the vulnerable. This is a contradiction to the theory of Activity Corridors and activity streets which again stipulates increased levels of mobility and convenience for all.

(B) Bonela

The streets along Bonela are approximately 5 meters wide (carriageway), which from observations undertaken, proves to be a reasonable and safe crossing distance especially for the vulnerable elderly and disabled. The narrow roads also results in houses on opposite sides of the road being brought closer to the road hence providing greater involuntary surveillance to pedestrians which promotes pedestrian movement. Traffic is at its minimum within this deeply embedded part of Bonela therefore the vulnerable have fewer conflicting situations with vehicular movement. With an exception of a lack of road signs, the street design is facilitating pedestrian movement.

One of the greatest shortcomings in the design of this residential unit is a lack of pavements on collector roads. Most vulnerable pedestrians use the quiet streets to walk along since "pavements " are almost non-existent. The so-called "pavements" (a strip of land alongside the roads) are uneven throughout and together with a lack of a clear demarcation between the road and the "pavement" results in many vulnerable people walking on the roads, conflicting with vehicular space. Despite this there were no complaints regarding the curbs within Bonela as these were also non-existent and therefore people could walk with greater ease.

Further, difficulties were noted with the elderly as well as the disabled who found parked vehicles on sidewalks inconvenient to walk around. In addition, a lack of street amenity (that is a lack of bus shelters and benches) made walking difficult. From observations it became clear that a lack of street amenity decreased their ability to comfortably access public transport. The area was lacking in road signs especially stop signs.

The weaknesses of this residential unit may be due to a lack of funding and therefore the area of Bonela may not be fully established. Bonela residential unit or non Activity Street does not boast to provide developmental solutions to planning problems however some design solution can be found herein. The residential unit does have characteristics that are consistent for example, minimal traffic streets and the provision of basic services which it meets fairly with the exception of shopping facilities.

6.1.1.5 Conclusion

It appears that the built environment of Sparks Road has given greater priority to vehicular movement than to pedestrian movement whereas the built environment of Bonela is more pedestrian than vehicular facilitating. The danger of crossing the street anywhere along Sparks Road, the inconvenience to walk to traffic lights to cross and a fear of being run over by high speeds are some of the difficulties experienced by the many vulnerable. These problems have resulted in reducing the vulnerables ability to access facilities conveniently and safely to such an extent that most of the elderly respondents prefer not to walk to these facilities but rather to get relatives to conduct their errands for them. Perhaps this is one of the reasons why so many elderly on Sparks Activity Street depend on private vehicles than within Bonela bearing in mind that the Activity Street is meant to encourage walking and not just vehicular movement. Evidently the Activity Street is not safe and comfortable for this category of elderly vulnerable.

There are various shortcomings within both built environments which can be improved upon to increase pedestrian movement. The lack of car ownership is also common to many vulnerable people within both case study areas, therefore the public transport system, namely the bus and taxi services operates in conjunction with walking as a means to facilitate increased movement of the vulnerable. An evaluation of the bus and taxi service is therefore necessary within both case study areas and will further indicate the ease of movement for the vulnerable elderly, women, disabled and children.

6.1.2 Public transport service (Bus and taxi)

The operation of buses and taxis within each case study area are both facilitating and restricting with regard to ensuring that the vulnerable are

mobile and able to access facilities at their convenience. Although the operation of public transport does not directly impact on the built form of an Activity Street, it does constitute a significant element that was intended for Activity Streets. The nature of Activity Streets (as part of the Activity Corridor) proposes the following, increased convenience, and increased mobility with a multi modal transport system that offers many interchange points with a local and metropolitan connection. The vulnerable should experience greater ease of mobility if all these are provided for within the Activity Street of Sparks Road, however Sparks Road as well as Bonela offers a public transport service that is both advantageous and disadvantageous to the movement of the vulnerable. The evaluation below will outline the factors that promote uses of buses and taxis for both areas as well as highlight the inefficiencies of Sparks Road as an Activity Street.

6.1.2.3 Advantages and disadvantages of the public transport service within Bonela and Sparks Road

The case study area of Bonela provides a bus and taxi service that can be described as having a good performance by all vulnerable respondents, elderly, women and children, however, more vulnerable respondents within Sparks Road described the performance of public transport as "fair". This result was attained by analysing the following aspects of public transport:

- Modes of public transport
- Safety in accessing public transport
- Distance between home and pick-up points
- Waiting time for bus/taxi
- Distance between pick-up points

The implication is that access to public transport is better within Bonela than within Sparks Road.

(A) SPARKS ROAD

The public transport within Sparks Road was described to be frequent, close to the CBD and regular, however, the buses and taxi's rotated over a longer period of time than in Bonela thus keeping the vulnerable waiting for longer periods (10-30 minutes before boarding a bus or taxi). Public transport was

also confined to the main road of Brickfield Road, which is a short distance thus servicing fewer people directly than that of Bonela. This implies that more people would have to walk longer distances within the entire Overport area itself to access public transport on Brickfield Road. The vulnerable respondents were further inconvenienced by having to walk to Brickfield Road whilst traffic and high speeds were intimidating to especially the elderly.

Sparks Road, as an Activity Street, is meant to provide multi-modal transport, yet buses and taxis do not service this street. The vulnerable within Sparks Road desired that buses and taxis travel through the Activity Street so as to bring public transport closer to them. The elderly and disabled respondents particularly, experienced tiredness when having to walk to transport pick-up points along Brickfield Road which are described by them as too long. The need for public transport to travel through Sparks Road is more visible with young people since the presence of violence in the area appears to be inhibiting their mobility. This decreases one's convenience of accessing public transport, which is even further reduced by a limiting number of transport modes available. Activity Streets such Sparks Road concentrates people within the smallest area to increase thresholds. Such an area of high density would result in a larger proportion of dissatisfied vulnerable people whose mobility needs are not being met.

Neither the Activity Street of Sparks Road nor the Activity Corridor of Brickfield Road offers interchange points as is described in the literature. Buses and taxis travel to limited number of destinations thus limiting the choices of where the vulnerable can travel to directly without having to board several buses to reach one's destination. There was evidence of female respondents who worked in the area and who accessed their places of work by walking. This had less time and no cost implications hence increasing convenience. However for those needing to leave the area for various reasons, may require that they board several buses before reaching their destinations. Children respondents due to their nature want to move to different places and do not always remain in one area hence, their needs relate to other areas. For the vulnerable especially the cost and time implication is crucial since most do not earn an income. According to the literature an Activity Street is meant to

connect local and metropolitan areas providing, a number of interchange points however Sparks Activity Street does not achieve this.

(B) BONELA

Bonela's public transport is frequent, regular, flexible and rotates well. It is also close to the CBD and therefore respondents were satisfied with it's performance. Eventhough this case study is deeply embedded within the residential area of Bonela and not directly connected to main roads this residential area under investigation seems to surprisingly, positively contribute to the ease of mobility of the vulnerable. This has liberated them to a greater degree since all of the respondents were more independent and traveled more freely than those within Sparks Road. The two bus and taxi routes covered a greater area, thus bringing public transport as close as possible to the people. In addition, increased densities along narrow quite streets, short cul-de sacs and pan-handels, resulted in more people accessing buses and taxis within a short walking distance (between 2-10 minutes). Furthermore, buses and taxi's would pick-up passengers anywhere along the bus route and not necessarily at a formalised pick-up point. This shortened the walking distance for the vulnerable.

The disadvantages with the transport system however appears to be similar to those of Sparks Road. A failure of buses and taxis to come into the deeply embedded area of Bonela makes accessing buses and taxis slightly difficult for the elderly and disabled especially. A lack of destination points is quite restricting to especially the working women respondents within the case study area of Bonela who work outside of the area and which requires them to access two to three buses/taxis a day to transport them to their places of work.

An additional weakness of the public transport service within Bonela was the lack of buses and taxis after working hours for those women who worked shifts and required public transport at irregular hours as well as on Sundays when the vulnerable needed to access facilities. Due to a lack of access to private cars, many vulnerable respondents within Bonela were immobile on Sundays. These shortcomings of the public transport system is not critical or unusual for residential units such as Bonela, however, buses and taxis can

strive to accommodate the vulnerable more in the future with their mobility needs.

6.1.3 Access to facilities

The ability for each area to meet the shopping and other needs of the vulnerable will be discussed below.

(A) Sparks Road

The Sparks Activity Street however meets the local needs of most vulnerable respondents in regards to facilities since most of these are within walking distance from where they live. This mixed-use Activity Street allows one to access almost anything from a shop to a restaurant to a pharmacy and a bank. Most of these uses are outlined in Chapter 6. The area has compacted these uses vertically within a building and horizontally in a close grain along a short strip of road thus most of the vulnerable can avoid making frequent trips to other areas outside of the case study area in order to access the desired facilities. The Activity Street of Sparks Road therefore performs according to the theory on provision of increased services and opportunities that are human scaled and of a fine grain. This is further achieved by the increase in thresholds within the area as compared to surrounding areas.

Interestingly though, this high density of residential use with many flats overlooking the street on both sides of Sparks Road has not instilled this same confidence in the vulnerable who use the street less than those vulnerable in Bonela. A large number of respondents felt that they would be seen on Sparks Road if they were attacked but that they will most likely not be helped. It could be that occupants are located high up in flats and this makes it more difficult for them to reach the vulnerable on the streets. It also questions whether small scale land uses and activities which are oriented towards the street actually provides safer and more liveable streets than other spatial frameworks. From this observation and personal interviews with respondents it appears that streetscape size streets such as this Activity Street does not necessarily ensure safe environments as founded in the theory of Activity Streets.

Finally one of the greatest obstacles restraining the vulnerable from easily accessing facilities within Sparks Road can be linked to the criminal activity in the area as was observed and derived from personal interviews. The drug trafficking especially has alarmed respondents and has resulted in a set of behavior that impacts on their mobility. Children fear walking alone and are reminded by parents to walk in groups. Women too, often walk in groups whilst the elderly prefer not to walk on the street at all due to the presence of such crime. The presence of crime within Sparks Road does not appear to have any direct relationship to the fact that this is an Activity Street.

The ability to access facilities is also determined by the extent to which an area offers greater surveillance. This was not explored but did appear to affect the movement of vulnerable form personal interviews. This shortcoming can be curbed through direct policing (a form of voluntary surveillance) and through increased street lighting and surveillance provided by residential and commercial activities located closely to the street (a form of involuntary surveillance) as was suggested by respondents.

(B) Bonela

The most obvious outcome from the findings was the deep lack of shopping, recreational and worship facilities within Bonela. The area is zoned to accommodate a shopping center and many other facilities however these have not been developed instead large portions of vacant land exists. Despite this shortcoming the vulnerable respondents within Bonela appear to be satisfied with their access to facilities within the area and outside largely as a result of the good public transport service available to them which they can depend upon.

For a low income area such as Bonela it is not surprising that a limited threshold exists and which can support only a few facilities. The area still has potential to be improved upon to ensure all the required facilities are made available since these affect the vulnerable especially who are already disadvantaged (Refer to the Conceptual Framework, chapter 3).

The vulnerable in Bonela on the other hand are not as threatened by the darkness and use the streets more than those within Sparks Road. This confidence may be due to the fact that the houses are very close to the road

and thus provide increased surveillance. The occupants can see road users and can reach them easily if they were in trouble. The significant outcome of this is that proximity of residents to the users on the street itself may have appeared to provide greater surveillance than high densities of residential use, however this was not investigated nor substantiated in the survey.

6.1.4 Conclusion

Within both case study areas the concerns are mainly over the detail of the built form rather than about the mere presence of all the requisite attributes. It is about the detailed implementation of roads, pavements crossing points etc. The public transport system also needs to be modified in order to meet the specific needs of the elderly, disabled, women and children. The vulnerable respondents within Bonela appear to achieve almost slightly higher levels of mobility than those vulnerable respondents within Sparks Activity Street. This is contrary to the theory on Activity Streets which is meant to provide increased levels of mobility. In addition vehicular rather than pedestrian movement is promoted within Sparks Activity Street. The accommodation for the 'man on foot' is not entirely being met.

Despite being close to many facilities (commercial, social, cultural, recreational, etc) the nature of Sparks Road itself is lacking in ensuring easy and safe access to these facilities. It must also be acknowledged that the crime within the Activity Street of Sparks Road is also a contributing factor to a decrease in mobility of the vulnerable, (despite providing a form of informal surveillance). This means that the surveillance provided by the high densities within the Activity Street, is not ensuring increased mobility as stated within the theory on Activity Corridors.

The Bonela area has nevertheless achieved a higher level of pedestrianisation with almost equal levels of mobility to the vulnerable respondents on Sparks Road and has also experienced increased dependence on public transport. Both of these are desired goals of activity streets.

It must also be acknowledged that Sparks Activity Street is performing according to the theory in some aspects. For example the provision of facilities and opportunities in a fine grain together with the high thresholds is all the

more reason why this Corridor should be further developed to achieve an enlarged interceptory catchment. It would then meet the needs of a larger number of people within a shorter walking distance. In addition, the local connecting roads surrounding Brickfield/Sparks Roads (the Activity Corridor) offers tremendous opportunities for access to a variety of facilities. The street layout discussed above indicated several local level roads that link onto Sparks Activity Street thus increasing one's accessibility to the facilities offered along Sparks Activity Street. Therefore Sparks Activity Street does meet some of its principles outlined in the theory proposed for Corridor development.

Nevertheless, the Activity Street is performing differently from the ideal qualities of an activity street to a degree. The design or built form of Sparks Activity Street should be more sensitive to the needs of all people. The theory proposes ideal qualities of an Activity Street however these, in the case of Sparks Road, are all not practically achieved.

Before concluding a list of the critical shortcomings that affect the livability and mobility of the elderly, women, disabled and children along Sparks Activity Street are summarised below:

- **The person on foot is not being well catered for-** There is the danger of crossing the street, inconvenience to walk to traffic lights to cross and respondents fear being run over by high speeds, particularly the elderly. This makes it inconvenient for pedestrians who therefore fear to use the street as much as is expected of Activity Streets. Perhaps this is the reason so many respondents depend on private vehicles
- **Sparks Road is lacking in terms of measures to control traffic-** there are no stop signs, speed limits, speed bumps or pedestrian crossings to caution driver behavior.
- **Sparks Activity Street is not multi-modal-** There are no buses or taxis operating along Sparks Road, which is inconsistent with Activity Streets.
- **Vehicles seem to take precedence-** They can be seen to be parked on pavements obstructing pedestrian movement, too few pedestrian crossings to give pedestrians a safe passage to cross the street, instead people weave in between cars, insufficient or no public transport, just cars and poor lighting at night.

- **Public transport is insufficiently being supported and promoted-** A lack of buses and taxis along Sparks Road instead can only be accessed along Brickfield and Randels Road.
- **A lack of interchanges points**- resulting in time and cost implications.
- **Has poor connectivity to larger metropolitan areas-** offering public transport routes to only limited areas, Brickfield activity corridor.
- **The area is unsafe to walk-** Another fear for some respondents appears to be the presence of drug-lords who are often linked to the crimes in the area. In addition to high vehicular speeds, poor street lighting and entrapment spots all contribute to unsafe walking, hence discourageing walking.
- **Not all activities contribute to the enhancement of the environment-** Drug-related activities are having both a positive and negative effect on living within the Sparks Road for these vulnerable groups of people.

It therefore becomes apparent that Sparks Road although defined as an Activity Street is unable to adequately provide greater social equity for these vulnerable groups when compared to Bonela with the exception of access to facilities. In effect this means that Sparks Road is not entirely facilitating mobility for all as a principle of Activity Streets, whether for this group of people alone or for other people as well. The concept or definition of Sparks Road as an Activity Street may therefore be in question due to the fact that it has not evolved fully as an Activity Street. Improvements can be made to accommodate all people whether it is the average man or an elderly person. The above mentioned shortcomings can contribute to improving the design and implementation of Activity Streets since the area does have much to still offer. The following discussion is based on suggestions as to how to improve mobility on Sparks Activity Street in particular and hence ensure equity for the vulnerable.

The Bonela case study area also needs to address the issue of improving upon the detail of implementation especially in regard to the development of pavements and provision of increased levels of facilities. It may work to locate these facilities along the main road such as Wiggins and thereafter ensure that public transport services a few routes within the residential area as is presently the case within Bonela.

CHAPTER 7: RECOMMENDATIONS

7.1 INTRODUCTION

It is relevant that planners recognise the need to put in place the appropriate structures to ensure that mobility for the vulnerable is improved and that equity can also increase since the vulnerable may be greatly affected by a lack of careful planning of the environment. The aim is to achieve higher levels of accessibility and opportunity and therefore higher levels of equity. According to the OECD conference (1995) urban environments have always been designed with women and children in mind, but the minds have been those of male planners and architects. Even though structures such as pedestrian crossings, road signs, shallow curbs, increased street lighting etc. may be minor design features, they are very vital to the performance of Activity Streets and residential neighbourhood areas. Modifications need to be made so that pedestrian and vehicular movement is both accommodated and supported where necessary. The recommendations suggested below will be discussed with specific reference to the elderly and disable, women and children and then some general guidelines will be offered.

The following are a few basic recommendations offered which applies to all people, however they are specifically required by the elderly and disabled in order to ensure ease of mobility:

7.2 ELDERLY AND DISABLED

"Traffic calming" is an attempt to achieve calm, safe and environmentally improved conditions on the streets" (Russell, 1990:111). From observations, descriptions and analysis of the traffic streets in Bonela with a light traffic flow and the heavy traffic streets of Sparks Road, it is evident that traffic calming measures can be useful. It can be introduced to control and regulate speed and achieve the goals outlined in Chapter 3 (safety, security and pedestrian accommodation) as well as to enhance the environment. Both areas place an emphasis on the vehicular rather than on pedestrian movement. Pedestrian

3. Integrate and accommodate parked vehicles

Parked vehicles need to be accommodated in formal parking areas especially where there is a conflict over pedestrian and vehicular space. It may be best to allow a lane for parked vehicles along Sparks Road. This would encourage a buffer between pedestrians and moving traffic and will especially provide added protection to the elderly from traffic. However it is understood that the larger the facility the more parking and traffic problems are expected.

4. Speed bumps

These can be put in place to control driver behaviour and encourage traffic calming. They should be reinforced by the road design that discourages speeds over the limit. The Activity Street of Sparks Road will benefit from speed bumps although this may not be possible if this major road is carrying buses etc. An ideal location along Sparks Road would be before the pedestrian crossings to slow vehicles so that the elderly and disabled are not alarmed at fast moving vehicles that come to a sudden halt at the pedestrian crossing. Speed bumps must be made very noticeable so that traffic entering the street are immediately aware of them.

5. Bus shelters and canopies

Bus shelters keep the vulnerable, especially the sick elderly, sheltered from rain, wind and heat. In addition, a general covering such as canopies along a busy street such as Sparks Road can increase the movement of the elderly and disable in particular. This will also prevent many pedestrians from crossing the street anywhere on a rainy day.

6. Benches

Benches should become familiar street furniture of many roads in order to facilitate movement of the elderly and disabled. They allow the aged and sick to rest whilst accessing facilities. The case study area of Sparks Road should introduce benches on both sides of the street at intervals of approximately 10-15 meters apart. Benches and bus shelters would also promote social interaction of all people who use them, as the street should be a physical and social part of living.

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7. Shallow curbs

Curbs should be kept shallow especially at road crossings and parking areas. Alternatively crossings can be ramped.

8. Police patrol

There should also be police patrols especially where there is a lot of pedestrian activity. This will maintain law and order, increase surveillance of an area and indirectly instill confidence in the elderly to use the streets more. This will also apply to the general population.

7.3 WOMEN

1. Remove entrapment spots

Buildings must be designed to avoid entrapment spots such as the one indicated below photographed (refer to Plate no 6) on Sparks Road where they are very common at the entrances of flats. Alternatively entrapment spots can be redesigned into semi-private gardens or equipped with sufficient lighting to make the area visible to passing vehicles or pedestrians. Entrapment spots were known to instill fear in some female respondents as they are see it as an ideal dark spot where criminal activity can occur.

2. Pathways

An area that has too many curvilinear streets should ensure that special pathways are created linking two points such as a bus pick-up point to a tuck shop using the shortest distance between the two areas. The pathways must be developed as close to the houses as possible and they must not be fenced off from the surrounding areas. Women returning home from work in Bonela for example can use these pathways to reach their home quicker. This may not always be feasible to achieve.

3. Operation of public transport during irregular hours

Working women especially those who work shifts can greatly benefit from a bus/taxi service that operates during irregular hours.

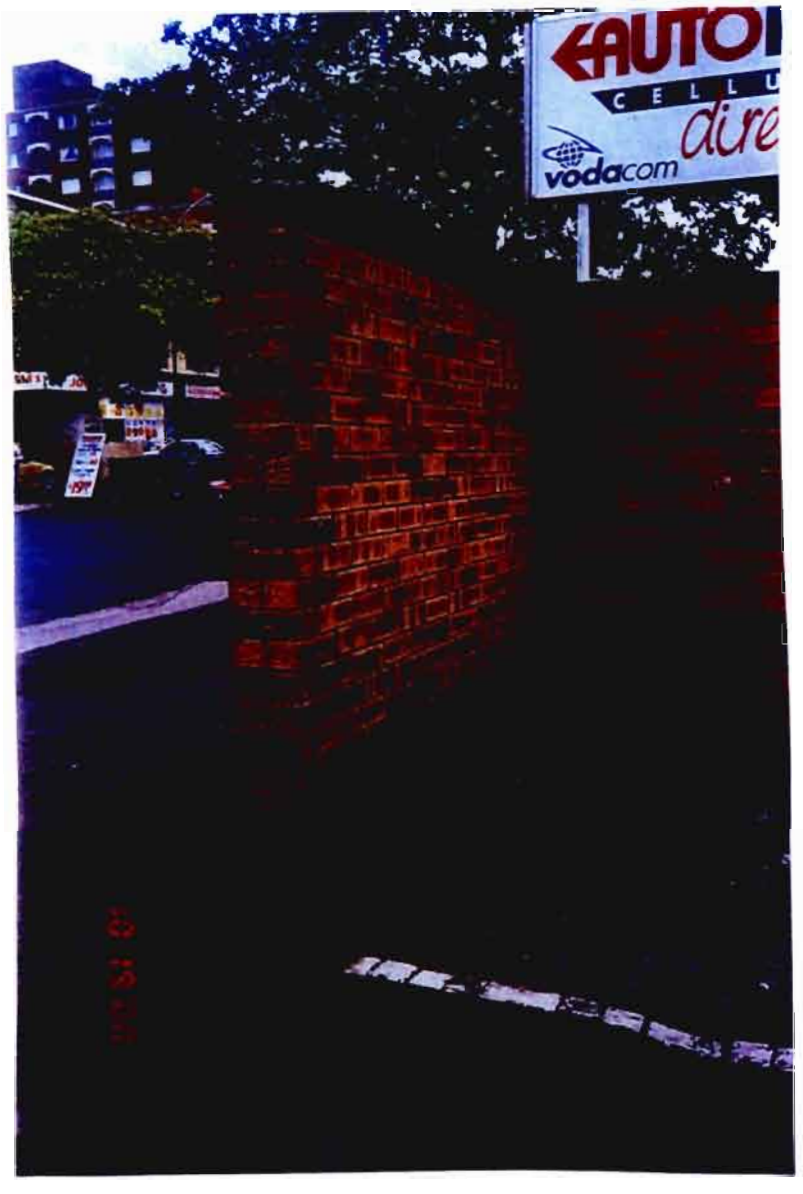

PLATE NO 9: An entrapment spot along Sparks Road

7.4 CHILDREN

1. Scholar/traffic patrols

A very simple modification would be to station a scholar patrol for longer periods of time and not only during peak hours to assist all users especially the elderly, women, disabled and children. No scholar patrols are visible along Sparks Road in front of the Primary school. However the payment for this service may need to be worked out by the relevant role players for this community.

2. Road signs

Road signs should be bold, visible, legible and easy to read especially for children and elderly people. These signs should be positioned in places that are noticeable to drivers and pedestrians. They should strive to control vehicular movement and sensitize the general public on pedestrian movement. Road signs need to be added to Sparks Road alerting drivers of speed limits, speed bumps, pedestrian crossings etc. These should be positioned in places that are noticeable to drivers and pedestrians. For example along Sparks Road there are no signs indicating a pedestrian crossing, thus drivers are not aware of them until they reach the crossing itself.

4. Safety barriers

Fences, walls or hedges along sidewalks can help prevent children from running into the road and would therefore create an effective barrier promoting safety.

7.5 ALL VULNERABLE GROUPS

1. Public transport through the area

On a busy street such as Sparks Road the need to introduce bus/taxi services is essential due to the large numbers of people that live on this road. Such a busy street can provide the thresholds to allow public transport to operate.

2. Interchange points

These are very necessary at nodal points where an area generates a lot of pedestrian traffic. An area such as Brickfield Road should strive to increase the number of interchange points and thus make local and metropolitan connections

3. Improve street lighting

Along Sparks Road street lighting can drastically change the way the street functions. If shops and restaurants are allowed to stay open until late in the night, these businesses will cast their own light onto the streets. Shops will invite more traffic from surrounding areas and the lights reflected from the cars will thus increase the lighting in the area. Together with additional street- lights the area can become a place that not only the vulnerable but also the general

population will want to use at night. By improving streetlights to an area especially a residential area such as Bonela, the use of the streets at night should improve. Lighting also increases one's sense of security.

4. Police patrol

Even though criminal activity does not have a direct relationship to activity streets all built forms must anticipate such criminal activity in any form and strive to control the situation so as to instill confidence in the users of the street and the residents.

5. Maintenance

Ensure a high level of street and sidewalk repair and cleaning.

6. Participative planning

The vulnerable need to be included in urban planning decision making processes. They need to be consulted with and participate in the planning process so that the gendered, aged and disable needs are addressed. The following are some guidelines which could be adopted to ensure this.

- Information and further research on the needs of the vulnerable should be collected and disseminated to show that their needs are different to ordinary man.
- Recognise diversity and the fact that the vulnerable are different not only from the 'ordinary man' but also from each other as well.
- From the viewpoint of action consult the vulnerable in order to make them more visible.
- Workshops could be held for community groups to explain how planning works and using accessible tools, this can enhance the active participation of the vulnerable in the process.
- It is important to keep the communication channels open to allow the vulnerable to put their views across over time. This can be achieved by conducting special projects for the vulnerable which is an important way of increasing the awareness of planners on 'vulnerable' issues.

7.6 CONCLUSION

In conclusion the recommendations offered above merely implies that it is important to disaggregate the concept of human needs because the vulnerable and the 'ordinary man' use and experience the city in different ways. It is therefore essential that this be recognised and responded to by planners and urban designers not only for reasons of equity, but in the interest of effective urban development. In addition it must be noted that the above urban design issues are those which contribute to an areas robustness, richness and personalisation, hence they should also be included in all streets whether these are Activity or Non-Activity Streets.

CHAPTER 8: CONCLUSION

"It is impossible to predetermine the future, but it is also possible to recognise the lasting quality of what is done today. This is the art of city-making."

(Kevin Lynch, 1990: 342)

The aim of this dissertation was to determine whether equity, as an objective of an activity street, was operational for vulnerable groups of elderly, women, children and even disabled people within an activity street and non-activity street. The outcome as has already been discussed above has resulted after a very arduous as well as exciting journey of discovering the simplest of needs of these precious people of society (elderly, women, children and the disabled). The need to incorporate and integrate their well-being into planning policies, into safety and design of our built environments and into the mechanisms that make a city pulsate with activity is the corner stone to successful city planning.

According to Lynch (1990) it is only when a city has achieved this celebration of life can urban efficiency be made possible, hence this dissertation was a way of celebrating life as a central issue that informed thinking about the urban structure and design. The activity street and the residential unit provided an ideal opportunity to test the extent to which each celebrated life by evaluating the mobility needs of the vulnerable within their design.

From the evaluations of both the activity and non activity streets, it begs the question as to whether they should be accepted and promoted or should either one be dismissed as the least equitable street design for the vulnerable elderly, women, disabled and children. Both these spatial forms offer many positive qualities that meet the needs of the vulnerable people example a sense of community and safety is prevalent within Bonela whereas Sparks activity street offers the vulnerable increased opportunities within a short walking distance.

Whilst Bonela may not adequately meet ones daily shopping needs, it does provide people with good public transport system. Sparks Road offers the vulnerable choices for shopping, worship, school, doctor etc. and reduces the need to travel outside the area. Both spatial forms should therefore be accepted, however both these spatial forms have the potential to evolve into areas that can perform to it's optimum.

Changes can be made to the built form, for example an improvement to traffic control devices and public transport systems (as discussed in the Recommendations chapter). In addition the nature of the activity and non activity street requires continual revision of the theory through future research and implementation of practical changes in order to enhance the positive qualities that each area offers. In achieving this, one must recognise diversity, that the elderly, women, disabled and children are different from the "ordinary man" because their needs differ. Each spatial form must extend itself to accommodate and be sensitive to these needs.

The aim of the recommendations outlined in the previous chapter was to assist activity streets in particular, on how to achieve an acceptable level of convenience in terms of mobility of the vulnerable and to provide some solutions to assist those engaged in the "corridor betterment process". It is hoped that the suggestions offered above will provide the elderly, women, children and disabled to achieve relative ease and equitable access to urban opportunities.

In returning to the sub-questions the following questions require revisiting and researching in the future:

- How does the design of the activity street promote mobility for the vulnerable groups, and
- What is the nature , debates and concerns of mobility for vulnerable groups

These two questions need further research, which will assist in the redesign of corridors to meet the needs of all on a practical rather than on a theoretical level.

The research question of whether activity corridors contribute towards increased equity for all in terms of physical access to opportunities is definitely true for Sparks Road due largely to the immense opportunities available to the vulnerable, within a short walking distance. In addition to many other changes to be made, Bonela would need to provide greater shopping facilities that are appropriate to a catchment of that nature. More enlightened planning is therefore necessary to enhance life for all without restricting or impairing opportunities and activities. There is an urgent imperative to improve urban design and services to make cities correspond better to human needs.

It is possible therefore that perhaps Sparks Road does not exemplify a true activity street ('high street') and that it may be that activity corridors and streets go through a process of evolving before attaining the true form described in earlier chapters by theorists. For activity corridor principles such as mobility and improved levels of equity to be practically effective may require further practical study of corridor development. It may also be that the variety of development related solutions offered by activity corridors might be largely at the level of research and theorising. It is believed that further investigations of a qualitative nature can help create more humane functional environments which would ensure more dynamic, more life enhancing, more choice generating and sustainable forms of development. This would be an extension of a justice system, which has as its aim to protect the interest of all South Africans equally.

Although this dissertation has made recommendations to improve the mobility of activity streets viz. Sparks Road, these recommendations have not been tested therefore there maybe some inaccuracies and shortcomings with them. In addition, to gain a more accurate finding it may have been more appropriate to survey a sample of people living along the activity corridor itself (Brickfield Road) to evaluate more closely against the theoretical literature assembled within the Conceptual Framework (Refer to chapter 4). Similarly the part of Bonela that was investigated may have been slightly biased due to its nature of being deeply embedded and away from the main roads. Therefore this

dissertation has merely only scratched the surface in testing the concept of corridors and has achieved answering seven of the nine sub-questions.

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APPENDIX 1: PILOT QUESTIONNAIRE

UNIVERSITY OF NATAL- DURBAN
Department of Town and Regional Planning

Questionnaire: An assessment of Mobility in terms of access to transportand access to facilities

1. PERSONAL DETAILS

1.1 Place of residence.....

1.2 Sex

MALE	FEMALE

1.2 Category

Child	Elderly	Women	Disabled
(10-15)	(60and over)	(all ages)	Mobile and Physically disabled

1.3 Occupation

Unemployed	
Professional, Managerial, Technical	
Clerical	
Housewife	
Laborer	
Craftsman	
Self-employed	
Retired	
Student	
Other (please specify)	

2 GENERAL

2.1 What do you like about your area?

.....
.....
.....

2.2 What do you dislike about your area?

.....
.....
.....

2.3 If you had a choice, Where would you choose to live, and explain why?

.....
.....
.....

3 NATURE OF MOBILITY

3.1 What modes of transport are available to you?

.....
.....

3.2 What modes of transport do you use?

Car	rail	taxi	bus	walk	bicycle

3.3 Why do you use your preferred mode/s transport?

.....
.....
.....

3.4 Describe your access to public transport.

Good	
Fair	
Limited	
N/A	

4. DISTANCE TRAVELED

4.1 Do you go out?

More than once a day	
Once a day	
Few times a week	
Once in three months	

4.2 What are your needs for travel and where do you go to meet these needs?

Needs	Tick	Place
School		
Clinic/doctor		
Shopping		
Worship		
Recreational		
Other (please specify)		

4.3 What are the different destinations that can be reached directly using public transport from your area? (List them)

.....
.....
.....

5 SURVEILLANCE

5.1 If you were in danger on your street, would you be able to be seen and/or be heard by someone?

Yes	No

Explain, why?

.....
.....

5.2 Do you feel safe to travel day and night?

Yes	No

5.3 Do you normally travel alone or accompanied by someone?

Alone	Unaccompanied

5.4 What would you change in your street to make it safer to travel?

.....

.....

.....

.....

APPENDIX 2: PILOT INTERVIEW

INTERVIEWS

Date..... Time.....

Person interviewed.....

Schedule of issues:

- What are your general perceptions of the area?

.....
.....
.....
.....

- Barriers of mobility for the vulnerable groups.

.....
.....
.....
.....
.....

- Factors that contribute to increased mobility for vulnerable groups.

.....
.....
.....
.....
.....
.....

APPENDIX 3: QUESTIONNAIRE

UNIVERSITY OF NATAL- DURBAN
Department of Town and Regional Planning

Questionnaire: An assessment of Mobility in terms of access to transportand access to facilities

2. PERSONAL DETAILS

2.1 Place of residence.....

1.2 Sex

MALE	FEMALE

2.2 Category

Child	Elderly	Women	Disabled
(10-15)	(60and over)	(all ages)	Mobile and Physically disabled

2.3 Occupation

Unemployed	
Professional, Managerial, Technical	
Clerical	
Housewife	
Laborer	
Craftsman	
Self-employed	
Retired	
Student	
Other (please specify)	

2 GENERAL

2.1 What does your area lack in terms of:

- Transport

.....
.....
.....

- Transport

.....
.....
.....

2.2 What is good in your area in terms of:

- Transport

.....
.....
.....

- Facilities

.....
.....
.....

3 NATURE OF MOBILITY

3.1 What modes of transport are available to you?

Car	rail	taxi	Bus	walk	bicycle

3.2 Describe your access to public transport

	Tick	Good	Fair	Limited
More than two modes to choose from				
Two modes to choose from				
Only one mode of transport				
Access to public transport is safe				
Access to public transport is unsafe				
Can access transport within 5 min walk				
Can access to transport between 5-10min walk				
Can access transport more than 10min walk				
Available between 10-15min				
Available between 15-30min				
Available after 30min				
Pick-up points are 5 min apart				
Pick- up points are between 5-10 min apart				
Pick-up points are more than 10min				

3.2 3.4 Describe your access to public transport.

Good	
Fair	
Limited	
N/A	

4. DISTANCE TRAVELED

4.1 What are your needs for travel and where do you go to meet these needs?

Needs	Tick	Place
School		
Clinic/doctor		
Shopping		
Worship		
Recreational		
Other (please specify)		
Grocery		

4.3 What are the different destinations that can be reached directly using public transport from your area without getting onto another mode? (List them)

.....
.....
.....

5 SURVEILLANCE

5.1 If you were in danger on your street, would you be able to be seen and/or be heard by someone?

Seen	
Heard	
Both of the above	
None of the above	

Explain, why?

.....
.....

5.2 Do you feel safe to travel day and night?

At night	
During the day	
Both of the above	

5.3 Do you normally travel alone or accompanied by someone?

Alone	Unaccompanied

5.4 What would you change in your street to make it safer to travel?

.....

.....

.....

.....

APPENDIX 4: INTERVIEW

INTERVIEWS

Date..... Time.....

Person interviewed.....

Schedule of issues:

- What are your general perceptions of the area?

.....
.....
.....
.....

- Barriers of mobility for vulnerable groups.

.....
.....
.....
.....
.....

- Factors that contribute to increased movement.

.....
.....
.....
.....
.....
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- Suggestions for improvement to increase movement.

.....
.....
.....

- Have you made any observations regarding problems that women, children, elderly and the disabled experience with regards to their travel:

Travel:.....
.....
.....
Access to facilities:.....