

THE POTENTIAL FOR THE APPLICATION
OF "PEDESTRIANISATION" AND "TRAFFIC
CALMING" TO SUBURBANISED COMMERCIAL
STREETS WHERE PEDESTRIANS AND
VEHICLES ARE IN CONFLICT

SONITHA POORAN

DECEMBER 1995

**THE POTENTIAL FOR THE APPLICATION OF "PEDESTRIANISATION"
AND "TRAFFIC CALMING" TO SUBURBANISED COMMERCIAL STREETS
WHERE PEDESTRIANS AND VEHICLES ARE IN CONFLICT**

by

**S.POORAN
(941330814)**

**Submitted in partial fulfilment of the requirements for the degree of Masters in
Town and Regional Planning, in the Department of Town and Regional Planning
at the University of Natal, Durban.**

DECEMBER 1995

SUPERVISOR: PROFESSOR MIKE KAHN

Dedicated to my parents

"We must remember that all people are pedestrians; only some people are car users" (McMillen, 1976).

ACKNOWLEDGEMENTS

This study owes its existence to the support and assistance I received from many friends and colleagues. I am most grateful to the following:

- 1. Professor Mike Kahn, Dean in the Faculty of Architecture (UND), who supervised this project. I am extremely grateful for his time, devotion and for guiding me throughout this project.**
- 2. My brother, Avis for his time and patience in assisting me during the fieldwork.**
- 3. The pedestrians, motorists, tenants and planners who I interviewed for their invaluable information which helped me make this project possible.**
- 4. Melanie Moodley and the rest of the staff at the Pietermaritzburg Municipality, who offered assistance.**
- 5. My parents and family for their love and support and for their encouragement and motivation which helped me throughout this strenuous but enjoyable task.**

ABSTRACT

In response to urban society's disenchantment with the automobile and the conflict that has resulted between pedestrians and vehicles, came the development of pedestrian-oriented streets. This involved a clear shift in priorities to redress the balance in the street in favour of the pedestrians with respect to motor vehicles - in a process called "Pedestrianisation". Much more common, however was to "Traffic Calm" those streets in which motor vehicle access was still necessary.

This study examines the application of "Pedestrianisation" and "Traffic Calming" to larger suburbanised commercial streets as a potential solution in mitigating the conflict between pedestrians and vehicles. In order to do this, the study evaluates the success/failure of the Umhlanga and Pietermaritzburg "Pedestrianisation" and "Traffic Calming" schemes. This evaluation proceeds by examining how each area caters/does not cater for the needs of its "users" (pedestrians and motorists) and tenants. The evaluation also includes obtaining the comments of the planners that were involved in each scheme, in order to determine if the initial objectives of each plan had been achieved or not. Findings and conclusions from the various data collection methods are presented. These are followed by recommendations that are important for the success of any "Pedestrianisation" and "Traffic Calming" scheme that may be implemented - more specifically in larger suburbanised commercial streets.

TABLE OF CONTENTS

	PAGE	
ACKNOWLEDGEMENTS	iii	
ABSTRACT	iv	
LIST OF TABLES	ix	
LIST OF FIGURES	x	
LIST OF MAPS	x	
CHAPTER ONE: INTRODUCTION		
1.1	PROBLEM AND ITS SETTING/CONTEXT	1
1.2	PROBLEM STATEMENT	2
1.3	GOAL	2
1.4	MAIN QUESTION	3
1.5	SUB-QUESTIONS	3
1.6	OBJECTIVES	3
1.7	HYPOTHESIS	4
1.8	CONSTRAINTS	4
1.9	DEFINITION OF TERMS/GLOSSARY	4
1.9.1	"PEDESTRIANISATION"	4
1.9.2	"TRAFFIC CALMING"	5
1.9.3	CONFLICT BETWEEN PEDESTRIANS AND VEHICLES	5
1.9.3.1	SPATIAL CONFLICT	5
1.9.3.2	THE ENVIRONMENTAL AND SOCIOLOGICAL CONFLICT	5
1.10	IMPORTANCE OF STUDY/REASONS FOR CHOOSING THIS TOPIC	6
1.11	CHAPTER OUTLINE	7
CHAPTER TWO: LITERATURE REVIEW		
2.1	INTRODUCTION	8
2.2	HISTORY OF "PEDESTRIANISATION"	8
2.3	HISTORY OF "TRAFFIC CALMING"	9
2.3.1	THE EARLY YEARS	9

2.3.2	THE WOONERVEN	10
2.3.3	30KM/HR SPEED LIMIT ZONE	10
2.4	"PEDESTRIANISATION" AND "TRAFFIC CALMING AS A COMBINED TRANSPORT POLICY	11
2.5	TYPES OF "PEDESTRIANISATION"	12
2.5.1	FULLY PEDESTRIANISED STREETS	12
2.5.2	PARTIAL PEDESTRIANISED STREETS/MALLS	12
2.5.3	STREETS WITH SELECTIVE TRAFFIC BANS	13
2.5.4	OCCASIONAL PEDESTRIAN STREETS	13
2.6	"TRAFFIC CALMING" AND TOWN PLANNING	13
2.7	"TRAFFIC CALMING" IN URBAN MAIN ROADS	17
2.8	"TRAFFIC CALMING" IN TOWN CENTRES	17
2.9	PEDESTRIAN PLANNING GOALS AND OBJECTIVES	17
2.10	PERFORMANCE CRITERIA	19
2.11	PRE-REQUISITES FOR COMMERCIAL DEVELOPMENT	20
2.12	SHOPPING CENTRE CONCEPTS AND DESIGN	22
2.13	CONCLUSION	27

CHAPTER THREE: RESEARCH METHODOLOGY

3.1	INTRODUCTION/OUTLINE OF STUDY	28
3.2	DATA COLLECTION	28
3.2.1	QUESTIONNAIRE	28
3.2.2	INTERVIEW WITH PLANNERS	29
3.2.3	INTERVIEW WITH TENANTS	29
3.2.4	PARTICIPANT OBSERVATION	30
3.2.5	OTHER DATA	30
3.2.5.1	PARKING, PEDESTRIAN AND STREET ACTIVITY	30
3.2.5.2	ECONOMIC BENEFITS	30
3.2.5.3	PERCEIVED SECURITY	30
3.2.5.4	POPULARITY WITH USERS	31
3.2.5.5	VISUAL APPEARANCE AND ECOLOGY	31
3.3.6	CONCLUSION	31

CHAPTER FOUR: ANALYSIS OF CASE STUDY AREA - UMHLANGA

4.1	INTRODUCTION	32
4.2	SETTING	32
4.3	THE PLAN	34
4.4	COLLECTION OF DATA	38
4.4.1	QUESTIONNAIRE	38
4.4.1.1	STRUCTURE OF QUESTIONNAIRE	39
4.4.1.2	SAMPLING TECHNIQUE	39
4.4.1.3	ADMINISTRATION OF QUESTIONNAIRE	39
4.4.2	INTERVIEW WITH PLANNERS	40
4.4.3	INTERVIEW WITH TENANTS	41
4.4.4	PARTICIPANT OBSERVATION	41
4.5	FINDINGS/RESULTS	41
4.5.1	QUESTIONNAIRE TO "USERS"	42
4.5.2	INTERVIEW WITH PLANNERS	52
4.5.2.1	INTERVIEW ONE	52
4.5.2.2	INTERVIEW TWO	53
4.5.3	INTERVIEW WITH TENANTS	54
4.5.4	PARTICIPANT OBSERVATION	54
4.6	CONCLUSION	55
4.6.1	QUESTIONNAIRE TO "USERS"	55
4.6.2	INTERVIEW WITH PLANNERS	56
4.6.3	INTERVIEW WITH TENANTS	56
4.6.4	PARTICIPANT OBSERVATION	56

CHAPTER FIVE: ANALYSIS OF CASE STUDY AREA (PMB)

5.1	INTRODUCTION	58
5.2	SETTING	58
5.3	THE PLAN	60
5.4	COLLECTION OF DATA	64
5.4.1	QUESTIONNAIRE	64
5.4.1.1	SAMPLING TECHNIQUE	64
5.4.1.2	ADMINISTRATION OF QUESTIONNAIRE	64

5.4.2	INTERVIEW WITH PLANNERS	66
5.4.3	INTERVIEW WITH TENANTS	66
5.4.4	PARTICIPANT OBSERVATION	67
5.5	FINDINGS/RESULTS	67
5.5.1	QUESTIONNAIRE TO "USERS"	67
5.5.2	INTERVIEW WITH PLANNERS	79
5.5.2.1	INTERVIEW ONE	79
5.5.2.2	INTERVIEW TWO	79
5.5.3	INTERVIEW WITH TENANTS	80
5.5.4	PARTICIPANT OBSERVATION	80
5.6	CONCLUSION	81
5.6.1	QUESTIONNAIRE TO "USERS"	81
5.6.2	INTERVIEW WITH PLANNERS	82
5.6.3	INTERVIEW WITH TENANTS	83
5.6.4	PARTICIPANT OBSERVATION	83
CHAPTER SIX: INTERPRETATION OF RESULTS		
6.1	INTRODUCTION	84
6.2	SAFETY	84
6.3	SECURITY	85
6.4	COMFORT AND CONVENIENCE	86
6.5	ATTRACTIVENESS	87
6.6	CONCLUSION	89
CHAPTER SEVEN:	RECOMMENDATIONS	90
CHAPTER EIGHT:	CONCLUSION	96
REFERENCES		99
APPENDICES:		
APPENDIX ONE:	PERFORMANCE CRITERIA	103
APPENDIX TWO:	QUESTIONNAIRE TO "USERS"	107
APPENDIX THREE:	QUESTIONS TO PLANNERS	112
APPENDIX FOUR:	QUESTIONS TO TENANTS	114

LIST OF TABLES

TABLE	DESCRIPTION	PAGE
UMHLANGA		
Table 1	Age	42
Table 2	Mode of transport	43
Table 3	Safety	48
Table 4	Security	48
Table 5	Comfort	49
Table 6	Convenience	49
Table 7	Accessibility	50
Table 8	Attractiveness	50
PIETERMARITZBURG		
Table 9	Age	68
Table 10	Mode of transport	71
Table 11	Ease at finding parking	71
Table 12	Safety	74
Table 13	Security	74
Table 14	Comfort	75
Table 15	Convenience	75
Table 16	Accessibility	76
Table 17	Attractiveness	76

LIST OF FIGURES

FIGURE	DESCRIPTION	PAGE
Figures 1 - 11	Design concepts	22-27
UMHLANGA		
Figure 12	Purpose of trip	44
Figure 13	Frequency of trips to town centre	45
Figure 14	Does conflict still exist?	47
Figure 15	Ratings of pedestrian planning objectives	51
PIETERMARITZBURG		
Figure 16	Purpose of trip	69
Figure 17	Frequency of trips to CBD	70
Figure 18	Does conflict still exist?	73
Figure 19	Ratings of pedestrian planning objectives	78

LIST OF MAPS

MAP	DESCRIPTION	PAGE
UMHLANGA		
Map 1	Location of Umhlanga	33
Map 2	Umhlanga Town Centre study area	35
Map 3	Framework concept	36
PIETERMARITZBURG		
Map 4	Location of Pietermaritzburg	59
Map 5	Detailed framework for development	62
Map 6	Circulation	63
Map 7	Case study area	65

CHAPTER ONE: INTRODUCTION

1.1 PROBLEM AND ITS SETTING/CONTEXT

The modern Western industrial society is probably the most inhumane physical environment made by man for man. One physical aspect includes the issue of transport where the problems associated with the automobile have resulted in more harm, than benefit which was initially expected (see articles by Greater London Council, 1974; Plowden, 1972 etc). Although less brutal than its nineteenth century precursor, the city of today is more extensive. With all the improvements that have occurred during the last century in the social environment, that is, the distribution of wealth etc, the physical environment has not proportionally improved, but rather has retrogressed (Burde, 1981).

The modern city should be envisaged as a noble and ennobling place, which does not emerge from the criteria by which the planning process operates. Planning the development has become dominated by economic determinism in which basic human objectives - health, beauty etc, - have been assumed to be unmeasurable and are therefore discounted. "Convenience and growth are the goals; efficiency and money are the criteria of excellence" (Burde, 1981).

The development of pedestrian-oriented streets are part of the response to these conditions. Furthermore, there has been acknowledgement that the continued predominance of the automobile as the primary mode of personal transportation has not provided us with a freedom of movement as initially perceived (Proceedings of the Fourth National Seminar on Planning Design - PFNS, 1976).

Urban society's disenchantment with the automobile, and the congestion it causes, is a major factor being the Pedestrian Revolution. Henry Ford described his first gasoline buggy as "something of a nuisance, for it made a racket and scared horses". Even in his wildest dreams he could not have foreseen the nuisance it has become - to people! (Breines, 1974: 4).

The advent of machine transportation has caused a drastic restructuring of urban form,

interposing scale of the vehicle into urban design. The conflict of man and vehicle has created an unbalanced competition for urban space. The motor vehicle has pervaded all phases of urban structure, causing a dilution of the human environment. According to Fruin (1971: 1), "the automobile kills and maims the pedestrian, it causes noise, dust and fumes and is detrimental in its socio-economic impacts. It threatens the very quality and viability of urban life."

But the car cannot be disinvented. And barring the car is no answer. Many people today have had their lives enriched by the automobile with the car facilitating ease of access to many things, thereby opening up opportunities. Further, public transportation cannot match the automobile for comfort and flexibility. According to Breines (1974), the solution is to exploit the advantages of foot and wheel in areas where each operates better. In certain areas, for example in suburbanised commercial streets where there is a conflict between pedestrians and vehicles, a compromise between the two needs to be achieved. This could include a solution of "Traffic Calming" while at the same time, taking cognizance of the importance of pedestrians. It is to these two issues of "Traffic Calming" and "Pedestrianisation" as a solution, that this study focuses on.

1.2 PROBLEM STATEMENT

In the larger suburbanised commercial streets, the problem of conflict between pedestrians and vehicles have been identified. The solutions of "Pedestrianisation" and "Traffic Calming" have been suggested as a possible way of addressing this conflict.

1.3 GOAL

The goal of this study is to evaluate the success/~~failure~~ of the Umhlanga and Pietermaritzburg "Pedestrianisation" and "Traffic Calming" schemes, and to assess this application of "Pedestrianisation" and "Traffic Calming" to larger suburbanised commercial streets as a means of mitigating the conflict between pedestrians and vehicles.

In order to gain clarity on the intentions of the study, it is necessary to put forward a few

questions that spell out what the study hopes to achieve or seeks to find out. The initial question is broad, the subsidiary questions that follow filter in on the main issues that are contained within this main question.

1.4 MAIN QUESTION

How effective is "Pedestrianisation" and "Traffic Calming" as a potential solution to suburbanised commercial streets in mitigating the conflict between pedestrians and vehicles?

1.5 SUB-QUESTIONS

The following questions aims to unpack the main question:

- * What is the nature and severity of the conflict between pedestrians and vehicles and what needs to be overcome?
- * What solutions can be considered to mitigate these negative impacts?
- * What are some of the precedents that exhibit the characteristics? ?
- * What are the strengths and weaknesses of "Pedestrianisation" and "Traffic Calming"?
- * What effect does "Pedestrianisation" and "Traffic Calming" have on existing landuses?
- * What implications does "Pedestrianisation" and "Traffic Calming" have for planning?

1.6 OBJECTIVES

Following on from the goal and the questions, the objectives of the study are:

Objective 1: To assess the "Pedestrianisation" and "Traffic Calming" schemes in terms of **safety**

Objective 2: To assess the "Pedestrianisation" and "Traffic Calming" schemes in terms of **security**

Objective 3: To assess the "Pedestrianisation" and "Traffic Calming" schemes in terms of **comfort and convenience**

Objective 4: To assess the "Pedestrianisation" and "Traffic Calming" schemes in terms of **attractiveness**

1.7 HYPOTHESIS

The following hypothesis is advanced, that:

"Pedestrianisation" and "Traffic Calming" will have a "generally positive impact" as a potential solution to suburbanised commercial streets in attempting to mitigate the negative impacts of motor vehicles in areas where pedestrians and vehicles are in conflict.

1.8 CONSTRAINTS

"Pedestrianisation" and "Traffic Calming" have been implemented in CBD areas as well as residential areas. For example, internationally it has been applied in Germany, Britain (Hass-Klau et al 1992) and locally it has been applied in Umhlanga Town Centre, Durban Beach Front area, Randburg, etc.). For the purpose of this study, the focus will be directed at these two issues being a potential solution specifically to larger suburbanised commercial streets where pedestrians and vehicles are in conflict.

1.9 DEFINITION OF TERMS/GLOSSARY

1.9.1 "PEDESTRIANISATION"

This is a strategy that involves reducing the dependence on the motor vehicle in commercial streets as the primary mode of transport, to an alternate mode, viz. walking. It also involves the separation of vehicles and pedestrians. It can further include total traffic-free areas and/or traffic free for a couple of streets. This could possibly be classified in terms of levels of pedestrianisation, that is, macro-scale "Pedestrianisation" and partial or quasi

"Pedestrianisation".

1.9.2 "TRAFFIC CALMING"

According to Russell (1990: iii), "Traffic Calming" may be defined as "the attempt to achieve calm, safe and environmentally improved conditions on streets". This strategy may also involve restraint in providing both road space and parking facilities. However what is at the heart of "Traffic Calming" is the concept of speed management. This broad strategy of speed management does not only include reducing the speed of the traffic, but rather it is "calming" of all elements. It deals with carriageway alignment; landscaping measures (to make an area more attractive); channelling/re-routing traffic, as well as the control and regulation of it (Russell, 1990).

1.9.3 CONFLICT BETWEEN PEDESTRIANS AND VEHICLES

1.9.3.1 SPATIAL CONFLICT

According to the Proceedings of the Fourth National Seminar on Planning Design and Implementation of Bicycle and Pedestrian Facilities (PFNS, 1976), spatial conflict is the underlying cause of all pedestrian accidents. This is based on the competition of the pedestrian and vehicle for urban space. Vehicles require large amounts of space for movement and parking, and demand preemptive traffic priority. The space demands of the vehicle affect urban form, altering patterns of community continuity, identity and cohesiveness. Preemptive traffic priority for vehicles has resulted in extensive and expensive traffic signalization in which the pedestrian is given little consideration.

1.9.3.2 THE ENVIRONMENTAL AND SOCIOLOGICAL CONFLICT

This affects on the quality of urban life. Vehicles drastically impact upon the urban environment, producing noise, dust, fumes, visual pollution and affect aesthetic aspects of the cityscape. *Such as:*

Sociological impacts of the vehicle include altering the behavioural characteristics of urban

How

residents, affecting such things as community identity and social interaction (PFNS, 1976).

More specifically these conflicts are related to issues of discomfort, inconvenience of slowing access, inconvenience of diverted or re-routed traffic, danger versus safety of movement, speed of crossing, visual use of seeing the other side of the road, etc.

1.10 IMPORTANCE OF STUDY/REASONS FOR CHOOSING THIS TOPIC

In general, the intention is to identify ways to attempt to mitigate the negative impacts of the motor vehicle in heavy trafficked commercial streets. Only until recently has the importance of the role of the pedestrian been recognised, even though walking has more positive effects compared to the motor vehicle, in terms of mode of transportation. Walking offers predictable travel times, is free, does not consume fossil energy nor does it pollute the atmosphere (Fruin, 1975). Hence the issue of "Pedestrianisation" presents itself as an opportunity in attempting to mitigate the negative impacts of the motor vehicle in heavy trafficked suburbanised commercial streets where vehicles and pedestrians are in conflict.

However, this does not imply that "Pedestrianisation" should be implemented while at the same time disregarding completely the use of the motor vehicle. What is suggested is another solution of "Traffic Calming". This does not imply traffic restraint per se, but rather it is related to the concept of speed management (road alignment, parking, etc.). It is envisaged that this course of action will also help mitigate the conflict between pedestrians and motor vehicles.

Intervention in terms of a combination of both enhancing "Pedestrianisation" and "calming" traffic has been adopted in this dissertation as this provides an opportunity to test out this strategy not only in the central business district (CBD) but also in peripheral areas to the CBD, nodal areas, more especially in larger suburbanised commercial streets where a conflict between pedestrians and motor vehicles exist, i.e. where people have to cross roads etc.

Further, planning is about seeking and identifying opportunities to structure urban form that would be beneficial to all. "Traffic calming" is in fashion. However, so far the connection

between "Traffic Calming" and "Pedestrianisation" has not been so popular in South Africa compared to some other countries. This is because "Traffic Calming" has been regarded as an instrument for residential areas only and on major roads and until recently has had little attention given to heavy trafficked suburbanised commercial streets. Therefore such a venture provides planners with the opportunity of investigating and experimenting something new and different, which is what research is about.

1.11 CHAPTER OUTLINE

CHAPTER TWO

Theoretical material relevant and/or related to either "Pedestrianisation" or "Traffic Calming" are explained to provide a conceptual framework for the study.

CHAPTER THREE

The methodology used in the investigation are explained.

CHAPTER FOUR

This chapter deals with the case study area of Umhlanga, i.e the methods used for data collection, presentation of findings and conclusions stemming from these findings.

CHAPTER FIVE

An analysis of the case study area of Pietermaritzburg is undertaken in this chapter.

CHAPTER SIX

An interpretation of the data obtained from both case study areas is presented in this chapter.

CHAPTER SEVEN

In this chapter recommendations for the application of "Pedestrianisation" and "Traffic Calming" to larger suburbanised commercial streets are dealt here.

CHAPTER EIGHT

Concluding statements emanating from the study are presented.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

This chapter discusses a review of literature that is of relevance to the study. The literature review or conceptual framework serves as a background and foundation upon which the research builds. The "building" of the literature review was conducted using a computer search which deemed pertinent in collecting data necessary/relevant in constructing this literature review. Information was also obtained by searching through the relevant journals. Literature gathered included information on "Pedestrianisation" and "Traffic Calming" that have been implemented internationally as well as locally in South Africa, and information of "Pedestrianisation" and "Traffic Calming" in general. Literature also included other issues that have a related significance to the study at large.

2.2 HISTORY OF "PEDESTRIANISATION"

Historically, the street was the place and space in which people interacted and respected as the public environment. In 1490 Leonardo da Vinci envisioned an idealized city in which the pedestrian walkways would be located above service streets and canals in order to promote efficiency and safety (Bednar, 1989). Although the conflict between traffic and pedestrians was not a great problem in da Vinci's era, it has certainly become one today; thus da Vinci's solution is increasingly employed. However it remains a difficult and costly system to utilize because the system requires specific points of connection between pedestrians and vehicular levels.

Since the time of da Vinci, wherever conflicts between pedestrians and other forms of traffic have arisen, some planners have tried to separate them (Bednar, 1989). In some cases vehicular traffic was only permitted in town centres at certain times of the day. During the nineteenth century the horizontal separation of pedestrian and carriage traffic into roadway and sidewalk was attempted to eliminate the conflict. After the turn of the century, when the conflict became more serious - due to the amount and danger of motorized traffic, the practice of closing ordinary streets to traffic became more widespread. The thirties saw the first

independent footpath networks in new urban areas, which were after all, intended to guarantee free passage to vehicular traffic (Burde, 1981).

In the forties and fifties the idea of traffic-free streets in town centres was conceived, but it was in the sixties, when traffic in town centres began to make itself obvious, that pedestrian areas came into their own (Burde, 1981).

It was the traffic-free shopping streets of the inner city and suburban centres together with malls and shopping centres, that were the pace makers of pedestrian-orientated urban planning. Many of the ideas embodied in planned shopping centre design, set the pattern for central city redevelopment and revitalisation (Burde, 1981).

The **contemporary situation** indicates that pedestrian streets and zones are becoming a fundamental part of the urban design framework and are having the effect of integrating development.

2.3 **HISTORY OF "TRAFFIC CALMING"**

2.3.1 **THE EARLY YEARS**

According to Hass-Klau et al (1992), the roots of "Traffic Calming" vary accordingly and are somewhat different in each country. In Germany it may be best explained by the increase in "Pedestrianisation" in the town centres, the emancipation of residents associations, local councillors who were not satisfied with the traffic conditions in residential areas together with the general increase in public environmental awareness.

In the Netherlands it was developed by urban planners and traffic engineers who realised that the well-being of people was influenced not only by housing but also by the surrounding streets. It was not enough to improve housing without making the roads more congenial places (Hass-Klau et al, 1992). In most cases there was a need and desire to combine planning and transport issues in order to improve overall living conditions.

Transport in urban areas in Britain were influenced by the Buchanan Report in 1963. It

warned of the impact of the growth of traffic in towns and set out the options. The report was largely misunderstood, at least in Britain, and was seen as a charter for massive new road building. It was argued by some (Plowden, 1972; Hillman & Whalley, 1979; 1983) that it was too pessimistic with reference to achievable car restraint. According to Hillman, 1983 (cited in Hass-Klau Even 1989: 8) "the report was a watershed in the evolution policy in transport planning in Britain". Even so, the first examples of what today would be called "Traffic Calming" measures were implemented in environmental areas, which were designated in many British towns by the late 1960's. Thus, according to Hass-Klau et al (1992), Britain was indirectly the forerunner of "Traffic Calming" in Europe and Colin Buchanan is still seen abroad as the father of "Traffic Calming".

2.3.2 THE WOONERVEN

Towards the end of the 1960's, planners and engineers in the town of Delft in the Netherlands showed that with specific design measures the speed of the motor vehicle could be reduced. The basic design concept was to "civilise" traffic in residential areas. Among other features their idea was to avoid typical separation between carriageway and pavement. Instead, an integration into one road surface was provided. In the new space created, trees were planted and street furniture installed. The Dutch planners called this new design the Woonerf, which is best translated as "residential yard", which it usually resembles (Hass-Klau, 1992). Soon the Woonerf were built everywhere and they obtained legal status in 1976.

2.3.3 30KM/HR SPEED LIMIT ZONES

The woonerven were carried out in residential areas with low traffic flows. The areas were small and frequently the cost per sq.m were high. Hence it needed substantial rebuilding of existing road space and more funds as residents were pressing for such treatment.

expand
The 30km/hr speed limit zones, first introduced in the Netherlands in 1983 were seen as a cheaper and more effective option to the woonerven, because larger areas could be treated for the same amount of money with similar effects. Certain European countries quickly followed, however a debate arose about the effects of implementing 30km/hr zones by signs only

compared with reinforcement by means of "Traffic Calming" measures. Opinion is still divided on the issue. However most towns have chosen the cheaper option i.e. the 30km/hr speed limit zones (Hass-Klau et al, 1992).

In South Africa, the current situation on "Traffic Calming" indicates that its popularity is increasing, with recent developments on "Traffic Calming" including work in the Umhlanga Town Centre and the Durban Beach Front area. Future proposals include some streets in the industrial commercial area of Clairwood (interview with Maddox, 29/8/95).

2.4 "PEDESTRIANISATION" AND "TRAFFIC CALMING" AS A COMBINED TRANSPORT POLICY

Although the evolution of "Pedestrianisation" and "Traffic Calming" started off simply and independent of each other, in attempting to reduce the danger and improve conditions for pedestrians and cyclists, and to improve the local environment, their progression has widened up to include a combination of both strategies.

Some writers for example Hass-Klau et al (1992), view "Traffic Calming" combined with "Pedestrianisation" in both residential areas and town centres as part of an overall strategy to reduce the negative impacts of the motor vehicle in these urban areas.

There are plenty of examples of small and middle sized German towns where town-centre streets, which has originally been "traffic calmed", have been converted into pedestrianised streets (see Hass-Klau et al, 1992).

Others writers (for example, Pharoah & Russell, 1991) view the conversion of former traffic streets into pedestrian only zones, not exactly as "Traffic Calming", but rather as it representing the ultimate solution to the pedestrian-vehicle conflict and this must be considered alongside "Traffic Calming" as one of the options available.

2.5 TYPES OF "PEDESTRIANISATION"

The following types of "Pedestrianisation" have been identified according to the Greater London Council (GLC, 1974).

2.5.1 FULLY PEDESTRIANISED STREETS

These streets have been designed to cater primarily for pedestrians with a range of pedestrian facilities/features with no obvious provision made for vehicles. Further, these streets have been totally ^{resurfaced} repaved and all traffic is banned from entering the street at all times or except where delivery vehicles are permitted during the night and early morning. This allows complete freedom of movement for pedestrians. It is in these streets that the greatest opportunities are available for environmental improvements but the utmost care must be used when designing the improvements to ensure that they blend in with scale and character. For example, too much additional street furniture in a narrow winding street will create a cluttered atmosphere and restrict movement. Fully pedestrianised streets also imply the re-routing of traffic via an alternate road system or a by-pass.

2.5.2 PARTIAL PEDESTRIAN STREETS/MALLS

In some cases partial streets usually relates to a street which has been redesigned to accommodate both vehicles and pedestrians. Vehicles that are permitted include mainly public transport, while other vehicles are not. It differs from an ordinary street also, in the sense that full kerbside parking has been removed and the sidewalks extended to incorporate what used to be the parking area. Bays for limited kerbside parking are repaved and landscaped, and usually incorporate a number of pedestrian facilities.

Two variations are usually found on a partial mall:

- * semi-mall - which allows all forms of vehicular traffic to use the vehicular portion of the partial mall; or
- * a transit way - which allows only certain forms of vehicles (usually only public transport vehicles) to use the vehicular portion of the partial mall. Strict

enforcement of the regulation is necessary in order to prevent vehicles from cluttering up the pedestrian areas.

2.5.3 STREETS WITH SELECTIVE TRAFFIC BANS

With the removal of certain types of vehicles, such as private cars, reductions can be achieved in pedestrian vehicular conflict as well as pollution and noise levels. Reduced traffic flows will allow widening of pavements and an increase in the pedestrian phases at signalled intersections. Often when all vehicles except buses are eliminated, the bus service will operate more efficiently. Where pavement widenings are considerable there are often opportunities for the provision of many features of fully pedestrianised streets.

2.5.4 OCCASIONAL PEDESTRIAN STREETS

Usually these are market streets 'closed' by the sheer number of pedestrians on market days, or busy shopping streets closed on certain days of the week or times of the year. As traffic will be using the streets at other times there is little opportunity for providing additional facilities. In these streets it is therefore essential that pedestrian flows are high on the days of closure in order that the emptiness of the street is submerged in the hustle and bustle of pedestrians.

Many streets have first introduced pedestrian streets by experimental orders, and when these have proved successful they have been made permanent. Often after an experimental period, schemes progress from the third and fourth type to type one.

2.6 "TRAFFIC CALMING" AND TOWN PLANNING

"Traffic calming is in fashion" (Russell, 1990: iii). Much is now talked about in Britain, and in South Africa its popularity is slowly but surely increasing. But the question to ask is, what is "Traffic Calming"? As stated earlier, it may be defined as "the attempt to achieve calm, safe and environmentally improved conditions on streets"; but according to Russell (1990), such a definition is open to widely different interpretations. Some commentators see "Traffic

Calming" as an overall philosophical approach to transport planning in urban areas, embracing both traffic restraint and the promotion of public transport (Hass-Klau, 1990 cited Russell, 1990: iii). Others, including the Department of Transport (London), seek to restrict its role to residential roads and enlist into service to support new road construction. This leads yet others (Whittelegg, 1990 cited in Russell, 1990) to dismiss it as a 'green smokescreen'. Planners for their part often seem to have visions of a beautifully landscaped woonerven and semi-pedestrianised shopping streets in mind (Russell, 1990).

There is clearly a risk of "Traffic Calming" appearing to be all things to all people. To avoid this a more precise definition of its goals is needed. With this in mind, the main goals of traffic calming are seen as follows:

- * to improve road safety;
- * to reclaim space for pedestrian and non-traffic activities;
- * to improve pedestrian mobility, and reduce traffic barriers;
- * to achieve slower speeds;
- * to promote feelings of greater security, in particular among residents, pedestrians, cyclists; and
- * to create an improved environment.

How is the appeal for pedestrianisation?

Each of the aforementioned goals of "Traffic Calming" identified has several components. The weightings on these component objectives vary from scheme to scheme, just as the emphasis among the main goals shifts with the nature of the scheme. Road safety, for example, can be measured in terms of reduction of number of casualties and reduction of severity. Accident numbers rather than casualty numbers may equally be a specific objective. Environmental improvements disaggregate into less noise, less pollution and better street or area appearance. Such distinctions are important in that criteria for scheme evaluations are inevitably focused on the individual component, rather than the main aggregate goals.

Implicit in these goals also, is a clear shift in priorities to redress the balance in the street in favour of the pedestrian with respect to motor vehicles. This together with environmental concerns which are central to the origins of "Traffic Calming" in woonerf, readily lead to Traffic Calming's association with wider sets of transport policies to improve environmental

conditions in urban areas by limiting car use. These environmental concerns include 'greening' of an area which is often an integral and major objective of such scheme, introducing plants in order to improve microclimate and other aspects (United Kingdom for example). Russell (1990), notes that although such policies will be essential in central and some other parts of major cities, for the benefits of "Traffic Calming" to be fully realised, it is not helpful to identify traffic restraint or with a style of urban transport as a whole.

Traffic restraint is not usually necessary to "Traffic Calming" and the vast majority of "Traffic Calming" schemes in existence in Europe for example, do not involve traffic restraint. It is equally important and applicable in suburban areas, and in smaller towns where no traffic restraint is ever likely to be envisaged. Nevertheless, in so far as the improved conditions for walking and cycling created by "Traffic Calming", stimulate an increase in these activities, then some associated reduction in car use will occur (Russell, 1990).

According to Pharoah & Russell (1991), "Traffic Calming" is often casually associated with traffic reduction. This can lead to confusion as "Traffic Calming" schemes may and often do constitute elements within wider traffic restraint policies, but there are also many schemes where no reduction of traffic is intended. If speed reductions are achieved locally on one or more streets, or within a residential area, by "Traffic Calming" measures, this may divert traffic onto alternative routes, or may even be sufficient to reduce total traffic marginally. Such local reductions in traffic, however, do not have a significant impact on the level of motor traffic overall, unless combined with a comprehensive traffic restraint policy framework.

As stated earlier, it is the concept of speed management that is at the heart of all "Traffic Calming". As its potential for speed management has been realised and developed, road safety has progressively assumed greater importance with "Traffic Calming" practice; most notably so in 'safe routes to school' programmes and in more recent applications on main traffic routes, where the majority of accidents occur (Russell, 1990).

"Traffic Calming" is distinguished from 'traditional environmental traffic management' in two principle ways. The first is the aim of reducing the speed of motor traffic in order to reduce

its harmful effects in built up areas. The removal of unwanted through or 'rat-run' traffic from sensitive areas is often desirable but does not reduce the problems caused by the traffic that remains. Further the means used to divert the through traffic (closures, one-way streets, by-passes, etc.) often make access to properties less convenient or direct. Reducing the traffic speeds has the advantage of tackling directly the main source of the problem while retaining convenient local access. Low speeds will in any case deter 'rat-run' traffic, especially at off-peak times when local activity is most intense (Pharoah & Russell, 1991).

need to distinguish between local and non-local activity.

The second distinguishing feature of "Traffic Calming" is its link with the character and function of the road or street. The design of "Traffic Calming" schemes is derived from the need to integrate traffic and parking with what the Dutch call 'living' functions, and to give greater priority to vulnerable road users (pedestrians, cyclists, children, the elderly and those with a handicap). The most impressive schemes are also designed to enhance the townscape and environmental qualities of the street. This approach of reducing the priority given to traffic, and enhancing the other functions of urban streets, has led to the use of the term 'traffic integration' rather than "Traffic Calming", in Denmark and the Netherlands. "Traffic Calming" practice in several countries is now consolidated into a coherent framework which combines these twin features of speed reduction and functional priority (Pharoah & Russell, 1991: 82).

So, you second point was different.

A third aspect of traditional practice being discarded is the insistence on continuous traffic networks. Traffic priority may now be interpreted at sensitive locations on the network, for example, where the main road passes through a shopping area or suburbanised commercial streets where pedestrians and vehicles are in conflict. At such locations, priority is shared between traffic and other street activities, and "Traffic Calming" schemes are increasingly being applied to slow down or interrupt the flow of traffic, and to produce more space for other activity.

In sum, the "Traffic Calming" framework which has evolved then represents a major departure from the traditional approach to environmental management inspired by Buchanan in the 1960's.

2.7

"TRAFFIC CALMING" IN URBAN MAIN ROADS

The 1980's saw the first attempts to introduce "Traffic Calming" on main urban roads mostly at places where shopping and commercial activity was concentrated. According to Pharoah & Russell (1991: 88), the creation of effective schemes is usually more difficult in such locations than in residential areas because of the greater intensity of pedestrian and other activity, and thus greater competition for the available space. However the benefits to be gained are potentially much more substantial.

Too much dependence on single (second-hand) case study.

On some main road examples of "Traffic Calming" (St John's Hill in Wandsworth: London), the following general observations are possible. Firstly emphasis has been mostly on redistributing street space to space to provide wider pedestrian areas, cycle lanes, bus lanes, and parking and servicing bays. This has been achieved by reducing the main carriageway, usually to single lane in each direction, with traffic capacity maintained by retaining extra lanes at principle junctions. Secondly, speed reduction has relied mainly on the prevention of overtaking, interruptions to traffic flow using signalised crossings and bus stops in the main carriageway (Pharoah & Russell, 1991).

2.8

"TRAFFIC CALMING" IN TOWN CENTRES

"Traffic Calming" has been very frequently used in town centres. A common approach was, instead of "Pedestrianisation", to "traffic calm" the town centre streets, mainly the shopping streets. Such a decision was often seen in small towns as an alternate to "Pedestrianisation", but this is increasingly not the case any more. As stated earlier, more towns, even quite small ones (German example), are implementing "Pedestrianisation" on an impressively large scale. Much more common is to "traffic calm" the side streets of the pedestrian area, or to "traffic calm" those residential streets of the town centre in which motor vehicle access is still necessary.

evidence? Dates and plans.

not convincing enough!

2.9

PEDESTRIAN PLANNING GOALS AND OBJECTIVES

This section primarily deals with the general pedestrian planning goals and objectives with

mention of performance criteria used in pedestrian planning.

The primary goals and objectives of an improvement program for pedestrians are: safety; security; convenience; continuity; comfort; accessibility; system coherence and attractiveness. All goals are inter-related and overlapping. Improvements in one objective generally result in opportunities for improvements in the others.

sound?
he
these
yours

Of all the influences which the motor vehicle has had on the environment, the question of **safety** should be put foremost. Safety usually involves enabling pedestrians to be in the street and cross it without risk of injury or harassment from drivers. It is not possible to separate this from the matter of accidents. To be safe, to feel safe at all times, to have no serious anxiety that husbands, wives or children will be involved in a traffic accident, are surely prerequisites for civilised life (Buchanan, 1963).

← this a quote?

The basic concern of pedestrian safety is the reduction of the pedestrian-vehicle conflict. According to Fruin (1971), the two fundamental means of attaining this objective are: space separation, either horizontal or vertical, or by time separation. Traffic signalization represents an example of separation of pedestrians and vehicles in time, but with most conventional signalization methods the pedestrian is still exposed to conflicts with turning vehicles. There have been attempts to reduce or eliminate these conflicts by using an advanced, or delayed, green indication for turning vehicles, allowing them to turn outside the pedestrian walk cycle. An exclusive pedestrian signal phase, called the "all-walk", or "scramble" system is used at busy downtown intersections in some cities. During this signal phase, pedestrians are given exclusive crossing rights, and may even cross diagonally within the intersection (Fruin, 1971).

The horizontal or vertical separation of pedestrians and vehicles is a means of satisfying almost all pedestrian objectives. Horizontal separation can be accomplished by establishment of a pedestrian precinct, or mall, where vehicular intrusion is restricted or eliminated. This concept has been used in the development of many suburban shopping centres. Exclusive pedestrian malls are also being created in some central city areas by closing selected streets. Vertical separation of pedestrians and vehicles is attained through the use of underpasses or overpasses.

Pedestrian **security** has become an important objective in street design. Street configurations should be arranged to enhance clear observation by other pedestrians and the police. High lighting levels, unobstructed lines of sight will assist in attaining this objective.

again, are there any others?

Continuity, comfort, convenience and accessibility are the primary objectives of pedestrian networks being built or planned for the future. Continuity of the pedestrian system is necessary. *why?* This usually relates to the location of public transport to shopping and other facilities. System coherence is related to the concepts of the perception of urban space. Coherence is a necessary element of the urban design if the full utility of the space is to be realized. A confused pedestrian searching for orientation has limited receptivity to secondary visual inputs such as aesthetics. Pedestrian convenience may be enhanced on most city streets at relatively little capital expense. Sidewalk obstructions such as mailboxes, telephone booths, refuse cans, and newsstands may be relocated to improve pedestrian flow at practically no cost. Accessibility has to do with the opportunity to gain quick and easy access to a destination from the transportation system. Consequently accessibility relates to the provision of parking facilities (appropriate to the destination), the provision of loading/ servicing facilities, and the provision of bus services.

The objective of **attractiveness** encompasses not only aesthetic design, but the sense of excitement that should be created by an urban space. Landscaping, pavement colour and texture, well designed street furniture components, fountains, and plazas increase the visual variety of the cityscape. Special street events, such as concerts, change of season festivals, amateur art sales and contests, and seasonal flower exhibits, increase the interest and vitality of any urban space.

2.10 PERFORMANCE CRITERIA

The following performance criteria have been noted by Pharoah & Russell (1991). They include speed, accidents, traffic volumes, noise, air pollution, parking, pedestrian and street activity, perceived security and visual appearance and ecology. These performance criteria are important as they are indirectly related to the pedestrian planning goals and objectives mentioned above. A discussion of these performance criteria appears in appendix one.

Why put them in the appendix? They are central to your discussion

However, although the above mentioned performance criteria are important, the context of each study area is just as important to understand, in determining the success of a strategy.

Assumed characteristics of an area that lends itself to a solution of this nature are as follows:

- * high concentration of both pedestrians and vehicles;
- * conflict between pedestrians and vehicles;
- * high accident rates;
- * high speed levels;
- * high congestion levels;
- * air, noise and visual pollution;
- * lack of aesthetic beauty.

2.11 PRE-REQUISITES FOR COMMERCIAL DEVELOPMENT IN TERMS OF PLANNING FOR PEDESTRIAN MOVEMENT

Planning can be fruitful only if the basic economic, physical and organisational characteristics are present (Gruen & Smith, 1960). *— again, is this a quote?*

One such pre-requisite for commercial development in terms of planning for pedestrian movement is that of accessibility. A centre, in order to function must be accessible to people and goods, with the stipulation that such accessibility must not only be possible but must also conform to qualitative standards, such as travel, time and conform. It is obvious here that planning plays a major role. In planning for accessibility it is often overlooked that there are a number of alternatives. One such alternative that can be created for customers is by pedestrian movement.

Another important aspect is the location of "magnets" or "poles" of attraction in the shopping areas. These magnets tend to be the larger department stores. They achieve the quality inherent in these terms due to their size, their public image, their advertising and the quality of their services. From the view point of creating equal well-being of all tenants of the shopping area, it is desirable to place the magnets in such a manner that the shoppers' traffic which they engender will flow past the doors and windows of smaller tenant stores. It is

therefore desirable that the be located on the extreme end of public pedestrian areas if there are two or more such magnets, or in the very centre of the public pedestrian routes if there is only one such magnet (Gruen, 1973).

It is also important that pedestrian ways be shaped in a such a manner that they offer comfort and delight. Comfort will depend to a large degree on the walking distances necessary for a shopping trip. The shorter the length to which a pedestrian walk system can be held, the greater are the chances that a shopping trip covering a good part of the entire centre will be undertaken. If pedestrian ways are overly long, then the individual customer will undertake only one part of the shopping trip.

Another pre-requisite is that of a attractive shopping atmosphere. Pedestrianised areas are created as a reaction to the need for safety from traffic dangers, to protection from poisonous fumes and disturbing noises, by separating areas for pedestrians from those for disturbing traffic. In designing these areas pedestrian comfort is very important, as pampering the shopper pays off. Comfort means public washrooms (to give the shopper a chance to freshen up), drinking fountains, public telephone booths, groups of sitting arrangements to encourage social chat and dozens of other similar comfort-giving arrangements.

In what ways? Are you suggesting an economic motivati

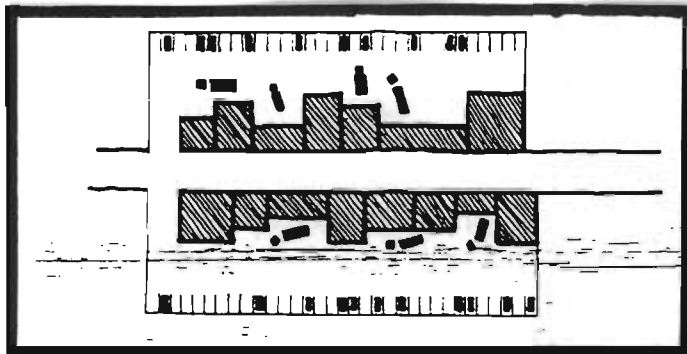
But beyond comfort, the shopper also expects consideration of his/her senses: seeing, hearing, smelling, and touching. The eye of the shopper reacts negatively to disorder, litter, dirt, and visual confusion, created through a profusion of signs, advertising and other expressions of visual pollution. The eye reacts positively to a skilful combination of quietude and pleasant stimulation. The sense of calmness can be created by the introduction of nature - trees, plants, flowers. Stimulation can be achieved by the sparing use of colours.

In sum, in creating a successful pedestrian atmosphere it is important to remember that a pedestrian is on foot, hence, activities that are interrelated with the ambling and strolling habits of a pedestrian needs to be given attention. The stroller needs to be offered a continuity of interesting experiences in his path of movement.

Partly, mostly features of major aspects of design. Consider

Apart from the pre-requisites discussed above, it is also important to look at the evolution of commercial development (especially the regional shopping centres), together with the concepts used. According to Gruen (1973), it is believed that a critical analysis of this development is useful and necessary because, quite evidently, whether we like or dislike, approve or disprove of the past, present, and, unfortunately, continuing trend of suburbanisation, we must realise that the effect of this development will be felt for a considerable time to come. The concepts on which present and future commercial developments are based stem from one or more of the following prototypes as outlined in Gruen (1973):

Figure 1 shows a shopping centre which relies for accessibility on existing public roads but which provides parking spaces behind the stores. The delivery of goods also takes place there. This arrangement - left over from the old strip development - creates a split personality for the centre. The representative storefronts face the public road, but the customer enters at a rear door, very often the same one through which merchandise is carried in and garbage carried out.



what about
foot customers.
they tend to want
to enter one shop
into the rear, but
then to proceed
along the street
using foot
crossovers

Figure 1

Figures 2 and 3 show centres which also rely for accessibility on the public roads but where parking is arranged in front of the stores. In this manner, it is possible to bring about a separation between the customer's traffic and delivery and service traffic (which takes place at the rear of the store). Storefronts and signs can then be logically arranged facing the

parking area, where the customer can see them from the public road as well as from the parking lot.

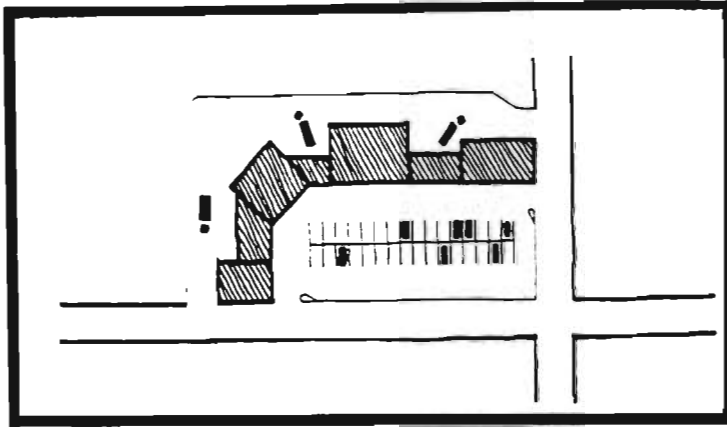


Figure 2

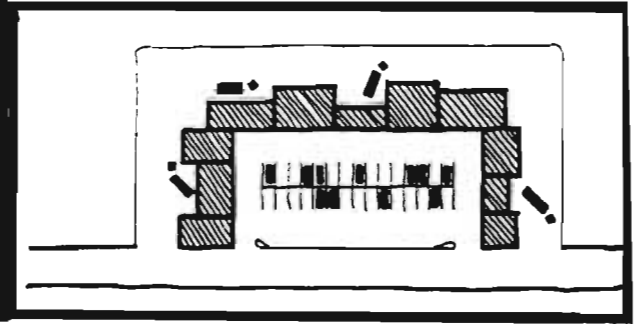
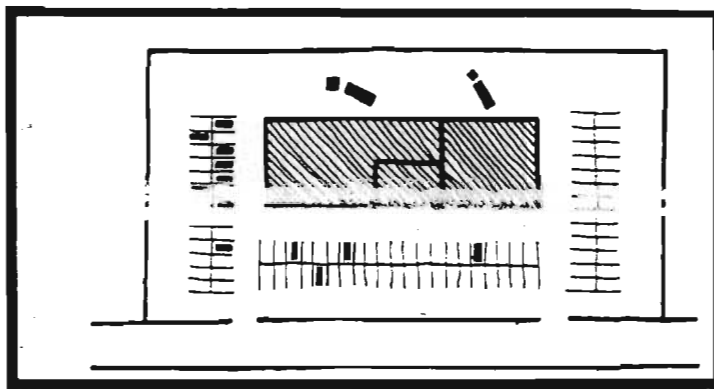


Figure 3

Figure 4 still relies on the public roads for accessibility but surrounds a block of stores on three sides with parking facilities and reserves the rear for goods delivery and services.



Would have
been useful
to have seen
the pedestrian-
designated
area - pavement
etc.

Figure 4

Figure 5 is the first one which introduces a separate area for pedestrians in the form of a pedestrian mall. This prototype can either exist by attaching itself to a public road or by

introducing its own circulatory road system which is then connected to the public road network.

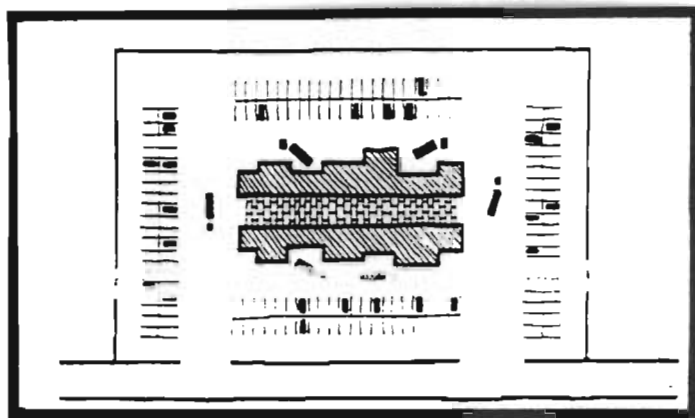


Figure 5

Figure 6 is just a variation of the theme. Both arrangements have the disadvantage that the delivery traffic is not separated from customer traffic and that the customer is given the choice of entering the store either from the parking area or through the pedestrian mall. This has been referred to as "extroverted centres" and they are often plagued by the fact that the pedestrian mall lacks "animation".

meaning?

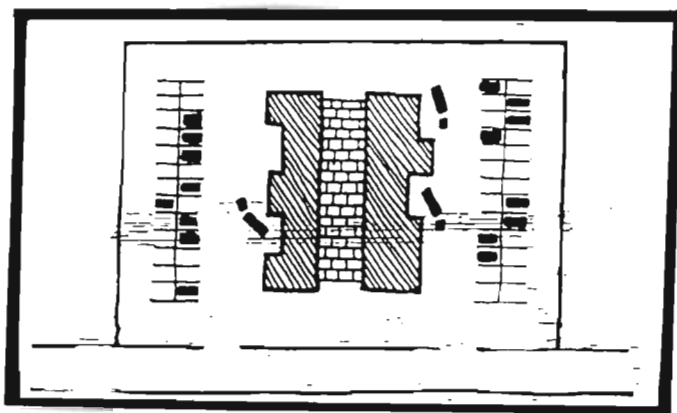
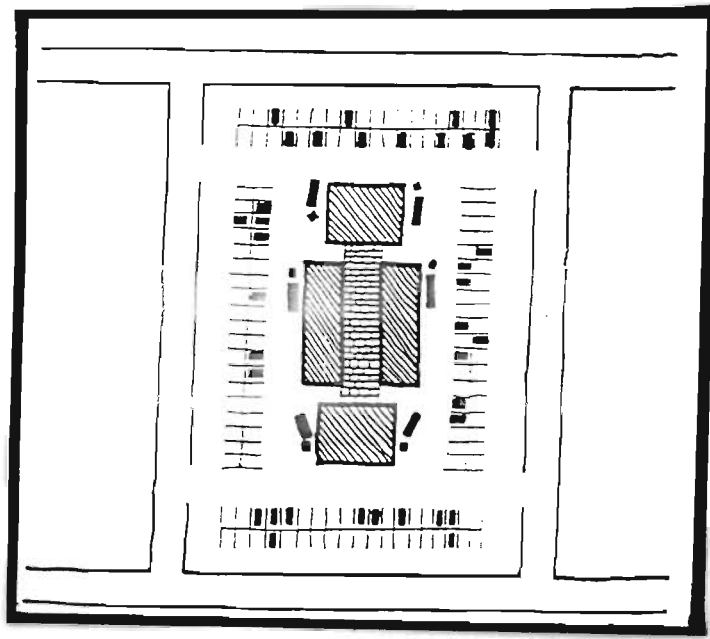


Figure 6

Figure 7 represents a commercial centre with two major magnets. Access to parking is accomplished by its own circulatory road which is then connected at two or three points to

major public roads. The prototype suffers from the fact that there is no separation between the delivery traffic and the customers' traffic. Centres of this type are executed as either as "extroverted centres" (with show windows, signs, and entrances to the stores directed to both the parking area and the pedestrian mall) or as "introverted centres". In the latter case, all show windows, entrances, and signs are directed toward the mall, which can be reached only thorough arcades from the parking area. Thus, pedestrian movement is concentrated in the mall, which then becomes truly animated. The duplication of expenditures for show windows, doors, and signs is avoided. A superior pedestrian environment is created.



This is all very well, but what about the fact that the "pedestrians" in the mall have - both coming and going - to cross the vast paved parking areas . . .

Figure 7

Figure 8 shows the same arrangement as 7 but enhanced by the introduction of a basement into which an underground delivery road (represented by the broken line) is incorporated. This prototype effects a separation between customers' traffic and delivery and service traffic.

Figure 9 shows the main pedestrian flow pattern in the case of one department store.

This section is interesting, but rather too simply and descriptively and not critical enough.

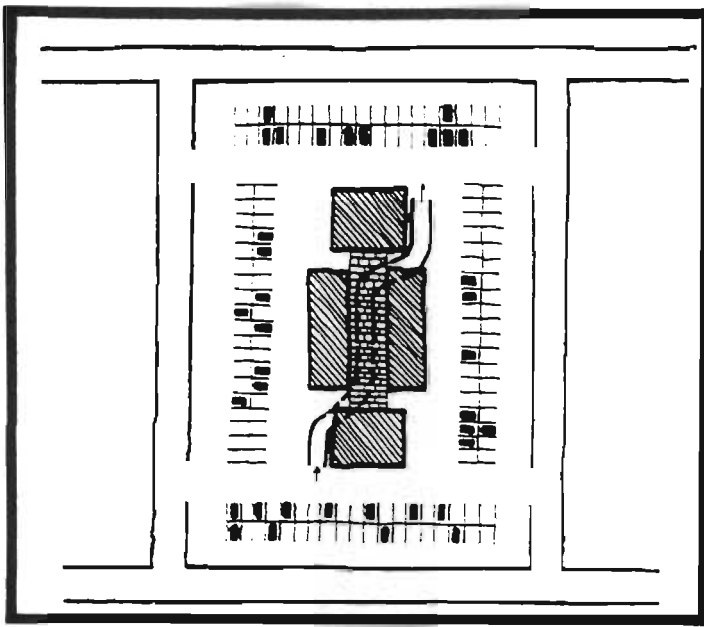


Figure 8

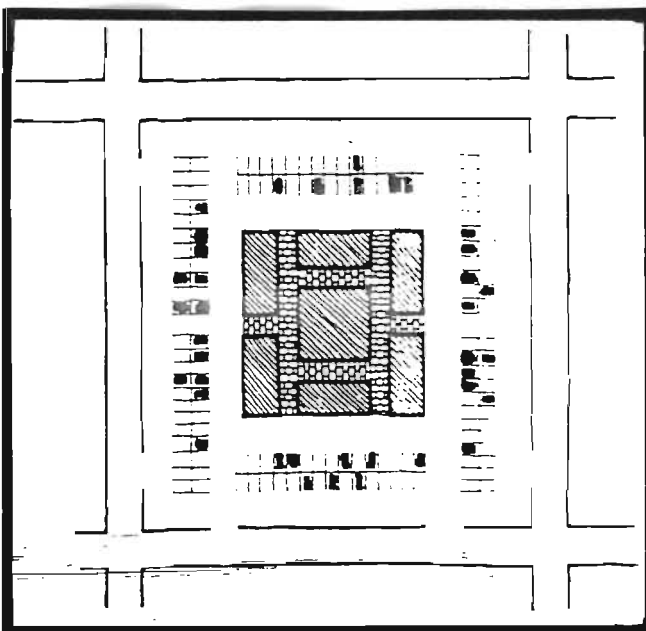


Figure 9

Finally figures 10 and 11 show two approaches to the centre with two magnets. Figure 10 represents the simplest and most often used solution. Figure 11 is a variation of figure 10 where the mall is considerably widened to a court and the large stores are arranged in diagonal positions. Thus space for additional tenant stores is gained on both ends of the

pedestrian area through the considerable width of the court, and opportunities for the placement of kiosks and for the holding of public events are created.

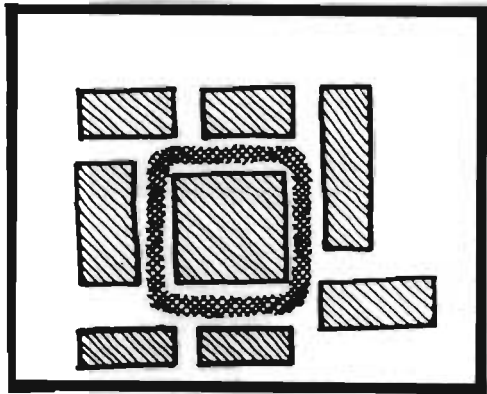


Figure 10

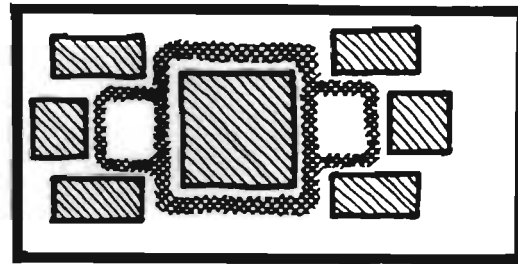


Figure 11

The small number of prototypes which have been schematically illustrated are some of the solutions which are being applied. There is no doubt that certain improvements to commercial development have been made from these prototypes (for example separating pedestrian flow and delivery traffic). However success can only continue if it is accompanied by steady improvement in quality of planning and design. Change in some design concepts need to occur in order to give more attention to pedestrians in terms of safety, security, comfort, convenience, accessibility etc.

2.12 CONCLUSION

The discussion above serves as a theoretical base from which the results/analysis of the study will be related to. The literature review does reveal that "Pedestrianisation" and "Traffic Calming" are two different strategies, however what appears to be common between the two are the objectives of safety, security, comfort, accessibility and an improved environment. It is to these main objectives (apart from others) that the research focuses when discussing the success/failure of "Pedestrianisation" and "Traffic Calming" in each case study area. A discussion on the steps taken to obtain data in order to assess the success/failure of these schemes follows in the next chapter.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION/OUTLINE OF STUDY

This study involved the evaluation/assessment of "Pedestrianisation" and "Traffic Calming" in the two case study areas of Umhlanga and the Central Business District (CBD) of Pietermaritzburg (PMB). A comparative analysis was conducted between the two areas and the effectiveness of "Pedestrianisation" and "Traffic Calming" in each area was evaluated in terms of the following pedestrian planning goals and objectives : safety, security; comfort; convenience; continuity and attractiveness.

The researcher has been aware that criteria such as speed; accidents; volumes of traffic; noise and air pollution etc. are also critical issues that need to be addressed in "Pedestrianisation" and "Traffic Calming" schemes. However this study concentrated on the technical aspects of these schemes, hence these criteria have not been part of the process that the researcher evaluated in this study.

After the evaluation, an attempt has been made to determine in which area the solutions of "Pedestrianisation" and "Traffic Calming" have been more successful and the reasons for the level of success of these solutions in both Umhlanga and Pietermaritzburg. The analysis also focused on what aspects of these schemes did and did not work and reasons thereof.

3.2 DATA COLLECTION

The method of collecting data has been outlined under the following categories.

3.2.1 QUESTIONNAIRE

The questionnaire - a basic investigation tool was administered to "users" in both case study areas. Information gained from the questionnaire was utilized to assess the "Pedestrianisation" and "Traffic Calming" in Umhlanga Town Centre and Pietermaritzburg CBD. The administration of the questionnaire, including the sampling technique used, are dealt with in

the chapters analysing each case study area. The results of the questionnaire are also analyzed in in these same chapters (i.e. chapters 4 and 5). A copy of the questionnaire appears in appendix two.

Questionnaires have been administered to a sample population of "users" in an attempt to evaluate how each area catered for them in terms of a pedestrian and/or a motorist. "Users" refer to the people that came to the study areas for a variety of reasons. For the purpose of this study, "users" included mainly the pedestrians and the motorists. This will be elaborated on further in the discussion on the analysis of the case study areas.

3.2.2 INTERVIEW WITH PLANNERS

Interviews were also conducted with the planners that were involved in the "Pedestrianisation" and "Traffic Calming" schemes in each area in to obtain their assessment on these planning programmes. A copy of the set of questions used in these interviews appears in appendix three.

3.2.3 INTERVIEWS WITH TENANTS

Interviews were conducted with tenants in an attempt to ascertain the business community's views regarding the "Pedestrianisation" and "Traffic Calming" schemes that have been implemented in their areas, and the effects that these schemes have had on their business. Tenants refer to the shopowners located within the pedestrianised areas.

Questions were initially prepared before the interview to serve mainly as a guide for the researcher and to structure the interview. Questions relating to the economic effects that these schemes have had on their businesses have also been addressed - the details of which are discussed in the following chapter. A copy of the questions directed to the tenants appears in appendix four.

3.2.4 PARTICIPANT OBSERVATION

A formal participant observation exercise was undertaken by the researcher to assess the situation in each area. The observation technique was used as it allowed the researcher to examine the situation as it occurred without the participants in the research being aware. Observation also allowed the researcher to role play in order to determine how these developments catered for the needs of all kinds of people, i.e. children, adults, the aged, handicapped etc. Observation also allowed the researcher to assess the areas in terms of the other criteria as mentioned above.

3.2.5 OTHER DATA

Data on the following were obtained in an attempt to strengthen the results of the study and to help either prove/disprove the hypothesis.

3.2.5.1 **PARKING, PEDESTRIAN AND STREET ACTIVITY**

A parking survey has not been undertaken, ^{instead} rather, the questionnaire has been designed to obtain people's impression on the issue of parking in the study areas. The aim here was to determine the effect "Pedestrianisation" and "Traffic Calming" has had on the parking. Information on the amount and nature of parking will be obtained by systematic observation. Pedestrian and street activity will be noted by observation.

3.2.5.2 **ECONOMIC BENEFITS**

The economic effect of "Pedestrianisation" and "Traffic Calming" has been determined from interviews with a sample of tenants to determine their opinion on such a strategy and the impact that such a strategy has had on their business.

3.2.5.3 **PERCEIVED SECURITY**

The safety of pedestrians is determined by the number and type of accidents. However as

stated earlier accidents rates have not been dealt with in this study. Rather, users have been asked to give their general impression on vehicular and pedestrian safety in the area. This has been one of the aspects in the questionnaire. "Pedestrianisation" and "Traffic Calming" has been evaluated by examining its effect on improved safety. The comfort level of pedestrians have been commented upon by observation.

3.2.5.4 **POPULARITY WITH USERS**

Popularity with users in terms of the level of comfort and convenience etc., have also been dealt with in the questionnaire in order to determine the popularity of "Pedestrianisation" and "Traffic Calming" with pedestrians, motorists and the tenants.

3.2.5.5 **VISUAL APPEARANCE AND ECOLOGY**

The observation technique has been used to determine the visual appearance and attractiveness of the study areas. The reason for this was to note the environmental improvements that accompany the solutions of "Pedestrianisation" and "Traffic Calming".

The main reason for collecting data via the above mentioned sources was to determine if the aforementioned planning goals and objectives in these schemes have been addressed or not.

3.3 **CONCLUSION**

This chapter presented an outline of the steps taken in the study and the various methods of data collection and reasons for using these methods. What follows in chapter four is an detailed examination of the case study area of Umhlanga, including amongst other things a detailed discussion on each method of data collection used.

CHAPTER FOUR: ANALYSIS OF STUDY AREA - UMHLANGA

4.1 INTRODUCTION

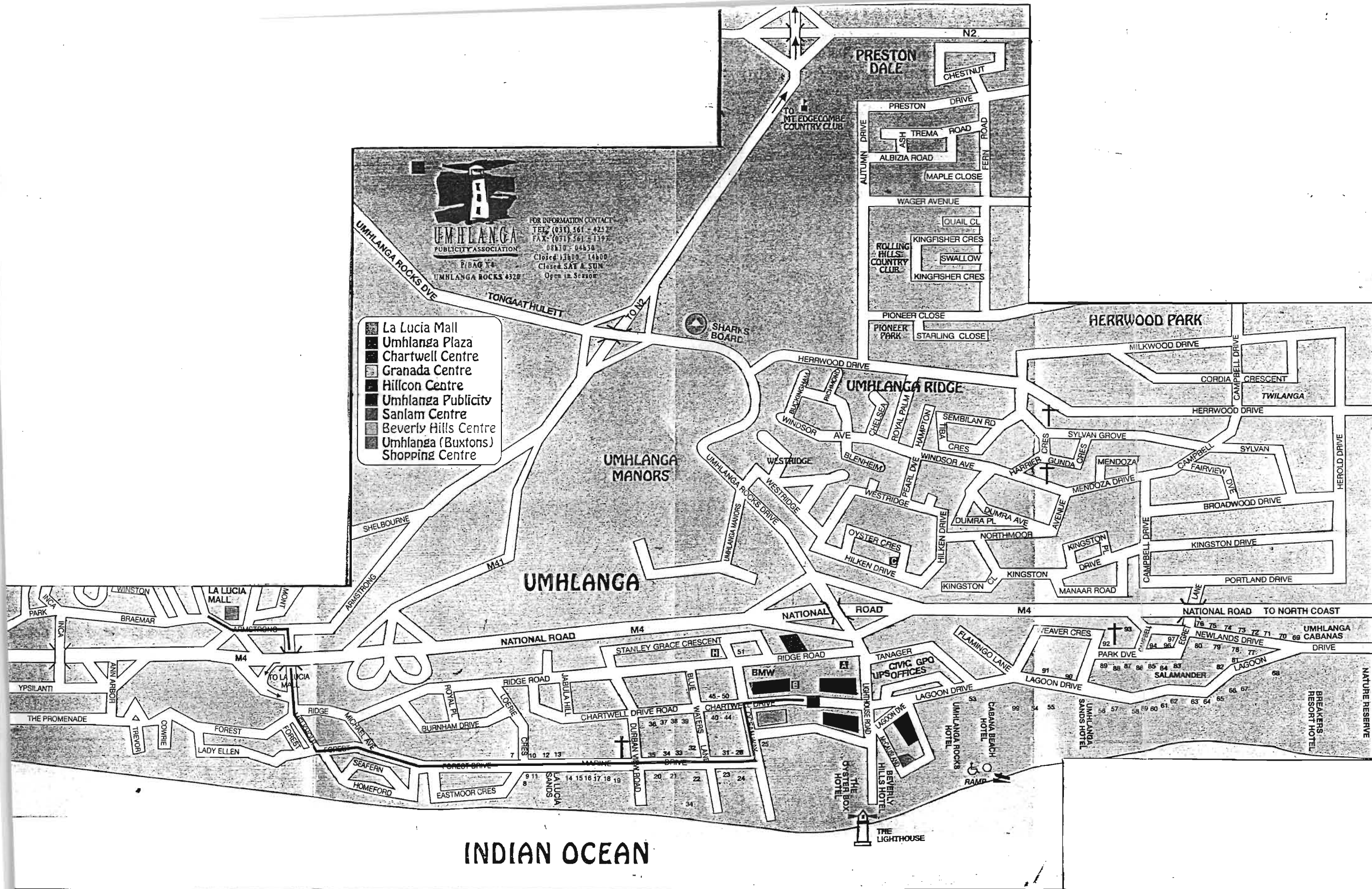
This chapter deals with the examination of the "Pedestrianisation" and "Traffic Calming" schemes that have been implemented in the study area of Umhlanga. The success/failure of "Pedestrianisation" and "Traffic Calming" in Umhlanga Town Centre will be evaluated in terms of the pedestrian planning goals and objectives identified in the Research Methodology. The analysis of the questionnaire and the presentation of data collected also occurs as an integral part of this chapter. Data collected from interviews with the planners involved in the schemes as well as the tenants have also been included in this section. However before presentation of this data and exposing greater details of the each method of data collection, it is necessary to briefly introduce the case study area of Umhlanga and give details of the plan that was implemented.

4.2 SETTING

Umhlanga - Zulu for the " Place of the reeds", is the largest and most popular resort, situated approximately 20km from Durban, on Kwa Zulu Natal's prestigious North Coast (Umhlanga Publicity Association, 1995 - see Map 1). Umhlanga is a seaside resort with a style all of its own, combined with affluent overtones. Although it has a population of 50 000 it still has a coastal village atmosphere with superb natural attractions, combining leisure, shopping, dining and sophistication with an unusual small village intimacy.

Umhlanga has an excellent selection of shops. A stroll through the village will ensure a thoroughly enjoyable and interesting shopping experience. It's all here, from displays of exquisite jewellery and art galleries, to craft and curio shops, interior design, clothing boutiques, speciality gifts and perfume shops (Umhlanga Information Guide, 95/96).

Sands rather like advertising janga. You could have assessed the area or you are



MAP 1: LOCATION OF UMHLANGA
 SOURCE: UMHLANGA PUBLICITY ASSOC.

Data on the plan in Umhlanga has been obtained from a report titled: A Development Plan for Umhlanga Town Centre (1986). During the course of preparing the Umhlanga Structure Plan in 1984 it became necessary to resolve whether the main town centre of Umhlanga should and could remain in its present location. A subsequent examination by a multidisciplinary team (engineers, planners, architects) found that with proper planning, the existing location was capable of accommodating future growth demands and in fact should do so. Map 2 shows the town centre and environs. The term 'town centre' is taken to have two constituent parts, that is, the 'core' and the 'periphery' as shown.

During the course of examining the town centre it was found necessary to generate a concept for future growth. This was necessary in order to satisfy questions regarding the adequacy of the area for growth and its suitability in terms of other factors as well.

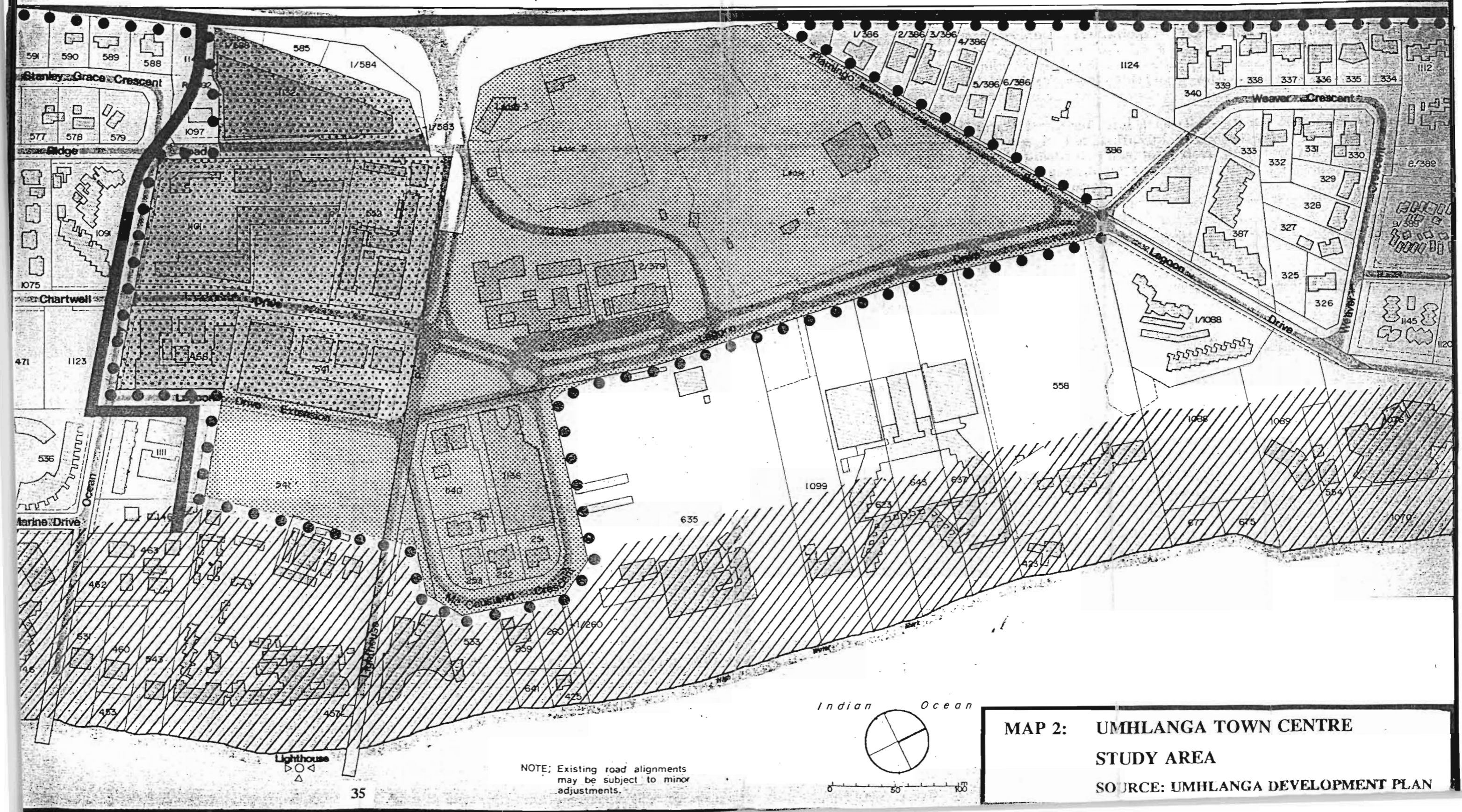
Some controlling criteria for the concept were listed as follows:

- * An efficient traffic system is vital.
- * Easily accessible and sufficient parking must be provided.
- * A segregated pedestrian system integrated with a shopping core and the beach.
- * There is a need to create a unique character for the town centre.

Using the primary concept above as a base, a succession of framework, or more detailed concepts were generated. These evolved and matured through discussions with a wide range of public and private bodies until the concept depicted in Map 3 was generated.

LEGEND

- | | | | | |
|---|-----------|---------------|---|---------------------|
|  | Core | } TOWN CENTRE |  | Beach Zone |
|  | Periphery | |  | Development Barrier |
|  | Frame | | | |

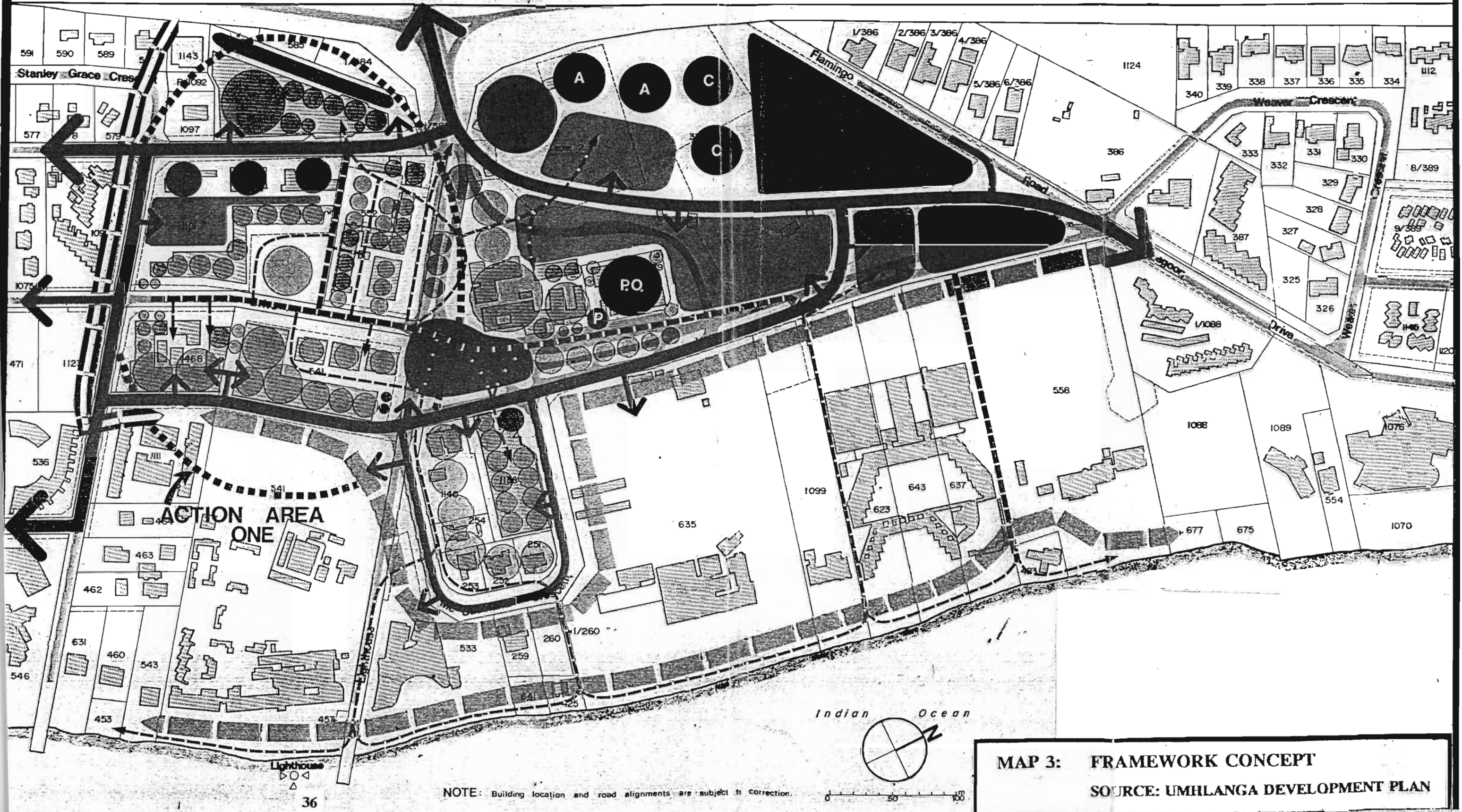


NOTE: Existing road alignments may be subject to minor adjustments.

MAP 2: UMHLANGA TOWN CENTRE STUDY AREA
 SOURCE: UMHLANGA DEVELOPMENT PLAN

LEGEND

- | | | | | | | | |
|---|---------------------|---|-----------------|---|-----------------------|---|---------------|
|  | Main Roads |  | Tourist Zone |  | Police |  | Festival Area |
|  | Minor Roads |  | Commercial Uses |  | Vehicle Sales/Service | | |
|  | Access Points |  | Administration |  | Parking | | |
|  | Access Points |  | Cultural |  | Public Open Space | | |
|  | Pedestrian System |  | Post Office |  | Private Open Space | | |
|  | Residential Barrier | | | | | | |



MAP 3: FRAMEWORK CONCEPT
SOURCE: UMHLANGA DEVELOPMENT PLAN

The purpose of the framework concept was to give guidance and direction to present development efforts thereby avoiding disjointed and uncoordinated development. One feature of the framework concept was the segregation of vehicles and pedestrian movements through the creation of a ring road system around the town centre.

In the course of examining the central area it was found that whilst it could accommodate future growth demands, immediate action was required in order to resolve existing problems. It was therefore decided to formulate proposals for that area which required immediate attention, that is, Action area 1. This area roughly corresponds with the core area of the town centre.

In examining the generation of proposals the planning team was aware of a number of serious factors that would need to be considered. These included:

- * the necessity of retaining convenient parking for shoppers,
- * the importance of not jeopardising the existing levels of trade,
- * the need to establish and maintain a unique image of the town centre,
- * the creation of a high level of security within the centre.

Interrelated problems within the core area were identified under the following headings:

- * Low Trading Viability - levels of trading were low for reasons including:
 - dependence on tourist trade
 - congested parking
 - competition from other centres, including LaLucia Mall
- * Poor Imageability
 - the centre was not perceived as a pleasant place to shop
 - it is visually unimpressive
- * Traffic and Parking Problems
 - overutilisation of central parking areas
 - inefficient intersection layouts
- * Poor pedestrian Convenience
 - disjointed linkages between centres
 - pedestrian/vehicular conflicts

Proposals for action area 1 focused on the closure of Chartwell Drive between Ocean Way and Lighthouse Road and the subsequent creation of a pedestrian mall. It must be emphasised that what was proposed was a solution in essence only and not the final plan. *What does this mean?*

Development was proposed to take place in two phases. Phase one was to involve the closure of Chartwell Drive along the frontage of the Granada Centre. Traffic was to be directed down the lane between Granada and the Hillcon Centre onto Lagoon Drive Extension. Phase two was to involve the full closure of Chartwell Drive Between Lighthouse Road and Ocean Way.

However, what was actually implemented in the Umhlanga Town Centre in 1987/1988 was a partial "Pedestrianisation" scheme in Chartwell Drive, since there was a resistance to full "Pedestrianisation" from the shopowners. This was designed so that Chartwell Drive could be fully pedestrianised at a later stage. The plan implemented was in essence a 'beautification' strategy aimed at creating a safer environment for pedestrians and beautifying Chartwell Drive. "Traffic Calming" strategies were also implemented as part of the partial "Pedestrianisation" scheme. *How - this needs a great deal of expansion* Attention was given to the design aspects of the plan by distinguishing pedestrian ways from traffic paths by using different coloured paving. Other "Traffic Calming" examples include slower speed limits, pedestrian crossing at various points, twists and turns in the road system etc.

4.4 COLLECTION OF DATA

4.4.1 THE QUESTIONNAIRE

For the analysis to occur it was necessary that data from the various different sources be collected (as outlined also in the Research Methodology). A component of this was the collection of data by means of a questionnaire which was administered to pedestrians and motorists in order to determine their assessment of the "Pedestrianisation" and "Traffic Calming" schemes in Umhlanga.

This questionnaire produced important findings and an analysis of the questionnaire was necessary in order to expose these findings and to interpret them.

4.4.1.1 STRUCTURE OF THE QUESTIONNAIRE TO "USERS"

The structure and design of the questionnaire was influenced by the goal and objectives of the study. Some of the questions were structured (to save time and make analysis easier), however the questions regarding the strengths and weaknesses of the plan were open-ended in order to obtain people's opinions and views on the plan.

4.4.1.2 SAMPLING TECHNIQUE

The administration of the questionnaires in this study was a pilot run in an attempt to gather information on the success/ failures of "Pedestrianisation" and "Traffic Calming" in Umhlanga, within a limited time period. A sample population of 25 people were selected and the questionnaires were administered to this sample population. Since this was a pilot run, a sample population of 25 was selected since this sample population would yield a relatively high significance for the purpose of this study, despite the size of the greater population and the probability of the results being skewed. No particular age, sex or race group was targeted, but rather the sample population was selected from the population in general - pedestrians and motorists in particular. However an attempt was made to deal with a "cross-section" of users, that is, teenagers, adults, old-age, etc.

4.4.1.3 ADMINISTRATION OF THE QUESTIONNAIRE

Where

The questionnaires were administered in the town centre of Umhlanga. This was the area within Chartwell Drive, Lighthouse Road, Lagoon Drive Extension and Ridge Road (refer to Map 1).

When

The researcher was aware that certain variations may occur during the weekends and the weekdays. Further, in order to achieve a degree of standardisation the periods during which the questionnaires were administered, needed careful consideration. However since this was a pilot run survey (and for reasons stated earlier), no set time or day was allocated for the

administration of questionnaires. Rather in Umhlanga, the questionnaires were carried out on Wednesday the 11 November 1995 between 09h00 and 16h00.

How

No specific sampling procedure was employed in this survey. The researcher walked around in the study area and approached people in the streets at random - while at the same time trying to question a cross-section of users, and interviewed those who agreed to participate. Each questionnaire took an average of five minutes to complete. However, some respondents were very eager to participate and commented on issues outside the questionnaire but nevertheless relevant to the issues of pedestrian and vehicle separation. The responses to the questionnaire were good, and were sufficient to pursue the study further.

4.4.2 INTERVIEW WITH PLANNERS

Interviews were conducted with two people who were involved with the "Pedestrianisation" and "Traffic Calming" schemes in Umhlanga. The purpose of these interviews were conducted in order to obtain their assessment on these specific planning programmes in which they were involved in, and to determine if their objectives were achieved.

Firstly, Mr Dorstan Hayman was interviewed on 01 November 1995. Mr Hayman is at present head of the Planning Department at Umhlanga Municipality. The "Pedestrianisation" scheme in Umhlanga was as a result of the efforts of a multidisciplinary team including engineers, planners and architects. Mr Hayman served the role of planner in the Umhlanga plan and was responsible for the overall conceptual framework in the plan.

An interview was also conducted with Mr Vincent Leggo on 06 November 1995. He is at present a planner at Scott Wilson Kirkpatrick. The purpose of interviewing Mr Leggo was to obtain the views of someone who played a subsidiary role in the plan. Mr Leggo's firm was commissioned to undertake a study on traffic in Umhlanga and was not directly involved in the final planning aspects of the plan. He was also involved in the preparation of Umhlanga structure plan, which included the "Pedestrianisation" and "Traffic Calming"

schemes.

4.4.3 INTERVIEW WITH TENANTS

A set of interviews were also conducted with the tenants in the study area. These included the shopowners/managers of the stores in the Town Centre. A sample number of 10 stores were selected. When selecting the tenants, an attempt was made to choose various categories of shops viz. corner shop, take-away, dry cleaners, chemist, banks/building societies, clothing stores etc. The reason for interviewing the tenants was to determine what effect the "Pedestrianisation" scheme has had on the business in the area.

Interviews with the tenants were conducted on 02 November 1995 between 09h00 and 12h00 and on the 15 November 1995 between 13h00 and 15h00. The researcher experienced some difficulty in obtaining a cross-section of categories as some managers were reluctant to answer any questions and insisted that all questions be directed to their head office. Those interviewed included a florist, take-away restaurants, video-outlets, novelty and stationery shop, fragrance lab, jewellery stores and clothing stores.

4.4.4 PARTICIPANT OBSERVATION

A formal participant observation exercise was also undertaken by the researcher to assess the situation as it occurred in Umhlanga. The researcher played the role of a pedestrian and motorist in the area, assessing how the plan catered for the needs of each role played. The researcher also walked around in the area analysing the plan in terms of how it catered for other users. This technique further helped determine the strengths and weak points of the "Pedestrianisation" and "Traffic Calming" schemes in Umhlanga.

4.5 FINDINGS

Whilst every effort has been made to reduce the degree of error normally associated with a survey, it must be accepted that the results of the surveys, even though it has been based on a 100% sample, cannot be seen as absolute. It must also be stressed that the surveys were

of a "pilot" nature hence certain apparent errors may result.

4.5.1 QUESTIONNAIRE TO "USERS"

This section deals with the analysis of the questionnaire in particular, and the findings that were obtained are presented.

At the outset it is important to make mention that 36% of those interviewed were tourists, while the remaining 64% came from Umhlanga and surrounding areas, i.e, 20% from Umhlanga, 28% from LaLucia, and 16% from Phoenix. *Why is this significant?*

The sample population consisted of 56% males and 44% females. This sample population came from the following age categories as indicated in Table 1.

Table 1: Age

AGE (YEARS)	PERCENTAGE
10 - 19	-
20 - 29	28
30 - 39	24
40 - 49	16
50 - 59	16
60 and over	16
TOTAL	100

OCCUPATION

Majority of those interviewed (32%) were retired, while 28% were employed in either the professional, managerial or technical field. Another 16% of the respondents were self employed. *what about the other 24*

PURPOSE OF TRIP

The majority of the respondents (60%) came to the town centre for either shopping, recreational, social or eating purposes. Twenty four percent stated that they came to the town centre due to work related reasons. The remaining 16% of respondents came to the town centre for either personal, dental, medical (8%) and other reasons (8%) (Figure 12)

FREQUENCY OF TRIPS TO TOWN CENTRE

Forty eight percent of the sample population stated that they came to the town centre 2-3 times a week, while 28% stated that they came to the area everyday. Twelve percent of the respondents came to the town centre on a weekly basis, whereas the remaining 12% of respondents visited the town centre once every couple of weeks (4%) or once every couple of months (8%) (Figure 13)

MODE OF TRANSPORT

Seventy six percent of the respondents came to the town centre by means of a private vehicle while the remaining 24% came by pedestrian means. This is indicated in Table 2.

Table 2: Mode of Transport

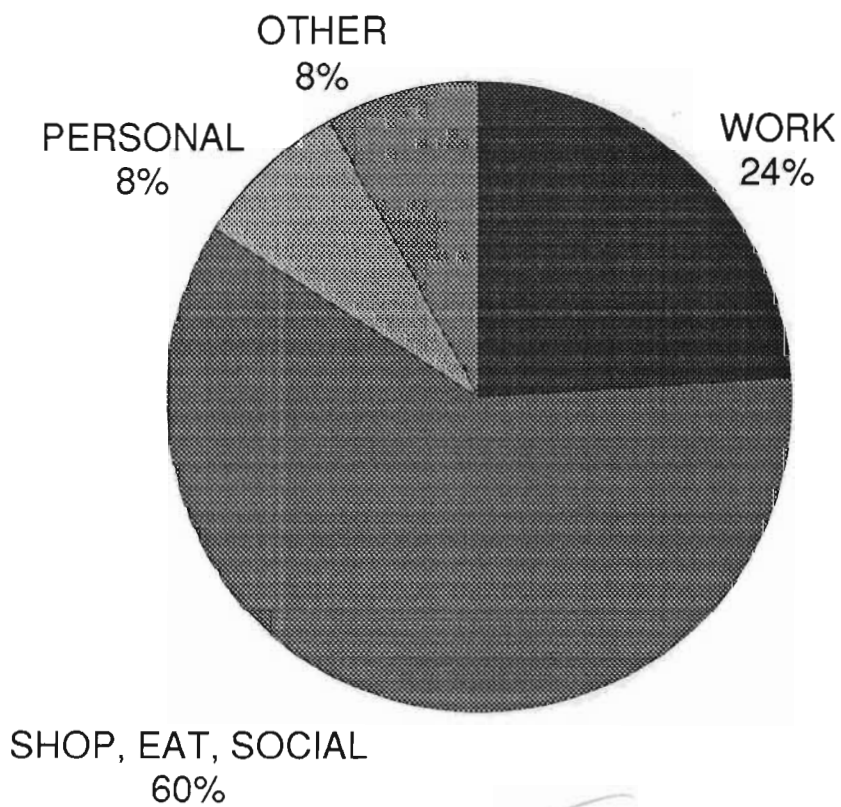
MODE OF TRANSPORT	PERCENTAGE
Private	76
Pedestrian	24
TOTAL	100

All of the 76% of respondents who travelled by private vehicle stated that generally it was easy to find parking in the area. However, insufficient parking was a problem during the holiday periods.

All 100% of respondents had a positive impression of the plan. Comments on the strengths of the plan included: freedom of movement; clean, safe environment; provision of seats/benches; opportunities to socialise with others; and less hassles with traffic.

FIGURE 12

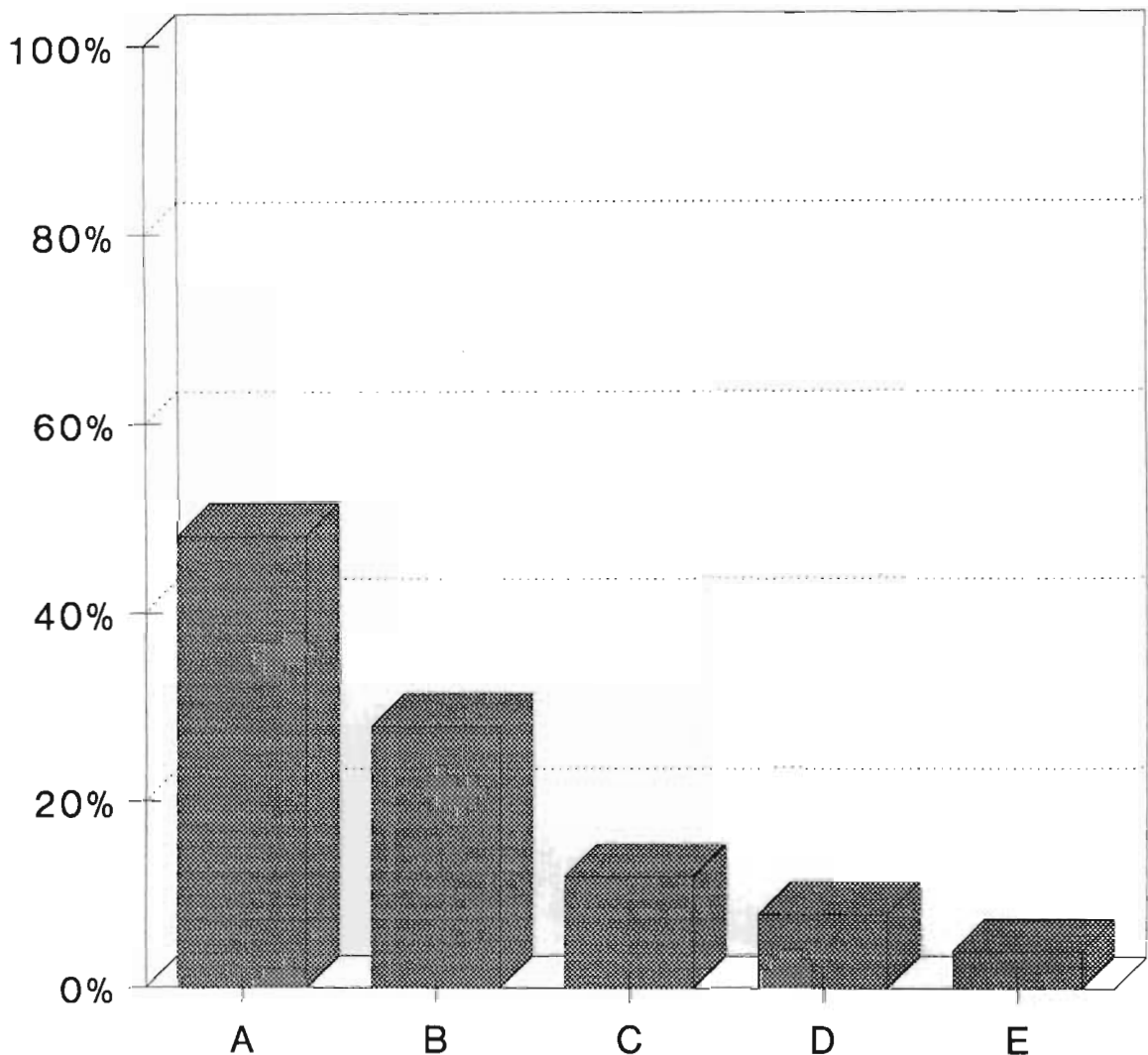
PURPOSE OF TRIP



This needs some discussion - what planning implications can you draw from it?

FIGURE 13

FREQUENCY OF TRIPS TO TOWN CENTRE



A = 2-3 TIMES PER WEEK; B = EVERYDAY;
C = WEEKLY; D = ONCE EVERY COUPLE OF MONTHS; E = ONCE EVERY COUPLE OF WEEKS

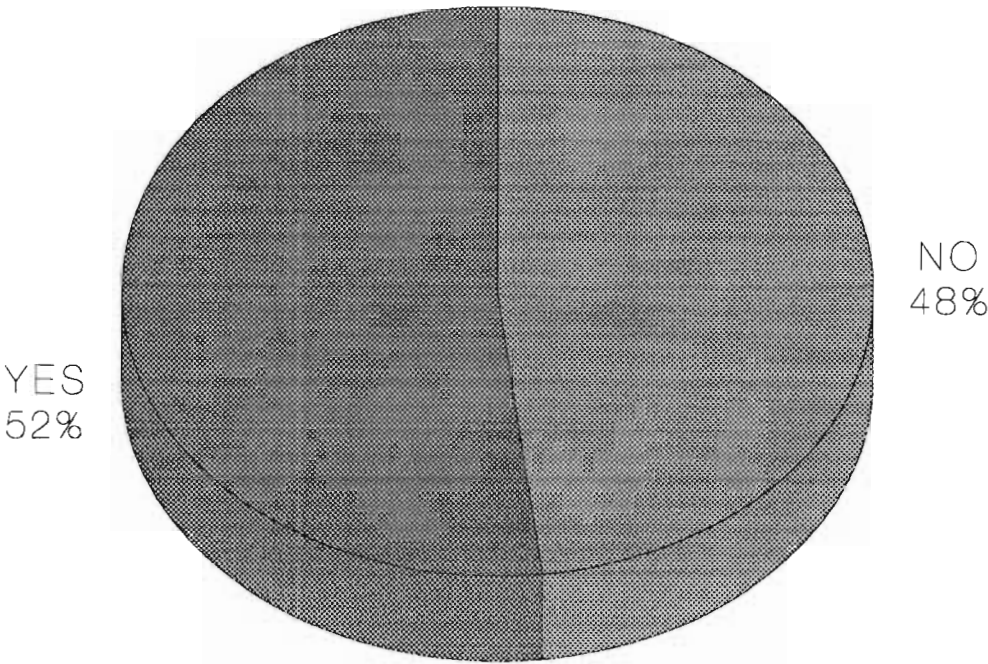
Same comment as on p44

However despite these strengths, 56% of the respondents stated that a conflict still existed between pedestrians and vehicles in the Umhlanga Town Centre, while 48% claimed that there was no conflict (Figure 14).

Comments on the weaknesses of the plan were few and included the lack of activities (for example more open-air restaurants and outdoor entertainment).

FIGURE 14

DOES CONFLICT STILL EXIST?



RATING THE PLAN IN TERMS OF:

SAFETY

The majority of the respondents (56%) rated the plan as good, while 32% rated safety as mediocre and 12% rated safety as very good. This is shown in Table 3.

Table 3: Ratings for Safety

RATING	PERCENTAGE
1 - Very poor	-
2 - Poor	-
3 - Mediocre	32
4 - Good	56
5 - Very good	12
TOTAL	100

SECURITY

Table 4: Ratings for Security

RATING	PERCENTAGE
1 - Very poor	-
2 - Poor	-
3 - Mediocre	32
4 - Good	60
5 - Very good	8
TOTAL	100

It is evident from Table 4 above that 60% of those interviewed ranked security as good. Thirty two percent view the security issue as being mediocre and 8% ranked it as very good.

COMFORT

Table 5: Ratings for Comfort

RATING	PERCENTAGE
1 - Very poor	-
2 - Poor	-
3 - Mediocre	8
4 - Good	52
5 - Very good	40
TOTAL	100

Comfort was rated by 52% of those interviewed as good, whereas 40% rated comfort as very good and 8% rated it as being mediocre (Table 5)

CONVENIENCE

Table 6: Ratings for Convenience

RATING	PERCENTAGE
1 - Very poor	-
2 - Poor	-
3 - Mediocre	12
4 - Good	52
5 - Very good	36
TOTAL	100

Table 6 indicates that 52% of the respondents rated the plan in terms of convenience as being good, 36% as very good and 12% as mediocre.

ACCESSIBILITY

Like comfort, table 7 indicates that the values for rating accessibility were the same.

Table 7: Ratings for accessibility

RATING	PERCENTAGE
1 - Very poor	-
2 - Poor	-
3 - Mediocre	8
4 - Good	52
5 - Very good	40
TOTAL	100

ATTRACTIVENESS

Table 8: Ratings for Attractiveness

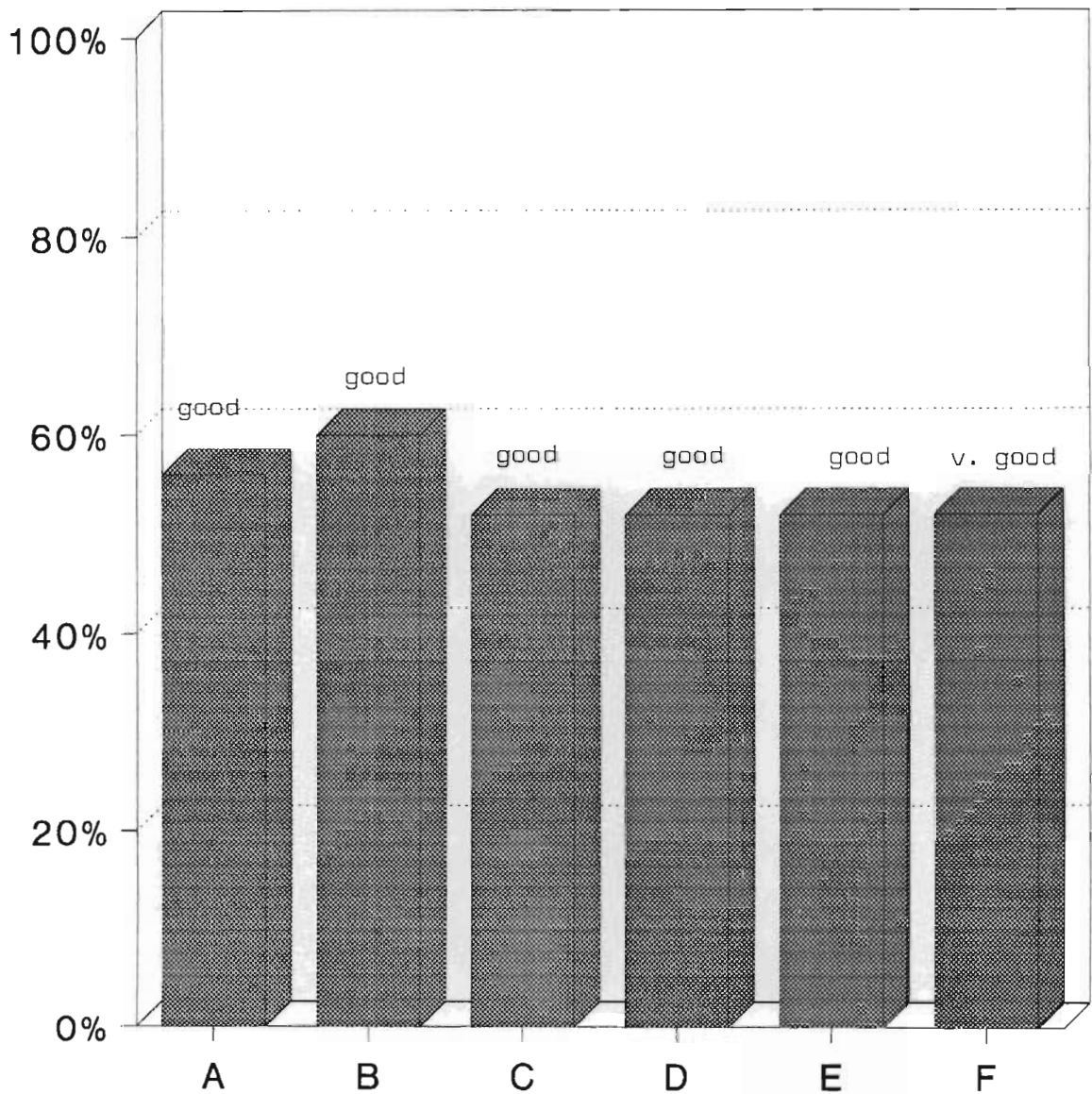
RATING	PERCENTAGE
1 - Very poor	-
2 - Poor	-
3 - Mediocre	-
4 - Good	48
5 - Very good	52
TOTAL	100

The plan was rated well in terms of attractiveness, with 53% of the respondents rating accessibility as very good and 48% as good (Table 8).

From the above presentation of the findings it appears that the "Pedestrianisation" and "Traffic Calming" schemes have been well received by the "users" in Umhlanga. This is evident in the finding that the most responses to these schemes, in terms of comfort, security, convenience, accessibility and attractiveness have been rated as either good or very good. This is indicated in Figure 15.

FIGURE 15

RATINGS



A = SAFETY B = SECURITY C = COMFORT
D = CONVENIENCE E = ACCESSIBILITY
F = ATTRACTIVENESS

*This is a useful table, but
over again, could
have benefited
from some
discussion*

4.5.2 INTERVIEW WITH PLANNERS

4.5.2.1 **INTERVIEW ONE: MR. D. HAYMAN**

According to Mr Hayman, what was initially proposed was a full "Pedestrianisation" scheme in the core area, with a ring road around the pedestrianised area, via which the pedestrianised area would be accessible. However there was a resistance from the public and shopowners to the proposal as they felt this would have a negative impact on trade in the area. Hence a partial/semi "Pedestrianisation" ('Beautification') scheme was implemented. In Mr Hayman's opinion this has worked as,

"it is more attractive than what it used to be, and the area is now safer for pedestrians."

Mr Hayman also stated that there was no overall structure plan for Umhlanga which would have served as a direction/programme for development. The partial "Pedestrianisation" was implemented as part of a phase towards full/final "Pedestrianisation".

Problems highlighted by Mr Hayman included the Chartwell Drive and Lighthouse Road intersection.

"This is a design fault which has resulted in a backlog of traffic, when a car is waiting to turn at this intersection."

When asked on the issue of parking, Mr Hayman stated that you do not just need parking - but you need parking that is convenient. He further stated that drivers needed to be educated and that drivers must be willing to make a 'trade-off' of one thing in order to achieve the benefits of something else. In other words if the benefits of an attractive environment catering for other needs far outweigh the advantage of parking outside the store you intend visiting, then you should be willing to make that sacrifice of having to park a little distance away.

When asked on his views regarding the resistance from shopowners to a full "Pedestrianisation" scheme, Mr Hayman stated that:

"Tenants should also be willing to go that extra mile to attract customers. They

should not attribute the removal of parking sites as a reason for the decline in trade. Shopowners need to take the initiative to make their stores attractive enough to encourage customers to come into their stores."

Mr Hayman's suggestions for improving the present "Pedestrianisation" scheme included the need for outdoor entertainment, flea markets, etc. as a way of making the Umhlanga Town Centre more vibrant.

4.5.2.2 **INTERVIEW TWO: MR. V. LEGGO**

According to Mr Leggo, the centre was deteriorating. He also described the centre as being "tatty", and in need of redevelopment. In his opinion, Mr Leggo believes that,

"The scheme has worked from a safety and security point of view. However, because of partial "Pedestrianisation" and not full "Pedestrianisation", a dynamic opportunity has also been lost to make it a throbbing, live and modern shopping centre."

Mr Leggo also stated that such an attempt has also created a more pleasant, attractive environment, not only for the residents, but for the tourists as well.

Another point highlighted by Mr Leggo was the issue of accessibility.

A "Pedestrianisation" scheme is good, but if the issue of parking and traffic management is ignored, this affects accessibility to the activities in the pedestrianised area."

His comments on the success of "Pedestrianisation" schemes focused on the quality of urban design. Attention to detail was regarded as being very important. Further, signage and the quality of design of brickwork was also highlighted by Mr Leggo. According to Mr Leggo brickwork gives human scale and this needs to be considered as planning is about people. He also stated that in any "Pedestrianisation" scheme, ordinary municipal architecture should give way to delicate architecture together with the application of interesting shapes, in order for the scheme to be appealing to the people.

4.5.3 INTERVIEW WITH TENANTS

The majority of the tenants interviewed regarded the "Pedestrianisation" and "Traffic Calming" schemes as having had a positive effect on their business, in the long term. For the various shops, passing trade was able to see what their shop had to offer and customers came in, whether it had been for browsing or to have purchased.

Further, business improved in the holiday periods. Since most of the customers were tourists on foot, they are catered for in this scheme, where shops are accessible within the pedestrianised paths.

The issue of parking was regarded as a problem for a minority of the tenants. These tenants are located within the shopping centre and did not have parking immediately outside their store. They viewed this as a disadvantage in attracting customers.

4.5.4 PARTICIPANT OBSERVATION

A formal observation by the researcher revealed the following:

- * The area was relatively safe, with pedestrians having ample space for movement. *? What do you mean*
- * There was a clear separation of pedestrian and vehicle paths - indicated by the different coloured paving.
- * Traffic was forced to slow down because of the presence of twists and turns in the road pattern.
- * Sufficient pedestrian crossings were present at various points.
- * The area was attractive, and the presence of trees created a softer atmosphere.
- * Signage was evident but insufficient, especially for someone who is unfamiliar with the area.
- * The design elements of the scheme catered for the various age groups.
- * The presence of a band-stand and an information kiosk served as a focus point, to help people in the area.

The participant observation also served to comment on other data such as speed, accidents, volumes of traffic and pollution levels. These issues were not considered in detail in this study, however due to the importance of such data, allusions to it have been made from the observation technique. Vehicles were forced to reduce their speeds because of speed limits in the plan, thereby ensuring safety of pedestrians. Safety in turn has been related to the level of accidents which according to Mr Quinn, are low in Umhlanga (Telephonic interview with Mr Quinn, Umhlanga Traffic Engineer, 13/11/95). Pollution also did not appear to be a problem in the area.

4.6 CONCLUSION

4.6.1 QUESTIONNAIRES TO "USERS"

The Umhlanga town centre caters mainly for shopping, recreation, entertainment and social needs of the respondents, with the frequency of trips being mainly 2-3 times a week. Most of the respondents are retired and the popular mode of transport is the private motor vehicle. Despite the greater reliance on motor vehicles as a mode of transport, parking was not regarded as a problem, apart from the holiday periods. All respondents had a positive impression of the plan implemented in the town centre, despite the fact the majority of the respondents felt that a conflict still exists between pedestrians and vehicles in this area.

The "Pedestrianisation" plan has been rated mostly as being good in terms of safety, security, convenience, comfort and accessibility and very good in terms of attractiveness.

Strengths of the plan include sufficient space for movement of pedestrians as well as the seating places provided. It also provided an environment in which one could socialise and meet other people.

The weaknesses of the plan included a lack of activities that would attract more people to the area. Also the inconsiderate attitude of drivers was considered to be a grievance.

4.6.2 INTERVIEW WITH PLANNERS

From the interviews with Mr Hayman and Mr Leggo, it can be noted that the success of the plan in Umhlanga has been related mainly in the creation of a more safe and more attractive environment than what existed before the plan was implemented. They both also stressed that more activity should be stimulated in the focus point of the Town Centre in attempting to attract more people to the area. These include outdoor entertainment, open air restaurants and a flea market. Attention to design detail (for example in terms of brickwork and type of architecture) was also considered to be very important for a "Pedestrianisation" scheme to be successful. Furthermore, tenants need to also take the initiative to attract customers to their stores and should not rely solely on the planning developments for this.

4.6.3 INTERVIEW WITH TENANTS

Generally, the "Pedestrianisation" and "Traffic Calming" schemes in Umhlanga have not impacted business negatively. Business may be stagnant during the non-holiday periods but 'booms' during the holiday periods. The plans provide an environment that catered for the needs of a pedestrian, thereby increasing passing trade, which in turn has had a positive effect on trade.

*But more they had a significant positive effect
There would have been interest to find out*

4.6.4 PARTICIPANT OBSERVATION

From the observation exercise it can be concluded that the plan in Umhlanga has been successful. It caters for the needs of "users", even one who is unfamiliar with the surroundings. The area did have a distinctive character about it and leaves one with a feeling of wanting to return.

Finally, what appears to be common amongst the various findings obtained via the different data collection methods is that the "Pedestrianisation" and "Traffic Calming" schemes have been relatively successful. Success is evident in the schemes being able to achieve the objectives of safety, security, comfort, convenience, accessibility and attractiveness. This in turn has benefitted all, i.e the "user", the tenants and indirectly the planner. Although the

issue of parking had been noted as one of the problems related to these schemes, future attention needs to also focus on providing more activities (e.g flea-markets) to attract people to the area.

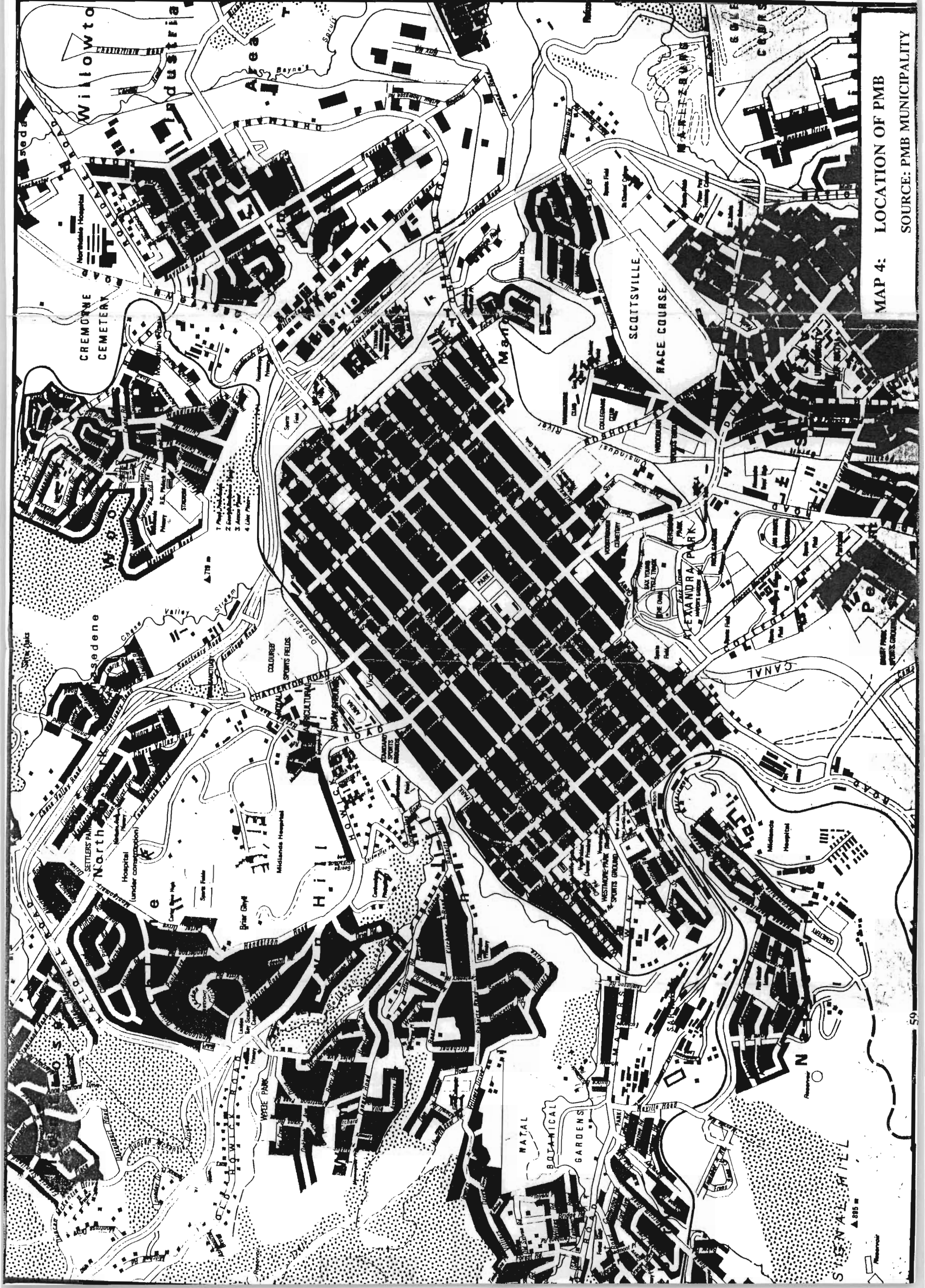
CHAPTER FIVE: ANALYSIS OF CASE STUDY AREA: PIETERMARITZBURG

5.1 INTRODUCTION

This chapter deals with the examination of the "Pedestrianisation" and "Traffic Calming" schemes that have been implemented in the Pietermaritzburg CBD. The success/failure of "Pedestrianisation" and "Traffic Calming" in Pietermaritzburg's CBD will be evaluated in terms of the pedestrian planning goals and objectives identified in the Research Methodology. The contents of this chapter follows a similar outline to that in the chapter on Umhlanga. An analysis of the questionnaire and the presentation of data collected also forms an integral part of this chapter. Data collected from interviews with the planners involved in the schemes as well as the tenants have also been included in this section. However before presentation of this data and exposing greater details of the each method of data collection, it is necessary to briefly introduce the case study area of Pietermaritzburg and give details of the plan that was implemented.

5.2 SETTING

Pietermaritzburg (PMB) is situated astride one of South Africa's major development axes (N3) which runs between Durban and Gauteng (Map 4). At the metropolitan level, Pietermaritzburg provides the dominant educational, market, legal, administration, banking, retail, industrial and service function. Within the municipal boundary of the city of Pietermaritzburg, the Central Area is by far the most important zone of commercial activity in the city providing a full range of goods and services. A high intensity of shopper activity, created by a combination of office workers, inner city residents, suburban residents and out-of-town residents, provides the conditions required for the sale of both durable and convenience goods. In addition to the central area's attraction as a retail centre, it also provides employment opportunities, mostly for office workers.



MAP 4: LOCATION OF PMB
SOURCE: PMB MUNICIPALITY

The "Pedestrianisation" and "Traffic calming" schemes in Pietermaritzburg formed part of the Pietermaritzburg 2000 plan (PMB City Engineers Department, 1988). The strategic planning exercise on which the PMB 2000 project was based considered five key areas in which metropolitan planning is crucial. These are housing, employment, the quality of life, human relations and city finances. Each of these key areas was seen to be reliant on the development of Pietermaritzburg as a qualitative city. That is, it was to be developed as a city that was capable of enhancing the long-term economic opportunity and growth, promoting a city in which the full socio-economic profile of its citizens had a stake.

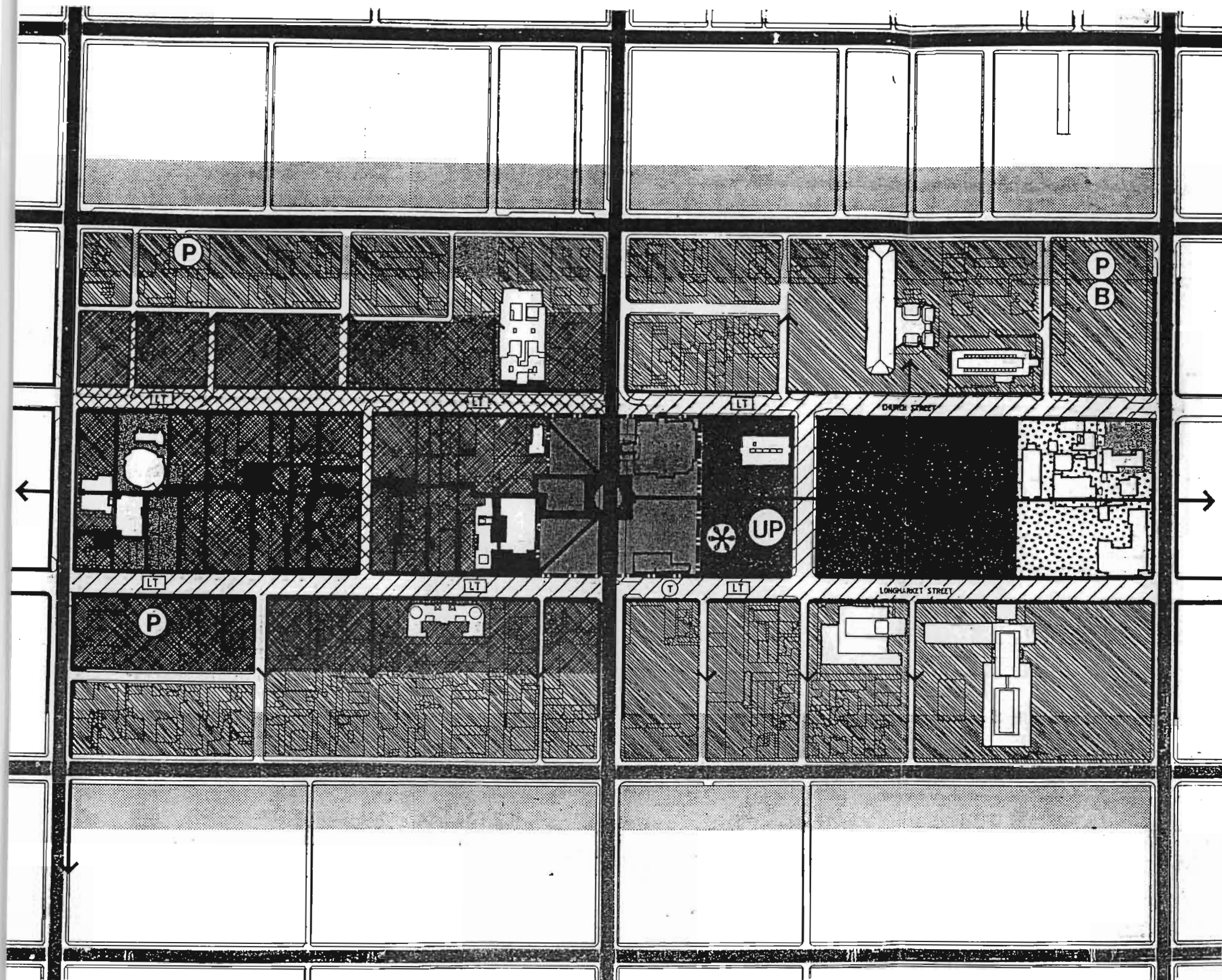
A major thrust of the Pietermaritzburg 2000 plan was the preparation of a Central Area Master Plan. The following urban design principles were to be incorporated into the Central Area Master Plan proposal:

- * a road system was to be devised to separate through traffic from local traffic;
- * a series of pedestrian areas was to be created, particularly in the inner core of the central area, so that pedestrians can (at least to some extent) be separated from the vehicular traffic;
- * adequate provision was to be made for providing well located parking facilities with good access to the major road network;
- * an appropriate pricing policy was to have been adopted for both existing parking and new parking;
- * a range of new facilities was to be injected into the central area to make it attractive and exciting for people to come to the central area;
- * several environmental improvements was to be made to make the central are more attractive.

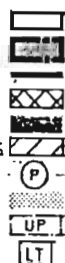
The "Pedestrianisation" and "Traffic Calming" schemes that were implemented in Pietermaritzburg CBD included the creation of pedestrian dominated spaces in Church Street adjacent to the lanes and Timber Street. Vehicles have been permitted into these areas for service and access. The remainder of Church Street and Longmarket Street are local roads with improved amenities for the pedestrian (Map 5).

Map 6 indicated the major distribution roads which provide a traffic box on the perimeter of the area. Pietermaritzburg and Berg Streets form a one-way pair to the north, Loop and Burger Streets a one-way pair to the south. The figure also indicated the pedestrian system including the major pedestrian points.

The proposed urban design framework was structured to strengthen the use of lanes by upgrading the quality of paving and street furniture. Attempts have also been made to encourage people to walk in these lanes in order to create more viable and safer shopping environments. The lanes also serve to draw more people to the area in general, to improve trading in Church and Longmarket Streets.

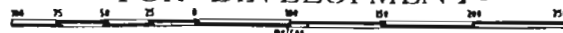


KEY PUBLIC BUILDINGS
 PROPOSED CIVIC SQUARE
 PEDESTRIAN ROUTES AND URBAN SPACES
 POSSIBLE PEDESTRIAN PRECINCTS
 MAJOR DISTRIBUTOR ROADS
 LOCAL ACCESS ROADS/PEDESTRIAN AREAS
 EXISTING PUBLIC PARKING
 POTENTIAL PUBLIC PARKING ZONE
 PROPOSED UNDERGROUND PARKING
 LIMITED ON-STREET PARKING



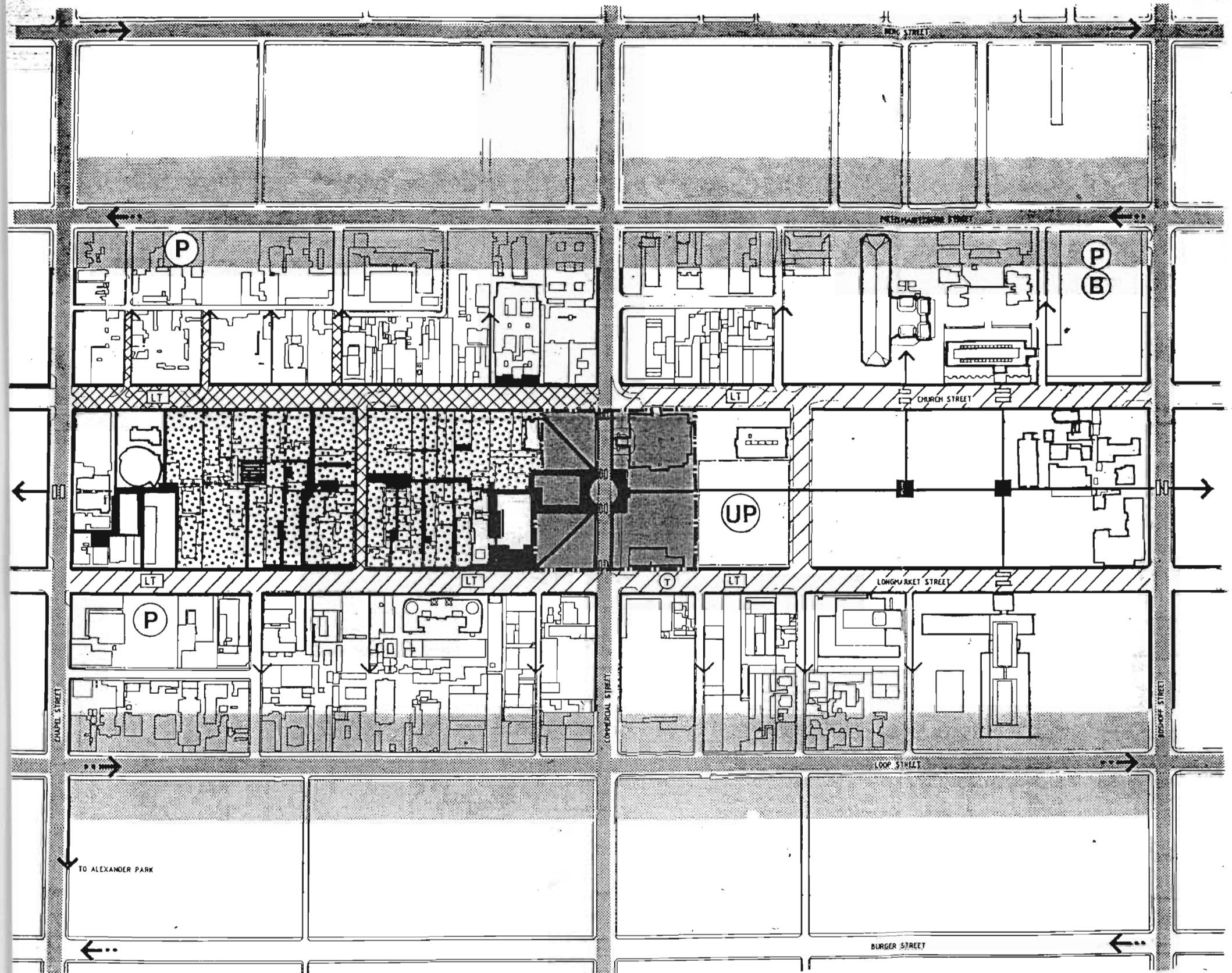
MAP 5

DETAILED FRAMEWORK
FOR DEVELOPMENT



BUS TERMINUS
 TAXIS
 PRIMARY MIXED USE CORE
 (RETAIL/OFFICES/RESIDENTIAL ETC)
 RETAIL/OFFICE AREA
 POTENTIAL SPECIALITY FACILITY
 CHURCHILL SQUARE
 MAJOR LANDSCAPED URBAN SPACES
 CULTURAL PRECINCT





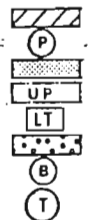
KEY PUBLIC BUILDINGS
 PROPOSED CIVIC SQUARE
 PEDESTRIAN ROUTES AND URBAN SPACES
 POTENTIAL PEDESTRIAN LINKS
 MAJOR PEDESTRIAN CROSSINGS
 POSSIBLE PEDESTRIAN PRECINCTS
 MAJOR DISTRIBUTOR ROADS
 ONE WAY ROADS



MAP 6:
CIRCULATION



LOCAL ACCESS ROADS/PEDESTRIAN AREAS
 EXISTING PUBLIC PARKING
 POTENTIAL LOCATION FOR PUBLIC PARKING
 PROPOSED UNDERGROUND PARKING
 LIMITED ON-STREET PARKING
 RESTRICTED ACCESS ZONE
 BUS TERMINUS
 TAXIS



5.4 COLLECTION OF DATA

5.4.1 QUESTIONNAIRE

5.4.1.1 SAMPLING TECHNIQUE

Like in Umhlanga, the administration of the questionnaires to "users" in Pietermaritzburg was also a pilot run in an attempt to gather information on the success/failures of "Traffic Calming" and "Pedestrianisation" in the CBD, within a limited time period. A sample population of 25 people were selected and the questionnaires were administered to this sample population. Again no particular age, sex or race group was targeted, but rather the sample population was selected from the population in general - pedestrians and motorists in particular. However an attempt again was made to deal with a "cross-section" of users, that is, teenagers, adults, old-age etc.

5.4.1.2 ADMINISTRATION OF THE QUESTIONNAIRE

Where

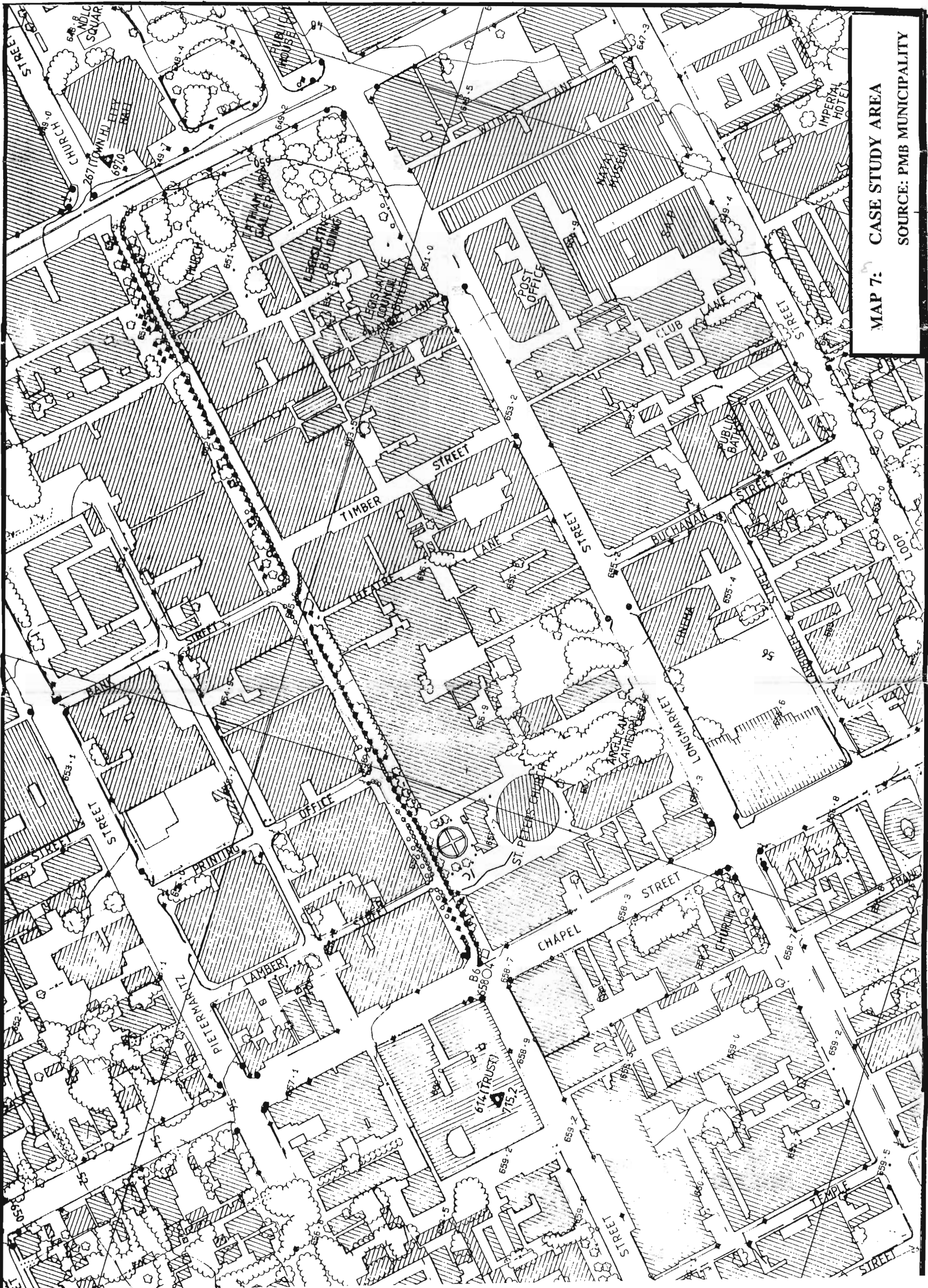
The questionnaires were administered in the Pietermaritzburg CBD. This was the area within Longmarket Street, Chapel Street, Church Street, Pietermaritz Street and Commercial Road (highlighted in Map 7)

When

No set time or day was allocated for the administration of questionnaires. Questionnaires were conducted on Tuesday, the 31/10/95 between the hours of 10h00 and 16h30.

How

The same procedure that was carried out in Umhlanga, was repeated in Pietermaritzburg.



MAP 7: CASE STUDY AREA
SOURCE: PMB MUNICIPALITY

5.4.2 INTERVIEW WITH PLANNERS

Interviews were conducted with two people who were involved with the "Pedestrianisation" and "Traffic Calming" schemes in Pietermaritzburg. ~~The purpose of these interviews~~, like in Umhlanga, were conducted in order to obtain their assessment on these specific planning programmes in which they were involved in and to determine if their objectives were achieved.

An interview was conducted with Mr Dave Richardson on 24 October 1995. Mr Richardson is an urban designer by profession at the Pietermaritzburg Municipality. He was directly involved in the schemes in Pietermaritzburg CBD as an urban designer and together with an urban design team he produced the design aspects implemented in the plan.

The second interview on the Pietermaritzburg plan was conducted with Mr Mark Puttick on the 16 November 1995, a planner by profession, of Mark Puttick and Associates. At the time of preparing the plans for Pietermaritzburg, Mr Puttick was employed by Pietermaritzburg Municipality as assistant chief Town Planner. Mr Puttick was responsible for the preparation of the conceptual framework indicating the main ideas, propositions and aims, for the planning of the central area.

5.4.3 INTERVIEW WITH TENANTS

A set of interviews were also conducted with the tenants in the study area. These included the shopowners/managers of the stores in the town centre. A larger sample number of 20 tenants were interviewed in Pietermaritzburg CBD as this area was characterised by a larger variety of shops. When selecting the tenants, an attempt was made to chose various categories of shops. The reason for interviewing the tenants was to determine what effect the "Pedestrianisation" scheme has had on the business in the area.

Interviews with the tenants were conducted on 31 October 1995 and on the 16 november 1995 between 11h00 and 13h30. The researcher experienced some difficulty in obtaining a cross-section of categories as again some managers were reluctant to answer and insisted that all

questions be directed to their head office. Those interviewed included a photo-lab, take-away restaurants, furniture stores, and stationery shop, jewellery stores and clothing stores.

5.4.4 PARTICIPANT OBSERVATION

A formal participant observation exercise was also undertaken by the researcher to assess the situation in the Pietermaritzburg CBD. Once again, the researcher played the role of a pedestrian and motorist in the area, assessing how the plan catered for the needs of each role played. The researcher also walked around in the area analysing the plan in terms of how it catered for other users. This technique further helped determine the strengths and weak points of the "Pedestrianisation" and "Traffic Calming" plan in Pietermaritzburg.

5.5 FINDINGS

5.5.1 QUESTIONNAIRE TO "USERS"

The findings of the questionnaires administered to the respondents in Pietermaritzburg are dealt with here.

The majority of the respondents (68%) came from suburbs surrounding Pietermaritzburg. Twenty percent lived in the town centre, while 12% came from areas out of Pietermaritzburg.

Unlike Umhlanga, in Pietermaritzburg, the majority of the respondents were female (60%) and 40% were males. These respondents have been grouped under the following age categories as indicated by Table 9.

Table 9: Age

AGE (YEARS)	PERCENTAGE
10 - 19	16
20 - 29	44
30 - 39	16
40 - 49	12
50 - 59	8
60 and over	4
TOTAL	100

From Table 9 it is evident that although an attempt was made to obtain a cross-section of "users", the majority of respondents (44%) were between the ages of 20-29 years. Sixteen percent each of respondents were in the 10-19 and 30-39 age categories. The remaining 12% of respondents were either in the 50-59 age category (8%) or 60 and over category (4%).

Why? There a damage diffoc...

OCCUPATION

The majority of the respondents in Pietermaritzburg (32%) were employed in the clerical field. Twenty percent were students and another 20% were employed in other fields. The remaining 28% of respondents were either professionals (12%), unemployed (12%) or retired (4%).

PURPOSE OF TRIP (Fig. 16)

Fifty six percent of the respondents stated that they came to the CBD for work purposes, while 28% came to the CBD for shopping, eating or social reasons. Another 12% came to the CBD for school purposes and the remaining 4% came to the CBD for other reasons

FREQUENCY OF TRIPS TO CBD (Fig. 17)

The majority of respondents (56%) frequented the CBD on a daily basis, while 20% came to the CBD on a weekly basis. Another 16% of respondents stated that they came to the CBD 2-3 times a week and the remaining 8% came to the CBD once every couple of weeks.

FIGURE 16

PURPOSE OF TRIP

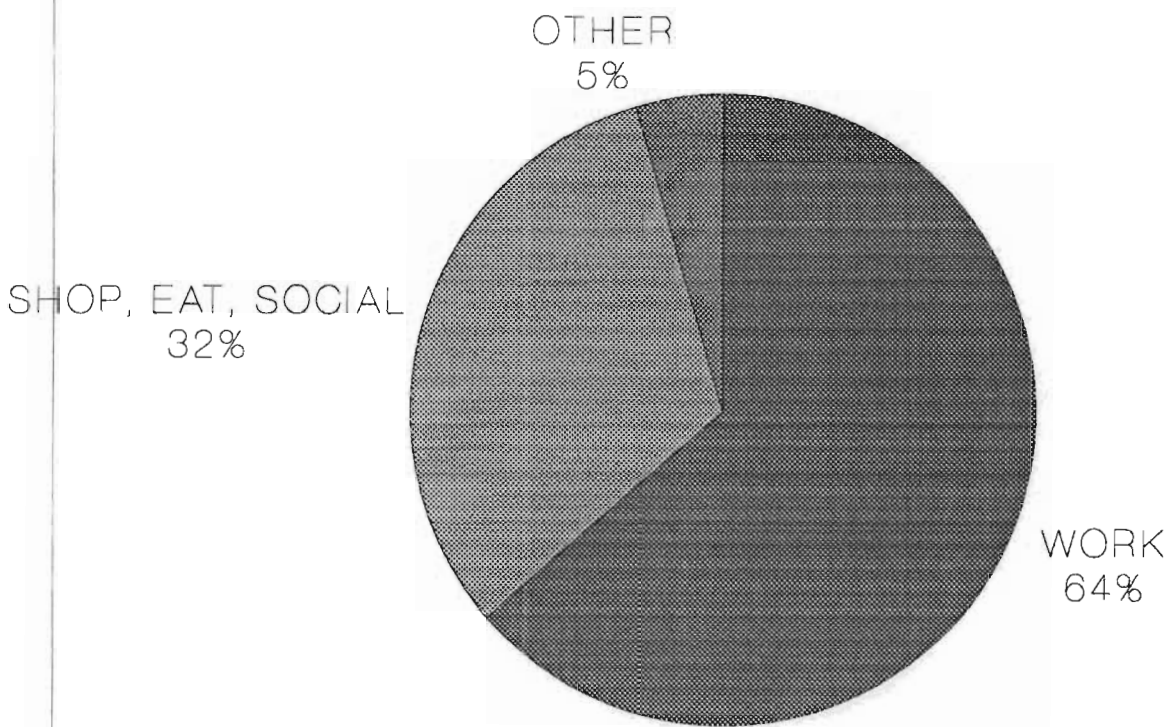
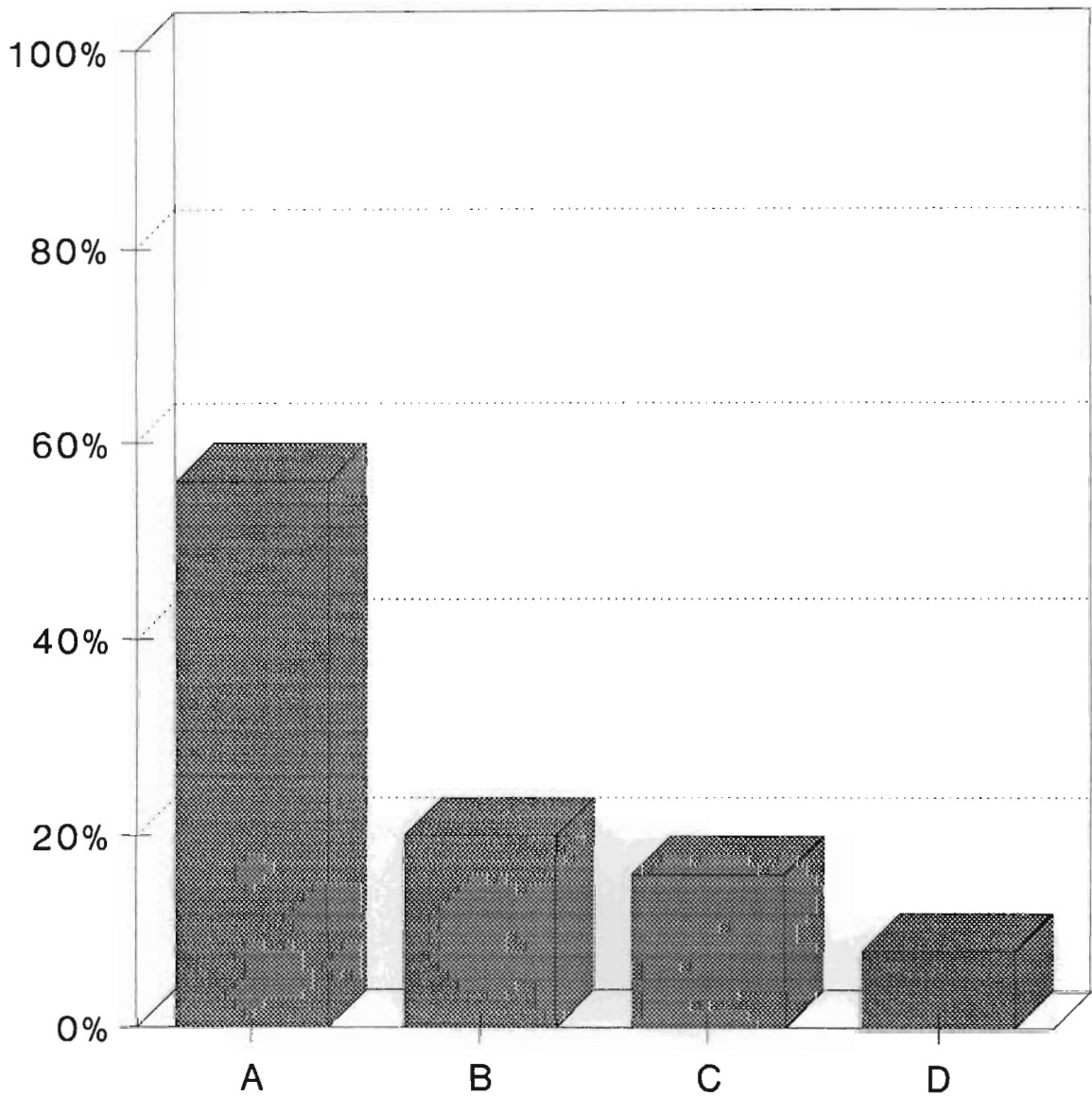


FIGURE 17

FREQUENCY OF TRIPS



A ▀ EVERYDAY; B ▀ WEEKLY
C = 2 - 3 TIMES PER WEEK
D ▀ ONCE EVERY COUPLE OF WEEKS

Table 10: Mode of Transport

MODE OF TRANSPORT	PERCENTAGE
Private	52
Mini bus taxi	28
Bus	4
Pedestrian	16
TOTAL	100

From Table 10 above, it is evident that the majority of respondents (52%) travelled to the CBD by private motor vehicle. The next popular mode of transport was the mini bus tax, by which 28% of the respondents had travelled. Sixteen percent of the respondents stated that they walked to the CBD, and the remaining 4% travelled by bus.

Table 11: Ease at finding parking

PARKING	PERCENTAGE
Easy	15
Relatively difficult	23
Very difficult	62
TOTAL	100

Of those respondents that travelled by private motor vehicle, 62% stated that it was very difficult to find parking in the CBD. Another 23% stated that it was relatively difficult to find parking while the remaining 15% of respondents had no problems in finding parking in the CBD (Table 11).

Angels have been valuable to discover at what time of the day these people had wanted parking.

IMPRESSION OF PLAN

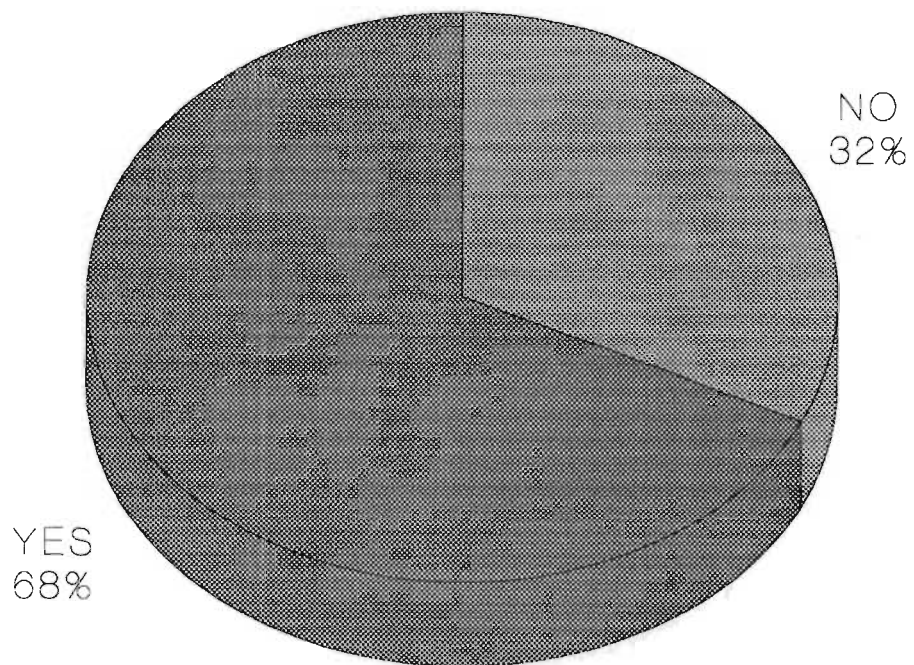
Fifty six percent of the respondents had a positive impression of the plan while 28% had a negative impression of the plan. Sixteen percent stated that they felt indifferent about the plan.

From Figure 18 it is evident that the majority of the respondents (68%) felt that a conflict still existed between pedestrians and vehicles in the study area. The remaining 32% stated that there was no conflict between pedestrians and vehicles in the Pietermaritzburg CBD.

Comments from the respondents on the weaknesses of the plan outnumbered the strengths. These weaknesses included: insufficient parking; insufficient seats/benches; insufficient space for pedestrians; lack of clear signage; insufficient crossing points; lack of safety and security; inconsiderate attitude of drivers. Strengths to the plan included the opportunity to meet and socialise with others and being able to walk from one shop to the next with less hassle from motorists.

FIGURE 18

DOES CONFLICT STILL EXIST?



RATING THE PLAN

SAFETY

Table 12: Ratings for Safety

RATING	PERCENTAGE
1 - Very poor	12
2 - Poor	28
3 - Mediocre	40
4 - Good	16
5 - Very good	4
TOTAL	100

From Table 12 above, it is evident that the plan in terms of safety was rated as being mediocre by 40% of those interviewed. Another 40% rated safety as either poor (28%) or very poor (12%). The remaining 20% rated safety as either good (16%) or very good (4%).

SECURITY

Table 13: Ratings for Security

RATING	PERCENTAGE
1 - Very poor	16
2 - Poor	56
3 - Mediocre	28
4 - Good	-
5 - Very good	-
TOTAL	100

Majority of the respondents in the sample population (56%) rated the plan in terms of security as being poor. Twenty eight percent stated that they felt security deserved a mediocre rating whereas 16% rated security as being very poor (Table 13).

COMFORT

Table 14: Ratings for Comfort

RATING	PERCENTAGE
1 - Very poor	36
2 - Poor	8
3 - Mediocre	44
4 - Good	8
5 - Very good	4
TOTAL	100

The majority of the respondents (44%) rated the plan in terms of comfort as being mediocre. Thirty six percent stated that the plan in terms of comfort was very poor. The remaining 20% respondents rate comfort as either poor (8%), good (8%) or very good (4%).

CONVENIENCE

As indicated in Table 15, convenience was rated as mediocre by 40% of the respondents. Twenty four percent rated convenience as very poor, and another 12% rated convenience as poor. The remaining 24% of respondents rated the plan in terms of convenience as either good (20%) and very good (4%).

Table 15: Ratings for Convenience

RATING	PERCENTAGE
1 - Very poor	24
2 - Poor	12
3 - Mediocre	40
4 - Good	20
5 - Very good	4
TOTAL	100

ACCESSIBILITY

Table 16: Ratings for Accessibility

RATING	PERCENTAGE
1 - Very poor	20
2 - Poor	4
3 - Mediocre	52
4 - Good	24
5 - Very good	-
TOTAL	100

Table 16 above reveals that accessibility was rated as being mediocre by 52% of the respondents. Twenty four percent rated accessibility as being good. Another 20% rated accessibility as very poor and 4% stated that the plan in terms of accessibility was poor.

ATTRACTIVENESS

The plan in terms of attractiveness was also rated as mediocre by majority of the respondents (36%). Forty percent of the respondents rated attractiveness as being either good (20%) or very good (20%). An equal number of respondents (12% each) rated the plan in terms of attractiveness as either poor or very poor This has been indicated in Table 17.

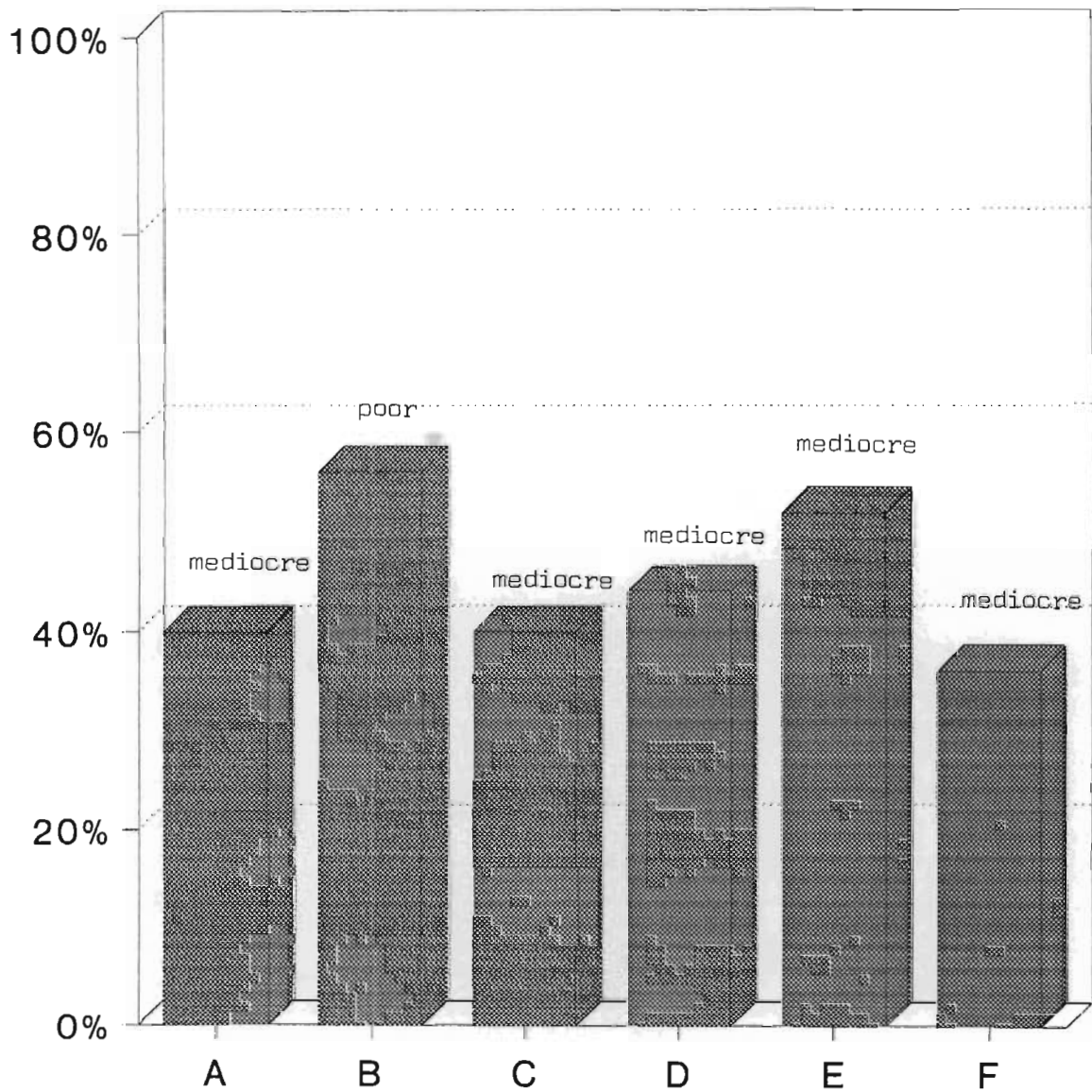
Table 17: Ratings for Attractiveness

RATING	PERCENTAGE
1 - Very poor	12
2 - Poor	12
3 - Mediocre	36
4 - Good	20
5 - Very good	20
TOTAL	100

From the above presentation of the findings it can be noted that the "Pedestrianisation" and "Traffic Calming" schemes have been received with mixed feelings by the "users" in Pietermaritzburg. This is evident in the finding that although the majority of respondents had a positive impression of the plan, most responses to these schemes, in terms of comfort, security, convenience, accessibility and attractiveness have been rated as either mediocre or poor. This is indicated in Figure 19.

FIGURE 19

RATINGS



A ■ SAFETY B ■ SECURITY C ■ COMFORT
D ■ CONVENIENCE E ■ ACCESSIBILITY
F ■ ATTRACTIVENESS

5.5.2 INTERVIEW WITH PLANNERS

5.5.2.1 **INTERVIEW ONE: MR. D. RICHARDSON**

According to Mr Richardson, generally the plan has worked, but this does not mean that it is devoid of any problems. The plan has had a positive impact as it has injected new life into the CBD, evidenced by the construction of the Fedlife Building and renovations to numerous stores in this area. The plan has also won the Concrete Mansory Award (CMA) for the construction.

The problems highlighted by Mr Richardson focused mainly on the design aspects of the plan. These include for example, the detachable poles which separate pedestrian and vehicle paths, and light fittings etc. The poles have sometimes been regarded as an obstruction in the path of the pedestrian and have been used by people for purposes (as seats) other than what it was supposed to serve.

Other problems included the issue of traders in the pedestrian paths.

"These traders have actually taken up more space than they should which has nullified pedestrian flow, in turn creating bottlenecks."

5.5.2.2 **INTERVIEW 2: MR. M. PUTTICK**

According to Mr Puttick one of the intentions of the Pietermaritzburg plan was to make the central area able to compete with other centres (i.e meeting shopping needs). The objective was to generate interest and to create confidence to the people in the area. In Mr Puttick's opinion these have been achieved.

"This plan has given direction for business to invest. The project did inject response. The Fedlife Building came as a result of press coverage of the plan."

When questioned on the issue of parking Mr Puttick stated the following:

"In Pietermaritzburg, people here believe that they should not pay for parking. Hence they do not take full advantage of the parking arcades present. They, like many other motorists prefer to park just outside the shop they intend visiting."

5.5.3 INTERVIEWS WITH TENANTS

Of those tenants that were interviewed, majority of them stated that "Pedestrianisation" and "Traffic Calming" in the CBD has had a positive effect impact on their business. According to one tenant:

"Passing trade has a proportional effect on business. This plan has made provision for pedestrians in terms of pedestrian ways, which in turn has increased passing trade. It is more convenient to be a shopper on foot than a shopper travelling in a car" (Tenant of Steiner Schwartz - 16/11/95).

Other tenants stated that business has been on par, but has not deteriorated in any way as a result of the plan. Some tenants stated that the plan has injected new life into the CBD. Many of the large department stores have also relocated to where the "heart" of the pedestrian activity is. A large number of stores also had plans to renovate, either to increase floor space or to give the store a "facelift". According to the tenants, this was not a direct result of the "Pedestrianisation" plan, but rather as a step toward making their stores more attractive to pedestrians. *Not really see a distinction here*

For those tenants that are not located in the pedestrianised area, their comments were that this exclusion has had a negative impact on their business as people are not attracted to where they are located (i.e. south of Chartwell Street from Chapel Street onwards).

One of the main grievances of the tenants interviewed was the issue of insufficient parking. Some tenants stated that the lack of parking had deterred some shoppers from coming into their stores which in turn has had some indirect influence on business.

5.5.4 PARTICIPANT OBSERVATION

A formal observation by the researcher in Pietermaritzburg study area revealed the following.

As a newcomer to the area, the plan was not user-friendly, but more confusing. This can be attributed to a lack of clear and sufficient signage. There were no clear signs indicating pedestrian and vehicle paths in Church Street. There was also a lack of pedestrian crossings

in the traffic path in Church Street. One could cross at any point.

The attitude of motorists toward pedestrians was appalling. The motorists were inconsiderate to pedestrians who were crossing and did not give them preference. From this point of view the area cannot be characterised as being safe for pedestrians.

There was also a difficulty in obtaining parking. The researcher had to resort to parking in a parking arcade, which in the researcher's opinion was much higher in prices compared to parking prices in Durban.

Although benches are provided in the semi-pedestrianised area, they were insufficient. There is also a lack of sufficient bins in the area and dirt (pieces of paper, leaves, etc.) was evident throughout the area. Poles that are present which were intended to separate pedestrian and vehicle paths, serve more as an obstruction in the pedestrian path. Another problem observed by the researcher was the presence of informal traders. These traders have taken up more space than they should, which in turn has impeded pedestrian movement, although not at a drastic level.

The "Pedestrianisation" plan has created an environment that has shops within easy walking distance of each other. There is also sufficient space for pedestrians to walk.

With regards to data on traffic volumes, accident rates, and speed of traffic, comments on these stem from the observation technique. Due to the restrictions on vehicles within the pedestrianised area, traffic volumes, accidents, speed of traffic and pollution levels did not appear to be a problem.

5.6 CONCLUSION

5.6.1 QUESTIONNAIRE TO "USERS"

The majority of the respondents came to Pietermaritzburg CBD mainly for shopping, recreational or social reasons with the frequency of trips being mainly daily. Most of the respondents are employed in the clerical field and the popular mode of transport was the

private motor vehicle. Parking was regarded as a major problem at all times, especially during week-ends and month ends. The majority of respondents had a positive impression of the plan that was implemented in the town centre, despite the fact the majority of the respondents felt that a conflict still exists between pedestrians and vehicles in this area. They viewed this plan as a step toward mitigating this conflict between pedestrians and conflict.

The "Pedestrianisation" plan has been rated mostly as being mediocre in terms of safety, convenience, comfort, accessibility and attractiveness but poor in terms of security.

Strengths of the plan include sufficient space for movement of pedestrians as well as the seating places provided. It also provided an environment in which one could socialise and meet other people.

With regards to the weaknesses of the plan, the issue of parking was the most critical one, since the perception of businessmen and the "users" was that the CBD had an acute parking problem. The real issue was that of price, and not supply since there was more attention in deriving a comprehensive policy which would address the issue of how to subsidise casual parking. It is clear that until this issue is settled, support for the "Pedestrianisation" and "Traffic Calming" schemes would decline.

Another weakness included a lack of activities that would attract more people to the area. The inconsiderate attitude of drivers was also considered to be a grievance.

5.6.2 INTERVIEW WITH PLANNERS

There appears to be some mixed views from the planners interviewed regarding the effectiveness of the "Traffic Calming" and "Pedestrianisation" schemes in the Pietermaritzburg CBD. Although the objectives of stimulating investment in the CBD had been achieved, there have been design problems that have resulted. The issue of parking and the provision thereof has not been addressed with the attention it deserved. Also, the conflict with vehicles and clarity of movement persists.

5.6.3 INTERVIEW WITH TENANTS

Overall the "Pedestrianisation" and "Traffic Calming" schemes have been positively received by the tenants. Initiative has been taken by many tenants to make their stores inviting to customers. Business has improved since the implementation of the plan, despite this not being a direct effect of the plan.

5.6.4 PARTICIPANT OBSERVATION

From the results of the observation technique there appears to be more weaknesses to the plan than strengths. This may not necessarily be true since observations were merely what the situation appeared to be visually. The true impact of the plan, together with its strengths and weaknesses can only be determined from a research study 'larger' than this one.

Finally, despite the problems associated with the "Pedestrianisation" and "Traffic Calming" schemes in the Pietermaritzburg CBD, this scheme has been regarded as a positive step in the right direction by all those interviewed (i.e the "users", tenants and planners). The problem of insufficient and expensive parking needs to be immediately addressed. This needs to be complimented with steps at making the area more user-friendly and attractive.

CHAPTER SIX: INTERPRETATIONS OF BOTH CASE STUDY AREAS

6.1 INTRODUCTION

This chapter of the study deals with the interpretation of the findings and conclusions from both case study areas. At the outset it is important to note that the pedestrianised area or traffic calmed area in both Umhlanga and Pietermaritzburg was not a "main" traffic carrier route. In Umhlanga this was a road of reasonable importance giving access to the North Coast. In Pietermaritzburg the main traffic is concentrated in other alternate routes which goes past the pedestrianised/traffic calmed road. A solution which has been implemented in Pietermaritzburg involved re-directing this main traffic to a "by-pass" or the creation of a "traffic-box" around the core of the central area which will lead through traffic around, rather than through the central area.

This chapter would also be dealing with a comparative analysis of "Pedestrianisation" and Traffic Calming" in the Umhlanga Town Centre and the Pietermaritzburg CBD. The interpretation would be carried out in a manner that would assess if the pedestrian planning objectives of safety, security, convenience, comfort, attractiveness and system coherence etc. were achieved or not. However an assessment of these schemes in relation to issues such as accidents, volumes of traffic, pollution etc. will not be considered in this pilot study.

6.2 SAFETY

As stated in the conceptual framework, safety usually involves enabling pedestrians to be in the street and cross it without risk of injury or harassment from drivers. In Umhlanga safety was rated as good. The planners interviewed in Umhlanga also viewed the area as being more safe than what it used to be. Similar results were noted in the observation technique. The plan in Umhlanga tried to improve pedestrian safety by locating various pedestrian crossings within the traffic path. Traffic was forced to slow down or sometimes stop at these pedestrian crossing points. This implies that preference has been given to the pedestrian in an attempt to ensure their safety in the area. The safety of the pedestrians had also been considered in the "Traffic Calming" elements in the plan. These included slow speed limits

low comparison here is, to some extent, unfair, as the two areas are so different and have very different traffic patterns

and twists and turns in the road pattern. This was in keeping with two goals of "Traffic Calming", which is to improve safety and to achieve slower speeds.

In Pietermaritzburg the issue of safety has been regarded as mediocre. Comments from the planners did not focus much on the issue of safety, and furthermore the observation technique revealed that the plan did not devote much attention to the issue of pedestrian safety. This does not mean that safety was not considered in the proposals, but rather it was more implicit than explicit. Although pedestrian crossings were provided at intersections, the semi-pedestrianised areas were devoid of any. Motorists also did not give priority to crossing pedestrians. Rather, pedestrians had to endure the shouting and hooting of motorists when attempting to cross the semi-pedestrianised area.

From the above discussion on safety it can be noted that the issue of safety in the Umhlanga plan fares much higher than that in the Pietermaritzburg scheme. In other words safety should be a priority in any "Pedestrianisation" or "Traffic calming" scheme and should be given the attention it deserves in order for such a scheme to be successful.

6.3 SECURITY

After an analysis of data from the various data collection methods it can be noted that the issue of security in Umhlanga was regarded as good. The street configurations were arranged to enhance clear observation. Other design elements and their location or arrangements also ensured unobstructed lines of sight. Police also patrolled the area frequently so as to discourage any crime from taking place and at the same time creating a sense of security among the users of the area. The creation of a public sense of security has also been regarded as a way of assessing the success of any "Traffic Calming" scheme.

Security in Pietermaritzburg was perceived to be poor. Although the presence of police was evident in the area (from observation), there were no policemen on foot to be able to come to the assistance of a pedestrian if the need arose. For example, while the researcher was conducting interviews with the pedestrians, there was an old-aged woman (81 years) who fell and hurt her hand. Although the researcher ran to her assistance there was no police officer

available at that time, nor could one be found in the half an hour that it took for the lady to be able to be on her way again.

There was no perceived sense of security among the users as many stated that they constantly had to look over their shoulder when walking, as pickpocketers were a threat. Further there was no clear line of visibility, which in turn affected perceived security.

In Umhlanga, the plan works well in terms of security. However this does not imply that no further security measures should be considered. Pietermaritzburg on the other hand needs to immediately address the issue of security in order for the plan to well received in the future.

The safety and security of pedestrians and vehicles is an important factor when considering development since a lack of safety and security can lead to a decline in business.

6.4 COMFORT AND CONVENIENCE

Both comfort and convenience were rated as good in Umhlanga. There were no obstructions in the pedestrian path, hence pedestrian flow was not impeded in any way. Outdoor restaurants and benches were available for the comfort and convenience of the pedestrians and motorists. The distance between shops on either side of the semi-pedestrianised area were at no inconvenience to the shopper. Pedestrian crossings were also evident at various points in the traffic path.

Signage is another issue that needed to be discussed as this is related to the objective of comfort and convenience. Although signage was present in the town centre of Umhlanga, it was insufficient especially for a newcomer to the area. However an information stand located at a central point in Chartwell Drive served to assist people that experienced difficulty finding their way in Umhlanga.

There was a clear lack of signage in Pietermaritzburg to indicate pedestrian paths from vehicle paths. There was also a lack of signs indicating where one was in the system and

facilities that may have been present. The metre high poles that served as a physical separation between pedestrian and vehicle paths have been regarded as an obstruction. Although the "Pedestrianisation" scheme in Pietermaritzburg has been advantageous to street traders, their locations have been considered to be an inconvenience to pedestrians. These traders have taken up more space than they should have and in turn have nullified pedestrian flow.

Insufficient and affordable parking has been regarded as the main problem of the plan in Pietermaritzburg. This has deterred people from coming into the CBD as often as they would have liked to. To obtain parking in the CBD has been more of an inconvenience to motorists than that which meets the eye.

Comparatively, Umhlanga has had more success in their plan with regards to the issue of comfort and convenience than Pietermaritzburg. Again convenience and comfort of "users" are important for business in the area.

6.5 ATTRACTIVENESS

The objectiveness of attractiveness encompasses not only aesthetic design, but the sense of excitement that should be created by an urban space. Attractiveness has been rated as very good in Umhlanga. This is due to the presence of landscaping, pavement colour and texture that is present. However Umhlanga lacked a sense of excitement that should have been created by an urban space. Special street events such as concerts, exhibitions etc. and street activities such as flea markets do not take place, which could have had a positive effect of increasing interest and attracting more people to the town centre.

Although attractiveness has been rated as mediocre by the respondents in Pietermaritzburg CBD, the area does exhibit good aesthetic qualities by the presence of landscaping, flowers and trees together with water features. In the proposal for Pietermaritzburg the central area was to serve as a stage for ongoing promotions. Organised promotions such as the Hansa Dusi Race were to be staged as a way of attracting people to the area. However not many promotions, as initially anticipated, have taken place in the area.

In sum, Pietermaritzburg tends to have more of a pedestrian "vibe" as compared to Umhlanga. This can be related to the level of separation between pedestrians and vehicles. Although both are semi-pedestrianised schemes, they differ in the following ways:

- * Apart from ten minute parking bays, there are no other parking spaces available in the pedestrianised area in Pietermaritzburg. In Umhlanga provision has been made for parking within the scheme, with no time limits. Parking is located within easy walking distance to the stores and parking garages are also available.
- * The scheme in Umhlanga has been designed to cater for the needs of a town centre whereas the plan in Pietermaritzburg has been designed to cater for the needs of a CBD. The differences are evident in the amount of space that is allocated for the pedestrian path and in particular design elements.
- * The issue of safety and security was a key objective in the Umhlanga plan whereas in the Pietermaritzburg plan this objective appeared to be more implicit than explicit.
- * The plan in Umhlanga was a development toward full "Pedestrianisation". In Pietermaritzburg separation of pedestrians and vehicles was part of an effort to revitalize the city centre.
- * Some of the objectives of the Umhlanga plan were:
 - to create a safer environment;
 - to create a more attractive environment than what existed at the time of initiation of the proposal;
 - to create a unique environment with interesting shops;
 - to provide sufficient parking;
 - inject new life into the town centre; and
 - to ease traffic flows, making provision for traffic that would be re-routed.
- * Some objectives pertaining to the plan in Pietermaritzburg were:
 - to stimulate investment into the area;
 - to provide direction for business in the area;
 - to develop the central area so that it could compete with other centres;
 - to demonstrate confidence to the people;

And this is a big difference.

- to overcome bottlenecks in the two way roads;
- to make city centre appealing to the people so that they can relax and enjoy the shopping and other amenities offered by the central area; and
- environmental improvements to promote the central area for reasons listed above.

6.6 CONCLUSION

In conclusion it can be stated that despite the pedestrian "vibe" that Pietermaritzburg exhibited, the "pedestrianisation" and "Traffic Calming" plans in Umhlanga has had more success than the plans in Pietermaritzburg in terms of safety, security, comfort, convenience, and attractiveness.

CHAPTER SEVEN: RECOMMENDATIONS

Before specific recommendations are made regarding the potential for the application of "Pedestrianisation" or "Traffic Calming" to larger suburbanised commercial streets, the following points need to be noted.

The study focused on two areas where "Pedestrianisation" and "Traffic Calming" schemes have been implemented. In Pietermaritzburg, this area was the CBD, whereas in Umhlanga the study was focused in the Town Centre. This study has attempted to look at the potential for the application of these solutions to **larger suburbanised commercial streets** where pedestrians and vehicle are in conflict. The researcher is aware that the only similarity between the larger suburbanised commercial streets and the aforementioned study areas is the commercial function, even though this commercial function differs in scale at all three levels. However although scale of function is significant, it is important to note that every shop/commercial activity experiences a conflict between pedestrians and vehicles - irrespective of the size of the activity. Hence steps need to be taken to mitigate this conflict since the needs of one pedestrian is just as important as the needs of 100 pedestrians. However the conflict at every shop is not severe to warrant the implementation of solutions such as "Pedestrianisation" and "Traffic Calming". Examples of those larger shopping areas that exhibit a conflict severe enough to warrant the need for such solutions include the Sparks Road/Brickfield Road areas (Overport), Broadway (Durban North), certain roads in Clairwood etc. "Pedestrianisation" and "Traffic Calming" are likely to be applicable in these larger suburbanised commercial streets.

The question to be asked is: What can be learnt from those areas where "Pedestrianisation" and "Traffic Calming" have been implemented - even though these areas may be larger than suburbanised commercial complexes? In other words what points or recommendations need to be stressed to ensure the success of "Pedestrianisation" and "Traffic Calming" in larger suburbanised commercial streets? It is these recommendations that the discussion now focuses on.

Dynamic of each area

Each area is unique and specific aspects of the "Pedestrianisation" and "Traffic Calming" schemes need to take note of the unique dynamics of each area. This may include the nature and severity of the conflict and the concentration of both traffic and pedestrians in each area.

The attributes of area in relation to attracting tourists also needs to be considered. If an area is to attract tourists, the special attributes of that area need to highlighted in the plan. This could include the cultural aspects of the area such as important buildings, landmarks, etc.

The separation of different forms of traffic

It is very important to separate different forms of traffic - specifically "through" traffic from "local" traffic and pedestrian traffic from vehicular traffic. In the first instance if "through" traffic is concentrated in the area where pedestrian and vehicular conflict exists, it is important to separate "through" traffic because, by definition "through" traffic is passing through and it should just pass through without interfering with "local" traffic. Any "through" traffic passing through is only contributing to congestion, air pollution and traffic noise on the central area road system. A solution which is often offered is to re-direct this traffic to a "by-pass" or to create a "traffic-box" around the core of the area which will lead through traffic around, rather than through the central area. For the local traffic travelling through the area, "Traffic Calming" should be the main element here with less "Pedestrianisation".

Explain why

Not convincing

In the second instance it is important to separate pedestrian traffic from vehicle traffic so as to make the area safer and thus more attractive to pedestrians. Where pedestrians are not exposed to the noise and fumes from vehicle exhaust systems or placed in physical danger from the vehicle themselves, they can relax and enjoy the shopping and other amenities offered by the central area. One of the most popular ways of separating pedestrians from vehicles is through the creation of vehicular free pedestrian areas such as urban parks, plazas, pedestrian malls etc. Although traffic will have to be either re-routed, re-channelled or re-directed, a "Pedestrianisation" scheme will have a greater impact in this instance.

Safety, security, comfort, convenience, accessibility, attractiveness

These are primary objectives that must be considered when planning a pedestrian area. If

"calmed" and pedestrianised streets are safer and more pleasant to be in, 'non-traffic' street activity will increase in response to the higher quality environment. If these objectives are not achieved people would not come to the area and all other attracting features will be irrelevant - in other words the level of these primary objectives may sometimes mean the difference between making a trip or not.

The issue of safety and security are also related to the presence of police in the area. This is very important in any pedestrianised/traffic calmed area as people on foot are not very mobile. If they are in any danger or require the assistance of the police, this should be available and accessible to them.

The elderly and the handicapped should be given special consideration when pedestrian accommodations are designed because they are also expected to be major users of a facility when completed.

An attractive environment that would appeal to people should also be created. This could be achieved by providing attractive landscaping, water features, trees and plants, different coloured and textured paving and street furniture, etc.

Signage and Demarcations

Firstly signage needs to be clear and visible. Both vehicles and pedestrians must know what they can and cannot do. This needs to be both implicit and explicit. Pedestrians must also know where they can and cannot cross. There needs to be clear indications of where one is in the system. Demarcations (if present) need to serve the purpose for which they have been intended and should not be an obstruction in any way.

By-passes

By-passes for traffic that have been re-routed should be easily accessible from the pedestrianised or "traffic calmed" area.

These by-passes must be able to direct traffic away from the pedestrianised area. They must be also be planned in a manner that ensures free flow of traffic. In this way it would help relieve the area of the problem of congestion.

Parking

People must be able to find parking that is conveniently located and cheap in order to park their cars and move about on foot. The activities within the pedestrianised areas must be attractive to the motorist such that the motorist must be willing to sacrifice immediately located parking in order to gain the benefits of the activities.

Area must have a distinctive character

Within the pedestrianised or "calmed" area there needs to be unique elements that would help make the area one that has a "flair" of its own. In this way people visiting the area will be able to remember it better.

Activities/Facilities

Activities that would increase pedestrian flow must be included in the plan. Pedestrian malls/areas certainly have the potential to facilitate optional and social activities, but need to provide sufficient activities to attract people to stay. These could include restaurants, side-walk cafes, entertainment (jazz-bands) facilities, concerts, street theatre etc. Flea markets could operate on certain days of the week. This would help promote contact between people in the community as well as with other people. Providing opportunities for social interaction could be achieved by restricting vehicular movement to a minimum, which in turn provides as much space as possible for pedestrian movement and activities.

Facilities such as bins and toilets that are often taken for granted must also be sufficiently provided. Other facilities such as baby feeding areas would be an added advantage not only to the mothers/fathers but would enhance the comfort and convenience offered by the area.

The spreading of activities has also been suggested as a way of integrating the pedestrianised/traffic calmed area, thus making facilities more accessible to pedestrians and thereby distributing pedestrian flow more evenly.

Focus Point

A focus point should be developed at heart of the area from which to attract people. These could include information kiosks, a stage for promotions and other activities etc.

Urban design elements

Attention to detail and the quality of urban design are very important in any "Pedestrianisation" or "Traffic Calming" scheme. Brickwork gives human scale and a change in colour in the brickwork or paving is important as this communicates essential things to people. Attention also needs to be given to the creation of interesting shapes, which in turn helps make the environment a distinctive one.

Implication for existing land uses

There needs to be close co-operation with the traders in the area as such a plan will have either a direct or indirect impact on the commercial and other land uses in the area.

The issue of informal traders should be given the attention it deserves, so that their location does not in any way result in obstructions. Kiosks should be provided for these informal traders and the location should be integrated within the design framework so that it contributes to the distinctive "character" of the pedestrianised area.

Implications for planning

The people involved in the planning exercise must bear in mind that, space to be created should be sympathetic to the needs of the people, which is what planning is all about. Ultimately any urban space is related to the street, the activity along it, its relationship with intersecting movement routes, and its ability to accommodate the social behaviour of the people it serves.

It is also important to remember that pedestrians enjoy the pedestrianised areas as places in which they could window shop, sightsee, stop and observe, converse or just "be" (Hadju, 1988).

Public participation

Although the issue of public participation has not received attention in this study, it is nevertheless important to include some comments pertaining to it. Public participation should be part of the planning process of the plan as the public plays a significant role. The needs and aspirations of those who are affected by the development are very important and need to be taken cognisance of. Public participation also provides an opportunity to note their

opinions on what aspects would make the plan successful, since the plan is being developed mostly for the benefit of the people in the area.

Finally the recommendations that have been listed should not be seen as a blue print for any "Pedestrianisation" or "Traffic Calming" scheme, but should serve merely as a guide for future developments of this nature. In essence these are points that have evolved from an evaluation of "Pedestrianisation" and "Traffic Calming" schemes that have been implemented.

CHAPTER EIGHT: CONCLUSION

The findings of this study (although of a pilot nature) were several and have been discussed within this document. However at this concluding stage of the document, a summary of these findings together with a gist of the recommendations needs to be outlined in order to present a complete "picture" of the study.

The findings from both case study areas has revealed that the "Pedestrianisation" and "Traffic Calming" schemes in Umhlanga has been more successful than that in Pietermaritzburg. This success can be attributed to the attention devoted to the pedestrian planning objectives of safety, security, comfort, convenience and attractiveness that are related to "Pedestrianisation" and "Traffic Calming".

Recommendations that stem from these findings can be summarised as follows. It is also important to highlight that these recommendations are related either directly or indirectly to the issues of safety, security, comfort, convenience and attractiveness. The recommendations have dealt with the dynamics of each area; the separation of different forms of traffic; signage and demarcations; by-passes/re-routing traffic; convenient and affordable parking; distinctive character of the area; activities/facilities; focus point; and urban design elements.

Before evaluating whether the goal of the study has been achieved or not, an evaluation of the objectives of this study is presented.

Objective 1: To assess the "Pedestrianisation" and "Traffic Calming" schemes in terms of **safety**

This objective has been achieved, however not absolutely, as some issues that are related to safety, such as accidents, traffic speed and volumes of traffic have not been considered in this study. The basic concern of pedestrian safety is the reduction of pedestrian-vehicle conflict. It can be concluded that the success of any "Pedestrianisation" or "Traffic Calming" scheme is dependent on the issue of safety which indirectly reduces the conflict between pedestrians and vehicles.

Objective 2: To assess the "Pedestrianisation" and "Traffic Calming" schemes in terms of **security**

This objective has been partially achieved because data on the issue of security was obtained via comments from the various people interviewed as well as by participant observation, and not from surveys dealing specifically with the issue of security. These findings did suggest that security is just as important as safety for the success of any "Pedestrianisation" or "Traffic Calming" scheme.

Objective 3: To assess the "Pedestrianisation" and "Traffic Calming" schemes in terms of **comfort and convenience**

This objective has been achieved. Findings from the study indicate that people love to be pampered. If proper steps are taken in the "Pedestrianisation" and "Traffic Calming" schemes to ensure pedestrian comfort and convenience, people are attracted to the area, which in turn guarantees the success of such schemes.

Objective 4: To assess the "Pedestrianisation" and "Traffic Calming" schemes in terms of **attractiveness**

Attractiveness encompasses not only aesthetic design but the sense of excitement that should be created by an urban space. This objective has been achieved but it needs further examination in terms of related issues such as air and visual pollution, which were not considered in this study. The attractiveness of a pedestrianised or "traffic calmed" area is equally important to the objectives above to ensure the success of such schemes.

From the above evaluation of the objectives of the study it can be concluded that the goal of this study has been achieved. An evaluation of the success/failure of the "Pedestrianisation" and "Traffic Calming" schemes in both Umhlanga and Pietermaritzburg have been presented in this document, together with the reasons thereof. These reasons which are associated with the success of such schemes also indicate that "Pedestrianisation" and "Traffic Calming" do pose as a potential solution to larger suburbanised commercial streets. Further these reasons

also suggest that such schemes will have a "generally positive impact" as a means of mitigating the conflict between pedestrians and vehicles in the suburbanised commercial streets.

Thus the hypothesis that "Pedestrianisation" and "Traffic Calming" will have a "generally positive impact" as a potential solution to suburbanised commercial streets in attempting to mitigate the negative impacts of motor vehicles in areas where pedestrians and vehicles are in conflict, **is accepted.**

This implies that "Pedestrianisation" and "Traffic Calming" present new possibilities in the planning of pedestrian areas. In theory this should not be looked at in isolation. Rather they should be seen as part of more extensive developments and in combination with numerous other measures such as environmental traffic management. The part they play in the consolidation of retail trade (expansion and modernization of existing business) should also be remembered.

In practice the success of such schemes have been demonstrated in a wide variety of applications from town centres of suburbs to CBDs of major cities. Further development and more detailed studies need to be undertaken to substantiate and elaborate the "pilot" nature of this study in order to establish the limits of the potential of these schemes in more complex situations where greater conflicts may arise.

As stated at the beginning of the document, only until recently has attention been given to heavy trafficked suburbanised commercial streets in South Africa. Such a venture provides planners with the opportunity to address this conflict between pedestrians and vehicles in these streets while at the same time investigating and experimenting with something new and different.

In general "Pedestrianisation" and "Traffic Calming" implies realising the importance of walking and the benefits associated with prioritising pedestrian movement over vehicle movement. After all, the following words of McMillen (1976) are true.

"We must remember that all people are pedestrians; only some people are car users."

REFERENCES

- Bacon, E. (1967) Design of Cities Thames and Hudson Ltd, London.
- Bednar, M.J. (1989) Interior Pedestrian Places Whitney Library of Design, New York.
- Boeminghaus, D. & Kramer, K. (1982) Pedestrian Areas and Design Elements.
- Borough of Umhlanga (1986) A Development Plan for Umhlanga Town Centre.
- Braun & Roddin, Benefits of separating pedestrians and vehicles, in Planning Design and Implementation of Bicycle and Pedestrian Facilities: Proceedings of the Fourth National Seminar of American Society of Civil Engineers (1975).
- Breines, S. (1974) The Pedestrian Revolution Random House Inc. New York.
- Buchanan Report, (1963) Traffic in Towns Her Majesty's Stationery Office, London.
- Burde, C.D. The Evolution of Pedestrianisation and Malls in, Architecture S.A, October, 1981, No 15.
- Danish Ministry of Transport (1987), in Pharoah, T.M. & Russell, J.R.E. Traffic calming policy and performance, in Town and Regional Planning Review, 1991, 62 (1).
- Department of Transport (1989) East London Assessment Study, in Russell, J. Traffic calming and town planning, in TPR, 1990, 61 (2).
- Engwicht, D. (1992) Towards an Eco-City: Calming the Traffic, Envirobook, Sydney.
- Fruin, J. J. (1971) Pedestrian Planning and Design Metropolitan Association of Urban Designers and Environmental Planners Inc., New York.

Greater London Council (1974) Pedestrianised Streets

Gruen, V. (1973) Centres for the Urban Environment: Survival of the Cities Van Nostrand Reinhold Ltd, New York.

Gruen, V. & Smith, L. (1960) Shopping Towns: The Planning of Shopping Centres Van Nostrand Reinhold Ltd, New York.

Hadju, J. G. Pedestrian Malls in West Germany, in American Planning Association, 1988, vol 54, 325-335.

Hass-Klau, C. Environmental Traffic Management in Britain, Built Environment, 12 (1/2).

Hass-Klau, C. (1990) An illustrated guide to traffic calming, in Russell, J. Traffic calming and town planning, TPR, 1990, 61 (2).

Hass-Klau, C.; Nold, I.; Bocker, G. & Crampton, G. (1992) Civilised Streets: a guide to traffic calming Environmental and Transport Planning, Brighton.

Hillman, M. (1983) The wrong turning: twenty years on from Buchanan, cited in Hass-Klau, C. Environmental Traffic Management in Britain, in Built Environment, 12 (1/2).

Hillman, M. & Whalley, A. (1979) Walking is Transport, in Hass-Klau, C. Environmental Traffic Management in Britain, Built Environment, 12 (1/2).

McMillen (1976) in Test Quality streets: How traditional urban centres benefit from traffic-calming ((1989) Test, London.

Neeskens, J. (1987) Effects on Life and Safety of the 30km/hr Demonstration Project, in Pharoah, T.M. & Russell, J.R.E. Traffic calming policy and performance, in Town and Regional Planning Review, 1991, 62 (1).

O'Connor, Traffic Mix, in Planning Design and Implementation of Bicycle and Pedestrian Facilities: Proceedings of the Fourth National Seminar of American Society of Civil Engineers (1975).

Pharoah, T.M. & Russell, J.R.E. Traffic calming policy and performance, in Town and Regional Planning Review, 1991, 62 (1).

Planning Design and Implementation of Bicycle and Pedestrian Facilities: Proceedings of the Fourth National Seminar of American Society of Civil Engineers (1975).

Plowden, S. (1972) Towns Against Traffic Andre Deutsch Ltd, London.

Pietermaritzburg City Engineers Department - Town Planning (1986) Pietermaritzburg 2000.

Pietermaritzburg City Engineers Department (1988) Central Area Master Plan: Urban Design Phase.

Pushkarev, B. & Zupan, J. Urban Space for Pedestrians: A Report of the Regional Planning Association.

Rudofsky, B. (1964) Streets for People Anchor Press, New York.

Russell, J. Traffic calming and town planning, in TPR, 1990, 61 (2).

Test (1989) Quality streets: How traditional urban centres benefit from traffic-calming Test, London.

Umhlanga Municipality (1986) A Development Plan for Umhlanga Town Centre

Umhlanga Information Guide 1995/1996

Umhlanga Publicity Association, Umhlanga South Africa (1995)

Umweltbundesamt (1987) Information of Federal Research Project, in Pharoah, T.M. & Russell, J.R.E. Traffic calming policy and performance, in Town and Regional Planning Review, 1991, 62 (1).

Whittlegg, J. (1990) Traffic Calming: The Way Forward, in Russell, J. Traffic calming and town planning, TPR, 1990, 61 (2).

Telephonic Interviews:

1. Mr. B Maddox, Durban Municipality (28/8/95).
2. Mr. G. Quinn, Umhlanga Traffic Engineer (13/11/95).

APPENDIX ONE: PERFORMANCE CRITERIA

PERFORMANCE CRITERIA

SPEED

Speed reduction is a key evaluation criterion. Although not an objective in itself, it is the principle means of achieving road safety objectives. It is also easy to measure. With the direct evaluation of casualty reduction being very difficult for most individual schemes, speed reduction is often used as a surrogate on the assumption that road safety benefits follow automatically if speed reductions are achieved. Conflicts involving vehicle speeds of 50km/hr or more are likely to result in serious injury or death for pedestrians, whereas at speeds below 30km/hr the rise of serious or fatal injury is greatly reduced.

Is this a valid assumption? Facts. figures prove.

The effectiveness of speed reduction measures is arguably of even greater importance in the elimination of more dangerous very high speeds than in reducing average speeds. It has been stated that traffic calming, in so far as it achieves speed reduction, is certain to yield accident benefits in terms of casualties.

In traffic calming vehicle speeds are set, usually reinforced by a legal maximum limit. The main focus nowadays has shifted to speeds of 30-50 km/hr. The speed reducing effect of physical measures depends particularly on the severity of the elements themselves, and the distance between them. Suggested distances between speed reducing elements include no further than 50m apart, and preferably 30m apart or less, to prevent accelerating in between. A 'calm' style of driving is best achieved when the street can be driven at a fairly constant speed, without the driver experiencing major discomfort, or having to make frequent use of gear shifts, brakes or steering.

ACCIDENTS

The difficulties of evaluating the road safety success of individual traffic calming schemes have already been referred to. Indeed there is no single criterion of what constitutes success. Further, the 'before' and 'after' periods required to accumulate sufficient data on accidents are simply too long to permit such analysis. Nevertheless, evidence has accumulated over recent years, from aggregate studies and studies of larger demonstration schemes, of clear success in reducing casualties.

An overall evaluation was conducted of over 600 traffic calming schemes in Denmark in order to overcome this small data set problem. Results showed reductions in casualties of 45% compared with a control sample of untreated roads over similar three year before and after periods.

TRAFFIC VOLUMES

Reducing traffic volumes creates more possibilities for traffic calming measures, although, like speed reduction, it is a means of achieving safety and environmental objectives rather than an end in itself. The smaller the maximum traffic volume, the greater the opportunity for speed and carriageway reduction.

The extent to which calming measures reduce and divert traffic depends on factors such as (i) level of congestion on and directness of routes; (ii) the degree and speed reduction achieved, and the relative speed on alternative routes; and (iii) the proportion of 'marginal traffic' such as short trips that might cease to be made.

NOISE

Vehicle speed correlated positively with noise. Evidence shows that a 4-5dBA noise reduction can be expected if speeds are reduced from 50 km/hr to 30 km/hr (Neeskens, 1987).

Reducing carriageway widths can reduce noise levels in buildings. High frequency sound may also be absorbed by the introduction of trees and planting.

To what effect?

AIR POLLUTION

Emissions are found to be lower at 30 than 50 km/hr, and evidence suggests that schemes designed to encourage steady driving speeds are rather more effective in reducing emissions than slow speeds per se (Umweltbundesamt, 1987).

Is this important if you are referring?

PARKING

Changes in parking provision are not usually specific as an objective of traffic calming, but the impact of schemes on parking is often an important issue. Surplus carriageway (example when lanes are reduced) can be used for additional parking. Angled parking can be used

instead of lateral parking, as angled parking on one side of the road provides roughly the same capacity as lateral parking on both sides. There are also safety benefits claimed from this arrangement because it reduces by half the chance of children being masked by parked cars, as well as reducing the speed at which any impact occurs.

PEDESTRIAN AND STREET ACTIVITY

It has been suggested that if 'calmed' streets become safer and more pleasant to be in, 'non-traffic' street activity will increase in response to the higher quality environment.

PERCEIVED SECURITY

For traffic calming to be judged successful it is important that the level of risk is in reasonable accord with public perception of safety. If residents perceive a street as safe, but their resulting behaviour exposes them to danger, this may aggravate the accident problem.

Surveys of residents, such as those conducted as part of the Danish village evaluations, show major positive effects on feelings of security. In Vinderup, for example, 80% of all adult road users felt safe as pedestrians and 75% as cyclists after implementation of the scheme, compared with 51% and 17% before respectively (Danish Ministry of Transport, 1987).

VISUAL APPEARANCE AND ECOLOGY

Redesigning to calm traffic inevitably alters the appearance of the street, and greater efforts have been made to introduce designs which enhance rather than detract from the street scene. Indeed, calming is seen to be a successful combination of traffic engineering and urban design. The 'greening' of an area is often an integral and major objective of schemes, introducing planting in order to improve appearance and other aspects.

APPENDIX TWO: QUESTIONNAIRE TO "USERS"

UNIVERSITY OF NATAL-DURBAN
 DEPARTMENT OF TOWN AND REGIONAL PLANNING
 QUESTIONNAIRE: ASSESSMENT OF "PEDESTRIANISATION" AND "TRAFFIC
 CALMING"

(please cross where appropriate)

1. PLACE OF RESIDENCE: _____

2. SEX:

MALE	FEMALE
------	--------

3. AGE:

	10 - 19
	20 - 29
	30 - 39
	40 - 49
	50 - 59
	60 AND OVER

4. OCCUPATION:

	PROFESSIONAL, MANAGERIAL, TECHNICAL
	CLERICAL
	HOUSEWIFE
	LABOURER
	CRAFTSMAN
	SELF EMPLOYED
	UNEMPLOYED
	RETIRED
	STUDENT
	OTHER (PLEASE SPECIFY)

5. HOW OFTEN DO YOU USUALLY COME TO THE TOWN CENTRE?

	EVERYDAY
	ONCE A WEEK
	2 - 3 TIMES A WEEK
	ONCE EVERY COUPLE OF WEEKS
	OTHER (PLEASE SPECIFY)

Time?

6. ON WHAT DAYS? _____

7. METHOD OF TRAVEL TO TOWN CENTRE?

	PRIVATE VEHICLE
	BUS
	MINI BUS TAXI
	TAXI
	WALK
	OTHER (PLEASE SPECIFY)

8. IF YOU USED A PRIVATE VEHICLE TO COME TO THE AREA, HOW DIFFICULT WAS IT TO OBTAIN PARKING? (IN YOUR ANSWER, PLEASE CONSIDER THE DISTANCE YOU HAD TO WALK BETWEEN WHERE YOU INTENDED GOING AND WHERE YOU FOUND PARKING, AND HOW DIFFICULT IT WAS TO GET INTO THE PARKING BAY)

	EASY
	RELATIVELY DIFFICULT
	VERY DIFFICULT

9. IF YOU CAME BY PUBLIC TRANSPORT, WHERE DID IT DROP YOU OFF?

10. PURPOSE OF TRIP?

	WORK
	PERSONAL BUSINESS, MEDICAL, DENTAL
	SHOPPING, SOCIAL RECREATION, EAT
	SCHOOL
	TO HOME
	OTHER (PLEASE SPECIFY)

11. DISTANCE TRAVELLED FROM WHERE YOU STAY TO TOWN CENTRE?

	< 4 KM
	5 - 10 KM
	11 - 15 KM
	16 - 20 KM
	> 20 KM

12. WHAT IS YOUR IMPRESSION OF THIS PLAN THAT HAS SEPARATED PEDESTRIAN AND VEHICLE MOVEMENT?

	POSITIVE (GOOD, USER FRIENDLY ETC)
	NEGATIVE (UNPLEASANT, INCONVENIENT ETC.)
	INDIFFERENT

13. DOES THIS PLAN IN ANY WAY CATER FOR YOU AS A PEDESTRIAN? HOW?

14. WHAT WOULD YOU REGARD TO BE THE STRENGTHS AND WEAKNESSES OF SUCH A STRATEGY IN THIS TOWN CENTRE?

STRENGTHS/WHAT WORKS WELL FOR YOU HERE?

WEAKNESSES/WHAT ARE THE PROBLEMS THAT YOU EXPERIENCE WITH THIS PLAN HERE?

15. AFTER VISITING SUCH A PLACE THAT HAS TRIED TO REDUCE CONFLICT BETWEEN PEDESTRIANS AND VEHICLES, DO YOU THINK THAT A CONFLICT STILL EXISTS IN THIS TOWN CENTRE?

	YES
	NO

16. HOW WOULD YOU RATE THE PLAN/SOLUTION IN THE TOWN CENTRE IN TERMS OF:

SAFETY	1	2	3	4	5
SECURITY	1	2	3	4	5
CONVENIENCE	1	2	3	4	5
COMFORT	1	2	3	4	5
ACCESSIBILITY	1	2	3	4	5
ATTRACTIVENESS	1	2	3	4	5

RATINGS: 1 - 5
VERY POOR - VERY GOOD

17. ARE THERE ANY OTHER THINGS THAT NEED TO BE DONE THAT WOULD IMPROVE THINGS FOR YOU HERE? (OTHER COMMENTS/SUGGESTIONS)

DATE: _____ TIME: _____

THANK YOU FOR YOUR TIME AND CO-OPERATION.

S. POORAN (941330814)

APPENDIX THREE: QUESTIONS TO PLANNERS

INTERVIEWS

DATE: _____

TIME: _____

PERSON INTERVIEWED: _____

QUESTIONS TO PLANNERS

1. HOW WERE YOU INVOLVED IN THIS PLAN/DEVELOPMENT TO SEPARATE PEDESTRIAN AND VEHICLE MOVEMENT?
2. WHAT WERE YOU HOPING TO ACHIEVE?
3. WHAT DID YOU ACHIEVE?
4. HOW EFFECTIVE HAS THE PLAN BEEN?
5. WHAT WERE THE PROBLEMS ENCOUNTERED DURING AND AFTER THIS PLAN TO SEPARATE PEDESTRIANS AND VEHICLES?
6. WHAT POSITIVE EFFECTS /SPIN-OFFS HAS THIS PLAN HAD?
7. HOW WERE THE PEOPLE INVOLVED, I.E THE PEDESTRIANS, MOTORISTS, TENANTS AND OTHER USERS OF THE AREA?
8. IN TERMS OF MODIFICATIONS, WHAT CHANGES DO YOU THINK COULD AND SHOULD OCCUR?
9. ARE THERE ANY FUTURE PROPOSALS FOR FURTHER "PEDESTRIANISATION" AND "TRAFFIC CALMING" IN THIS TOWN CENTRE?

APPENDIX FOUR: QUESTIONS TO TENANTS

INTERVIEWS

DATE: _____

TIME: _____

PERSON INTERVIEWED: _____

QUESTIONS TO TENANTS

1. WERE YOU INVOLVED IN ANY WAY IN THIS PLAN TO SEPARATE PEDESTRIAN AND VEHICLE MOVEMENT IN THE TOWN CENTRE? IF YES, HOW?

2. WHAT DID YOU THINK OF SUCH A PLAN BEFORE IMPLEMENTATION? DID YOU FAVOUR THE PLAN OR NOT?

3. DID YOU (AS A BUSINESS) FEEL THREATENED BY SUCH A PLAN? WHY?

4. HOW HAS SUCH A DEVELOPMENT WORKED OUT FOR YOU? IN OTHER WORDS WHAT HAS BEEN THE POSITIVE AND NEGATIVE ASPECTS OF THIS PLAN FOR YOU BUSINESS?

5. WHAT DO YOU FEEL NEEDS TO BE DONE TO IMPROVE THINGS FOR YOUR BUSINESS HERE?

1. ANALYSIS OF CONTENT

1.1 TOPIC AREA SELECTION

The topic selected is relevant particularly as planners are constantly looking for ways to improve the built environment and to reduce vehicle pedestrian conflict. However, it would have been useful for the author to have given examples of larger suburbanised commercial streets at the outset.

1.2 & 1.3 RESEARCH AIMS AND OBJECTIVES, AND FORMULATION OF RESEARCH QUESTIONS

The goal and objectives of the study are set out quite clearly, however some of the sub-questions raise issues which are not addressed later in the dissertation, such as "what is the nature and severity of the conflict" Consequently, the purpose of these sub-questions is questioned.

4 ADEQUACY AND COHERENCE OF CONCEPTUAL FRAMEWORK

This section was adequately covered, however the evolution of commercial developments seems to be tacked on at the end, and perhaps should have been integrated into the chapter.

APPROPRIATE SELECTION OF LITERATURE

Good.

APPROPRIATE RESEARCH METHODOLOGY

The research methodology was appropriate to the subject under investigation.

7 PRESENTATION OF CASE STUDY AND FINDINGS

Adequate. I do feel that the interviews with the planners in each of the case studies could have been elaborated upon. In addition, these types of case studies lend themselves to visual presentations, and sketches or photographs would have certainly helped explain some of the situations.

8 PRESENTATIONS OF CONCLUSION AND RECOMMENDATIONS

In Chapter 7, I feel that what the author terms "recommendations" are really criteria, that need to be taken into consideration when assessing streets or areas suitable for traffic calming or pedestrianisation, and not recommendations. The recommendations should have been far more definite, action orientated and directed to the pedestrianisation or traffic calming of larger suburbanised commercial streets. The concluding chapter I felt was weak with the author mixing her concerns about recommendations with the conclusions.

9 LITERARY STYLE AND PRESENTATION

The author's literary style is compromised through the incorrect use of "is" and "are", and "have" and "has" etc. The text would have had a more flowing style if the concepts of traffic calming and pedestrianisation were not consistently in inverted commas with capital letters.

GENERAL ASSESSMENT

- 1 It is clear that the author has adequately evaluated the schemes implemented in Umhlanga and Pietermaritzburg, however, I feel that the application of these schemes to larger suburbanised commercial streets was weak.

2 CRITICAL ANALYSIS OF MATERIAL

The author covered the conceptual material and empirical material well.

3 COHERENCE AND SYNTHESIS OF INFORMATION

The information was well synthesised, except (as mentioned previously) the sections covering the interviews with the town planners could have been far more comprehensive and interesting.

COMPREHENSION OF MAIN ISSUES

There was good understanding of the main issues.

5 STRUCTURE AND ORGANISATION OF MATERIAL

Well structured and organised.

6 DEVELOPMENT OF ARGUMENT

The author developed her argument logically, however the recommendations and conclusions were not as carefully thought through as the rest of the dissertation.

A. GENERAL COMMENTS

Ms Pooran has identified an interesting and potentially valuable research question. Her method - of assessing and comparing two case studies and incorporating both academic criteria and surveys - is sound in principle.

In general, however, what began as an exciting research project was not developed sufficiently. Ms Pooran has made a fair first attempt, but her analysis tends to be uncritical and her extraction of recommendations and conclusions not entirely satisfying. The strengths of this dissertation lie in the topic, in the logic of its structure and in the research process adopted. Its weaknesses lie primarily in the level of academic rigour applied. This is true of both the literature review and the research data collected - neither has been subject to the necessary critical, creative evaluation that could have taken this dissertation to a more successful conclusion.

B. CONTENT

1. Topic Area: Relevance and Qualification

Good, in general. Fine level of consideration of contemporary urban conditions. What is missing, however, is acknowledgement of a parallel vein in Planning literature of the 1980's and 90's that is dismissive of Pedestrianisation and Traffic Calming as ways of mitigating said conditions.

2. Research Aims and Objectives

Aims are fine, well articulated. Objectives tend to be too limited; the result being that the dissertation remains focused on rather small, unambitious objectives instead of attempting to develop a new theory or perspective.

Research Question

satisfactory main question. Too broad, and really unrelated to research tasks that emerge in body of the dissertation.

Definitions

Generally weak, not well thought-through. Tend to be simplistic. The two main concepts, pedestrianisation and Traffic Calming are presented throughout the dissertation in a confused and ambiguous way, in spite of repeated assertions that these are separate and distinct.

Literature Review/Histoty

Plagiaristic and superficial. Also very dated; many of the references cited are twenty plus years

Research Methodology

Sound in principle, though analysis is weak and data itself insufficient.

Case Studies

Failed to have used a comparative system, though the choice of case-studies is largely unexplained and possibly a case of ending up comparing two areas that have too many differences to begin with.

Analysis of the Material

Clear tendency to take borrowed statements at face value, rather than critically assessing their validity in each new context. In both the historical (background literature) section and in the analysis of case-study material, the level of actual analysis and debate is low. Ms Pooran has relied heavily on descriptions without addressing the significance of what has been described. In short, the *conclusions* that are drawn do not reflect any real developments emerging from the research - they are largely the well-known urban design rhetoric of what constitutes good pedestrian areas.

9. Literary Style and Presentation

The report is well-structured, with an attractive logic, spoilt only by some repetition of sections and the use of some frustrating numbering. In general, heading topics run well into each other, but the 'content' of many of the paragraphs disrupts the expected literary flow. Grammar is frequently bad - this would have benefited from a grammar-check or a second read-through.

10. THE FINAL PRODUCT

What is missing is a commitment to a real understanding of a) Pedestrianisation and Traffic calming, and b) how these may be used in NEW ways to achieve better pedestrian environments. The writer has acknowledged a competition between vehicles and pedestrians but has not gone far enough in her evaluation, to come up with anything new or immediately useful in the South African context. Part of the problem, too, is in fact a lack of admission that this IS a South African research, and that the urban areas quite possibly have characteristics specific to the local culture/economy - her brief reference to street traders was an opportunity missed.

By not developing an argument through hard thinking and critical analysis, and by ignoring the specific South African context, the process of research has been hindered, and the outcome is not as valuable or significant as it might otherwise have been.

In short, this is not a *bad* dissertation, but rather a disappointing one, as it could have been something bigger and more exciting in its delivery.