



CURRENT PUBLIC TRANSPORT RECORD

DRAFT FOR COMMENT



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1 INTRODUCTION

This is the final issue of the Current Public Transport Record (CPTR) study to provide the Status Quo of public transport services, operations, facilities and infrastructure, which will constitute the basis for the development of the Operating Licenses Strategy (OLS), Rationalisation Plan (RATPLAN), Public Transport Plan (PTP) and the Integrated Transport Plan (ITP) for the uThukela District Municipality in KwaZulu Natal.

1.1 Appointment

UWP Consulting was appointed on 1 April 2005, by the uThukela District Municipality to carry out a Current Public Transport Record (CPTR) study for the whole uThukela District Municipality area.

1.2 Scope and Services

This study meets the basic requirements of the guidelines for concluding the first CPTR for the uThukela area. These guidelines are prescriptive as set out in the Department of Transport CPTR: Planning Requirements in Terms of the National Land Transport Transition Act, 2000 (refer 1.2.1 below).

In addition to the basic requirements, use has also been made of the following documents as information and guidance sources:

- The KwaZulu Natal Department of Transport (KZNDOT) Current Public Transport Record: Outline Document (March 2004);
- The Current Public Transport Record for uThukela District Municipality prepared by HlokoHloko Development Consultants referred to as the CPTR-1 in this document (11 March 2004.); and
- The KwaZulu Natal Provincial Public Transport Facility and Route Numbering System.

1.2.1 Act 22 of 2000 (NLTTA)

The document titled Requirements and Format for Preparation of Current Public Transport Records by Core Cities, as published in the Government Gazette on 22 May 1998 under General Notice No. 847 of 1998, as amended in terms of section 23(2) of the National Land Transport Transition Act 2000 (Act No. 22 of 2000) has been utilised as the base structure to prepare the CPTR.

1.3 The uThukela District Municipality

The uThukela District Municipality comprises the following local Municipalities as shown on **Figure 1.1**. 'KZ232' is the code used by uThukela District Municipality to distinguish between the different local municipalities within uThukela District. The number allocated to each of the local municipalities is based on the provincial code given to each authority. 'Emnambithi' is the name of the particular local municipality in uThukela with (Ladysmith) being the main town within the local municipality. uThukela has five local municipalities, namely:

- **KZ 232** – Emnambithi/Ladysmith (Ladysmith)
- **KZ 233** – Indaka
- **KZ 234** – Umtshezi (Estcourt)
- **KZ 235** – Ukhahlamba (Bergville)
- **KZ 236** – Imbabazane

Figure 1.1: Study Area



Ladysmith and Estcourt are the main economic centres within uThukela that provides the majority of work opportunities in the region. Each of the five Local Municipalities (LMs) within the District are however unique in that they cover both towns (urban) and rural areas and require therefore special study procedure and analysis.

The following factors influence the way the study has been carried out:

- Physical attributes of the area (example: topography)
- Settlement patterns and urban-rural split;
- Distribution of the population in urban and rural areas;
- Land use patterns;
- Location of employment opportunities in relation to residential/living areas;
- Location of educational institutions like schools in relation to residential/living areas;
- Existing roads and public transport infrastructure; and
- Economic activity in the area.

1.4 Definitions

The following words or expressions as set out in the Act have the following meaning:

- “Act” or “the Act” means the National Land Transport Transition Act, 2000 (Act No. 22 of 2000) as amended by the National Land Transport Transition Amendment Act, 2001 (Act No. 22 of 2001).
- “CPTR” means a Current Public Transport Record.
- “Facilities” means ranks, termini, and stations, holding areas, informal ranks and holding areas and major boarding points in rural areas, for road and rail based public transport.
- “Route” means the roads or railway lines that are traversed by a vehicle or train from point of origin to point of final destination or, in the case of road-based transport, where no roads are clearly demarcated, the route followed by the particular vehicle as described with reference to landmarks or beacons.

- “*Services*” means public transport services.

The definitions as listed in Section 1 of the National Land Transport Transition Act (NLTTA), Act 22 of 2000, apply directly to the terminology used in this document. In addition to the NLTTA list of definitions and for the purposes of this report:

- A “*route section*” means the roads traversed between significant boarding and alighting points.
- A “*termini or rank*” means a facility at the end of a route or a group of routes where passengers can board and alight. It may include a vehicle holding area.
- A “*stop*” means a facility within the road reserve where passengers can board and alight.
- A “*holding area*” means a facility for parking buses and/or taxis between peak periods to avoid dead kilometres and empty return trips. It may be incorporated in a rank or terminal.
- “*Route coding system and facility coding system*” means the basis according to which routes and facilities are given a unique code in order to facilitate the identification of particular routes and facilities.
- “*Land Transport Permit System*” (LTPS) means the information system developed by the National Department of Transport and used by the Operating Licensing Boards of each of the nine provinces, and containing information on the detail of operating licenses issued to public transport operators by that particular board.
- “*Registration Administration System*” (RAS) means the information system developed by the National Department of Transport and used by the Operating Licensing Boards of each of the nine provinces, containing information on the detail of registered mini-bus taxi associations.
- “*Local Road Transport Board*” (LRTB) means a former institution replaced by the Operating Licensing Board.

2 STUDY AREA AND BACKGROUND

This section provides a brief description of the study area, the different modes of public transport and a general background to the study process.

2.1 Study Area and Population

The study area is uThukela District Municipality (DC23) comprising five local municipalities as described in Section 1 of this report. uThukela District Municipality has the sixth highest population (6.5% - 629 863) in KwaZulu Natal after Ethekewini Metropolitan Council (32.8% - 3 199 944), Umgungundlovu (9.8% - 960 819), uThungulu (9.4% - 917 451), Zululand (8.5% - 833 037) and Ugo (7.5% - 729 052). **Table 2.1** below illustrates the demographic data per local municipality based on figures obtained from the Department of Water Affairs (DWAf 2004).

Table 2.1: Demographic Data per Local Municipality

Population Distribution	Ladysmith / Emnambithi	Indaka	Umtshezi	Okhahlamba	Imbabazane	Total
Urban	103 285		31 161	2 034		136 480
Semi-urban	30 485		8 398	1 580	12 810	53 273
Rural	96 741	98 479	8 769	115 028	121 093	440 110
Total	230 511	98 479	48 328	118 642	133 903	629 863
Percentage	36.6%	15.6%	7.7%	18.8%	21.3%	100%
Density	77.75	99.46	22.69	34.06	157.06	60.4

Source: DWAf 2004

2.2 Public Transport Operators

The uThukela region is serviced by the following modes of transport and operators or associations where applicable:

Bus Operator

- Breakthrough Investments

Minibus-Taxi Associations

- Estcourt & District Taxi Association
- Bergville Taxi Association
- Complex of Limehill Taxi Association
- Klipriver Taxi Association
- Waaihoek Taxi Association
- Weenen & District Taxi Association
- Amangwe-Bhekuzulu Taxi Association
- Umhlumayo Taxi Association
- Winterton Taxi Association
- Mooiriver Taxi Association

2.3 Reason for Preparing a CPTR

The main reasons for preparing a CPTR are:

- To provide a current record of public transport services in the uThukela area; and
- To provide a current record of public transport facilities and infrastructure in the uThukela area.

These in turn would constitute the basis for development of:

- Operating Licenses Strategies (OLS)
- Rationalisation Plans (RATPLAN)
- Public Transport Plans (PTP)
- Integrated Development Plans (ITP)

The utilisation of the information gathered through the CPTR process is described in Notice 849 as follows:

- “It is concerned with the collection of information about existing ridership volumes in relation to the supply of services quantified in the CPTR. The primary objective is to identify over- and under-supply by route and route selection so that –
 - The core city can make suitable recommendations on the basis of sound information.
 - The LRTB can dispose of applications for permissions on the basis of sound information.
 - The core city can develop strategies for the short to medium term and prioritise projects for the rationalisation and improvement of services.
 - The core city can plan the preparation of tenders in the knowledge of their potential impact on other services.”

A secondary reason for preparation of a CPTR is to provide information, which can be utilised for performance monitoring of the public transport system, and to derive trends to indicate changes within the system over time.

2.4 Limitations in preparing the CPTR

The CPTR has been prepared taking into account the current procedures and approach as set in the guidelines for CPTRs in South Africa. Therefore, it only provides an indication of public transport operations and trends within the uThukela District Municipality area and it has the following limitations:

- according to the requirements, CPTR surveys should be carried out on a Tuesday, Wednesday or Thursday and not on days preceding or following after weekends or public holidays;
- the surveys only look at what is happening during one day in the year, therefore it does not cater for daily, weekly, monthly or seasonal variations in the operation of public transport; and
- due to the limitations in the surveys, weekend movements and holiday movements are not taken into account for example people living in the “homeland areas” using public transport between their homes and where they work in the cities.

3 METHODOLOGY

This section of the report provides an overview of the methodology followed in planning, preparing and executing the surveys and gathering the data required to prepare the CPTR. The section focuses on the available literature for uThukela District Municipality, the stakeholder liaison and consultation process that was followed and the planning and execution of the surveys. The section will further look at the survey forms used, the procurement and training of temporary staff for the surveys and the gathering of the required data.

3.1 Literature Review

Several guidelines, government notices, provincial documents and other sources have been used to plan, prepare and execute the surveys, code routes and produce the CPTR report. These guidelines, notices and documents are listed below:

- The KwaZulu Natal Department of Transport (KZNDOT) Current Public Transport Record: Outline Document (March 2004).
- The Current Public Transport Record for uThukela District Municipality prepared by HlokoHloko Development Consultants referred to as the CPTR-1 in this document (11 March 2004.).
- The KwaZulu Natal Provincial Public Transport Facility and Route Numbering System.
- National Transport Planning Guidelines for the Implementation of the National Land Transport Transition Act – Current Public Transport Record (CPTR) (May 2002).
- Provincial Land Transport Frameworks: Regulations Relating to Planning Requirements in terms of the National Land Transport Transition Act, 2000 – Government Notice No. 1004 of 24 July 2002.
- Current Public Transport Records: Planning Requirements in Terms of the National Land Transport Transition Act – Government Notice No. 1005 of 24 July 2002.

3.2 Stakeholder Consultation and Liaison

For the study to be successful it required the full participation and co-operation of all relevant stakeholders without any exclusions. Therefore the first step in the study process was to consult and inform all relevant stakeholders of the study. This process involved providing the background to the study, the reasons for the study and convincing the stakeholders of the direct and indirect benefits of the CPTR.

In this process all of the following stakeholders were consulted:

- Municipal Managers of all five Local Municipalities
- Relevant Ward Councillors
- Local Taxi Associations
- The bus operator for the area.

3.3 Planning, Preparing and Execution of Surveys

The gathering of raw data and the interpretation thereof is only as good as the level of planning and attention to detail that is afforded to the task. This exercise was a collaborative effort, making full use of the Management Team's experience and expertise.

As this is the first detailed CPTR for the uThukela District, all requirements of the basic CPTR have been covered. The surveys focused on the following:

- determining the routes travelled by the bus operator and all taxi operators;
- determining the capacity utilisation of routes and rank facilities for the morning and evening peak periods;
- determining the waiting time of passengers utilising the available public transport services;
- recording the registration numbers of all public transport vehicles used to provide a public transport service; and
- coding of ranks/termini and routes used by public transport operators and passengers.

The surveys can be divided into three main categories namely:

- Rank/Termini Capacity and Facility surveys;
- Public Transport Operator surveys; and
- Rural Home Interviews.

The following survey forms (See Appendix A for copies of the forms) per category were used which was developed previously for the preparation of other CPTRs in KwaZulu Natal:

3.3.1 Rank/Termini Capacity and Facility Surveys

- Facility Inventory for Termini, Ranks and Holding Areas (Form 1)
- Capacity and Capacity Utilisation of Ranks and Termini for Minibus-Taxi and Bus (Forms 3 and 4)

3.3.2 Public Transport Operator Surveys

- User Needs and Preferences for Minibus-Taxi and Bus (Form 2)
- Origin and Destination Surveys for Minibus-Taxi and Bus (Forms 3 and 4)
- Capacity and Capacity Utilisation of Minibus-Taxi and Bus (Forms 3,4,5 and 8)
- On-board Minibus-Taxi and Bus surveys (Forms 5 and 8)
- Waiting time surveys (Form 6)

3.3.3 Rural Home Interviews

- Rural Transport Characteristics (Home Interviews – Form 7)

3.4 Survey Process Followed

The process used to plan and execute the data gathering and capturing is described by the following steps:

- Step 1: Determine the location of the surveys (E.g. Ranks/Termini and Wards for Home Interviews).
- Step 2: Consult with relevant role players (E.g. Local Municipalities and Public Transport Operators).
- Step 3: Procure temporary staff for surveys.
- Step 4: Provide training for surveyors.
- Step 5: Conduct peak period surveys (06:00 – 09:00 and 15:00 – 18:00) and provide supervision and assistance for the surveyors.
- Step 6: Quality control of survey forms on a regular basis during surveys as well as after the surveys have been completed.
- Step 7: Data capturing to be used within the GIS database (See Figure 3.1 below).
- Step 8: Quality control of data captured.
- Step 9: GIS based data analysis and graphic representation.

Figure 3.1: GIS Database



3.5 Procurement of Temporary Staff

The resources used in the execution of the surveys are critical. UWP has built extensive experience on a number of public transport related projects, including CPTRs and Public Transport Plans which were done in conjunction with ARUP Consulting Engineers. In this instance, temporary staff from the local minibus-taxi associations and the bus operator was used to undertake the surveys. All temporary staff was identified and allocated by the operators in the area and to ensure that the process was fair, each local municipality area was represented, for instance, the ranking facility in Indaka was surveyed by people living in the Indaka area. Some minimum requirements were set to make sure that the surveys were carried out effectively:

- Minimum of grade 12
- Read and write in English and Zulu
- Good communication skills and to be able to resolve problems or queries.

The taxi and bus associations and the municipalities were tasked with nominating suitable candidates for the surveys. Since the start of the survey programme in May 2005 a total of 98 local candidates were trained and engaged in the surveys. The geographic distribution of the surveyors was as follows (also see **Table 3.1** overleaf):

- | | |
|--|--------------|
| • KZ 232 – Emnambithi/Ladysmith | 42 surveyors |
| • KZ 233 – Indaka | 8 surveyors |
| • KZ 234 – Umtshezi (Estcourt) | 24 surveyors |
| • KZ 235 – Ukhahlamba (Bergville) | 16 surveyors |
| • KZ 236 – Imbabazane | 8 surveyors |

The names and ID numbers of all surveyors have been kept in a database so that they can be re-engaged at some stage in the future if the need arises. A list of the 98 surveyors is attached in Appendix B. The total remuneration to surveyors is in the region of +/- R25 000-00. On a 6-hour shift a surveyor would typically receive R30-00 for travel to the training and surveys, R20-00 for food and R20-00 per hour for the surveys, or R200-00 per day.

3.6 Surveyor Training

Each of the five groups of surveyors was trained within their local municipality at venues made available by the taxi associations. Every candidate underwent a training session on the day before commencement of the actual survey. The surveyors were briefed on the reasons for the study as background, and taught to complete the relevant forms correctly. Surveyors were then paid for travelling to the training session.

Table 3.1: Survey Programme and Remuneration

LOCAL MUNICIPALITY	TOWN	TYPE OF SURVEY	NO. OF STAFF	Date														COST			
				18/05	19/05	20/05	21/05	22/05	23/05	24/05	25/05	26/05	27/05	28/05	29/05	30/05	31/05		01/06	02/06	
Okhahlamba	Bergville	Training Survey	10	■	■		WEEKEND							WEEKEND					R 3,819.20		
	Emmaus	Training Survey	6	■	■																
uMtshezi	Estcourt	Training Survey	16						■	■										■	R 5,679.00
	Weenen	Training Survey	8						■	■											
Indaka	Uitval	Training Survey	8								■	■									R 1,729.60
Ladysmith - eMnambithi	Ezakheni	Training Survey	6														■	■			R 9,320.40
	Driefontein	Training Survey	6														■	■			
	Ladysmith	Training Survey	30														■	■			
Imbabazane	Hlathikhulu	Training Survey	8															■	■	R 1,819.60	
TOTAL			98																	TOTAL	R 22,367.80

3.7 Surveys and Survey Programme

The surveys commenced at the Bergville and Emmaus taxi ranks in Okhahlamba on Wednesday 18 May 2005 and it concluded at Hlathikhulu in Imbabazane on Thursday 2 June 2005. The surveys commenced on time at 06:00 in the morning and then it finished at 09:00, after which it again started at 15:00 in the afternoon, ending at 18:00. Based on the CPTR requirements, surveys had to be conducted on a Tuesday, Wednesday or Thursday in a week where no public holidays are occurring on either a Monday or a Friday.

3.8 Application of the Geographic Information System (GIS)

The application of GIS techniques for the delivery of the uThukela CPTR was a key skill requirement to ensure that all information gathered for the CPTR is incorporated in the existing GIS of uThukela District Municipality whilst at the same time meeting the requirements of the CPTR guidelines and the KwaZulu Natal CPTR Outline Document. ESRI's Arcmap 9.0 software was used.

3.8.1 Projection, Registration and Conversion

GIS data was received from the uThukela District Municipality. A detailed list of all data received is attached as Appendix C to the report.

Data from the uThukela District Municipality was received as Arc shape-files (shp-files) in Geographic Degrees Decimal. All data was then projected using techniques in ESRI's ArcToolbox to GCS Hartbeeshoek 1994 (WGS84). This was done since this projection is the standard for GIS data countrywide.

The location of the existing ranking facilities which was surveyed for completion of the CPTR, was also received, therefore no Global Positioning Technique was necessary to locate these facilities.

With regard to the road base GIS data, after evaluating the information received from uThukela, it was decided to rather use the KwaZulu Natal GIS road base information which has been received for previous studies in other areas.

3.8.2 Coding of Routes

To conform to provincial coding procedures, the public transport routes in the uThukela region have been coded according to the requirements that were provided to the project team by the KwaZulu Natal Department of Transport. The following coding requirements were applied in coding each of the bus and taxi facilities and routes in the uThukela area:

Numbering system for public transport facilities

- Province – a single letter – “K” for KwaZulu Natal
- Local Municipality – the three digit code for the local municipality in which the facility lies (e.g. Ladysmith/Emnambithi = 232)
- Mode – a single letter code for the mode using the facility. (e.g. Minibus-Taxi only = T, Bus only = B and Bus & Taxi = P)
- Facility use – a single letter code for the use of the facility (e.g. rank/termini/transfer point = T).
- Facility number starting with 01.

Numbering system for public transport routes

- Province – a single letter – “K” for KwaZulu Natal
- Local Municipality – the three digit code for the local municipality in which the facility lies (e.g. Ladysmith/Emnambithi = 232)
- Mode – a single letter code for the mode using the facility. (e.g. Minibus-Taxi only = T, Bus only = B and Bus & Taxi = P)
- Route number – a four digit number.
- Direction – a single letter code to show whether a route is used in both directions or not (e.g. both directions = M, inward bound = F and outward bound = R).

Table 4.1: Rank/Termini Facilities (12 facilities)

Facility Name	Code	Status	Type	Ownership	On/Off Street	Paving
Alexander Street Taxi Rank	K234TT01	Formal	Taxi Rank	Municipal	Off-Street	Yes
Connor Street Taxi Rank	K234TT02	Formal	Taxi Rank	Municipal	Off-Street	Yes
Weenen Taxi Rank	K234TT03	Formal	Taxi Rank	Municipal	Off-Street	Yes
Hlathikhulu Taxi Rank	K236TT04	Formal	Taxi Rank	Municipal	Off-Street	Yes
Bergville Taxi Rank	K235TT05	Informal	Taxi Rank	Municipal	Off-Street	Yes
Emmaus Taxi Rank	K235TT06	Formal	Taxi Rank	Municipal	Off-Street	Yes
Lylle Street (Municipal) Taxi Rank	K232TT07	Formal	Taxi Rank	Municipal	Off-Street	Yes
Lylle Street (Private) Taxi Rank	K232TT08	Informal	Taxi Rank	Private	Off-Street	Yes
Illing Street Bus & Taxi Rank	K232PT09	Formal Informal	Bus Terminus Taxi Rank	Municipal	Off-Street	Yes
Driefontein Taxi Rank	K232TT10	Formal	Taxi Rank	Municipal	Off-Street	Yes
Ezakheni Taxi Rank	K232TT11	Informal	Taxi Rank	Municipal	Off-Street	Yes
Complex of Limehill (Uitval) Taxi Rank	K233TT12	Formal	Taxi Rank	Municipal	Off-Street	Yes

4.2 Capacity of Ranks/Termini

In order to determine the capacity and utilisation of the different rank/termini 15-minute interval surveys were done during the morning and evening peak periods. These surveys included the number of loading bays used for loading of passengers only and number of holding bays where vehicles are parked should there be no bays available within the loading area.

Table 4.2 shows the capacity (number of bays) for both loading and holding areas for each facility.

Table 4.2: Rank/Termini Facilities number of bays

Facility Name	Code	Number of Holding Bays	Number of Loading Bays
Alexander Street Taxi Rank	K234TT01	136	32
Connor Street Taxi Rank	K234TT02	7	7
Weenen Taxi Rank	K234TT03	6	6
Hlathikhulu Taxi Rank	K236TT04	12	4
Bergville Taxi Rank	K235TT05	0	0
Emmaus Taxi Rank	K235TT06	13	3
Lylle Street (Municipal) Taxi Rank	K232TT07	168	24
Lylle Street (Private) Taxi Rank	K232TT08	0	0
Illing Street Bus & Taxi Rank	K232PT09	0*	12*
		0	0
Driefontein Taxi Rank	K232TT10	21	7
Ezakheni Taxi Rank	K232TT11	0	0
Complex of Limehill (Uitval) Taxi Rank	K233TT12	24	9

Note: Ranks/Termini showing "0" loading and holding bays are informal ranks/termini. (* = bus terminus)

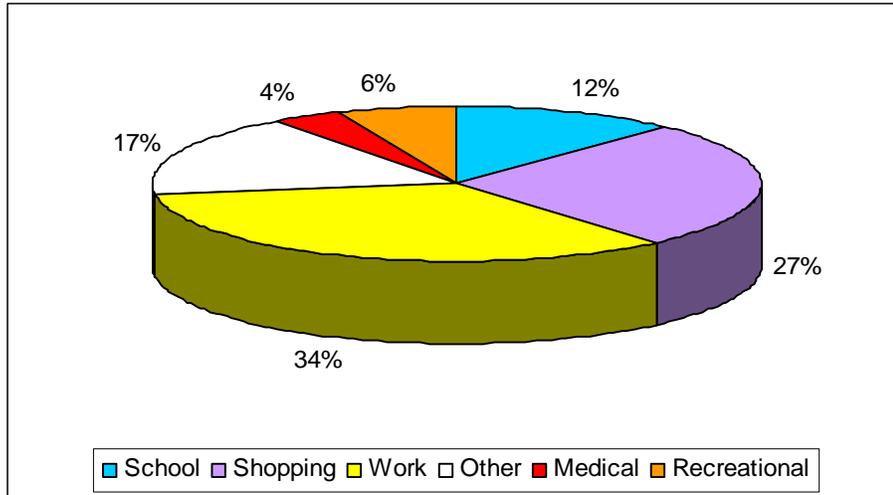
4.3 User Needs and Preferences for Minibus-taxi and Bus Surveys

The user needs surveys were conducted amongst both minibus-taxi and bus passengers. The aim of these surveys was again to determine the trip purpose as well as the trip frequency. The user needs survey was further aimed at determining the level of satisfaction with the public transport service.

4.3.1 Trip Purpose

The results from the surveys at all ranks/termini in uThukela compare favourably with the results of the rural household interviews. **Figure 4.2** shows the distribution of trips according to the purpose of the trip. Work (34%) and shopping (27%) trips were determined to be the most common trips purposes, followed by other (17%) and school (12%) trips.

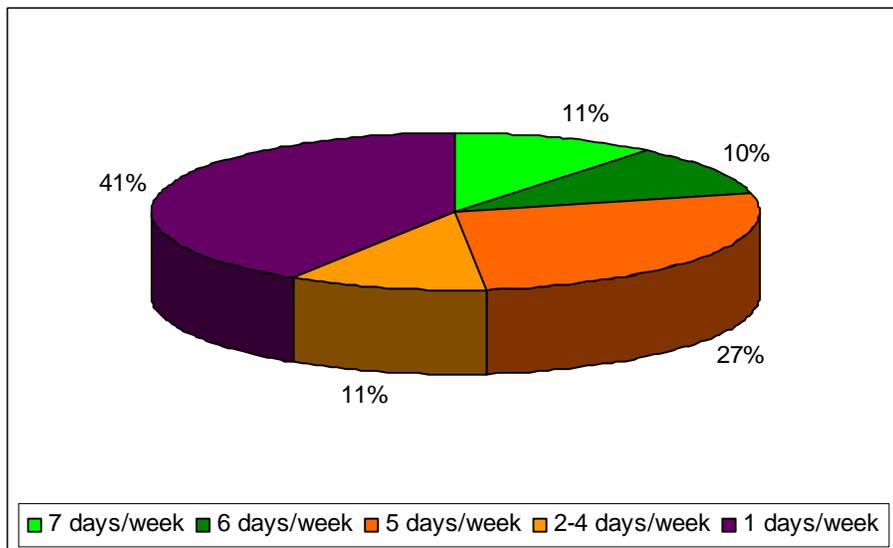
Figure 4.2: Trip purpose distribution – user needs surveys



4.3.2 Frequency of Travel

Part of the user needs surveys was to determine the frequency of travel and how often passengers travel either by mini-bus taxi or bus. It is expected that work and school related trips would occur on a daily basis for 5 days per week while shopping trips will be less frequent. The results show that 27% of passengers travel at least 5 days (work and school trips – 46%) per week and that 52% make 4 or fewer trips per week. The majority of the trips that are made for 1 day per week are shopping trips accounting for 48% of the trips. **Figure 4.3** shows the travel frequency based on the user needs surveys.

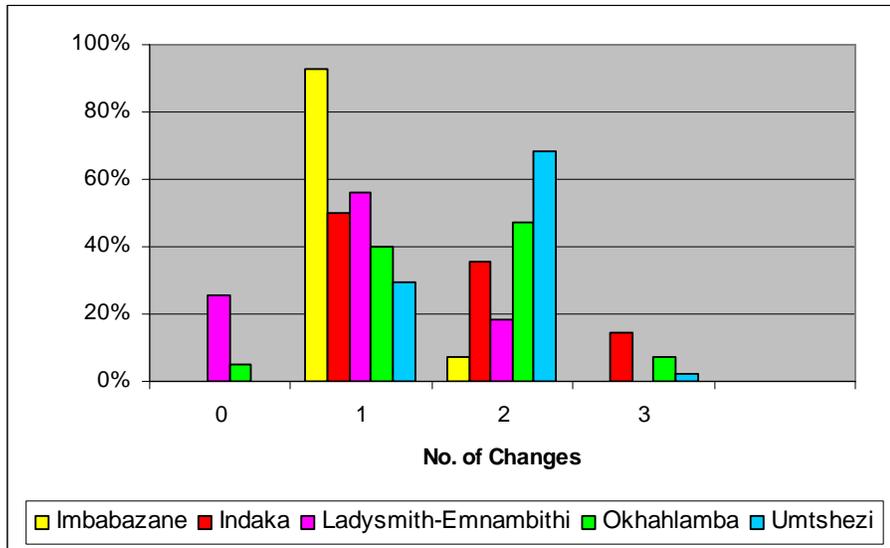
Figure 4.3: Travel Frequency – user needs surveys



4.3.3 Vehicle Changes (Transfers)

Due to the lack of proper roads, the rural nature of the population and several other factors, a small proportion of passengers use more than one vehicle or transfer between vehicles to complete their trip. In the more rural areas where accessibility is poor it can be expected that there would be more changes between vehicles than in the more urban areas (towns). However, the user needs surveys established that nearly half (54%) do change a vehicle or have to transfer to another vehicle between one origin and destination. In a rural area such as Umtshezi, passengers do change vehicles at least twice to complete their trip. **Figure 4.4** shows the comparison of vehicle change between different local municipalities.

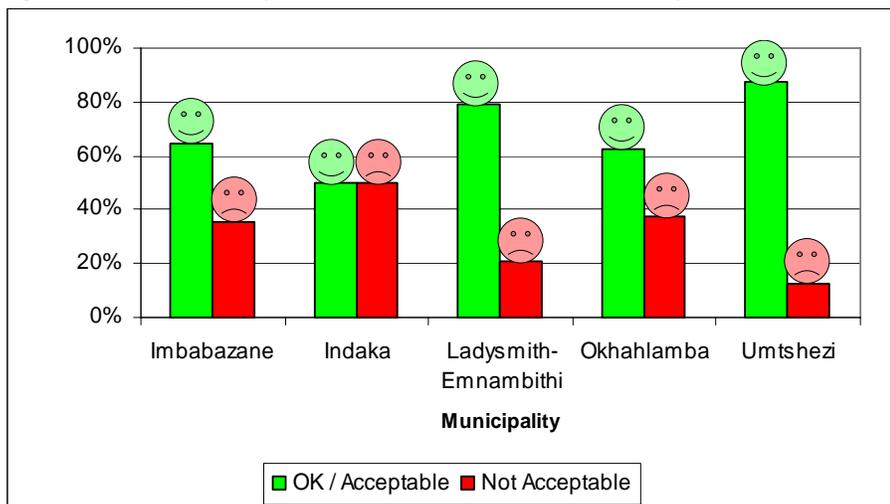
Figure 4.4: Vehicle Changes or Transfers per Local Municipality – user needs surveys



4.3.4 Acceptability with Transfers

As mentioned in the previous paragraph passengers in rural areas do transfer to another vehicle during their trip more often than those in urban areas. The user needs surveys established that the majority of passengers in urban areas were satisfied with the number of times they had to transfer to another vehicle per trip. **Figure 4.5** represent the level of satisfaction with the number of transfers per trip and excludes those passengers not making any transfers.

Figure 4.5: Acceptability with Transfers – user needs surveys



From this figure it is clear that, given the number of transfers made, the majority 69% of passengers still find the number of transfers they make acceptable. Only 31% percent of passengers find the number of transfers unacceptable.

4.3.5 Travel and Waiting Time

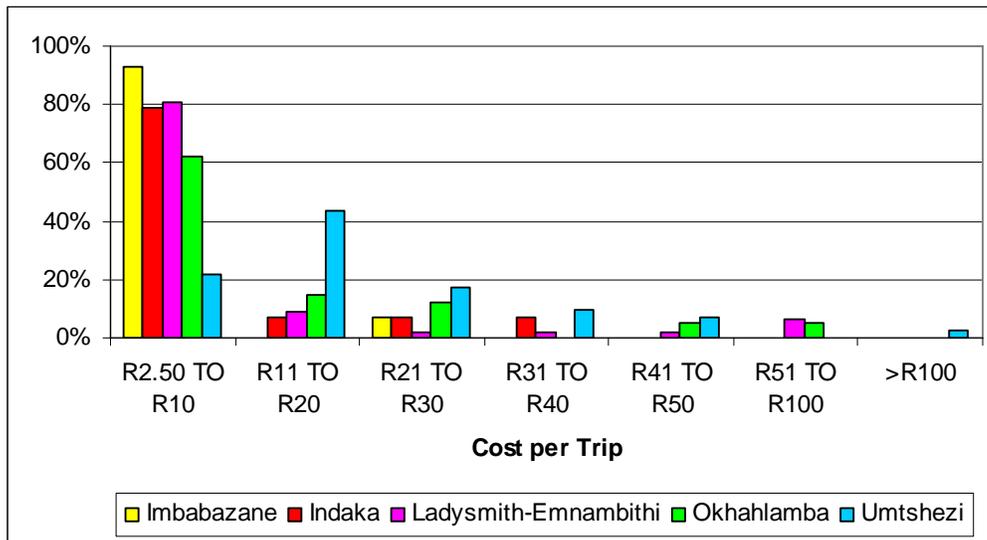
The user needs surveys showed that passengers leave home between 06:00 and 08:00 (58%) on average. This is a result of the inaccessibility of the public transport service to the more rural service points as well as the long distances passenger have to travel to work or to the nearest town.

On average passengers travel between 30 and 60 minutes per trip (40%). It is, however, important to note that neither the surveyors nor the passengers had the ability to estimate the distance travelled in kilometres but rather estimate the distance travelled to their destination based on time. Therefore, there is no correlation between the kilometres and the time travelled. The average waiting time based on the user need surveys for long distance trips is in the region of 30 to 60 minutes and for local shorter trips, it is between 5 and 30 minutes during peak periods.

4.3.6 Fares per Trip and Acceptability of Fares Paid – user needs survey

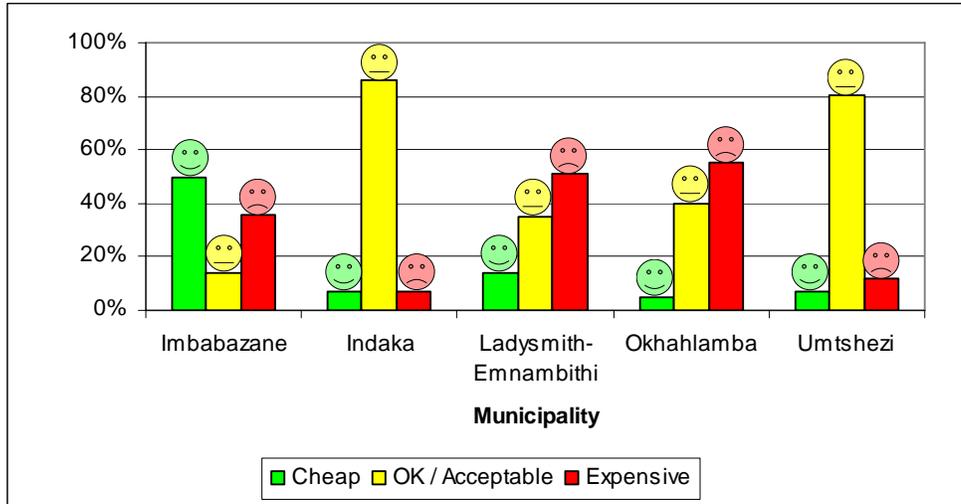
The user needs surveys showed that the average fare paid per trip ranges from a minimum of R2-50 per trip to greater than R100-00 per trip depending on the length of the journey. The majority of passengers indicated that they paid between R2-50 and R10-00 per trip. Passengers travelling from ranks and areas where long distance destinations are served usually pay higher fares. **Figure 4.6** shows the average fares paid per local municipality.

Figure 4.6: Average Fares per Trip



From the figure above it can be seen that the majority of passengers do not pay more than R10-00 per trip. The surveys showed that on average, passengers were satisfied with the fares that they pay to use public transport. In Ladysmith/Emnambithi and Okhahlamba the majority of passengers felt that the fares were too high while in Imbabazane the majority of passengers believed that the fares are cheap. **Figure 4.7** shows that results of the surveys based on the level of satisfaction with regard to fares paid.

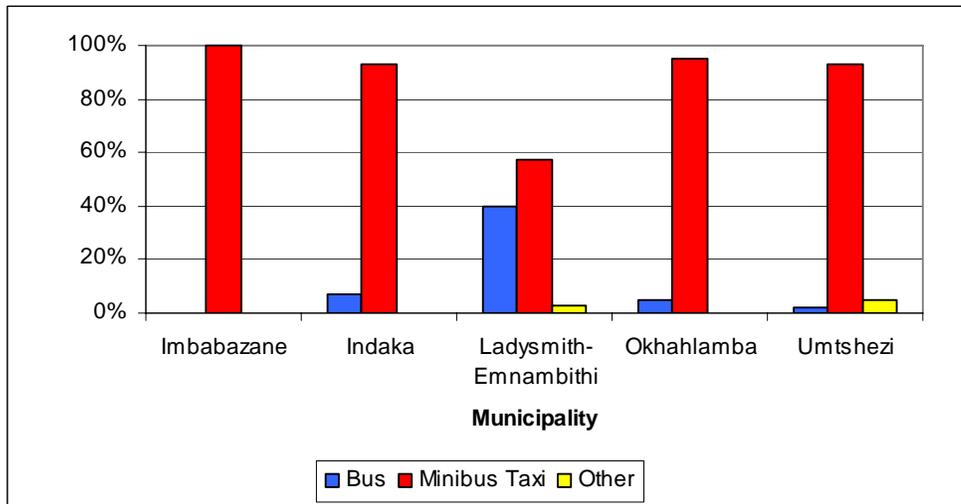
Figure 4.7: Acceptability with Fares Paid



4.3.7 Mode Preference and Reasons for Preferred Mode

Accessibility to public transport and the choice of mode depends to a large extent on what services are offered. In the rural areas, access to alternative modes is limited and passengers are therefore often captive to a particular mode. On the other hand, in urban areas the mode choice is often greater. In the graph below it can be seen that 88% of all passengers are transported by minibus-taxi in the uThukela area. The results of the user needs surveys also show that if all public transport users had a choice, the majority of all passengers would prefer to be transported by minibus-taxi. **Figure 4.8** shows the results of the passenger-preferred mode.

Figure 4.8: Preferred Mode of Transport



Typical reasons given by passengers on why they preferred minibus-taxi transport above that of bus transport include the following:

- the service is faster;
- frequent service and no strict timetable; and
- stops on request.

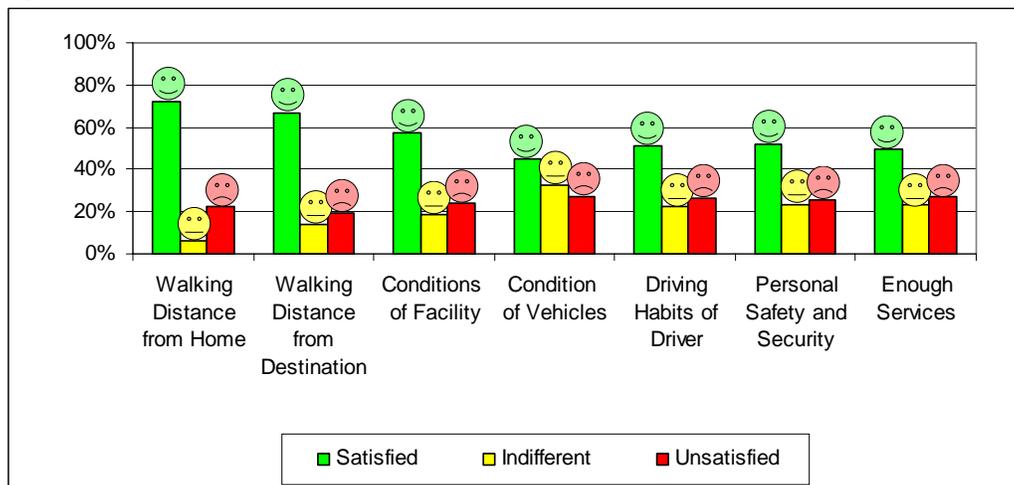
4.3.8 Level of Satisfaction with Public Transport Service

Part of the user need surveys was to determine the level of satisfaction with the public transport service in uThukela. The following topics were used to determine public transport users' levels of satisfaction:

- Walking Distance form Origin
- Walking Distance to Destination
- Conditions of Facilities
- Conditions of Vehicles
- Driving Habits
- Personal Safety at Rank/Termini, and
- Perception of the undersupply of public transport.

Figure 4.9 shows the results from the user needs surveys.

Figure 4.9: Level of Satisfaction



4.4 Origin, Destination and Route Capacity Surveys

The origin destination surveys combined with the mode of transport, time and number of passengers provides detail information on the daily public transport operations in uThukela. From these surveys, UWP Consulting was able to determine the exact origin and destination of each public transport trip for the duration of the surveys. The origin, destination and route capacity surveys also provided useful information on the number of trips made per taxi during the peak periods and provided information on the number of passengers transported per trip. The surveys could also be used to determine the time spent on the rank/termini facilities as well as the time spent outside the rank. Detailed discussion of the origin, destination and capacity surveys will be discussed later in the report for both bus and minibus-taxi transport respectively.

4.5 On-board Bus Surveys

On-board bus surveys were conducted along a small sample of bus routes in the vicinity of Ladysmith and exclude passengers boarding or alighting at the ranks/termini. The aim of the survey was to determine the possible effect that passengers boarding and alighting along the major public transport routes have on the utilisation of the bus service. The surveys showed that just more than 60 (64) passengers boarded and 50 (56) alighted buses along those routes surveyed for the morning peak period (06:00 – 09:00) and 5 (7) boarded and 50 (51) alighted for the afternoon peak period (15:00 – 18:00).

From **Table 4.3** it can be seen that the bus route from Doornhoek to Ladysmith had the highest number of passengers boarding and alighting. The number of passengers boarding and alighting a bus between Doornhoek and Ladysmith during the morning peak period was 54 and 46 passengers respectively. This figure represents 77% percent of the seated capacity of buses and therefore is an important indication of the utilisation as calculated for surveys at ranks/termini. Buses leaving ranks/termini not fully utilised may show higher utilisation figures on the route because of passengers boarding and alighting along these routes.

Table 4.3: On-board Bus Survey Results

Origin	Destination	Passengers Boarding	Passengers Alighting	Nr of Bus Trips	Average Boarding	Average Alighting
Ladysmith	Doornhoek	10	10	1	10	10
Doornhoek	Ladysmith	54	46	1	54	46
Ladysmith	Driefontein	15	41	1	15	41
Driefontein	Ladysmith	26	30	1	26	30
Ladysmith	Burford	4	48	1	4	48
Burford	Ladysmith	3	3	1	3	3

Note: Table based on a small sample

4.6 On-board Minibus-taxi Surveys

On-board minibus-taxi surveys were conducted along most of the major taxi routes in the uThukela area and exclude passengers boarding or alighting at the ranks/termini. The aim of the survey was to determine the possible effect that passengers boarding and alighting along the major public transport routes have on the utilisation of the minibus-taxi service. The surveys showed that just more than 750 passengers boarded and 1 650 alighted minibus-taxis along those routes surveyed.

From **Table 4.4** it can be seen that only a few routes experience a high average number of passengers boarding and alighting per minibus-taxi trip. The average number of passengers boarding and alighting minibus-taxis along routes are 2 and 4 passengers respectively, which indicates that most minibus-taxi wait for passengers to fill up before they commence with the journey. These figures represent 30% percent of the seated capacity of minibus-taxis and therefore are an important indication of the utilisation as calculated for surveys at ranks/termini. Minibus-taxis leaving ranks/termini not fully utilised may show higher utilisation figures on the route because of passengers boarding and alighting along these routes.

Table 4.4: On-board Minibus-taxi Survey Results

Origin	Destination	Passengers Boarding	Passengers Alighting	No. of Trips	Average Boarding	Average Alighting
Acton Homes	Bergville	0	0	1	0	0
Bergville	Acton Homes	5	15	1	5	15
Bergville	Betaney	14	21	2	7	11
Bergville	Dukuza	2	15	1	2	15
Bergville	Emmaus	4	15	1	4	15
Bergville	Estcourt	0	2	2	0	1
Bergville	Geluksberg	7	30	2	4	15
Bergville	Hambrooke	0	15	1	0	15
Bergville	Ladysmith	0	6	2	0	3
Bergville	Mamfemfetheni	0	15	1	0	15
Bergville	Maswazini	2	2	1	2	2
Bergville	Mazizini	3	14	1	3	14
Bergville	Mhlwazini	1	15	1	1	15
Bergville	Moyeni	1	15	1	1	15

Origin	Destination	Passengers Boarding	Passengers Alighting	No. of Trips	Average Boarding	Average Alighting
Bergville	Ogade	0	15	1	0	15
Bergville	Okhombe	0	15	1	0	15
Bergville	Potshini	0	3	1	0	3
Bergville	Rookedale	0	1	1	0	1
Bergville	Sandlwane	0	0	1	0	0
Bergville	Stulwane	0	3	1	0	3
Bergville	Zwelisha	1	15	1	1	15
Betaney	Bergville	0	0	1	0	0
Bhekabezayo	Estcourt	9	8	2	5	4
Burford	Ladysmith	3	26	2	2	13
Colenso	Estcourt	3	0	2	2	0
Cornfields	Estcourt	6	0	2	3	0
Dlamini	Estcourt	7	7	1	7	7
Driefontein	Ladysmith	0	8	3	0	3
Dukuza	Bergville	7	2	1	7	2
Ekuvukeni	Ladysmith	0	15	1	0	15
Emhubheni	Estcourt	28	7	2	14	4
Emmaus	Bergville	1	2	2	1	1
Emmaus	Estcourt	5	1	3	2	0
Emmaus	Winterton	8	8	1	8	8
Emvundlwini	Estcourt	19	2	2	10	1
Estcourt	Bergville	0	0	2	0	0
Estcourt	Betaney	1	2	1	1	2
Estcourt	Bhekabezayo	0	10	1	0	10
Estcourt	Colenso	0	1	2	0	1
Estcourt	Cornfields	2	17	2	1	9
Estcourt	Emhubheni	5	20	2	3	10
Estcourt	Emmaus	4	22	2	2	11
Estcourt	Emvundlwini	12	30	2	6	15
Estcourt	Geinusizi	0	15	1	0	15
Estcourt	Good Home	18	32	2	9	16
Estcourt	Hlathikhulu	5	66	6	1	11
Estcourt	KwaDlamini	1	20	2	1	10
Estcourt	KwaMkhize	1	6	1	1	6
Estcourt	KwaNdaba	14	9	2	7	5
Estcourt	Ladysmith	0	2	2	0	1
Estcourt	Lochsloy	2	24	2	1	12
Estcourt	Mdwebu	0	28	2	0	14
Estcourt	Ngcinusizi	7	7	1	7	7
Estcourt	Sobabili	6	20	2	3	10
Estcourt	Weenen	0	2	5	0	0
Estcourt	Wembezi	13	29	2	7	15
Estcourt	Winterton	0	10	2	0	5
Estcourt	Zwelisha	15	32	2	8	16
Ezakheni	Ladysmith	21	60	8	3	8
Ezakheni C. Section	Ezakheni Industrial Area	5	18	1	5	18
Ezakheni E-Section	Ladysmith	0	0	1	0	0
Ezakheni Industrial Area	Ezakheni	0	15	1	0	15

Origin	Destination	Passengers Boarding	Passengers Alighting	No. of Trips	Average Boarding	Average Alighting
Ezitendeni	Weenen	1	1	2	1	1
Gcinusizi	Estcourt	2	0	1	2	0
Geluksberg	Bergville	0	0	1	0	0
Good Home	Estcourt	21	10	2	11	5
Green Point	Bergville	0	0	1	0	0
Green Point	Ladysmith	4	0	1	4	0
Hambrooke	Bergville	0	0	1	0	0
Hlathikhulu	Estcourt	31	14	5	6	3
Hlathikhulu	KwaMkhize	44	62	8	6	8
Hlathikhulu	Mooi River	8	11	2	4	6
Hospital	Ladysmith	0	3	1	0	3
KwaDlamini	Estcourt	22	5	2	11	3
KwaNdaba	Estcourt	27	5	2	14	3
KwaXulu	Ladysmith	7	2	1	7	2
Ladysmith	Bergville	0	6	2	0	3
Ladysmith	Burford	6	6	1	6	6
Ladysmith	Driefontein	14	28	4	4	7
Ladysmith	Estcourt	0	1	2	0	1
Ladysmith	Ezakeni	39	139	8	5	17
Ladysmith	Ezakeni E-Section	2	31	2	1	16
Ladysmith	Green Point	2	14	1	2	14
Ladysmith	Hospital	0	2	1	0	2
Ladysmith	Long Home/Wembezi	2	14	1	2	14
Ladysmith	Lunitania	2	15	1	2	15
Ladysmith	Matiwane	18	15	2	9	8
Ladysmith	Mhlumayo	0	15	1	0	15
Ladysmith	Ndomba	0	16	1	0	16
Ladysmith	Nkuthu	0	15	1	0	15
Ladysmith	Peace Town	4	33	3	1	11
Ladysmith	Roos Boom	0	19	1	0	19
Ladysmith	Steadville	1	29	2	1	15
Ladysmith	Uitval	5	11	1	5	11
Ladysmith	Umbulwane	0	12	1	0	12
Ladysmith	Watersmeet	5	29	2	3	15
Ladysmith	Weenen	0	10	1	0	10
Lochsloy	Estcourt	0	0	2	0	0
Lusitania	Ladysmith	1	0	1	1	0
Lyelle Street Municipal	Illing Road - Taxi	0	1	1	0	1
Lyelle Street Municipal	Lyelle Street Private	0	0	1	0	0
Lyelle Street Private	Illing Road - Taxi	0	2	1	0	2
Mamfemfetheni	Bergville	0	0	1	0	0
Maswazini	Bergville	2	0	1	2	0
Matiwane	Ladysmith	18	18	2	9	9
Mazizini	Bergville	15	1	1	15	1
Mdwebu	Estcourt	21	2	2	11	1
Mhlangane	Weenen	4	1	1	4	1

Origin	Destination	Passengers Boarding	Passengers Alighting	No. of Trips	Average Boarding	Average Alighting
Mhlumayo	Ladysmith	0	15	1	0	15
Mooi River	Hlathikhulu	1	22	2	1	11
Moyeni	Bergville	7	0	1	7	0
Ndomba	Ladysmith	0	1	1	0	1
Ngcinusizi	Estcourt	15	0	1	15	0
Nkuthu	Ladysmith	0	0	1	0	0
Nsukangihlale	Bergville	15	1	1	15	1
Ogade	Bergville	2	0	1	2	0
Okhombe	Bergville	0	12	2	0	6
Peace Town	Ladysmith	13	10	2	7	5
Rookedale	Bergville	0	0	1	0	0
Roos Boom	Ladysmith	5	0	1	5	0
Sahlumbe	Weenen	36	4	2	18	2
Sobabili	Estcourt	18	13	2	9	7
Steadville	Ladysmith	1	0	2	1	0
Stulwane	Bergville	0	0	1	0	0
Tsakane	Ladysmith	1	13	1	1	13
Uitval	Ekuvukeni	4	6	1	4	6
Watersmeet	Ladysmith	3	3	2	2	2
Weenen	Estcourt	0	4	5	0	1
Weenen	Ezitendeni	3	29	2	2	15
Weenen	Ladysmith	1	16	2	1	8
Weenen	Mhlangane	1	14	1	1	14
Weenen	Sahlumbe	14	28	2	7	14
Wembezi	Estcourt	8	6	2	4	3
Winterton	Estcourt	5	20	2	3	10
Zwelisha	Bergville	2	16	1	2	16
Zwelisha	Estcourt	11	9	2	6	5
TOTAL & AVERAGES		762	1655	237	2	4

4.7 Waiting Time Surveys

Waiting time is an indication of the level of service provided by public transport operators. It is generally believed that the shorter the waiting time for passengers the better the public transport service and visa versa. Waiting time was based on the time the passenger arrived at the back of the queue of passengers going to a certain destination until the time the bus or minibus-taxi left the facility and includes time spent waiting onboard the vehicle prior to departure.

The survey results showed that on average for the morning the minibus-taxi passengers wait longer than those passengers using bus transport. The reason for this is that there are remote areas like Hlathikulu and Uitval (Complex of Limehill) where there is less traffic. For the afternoon period passengers waiting for bus and minibus-taxi have to wait nearly the same time. **Table 4.5** shows average waiting time for both bus and minibus-taxi passengers for the AM and PM peak periods.

Table 4.5: Average Waiting Time – Bus and Minibus-taxis

Peak Period	Bus Transport	Minibus-taxi Transport
06:00 – 09:00	18 minutes	23 minutes
15:00 – 18:00	15 minutes	14 minutes

It is also important to look at the shortest as well as the longest waiting time experienced by passengers. **Tables 4.6 and 4.7** show the shortest and longest waiting time respectively. Again the shortest waiting time manifests itself amongst both modes of transport, 1 minute for all peak periods.

The longest waiting time however proves to be for passengers waiting for minibus-taxis. This is the result of minibus-taxis waiting for enough passengers to board the vehicle before leaving to the required destination.

Table 4.6: Shortest Waiting Time – Bus and Minibus-taxis

Peak Period	Bus Transport	Minibus-taxi Transport
06:00 – 09:00	1 minute	1 minute
15:00 – 18:00	1 minute	1 minute

Table 4.7: Longest Waiting Time – Bus and Minibus-taxis

Peak Period	Bus Transport	Minibus-taxi Transport
06:00 – 09:00	1hr 15 minutes	2hr 17 minutes
15:00 – 18:00	1 hour	2hr 10 minutes

4.8 Rural Transport Characteristics (Home Interviews)

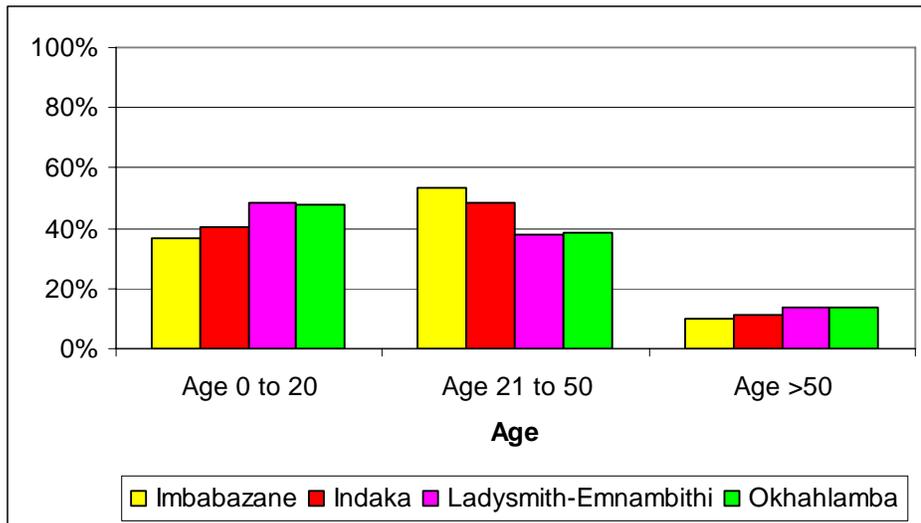
As mentioned earlier in the report the main purpose of conducting rural home interviews is to determine needs and concerns of passengers in rural areas where public transport is less accessible.

The following discussion is based on the results of the home interviews and provides background information on the population age profile, income as well as typical concerns with regard to the public transport service. It should be noted that only four of the five local municipalities are represented in the results. The reason for this is that no completed forms have been received from the Umtshezi Local Municipality area. The responsibility for convening the household surveys rested with the uThukela District Municipality.

4.8.1 Population Composition

The rural home interview showed that 43% of the population are under the age of 20, 45% between 20 and 50 years and 12% older than 50 years. **Figure 4.10** shows the results of the home interviews. The categories used for the home interviews are not the same as that of the IDP figures.

Figure 4.10: Population Age Composition – household surveys

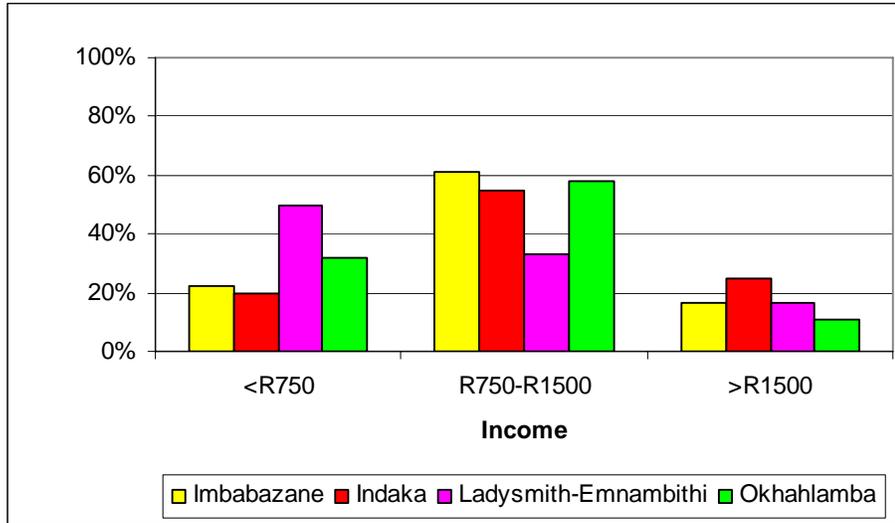


4.8.2 Household Income

With just more than a third of the population of uThukela between the age of 20 and 50 and the rural nature of the population it is expected that the average household income would also be very low compared to the more affluent areas in KwaZulu Natal such as Durban. The household interviews showed that almost one third of the rural population receive a household income of less than R750-00 per month.

Figure 4.11 shows the income distributions for each local municipality in the uThukela district. It can be seen that more than 90% of the families in Imbabazane (82%), Indaka (74%), Ladysmith/Emnambithi (82%) and Okhahlamba (89%) receive a household income of less than R1 500-00 per month. This low-income distribution for these areas is partially a result of the lack of work opportunities when compared to the more urban areas of Durban and Pietermaritzburg.

Figure 4.11: Income Distribution – household surveys



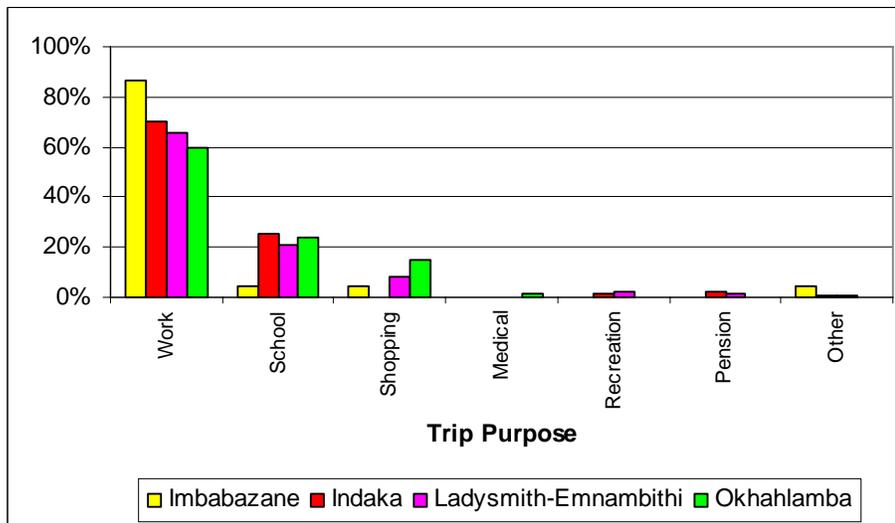
4.8.3 Trip Purpose

Part of the rural household interviews was to determine the trip purpose for households for all typical trips made during a week. 60% of all households indicated that the work trip is the main trip purpose, while school trips are 19% and shopping trips 7%. This corresponds with the low household income as discussed previously.

School trips contributed to 19% of all public transport trips in uThukela and this also indicates that a large part of the population is of a young age. Shopping trips also forms part of the daily public transport travel patterns of uThukela.

The remaining public transport trips are distributed between recreational, medical, pension and other trips (4%). **Figure 4.12** shows the distribution of trip purposes according to the different local municipalities.

Figure 4.12: Trip Purpose Distribution – household surveys



5 BUS OPERATOR INFORMATION AND SURVEYS

The extent of bus and minibus-taxi routes is shown in **Figure 5.1**. From this figure it is clear that the existing public transport service covers the majority of uThukela District Municipality. Only Ladysmith/Emnambithi and Indaka Municipal areas are covered by bus services, the rest of the uThukela District area is also serviced by minibus-taxi. The figure further showed that most of the main routes are covered by all public transport modes. The rural areas are mostly serviced by minibus-taxi operators as can be seen in Okhahlamba, Imbabazane and Umtshezi. (Appendix E provides bus routes and codes based on operator information and bus surveys respectively).

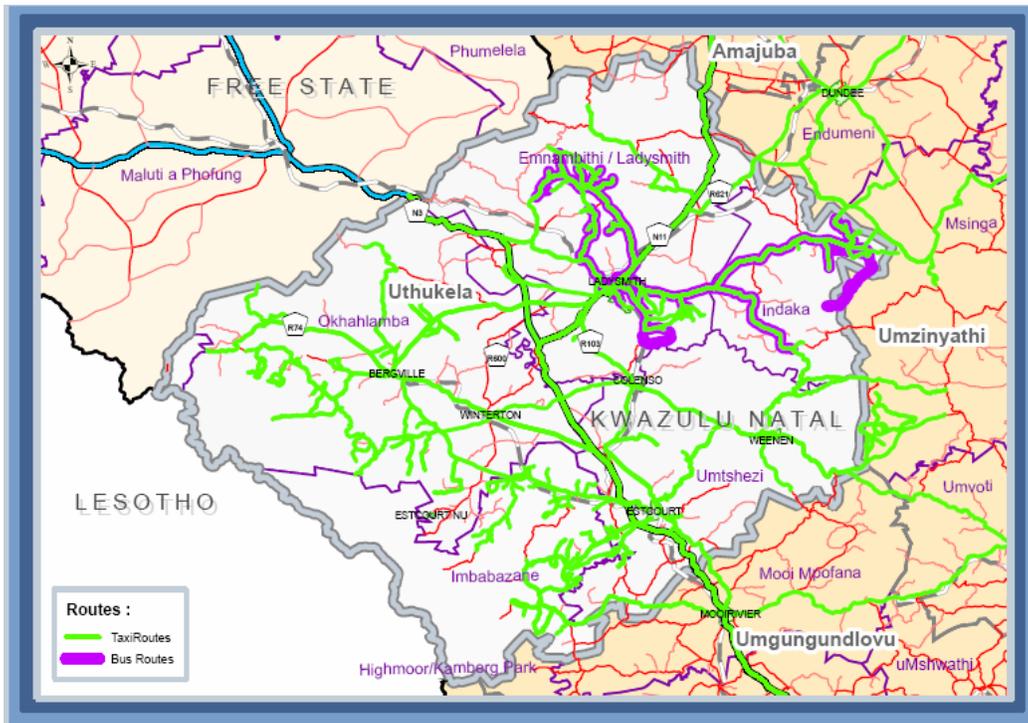
5.1 General Public Transport Trends

The bus service in uThukela is structured, with routes and timetables well defined. Based on the route coverage, the bus service in uThukela covers only a small area than minibus-taxi transport and is available to only those living in the Ladysmith/Emnambithi and Indaka Local Municipality areas. The survey results showed that just more than 3 400 (3 494) passengers are being transported by 96 bus trips during the 6-hour survey period. This results show an average of 36 passengers per bus. This figure only represents buses surveyed at the one bus terminus in Ladysmith (Illing Street) and does not include any private bus trips (not surveyed) or services provided outside the survey periods of 06:00 to 09:00 and 15:00 to 18:00.

According to the information received from the Bus Operator a total number of 5 276 passengers - based on average number of passengers per trip – are transported on a typical weekday by 99 bus trips between 06:00 and 09:00 and 15:00 and 18:00. The difference between the survey information and the information received from the bus operators can be attributed to the following:

- The bus surveys were carried out on a typical day in good weather conditions. The surveys do not include 'exceptional' days,
- Bus surveys looked at both trips IN as well as OUT of the terminus in Ladysmith (Illing Street),
- Trips arriving from and going to bus depots were included in the surveys. The bus operator information does not cater for these trips. It only shows operational trips where people are transported,
- Trip start and end data should not be added because it forms one trip and not two. Thus a trip starting at a certain time and ending at another time is one trip, according to bus operators, and
- The survey information includes trips counted for certain peak periods of 06:00 to 09:00 and 15:00 to 18:00 and do not include those trips starting before the peak period, in the off-peak or ending after the peak periods as given by the bus operator.

Figure 5.1: Bus and Minibus-taxi Routes



The distribution of passengers by municipality is shown in **Figure 5.2**. This information is based on information gathered from the only one subsidised Bus Operator in the uThukela area. **Figure 5.3** generated by the GIS confirm this trend, with close to 300 passengers travelling between Ezakheni, Driefontein, Watersmeet to Ladysmith during the peak periods of a typical day. This is the result of population distribution, public transport availability and accessibility as well as the work opportunities within the Ladysmith/Emnambithi region.

From **Figure 5.2** it can be seen that 87% percent of all bus passenger trips in uThukela occur within the Ladysmith/Emnambithi municipality area with 13% percent in Indaka. This is probably due to the fact that most of the bus routes are within 40km of Ladysmith.

Figure 5.2: Bus Passengers per Municipal Area

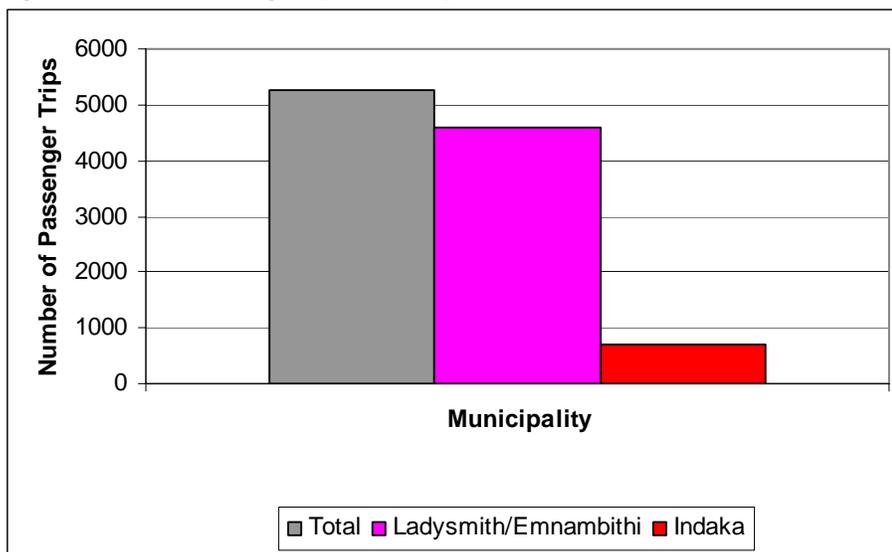


Figure 5.3: Total Peak Period Bus Passengers

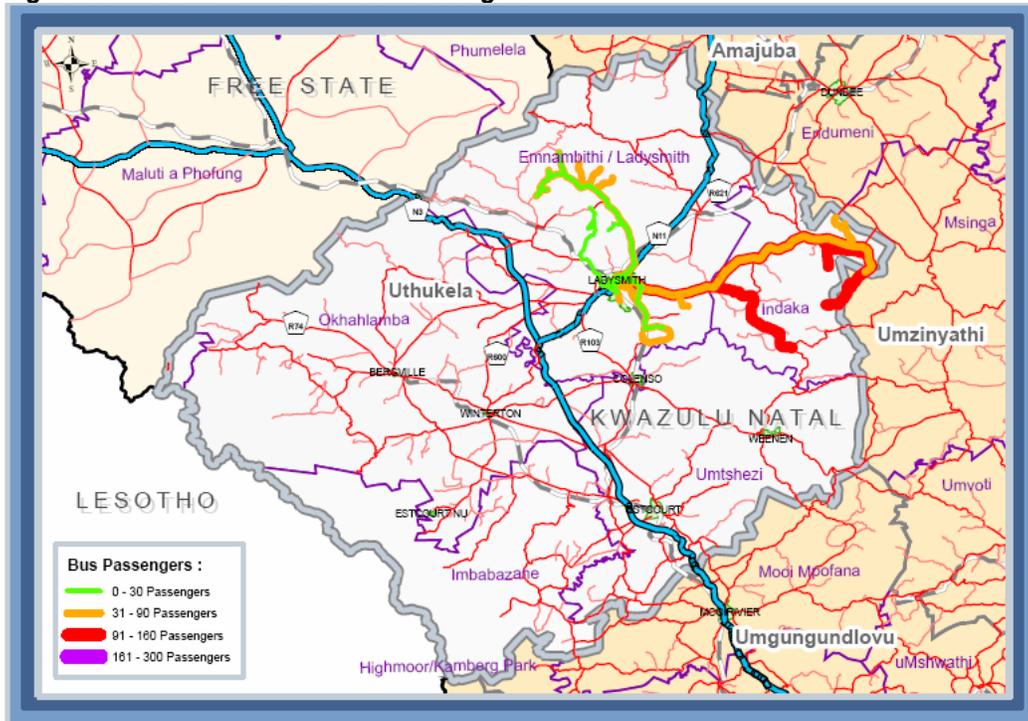


Figure 5.4 and Figure 5.5 provides a breakdown of bus trips and number of passengers for the Illing Street bus terminus respectively. This information is based on the survey.

Figure 5.4: Bus Passenger Trips for Illing Street Bus Terminus

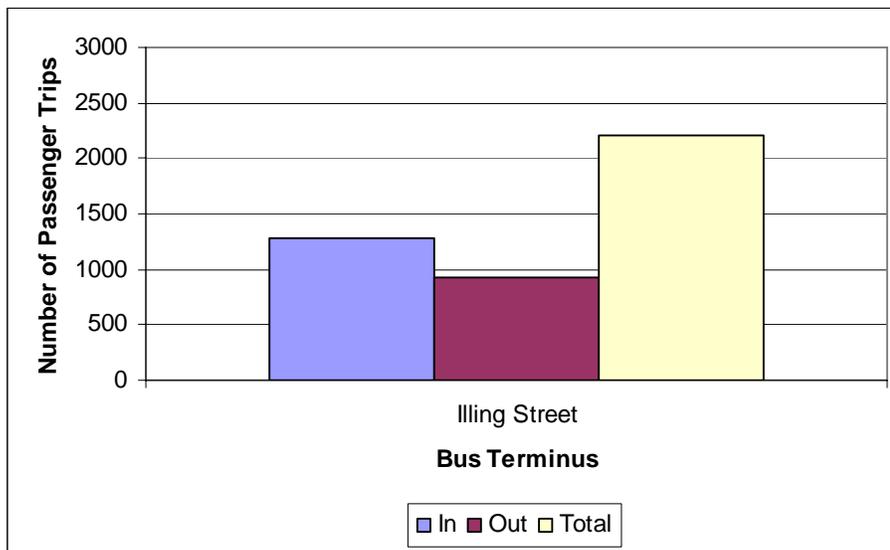
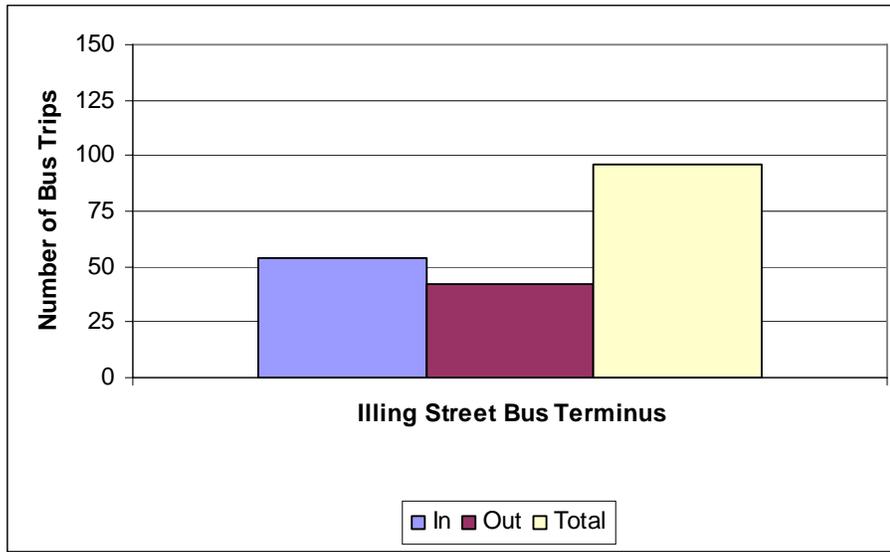


Figure 5.5: Bus Vehicle Trips for the Illing Street Bus Terminus



5.2 Detailed Discussion – Bus Operator Information

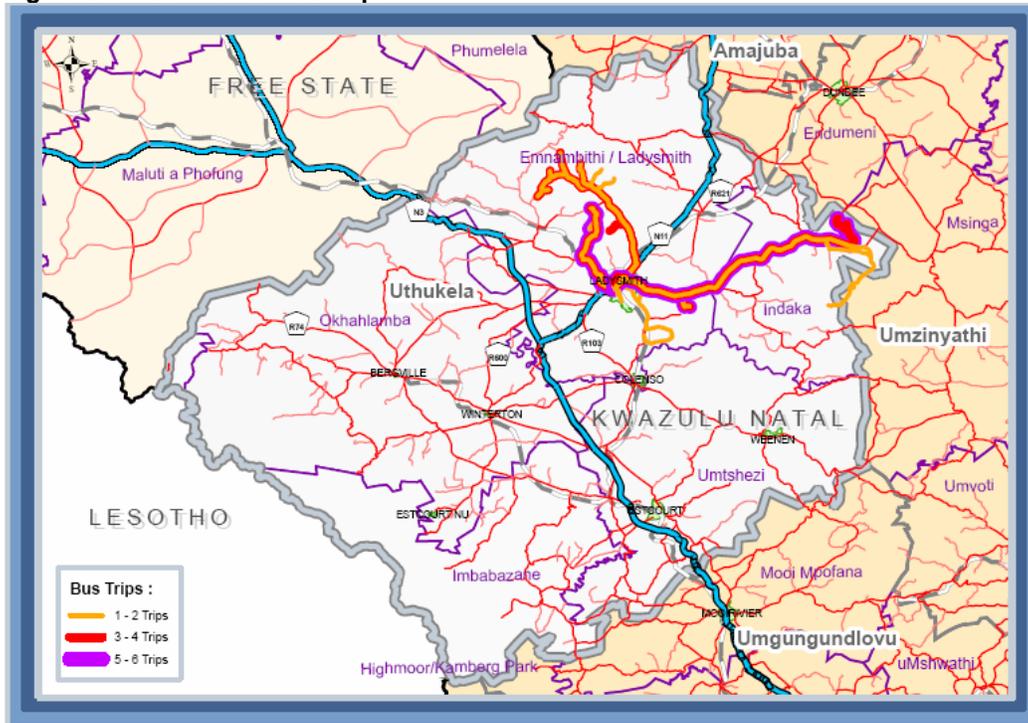
This section of the report considers the frequency (number of trips), service capacity, and utilisation of bus transport during the morning (06:00 – 09:00) and afternoon (15:00 – 18:00) peak periods based on the information received from the bus operator. The information received is based on the monthly subsidy claims prepared for the KwaZulu Natal Department of Transport.

5.2.1 Frequency of the Service (Number of Trips)

The information received from the bus operator showed that there are 50 trips during the AM peak period (06:00 – 09:00) and 49 during the PM peak period (15:00 – 18:00).

Figure 5.6 provide a map showing the total number of peak period bus trips (06:00 to 09:00 and 15:00 to 18:00) for uThukela. From this figure it can be seen that the majority of bus operations are focused around Ladysmith with three distinct routes between the urban centre of Ladysmith and Uitval (Complex of Limehill), Driefontein and Watersmeet. The average trip length per bus trip was calculated to be 39.6 kilometres.

Figure 5.6: Peak Period Bus Trips



5.2.2 Passenger Movements

Figure 5.7 and Figure 5.8 shows the AM Peak Passenger and PM Peak Passenger Distribution respectively. The operator information shows that most passengers travel between Uitval (Complex of Limehill), Watersmeet and Driefontein to Ladysmith during the morning and evening peak periods.

During the AM peak period it can be seen that the routes from Uitval, Driefontein and Watersmeet to Ladysmith experience higher passenger volumes. This is due to passengers travelling to Ladysmith to work, school or shopping. The reverse applies for the PM peak period.

Ladysmith is the main bus transport hub in uThukela with 100% percent of all bus trips going to and from the Illing Street bus terminus. Bus transport in Ladysmith contributes to just more than 11% percent of all public transport in the uThukela District Municipality area.

According to the Bus Operator information, 2 798 passengers travel within the AM Peak Period (06:00 to 09:00) and 2 478 passengers travel within the PM Peak Period (15:00 to 18:00). Thus more passengers travel during the morning peak than the afternoon peak. This could be as a result of passengers using alternative modes of transport during the afternoon peak such as minibus-taxi or peak spreading that occurs.

Figure 5.7: Bus Passengers in AM Peak Period

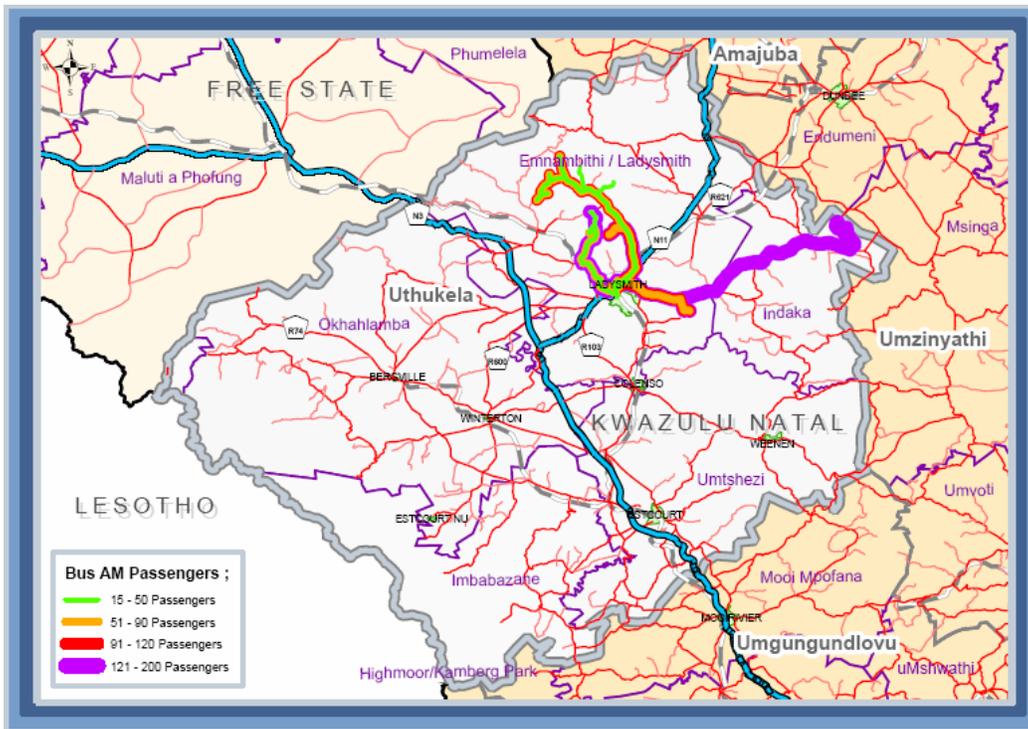
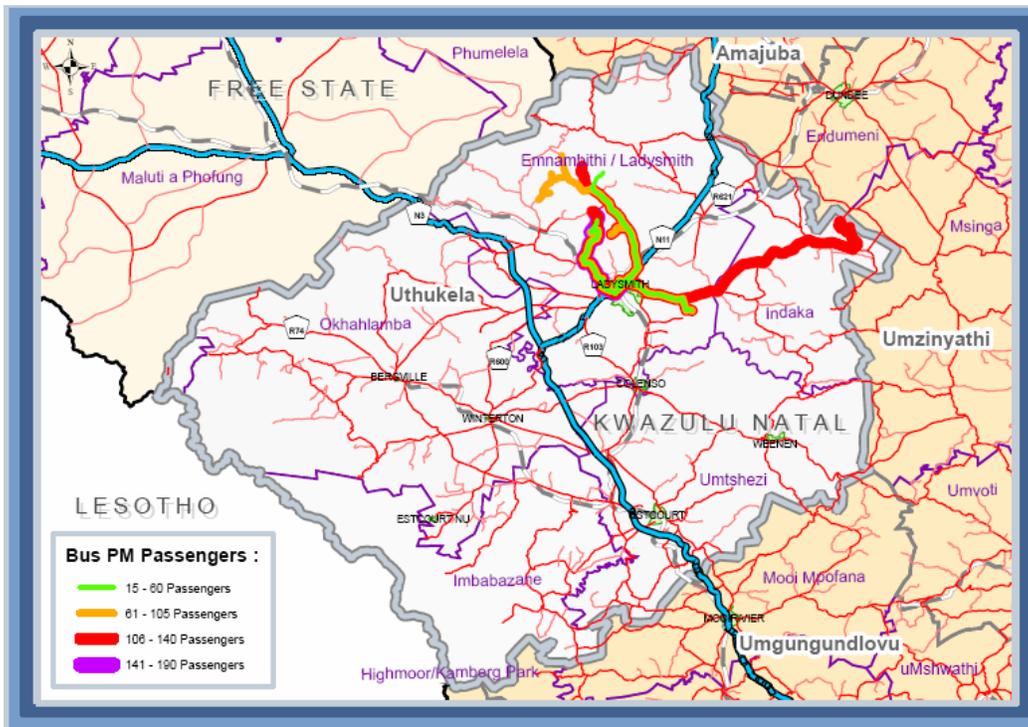


Figure 5.8: Bus Passengers in PM Peak Period



5.2.3 Service Capacity and Capacity Utilisation

The capacity of the bus service is determined by multiplying the actual numbers of trips with the maximum capacity of a bus. Two types of capacity confirmed by the bus operator in the area can be calculated namely:

- Seated Capacity - 65 passengers, and
- Crunch Load Capacity - 80 passengers (65 seated and 15 standing).

Using trip frequency both the seated and crunch load capacity can be calculated. The information received from the bus operator showed that the seated capacity of the bus service amounted to 65 seats with an average utilisation of 82% percent. Detailed bus utilisation figures per route are available on the GIS system. The service capacity and utilisation for the AM and PM peak period is shown in **Table 5.1** below.

Table 5.1 AM and PM peak period bus capacity and utilisation based on bus operator information

Peak Period	Vehicle Trips	Vehicle Capacity		Service Capacity		Actual Passengers	Utilisation	
		Seated	Crunch Load	Seated	Crunch Load		Seated	Crunch Load
06:00 – 09:00	50	65	80	3 250	4 000	2 798	86%	70%
15:00 – 18:00	49	65	80	3 185	3 920	2 478	78%	63%

From this table it can be seen that the seated utilisation produces higher utilisation levels. Seated utilisation is normally used for trips longer than 30 minutes with crunch load utilisation used for trips with less than 30 minutes travel time.

Figure 5.9 and Figure 5.10 shows only seated utilisation figures for the AM Peak (06:00 to 09:00) and PM Peak (15:00 to 18:00) respectively.

It is clear from **Figure 5.9**, AM Peak period utilisation, that a large proportion of trips have an utilisation of more than 100%. Only a few routes in uThukela operate at levels of above 100% utilisation. This could be the result of the limited number of buses operating in this area and thus resulting in higher utilisation. Although during the PM Peak period more trips (80) was counted than in the AM Peak period (65), the service utilisation is still high.

Figure 5.10, the PM Peak period utilisation, shows a similar trend to that of the AM Peak period where a few routes experience more than 100% utilisation. The trips with the highest utilisation (>100%) again appear to be in and around Ladysmith.

Figure 5.9: AM Peak Period Seated Utilisation

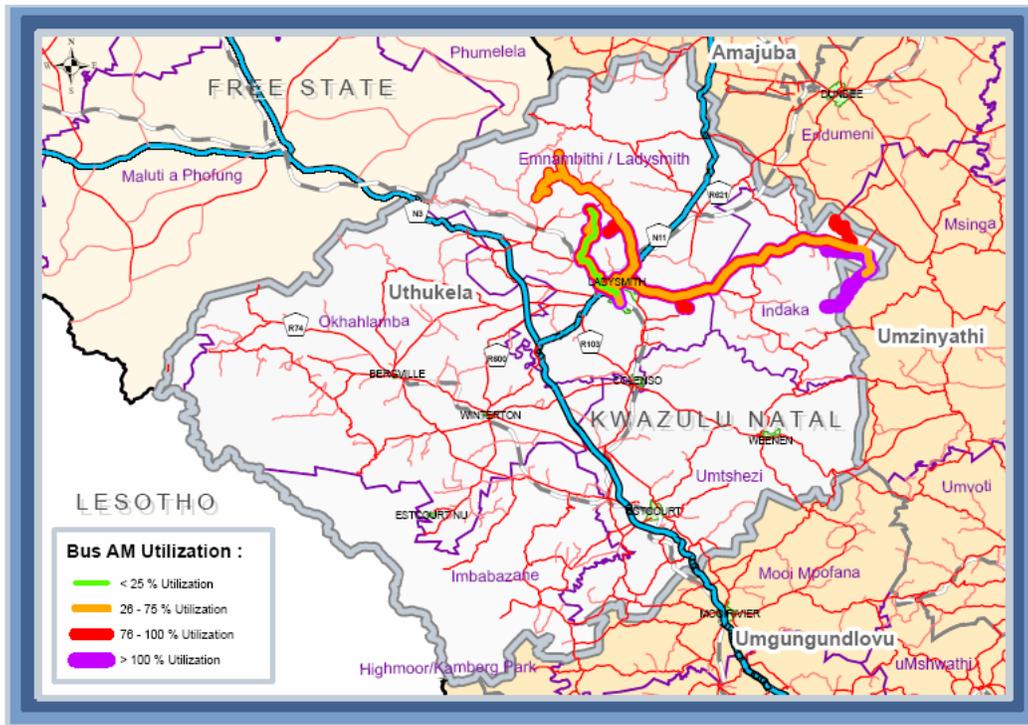
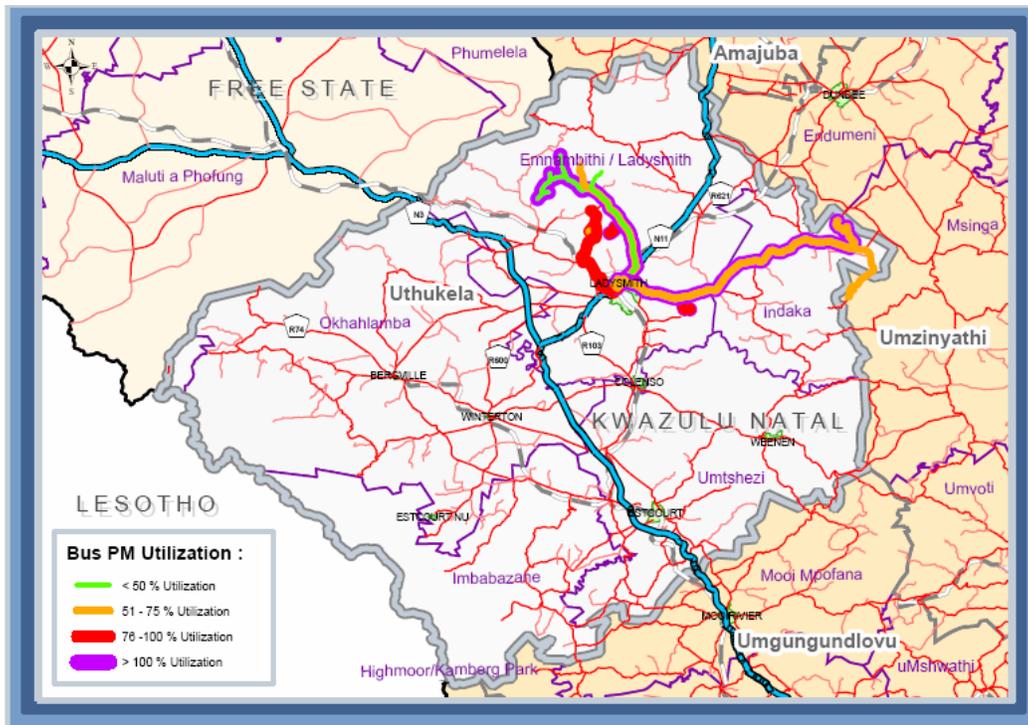


Figure 5.10: PM Peak Period Seated Utilisation



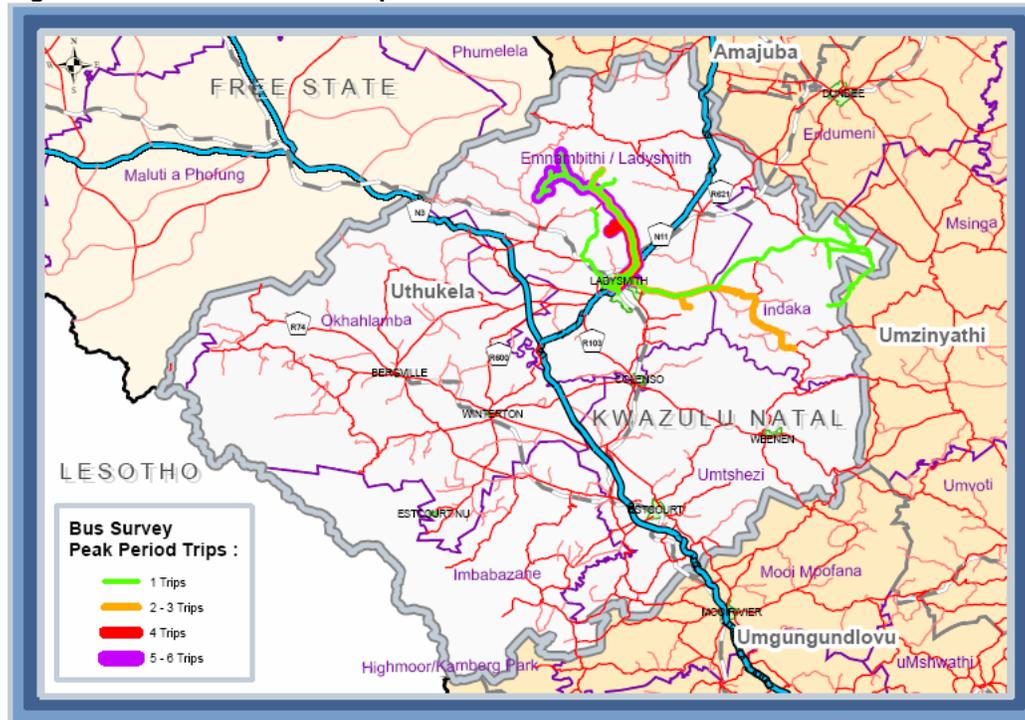
5.3 Detailed Discussion – Bus Survey Information

This section of the report considers the frequency, service capacity, and utilisation of bus transport during the AM peak (06:00 – 09:00) and PM peak (15:00 – 18:00) periods. The information used in this section of the report is based on the bus surveys undertaken on 31 May 2005.

5.3.1 Frequency of the Service (Number of Trips)

As mentioned earlier in the report the bus surveys counted 96 bus trips between 06:00 to 09:00 and 15:00 to 18:00. **Figure 5.11** provides a map showing the total number of peak period trips (06:00 to 09:00 and 15:00 to 18:00) for uThukela according to the survey. From this figure it can be seen that the majority of bus operations is focused around Ladysmith.

Figure 5.11: Peak Period Bus Trips



5.3.2 Passenger Movements

Figure 5.12 shows the total peak period passengers based on the survey results. The bus passenger volumes correspond with bus trips as mentioned in the section above.

Figure 5.13 and **Figure 5.14** shows the AM peak passenger and PM peak passenger distribution respectively. Generally the majority of passengers travel between Ladysmith and rural locations like Driefontein, Watersmeet and Complex of Limehill (Uitval).

During the AM peak period it can be seen that the three major routes leading to Ladysmith such as Complex of Limehill (Uitval), Driefontein and Watersmeet experience higher passenger volumes. This is due to passengers travelling to Ladysmith for work, school or shopping. The same applies for the PM peak period where most people go home along the three routes.

Figure 5.12: Total Peak Period Bus Passengers

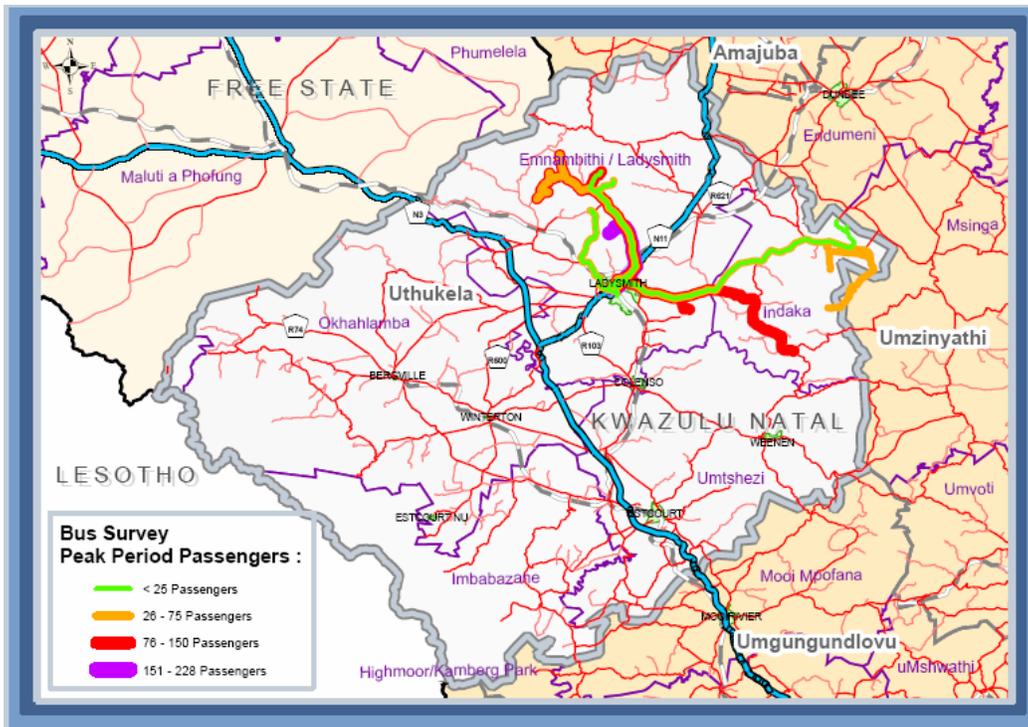


Figure 5.13: AM Peak Period Bus Passengers

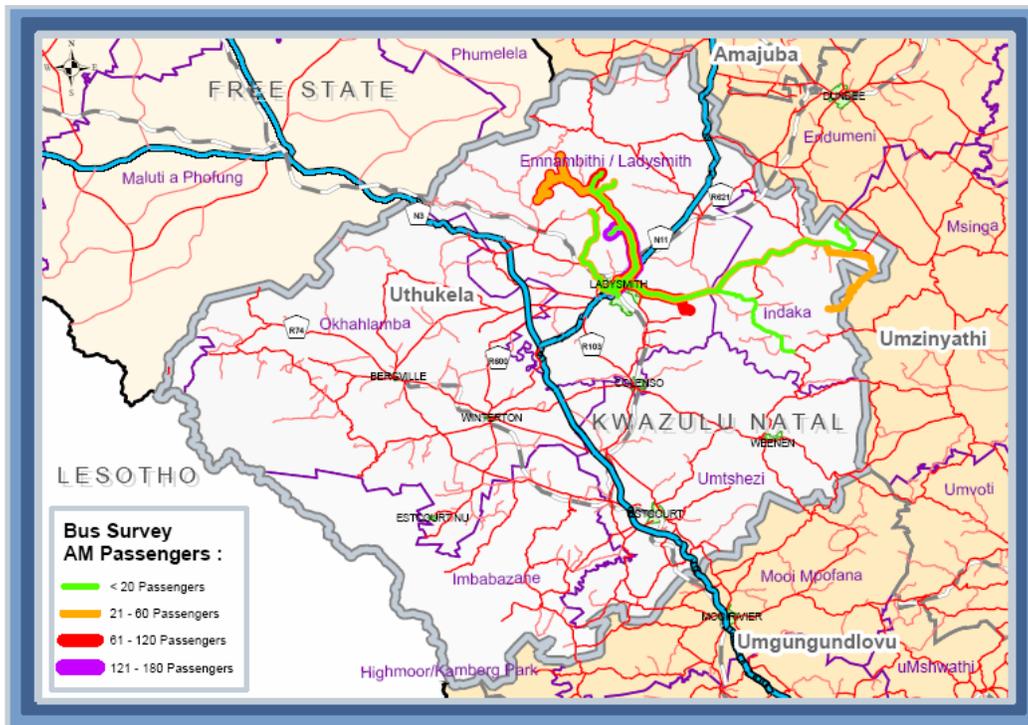
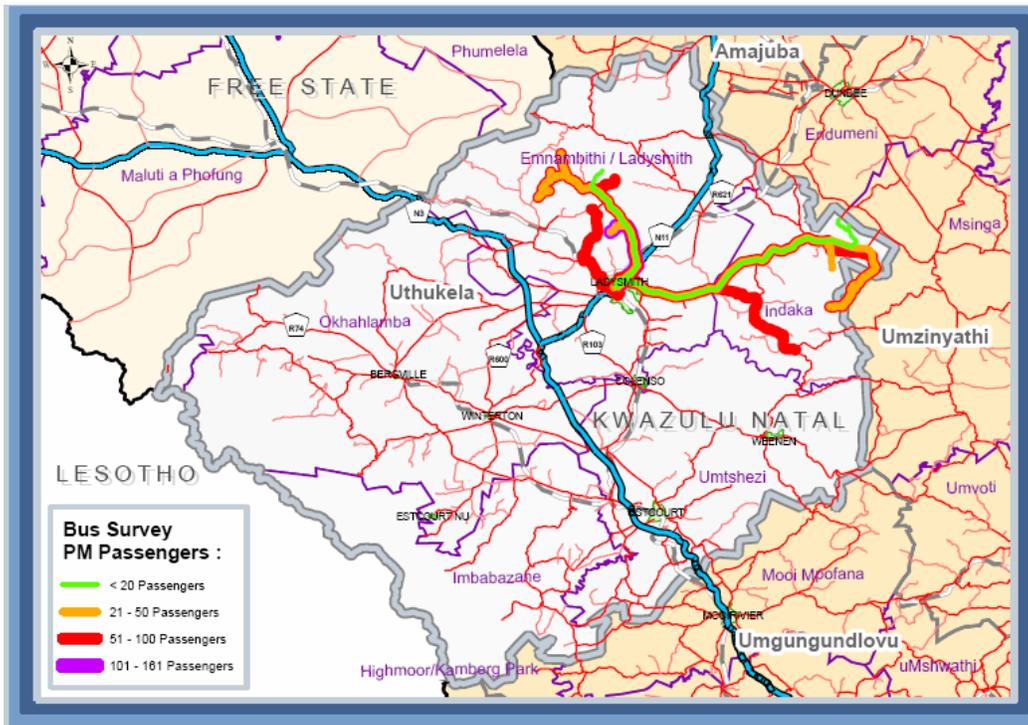


Figure 5.14: PM Peak Period Bus Passengers



5.3.3 Service Capacity and Capacity Utilisation

The capacity of the bus service has been described in Section 5.2.3 above. The same method has been applied to the bus survey information in determining the capacity and utilisation. Since the surveys accounted for both IN-bound and OUT-bound trips the capacity and utilisation is for both directions.

The service capacity and utilisation, based on survey results, for the AM and PM period is shown in **Table 5.2**. The seated utilisation for bus during the peak periods is very low for the following reasons:

- Bus trips between the Illing Street terminus and the depot is included in the vehicle trips.
- The survey at the Illing Street terminus did not include those passengers embarking and disembarking along the bus routes.

Table 5.2: AM and PM peak period bus capacity and utilisation based on survey results

Peak Period	Vehicle Trips	Vehicle Capacity		Service Capacity		Actual Passengers	Utilisation	
		Seated	Crunch Load	Seated	Crunch Load		Seated	Crunch Load
06:00 – 09:00	52	65	80	3 380	4 160	1 024	30%	25%
15:00 – 18:00	44	65	80	2 860	3 520	1 186	41%	34%

Figure 5.15 and Figure 5.16 shows the seated utilisation for the AM Peak (06:00 to 09:00) and PM Peak (15:00 to 18:00) respectively.

It is clear from **Figure 5.15**, AM Peak period utilisation, that a large proportion of trips have an utilisation of more than 75%. Only a few routes in and around Ladysmith operate at levels of near to 100% utilisation. The bus survey results for uThukela shows no over utilisation of the bus services. The on-board surveys did however show that many passengers board and alight bus services along the route thus resulting in lower utilisation figures done at ranks/termini.

Figure 5.16, the PM Peak period utilisation, shows a similar trend to that of the AM Peak period where the majority of trips operate at more than 75% utilisation.

Figure 5.15: AM Peak Period Seated Utilisation

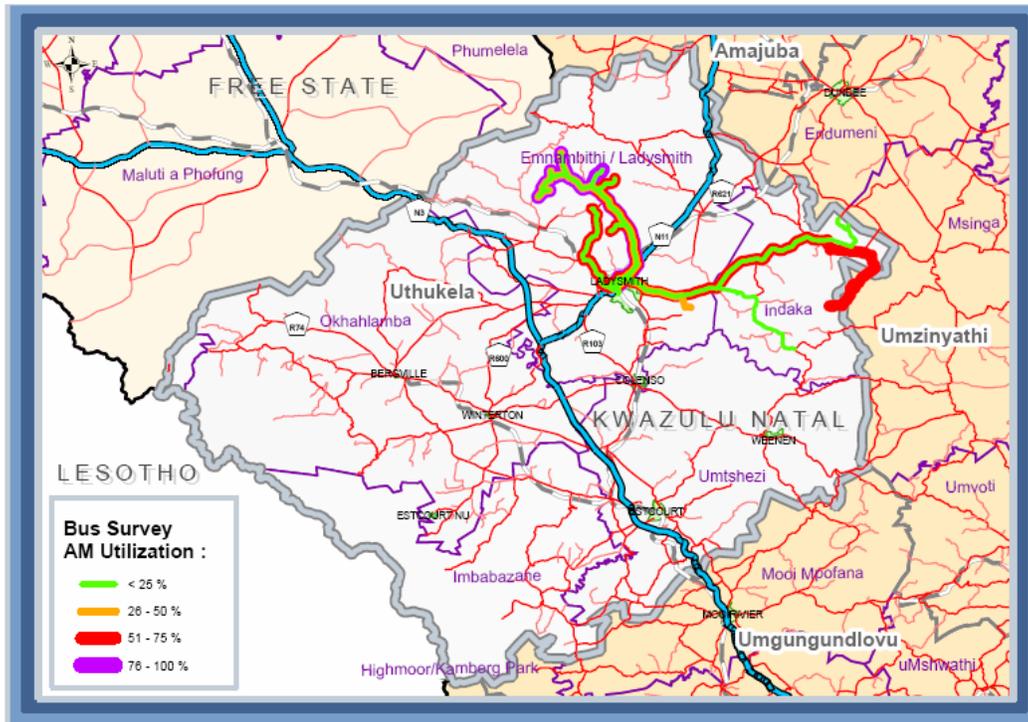
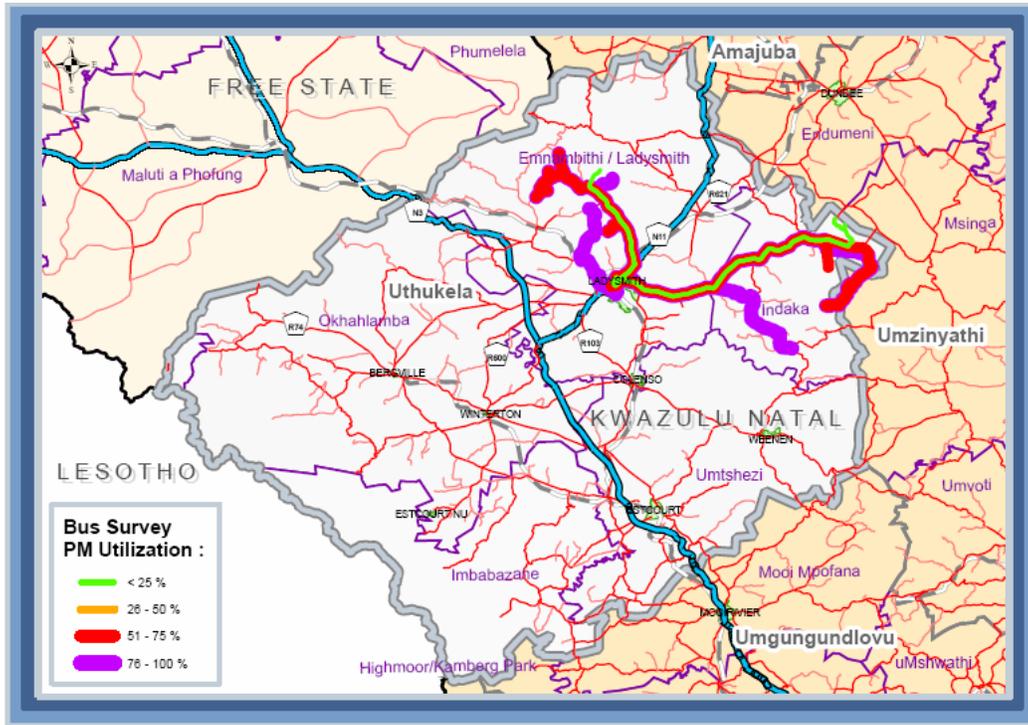


Figure 5.16: PM Peak Period Seated Utilisation



6 MINIBUS-TAXI SURVEYS

6.1 General Trends

The minibus-taxi operators in uThukela have grouped themselves into associations as mentioned earlier in the report.

The results of the minibus-taxi survey showed that 42 491 passengers (In – 13 845 and Out – 28 646) are transported by minibus-taxi during the 6-hour survey period, which equates to an average of 9 passengers per taxi. As was the case with bus transport, the majority of trips take place within or around the towns within the uThukela area (i.e. Ladysmith, Estcourt and Bergville). Appendix E shows the minibus-taxi routes based on surveys.

The distribution of minibus-taxi passengers for the different municipality areas is shown in **Figure 6.1**. The trends are similar to those of bus operations, with the majority of passengers transported in the Ladysmith/Emnambithi and Umtshezi areas which have the main towns in the region with lesser passenger transport in the rural areas. This again is the result of population distribution, public transport availability and accessibility as well as the work opportunities within the area.

Figure 6.1: Minibus-taxi Passengers per Municipality

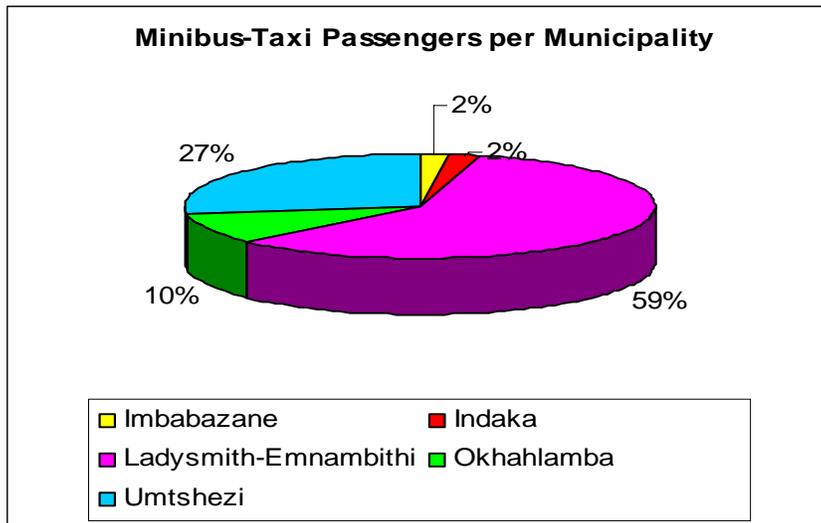


Figure 6.2 and **Figure 6.3** shows the results of the minibus-taxi surveys for ranks for passenger trips per minibus-taxi and the number of vehicle trips per rank respectively. **Figure 6.4**, generated from the GIS, shows the total passengers transported in uThukela between 06:00 – 09:00 and 15:00 - 18:00 and is based on the surveys.

Figure 6.2: Minibus-taxi Passengers Trips per Rank

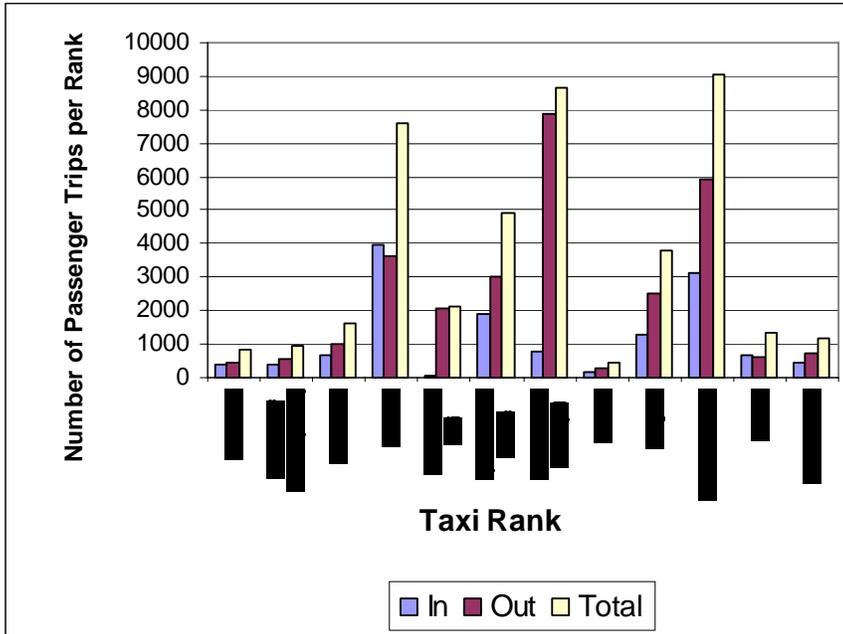


Figure 6.3: Minibus-taxi Trips per Rank

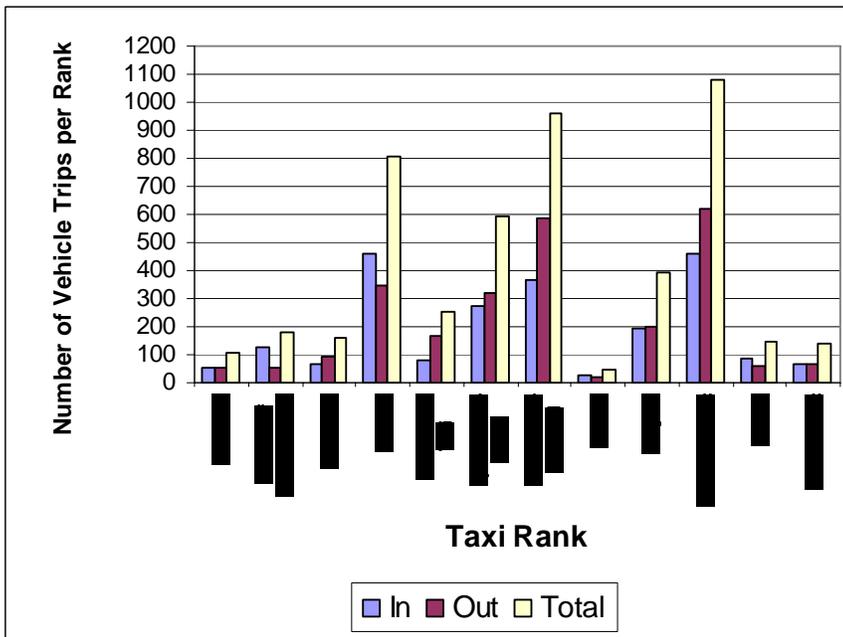
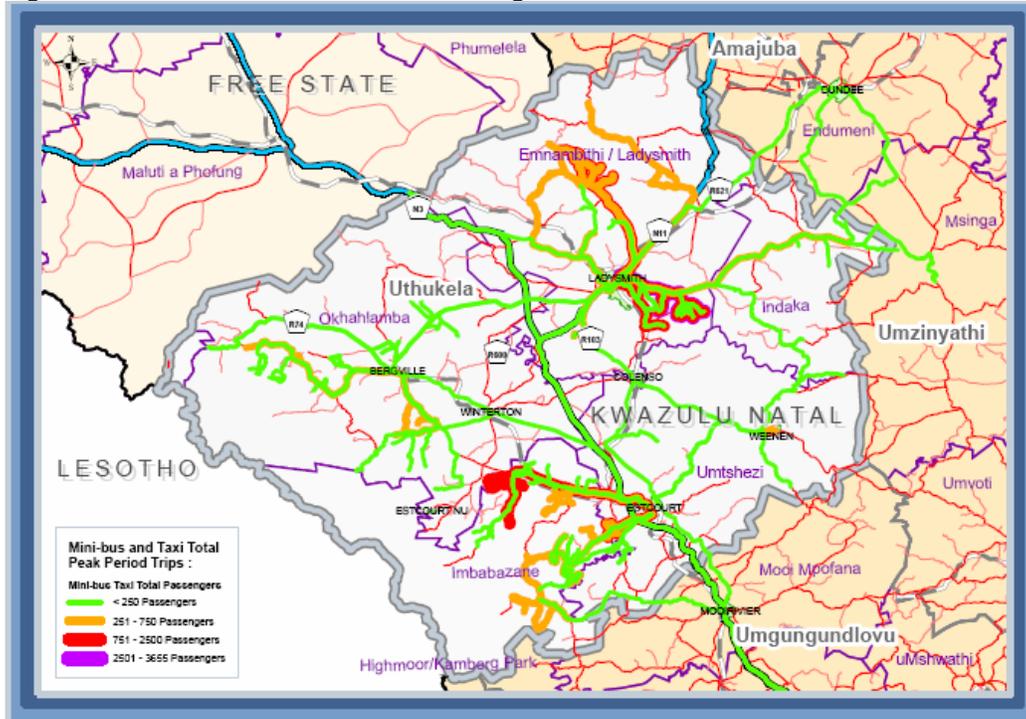


Figure 6.4: Peak Period Minibus-taxi Passengers for uThukela Area



6.2 Route Utilisation

This section of the report addresses the frequency, service capacity, and utilisation of the minibus-taxi services during the AM and PM peak periods based on minibus-taxi surveys.

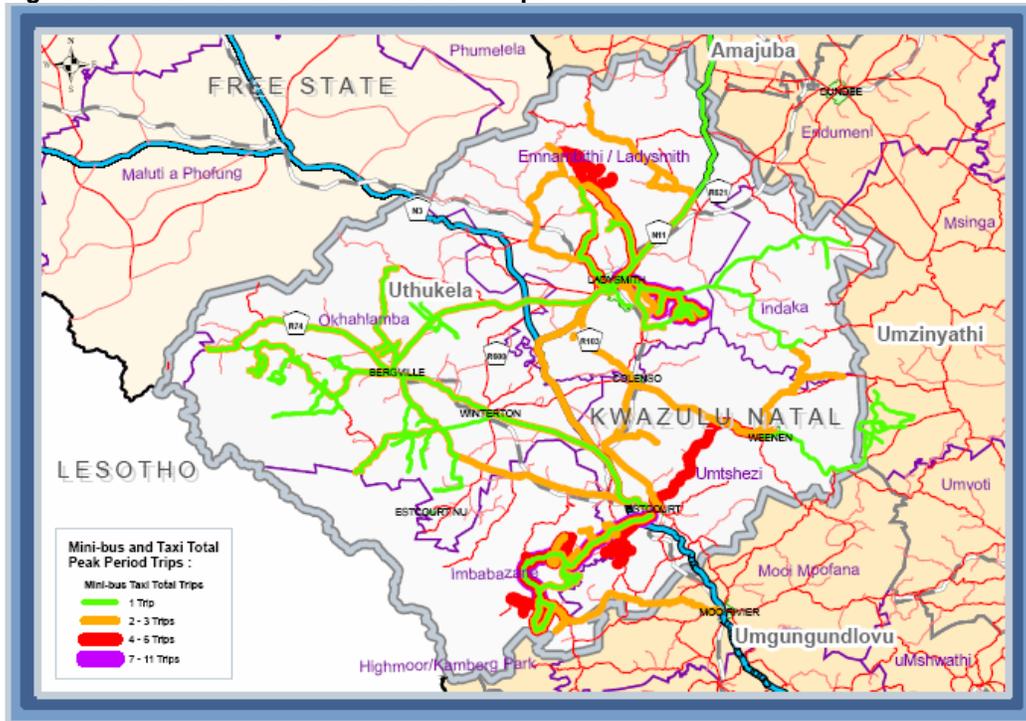
6.2.1 Frequency of the Service (Number of Trips)

As mentioned in the section above 4 864 minibus-taxi trips were made between 06:00 – 09:00 and 15:00 - 18:00. This is significantly more than the number of trips being made by bus mode of transport. This can be attributed to the fact that much less passengers can be transported with a minibus-taxi than a bus.

The minibus-taxi surveys further showed that 2 264 trips were made during the AM peak period and 2 600 trips during the PM peak period, by the different minibus-taxi operators in uThukela.

Figure 6.5 shows the total peak period minibus-taxi trips within uThukela District Municipality. **Figure 6.5** clearly shows that minibus-taxi transport is mainly focussed on surfaced roads. This information was extracted from the GIS system and is based on the surveys at the different ranks. It can be seen that the majority of minibus-taxi operations and routes are concentrated on higher order roads such as provincial roads.

Figure 6.5: Total Peak Period Minibus-taxi Trips



6.2.2 Passenger Movements

A total number of 42 491 passengers were transported during the 6-hour survey period with the majority of passengers travelling within the Umtshezi and Imbabazane Local Municipality areas where the rural population is high and where there is no bus service.

Figure 6.6 and Figure 6.7 show the AM Peak (06:00 to 09:00) and PM Peak (15:00 to 18:00) passenger volumes according to the surveys. The majority of passengers travel between the towns (Estcourt, Ladysmith and Bergville) and rural areas.

The routes with the highest number of passengers proves to be the P1-8 between Moiriver and Estcourt, the P32 between Ezakheni and Ladysmith and the P331 between Champaign Castle and Estcourt. During the AM peak period some 13 845 passengers travel within uThukela and 28 646 passengers travel within the PM peak period. The higher number for the PM shows that a considerable number of people travel to towns during the off-peak period for shopping or other purposes and returning in the afternoon. This correlates with less people travelling by bus in the PM peak period and more by minibus-taxi.

Figure 6.7 representing the PM peak period also shows the same tendency as that of the AM peak period with the most passengers travelling on the P32 between Ladysmith and Ezakheni and P331 between Estcourt and the Champaign Castle area.

Figure 6.6: AM Peak Period Minibus-taxi Passengers

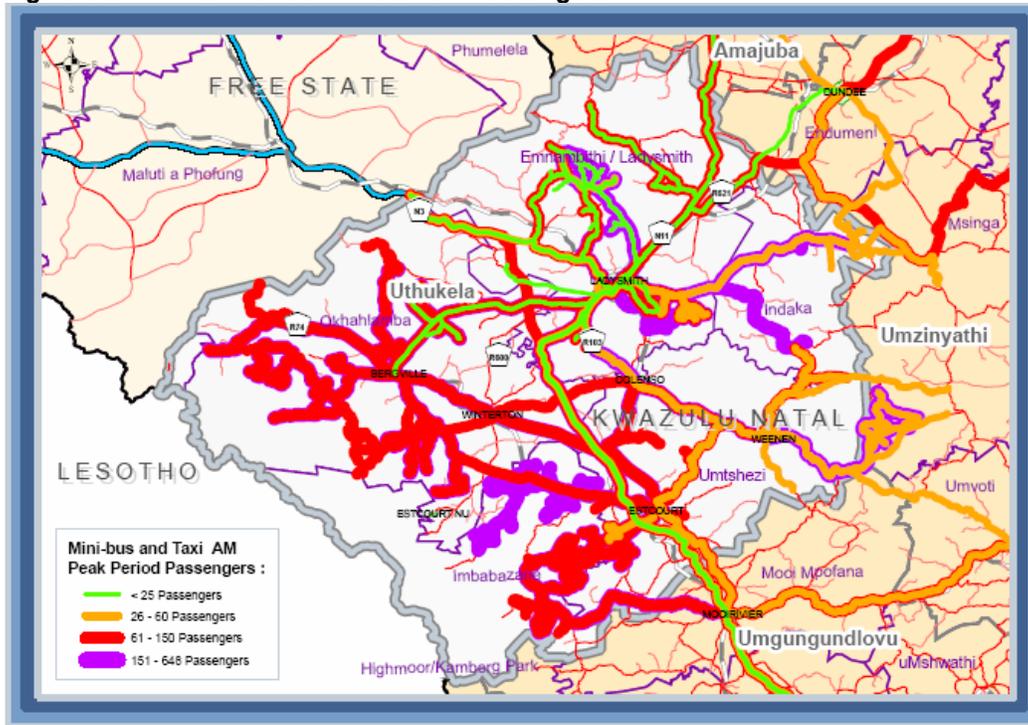
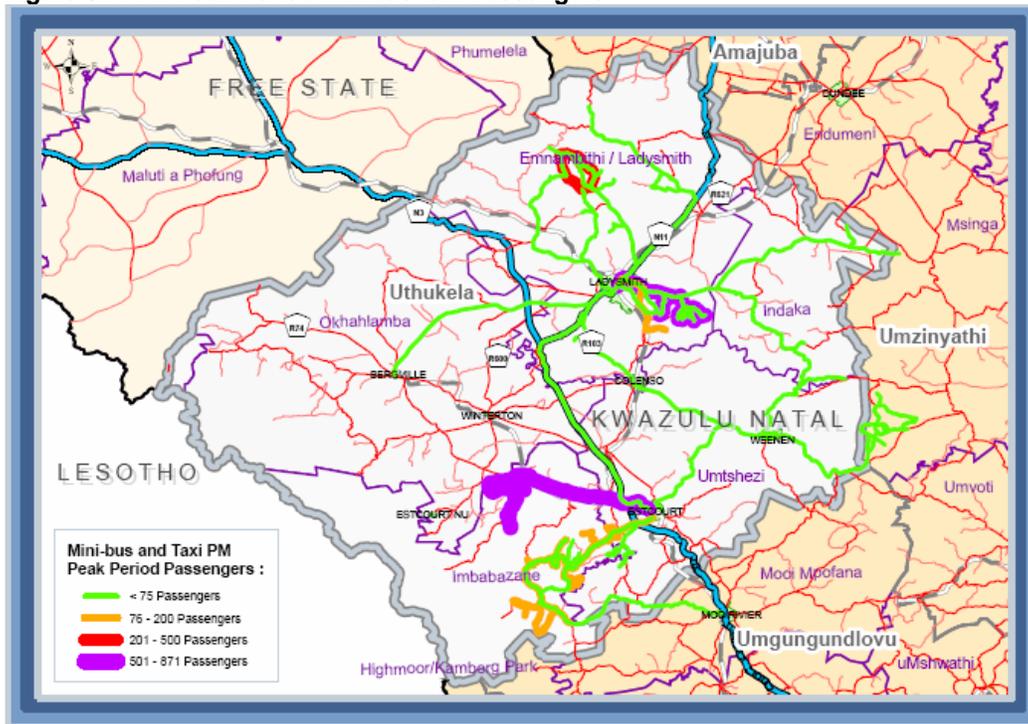


Figure 6.7: PM Peak Period Minibus-taxi Passengers



6.2.3 Service Capacity and Capacity Utilisation

The capacity of the minibus-taxi service is determined by multiplying the actual numbers of minibus-taxi trips with the maximum capacity of a minibus-taxi. It was assumed that the maximum capacity for minibus-taxis is the same as the legal limit of 15 (+ driver) passengers. Using the maximum capacity of minibus-taxis and the number of trips it was calculated that the capacity of the minibus-taxi service amount to almost 73 000 (72 960) passengers. The survey results on the other hand showed that the actual number of passengers transported by minibus-taxis were only 42 491 passengers. To determine the utilisation of the minibus-taxi service the actual usage is shown as a percentage of the maximum capacity of the service. In the case of uThukela the minibus-taxi service is between 50% - 70% percent utilised, and excludes passengers boarding and alighting along the minibus-taxi routes. The service capacity and utilisation for the AM and PM peak period is shown in **Table 6.1** below.

Table 6.1: AM and PM peak period minibus-taxi capacity and utilisation

Peak Period	Vehicle Trips		Vehicle Capacity	Service Capacity		Actual Passengers		Utilisation	
			Seated						
	IN	OUT		IN	OUT	IN	OUT	IN	OUT
06:00 – 09:00	1 532	900	15	22 980	13 500	5 953	7 892	26%	58%
15:00 – 18:00	732	1 700	15	10 980	25 500	7 892	20 754	72%	81%

From the above figures it can be seen that the AM and PM peak periods have similar utilisation levels with outbound traffic from ranks showing their highest utilisation figures.

Figure 6.8 and **Figure 6.9** represent the Minibus-taxi AM Peak and PM Peak utilisation respectively.

During the AM Peak period (**Figure 6.8**) there is a general trend that minibus-taxi services operate at utilisation levels of 50% to a 100%. Between Weenen and Ladysmith, Estcourt and Weenen, destinations in Okhahlamba to Bergville and destinations in Imbabazane to Estcourt most of the services run at an utilisation of between 75% and 100%, and could be as a result of a lack of services.

During the PM Peak period (**Figure 6.9**) the picture looks much different than that of the AM Peak period. The PM peak period showed that trips from Ladysmith to Weenen and Estcourt to destinations in Imbabazane area have utilisation figures of between 75% and 100%.

Figure 6.8: AM Peak Period Minibus-taxi Utilisation

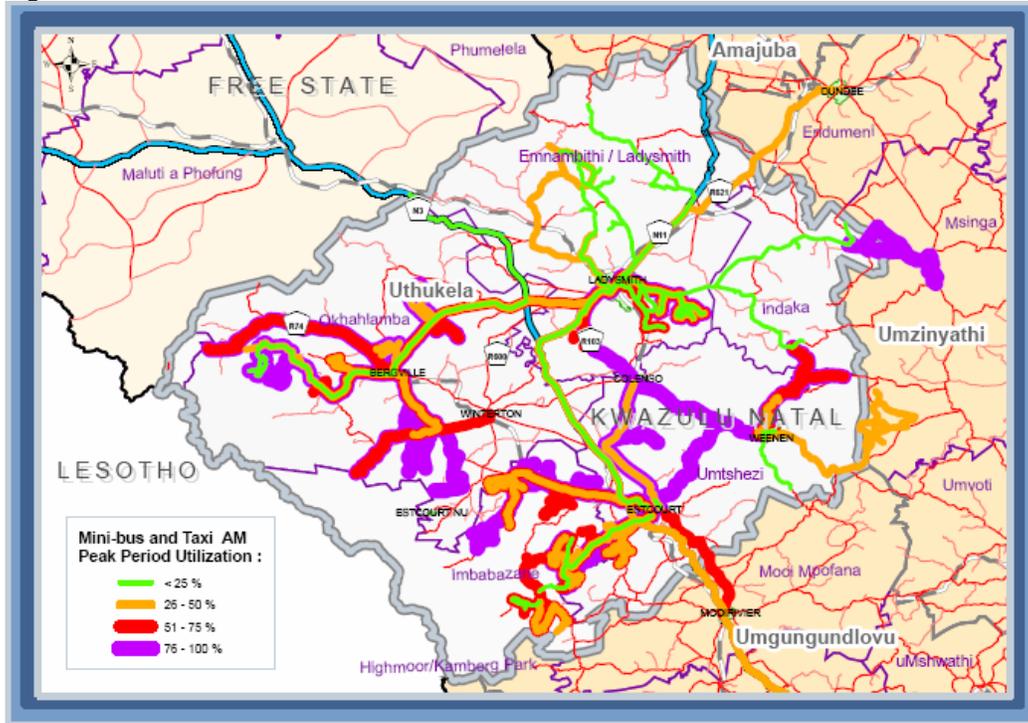
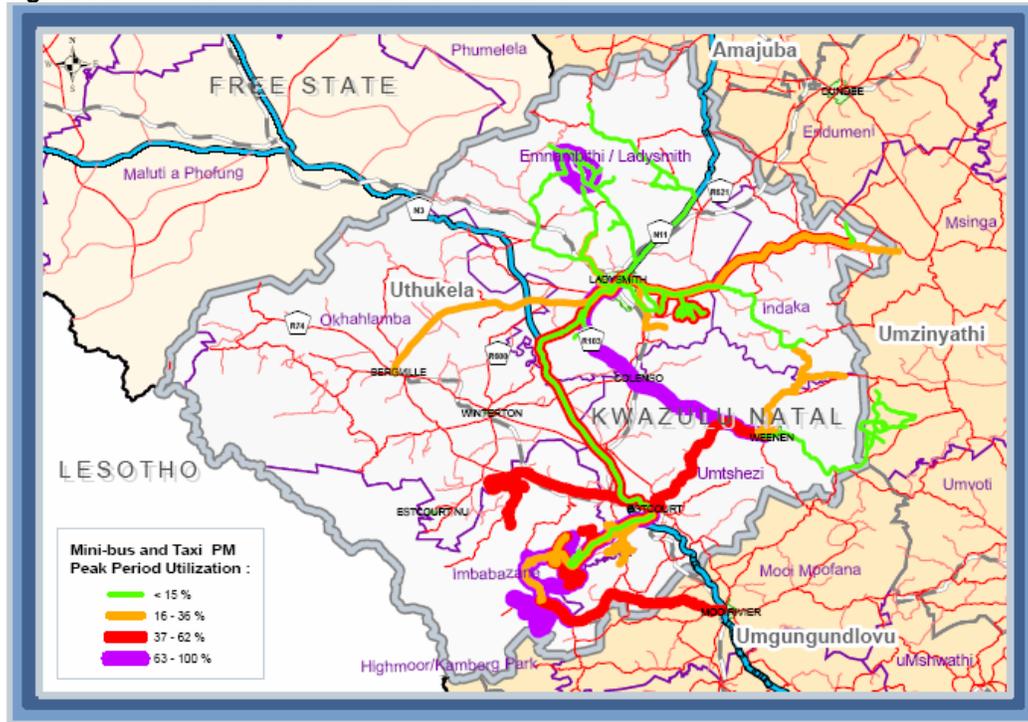


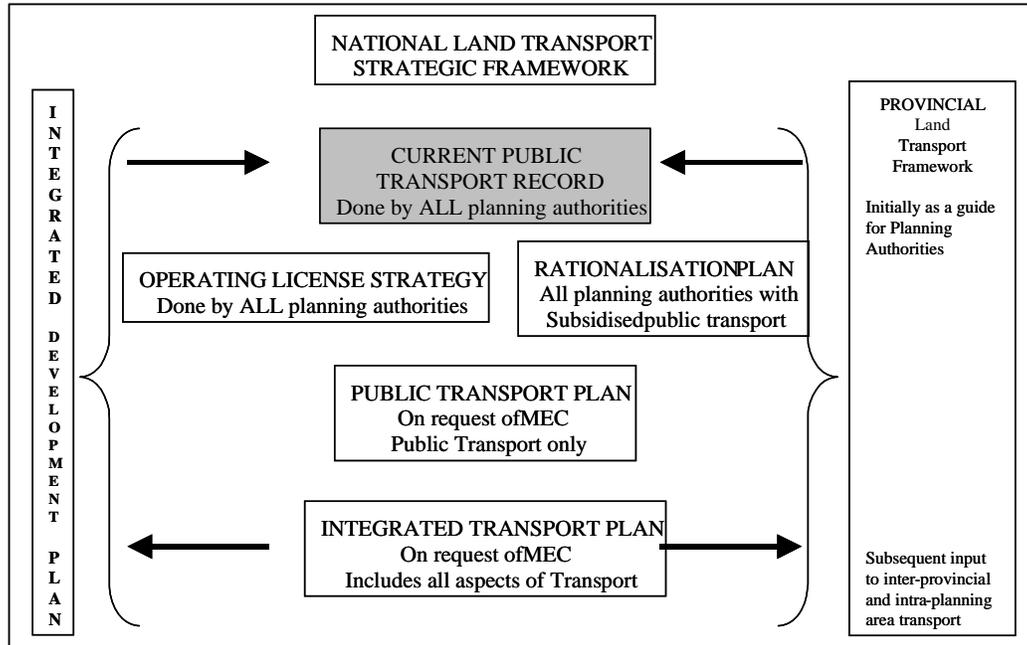
Figure 6.9: PM Peak Period Minibus-taxi Utilisation



7 WAY FORWARD

7.1 Introduction

This report provides an overview of the status quo of public transport within uThukela District Municipality. The detailed database and GIS on which this report is based provides more detail on the peak period public transport operations in uThukela. In order to use the CPTR as a planning and development tool, it is necessary to look at the broad framework in which the CPTR has been compiled in order to understand the importance of the CPTR in the Public Transport planning process. The diagram below provides the framework in which the CPTR is carried out and provides an indication on the way forward.



7.2 Future Strategy

In order to justify the expenditure for preparing the CPTR, it is important to continue the process and to prepare an Integrated Transport Plan (ITP) and to ensure that the available data is supplemented and updated on a regular basis. This will ensure that the ITP can be used as an effective transport planning tool from which uThukela will be able to make informed decisions. The following packages of work should be considered:

- The CPTR should be used as a planning and decision making tool and as input for all future public transport planning in uThukela and should be updated annually as stipulated by the guidelines for preparing a CPTR.
- The CPTR and the accompanying GIS that has been developed for uThukela should be developed further to make it user friendly and accessible to all role players within the public transport sector to assist in the decision making process.
- The CPTR will be used as input for preparing the following documents that will eventually be used to prepare the Integrated Transport Plan (ITP) for uThukela:
 - Operating License Strategy,
 - Rationalisation Plan aimed at subsidised public transport, and
 - Public Transport Plan.

7.3 GIS Data Base

Enormous effort has been spent on developing the GIS component of the CPTR. To derive maximum benefit from the GIS, it needs to be developed in such a manner that informed decisions can be made based on agreed criteria.

8 SUMMARY / CONCLUSION

This report describes the extent of public transport including bus and minibus-taxi transport in uThukela. The report further investigates all issues relating to public transport and provides information on the process of completing the CPTR.

In general, more than 46 000 (45 985) passengers were transported by either minibus-taxi or bus during the 6-hour survey period in the uThukela area. In order to transport these passengers the bus service provided for 96 vehicle trips while the minibus-taxi industry contributed a further 4 864 trips.

The bus information gathered through the bus operator was based on the monthly subsidy forecast and information sent to the Provincial Department of Transport. The passenger numbers quoted by the bus operator were based on the number of ticket sales per month and is an average per route operated on. The utilisation figures calculated therefore addresses the utilisation along bus routes. The on-site surveys were undertaken on one day and only included the Illing Street bus terminus. Bus operations are not bound to termini with several bus routes starting and ending outside the surveyed terminus whilst some routes only run on certain days of the week. The bus surveys and formats as proposed by the National Department of Transport are not able to verify the data received from the bus operators.

The utilisation figures calculated using survey information showed similar figures than the figures from the bus operator. The on-board surveys, although a very small sample, however showed that there are passengers that were boarding and alighting buses along the bus routes. The average number of passengers boarding and alighting (54 and 46) along bus routes is almost 77% percent of the bus capacity and it can be argued that this passenger activity along bus routes will result in higher utilisation figures based on surveys.

Since this is the first CPTR for uThukela District Municipality and given the time constraints to complete the CPTR before the deadline set by the National Department of Transport it was not possible to conduct any additional surveys to confirm the results of the initial surveys. The inconsistencies between the bus operator information and the information gathered through the surveys can be attributed to several reasons as discussed in the report. It is however important to identify shortcomings with regard to the methodology proposed by the National Department of Transport and make suggestions towards improving the proposed guidelines for future use by other local authorities embarking on similar studies.

The lessons learnt can be summarised as follows:

- It is important when preparing the first CPTR, for any local authority, to develop a well thought through framework and methodology keeping in mind the future use of the CPTR data that is gathered and what outputs are required for further studies,
- Available public transport data should be evaluated before hand to assist in developing survey forms, survey methodology and executing surveys. The pro-forma survey forms provided by the National Department of Transport should only act as guideline when preparing survey forms.
- Any further CPTR studies or surveys should be aimed at complimenting the existing CPTR and the second CPTR should address any inconsistencies in the data and should be used to update as well as verify the existing data.
- The proposed outputs and tables as required by the National Department of Transport to ensure unity for all CPTR's should be assessed before commencing with the study to ensure that the data that is gathered will be useful and not 'nice to have'.
- Surveys should also be carried out over weekend periods to determine weekly fluctuations in the purpose and number of trips and passengers transported within the district area.

More on a positive note:

- The GIS application of the available public transport allows for the CPTR to be a useful decision making tool. In other words, the available data can assist in the prioritisation of the upgrading of routes and ranks, the granting of public transport permits and to identify areas where there is a demand and need for public transport and facilities.
- Public Transport information is easily accessible to all end users and decision makers.
- A consolidated database is available that can be compared with other regions and that can be easily updated in the future.

APPENDIX A - SURVEY FORMS

APPENDIX B - LIST OF SURVEYORS

APPENDIX C - LIST OF DATA RECEIVED

APPENDIX D - FACILITY INVENTORY REPORT

APPENDIX E - TABELISED RESULTS OF SURVEYS

APPENDIX F - MAPS