



AMAJUBA

**PUBLIC TRANSPORT
PLAN: REPORT**

Draft 1

March 2005

ARUP
UWP
UWP Consulting
Joint Venture

Amajuba District
Municipality

Amajuba PTP

PTP Report

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Draft

Amajuba District Municipality

Amajuba PTP

Report

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Draft

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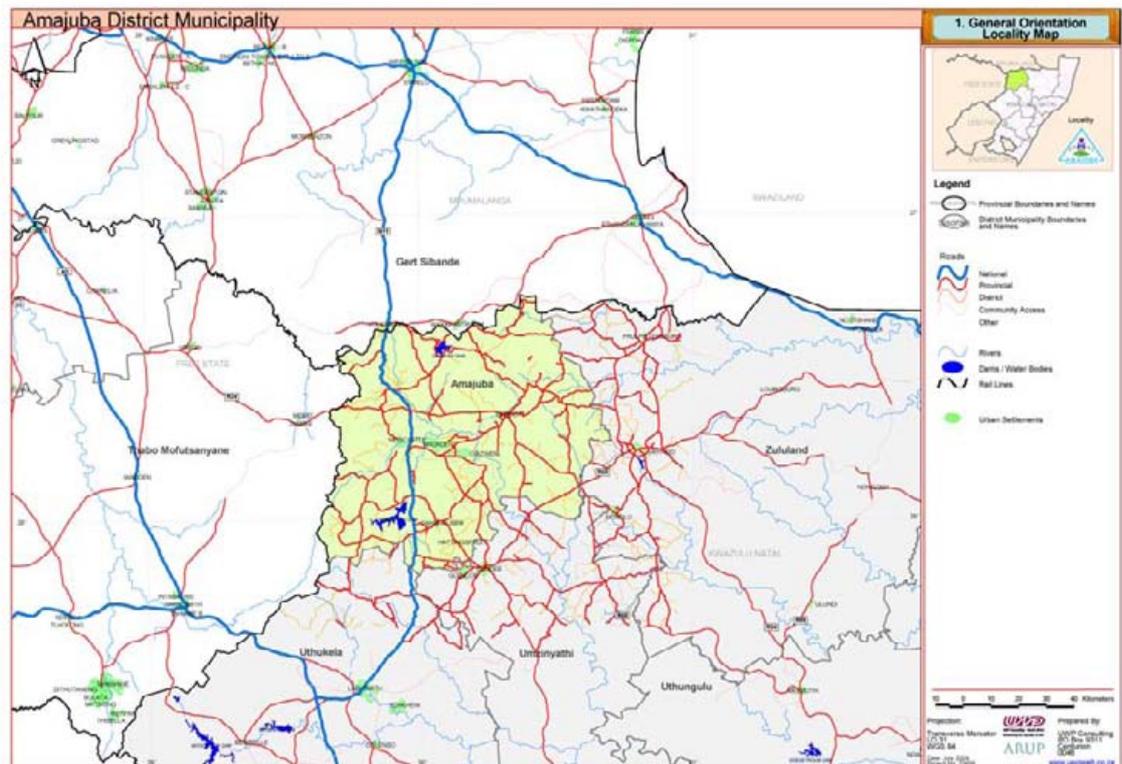
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1. INTRODUCTION

1.1 Background

Arup SA (Pty) Ltd and UWP Consulting (Pty) Ltd were appointed by Amajuba District Municipality (Amajuba) to prepare a Public Transport Plan (PTP) for the whole Amajuba District. **Figure 1.1** illustrates the extent of the study area.

Figure 1.1: Extent of the Study Area



Due to the changing nature of Public Transport in South Africa in recent years and the shift from providing Public Transport based on the demand for Public Transport instead of Public Transport supply, the KwaZulu Natal Department of Transport (KZNDOT) developed a planning approach to accommodate this shift.

The recent Public Transport surveys within Amajuba showed that 1,670 public transport vehicles within Amajuba District transport approximately 40,000 passengers. The survey results also showed that 66% of passengers are transported by minibus-taxi, 22% by bus and the remaining 12% by bakkie or 4+1 vehicles. The details relating to these surveys and the status quo of public transport in Amajuba are described in this report.

1.2 Objective of the Report

The aim of preparing the PTP is to provide an appraisal of the current public transport system and to identify future changes and enhancements that will benefit everyone. The objective of this report can be summarised as follows:

The Assessment of the Status Quo of the Public Transport Service in Amajuba
An Analysis of land use and public transport integration
The Preparation of a Operating and Rationalisation Strategy,

The Compilation of a Public Transport Plan for Amajuba.

1.3 Scope of the Study

This report aims at providing the a PTP for Amajuba. To be able to provide the PTP a number of areas needs to be assessed to determine the functioning and efficiency of the public transport system in Amajuba. The assessment of the public transport system will evaluate general factor that influence travel demand, facilities, fares and costs, and finally an appraisal of the supply and demand patterns.

1.4 Study Approach

The National Land Transport Transition Act (NLTTA), Act 22 of 2000, requires that each planning authority, and in this case Amajuba, compile a package of plans to give effect to the provisions of the NLTTA.

The KZNDOT in turn has embarked on a process to provide a provincial framework for the implementation of these plans in a practical and consistent manner.

The guiding objective for all transport planning in the province is

“to endeavour to minimise the cost of transport that is necessary to satisfy people’s requirements for carrying out activities.”

With this objective as background, the following principles have been adopted to guide the PTP process as it did with the CPTR process;

“Actions taken in the short term should not conflict with/compromise long term plans.

Transport is about moving people between Origin and Destinations (O-D).

The actual pattern of movement (ito # of person trips between each O-D pair) will be a direct function of the pattern of land use development and the transport systems/services provided.

Before a long term movement pattern can be established, it is necessary to start with knowledge of the current movement pattern.

This shows what people ARE doing at the moment and it provides the basis for identifying inefficiencies (primarily high costs) in the current pattern of land use development and transport services.

Having identified these inefficiencies the land use and any other changes needed to increase efficiencies can be evolved.”

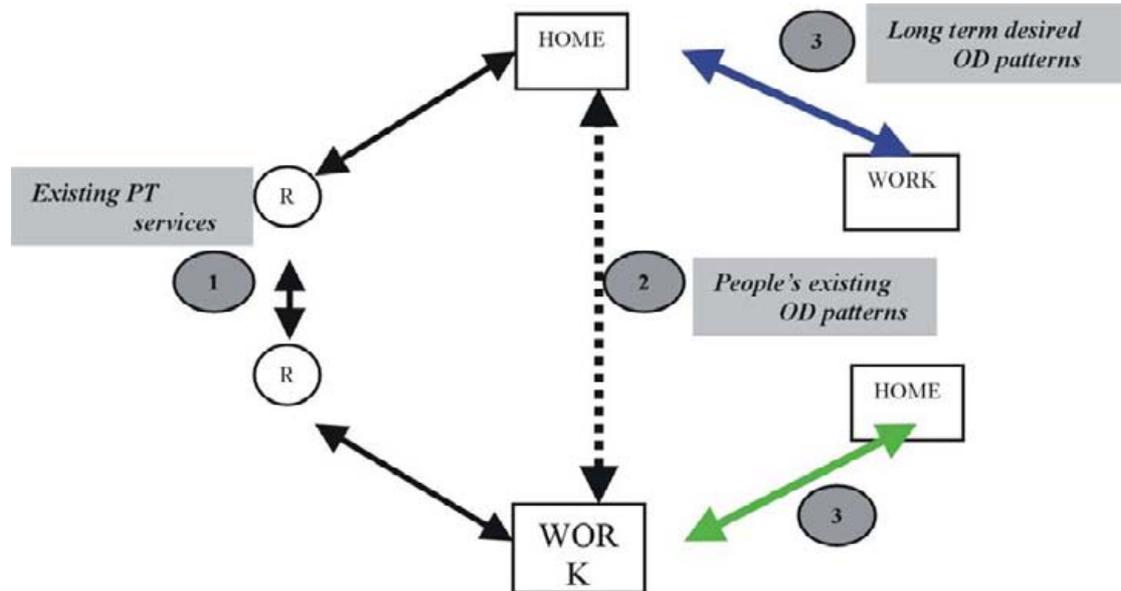
The PTP should provide and assessment of the trilogy of movements as illustrated below;

Part 1: Existing Public Transport (PT) services

Part 2: people’s existing OD patterns

Part 3: long term desired OD patterns

Figure 1.2: The KZNDOT Trilogy of Movement



1.5 Chapter Overview

The report is divided into several chapters and can be summarised as follows:

Chapter 1: Introduction

This chapter provides an overview of the study, the objective of the study, the scope of the study and the study approach followed. This section also provides a background on previous work and the inclusion thereof in the report.

Chapter 2: Methodology

This chapter provides an insight into the methodology followed in preparing the PTP, the relevance of this report in relation to the broader public transport planning process and the problems identified during the execution of the study.

Chapter 3: General Information

The section of the report will focus on the study area and will provide general information on Amajuba. This section will address demographic information, information on roads, local municipalities, land use, physical attributes, social facilities and public transport facilities.

Chapter 4: Public Transport Status Quo

Chapter four of the report will focus on the public transport status quo and will address the following aspects relating to the Public Transport Service in Amajuba:

- Public Transport Facilities,
- Road Infrastructure,
- Public Transport Corridors,
- Public Transport Supply and Utilisation,
- Public Transport Demand, and
- Roles and Responsibilities.

Chapter 5: Public Transport Vision, Goals and Objectives

The outcome of the public participation process yielded a Vision for Public Transport in the Amajuba area as well as goals and Objectives. The vision, goals and objectives will be drafted

taking into account the National and Provincial vision and goals listed in the NLTTA, provincial policy and PLTF.

Chapter 6: Land use and Public Transport Integration

Chapter 6 is aimed at examining land use factors that will have a future impact on the Public Transport System. Factor affecting travel demand patterns, cost of service as well as short comings will be address in this chapter

Chapter 7: Public Transport Proposals

The minimum requirements prescribed in the NLTTA and subsequent guidelines for preparing the PTP requires that an Operating Strategy and Rationalisation Strategy be developed. These strategies will for the basis for the public transport proposals. These proposals will address any short comings and issues discussed in chapter 6. The chapter will further contain a concise Operating and Rationalisation Strategy.

Chapter 8: Stakeholder Consultation

The chapter will discuss the extent of the public participation process and the stakeholder involvement in preparing the PTP.

Chapter 9: Prioritised Public Transport Proposals and Implementation Programme

A prioritised list of public transport proposals together with a proposed implementation programme will be discussed as part of this chapter.

Chapter 10: Financial Implications

The financial implication of the prioritised list of proposals will be discussed in this chapter. No detailed cost assessment will be included in the PTP but reference is made to the assumptions used in determining the cost of implementing the proposals.

2. METHODOLOGY

2.1 Review of Terms of Reference

The Terms of Reference received from Amajuba and the associated KZNDOT guidelines clearly states that consultants are responsible to assist both District and Local municipalities with the following:

“an analysis of planning requirements for current transport plans, an operating license strategy, rationalisation plan and a PTP in terms of the NLTTA, 2000 and the assessment of these requirements in terms of other existing or concurrent national and provincial legislation.”

“determination of the practical provincial and municipal implementation of planning requirements, including but not limited to the utilization of planning in the delivery of the Local Road Transportation Board,” and

“an investigation into the most cost-effective data collection and modelling methodologies to assist the Department with the practical implementation of planning requirements and development of an operating licensing strategy.”

2.2 Methodology Description

The first step in the planning process was to set up a project management team. The project management team included officials from Amajuba and the three local municipalities of Newcastle, Dannhauser and Utrecht, representatives from KZNDOT and well as members of the Amajuba Public Transport Forum. The consulting team is responsible for management of the process and ensuring continuous progress on the project.

Additional information relating to the road network and land use combined with public transport information collected through the CPTR provided the background for preparing the Status Quo report. Due to the number of public transport routes in Amajuba it was decided to develop Public Transport Corridors (PTC) thus reducing the number of Public Transport Routes.

A detailed description of the methodology used to determine these PTC is provided later in the report. The KZNDOT also developed delay and operational cost models to be used as part of the assessment of the public transport services in Amajuba.

2.3 Problems Identified

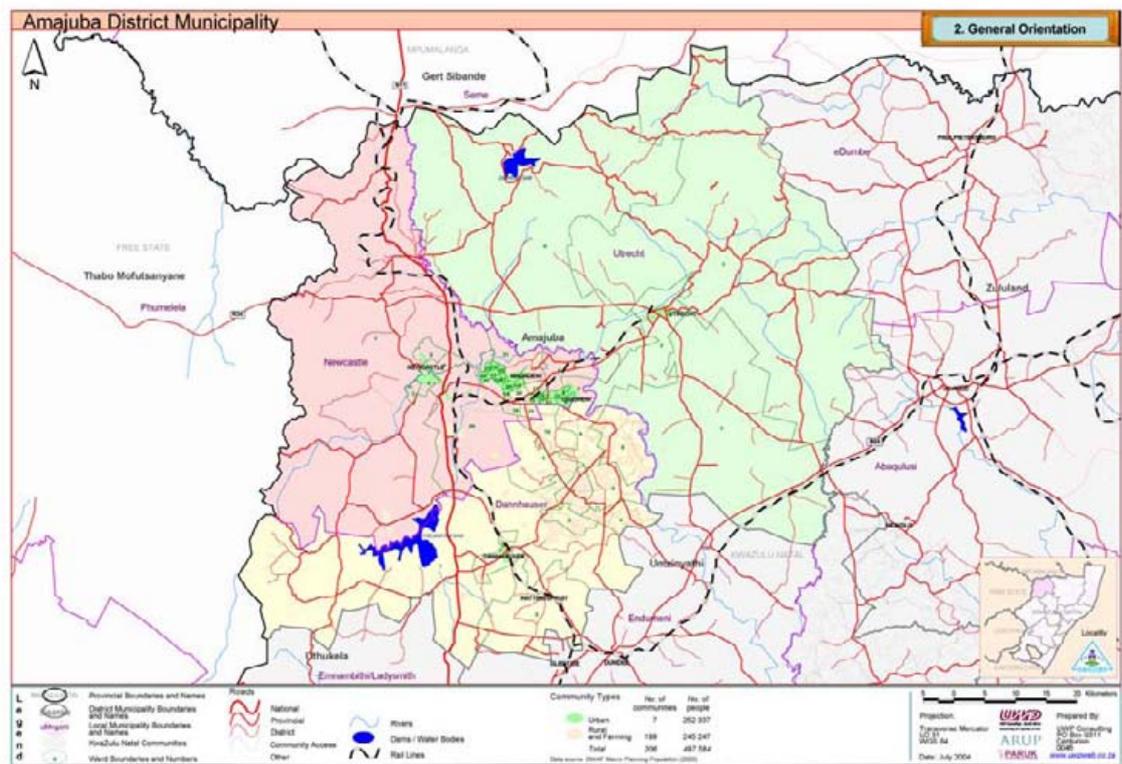
No problems have been identified throughout the initial phases of the project that will have a significant impact on the outcome of the PTP.

3. GENERAL ORIENTATION

This section of the report provides an overview of the study area in terms of general orientation, physical attributes, social facilities, public transport facilities and land use information. The study area is Amajuba District Municipality (DC25) comprising three local municipalities and is shown in **Figure 3.1**. These local municipal areas include:

Newcastle Municipality	-	KZ252
Utrecht Municipality	-	KZ253
Dannhauser Municipality	-	KZ254

Figure 3.1: Study area with local municipalities



3.1 Demographics

According to the Amajuba Integrated Development Plan (IDP) of 2002, the Amajuba district comprises areas of the northern portions of the former uMzinyathi Regional Council, the former Transitional Local Councils of Dannhauser, Newcastle, Hattingspruit and Utrecht, and the Tribal Authority areas of Buhle-Bomzinyathi and Nyanyadu.

Table 3.1 and Table 3.2 shows the general demographic information for Amajuba district as given by the IDP as well as the breakdown of male and female respectively.

According to the figure given by the IDP Newcastle has the highest population with just under 290 000 people followed by Utrecht with 99 250 and then Dannhauser with 23 929. Amajuba contributes to 4.9% of the total population of KwaZulu Natal. Almost half of the population of Amajuba is under the age of 20 years with almost 41% unemployed. According to the figure given by the IDP some 57% of the population in Amajuba are urbanised.

Table 3.1: Demographic Information per Local Municipality

Basic Facts	Statistics
Total population	410 439
Amajuba population as % of KZ	4.9%
Total population of DC25 per KZ area	KZ 252 – 287 260 (70.0%) KZ 253 – 23 929 (5.8%) KZ 254 – 99 250 (24.2%)
% of total population urbanised	57%
Age profile	<20 – 48.5% 21-60 – 47.6% >60 - 3.9%
Unemployment (%of income earning population)	40.6%

(Source – Amajuba District Municipality: Integrated Development Plan, 2002)

Table 3.2: Male and Female Distribution per Local Municipality

Local Municipality	Population	Percentage of District	Male (%)	Female (%)
Newcastle	287 260	70.0%	46.8	53.2
Utrecht	23 929	5.8%	53.8	46.2
Dannhauser	99 250	24.2%	48.6	51.4
Amajuba	410 439	100.00%	47.6	52.4

(Source – Amajuba District Municipality: Integrated Development Plan, 2002)

3.2 Road Linkage

The study area is mainly served by the N11 North-South corridor between Ladysmith, Newcastle and Volksrus. The P37 provincial road to the north of Newcastle provides further access to Utrecht and Vryheid. The P483 provincial road forms the major access road from Newcastle to Madadeni, Osizweni and Utrecht all located to the east of Newcastle. The rest of Amajuba are served by lower order provincial surfaced roads as well as gravel roads. Detailed description of the road infrastructure in Amajuba can be found in Chapter 4 of the report.

3.3 Local Municipalities

Before 2001 local government elections, both Utrecht and Dannhauser were former Town Local Council (TLC) under the jurisdiction of Umzinyathi Regional Council. The erstwhile of Utrecht and Dannhauser were responsible for the urban areas whilst services in the rural areas were provided by the Umzinyathi Regional Council. Since the local government elections in December 2001, the larger portions of the Utrecht Municipal area now falls under the jurisdiction of Utrecht Local Council. The same applies to Dannhauser Local Municipality. Regional Councils have been replaced by District Councils and Utrecht, Dannhauser and Newcastle Local Municipality are now falling under Amajuba District Municipality (DC25).

Amajuba comprises three Local Municipalities as shown in **Figure 3.1**.

Newcastle Municipality (KZ252). Newcastle is the main economic hub within Amajuba with predominant urban population. The traditional townships of Madadeni and Osizweni also fall within the Newcastle Municipal area.

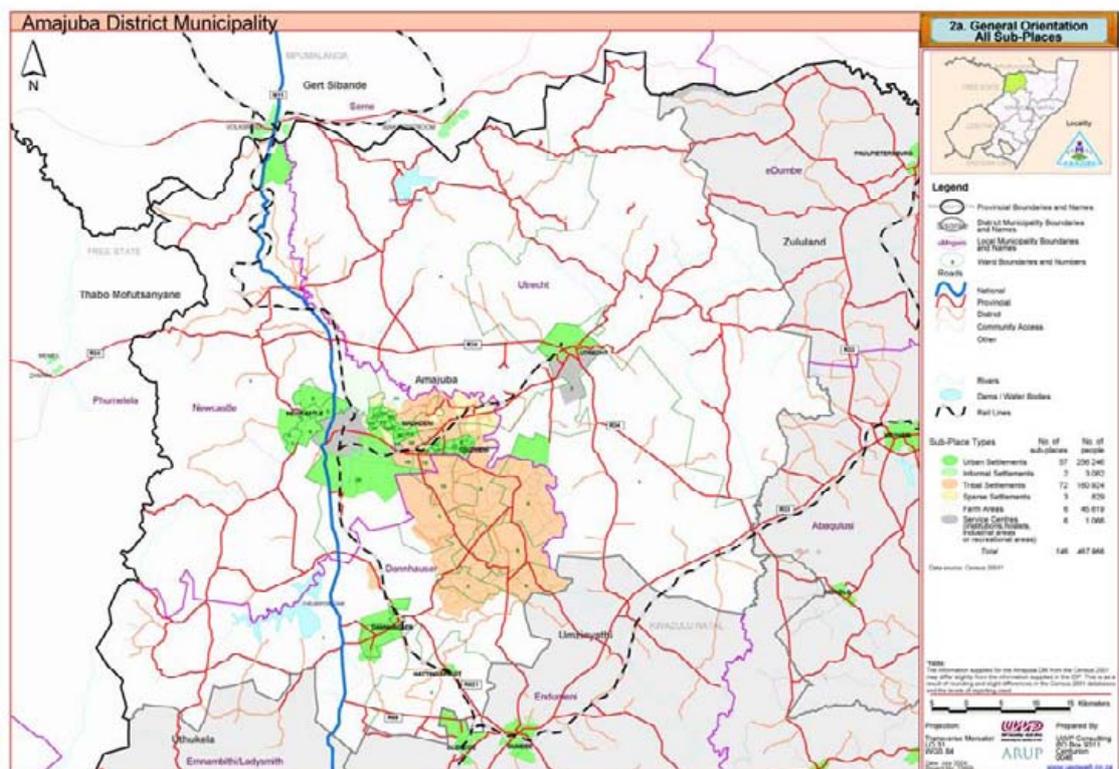
Utrecht Municipality (KZ253). Utrecht is predominantly rural area. The town of Utrecht is situated in a nature reserve. The P37 provincial road is the main access road to Utrecht.

Dannhauser Municipality (KZ254). Dannhauser is situated halfway between Newcastle and Dundee and has the same characteristics as that of Utrecht. Mdakane settlement to the east of Dannhauser houses a large portion of the population of Dannhauser Municipality.

3.4 Settlements and Urbanisation

Mostly rural settlement areas are scattered throughout the Amajuba region in 146 communities. The urban rural split is shown in **Figure 3.2**. The main concentration of rural settlements is between Mdakane and Osizweni with wider spread throughout the rest of the district.

Figure 3.2: Urban and Rural Settlements



The informal and tribal settlements have 35.2% of the total population within the majority living within the urban areas of Newcastle, Utrecht and Dannhauser. The demographic information earlier in the report clearly shows that Utrecht has the smallest population and Newcastle the largest population.

3.5 Integrated Development Plan (IDP)

The IDP forms the basis for future planning in Amajuba. The preparation of the PTP recognises the importance of provide public transport information to the IDP. The integration of public transport and land use forms a critical part in the future development of Amajuba.

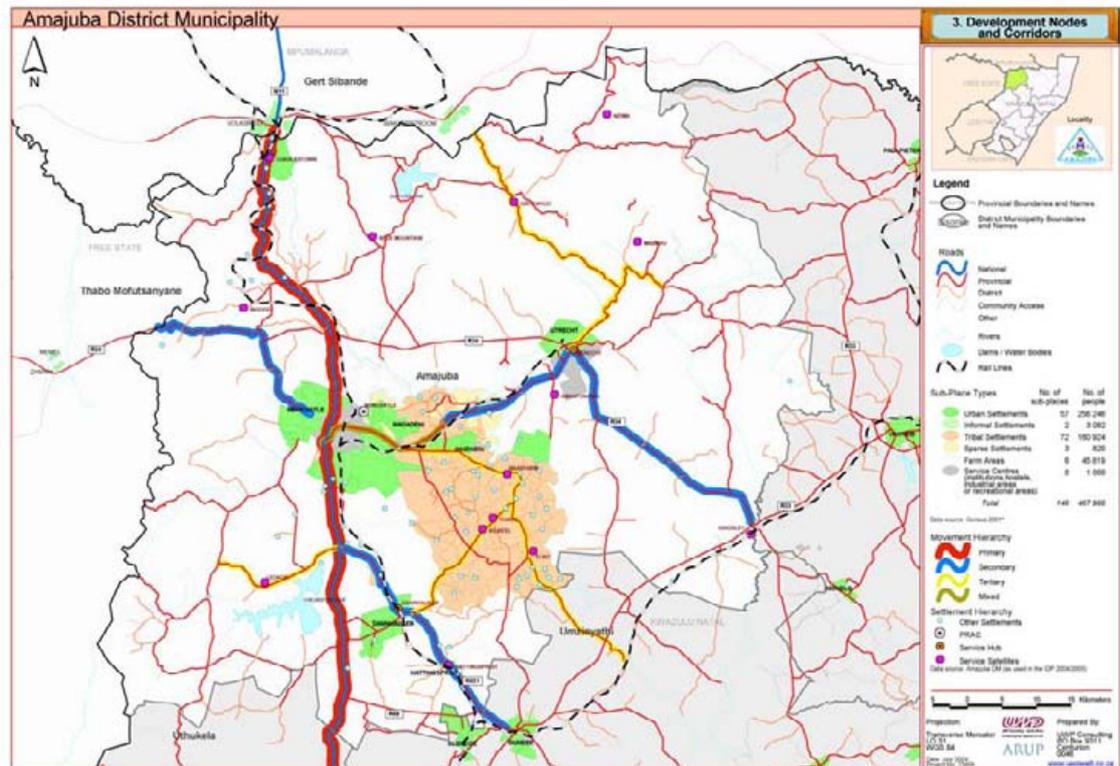
The IDP was therefore used as the starting point for the public transport and land use integration as part of the status quo assessment. Special attention was given to the Spatial Development Framework (SDF) for Amajuba.

To ensure interpretation was correct, the IDP representatives were invited to be part of the Project Steering Committee. The development nodes and corridors are shown in **Figure 3.3**.

3.6 Land Use Information

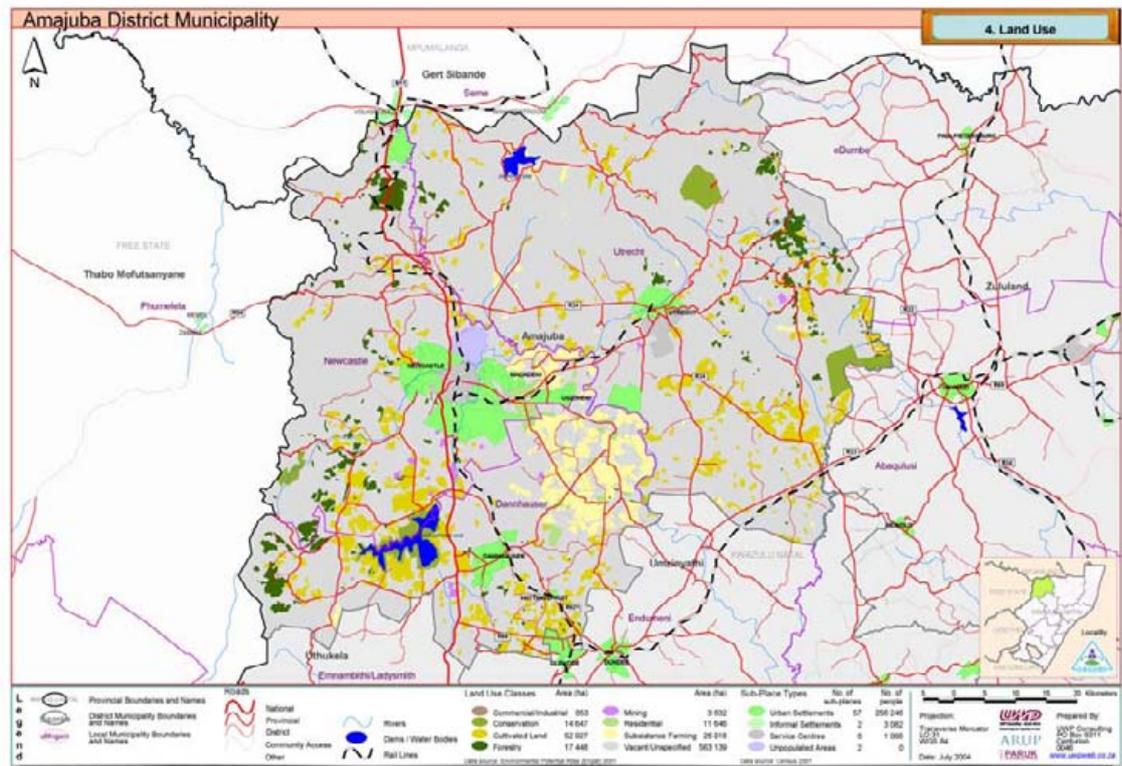
Figure 3.4 illustrates the land use distribution throughout Amajuba, indicating that large areas of Amajuba are still vacant land with limited activity. Forestry and cultivated land forms only a small portion of Amajuba and are concentrated around the northern areas of Amajuba. Subsistence farming main occurs between Mdakane and Osizweni area. Two large dams are also located in Amajuba namely, Chelmsford Dam to the south of Newcastle and Zaihoek Dam south east of Volksrus.

Figure 3.3: Development Nodes and Corridors



Due to the past apartheid policies, the settlement patterns of the Amajuba District Municipality is characterised by the concentration of people in Madadeni – Osizweni node of Newcastle. Other people are settled in the Buffalo flats between nodes of Utrecht and Dannhauser. The major sources of employment within the ADM are found in these nodes which are often a distance from the Buffalo Flats community.

In Utrecht Municipality there are some emerging developments of the Amantungwa Development Trust area as part of Land Reform project. In Dannhauser Municipality integration should be encouraged on the road linking Dannhauser and KwaMdakane node. For the Newcastle Municipality, greater integration is required to link the Newcastle West and East through mix used development activity along MR483 corridor.

Figure 3.4: Land Use Patterns

3.7 Physical Attributes

Amajuba has limited natural resources in terms of tourist attractions but provides for ample agricultural development. Detail physical attributes discussed in this section includes:

Topography,
Rainfall, and
Soil Conditions.

3.7.1 Topography

The topography features of Amajuba are complex and include flat areas around Newcastle, Dannhauser and Utrecht towns. The terrain becomes more extreme towards the northern, northeastern and western areas of Amajuba with altitudes increasing to 1,900m above sea level. The topography and slope of Amajuba is presented in **Figure 3.5** and **Figure 3.6** respectively. Due to the extreme slopes and the scarcity of formal roads in the mountainous areas, many communities have to cover great distances and/or very steep slopes to get access to a road.

3.7.2 Rainfall and Temperature

Climatic conditions vary noticeably between summer and winter months ranging between very cold temperatures during the winter and high summer temperatures. The average temperature for Amajuba is about 17°C. The minimum temperature for Amajuba is below 0°C during winter months and often higher than 30°C in the summer months.

The average Annual rainfall for Amajuba is consistent throughout the district will not major difference between the local municipalities. The average rainfall for Amajuba is between 650mm and 1 000mm per year.

Figure 3.5: Topography of Amajuba

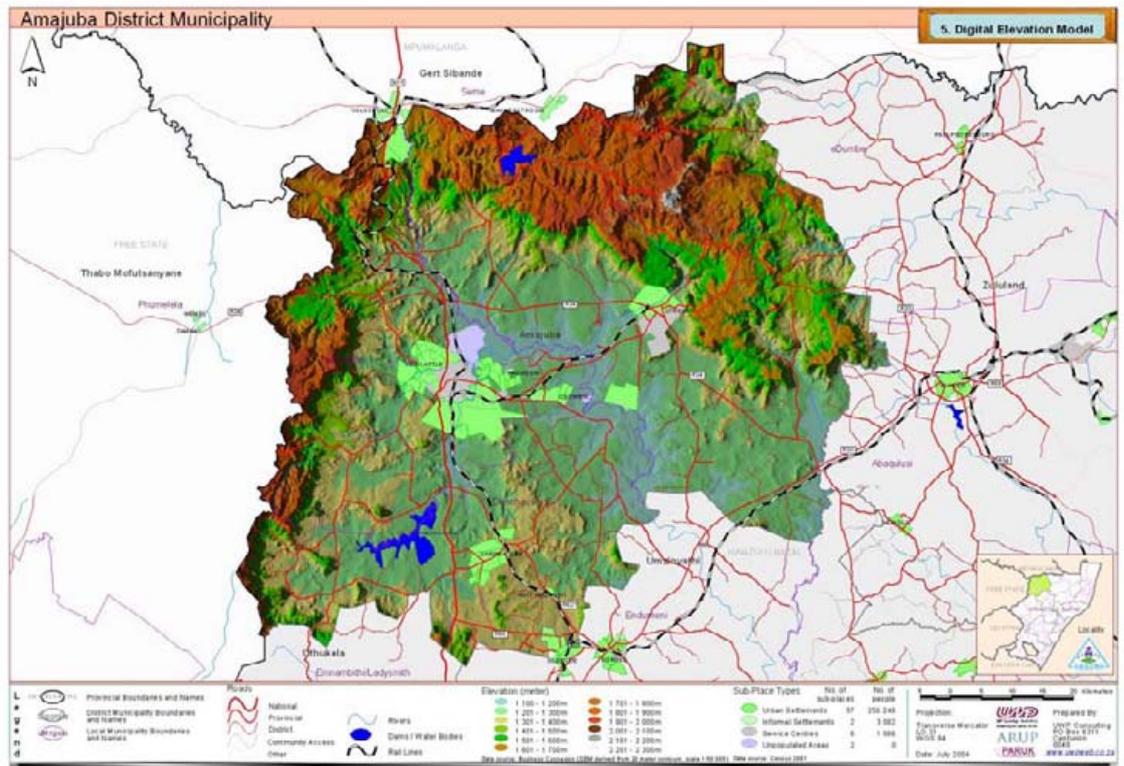
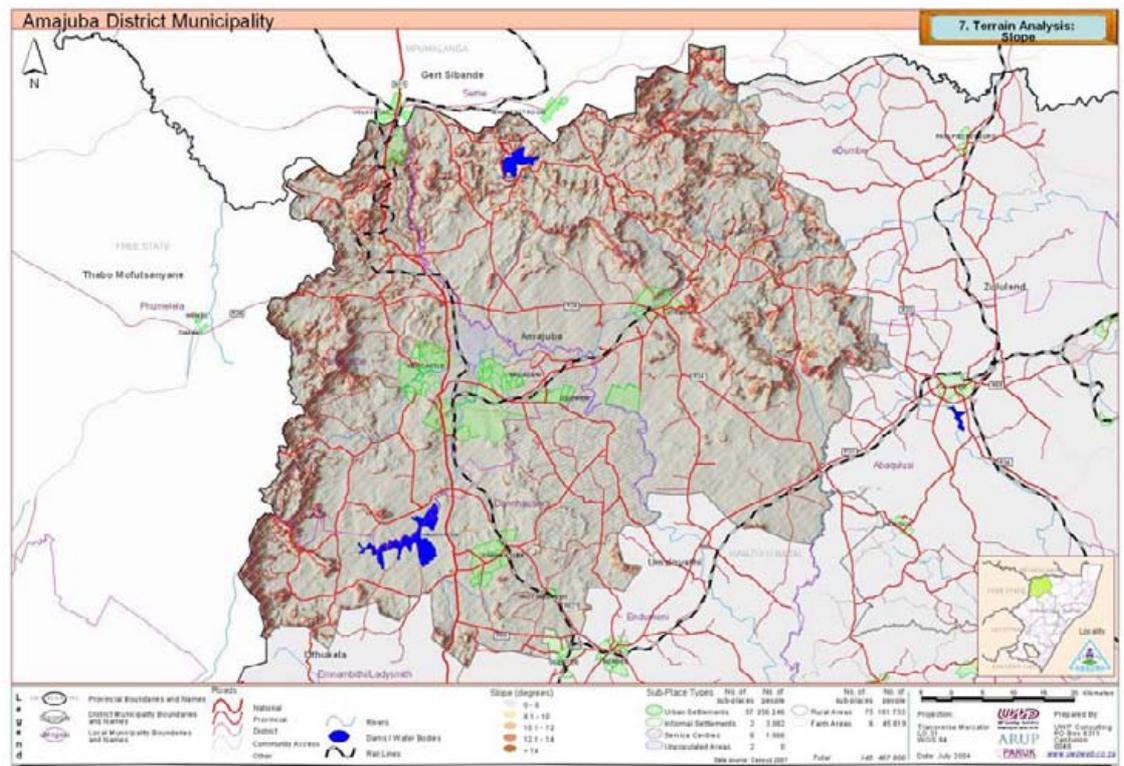


Figure 3.6: Terrain Analysis - Slope



3.7.3 Soil Conditions

Soils in Amajuba include sandstone, shale and coal with smaller section of dolerite. High rainfall and steep slopes and poor soil conditions result in extremely poor road conditions for unsurfaced roads.

3.8 Social Facilities

In 2003/ 2004 financial year Amajuba District Municipality undertaken a project on GIS Data Verification process within the area of its jurisdiction. The project included the GPS of all social facilities such as clinics, schools, crèches, Police Stations, Libraries, etc. This information is available at Amajuba Municipal Offices as per request.

Facilities that are both community and public transport destinations include schools and clinics. **Figure 3.7** and **Figure 3.8** shows the location of schools and clinics in Amajuba respectively.

3.8.1 Schools

Schools are situated in or close to the numerous settlements between Mdakane and Osizweni. The majority of the access roads to the schools are gravel roads that are in poor condition. The majority of the schools within Newcastle have access to fairly good surfaced roads. Approximately 240 schools are located in Amajuba.

3.8.2 Clinics

The rural communities in Amajuba are served by only 7 clinics mainly located in Madadeni and Osizweni. The access roads are mainly gravel roads and are in poor conditions. Primary and specialist medical services in mainly provided in Newcastle.

Figure 3.7: Social Facilities – Schools

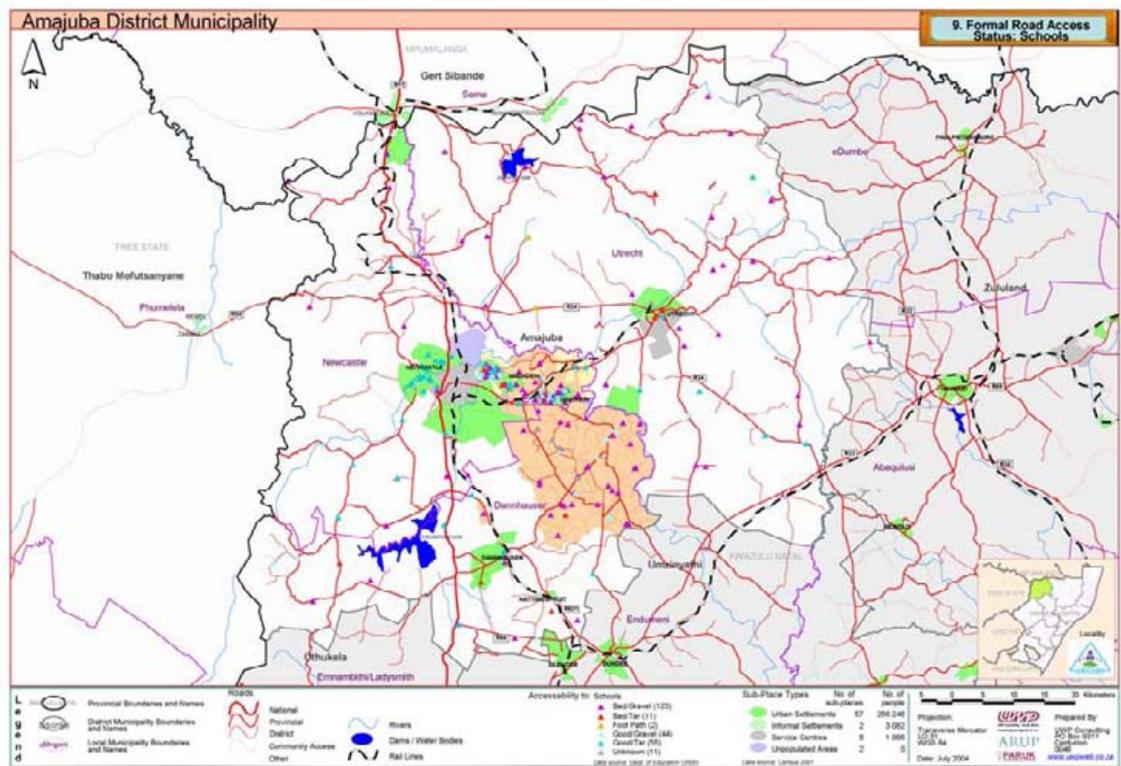
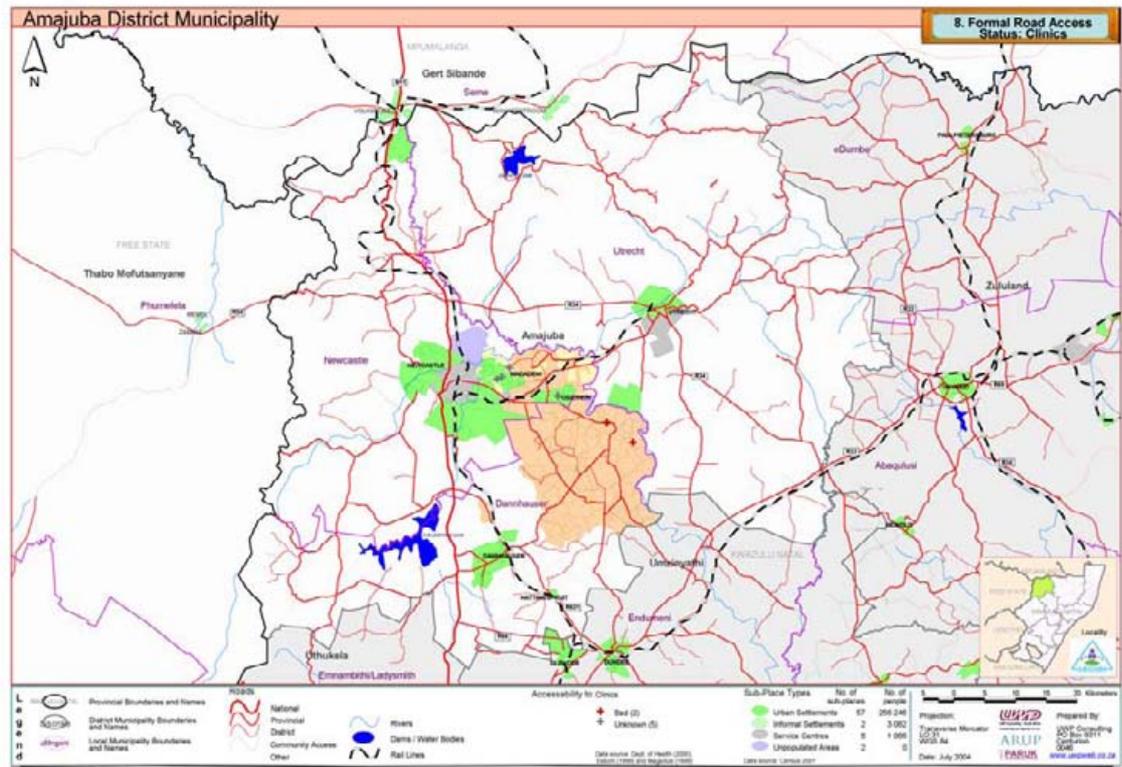


Figure 3.8: Social Facilities – Clinics

4. PUBLIC TRANSPORT STATUS QUO

The Public Transport Status Quo, based on the CPTR, describes the analyses of the operating licenses and subsidised public transport as part of the OLS and RatPlan as well as the relevant institutional structures. This chapter will investigate the following:

Trip Generators and Attractors,
Public Transport Facilities,
Road Infrastructure and Public Transport Network,
Public Transport Cost and Fares,
Passenger Travel Characteristics, and
Passenger Demand Patterns.

4.1 General Factors Affecting Travel Demand Patterns

4.1.1 Trip Generators and Attractors

The majority of trip generations and trip attraction areas within Amajuba fall within New Castle municipal boundaries. The previous chapter provided a detailed discussion of the spatial distribution of facilities and services that generally affect travel patterns. Most of passengers utilising public transport reside within the areas of Madadeni and Osizweni.

4.1.2 Unstable areas

There were no unstable areas identified where surveys could not take place. The PTP is therefore representative of all the areas within Amajuba.

4.2 Supply of Travel Facilities: PT Interchanges (Ranks)

4.2.1 Policies and Standards on Provision

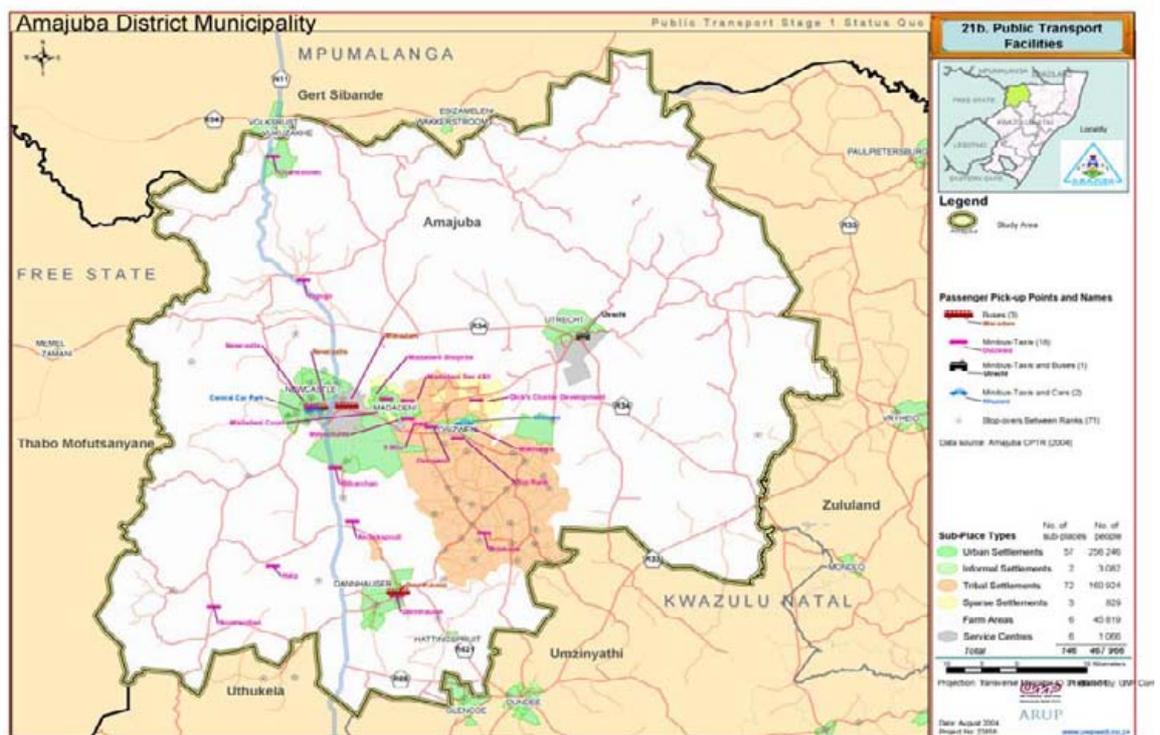
Information is still outstanding.

4.2.2 Level of Provision of Facilities

Detail information on the relevant Public Transport Facilities is available in the CPTR document and will not be repeated in this report. The Public Transport Facility information was gathered using Global Positioning Systems (GPS) and are linked to the Geographic Information System (GIS) that is used for this study. **Figure 4.1** shows the location of all the Public Transport Facilities in Amajuba. The following information on each Public Transport Facility was gathered:

Facility Name,
Status of the Facility,
Type of Facility,
Ownership,
Available Amenities and the Conditions, and
Dimensions of each Facility.

Figure 4.1: Public Transport Facilities



4.2.3 Minibus-Taxi Ranks

There are a total of 21 public transport facilities within the Amajuba area with 16 minibus-taxi ranks, 3 bus ranks and 1 minibus-taxi and bus rank. The 4+1 and bakkie ranks form part of the Minibus-taxi ranks. The majority of these facilities fall within the Newcastle, Madadeni and Osizweni area with a limited facilities in Utrecht and Dannhauser. There is an equal split of formal and informal facilities with the formal facilities mainly located in the urban areas and informal facilities located in the rural settlements. The status and ownership of the Minibus-taxi facilities is shown in **Table 4.1**.

Table 4.1: Status of Minibus-Taxi Facilities

No.	Facility Name	Status	Ownership	Location
Newcastle Municipality				
1	Osizweni Formal Taxi Rank	Formal	Municipal	Off Street
3	Makhanya Informal Taxi Rank	Informal	Municipal	On street
4	Top Rank Informal Taxi Rank	Informal	Municipal	On street
6	9 Mile Informal Taxi Rank	Informal	Municipal	Off Street
7	Moyomuhle Informal Taxi Rank	Informal	Municipal	Off Street
8	Madadeni Sec 4&5 Informal Taxi Rank	Informal	Municipal	Off Street
9	Madadeni Shoprite Checkers Informal Taxi Rank	Formal	Municipal	Off Street
10	Madadeni Court Informal Taxi Rank	Informal	Municipal	Off Street
11	Newcastle Formal Taxi Rank	Formal	Municipal	Off Street
12	Charlestown Informal Minibus-Taxi Rank	Informal	Municipal	Off Street
13	Ingogo Informal Minibus-Taxi Rank	Informal	Municipal	Off Street
Utrecht Municipality				
14	Utrecht Minibus-Taxi and Bus Rank	Formal	Municipal	On street
Dannhauser Municipality				
15	Dannhauser Taxi Rank	Formal	Municipal	Off Street
16	Mdakane Cross Roads Taxi Rank	Formal	Municipal	Off Street

4.2.4 Bus Ranks

Several public transport facilities cater for minibus-taxi and bus operations. There are three dedicated bus ranks and a one combined bus and minibus-taxi rank in Amajuba. Table 4.3 shows the status and ownership of the bus facilities in Amajuba.

Table 4.3: Status of Bus Facilities

No.	Facility Name	Status	Ownership	Location
Newcastle Municipality				
1	Macadam Informal Bus Rank	Informal	Municipal	Off Street
2	Newcastle Formal Bus Rank	Formal	Municipal	Off Street
Utrecht Municipality				
3	Utrecht Minibus-Taxi and Bus Rank	Informal	Municipal	Off Street
Dannhauser Municipality				
4	Dannhauser Bus Rank	Informal	Municipal	Off Street

4.2.5 Bakkie & 4+1 Ranks

Most of the bakkie and 4+1 vehicles operating in Amajuba operate from existing minibus-taxi ranks. The only facility provide for the exclusive use by 4+1 taxis is Central Car Park in Newcastle. The 4+1 taxis operating from this facility provides a similar service to that of the traditional metered taxi.

Table 4.5 shows the status and ownership of the bakkie and 4+1 facilities.

This table clearly illustrates this sharing of facilities with minibus-taxi. Bakkie and 4+1 taxis operates on the same associations as that of the minibus-taxi operators expect for the 4+1 taxis operating from Central Car Park which belongs to it own association.

Table 4.5: Bakkie and 4+1 taxi Trips and Passengers

No.	Facility Name	Status	Ownership	Location
Newcastle Municipality				
1	Osizweni Formal Taxi Rank	Formal	Municipal	Off Street
2	Makhanya Informal Taxi Rank	Informal	Municipal	On street
3	Top Rank Informal Taxi Rank	Informal	Municipal	On street
4	Khuzani Informal 4+1 Taxi Rank	Informal	Municipal	Off Street
5	9 Mile Informal Taxi Rank	Informal	Municipal	Off Street
6	Madadeni Sec 4&5 Informal Taxi Rank	Informal	Municipal	Off Street
7	Madadeni Shoprite Checkers Informal Taxi Rank	Formal	Municipal	Off Street
8	Madadeni Court Informal Taxi Rank	Informal	Municipal	Off Street
9	Central Car Park 4+1 Taxi Rank	Formal	Municipal	On street
10	Newcastle Formal Taxi Rank	Formal	Municipal	Off Street
11	Charlestown Informal Minibus-Taxi Rank	Informal	Municipal	Off Street
12	Ingogo Informal Minibus-Taxi Rank	Informal	Municipal	Off Street
Utrecht Municipality				
13	Utrecht Informal Bakkie Rank	Informal	Municipal	On street
Dannhauser Municipality				
14	Dannhauser Taxi Rank	Formal	Municipal	Off Street
15	Mdakane Cross Roads	Formal	Municipal	Off Street

4.3 Supply of Travel Facilities: PT Corridors

4.3.1 Public Transport Corridors (PTC)

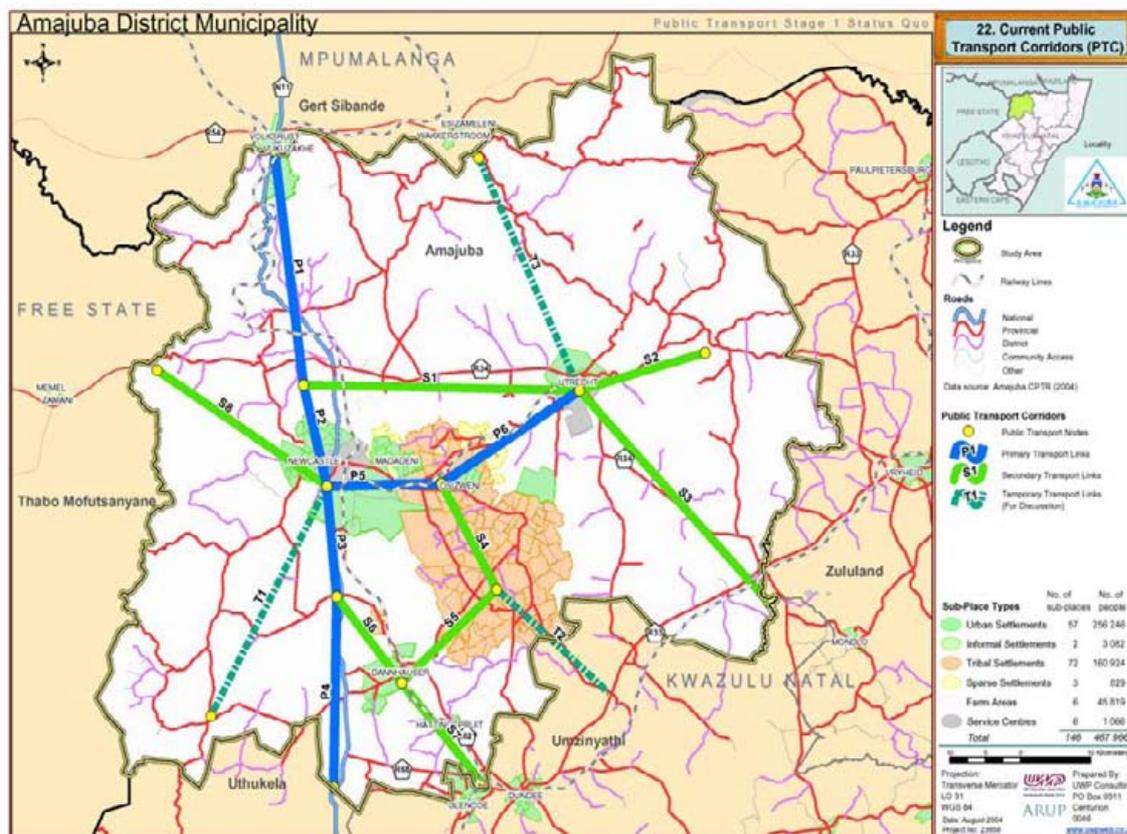
The assessment of the public transport service will be covered in this section. Public Transport Corridors (PTC) were identified based on public transport operating information, land use information as well as taking physical attributes into account. To be able to present useful figures on route and node utilisation, levels of service and user cost it is necessary to combine the approximately 250 public transport routes into more manageable PTC. These PTC were developed using the identified IDP development corridors, the existing road network, topography as well as the requirements for public transport routes.

The following data sets were used to develop the PTC's as illustrated in **Figure 4.6**:

- IDP Development Corridors
- Road Classification
- Public Transport Routes
- Topography

It should be noted that the impact of freight and other vehicle usage was not considered as part of the PTC development. Refinement of the PTC's may be required at a later stage of the project. The combination of the different datasets resulted in the identification of the PTC network that will be used to determine public transport utilisation, the level of service and user costs.

Figure 4.6: Public Transport Corridors



4.3.2 Description of PTC Links

In order to determine the public transport utilisation of each link of any corridor, it was necessary to relate the public transport routes and road network with the public transport corridor.

A public transport link (e.g. P1), is defined by the public transport corridor that represents several public transport routes and considers the various characteristics of the individual public transport routes. Public transport route distances have been based on the proximity of the public transport route to the public transport corridor keeping in mind any physical attributes of the area.

4.3.3 Public Transport Route Distance Estimation

An important element of the minibus-bus taxi and bakkie utilisation is the distance between an origin and destination linked by a straight line against the actual assessed distance as measured along the physical road. These were done using the GIS established for this project.

The actual public transport routes as determined through the public transport surveys at rank facilities has been captured in the GIS and linked to the Public Transport Corridors.

Origin Destination (O-D) distances based on the survey results were used to determine the total distance (the sum of all the distances of each public transport route) as well as the straight line distances for each PTC.

Table 4.8 shows the route distance estimation figures for each PTC link.

Table 4.8: PTC Route Distance Estimation

PTC Description	Plan Dist (km)	Road Distance (km)	Number of PT Routes
P1 – N11 from Volksrus to R34 Intersection	32.2	43.9	10
P2 – N11 from R34 to Newcastle	14.1	17.5	41
P3 – N11 from Newcastle to R621 intersection	15.1	81.5	13
P4 – N11 from R621 to border (Ladysmith)	25.9	87.1	11
P5 – Newcastle to Osizweni	16.2	59.5	53
P6 – Osizweni to Utrecht	23.5	84.9	15
S1 – R34 from N11 to Utrecht	39.5	124.7	2
S2 – From Utrecht to Utrecht rural areas	18.7	165.9	2
S3 – R34 from Utrecht to border (Vryheid)	39.4	154.0	7
S4 – Osizweni to Mdakane	16.4	50.1	29
S5 – Dannhauser to Mdakane	18.6	56.2	17
S6 – R621 from N11 to Dannhauser	14.9	54.7	3
S7 – R621 from Dannhauser to border (Dundee)	18.3	86.0	6
S8 – Newcastle to border (Memel)	28.9	34.7	3
T1 – Newcastle to Normandien	35.1	39.6	1
T2 – Mdakane to Dundee/Vryheid road	21.1	102.6	5
T3 – Utrecht to Wakkerstroom	34.6	39.5	4

4.3.4 Minibus-taxi Trips and Passenger Volumes (Supply)

Information on the public transport operations in Amajuba was collected as part of the CPTR process. The results of these surveys showed that approximately 23 350 passengers are transported by 1928 minibus-taxi trips in Amajuba. This equates to an average of 12 passengers per minibus-bus trip. **Table 4.2** illustrates the number of minibus-taxi trips, unique minibus-taxis and the number of passengers transported for each facility.

Table 4.2: Minibus-taxi Trips and Passengers

Location (Rank)	# of Trips	# of Unique Taxis	# Trips / Taxi	# of Pass	# of Pass / Trip
9 Mile Informal Taxi Rank	58	50	1.16	766	13.21
Charlestown Informal Rank	25	18	1.39	343	13.72
Dannhauser Taxi Rank	178	17	10.47	1 728	9.71
Ingogo Informal Taxi Rank	1	1	1.00	5	5.00
Madadeni Court Informal Rank	8	8	1.00	100	12.50
Madadeni Section 4+5 Informal Rank	136	115	1.18	935	6.88
Madadeni Shoprite Rank	21	18	1.17	225	10.71
Makhanya Rank	95	78	1.22	652	6.86
Mdakane Taxi Rank	226	104	2.17	2 057	9.10
Moyomuhle Informal Taxi Rank	37	33	1.12	502	13.57
Newcastle Local Rank	116	52	2.23	1 679	14.47
Newcastle Long Distance	78	70	1.11	1 144	14.67
Newcastle Madadeni	659	386	1.71	9 785	14.85
Newcastle, Osizweni & Blaauwbosch	119	58	2.05	1 738	14.61
Osizweni Main	22	21	1.05	318	14.45
Top Rank	123	109	1.13	1 020	8.29
Utrecht Informal Bakkie	2	2	1.00	19	9.50
Utrecht Bus & Taxi Rank	24	20	1.20	335	13.96
Amajuba	1928	1160		23 351	12

4.3.5 Bus Trips and Passenger Volumes (Supply)

Information on the public transport operations in Amajuba collected as part of the CPTR process showed that although there are only 4 dedicated bus facilities in Amajuba buses do

operate through the other facilities mainly used by minibus-taxi operators. The surveys showed that 13807 passengers are transported by 299 bus trips resulting in an average of 46 passengers per bus.

Table 4.4 shows the number of trips, unique buses and passengers transported.

Table 4.4: Bus Trips and Passengers

Location (Rank)	# of Trips	# of Unique Buses	# Trips / Bus	# of Pass	# of Pass / Trip
9 Mile Informal Taxi Rank	26	22	1.18	953	36.65
Dannhauser Busses	43	21	2.05	2 595	60.35
Macadam Bus Rank	8	8	1.00	598	74.75
Madadeni Section 4+5 Informal Rank	1	1	1.00	35	35.00
Makhanya Rank	7	7	1.00	326	46.57
Mdakane Stop Street Busses	24	17	1.41	1 314	54.75
Moyomuhle Informal Taxi Rank	5	5	1.00	195	39.00
Newcastle Bus Main	136	87	1.56	5 495	40.40
Top Rank	42	31	1.35	2 095	49.88
Utrecht Bus & Taxi Rank	7	6	1.17	201	28.71
Amajuba	299	205		13 807	46

4.3.6 Bakkie and 4+1 taxi Trips and Passenger Volumes (Supply)

The CPTR surveyed conducted at the different public transport facilities showed that approximately 452 passengers are transported by 70 bakkie trips at an average of 6 passengers per trips. The surveyed also showed that the 501 4+1 taxi trips transported 1298 passengers. This results in an average of 3 passengers per 4+1 taxi trip. **Table 4.6** shows the detail information per facility for both bakkie and 4+1 taxis.

Table 4.6: Bakkie and 4+1 taxi Trips and Passengers

Location (Rank)	# of Trips	# of Unique Taxis	# Trips / Taxi	# of Pass	# of Pass / Trip
9 Mile Informal Taxi Rank	1	1	1.00	9	9.00
Charlestown Informal Rank	21	14	1.50	143	6.81
Dannhauser Taxi Rank	6	2	3.00	41	6.83
Khuzani 4+1 Informal Rank	3	2	1.50	14	4.67
Madadeni Section 4+5 Informal Rank	8	8	1.00	48	6.00
Madadeni Shoprite Rank	3	3	1.00	16	5.33
Makhanya Rank	6	5	1.20	40	6.67
Osizweni Main	1	1	1.00	10	10.00
Top Rank	10	10	1.00	69	6.90
Utrecht Informal Bakkie	11	10	1.10	62	5.64
Amajuba (Bakkie)	70	56		452	6
Central Car Park (4+1 taxis)	158	34	4.65	353	2.23
Dannhauser Taxi Rank (4+1 taxis)	1	1	1.00	1	1.00
Khuzani 4+1 Informal Rank (4+1 taxis)	112	73	1.53	361	3.22
Makhanya Rank (4+1 taxis)	162	90	1.80	393	2.43
Top Rank (4+1 taxis)	68	53	1.28	190	2.79
Amajuba (4+1 taxis)	501	251		1298	3

4.3.7 Road Infrastructure and Network

This section of the report focuses on the road infrastructure in the study area and will provide detail information of the following:

Road Classification
Road Surface and
Traffic Volumes

Road Classification

Four types of road classes have been identified according to the KZNDOT database. These types include the following:

National Roads

For example the N11 between Ladysmith, pass Newcastle towards Volksrus

Provincial Main Roads

These roads include surfaced roads such as the R34 that runs from the N11 pass Utrecht towards Vryheid. These all have specific road numbers through which related attribute data such as traffic volumes may be extracted and are generally numbered with a P, i.e. P37.

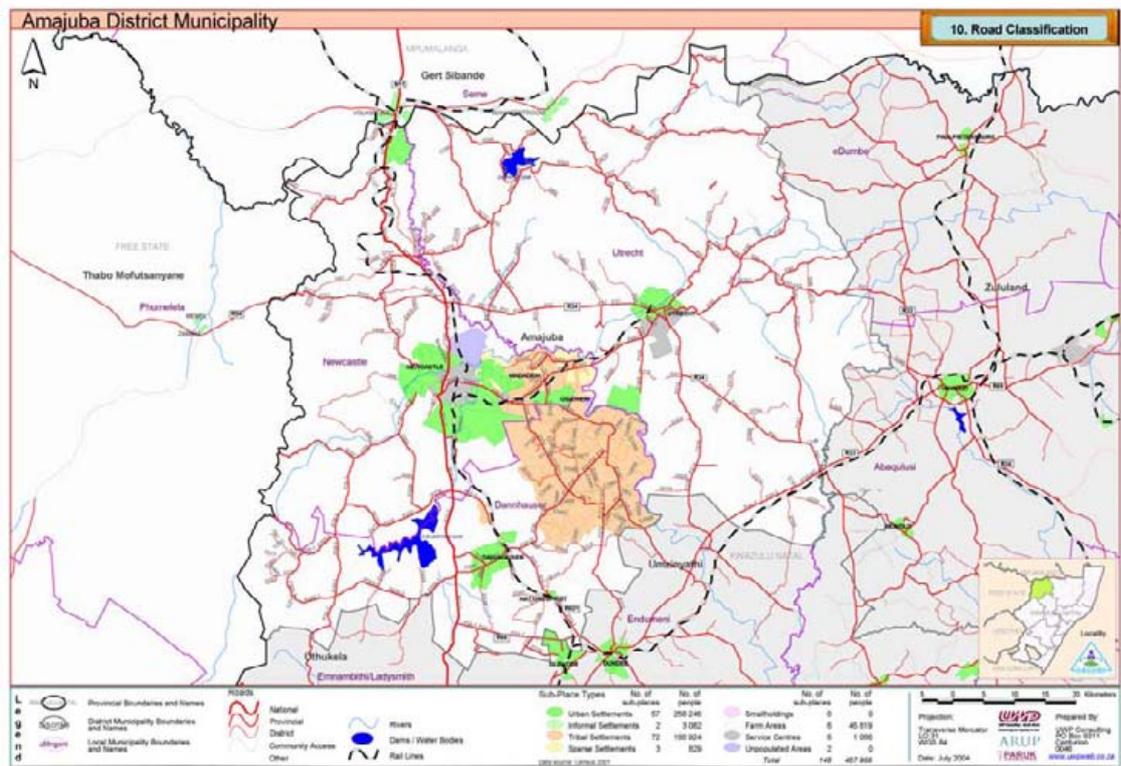
District Roads

These roads also fall under the responsibility of KZNDOT and are usually numbered with a D, i.e. D524. These roads are normally lower order unsurfaced roads.

Local and Access Roads

Local roads are usually the responsibility of Local Municipalities and are predominantly inside urban areas. Community access roads link a specific community with district roads and are generally numbered with an A, i.e. A3265. **Figure 4.2** illustrates the road classification of the roads in Amajuba.

Figure 4.2: Road Classification



Road Surface

The national and provincial main roads are surfaced whilst the majority of district and community access roads are not. **Figure 4.3** shows the extent of surfaced and gravel roads within Amajuba. **Table 4.7** gives an indication of the length of surfaced and gravel roads for each local municipality. Most community access unsurfaced roads are not constructed to

proper geometric design standards due to the rough terrain and limited funding available. Several of these access roads are used by public transport vehicles, resulting in high maintenance cost of vehicles and unsafe travel conditions for passengers. Unsurfaced roads are often very slippery during the rainy season due to flooding and poor in-situ soil conditions, which results in the rural communities having no vehicle access or an unreliable public transport service.

Figure 4.3: Road Surfaced

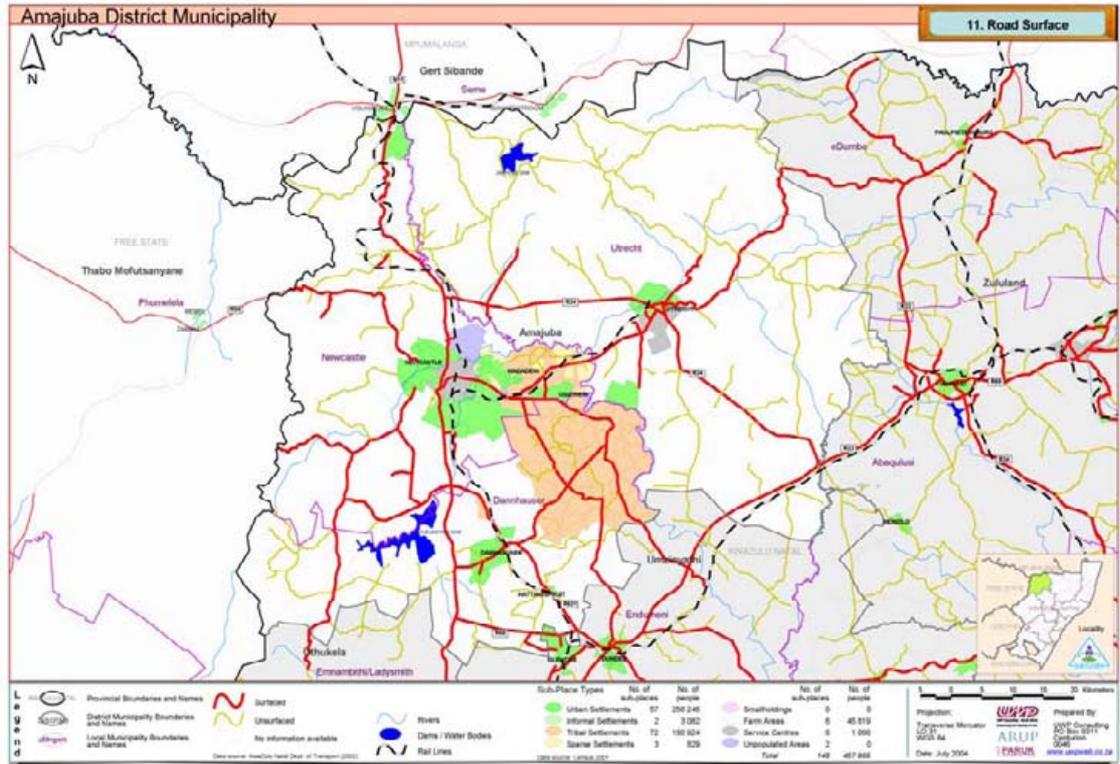


Table 4.7: Surfacing of roads in Amajuba

Local Municipality	Surfaced Roads (km)		Unsurfaced Roads (km)		Total Length (km)
	Length	(%)	Length	(%)	
Newcastle (KZ252)	162,7	44,4%	203,9	55,6%	366,6
Utrecht (KZ253)	115,2	16,3%	592,9	83,7%	708,1
Dannhauser (KZ254)	240,5	46,5%	277,2	53,5%	517,7
Amajuba	518,4	32,6%	1 074,0	67,4%	1 592,4

Traffic Volumes

The highest number of vehicles in Amajuba is on the N11 south of Newcastle with high traffic volumes on the main provincial road P483 between Newcastle, Madadeni and Osizweni. The N11 between the P204 (turn-off to Dannhauser) and Newcastle carries in excess of 10 000 vehicles per day while the P483 carries between 5 000 and 10 000 vehicles per day. **Figure 4.4** shows the Average Annual Daily Traffic (AADT) for roads in Amajuba.

Figure 4.4: AADT volumes of roads in Amajuba

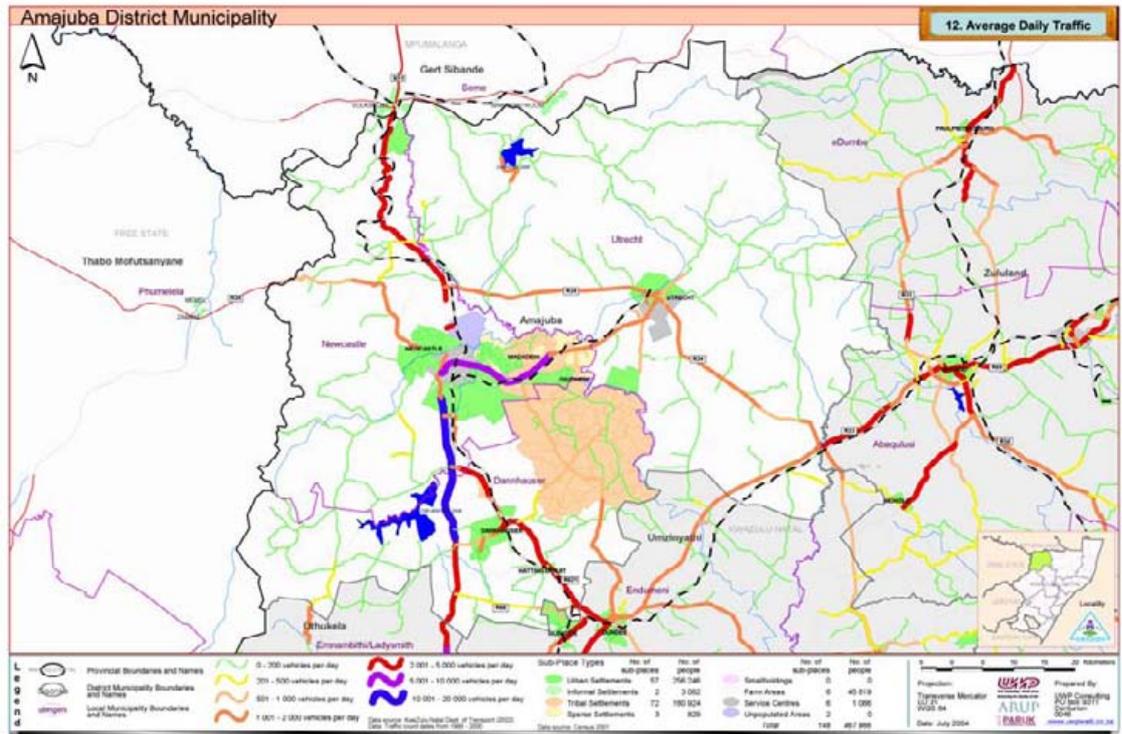
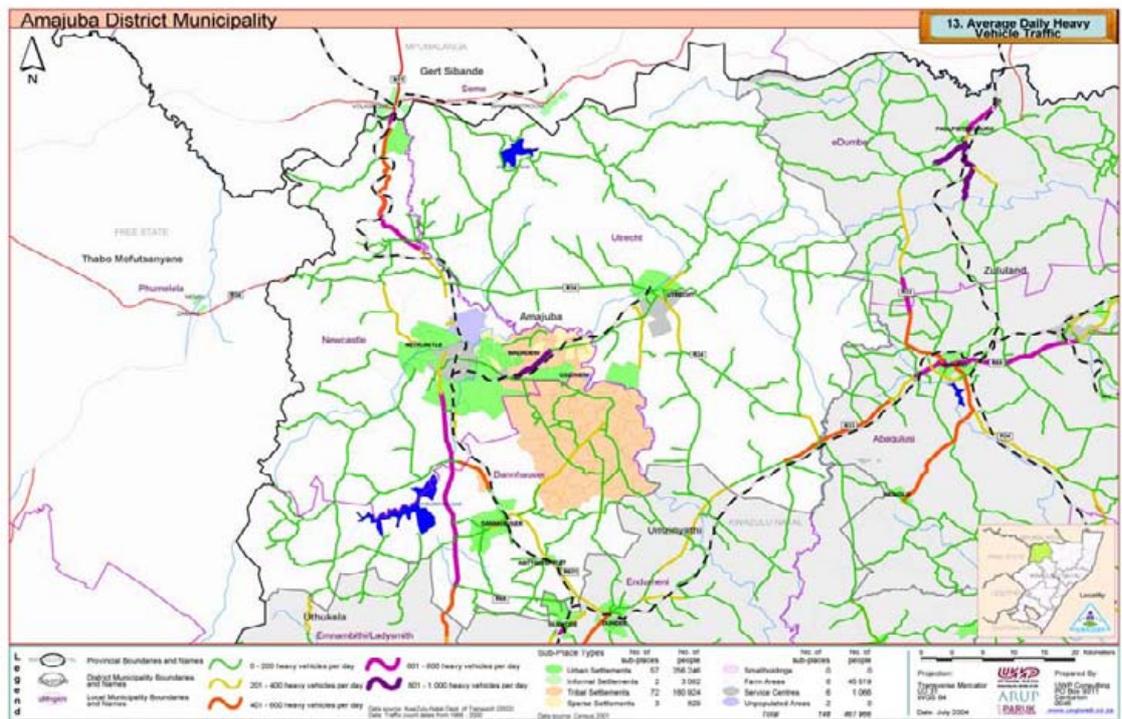


Figure 4.5. shows the Heavy Vehicle AADT in Amajuba. When comparing these two figures it can be seen that high heavy vehicle volumes occur on the P483 between Madadeni and the industrial area to the east of Madadeni.

Figure 4.5: AADT volumes of roads in Amajuba



4.4 Supply of Travel Facilities: Fares and Costs

4.4.1 Passenger User Cost

In order to determine the user cost of the public transport service the KZNDOT in association with Prof Del Mistro developed a cost model taking into account several parameters. The user cost is determined for each public transport corridor and averaged for the district.

This model will however only be introduced later on in the project and user cost has therefore between calculated as the fare paid for the distance travelled thus resulting in cost per kilometre travelled.

Table 4.12 shows the average user cost per kilometre travelled for each Local Municipality.

Table 4.12: Average User Cost Per Km Travelled per Local Municipality

Local Municipality	Cost/Kilometre
Newcastle Municipality	R 0.37
Utrecht Municipality	R 0.14
Dannhauser Municipality	R 0.17
Amajuba	R 0.36

The average user cost per kilometre travelled shows that there is a major difference between Newcastle and the other two Local Municipalities, Utrecht and Dannhauser. The average for Amajuba (R0.36/km) however is an indication that the majority of travel occurs within the Newcastle area and is of short distance. The lower cost/kilometre for both Dannhauser and Utrecht is the results of longer distances that passengers travel. The average user cost per kilometre based on distance ranges is shown in **Table 4.13**.

Table 4.13: Average User Cost Per Km Travelled according to Distance ranges

Local Municipality	User Cost / Km			
	0 - 5km	5 - 15km	15 - 30km	>30km
Newcastle Municipality	R 0.43	R 0.60	R 0.36	R 0.33
Utrecht Municipality	R 0.00	R 0.00	R 0.21	R 0.18
Dannhauser Municipality	R 0.00	R 0.00	R 0.22	R 0.17
Amajuba	R 0.43	R 0.60	R 0.34	R 0.31

The table clearly shows that the shorter distance ranges result in higher user cost per kilometre. Long distance trips (> 30km) have the lowest cost per kilometre. The results showed that both Utrecht and Dannhauser has no trips and user cost information for trips less than 15km.

4.5 Passenger Travel Characteristics

4.5.1 Trip Purpose

The purpose of public transport trips within Amajuba is summarised in **Table 4.14** and is based on the Passenger surveys conducted at the different public transport facilities. The purpose of these trips has been calculated for work and non-work purposes only.

For Amajuba, only 13,5% of all public transport trips are work related trips. The facilities in general located within the urban areas of Amajuba experienced higher percentages of work related trips. Surveys within Madadeni and Osizweni showed that less than 10% of all public transport trips are work related.

Table 4.14: Trip Purpose according to Public Transport Facilities

Local Municipality	Rank Name	Work Related	Non-Work Related
Dannhauser Municipality	Dannhauser Bus & Taxi Rank	10.11%	89.89%
	Mdakane Rank	18.25%	81.75%
Newcastle Municipality	9 Mile Informal Taxi Rank	12.50%	87.50%
	Central Car Park 4+1	14.44%	85.56%
	Charlestown Informal Taxi Rank	11.11%	88.89%
	Ingogo	10.53%	89.47%
	Khuzani 4+1 Informal Rank	11.27%	88.73%
	Macadam Bus Rank	25.00%	75.00%
	Madadeni Court Informal Rank	25.00%	75.00%
	Madadeni Sec 4&5 Informal Rank	3.57%	96.43%
	Madadeni Shoprite Rank	7.35%	92.65%
	Makhanya	8.70%	91.30%
	Moyomuhle Informal Taxi Rank	10.34%	89.66%
	Newcastle Bus	22.99%	77.01%
	Newcastle Local Rank	15.91%	84.09%
	Newcastle Long Distance	12.27%	87.73%
Utrecht Municipality	Newcastle Madadeni	4.84%	95.16%
	Newcastle Osizweni and Blaauwbosch	8.76%	91.24%
	Osizweni Busses	14.93%	85.07%
	Top Rank	19.67%	80.33%
	Utrecht Bus & Taxi Rank	15.71%	84.29%
Amajuba	Utrecht Informal Bakkie	14.29%	85.71%
		13.52%	86.48%

Trips purpose was also calculated for the peak and off peak periods. Table 4.15 shows the distribution of work and non-work related trips during the peak and off-peak periods. The peak period includes both AM and PM peak periods.

Table 4.15: Trip Purpose according to Peak Periods

Trip Purpose	Peak	Off Peak
Work	18.21%	81.79%
Non Work	11.23%	88.77%

4.5.2 Passenger Delay and Level of Service (LOS)

The difference between the straight line length and that of the actual road length shown in the table above might imply that certain roads have higher priority because of the longer length. It is however necessary to determine the importance of these links based on the number of public transport trips and passenger volumes and not the link length.

Table 4.9 shows the passenger volumes based on the distance ranges as well as the percentage utilisation for each distance range. From this table it appears as if the majority of trips in Amajuba exceed 30 km.

Table 4.9: Passenger Volumes per Distance Range

Distance range	Number of Trips	Number of Pass	% Utilisation
0-5 km	266	2270	57
5-15 km	69	1017	77
15-30 km	204	3523	81
> 30km	1 382	20 260	78

Table 4.10 compares the passenger kilometres travelled between the straight line and actual road lengths for each PTC link. From this table it is clear that although some PTC links might

be short in distance, the passenger kilometres travelled on these links are higher than for the longer links.

Table 4.10: Passenger Kilometres travelled according to PTC

PTC Description	Distance		Passenger KM	
	Straight Line	Road	Straight Line	Road
P1 – N11 from Volksrus to R34 Intersection	32.2	43.9	331493	452325
P2 – N11 from R34 to Newcastle	14.1	17.5	1536678	1901280
P3 – N11 from Newcastle to R621 intersection	15.1	81.5	30809	166150
P4 – N11 from R621 to border (Ladysmith)	25.9	87.1	129043	434688
P5 – Newcastle to Osizweni	16.2	59.5	2007408	7360210
P6 – Osizweni to Utrecht	23.5	84.9	420274	1518045
S1 – R34 from N11 to Utrecht	39.5	124.7	249514	787794
S2 – From Utrecht to Utrecht rural areas	18.7	165.9	65805	583697
S3 – R34 from Utrecht to border (Vryheid)	39.4	154.0	782282	3060525
S4 – Osizweni to Mdakane	16.4	50.1	453474	1384324
S5 – Dannhauser to Mdakane	18.6	56.2	1245103	3759603
S6 – R621 from N11 to Dannhauser	14.9	54.7	6934	25468
S7 – R621 from Dannhauser to border (Dundee)	18.3	86.0	55882	262602
S8 – Newcastle to border (Memel)	28.9	34.7	2023	2430
T1 – Newcastle to Normandien	35.1	39.6	2460	2770
T2 – Mdakane to Dundee/Vryheid road	21.1	102.6	487279	2365284
T3 – Utrecht to Wakkerstroom	34.6	39.5	5709	6521
Total	412.5	1282.2	7 812 169	24 073 718

4.5.3 Level of Service (LOS) and Delay

The level of service (LOS) is based on the delay experienced by passengers using any public transport service. Waiting time surveys conducted at each public transport facility have been used together with a delay model developed by the KZNDOT to determine the anticipated delay experienced within Amajuba.

The LOS only looks at the delay experienced at the facility and do not include the actual travel time associated with the trip. Delay is normally expressed in minutes. The average delay is an indication of the efficiency of the public transport service. There are passenger delays of more than 2 hours especially at the smaller ranks with limited services or long distance trips. **Table 4.11** shows the average waiting time per public transport facility.

Table 4.11: Average Waiting Time / Delay at Public Transport Facilities

Public Transport Facility	AVERAGE	LONGEST WAIT	LOS
9 Mile Informal Taxi Rank	0:16	0:56:00	B
Charlestown Informal Rank	0:08	0:20:00	A
Khuzani 4+1 Informal Rank	0:10	1:20:00	A
Madadeni Court Informal Rank	0:22	1:32:00	C
Madadeni Section 4+5 Informal Rank	0:10	0:31:00	A
Madadeni Shoprite Rank	0:20	2:46:00	B
Makhanya Rank	0:04	0:34:00	A
Mdakane Taxi Rank	0:14	1:00:00	B
Moyomuhle Informal Taxi Rank	0:24	0:57:00	C
Newcastle 4+1	0:03	1:02:00	A
Newcastle Bus Industrial	0:08	0:26:00	A
Newcastle Bus Main	0:36	2:00:00	D
Newcastle Local Rank	0:09	2:13:00	A
Newcastle Long Distance	0:58	3:05:00	E
Newcastle, Osizweni & Blaauwbosch	0:09	1:26:00	A
Osizweni Busses	0:08	1:18:00	A
Top Rank	0:04	0:31:00	A
Utrecht Bus & Taxi Rank	0:15	1:17:00	B
Amajuba	0:15		B

On the basis of the above waiting time / delay the following levels of services are suggested:

Level of Service A -	< 10 minutes
Level of Service B -	10 – 20 minutes
Level of Service C -	20 – 30 minutes
Level of Service D -	30 – 60 minutes
Level of Service E -	> 60 minutes

Level of Service A represents in reality “No Delay” with a very efficient service provided to the passengers. Level of Service E represents an “Unacceptable Delay” and refers to an insufficient public transport service.

4.6 Institutional Arrangements and Responsibilities

The role and responsibilities for the different spheres of government is shown in **Table 4.16**.

Authority	Description	Needs assessment And Planning	Finance and Implementation	Maintenance
Private Organisations	Facilities	Yes	Yes	Yes – Contract
	Roads / Infrastructure	To an Extent	Yes	Yes – Contract
Local Municipality	Facilities	Yes	Yes	Yes
	Roads / Infrastructure	Yes	Yes	Yes
District Municipality	Facilities	Yes	Contribution	No
	Roads / Infrastructure	Yes	Standards	No
Provincial / National Gov	Facilities	Contribution	Contribution	Yes
	Roads / Infrastructure	Yes (Prov / Nat)	Standards	Yes

5. PUBLIC TRANSPORT VISION, GOALS AND OBJECTIVES

5.1 Introduction

Since the promulgation of the NLTTA, Act 22 in 2000 several guidelines have been developed by National Department of Transport to enable Local Governments and Planning Authorities to engage in preparing PTPs to further PT within their areas. These planning authorities in turn are required to develop a Vision, Goals and Objectives relating to National and Provincial policy. This section of the PTP presents the Vision, Goals and Objectives of the Public Transport Plan.

Through the public participation process, the consultancy team developed the following Vision, Goals and Objectives for Public Transport within Amajuba. These were debated at the Project Steering Committee meetings and adopted for the PTP.

5.2 Vision

In order to work towards the same goal a clearly defined vision is needed to prepare an PTP. The following vision has been adopted as the vision for public transport in Amajuba:

“To provide and maintain a safe, reliable, effective and sustainable Public Transport System and Service, which addresses the transport needs of the

people, supports integrated development and is affordable to both the community as well as local, provincial and national government.”

5.3 Goals

To enable Amajuba to attain its vision several goals were developed taking into account the packaging of subsidised services and the associated policy, the levels of service to be provided, the integration with land use development, addressing travel demand management and the modal integration of services where applicable, hence the following goals. These goals have been divided into four broad categories namely:

Public Transport Operational Goal;
Public Transport Planning and Development Goal;
Road and Facility Infrastructure Goal; and
Public Transport Demand and Safety Goal.

5.3.1 Goal 1: Public Transport Operational Goal

“To promote a cost effective, manageable and reliable Public Transport Service that will be affordable for Public Transport Users as well as for Public Transport Suppliers.”

5.3.2 Goal 2: Public Transport Planning and Development Goal

“To provide assistance to Local Government with the implementation of proposals contained in the Public Transport Plan and to encourage the Integration of Public Transport Services and Facilities with Land Use Development”

5.3.3 Goal 3: Road and Facility Infrastructure Goal

“Improve and Invest in Public Transport Infrastructure (Roads and Facilities) based on the identified needs and proposals thereby improving the Accessibility to the Public Transport Service especially in Rural and Deep Rural Areas”

5.3.4 Goal 4: Public Transport Demand and Safety Goal

“To strive to provide a Safe, Reliable, Affordable and Sustainable Public Transport Service that is based on the Public Transport Demand yet accommodating current levels of Public Transport Supply” **Objectives**

In order to attain these goals objective have been formulated and are also based on the four broad categories. These objectives include the following: I believe we need to include something to ensure we establish a state of readiness.

5.4.1 Public Transport Operational Objectives

Objective: To increase public transport usage that will ensure sustainability of the service without the need to utilise government subsidies.

Objective: Facilitate and Implement the Operating and Rationalisation Strategy developed by the District Municipality to ensure safe, reliable, effective and efficient Public Transport Service for uThungulu.

5.4.2 Public Transport Planning and Development Objectives

Objective: Identify and Agree to the Role and Responsibilities of all Stakeholders regarding Infrastructure provision, funding, policy development and maintenance.

Objective: Assist Local Government with implementation of the PTP and ensure the integration with Land Use Planning and future Development.

Objective: Agree on the Scope and Extent of Additional Studies required implementing the Integrated Transport Plan.

Objective: Annual Review of Operating Strategy and Rationalisation Strategy and the re-prioritisation of Identified Projects and Proposals.

5.4.3 Road and Facility Infrastructure Objectives

Objective: Identify Road and Facility related projects to be implemented to will be cost effective and practical.

Objective: Ensure Continuous Upgrading and Maintenance of Infrastructure to increase the Accessibility to Public Transport Service for all users in uThungulu.

5.4.4 Public Transport Demand and Safety Objectives

Objective: Promote Proactive Law Enforcement at Provincial and Local Government level to Reduce Illegal Operations and Improve Road Safety to all Road Users. Encourage the Upgrading and Maintenance of Public Transport Vehicles.

Objective: Continuous revision of the OLS and RatPlan based on Public Transport Demand to ensure Public Transport Sustainability.

6. LAND USE AND PUBLIC TRANSPORT INTEGRATION

6.1 Factors Affecting Future Travel Demand Patterns

Add information on proposed future road network, settlement areas and related expansion, business nodes, community facilities, proposed public transport facilities.

6.2 Public Transport Demand Patterns

The demand for public transport based on the Origin-Destination surveys conducted at the different public transport facilities throughout the district is presented in this section. Passenger desire lines are compiled using the sample gathered through the surveys at each public transport facility and factored to arrive at the population (number of passengers departing from each public transport facility).

Figures 4.7 to 4.14 shows the public transport desire lines based on the O-D surveys conducted at the different public transport facilities. The survey (sample) were then factored to arrive at the Desire Lines based on the population size. The population size is the actual number of passengers departing from the different public transport facilities during the survey period.

Figure 4.7: Desire Lines from Charlestown

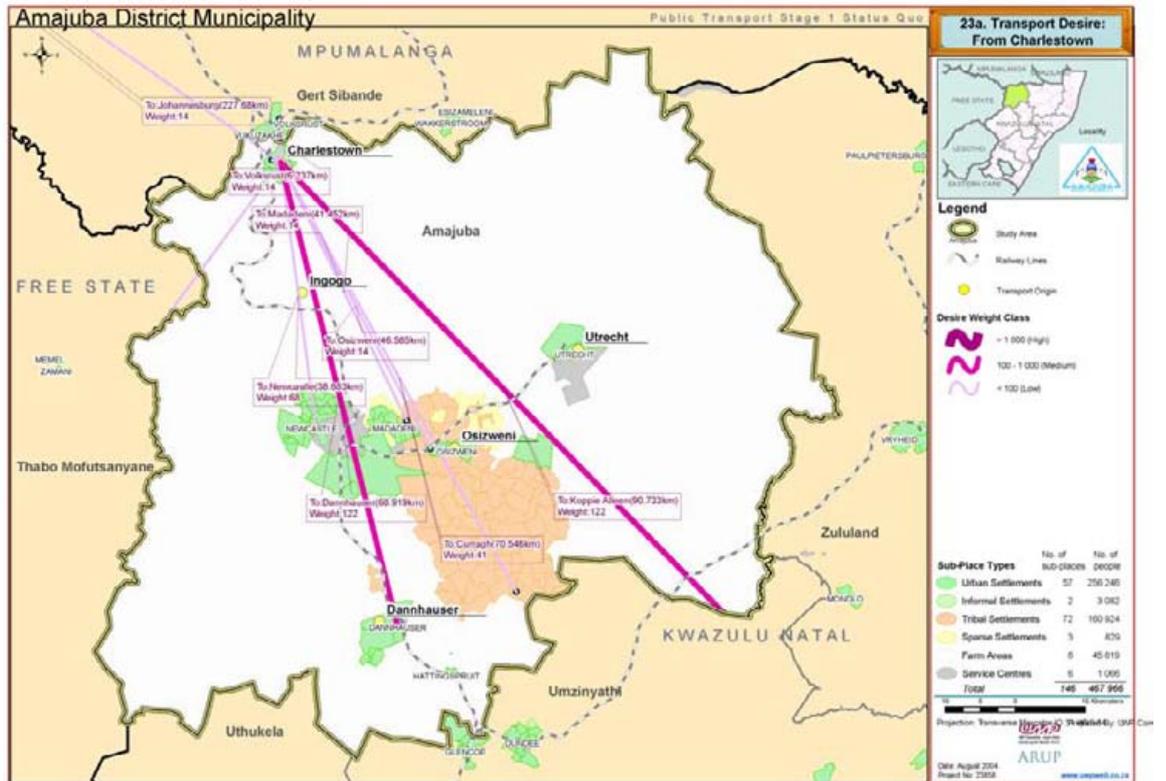


Figure 4.8: Desire Lines from Dannhauser

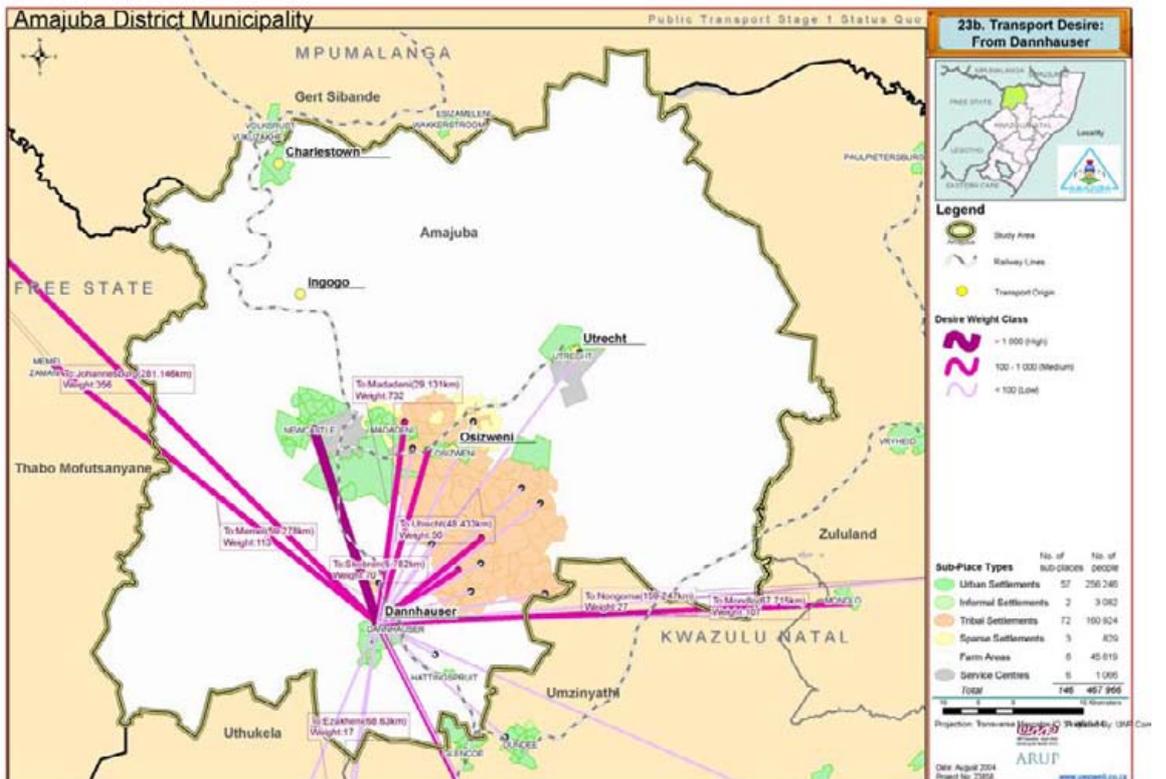


Figure 4.9: Desire Lines from Ingogo

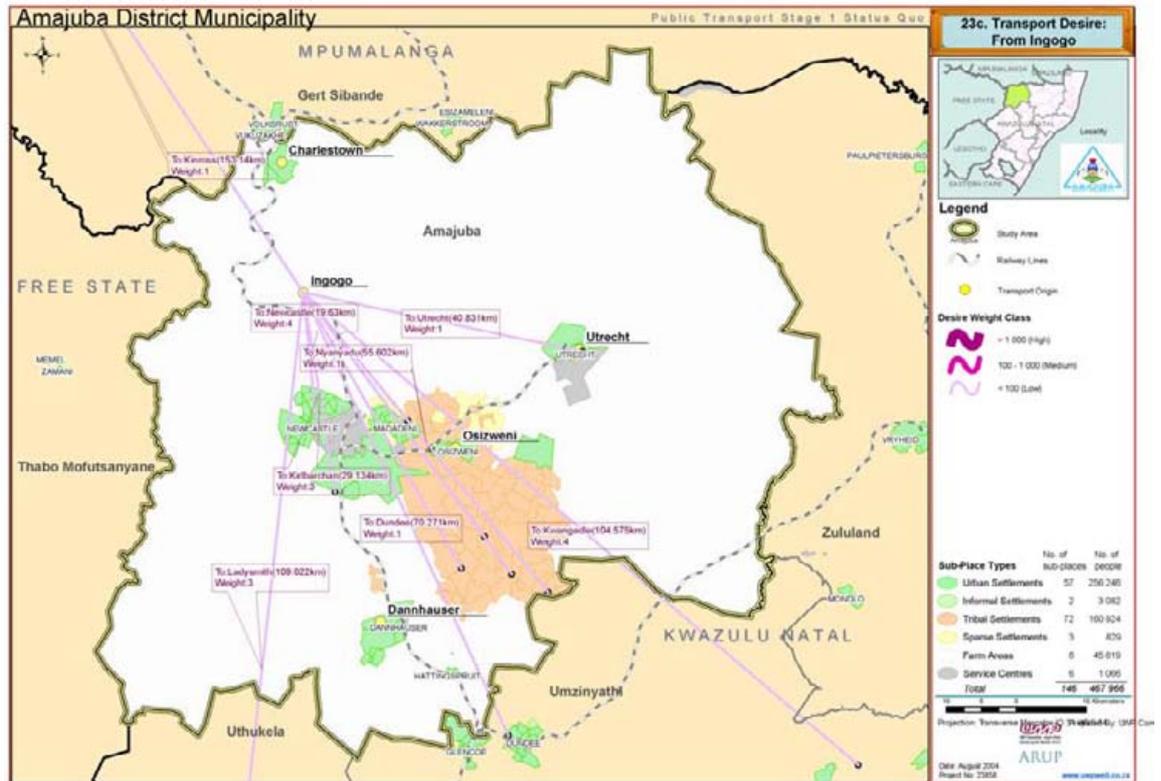


Figure 4.10: Desire Lines from Madadeni

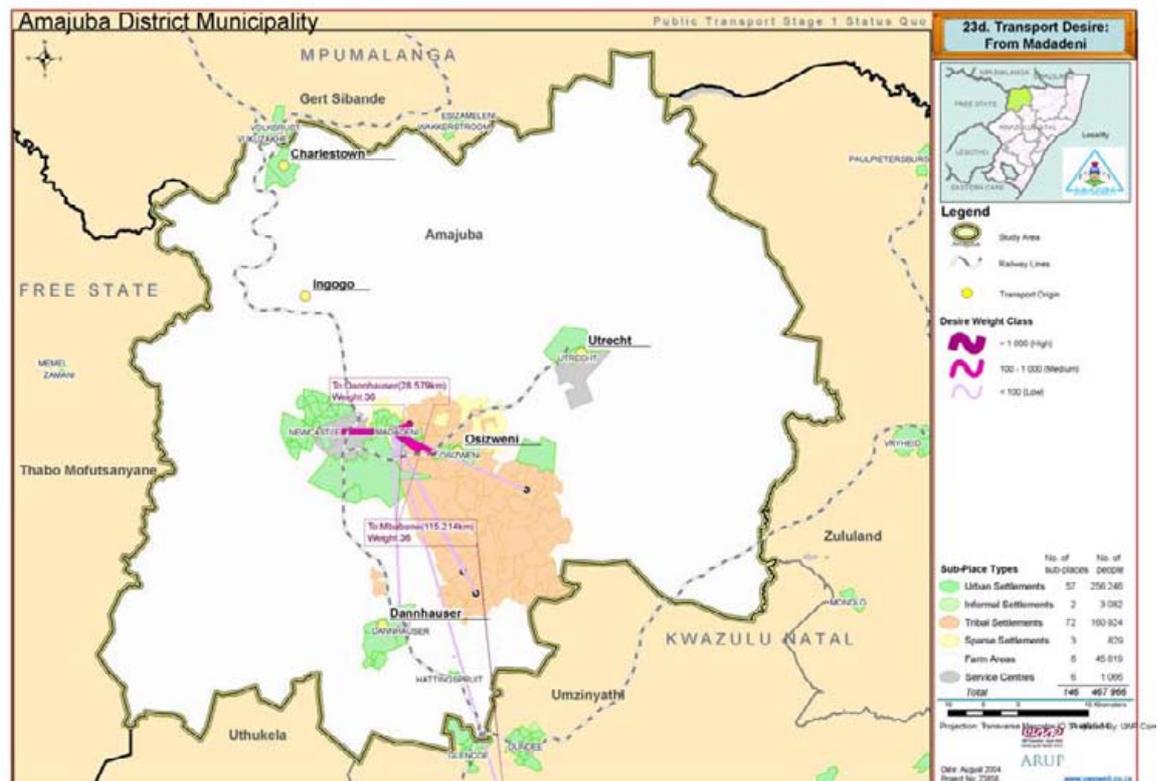


Figure 4.11: Desire Lines from Newcastle

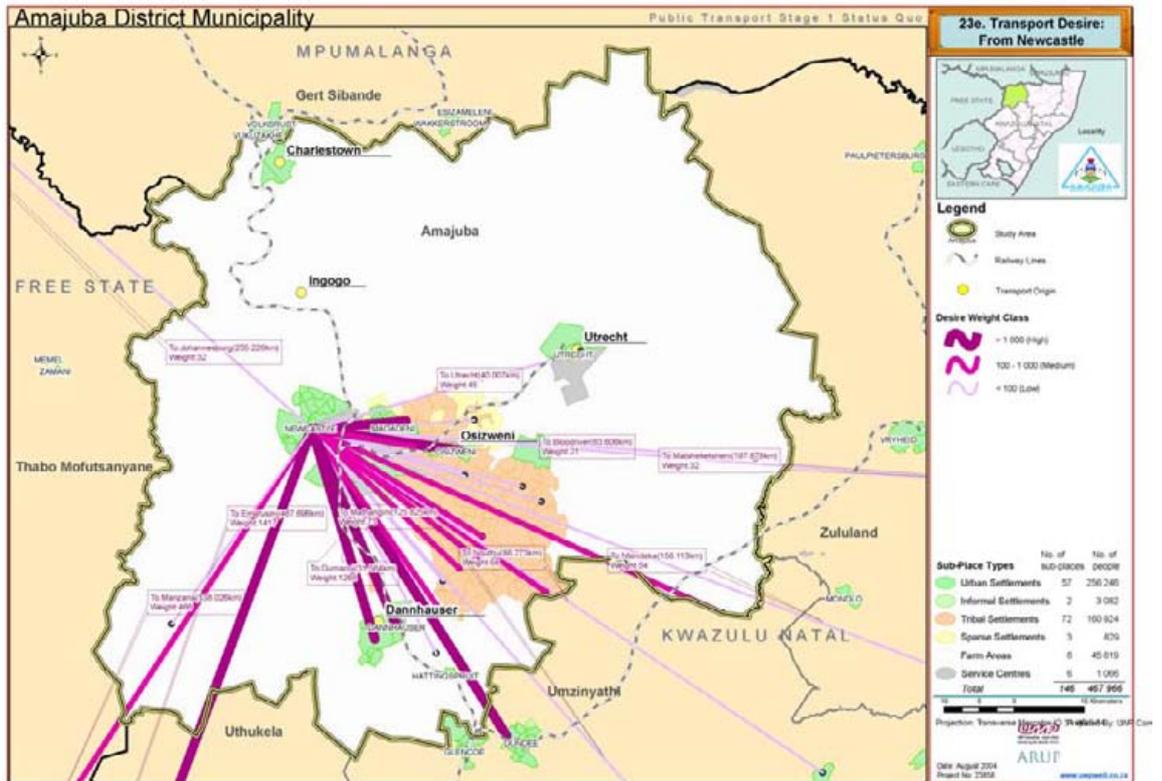


Figure 4.12: Desire Lines from Osizweni

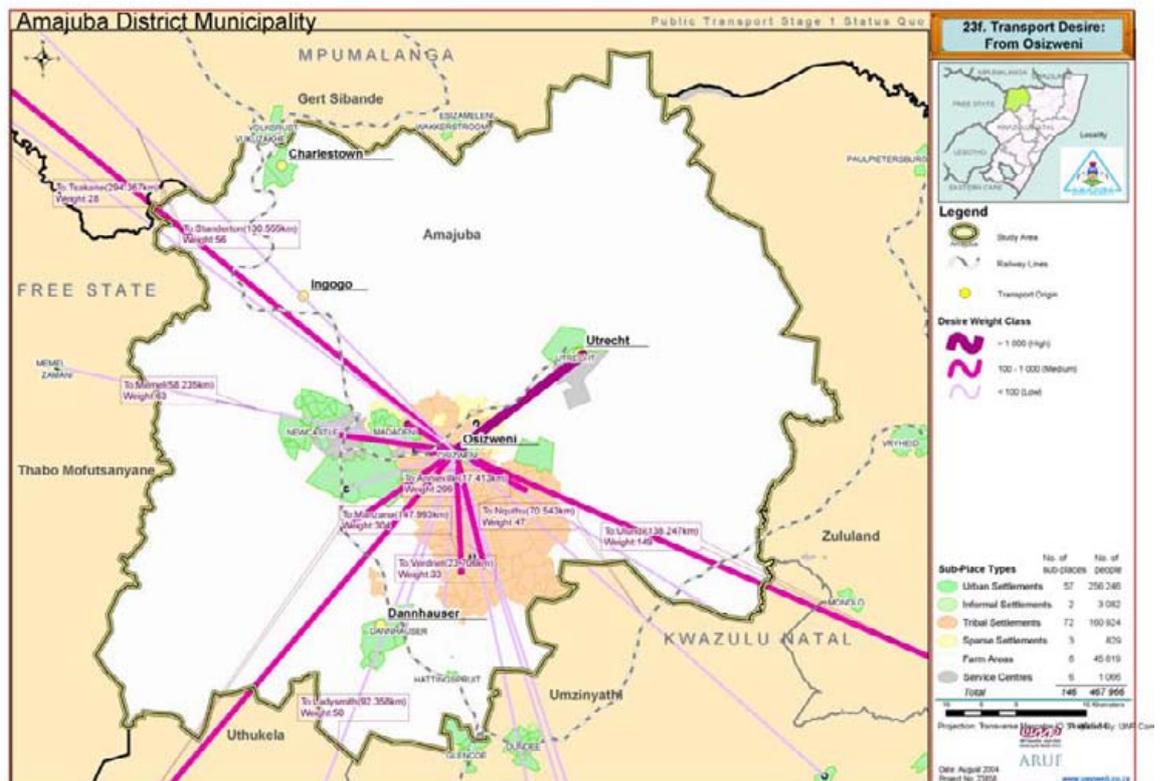


Figure 4.13: Desire Lines from Utrecht

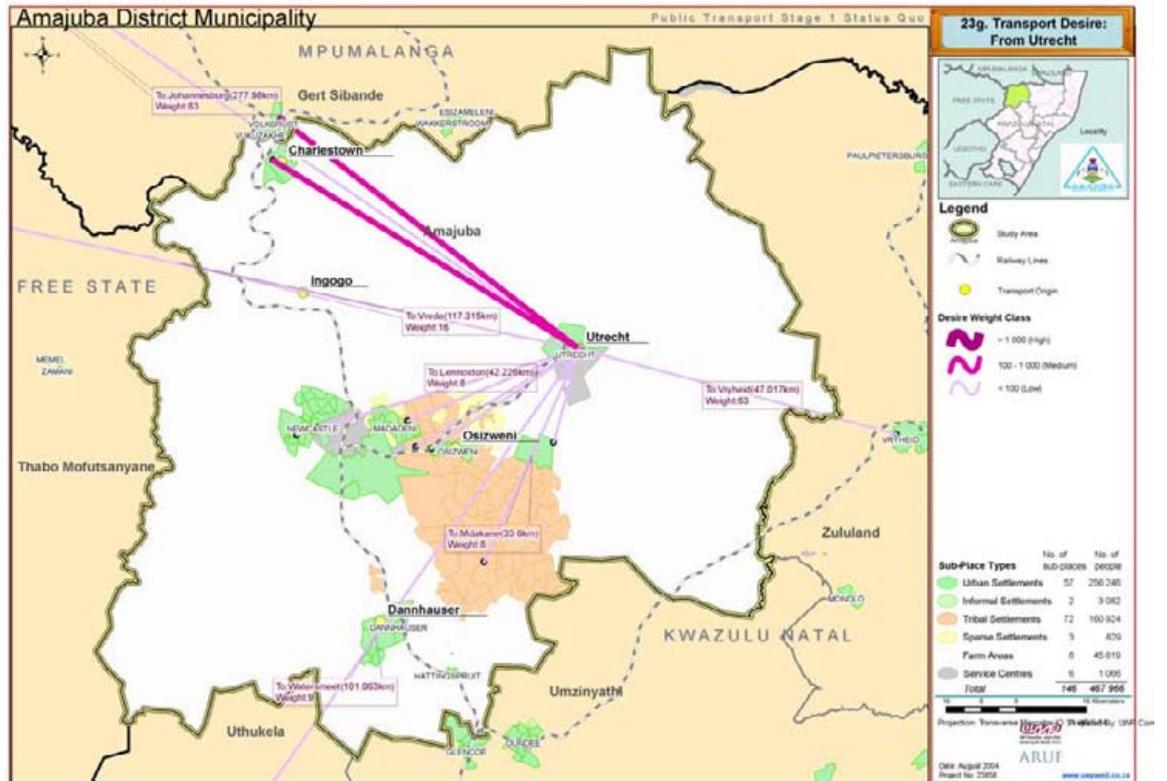
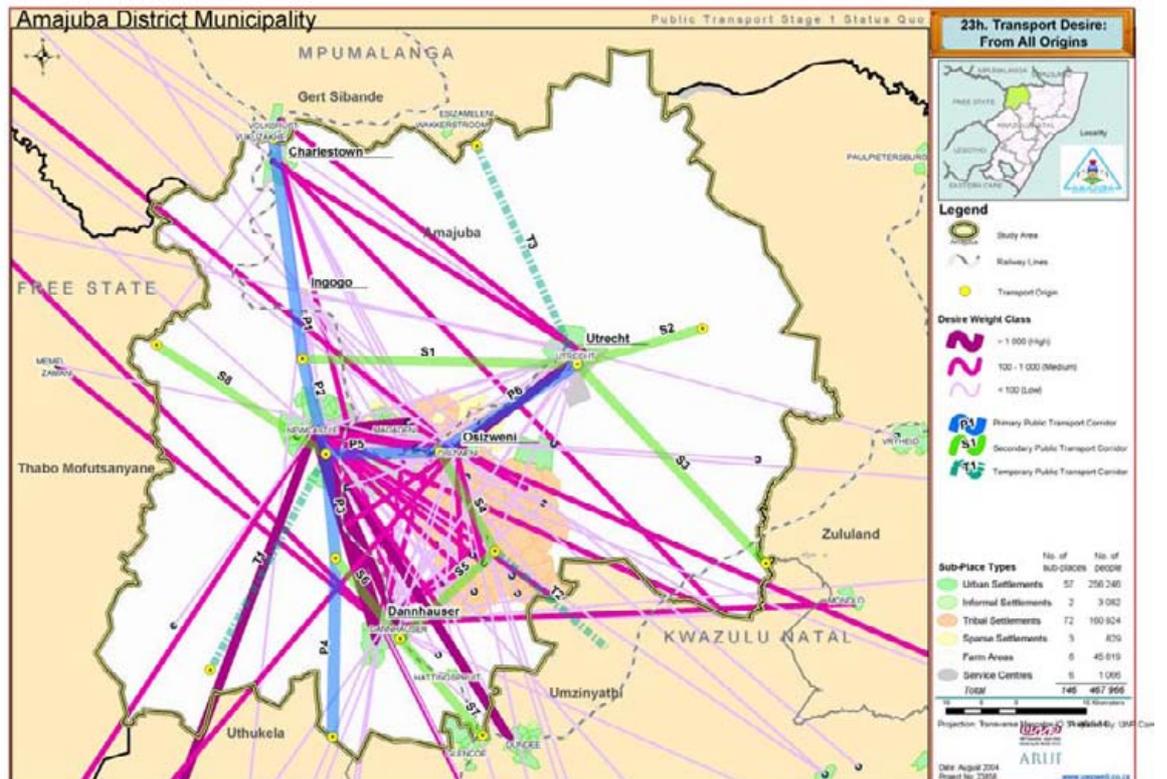


Figure 4.14: Desire Lines from All Facilities with PTC



7. PUBLIC TRANSPORT PROPOSALS

7.1 Introduction

KwaZulu Natal Department of Transport introduced a Cost Model, developed by Prof Del Mistro, to be used as part of the assessment of Public Transport Needs in uThungulu. This cost model allowed for the incorporation of available CPTR data into this model, thus enabling the consultants to do a quantitative needs assessment of public transport.

This Cost Model however requires data not collected as part of the Current Public Transport Record.

The purpose of the Cost Model will be to answer the following questions:

- What number of vehicle seats should be provided on each Public Transport Corridor to cater for the needs of public transport users,
- Is there an under or over supply of vehicle seats on the different Public Transport Corridors
- Between Minibus-taxi and Bus, which is the more economic mode on each corridor,
- What magnitude of Subsidy is needed per Public Transport Corridor. It is important to note that the subsidy given by the model will be the cumulative subsidy of all the routes included in the relevant Public Transport Corridor,

In order to be able to answer these questions certain assumptions had to be made regarding the data input and sections of the model where data is not available. This will ensure that the cost model provides useful comparative results that can be used as part of the Needs Assessment. In order to be conservative in the use of the cost model the following criteria is to be used based on the assumptions:

- Determine the number of minibus taxis required to provide the service to address the demand based on the following assumptions: 100% occupancy rate of vehicles with a minimum frequency of zero during peak hour, peak period and outside the peak. Assume a 0% standby fleet; and assume all passengers travel by taxi. Multiply the number of vehicles required by 15 to obtain the number of seats required on the corridor.
- There has been extensive research done on the cost to operate bus and minibus-taxi services and so it is assumed that the figures used in the cost model are reliable. Therefore based on the number of passenger trips on the corridor and minimum frequencies of 1 vehicle per hour in the peak hour, determine the most economical mode between bus and minibus assuming: Bus occupancies of 90% with a maximum standing time of 15 minutes and a minimum 10% standby fleet. For minibus-taxi assume vehicle occupancies of 100% with no standing time allowance and a minimum of 5% standby fleet. The most economical mode is then determined by comparing the annual subsidy required at year 20. Where the subsidy required differs by less than 10% the modes are assumed to be equally economical. Again it is important to note that the subsidy results will be for public transport corridors and not individual routes.
- It was also assumed that all tickets used are cash tickets with no discounted fares for either bus or minibus-taxi users.

The results of the cost model will be used as part of the Operating Strategy as well as for the Rationalisation Strategy discussed below.

7.2 Operating Strategy

The OLS must provide guidance to the operating licensing board in disposing of applications for operating licences with particular reference to the following:

- The role of each public transport mode and identification of the preferred road-based mode or modes;
- The circumstances in which operating licences or permits should be allowed;
- The use of public transport facilities within its area;
- The avoidance of wasteful competition between transport operators;
- The conclusion of commercial service contracts for unsubsidised public transport services; and
- The conditions that should be imposed by the board in respect of operating licenses.

7.3 Rationalisation Strategy

It is however important not to only issues affecting the operational aspects of the public transport service but to identify routes and services to be targeted for rationalisation. The aim of the rationalisation plan is to prevent duplications of services on routes, limiting subsidies paid and reduce over and under utilisation of services.

The development of the Rationalisation Strategy should have both a short-term focus relating to subsidised interim contracts and current tendered contracts expiring in the near future, and a long-term focus relating to the overall restructuring of the subsidised public transport system as a whole, including rail where applicable.

7.4 Summary of proposals

Provide a summary of proposals listed above with performance measures and expected cost. (Section to be completed)

8. STAKEHOLDER CONSULTATION

Describe the extent of stakeholder consultation, the involvement of the Amajuba Public Transport Forum, Project Steering Committee as well as other public participation meetings. Include a summary of discussions with participants and the outcomes presented to the project team. (Section to be completed)

9. PUBLIC TRANSPORT PROPOSALS

Include a priority list with all the proposals identified and discussed in previous chapters. If possible provide scoring or ranking criteria used for the prioritisation of proposals. (Section to be completed)

10. FINANCIAL IMPLICATIONS

Provide the estimated cost implications of the identified projects and clearly outline the assumptions used as part of the costing assessment. Identify possible funding sources and include information. (Section to be completed)