



LIMPOPO DEPARTMENT OF ROADS & TRANSPORT



Development of a Freight Transport Implementation Strategy for Limpopo Province

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List of Abbreviations and Acronyms

ABBREVIATION/ ACCRONYM	DESCRIPTION
AAHDT	Annual Average Heavy Daily Traffic
AC	Alternating Current
ACSA	Airports Company of South Africa
AIDS	Acquired Immune Deficiency Syndrome
ASLC	Air Service Licensing Council
ATNS	Air Traffic and Navigation Services
CBRTA	Cross Border Road Transport Agency
CSI	Container Safety Initiative
CTC	Centralised Traffic Control
DC	Direct Current
DEAT	Department of Environmental Affairs and Tourism
DM	District Municipality
DME	Department of Minerals and Energy
DOT	Department of Transport
DPE	Department of Public Enterprises
DTI	Department of Trade and Industry
EPWP	Expanded Public Works Programme
FDI	Foreign Direct Investment
FESARTA	Federation of East and Southern African Road Transport Associations
FONA	First Order Network Assessment
GAAL	Gateway Airport Authority Limited
GDP	Gross Domestic Product
GDPR	Gross Domestic Product Rate
GEAR	Growth Employment and Redistribution
GIS	Geographic Information Systems
GVA	Gross Value Added
HA	Hectare
HIV	Human immunodeficiency virus
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IDP	Integrated Development Plan
IMS	Integrated Manufacturing Strategy
ISPS	International Ships and Ports Security
ITP	Integrated Transport Plan
KG	Kilogram
KZN	KwaZulu-Natal
LCC	Load Control Centres
LCN	Load Classification Number
LDRT	Limpopo Department of Roads and Transport
LDVs	Light Delivery Vehicles
LEGDP	Limpopo Employment Growth and Development Plan

LSDF	Limpopo Spatial Development Framework
MEC	Member of Executive Council
MSA	Moving South Africa
NATMAP	National Transport Master Plan
NDA	National Development Agency
NDOT	National Department of Transport
NFLS	National Freight Logistics Strategy
NFMF	National Freight Monitoring Framework
NIP	National Infrastructure Planning
NLTA	National Land Transport Act
NLTS	National Land Transport Strategy
NLTSF	National Land Transport Strategic Framework
NLTTA	National Land Transport Transition Act
NRTA	National Road Transport Act
NSDP	National Spatial Development Perspective
ORTIA	Oliver Tambo International Airport
PGDS	Provincial Growth and Development Strategy
PIA	Polokwane International Airport
POLBs	Provincial Licensing Board
PRASA	Passenger Rail Agency of South Africa
RAL	Roads Agency Limpopo
RDP	Reconstruction and Development Programme
REG	Regulation
RSR	Rail Safety Regulator
RTMC	Road Traffic management Corporation
RTQS	Road Transport Quality System
SAA	South African Airways
SAAFF	South African Association of Freight Forwarders
SACAA	South African civil Aviation Authority
SADC	South African Development Community
SANRAL	South African National Roads Agency
SAPS	South African police Services
SARCC	South African Rail Commuter Corporation
SARS	South African Revenue Services
SDF	Spatial Development Framework
SDI	Spatial Development Initiative
SMME	Small Medium Micro Enterprises
SWOT	Strengths Weaknesses Opportunities and Threats
TCC	Traffic Control Centre
TNPA	Transnet National Ports Authority
TOR	Terms Of Reference

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1. Introduction

In line with the Project Terms of Reference (TOR) the Limpopo Roads and Transport Department initiated a process in May 2010 aimed at implementing a strategy that will improve overall integration of freight needs into the transport planning environment.

The Province has acknowledged the potential role of freight transport in supporting a more competitive and equitable environment for economic development. Furthermore the Province has also documented the importance of the role of Government, industry and other stakeholders in facilitating freight transport competitiveness through infrastructure investment and service improvement.

Therefore the aim of this project is to develop a clear strategic road map for the achievement of this Freight Transport Strategy. This document, termed the Status Quo Report, is the first output of the Limpopo Freight Transport Implementation Strategy. It encapsulates the status of freight transport in the Province.

1.1 Significance of Freight Transport

Freight transportation refers to the movement of goods throughout the economy – from raw materials through to all stages of manufacturing and finally the delivery of finished products to businesses or consumers.

The ease of moving goods and services has proved to be essentially a vital aspect of any economy. Currently interrelations between characteristics like location and transport costs have proved to be crucial for vibrant economic development. Ideologies like the ‘new economy geography’¹ have illustrated how transport costs and market scales tend to concentrate growth in core areas at the expense of economies located in the periphery. Furthermore, it has been illustrated that location affects trade competitiveness from a physical cost of transpiring goods due to time costs, specifically inland transport costs².

It should however be understood that location is not the only variable that determines successful economic development. Another critical characteristic that needs to be considered when reviewing the influence of freight transport on the economy is the availability of infrastructure. Freight infrastructure encompasses all modes of transport – inclusive of road, rail, air, sea and pipeline. Beyond this, freight transportation plays an important role in economic growth.

1.2 Purpose of This Report

Freight transport planning is essential for the maintenance of the region’s freight transport network as well as for ensuring effective and efficient freight transport services. This in turn affects the development of a region, and subsequently its economic growth, as a result of the impact of the region’s freight transport network on transportation costs and corresponding operation profits and losses.

The primary purpose of this report is to provide a detailed overview of the current status of freight transport in the Limpopo Province. This report covers the deliverable for the first phase of the project – which has an overall objective of developing a freight transport implementation strategy for the Province.

The scope of this report is to:

- Assess current freight transport drivers;
- Present an outline of freight transport legislation;
- Provide an overview of institutional arrangements overseeing freight transportation in the Province;

¹ Krugman and Venables, 1999

² Hummels (1998)

- Assess current infrastructure;
- Assess current freight operations in Limpopo; and,
- Identification of current freight constraints that need to be addressed.

1.3 Approach and Methodology

The approach and methodology followed for the preparation and development of the Freight Transport Implementation Strategy was carried out through the execution of two primary phases:

- Phase 1: Data Collection and Stakeholder Consultation; and,
- Phase 2: Development of Freight Transport Implementation Strategy.

This report presents the status of freight transport in the Province with the ultimate objective of assessing the industry structure and dynamics, its role in the provincial economy and outlining key problem areas that limit the potential growth of freight logistics in the Province. The findings of this report are input into the development of the Limpopo freight strategy and the relevant implementation plan.

Figure 1-1 below illustrates the interlinked steps followed in completion of this report.

Figure 1-1: Brief Project Work Plan



The major work streams included:

- **Review of the Limpopo Province in terms of its demographics, socio-economic and economic characteristics** in Section 2;
- **Assessment of the Freight Industry:** the assessment of the freight industry is firstly preceded by an assessment of each key economic cluster in Section 3 - the section provides strengths and weaknesses of each economic cluster and identifies key challenges and opportunities facing each cluster as well as the their implications on freight transport planning.
- **Review of current Legislation, Policies, Strategies and Frameworks:** the study team collected the following regional, national as well as provincial strategies, policies and legislation that impact on freight transport in the Province. Section 4 provides a detail assessment of the following documentation with the aim of establishing a context in which the Limpopo Freight Transport Implementation Strategy needs to operate in.
 - The Southern African Development Community's Protocol on Transport, Communication and Meteorology;
 - The South African Constitution (1996);

- National Transport Policy (1996);
- Moving South Africa: Towards a Transport Strategy for South Africa for the year 2020 (1999);
- National Spatial Development Perspective (1999);
- White Paper on the Limpopo Provincial Transport Policy (2000);
- White Paper on Spatial Planning and Land Use Management (2001);
- Limpopo Province Freight Transport Strategy (2002);
- National Land Transport Strategic Framework - NLTSF (2002);
- Limpopo in Motion (2005);
- National Freight Logistics Strategy (2005);
- Road Infrastructure Strategic Framework for South Africa (2005);
- Limpopo Province Freight Transport Data Bank (2006);
- Limpopo Growth and Development Strategy 2004 - 2014 (2007);
- Limpopo Provincial Land Transport Framework (2007);
- Limpopo Chapter of the National Transport Master Plan 2005-2050 (2010);
- National Freight Monitoring Framework;
- National Land Transport Act – NLTA (2010);
- Limpopo Province Freight Transport Databank (2012); and
- National Road Traffic Act (NRTA).

Over and above the policies, strategies and frameworks governing freight transport, the following institutional related legislation was reviewed:

- South African Transport Services Act, Act 9 of 1989;
- Air Services Licensing Act, Act 115 of 1990;
- Air Traffic and Navigation Services Company Act, Act 45 of 1993;
- South African National Road Agency Limited and the National Roads Act, Act 7 of 1998; and,
- Road Traffic Management Corporation Act, Act 20 of 1999.

Section 5 provides an overview of institutions involved in freight transport planning in the Province. This section is followed by an outline of current transport infrastructure profile and envisaged freight transport infrastructure needs that have been identified for all modes operating in the Province (refer to Section 6). An assessment of current and future plans is also provided together with key challenges facing each mode of transport in terms of operations in Section 7.

The information used is from secondary information listed above as well as from primary research (telephonic interview with industries and roadside interviews at Mantsole Centre);

- **Stakeholder Consultation:** Table 1-1 below indicates the key freight logistic players in Limpopo Province.

Table 1-1: Overview of Freight Logistics Companies in Limpopo

TYPE OF ROLE	KEY ACTIVITIES	KEY ACTORS
Rail Infrastructure	Construction and Maintenance of Infrastructure	Transnet
Air Infrastructure		Gateway Airport Authority Limited
		District and Local Municipalities

TYPE OF ROLE	KEY ACTIVITIES	KEY ACTORS
Road Infrastructure		South African National Road Agency Limited
		Road Agency Limpopo
		District & Local Municipalities
Rail Services	Physical movement of goods	Transnet
Air Services		SA Airlink and other charters
Road Services		Names of <i>registered</i> Road Hauliers operating in the Province as well as those that partook in data collection is provided in Appendix A
Producers	Production of freight goods	Name of Agricultural, Mining and Manufacturing Actors consulted during the study is provided in Appendix B

From Table 1-1 it is evident that the freight logistic sector in Limpopo Province is made up of numerous actors such as owners and operators. It is also inclusive of government agencies and the private sector. The following approach was used to engage stakeholders in the Province:

- Workshops with relevant stakeholders;
- One-on-one stakeholder interaction with Key Actors;
- Telephonic interviews with main economic clusters within the Province; and
- Roadside interviews with Road Hauliers traversing the Province.

The remainder of this section outlines the methodology as well as the results of stakeholder consultation undertaken during the preparation of the Limpopo Freight Transport Implementation Strategy.

1.3.1 Workshops

Stakeholder consultation through group participation was one of the means used to interact with stakeholders in Limpopo. The first Workshop was held at the beginning of the project, with the objective of informing stakeholders of the project and the related process. The workshop commenced with a plenary session – where the study was introduced. The need of the study was set out, the study objectives were outlined and the identification of preliminary issues that may be relevant to the study was determined through the division of the attendants into three working groups.

The attendance register for the first workshop together with the minutes of the first workshop are attached as Appendix C1.

1.3.2 One-on-one Meetings

One-on-One meetings were also deployed to engage key institutions that have an impact on freight transport planning in the Province. One-on-One meetings were scheduled with key actors within these institutions. The schedule showing the details of the institutions and their representatives together with the date they were engaged on is attached as Appendix C2.

1.3.3 Telephonic Interviews

After the interaction with the stakeholders through the 1st workshop it came to the Study Team's attention that further interaction with key actors within the main economic clusters in

the Province is vital. A list of mining, agricultural and manufacturing stakeholders was sourced from Trade and Investment Limpopo³.

A questionnaire was formulated and sent to the 3 economic clusters' stakeholders. The stakeholders were called at a later stage to source their responses from them. The questionnaire used for interaction with industries is attached as Appendix C3. The results of the telephonic interviews are discussed further in Section 3.5.

1.3.4 Roadside Interviews

The first Stakeholder Workshop also highlighted a gap with regards to understanding challenges that road hauliers face whilst traversing the Province. The Study Team identified a need to engage road hauliers to understand road operations issues within Limpopo.

A questionnaire was developed for purposes of engaging road hauliers at Mantsole Traffic Control Centre over a weekday. The questionnaire used to collect data at Mantsole Control Centre is attached as Appendix C4. The results of roadside interviews are discussed further in Section 7.2.2.

1.4 Structure of the Report

The structure of this report is as follows:

- Chapter 1 (this section) provides the introduction;
- Chapter 2 provides an overview of the demographic, socio-economic and economic context in which the strategy will be developed;
- Chapter 3 describes the key economic clusters found in Limpopo;
- Key policy and legislative documents are assessed in Chapter 4;
- Chapter 5 provides an assessment of institutional actors that are responsible for providing an enabling environment for the movement of goods;
- A freight transport infrastructure review is captured in Chapter 6;
- Chapter 7 provides a description of current freight operations in the Province;
- Chapter 8 summarises the status quo findings; and
- Chapter 9 provides concluding remarks and way forward for the project.

The document has the following appendices:

- Appendix A has two attachments – A1 contains details of road hauliers that were involved in freight transport data collection at Mantsole while Appendix A2 contains details of registered Road Hauliers that operating in Limpopo;
- Appendix B presents a list of freight goods producers of the agricultural, mining and manufacturing sectors;
- Appendix C has four attachments – C1 contains the minutes and attendance register for the first Stakeholder Workshop that was conducted in May 2010. C2 contains a list of key stakeholders consulted through one-on-one meetings. C3 and C4 contain the questionnaire that was used to engage the freight goods producers and the road hauliers respectively.

³ Business Directory sourced from Trade and Investment Limpopo

2. Provincial Introduction

The Limpopo Province is one of the nine Provinces of South Africa. The Province is bordered in the north by Zimbabwe and Botswana, in the east by Mozambique and on the south and west by the Provinces of Mpumalanga, North West and Gauteng. The Province consists of five district municipalities and 23 local municipalities. The district municipalities are as follows:

- Vhembe District Municipality;
- Capricorn District Municipality;
- Mopani District Municipality;
- Greater Sekhukhune District Municipality and
- Waterberg District Municipality.

A map of the Province showing the different district municipalities is indicated in Map 2-1.

2.1 Demographic Profile

2.1.1 Historic Demographic Profile

The 2001 *Census* estimated the Limpopo provincial population as 5 273 655 persons. Between 2001 and 2005 the population growth rate of Limpopo was estimated as 12%, *with most rural towns experiencing close to zero growth rate due to migration to other areas and the impact of HIV/AIDS.*

According to the National Transport Master Plan 2050 the following salient demographic details exist for the Limpopo Province for 2005:

- The population of Limpopo was approximately 5,3 million (represents 11% of the national total), and the distribution per District Municipality is shown in Table 2-1.
- The unemployment rate was approximately 47%, with literacy level in Limpopo still low with one third of the population with no schooling.
- 45% (2,4 million) of the population still walk to work.

Table 2-1: Historic Demographic Profile of Limpopo Province (2005)

DISTRICT MUNICIPALITY	POPULATION	NO. OF HOUSEHOLDS	EMPLOYED	UNEMPLOYED
Capricorn	1,237,959	334,085	207,475	182, 899
Waterberg	661,252	179,634	220, 812	87, 142
Vhembe	1,303,228	349,611	142, 008	181, 197
Mopani	1,140,267	306,404	185, 187	166, 520
Sekhukhune	995,781	265,882	67, 762	145, 252
Total	5,338,487	1,435,616	823, 323	763, 010

Source: National Transport Master Plan 2050 – Limpopo Chapter, 2007

2.1.2 Current and Future Demographic Profile

The 2004-2014 Limpopo Provincial Growth and Development Strategy (PGDS) together with the Department of Finance and Economic Development projected that the population growth in Limpopo would have declined to 1% by 2008, which also took cognisance of the new district boundaries of Sekhukhune and Bohlabela (incorporated into Mopani) and the impact of HIV/AIDS. The envisaged 2010 and 2015 demographic details are presented in Table 2-2.

Map 2-1: Limpopo Province Locality and District Municipalities

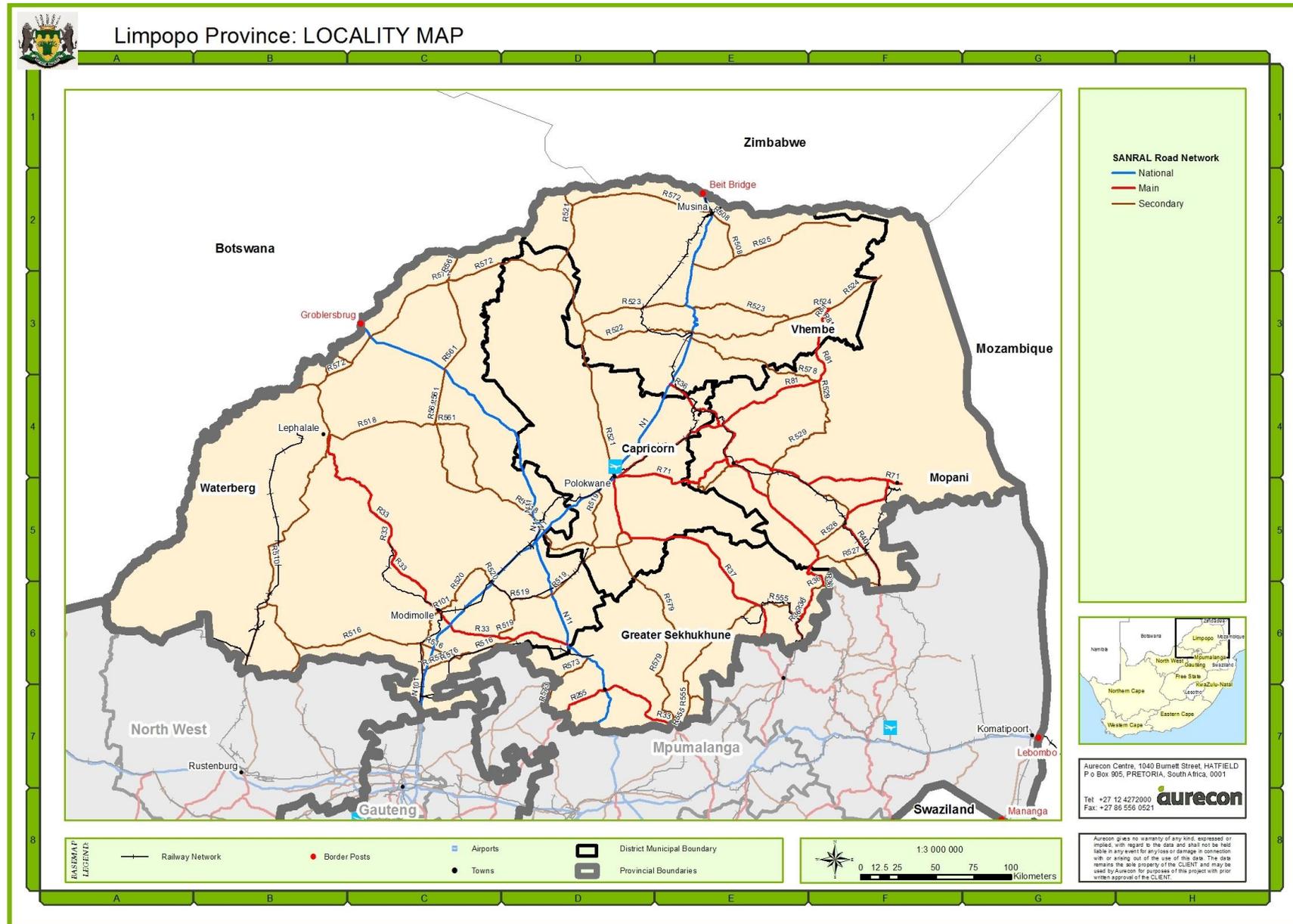


Table 2-2: Future Demographic Profile of Limpopo Province (2010 and 2015)

DISTRICT MUNICIPALITY	2010			2015		
	POPULATION	EMPLOYED	UNEMPLOYED	POPULATION	EMPLOYED	UNEMPLOYED
Capricorn	1,202,337	224,039	190,517	1,237,701	245,313	182,170
Waterberg	659,345	242,644	84,505	691,794	268,181	74,740
Vhembe	1,248,437	149,845	177,837	1,284,690	162,699	159,245
Mopani	1,124,022	185,187	166,520	1,170,232	185,187	166,520
Sekhukhune	991,531	72,158	147,214	1,007,002	80,036	138,003
Total	5,225,672	882,867	763,540	5,391,419	941,416	720,678

Source: National Transport Master Plan 2050 – Limpopo Chapter, 2007

The following observations are made from Table 2-2:

- Majority of the population reside in Vhembe, Capricorn and Mopani districts (between 24-22%).
- Approximately 13% of the population reside in Waterberg, with this number envisaged to increase by 5% due to future mining activities expected in Lephalale area.

2.2 Socio-Economic Profile

2.2.1 Historic Socio-Economic Profile

2.2.1.1 Employment Status (2005)

Table 2-3 shows the 2005 employment status by District Municipality. The total number of economically active persons in the Province equalled 1.6 million – 30% of the provincial population. The percentage of employed people is 53%, whilst 47% are unemployed. The majority of the unemployed persons reside in Sekhukhune DM (63%) and Vhembe DM (55%).

Table 2-3: Limpopo Provincial Employment Status (2005)

DISTRICT MUNICIPALITY	EMPLOYED	ECONOMICALLY ACTIVE	UNEMPLOYED	UNEMPLOYMENT RATE
Capricorn	207,475	392,110	182,899	47%
Waterberg	220,812	297,975	87,142	29%
Vhembe	142,008	329,755	181,197	55%
Mopani	185,187	351,134	166,520	47%
Sekhukhune	67,762	231,441	145,252	63%
Total	823,323	1,602,385	763,010	47%

Source: National Transport Master Plan – Limpopo Chapter, 2007

2.2.1.2 Employment by Formal Industry (2005)

Table 2-4 presents the 2005 formal employment by industry in Limpopo Province. Formal employment sectors in the Province are vast, with the 'transportation, storage and communication' sector being the predominant employer (26% of the provincial workforce), followed by the 'wholesale and retail' sector (20%). The least contributor to the provincial workforce includes the 'construction' sector (1%) and the 'financial' sector (3%).

Employment in agriculture is fourth dominant in the Province (16%). It is however more significant in Waterberg (2nd dominant employment sector with 22%) and Mopani (2nd dominant employment sector with 22%).

Table 2-4: Limpopo Formal Employment by Industry (2005)

DISTRICT MUNICIPALITY	MAIN INDUSTRY									TOTAL
	AGRICULTURE	MINING	ELECTRICITY, GAS & WATER	CONSTRUCTION	WHOLESALE & RETAIL	TRANSPORT, STORAGE & COMMUNICATION	FINANCIAL	SERVICES	PRIVATE HOUSEHOLDS	
Sekhukhune	15,540	5,472	4,442	784	5,527	29,542	3,345	3,638	18,870	87,160
%	18%	6%	5%	1%	6%	34%	4%	4%	22%	
Mopani	46,215	8,668	19,223	1,893	15,088	59,860	7,809	10,807	42,791	212,354
%	22%	4%	9%	1%	7%	28%	4%	5%	20%	
Vhembe	29,041	2,117	10,536	1,962	150,602	55,699	6,106	9,481	45,720	311,264
%	9%	1%	3%	1%	48%	18%	2%	3%	15%	
Capricorn	21,449	1,435	13,143	1,753	15,023	58,868	7,814	14,057	46,202	179,744
%	12%	1%	7%	1%	8%	33%	4%	8%	26%	
Waterberg	36,722	16,851	12,553	1,746	13,887	43,611	4,817	8,173	27,680	166,040
%	22%	10%	8%	1%	8%	26%	3%	5%	17%	
Limpopo	148,967	34,543	59,897	8,138	200,127	247,580	29,891	46,156	181,263	956,562
%	16%	4%	6%	1%	21%	26%	3%	5%	19%	

Source: National Transport Master Plan – Limpopo Chapter, 2007

2.2.2 Current and Future Socio-Economic Profile

2.2.2.1 Employment Status (2010 & 2015)

Table 2-5 shows the 2010 employment status by District Municipality. The total number of economically active persons in the Province equalled 1.66 million – 32% of the provincial population. The percentage of employed people is 54%, whilst 46% are unemployed. The majority of the unemployed persons still reside in the Sekhukhune DM (61%) and Vhembe DM (53%).

Table 2-5: Limpopo Provincial Employment Status (2010)

DISTRICT MUNICIPALITY	EMPLOYED	ECONOMICALLY ACTIVE	UNEMPLOYED	UNEMPLOYMENT RATE
Capricorn	224,039	420,013	190,517	45%
Waterberg	242,644	315,230	84,505	27%
Vhembe	149,845	336,025	177,837	53%
Mopani	185, 187	351,134	166,520	47%
Sekhukhune	72,158	241,815	147,214	61%
Total	882, 867	1,664,216	763,540	46%

Predictions for Limpopo's employment status by District Municipality for the year 2015 are indicated in Table 2-6 below. The number of economically active people is expected to increase from 1.66 million in 2010 to 1.69 million by 2015 (marking a growth of 2%). It is expected that 56% of the economically active population would be employed. Furthermore, the number of unemployed persons would be reduced from 763 540 to 720 678, which would lead to the reduction of the unemployment rate from 46% to 43%.

Table 2-6: Limpopo Provincial Employment Status (2015)

DISTRICT MUNICIPALITY	EMPLOYED	ECONOMICALLY ACTIVE	UNEMPLOYED	UNEMPLOYMENT RATE
Capricorn	245, 313	436, 316	182, 170	42%
Waterberg	268, 181	329, 014	74, 740	22%
Vhembe	162, 699	331, 808	159, 245	48%
Mopani	185, 187	351, 134	166, 520	47%
Sekhukhune	80, 036	243, 961	138, 003	56%
Total	941, 416	1,692,233	720, 678	43%

Source: National Transport Master Plan, 2007

2.2.2.2 Employment by Industry (2010 and 2015)

In the current year (2010) as indicated in Table 2-7, formal employment is dominated by the 'Manufacturing' sector, which employs 20% of the provincial workforce, followed by the 'Community, Social & Personal Services' sector (15%). The least contributor to the provincial workforce includes the 'Electricity, Gas and Water' sector (4%), the 'Construction' sector (4%) and the 'Other Service Activities' sector (2%).

Employment in the Wholesale, Retail, Catering and Accommodation sector is third dominant in the Province (14%), followed by the 'Agriculture, Hunting, Forestry and Fishing' sector and the 'Mining and Quarrying' sector, both of which account for 13% of formal employment in the Province.

Table 2-7: Limpopo Formal Employment by Industry (2010)

DISTRICT MUNICIPALITY	MAIN INDUSTRY										TOTAL
	AGRICULTURE, HUNTING, FORESTRY, FISHING	MINING, QUARRYING	MANUFACTURING	ELECTRICITY, GAS, WATER	CONSTRUCTION	WHOLESALE, RETAIL, CATERING & ACCOMMODATION	TRANSPORT, STORAGE & COMMUNICATION	FINANCE, INSURANCE, REAL ESTATE, BUSINESS	COMMUNITY, SOCIAL & PERSONAL SERVICES	OTHER SERVICE ACTIVITIES	
Mopani	30, 272 24%	16, 989 13%	4, 838 4%	2, 015 2%	7, 440 6%	8, 511 7%	3, 492 3%	7, 427 6%	42, 135 33%	4, 046 3%	127, 166
Vhembe	22, 600 24%	1, 390 1%	3, 805 4%	1, 341 1%	5, 849 6%	5, 231 5%	2, 615 3%	5, 281 6%	43, 037 45%	4, 115 4%	95, 264
Capricorn	17, 949 13%	454 0%	8, 812 7%	1, 687 1%	10, 371 8%	25, 422 19%	7, 702 6%	12, 801 10%	44, 098 33%	4, 839 4%	134, 135
Waterberg	25, 241 14%	44, 556 25%	6, 965 4%	1, 694 1%	8, 781 5%	63, 385 35%	4, 272 2%	7, 078 4%	17, 326 10%	2, 140 1%	181, 437
Sekhukhune	76, 517 9%	115,983 14%	246, 950 30%	48, 610 6%	24, 213 3%	92, 268 11%	66, 136 8%	65, 165 8%	58, 407 7%	15, 949 2%	810, 198
Limpopo	172, 579 13%	179, 372 13%	271, 369 20%	55, 347 4%	56, 654 4%	194, 817 14%	84, 218 6%	97, 752 7%	205, 003 15%	31, 090 2%	1,348,199

Source: National Transport Master Plan, 2007

Table 2-8: Limpopo Formal Employment by Industry (2015)

DISTRICT MUNICIPALITY	MAIN INDUSTRY										TOTAL
	AGRICULTURE, HUNTING, FORESTRY, FISHING	MINING, QUARRYING	MANUFACTURING	ELECTRICITY, GAS, WATER	CONSTRUCTION	WHOLESALE & RETAIL	TRANSPORT, STORAGE & COMMUNICATION	FINANCE, INSURANCE, REAL ESTATE, BUSINESS	COMMUNITY, SOCIAL & PERSONAL SERVICES	OTHER SERVICE ACTIVITIES	
Mopani	33,628	17,846	5,255	2,368	9,354	9,230	4,000	7,977	51,141	4,431	145,231
%	23%	12%	4%	2%	6%	6%	3%	5%	35%	3%	
Vhembe	24,226	1,432	4,143	1,535	7,317	5,714	2,989	5,642	52,799	4,548	110,344
%	22%	1%	4%	1%	7%	5%	3%	5%	48%	4%	
Capricorn	19,227	494	9,882	1,941	1,941	28,335	9,072	14,078	54,944	5,340	145,255
%	13%	0%	7%	1%	1%	20%	6%	10%	38%	4%	
Waterberg	26,454	48,450	8,069	1,977	1,977	72,836	5,207	7,992	21,419	2,301	196,683
%	13%	25%	4%	1%	1%	37%	3%	4%	11%	1%	
Sekhukhune	10,201	9,481	1,850	763	763	4,092	1,662	2,177	22,993	1,060	55,041
%	19%	17%	3%	1%	1%	7%	3%	4%	42%	2%	
Limpopo	113,736	77,703	29,199	8,584	21,353	120,207	22,930	37,866	203,296	17,679	652,554
%	17%	12%	4%	1%	3%	18%	4%	6%	31%	3%	100%

Source: National Transport Master Plan, 2007

Limpopo Province's employment status projections for 2015 are shown in Table 2-8 (refer to previous page). It is predicted that the 'Community, Social and Personal Services' sector will employ the majority of Limpopo's economically active population (31%) with the 'Wholesale and Retail' sector becoming the second dominant employer in the Province (18%).

The 'Agriculture, Hunting, Forestry and Fishing' sector is expected to be the third dominant employer in Limpopo, offering employment to approximately 17% the economically active population in the Province. Furthermore, it is envisaged that this sector will account for 23% of employment in the Mopani DM (2nd dominant employment sector) and account for 22% of employment in the Vhembe DM (2nd dominant employment sector).

2.3 Economic Profile

2.3.1 Introduction

Limpopo Province has a population of about 11% (5.3 million) of South Africa's total population and contributes about 7% to the national economy. The Province has also experienced tremendous growth in international trade over the years with exports escalating from R3.3 billion in 2001 to about R15.55 billion in 2007. The dominant economic sectors in the Province are mining, general government services, finance and real estate, as well as retail and wholesale. These sectors jointly contributed about 67% of the provincial gross domestic product (Business and Investment, 2010).

The Province attracted about R30.98 billion of fixed capital investments in 2007 which were mainly expansions related to mining companies. The mining sector alone contributed about 57% in 2007/2008 to the Provinces economy compared to 25% in 2006/2007 financial year. The large mining operations in the Province include Venetia diamond mine, Grootegeluk and Tshikondeni collieries, the Amandelbult, Northam, Messina, Lebowa, Marula and Modikwa Platinum mines.

Agriculture is also one of the main drivers of economic development in Limpopo. It has facilitated the development of processed products such as fruit juices. Opportunities in investment exist in the areas of processing and packaging of fruits and vegetables as well as the export of beef, pork, chicken eggs, fruits and vegetables.

Limpopo also offers a number of manufacturing opportunities. The established manufacturing companies in the Province include Invensil (silicon smelting), Granor Passi (fruit juices), Bonanza (furniture making) and Kanhym (meat processing) etc. (Business and Investment, 2010).

The National Transport Master Plan⁴ conducted a robust economic analysis for all industries within the republic, with information provided per Province. The economic overview presented in this report, is based on the baseline scenario of the National Transport Master Plan, which assumed the following:

- A stable GDP of 5 to 6%
- Exports of goods and services was expected to decline from 7 to 6%
- Employment growth was expected to be stable at 8% per annum;
- Growth in total domestic demand is expected to grow at 2% per annum;
- Private and public consumption expenditure is expected to decline from 7 to 5% and 6 to 5% respectively; and
- Total capital formation is expected to decline from 11 to 5% growth per annum.

This section provides a brief summary of issues impacting on the economy of the Province as well as the implication on freight transport planning.

⁴ Collaboration of Bureau for Market Research (BMR) and Global Insight Southern Africa (Pty) Ltd at the University of South Africa

2.3.2 Limpopo's Economic Objectives

The mining, tourism, agriculture and manufacturing economic sectors have been identified to be the main drivers of economic development in the Limpopo Province. The main objectives for economic development in the Province are centred on the identified economic sectors in order to ensure poverty eradication, job creation, improvement of economic and transportation infrastructure and the promotion of investment.

Table 2-9 shows the main objectives for economic development in Limpopo as well as the targets associated with the objective:

Table 2-9: Economic objectives and Targets for economic development in Limpopo

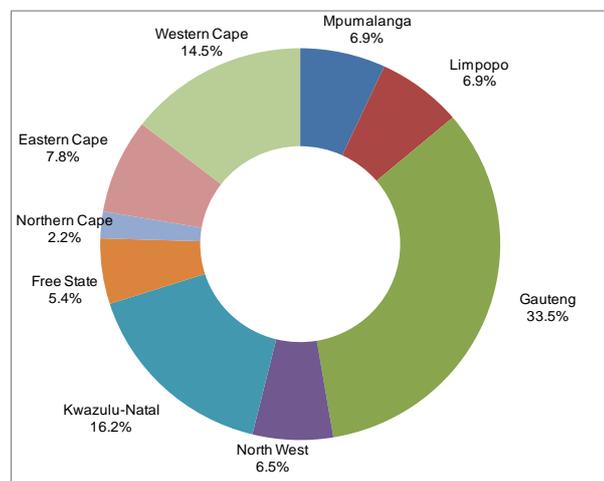
OBJECTIVE		TARGET
1	Poverty Reduction	<ul style="list-style-type: none"> All people in distress should have access to support Reduce poverty level by half by 2014
2	Job Creation	<ul style="list-style-type: none"> To have at least 50% of the unemployed population be absorbed into the Expanded Public Works Programme;
3	Increase Investment	<ul style="list-style-type: none"> Achieve investment of R8.6 billion per annum
4	Develop and improve economic infrastructure	<ul style="list-style-type: none"> Invest in excess of R20 billion in cluster support infrastructure by 2014
5	Equitable redistribution of opportunities and productive resources	<ul style="list-style-type: none"> Achieve score card
6	Above average growth rate	<ul style="list-style-type: none"> Triple the size of agriculture, tourism, construction and the manufacturing sectors (diversified economy) in Limpopo by 2015; Increase the value of agriculture twofold through enterprise diversification, investing in water-saving technologies for production and value-addition within the agro-value chain.

Source: Limpopo Growth & Development Strategy: 2005

2.3.3 An Overview of Limpopo's Economy

According to the Limpopo Employment, Growth and Development Plan (LEGDP) 2009-2014, the Province contributed about 9% of the total National Gross Domestic Product (GDP) at an annual economic growth rate of 4% (see Figure 2-1 and Figure 2-2 shows the GDP (Gross Domestic Product) contribution to the country's economy per Province).

Figure 2-1: GDP contribution to the economy of South Africa in 2007



Source: Limpopo Employment Growth and Development Plan 2009-2014

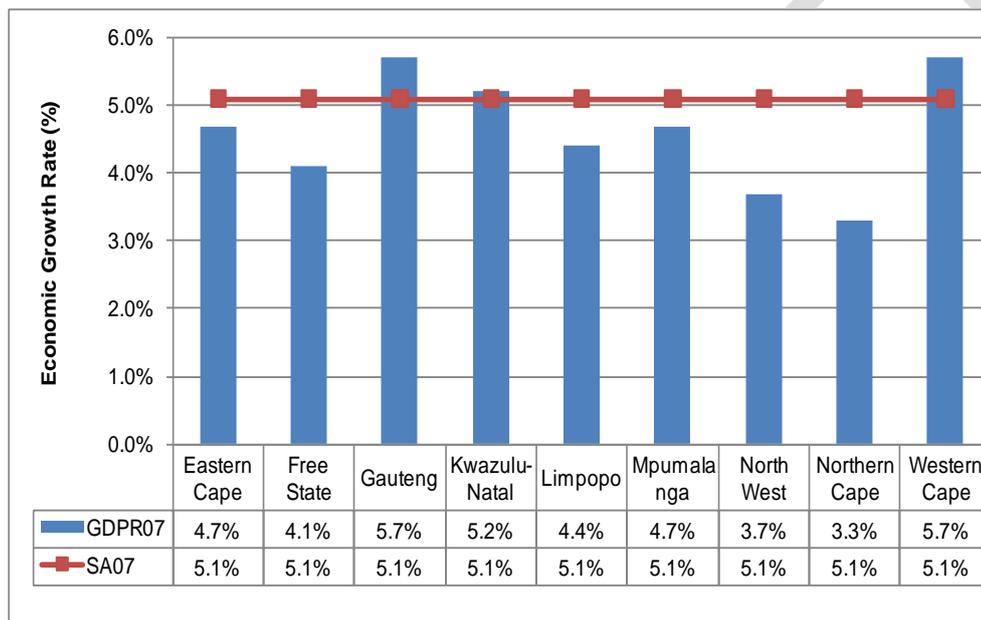
The following observations are made from Figure 2-1:

- Gauteng Province (34%) was the major contributor to the national economy;
- It was followed by Kwazulu-Natal and Western Cape Provinces which contributed approximately 16% and 15% respectively;
- Limpopo Province made an economic contribution of about 6.9% - sharing the fifth spot with Mpumalanga Province and
- Northern Cape Province recorded the least economic contribution of about 2%.

The following observations are made from Figure 2-2:

- Gauteng and Western Cape recorded the highest economic growth rate of 6%;
- Kwazulu-Natal and Eastern Cape with approximately 5% each; and
- Limpopo Province with an annual economic growth rate of 4%.

Figure 2-2: Annual Economic Growth Rate per Province for 2007



Source: Limpopo Employment Growth and Development Plan 2009-2014

The provincial contribution to South Africa's GDP improved over the years. It increased from 6% in 1996 to 7% in 2007. An improvement in Fixed Capital Investment in Limpopo Province was observed in the year 2001 and a further significant increase of R31 billion was recorded in 2007 (LEGDP 2009-2014), showing a significant boost to the Province's economy.

Currently mining is the dominant economic sector in the Province. Other main economic contributors to the Provinces' economy are general government services, finance, insurance and real estate and retail and wholesale. The different economic sectors contributing to Limpopo Province's economy are presented in Table 2-10.

Table 2-10: List of Economic Sectors

MAIN ECONOMIC SECTOR	SUB ECONOMIC SECTOR	AGGREGATED SECTOR
Primary	11 Agriculture and hunting	Sector 1: Agriculture, Hunting, Forestry, Fishing
	12 Forestry and logging	
	13 Fishing, operation of fish farms	
	21 Mining of coal and lignite	
	23 Mining of gold and uranium ore	
Secondary	30 Food, beverages and	Sector 3: Manufacturing

MAIN ECONOMIC SECTOR	SUB ECONOMIC SECTOR	AGGREGATED SECTOR	
	tobacco products		
	31 Textiles, clothing and leather goods		
	32 Wood and wood products		
	33 Fuel, petroleum, chemical and rubber products		
	34 Other non-metallic mineral products		
	35 Metal products, machinery and household appliances		
	36 Electrical machinery and apparatus		
	37 Electronic, sound/vision, medical & other appliances		
	38 Transport equipment		
	39 Furniture and other items NEC and recycling		
	41 Electricity, gas, steam and hot water supply		Sector 4: Electricity, Gas, Water
	42 Collection, purification and distribution of water		
	50 Construction		Sector 5: Construction
Tertiary	61 Wholesale and commission trade	Sector 6: Wholesale, Retail, Catering, Accommodation	
	62 Retail trade and repairs of goods		
	63 Sale and repairs of motor vehicles, sale of fuel		
	64 Hotels and restaurants		
	71-72 Land and Water transport	Sector 7: Transport, Storage, Accommodation	
	81-83 Finance and Insurance	Sector 8: Finance, Insurance, Real Estate, Business	
	84 Real estate activities		
	85-88 Other business activities		
	91 Public administration and defence activities	Sector 9: community, Social, Personal Services	
	92 Education		
93 Health and social work			
94-99 Other service activities	Sector 10: Other service Activities		

Source: National Transport Master Plan: Limpopo Chapter, 2007

Table 2-11 presents historic economic contribution per sector as well as the total Gross Value Added (GVA) Gross Domestic Product (GDP) in each district. The following observations are made:

- In the year 2005, Community, Social Personal Services was the dominant economic sector in all the districts except for Waterberg district;
- In Capricorn and Vhembe districts Community, Social Personal Services and Finance, Insurance Real Estate Business were the main sectors;
- In Mopani and Sekhukhune districts, the dominant economic sectors were mining and quarrying and Community and Community Social Personal Services;
- Mining and quarrying was the main economic sector in Waterberg;
- Waterberg District was the major contributor to the provincial economy.

The economic sectors with the least economic profiles per district include:

- construction and other services sector in Sekhukhune, Vhembe and Waterberg districts;

- manufacturing and construction in Mopani district; and
- mining and quarrying in Capricorn district.

In the current year of 2010 a similar trend in economic contribution per sector per district is presented in 2005 (refer to Table 2-12):

- The dominant economic sectors per district are similar to that obtained in 2005;
- There is a slight difference in the least economic profiles per district for the current year;
- Construction and other services are expected to be the least contributors to the provincial economy particularly in Sekhukhune, Vhembe and Waterberg districts. While for Capricorn and Mopani districts the least economic contributors are the same as those achieved in 2005;
- Waterberg District is expected to be the dominant contributor to the Province's economy.

Table 2-13 presents the future economic contribution per sector as the total Gross Value Added Gross Domestic Product in each district. The following observations are made:

- In Capricorn the main sectors economic contribution from 2005 to 2015 is expected to be relatively the same. Community, personal services will decrease from 25% to 24% and finance, insurance and real estate increase from 24% to 25%;
- In Mopani the main economic contributor, mining is expected to decrease from 29% to 26% and community, social services increase from 19% to 20%;
- The economic contribution for the dominant sectors in Sekhukhune, mining and quarrying (22%) and community, social personal services (27%) is expected to be constant when comparing with that obtained in the year 2005;
- In Vhembe the economic contribution of community social personal services (36% to 37%) and finance and insurance (21% to 19%) is expected to be also relatively the same in 2015 as obtained in 2005; and
- In Waterberg the dominant sector's economic contribution (mining and quarrying) is expected to decrease from 53% obtained in 2005 to 48% in 2015.

Table 2-11: Historic (2005) GVA and GDP for Limpopo Province

DISTRICT MUNICIPALITY	MAIN SECTOR											TOTAL GVA	TAXES LESS SUBSIDIES	TOTAL GDP
	AGRICULTURE	MINING	ELECTRICITY, GAS & WATER	CONSTRUCTION	WHOLESALE & RETAIL	TRANSPORT, STORAGE & COMMUNICATION	FINANCIAL	SERVICES	PRIVATE HOUSEHOLDS	OTHERS				
Capricorn	0.4	0.1	0.8	0.4	0.4	2.6	2.6	3.8	3.9	0.6	15.5	1.9	17.5	
%	2%	1%	5%	3%	2%	17%	17%	24%	25%	4%	100%			
Mopani	0.5	4.4	0.3	0.5	0.3	2.6	1.5	1.9	3.0	0.4	15.2	1.3	16.5	
%	3%	29%	2%	3%	2%	17%	10%	12%	19%	2%	100%			
Sekhukhune	0.2	1.2	0.3	0.2	0.1	0.7	0.4	0.7	1.5	0.1	5.5	0.7	6.2	
%	3%	22%	6%	4%	1%	12%	8%	13%	27%	3%	100%			
Vhembe	0.3	0.3	0.3	0.2	0.2	1.1	0.9	1.8	3.1	0.5	8.6	1.2	9.8	
%	3%	3%	4%	2%	2%	13%	10%	21%	36%	6%	100%			
Waterberg	0.4	9.8	0.6	0.7	0.3	1.4	1.6	2.0	1.4	0.3	18.6	1.1	19.7	
%	2%	53%	3%	4%	2%	8%	8%	11%	7%	1%	100%			

Source: National Transport Master Plan: Limpopo Chapter, 2007 Note: Constant 2000, prices, R million

Table 2-12: Current (2010) GVA and GDP for Limpopo Province

DISTRICT MUNICIPALITY	MAIN SECTOR										TOTAL GVA	TAXES LESS SUBSIDIES	TOTAL GDP
	AGRICULTURE	MINING	ELECTRICITY, GAS & WATER	CONSTRUCTION	WHOLESALE & RETAIL	TRANSPORT, STORAGE & COMMUNICATION	FINANCIAL	SERVICES	PRIVATE HOUSEHOLDS	OTHERS			
Capricorn	0.4	0.1	0.9	0.5	0.3	3.3	3.7	5.1	4.9	0.3	20.3	2.6	22.9
%	2%	0%	5%	3%	2%	16%	18%	25%	24%	2%	100%		
Mopani	1.4	5.2	0.4	0.7	0.4	3.3	2.0	2.5	3.7	0.5	19.1	1.7	20.8
%	7%	27%	2%	3%	2%	17%	10%	13%	20%	2%	100%		
Sekhukhune	0.2	1.6	0.4	0.3	0.2	0.8	0.6	1.0	1.9	0.2	7.1	0.9	8.0
%	3%	23%	6%	4%	2%	12%	9%	14%	27%	2%	100%		
Vhembe	0.3	0.3	0.4	0.3	0.2	1.3	1.2	2.1	3.9	0.2	10.5	1.6	12.1
%	3%	3%	4%	2%	2%	12%	11%	20%	37%	2%	100%		
Waterberg	0.5	11.8	0.9	1.0	0.4	2.0	2.4	2.6	1.7	0.4	23.7	1.6	25.3
%	2%	50%	4%	4%	2%	8%	10%	11%	7%	2%	100%		

Source: National Transport Master Plan, 2007 Note: Constant 2000, prices, R million

Table 2-13: Future (2015) GVA and GDP for Limpopo Province

DISTRICT MUNICIPALITY	MAIN SECTOR												
	AGRICULTURE	MINING	ELECTRICITY, GAS & WATER	CONSTRUCTION	WHOLESALE & RETAIL	TRANSPORT, STORAGE & COMMUNICATION	FINANCIAL	SERVICES	PRIVATE HOUSEHOLDS	OTHERS	TOTAL GVA	TAXES LESS SUBSIDIES	TOTAL GDP
Capricorn	0.5	0.1	1.3	0.7	0.0	4.3	5.2	6.7	6.5	0.9	27.3	3.5	30.9
%	2%	0%	5%	3%	0%	16%	19%	25%	24%	3%	100%		
Mopani	0.6	6.6	0.5	0.9	0.7	4.2	2.7	3.3	5.0	0.6	25.2	2.3	27.5
%	3%	26%	2%	4%	3%	17%	11%	13%	20%	2%	100%		
Sekhukhune	0.2	2.1	0.5	0.4	0.3	1.1	0.8	1.3	2.5	0.4	9.4	1.2	10.6
%	3%	22%	6%	4%	3%	12%	9%	14%	27%	4%	100%		
Vhembe	0.4	0.4	0.5	0.4	0.2	1.6	1.6	2.6	5.2	0.6	13.9	2.1	16.0
%	3%	3%	4%	3%	1%	12%	11%	19%	37%	5%	100%		
Waterberg	0.6	15.5	1.3	1.4	1.3	2.8	3.6	3.6	2.3	0.5	32.3	2.2	34.4
%	2%	48%	4%	4%	4%	9%	11%	11%	7%	1%	100%		

Source: National Transport Master Plan, 2007 Note: Constant 2000, prices, R million

For the least economic contributors per district the following are observed:

- Capricorn – mining and quarrying economic contribution is expected to decrease further from 1% to 0%;
- Mopani – the economic contribution for mining and construction is expected to increase from 0.3 million to 0.5 million and 0.7 million respectively;
- Sekhukhune – agriculture, hunting, forestry and fishing economic contribution is expected to remain constant;
- Vhembe – the economic contribution for construction will be constant while other services is expected to decrease from 6% to 5% and
- Waterberg – constructions economic contribution is expected to increase from 2% to 4% while that for other services is expected to be constant.

Factors Impacting on the Provincial Economy

According to the Limpopo Spatial Development Framework (LSDP): 2007, the major factors which impact on the provincial economy are as follows:

- **Income Levels (disposable income):** Aggregate income determines the levels of disposable income and therefore the demand for final goods and services. This includes both income earned from the formal and the informal sectors in the Province. The provincial economy will therefore also determine opportunities for economic development on local level (e.g. municipal areas and/or settlements). Local economic development is also directly influenced by the levels of disposable income as it determines the demand for goods and services. The current and future prospects to increase these levels of income (in real terms) are very important for meaningful economic development.
- **The Resource Base:** This refers to the available natural resources the Province has that can be used to enhance the economy. For instance agriculture (e.g. productivity of soils, grazing capacity) the availability of water and the occurrences of mineral commodities, all determine the scope of economic possibilities.
- **Labour:** This aspect deals with average wages paid for skilled and unskilled labour.
- **Infrastructure:** Service infrastructure is very important for economic development. The lack of service infrastructure or specific types of service infrastructure can have a very negative impact on economic development. The most important types of infrastructure are *roads, air transport, rail transport, electricity, water and telecommunication*. The provision and availability of the above-mentioned infrastructure is a cause for concern for economic development, although the impact and also the quality of these services vary from area to area in the Province. Water for example is a major cause for concern as the Province can be considered as “water poor “ and it can be expected that water will become increasingly scarce as the population size increases. Inter-basin transfer schemes already exist to alleviate water shortages in particular basins/areas.
- The budget for the specific financial year for the Limpopo Province.

2.3.4 Key Economic Projects

The key projects that are expected to drive freight transport in Limpopo are aligned to the following provincial development clusters namely:

- Platinum mining cluster on the Dilokong Corridor between Polokwane and Burgersfort (Sekhukhune district) and also in the Waterberg district;
- Coal mining and petrochemical cluster at Lephalale on the East-West Corridor (Waterberg district);
- Fruit and Vegetable (horticulture) cluster in Vhembe, Mopani and Bohlabela;

- Logistics cluster in Polokwane (Capricorn district);
- Red and White meat cluster on all the corridors (all districts);
- Eight tourism sub-clusters at a number of high-potential destinations; and
- Forestry cluster in the Mopani and Vhembe districts.

The projects are inclusive of:

1. Key projects emanating from platinum mining include the new platinum mines and smelter as well as the chrome mines and all ensuing up stream developments that emerge from these developments;
2. Expansion of the existing Grootgeluk Coal Mine and power station as well as the building of the aromatics extraction factory;
3. Development of a fruit and vegetable processing facility - Anchor project for the fruit and vegetable cluster;
4. Provision of intermodal transportation incorporating Polokwane International Airport, Rail Station and the proposed truck inn - this implies that air traffic will have to be induced by tendering to become a United Nations Depot for Sub Saharan Africa; and
5. Improvement of saw mills and other timber processing facilities to prevent risks and constraints associated with log production.

3. Economic Cluster Review

3.1 Introduction

This chapter aims at presenting the situational analysis of the freight and logistics market in Limpopo Province. The chapter covers the following topics:

- Section 1 (this section) describes the purpose of this chapter;
- Section 2 describes the Mining Economic Cluster in Limpopo;
- Section 3 describes the Agriculture and Horticulture Economic Cluster in Limpopo;
- Section 4 describes the Manufacturing Economic Cluster in Limpopo whilst;
- Section 5 presents the Profile of the Freight Logistics Sector in Limpopo;
- Section 6 presents an Assessment of the Economic Market in Limpopo; and
- Section 7 presents the Key Economic Cluster Challenges.

Before presenting the situational analysis of the economic market in Limpopo Province, it would be useful to define key terms for this study, namely Freight and Logistics, and Economic Cluster.

Freight and Logistics

Freight (Cargo) includes goods or produce usually conveyed for commercial gain. Freight Transportation or Logistics is the (all encompassing) process through which goods or produce are transported from one place to another. This can be through land (road and/or rail), air (aircraft), water (sea and/or waterways) and/or pipelines.

Economic Cluster

The concept of Economic Cluster argues that through the agglomeration of producers, customers and competitors, efficiency and specialization can be maximized. Firms and industries become more competitive and can breed positive spill-overs, which in turn promote constant innovation, thus long-term sustainability of the whole cluster. Clusters are highly dependent on massive capital investment and interdependency linkages amongst complementary industries and companies of a value chain.

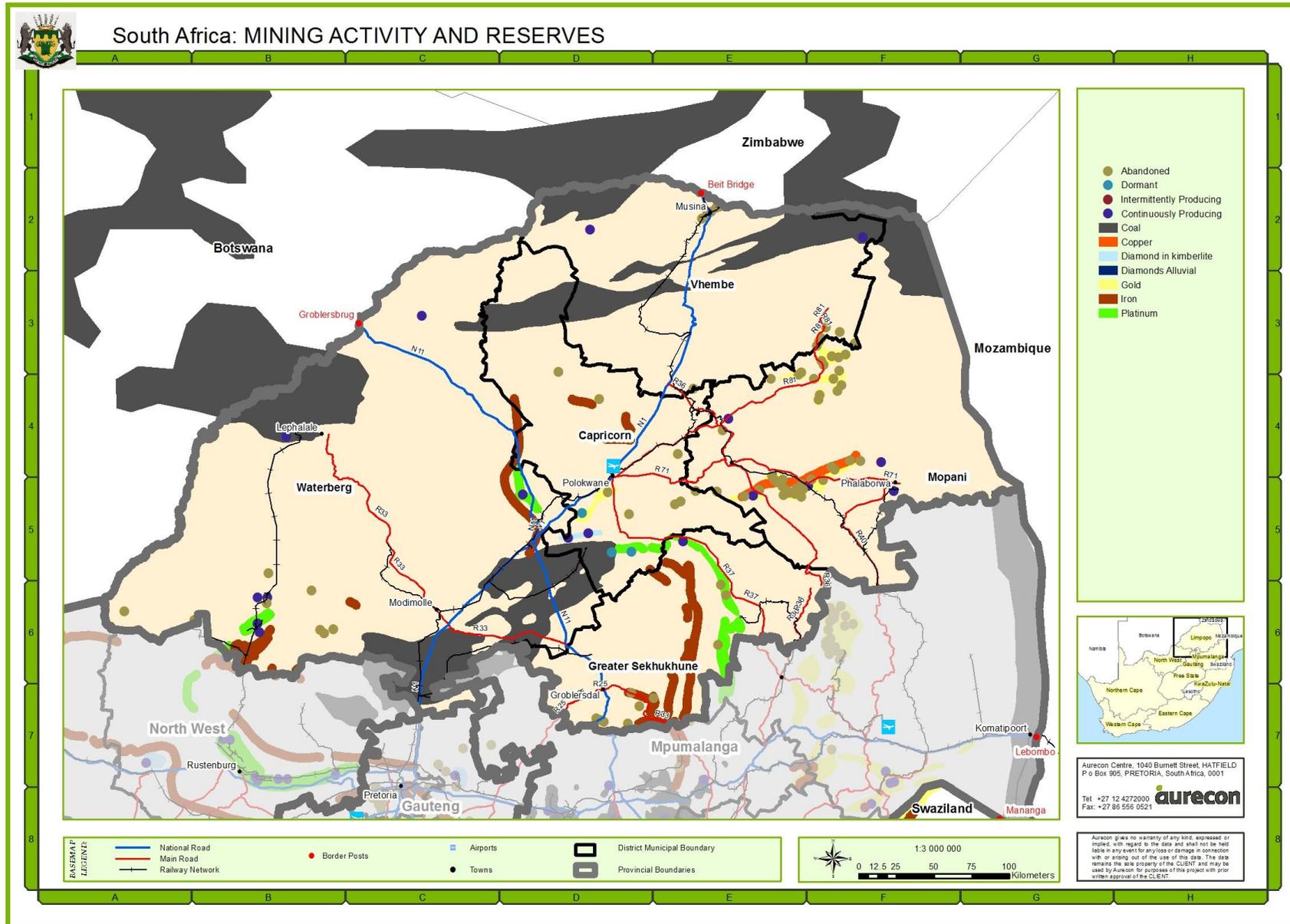
In Limpopo, the main economic clusters are Mining, Agriculture and Manufacturing. These will be analysed in more detail in the sub-sections that follow.

3.2 Mining Economic Cluster

The Limpopo Province is abundant in mineral resources and base commodities, such as black granite and corundum. Consequently, there are approximately 70 operating mines – with 20 being large-scale mines and 50 small to medium scale mines, making the mining sector a major contributor to the provincial GDP. Map 3-1 illustrates the mining activities as well as reserves found in the Province as well as coal reserves in the neighbouring countries (Botswana and Zimbabwe). From the figure, it is evident that the active mines are almost evenly distributed within the Province and accessible by the Province's transport network.

Please note that the coal reserves indicated on Map 3-1 of the neighbouring countries are schematic for the purpose of giving indicative linkages to the coal reserves of Limpopo Province.

Map 3-1: Mining Activity and Reserves in Limpopo Province and Neighbouring Countries



The NATMAP Limpopo Province Report highlighted the most important minerals that have an influence on freight transportation, namely platinum, coal, copper, diamonds, iron ore and gold. Table 3-1 presents major existing and potential. The following major mining activities are observed in the Province:

- **Platinum Group Metals**, namely nickel, copper and cobalt are currently being exploited on the farm Sandsloot, Furthermore the platinum and chromium are mined at the Modikwa, Marula, Lebowa, Messina, Northam and Amandelbult platinum mines as well as at the Dilokong and Montrose chromite mines.

Whereas Platinum is usually smelted on site and is therefore not transported in large tons, Chrome ore is transport in large tons. Iron ore is found in the Thabazimbi area and Copper is found in the Phalaborwa area, however these mineral are becoming depleted.

- Large **Coal deposits** are found in the Waterberg region, in the vicinity of Lephalale (Ellisras), Soutpansberg (along the northern flank of the Soutpansberg Mountains), Limpopo (along the southern bank of the Limpopo River, west of Musina) and Springbok Flats coalfields. The coalfields contain large reserves of coal, estimated to be 40% of South Africa's potential coal reserves.

In 2005, the coal output was estimated at 18 million tons. Approximately 79% (i.e. 14 million tons) was transported to Matimba Power Station, via a conveyer line. The remaining 21% (i.e. 3.7 million tons) was transported by rail (3.2 million tons) and road (530,000 tons) to Gauteng, Western Cape, KwaZulu-Natal and North West Provinces. The bulk of the 3,17 million tons was railed to Vereeniging (851,912 tons), Richards Bay (754,187) and Saldanha (444,151 tons). It is envisaged that coal production will increase to between 27 - 33 million tons per annum to supply the planned 2,250 megawatt base load power station near Lephalale. The other coal mine, namely the Tshikondeni mine (Musina) is found in the Soutpansberg coalfield. It yields high-grade cooking coal for local steel mills.

- **Copper, Iron Ore and Phosphates** are found in the Phalaborwa Complex, which is one of the world's great mineral repositories, contains large deposits of copper, magnetite (iron ore) and apatite (phosphates), as well as the world's largest deposit of vermiculite (an expanding mica used in horticulture, agriculture and construction).
- **Diamonds exploration**, found to the west of Musina, is being exploited by the Venetia kimberlite mining operation.
- The quartz and feldspar rich **granitic rocks** associated with the Bushveld Complex are being exploited as dimension stone, west of the Potgietersrus Platinum mine, at various quarries. There are numbers of large and small quarrying operations in Limpopo, primarily in the area near to Mokopane, where granite outcrops provide the material for cut dimension stone. The stone is produced in the form of blocks for export or worked locally to produce machined slabs for further working as tombstones, counter tops, paving, floor tiles and surface plates for building decoration. The estimated output of the industry in Limpopo is approximately 50,000 tons per year. Total granite exports through the port of Durban for 2004 (from all Provinces) were 119,000 tons.
- **Magnetite** is recovered as part of the copper mining process in the Phalaborwa area. Approximately 2 – 3 million tons was exported to China, mainly. There was also a stockpile of over 300 million tons from earlier mining activities when there was no market for magnetite. Exploitation of this stockpile is dependent on increasing rail capacity on the route through Swaziland to Richards Bay or to Maputo, as can be seen in Table 3-1.

Table 3-1: Major Existing and Potential Mining Areas

MINERAL	SECONDARY MINERALS	AREA (MAJOR TOWN OR CENTROID)	EXISTING LARGE-SCALE MINING	LIFESPAN OF RESERVES	PREDICTED START OF MINING ACTIVITIES	BULK-VOLUME TRANSPORTATION	POTENTIAL TRANSPORTATION DESTINATION	GENERAL COMMENTS
Coal	n/a	Pontdrif	No		20-30 years	Yes	Richards Bay	<ul style="list-style-type: none"> No rail access
		Makhado (Louis Trichardt)	No		20-30 years	Yes	Richards Bay	
		Ellisras	Yes	0-50 years		Yes	Richards Bay	<ul style="list-style-type: none"> 55% of national coal reserves Coal currently used for Matimba power station Plans to build additional Eskom power station Export-grade coal not used for power stations Plans to build Sasol plant Lack of water
	Uranium	Bela-Bela	No		10-20 years	Yes	Richards Bay	
Platinum	Chrome	Mokopane (Potgietersrus)	Yes	0-50 years	Mining activities can be extended	No		<ul style="list-style-type: none"> Production is limited to 2% annual international demand for platinum
	Chrome & iron ore	Steelpoort	Yes	0-50 years	Mining activities can be extended	Platinum - no, Iron - yes	Iron to Witbank & Vereeniging	<ul style="list-style-type: none"> Production is limited to 2% annual international demand for platinum
Copper	Phosphate	Phalaborwa	Yes	0-10 years		Yes	Maputo Harbour	<ul style="list-style-type: none"> Limited reserves left
Diamonds	n/a	Alldays	Yes	0-50 years		No		
Iron Ore		Thabazimbi	Yes	0-20 years		Yes	Witbank & Vereeniging	<ul style="list-style-type: none"> Long term survival of area is affected by limited reserves

Source: NATMAP Limpopo Province, October 2008

The Limpopo Employment, Growth and Development Plan 2009 – 2014 outlined key strategic interventions for mining and mineral beneficiation as follows:

- Development of Mining Input Suppliers Parks and Beneficiation Hubs, that will function as a logistical, supplier-development manufacturing innovation centre; and
- Exploiting of untapped minerals, with 57% mineral occurrences and 11% of mineral never exploited.

The potential locations of the envisaged Mining Suppliers Parks, Beneficiation Hubs as well as the location of the untapped mineral resources were unknown during the preparation of this report.

3.3 Agriculture and Horticulture Economic Cluster

Limpopo Province constitute of a surface area of approximately 11.96 million hectares, with 70% being commercially exploited whilst 30% is occupied by emerging farmers. **Table 3-2** shows land utilisation in the Province by type of farming.

Table 3-2: Land Utilisation in Limpopo by Type of Farming

LAND USE TYPE	TOTAL AREA (HA)	FARM LAND (HA)	POTENTIALLY ARABLE LAND (HA)	GRAZING LAND (HA)	NATURE CONSERVATION (HA)	FORESTRY (HA)
Developing Agriculture Land	3,612,400	3,394,518	530,700	2,863,818	127,200	6,060
Commercial Agriculture	8,348,200	7,153,772	1,169,742	5,984,030	1,034,400	59,350
Total	11,960,600	10,548,290	1,700,442	8,847,848	1,161,600	65,410

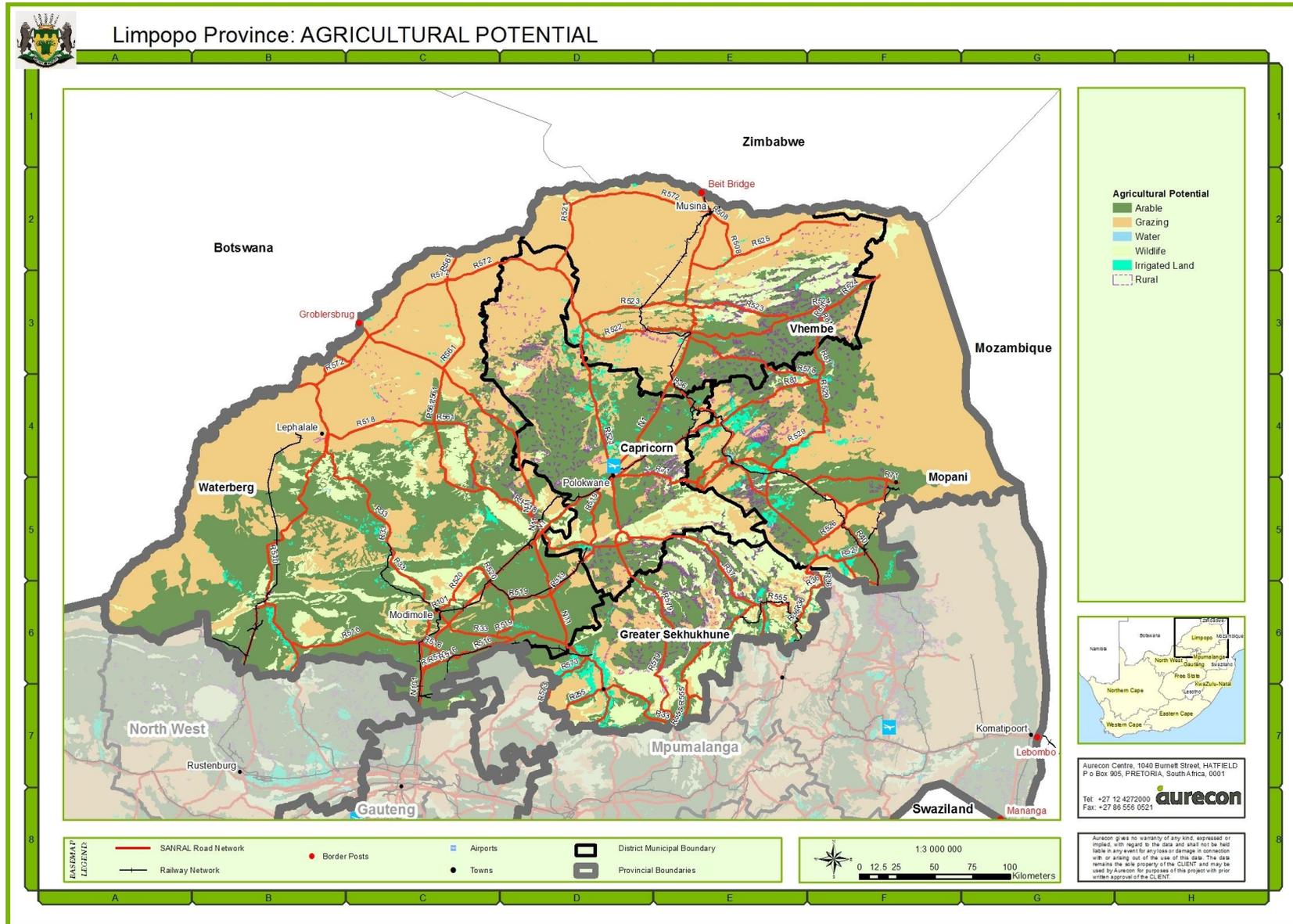
Source: NATMAP Limpopo Province, October 2008

Approximately 14% of the total land area has potential for cultivation purposes and the rest is only suitable for grazing, nature conservation, forestry, farmland and non-agricultural usage. Map 3-2 illustrates the agricultural potential in Limpopo. The illustration of Limpopo's agricultural potential is further supported by Map 3-3, which indicated that most tropical fruit production is conducted in Tzaneen and Makhado, and other products such as sunflowers, peanuts and maize are cultivated in Modimolle and Bela-Bela.

Map 3-3 also illustrates that the high cultivation areas in Limpopo are easily accessible from the Polokwane International Airport, which means that there is great potential for air freight to transport perishable goods from the agriculture/horticulture industry to local, regional and international markets.

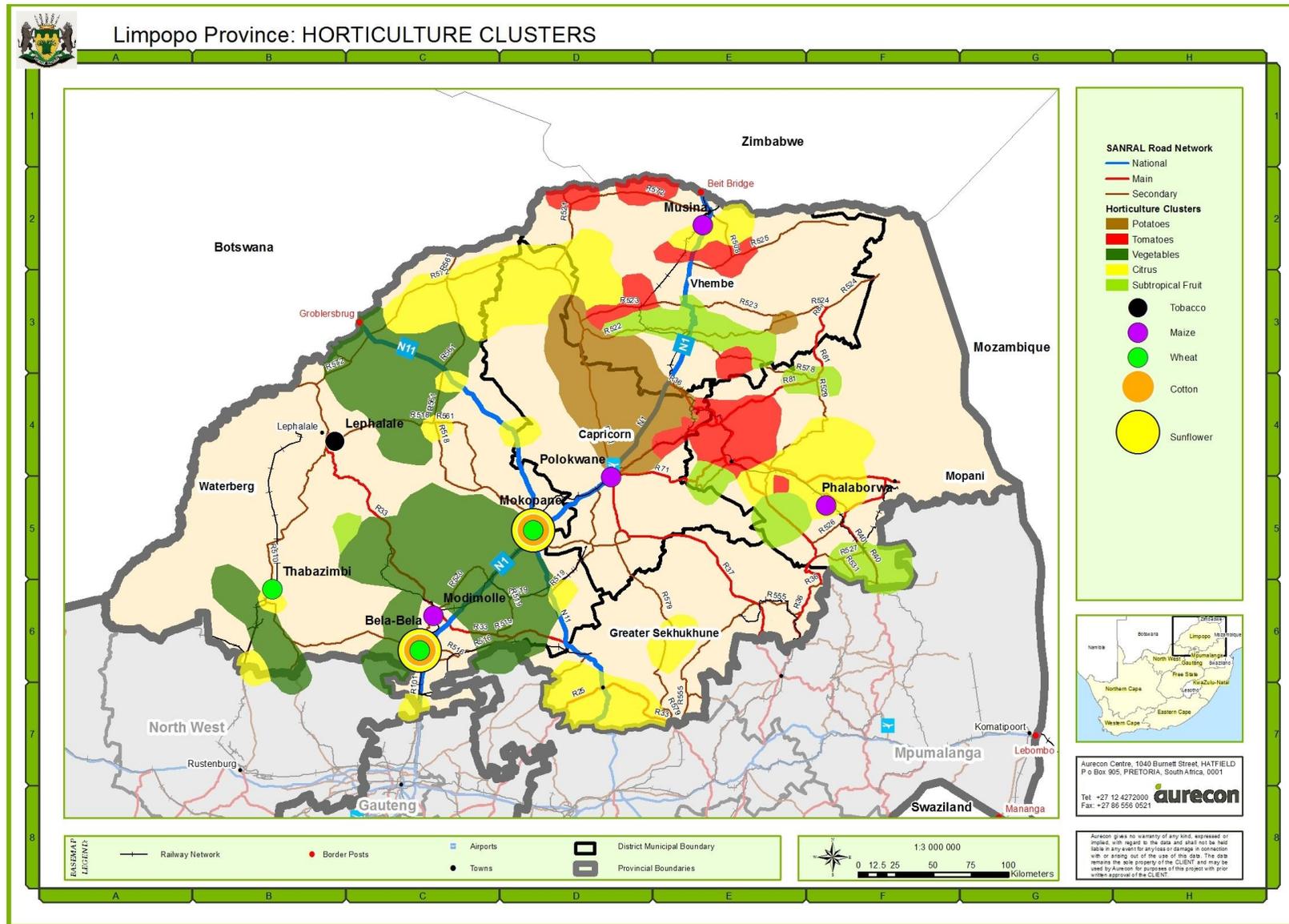
Map 3-4 indicates processing areas for the horticultural cluster. Thus where the horticulture products feeds into the industry whereby these products are supplied to a factory/ processing plant from which it is then exported to retail suppliers.

Map 3-2: Agricultural Potential in Limpopo



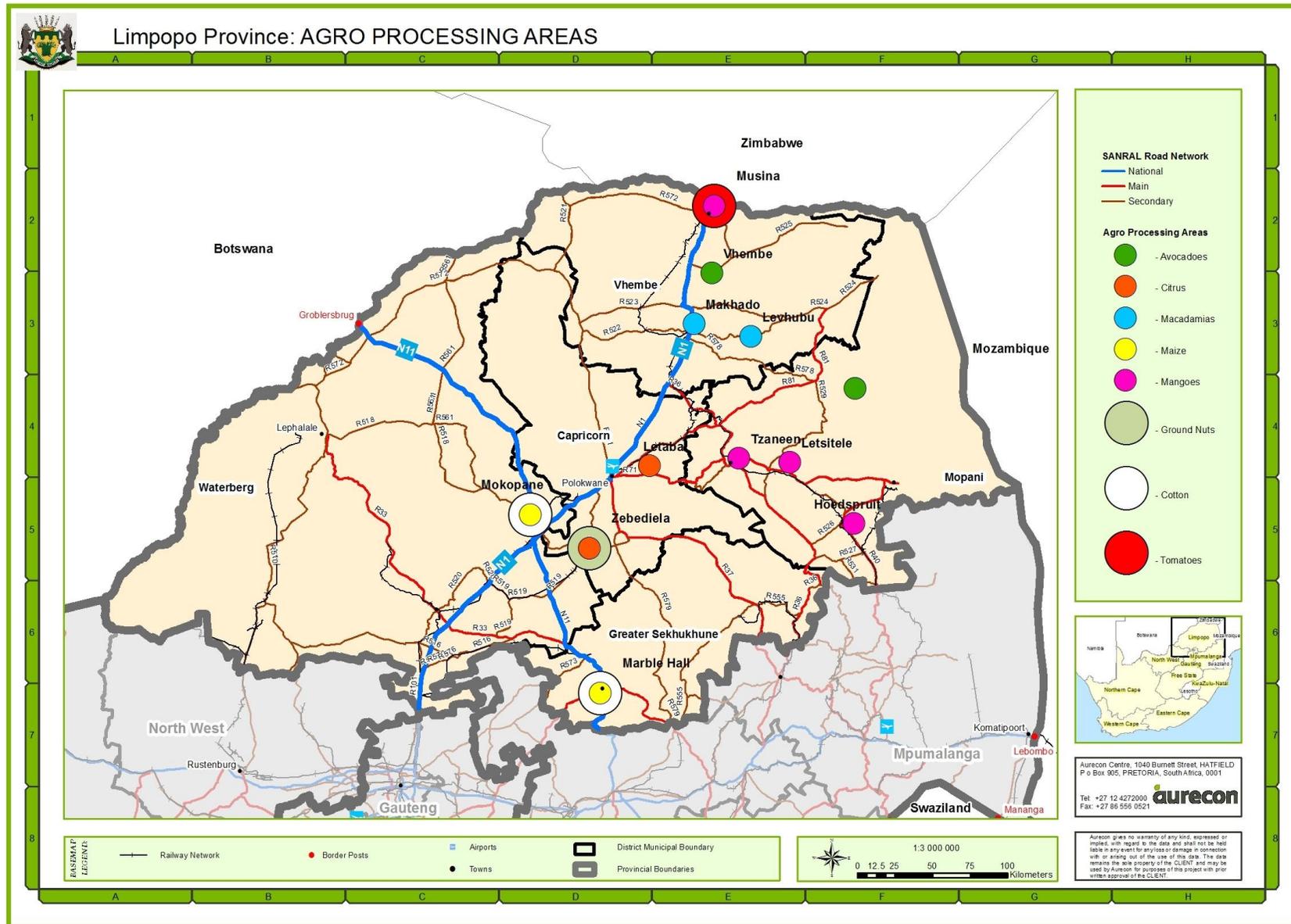
Source: NATMAP Limpopo Province, October 2008

Map 3-3: Limpopo Horticulture Cluster



Source: Based on Map 3 of the Limpopo Growth and Development Strategy, 2005

Map 3-4: Horticultural Processing Areas



3.3.1 Fruit

- **Sub-tropical Fruit:** Limpopo is one of South Africa's main fruit producing areas producing more than 15,000 hectares of sub-tropical fruit⁵ orchards and about 35,000 hectares of citrus⁶ plantations. In 2003 Limpopo produced 31% of the country's sub-tropical fruit and approximately 25% of the citrus production.

Further observation includes:

- Production of approximately 60% of the national avocado production (46 920 tons),
- 75% of South Africa's mangoes (39 057 tons),
- 65% of paw paws (10 465 tons),
- 25% of bananas (57 275 tons), and
- 20% each for litchis and guavas. 60 – 65% of the avocados are exported.

Most of the fruit is packed and sold fresh for direct retail distribution and consumption but some of the sub-tropical fruit such as guavas and mangoes are processed into dried fruit and packed and distributed all over South Africa, usually via Gauteng-based distribution channels. The proportion of South African Fruit Production originating from Limpopo is indicated in Table 3-3.

Table 3-3: Proportion of South African Fruit Production originating from Limpopo

PRODUCE	SOUTH AFRICA				SA EXPORTS		LIMPOPO% OF SA TONS
	PRODUCTION (TONS)	LOCAL MARKETS (TONS-SALES)	LOCAL PROCESSING (TONS)	LIMPOPO ESTIMATED PRODUCTION (TONS)	TONS	%	
SUB-TROPICAL FRUITS							
Avocados	78,200	21,128	6,040	46,920	51,032	65	60
Bananas	229,100	209,845	1,924	57,275	17,331	8	25
Pineapples	171,700	21,528	143,639	17,170	6,533	4	10
Mangoes	52,100	16,654	11,640	39,075	23,806	46	75
Paw Paw	16,100	11,134	1,337	10,465	3,629	23	65
Granadillas	1,500	1,093	176	300	231	15	20
Litchis	4,300	2,566	1,229	860	505	12	20
Guavas	27,700	2,852	24,302	5,540	546	2	20
Sub-Total	580,700	286,800	190,287	177,605	103,613	18	31
CITRUS FRUIT							
Oranges	1,265,247	126,525	316,312	506,099	822,410	65	40
Grapefruit	268,195	21,456	67,049	67,049	179,690	67	25
Lemons	189,258	15,141	47,315	47,315	126,802	67	25
Naartjies	109,783	14,272	27,446	27,446	68,065	62	25
Soft Citrus	63,441	5,710	15,860	15,860	41,871	66	25
Sub-Total	1,895,924	183,104	473,982	663,769	1,238,838	65	35
Total	2,476,624	469,904	664,269	841,374	1,342,451	54	34

Source: NATMAP Limpopo Province, October 2008

- **Citrus:** Zebediela area was formerly one of South Africa's main orange producing areas but in recent years the extensive orchards have fallen into decline. The current main

⁵ Avocados, Guavas, Paw Paw, Mangoes and Bananas

⁶ Oranges, naartjies, clementines, grapefruit, lemons and soft citrus species

producing areas are Letaba, Musina and Phalaborwa, with 80% of the citrus production. Citrus is also grown in the Waterberg area where irrigation is available.

In 2003 citrus fruit production was recorded as follows:

- Over 500 000 tons of oranges (approximately 25% of the national production);
 - Approximately 67 000 tons of grapefruit (approximately 25% of the national production);
 - 43 000 tons of lemons (approximately 25% of the national production);
 - 27 000 tons of naartjies (approximately 25% of the national production); and
 - 15 000 tons of soft citrus (approximately 25% of the national production).
- **Macadamia Nuts:** Macadamia nuts are produced in Limpopo, mainly in the Letaba area and the Soutpansberg district. Other areas in the country include Letaba, Hazyview, KwaZulu-Natal South Coast and White River. The annual production of macadamia in the Province is approximately 7,000 tons from 4,860 hectares of orchards, which account for 54% of the country's total production. A large proportion of the production is exported. According to the PIA Development Option Feasibility Study (2009), it is estimated that South Africa has approximately 1million trees, which will double over the next 5 years.

3.3.2 Vegetables

- **Potatoes:** Potato production in Limpopo is concentrated around Capricorn and Mokopane districts. The annual production in 2005 was 304,000 tons from 7,782ha. Limpopo is the second largest producer of potatoes in the country, accounting for 18% of South Africa's total production. Refer to Table 3-4 below.

Table 3-4: Potatoes Production per Province (2005)

PROVINCE	PLANTATION AREA (HA)	HARVEST (10KG)	PRODUCTION REGION	PLANTATION AREA (HA)	HARVEST (10KG)	HARVEST %
Mpumalanga	4,744	17,227,150	Mpumalanga	3,189	11,551,400	6.7
			Marble Hall	1,555	5,675,750	3.3
Limpopo	7,782	30,450,620	Limpopo	7,782	30,450,620	17.7
North West	1,411	5,832,500	North West	1,411	5,832,500	3.4
Gauteng	847	2,423,000	Gauteng	847	2,423,000	1.4
KZN	3,815	13,125,575	KZN	3,815	13,125,575	7.7
Free State	17,954	50,934,255	W. Free State	5,815	20,787,055	12.1
			SW Free State	1,831	5,422,400	3.2
			E. Free State	10,272	24,724,800	14.4
W. Cape	8,376	33,550,303	Sandvlei	6,442	25,899,810	15.1
			Ceres	741	3,848,900	2.2
			SW Cape	502	1,642,289	1.0
			S. Cape	691	2,159,304	1.3
N. Cape	1,791	6,751,000	N. Cape	1,791	6,751,000	3.9
E. Cape	3,577	11,350,959	E. Cape	1,767	5,437,600	3.2
			NE Cape	1,810	5,913,359	3.5
Total	50,297	171,645,362	Total	50,261	171,645,362	100

Source: NATMAP Limpopo, October 2008

- **Tomatoes:** Limpopo is the main tomato growing area in South Africa, producing 66% of the total annual tonnage of tomatoes. The main production areas are Letaba with 3,259ha plantation and Musina with 859ha plantation. Tomatoes are also planted in

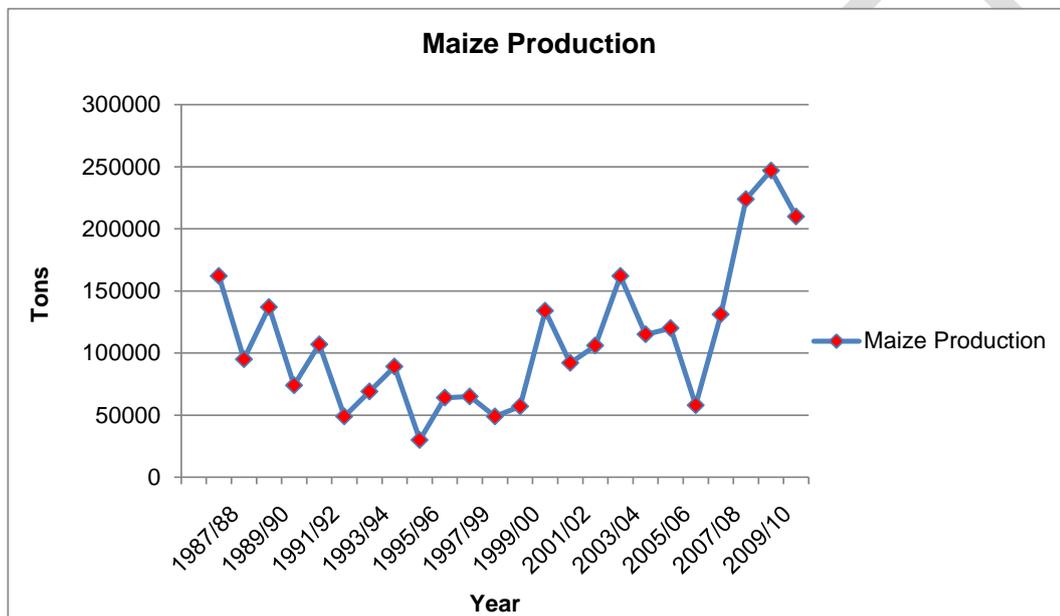
smaller areas in Mopani (Giyani), Capricorn (Polokwane) and Mokopane districts. Total Limpopo annual production is approximately 227,990 tons of tomatoes of the total South African production of 345,440 tons (33% of SA total).

3.3.3 Grain and Seeds

Grain and seeds are grown in many parts of South Africa but the largest production areas are in the Free State, Mpumalanga, with Limpopo being a lesser producer. The milling and distribution of grain and seeds in Limpopo is concentrated in a few areas with mills in Polokwane, Makhado, Hoedspruit and Modimolle.

- Maize:** Maize is primarily cultivated in Waterberg, Makopane, Warmbad, Ellisras and Thabazimbi areas. Figure 3-1 presents the trend of maize produced over the years in Limpopo Province.

Figure 3-1: Historic Maize Production in Limpopo Province



Source: Limpopo Freight Databank (2012)

Figure 3-1 shows that maize production in the Province has been fluctuating over the years. The highest production of about 247,000 tons was obtained in 2008/2009 and the lowest produce of about 30,000 per annum was achieved in 1994/1995.

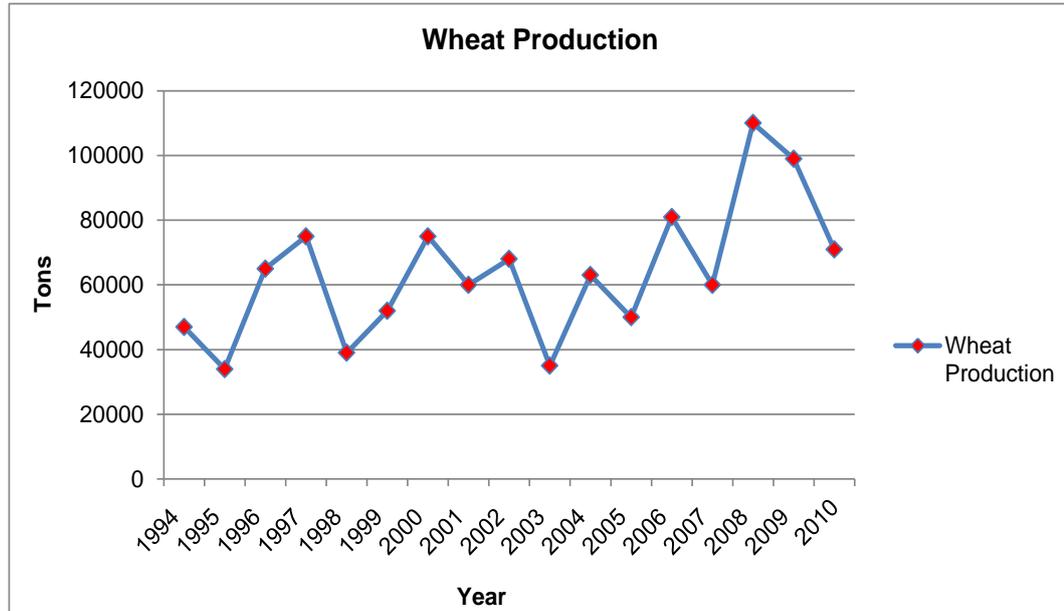
In the 2004/05 period there was approximately 34,000ha of land devoted to white maize plantation and 10,000ha for yellow maize plantation, mainly in the southern regions of the Province. However in 2007, the land dedicated for maize cultivation as well as production increased significantly. About 36,743 ha of land were cultivated with maize, yielding a produce of about 141,346 tons per annum.

The annual crop in 2004/05 for white and yellow maize was approximately 101,400 tons and 20,000 tons respectively. In the 2005/06 the maize produce reduced to 42,000 tons of white maize and 15,600 tons of yellow maize.

- Wheat:** The main concentration of wheat cultivation in the Province is in the Thabazimbi, Mokopane and Bela-Bela areas. Figure 3-2 provides wheat production trend observed over the years – it illustrates that wheat production have been inconsistent over the past years. The highest wheat production was attained in 2008 (about 110,000 tons) and least produce was acquired in 1995 (34,000 tons).

According to the Limpopo Census of Commercial Agriculture report, 2007, land dedicated for wheat cultivation decreased in 2007 to about 12,454ha. This consequently resulted in a reduced production per annum of about 42.075 tons.

Figure 3-2: Historic Wheat Production in Limpopo Province



Source: Limpopo Freight Databank (2012)

As shown in Table 3-5 below, Limpopo produced 50,000 tons of wheat in 2005 and the estimated annual tonnage in 2006 is 99,000 tons.

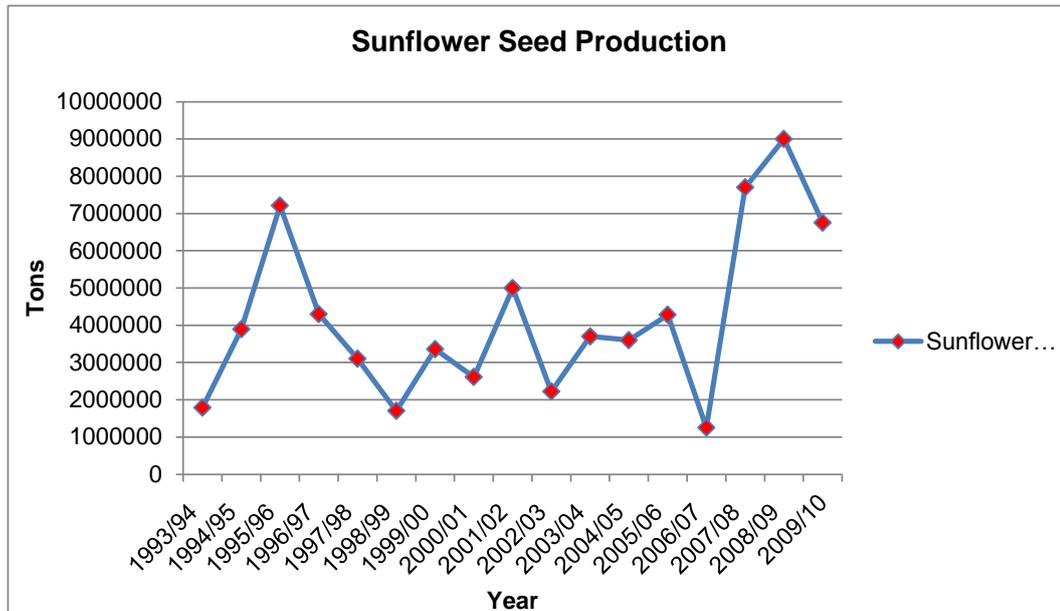
Table 3-5: Wheat Area Plantation and Production Estimates (2006 Season)

PROVINCE	2006			2005	
	AREA PLANTED (HA)	SIXTH ESTIMATE (TONS)	FIFTH ESTIMATE (TONS)	AREA PLANTED (HA)	FINAL CROP (TONS)
Western Cape	285,000	712,500	698,250	302,000	645,000
Northern Cape	42,000	260,000	252,000	48,500	306,000
Free State	360,000	810,000	828,000	380,000	580,000
Eastern Cape	2,500	8,750	8,750	4,000	14,500
KwaZulu-Natal	6,800	30,600	29,920	9,000	41,500
Mpumalanga	15,000	82,500	84,000	18,000	92,000
Limpopo	22,000	99,000	99,000	11,000	50,000
Gauteng	2,000	10,800	10,800	2,500	14,000
North West	29,500	147,500	150,450	30,000	162,000
Total	764,00	2,162,050	2,161,170	805,000	1,905,000

Source: NATMAP Limpopo, October 2008

- Sunflower:** Sunflower for seed production is mainly planted in the southern region in the Bela-Bela and Mokopane area, with the area varying from year to year due to weather predictions. Figure 3-3 indicates the sunflower seed production in the Province over the past years.

Figure 3-3: Historic Sunflower Seed Production in Limpopo Province



Source: Limpopo Freight Databank (2012)

Over 1 million tons of sunflower seed have been produced annually in the Province over the past 17 years. The maximum sunflower seed production were observed in 1995/1996 and 2008/2009 of about 7.2 million tons and 9.0 million tons respectively. In 2005/06, Limpopo produced 42,800 tons of sunflower from 47,000 hectares of land. The year 2006/2007 saw the least provincial sunflower production of about 1.25 million tons. According to the Limpopo Census of Commercial Agriculture report of 2007, about 39,853 tons of sunflower seed were produced, in the year 2007 on a 37,401 ha of land.

- Cotton:** The Province is one of the leading cotton producing areas in South Africa as can be seen from Table 3-6. Limpopo used to produce 38% of cotton in the republic but this has reduced to 19% because of the production challenges faced by the industry. In Limpopo the main cotton producing area is Bela-Bela to Mokopane area.

Approximately 21,987ha were planted in South Africa in 2004/05, this area reduced from 36,000 hectares in 2003/04. Approximately a quarter of the area planted in South Africa is within Limpopo. In 2004/05 Limpopo produced approximately 20 301 bales, but as shown in the table below this reduced to 14,725 bales in 2005/06.

Table 3-6: Cotton Cultivation in South Africa

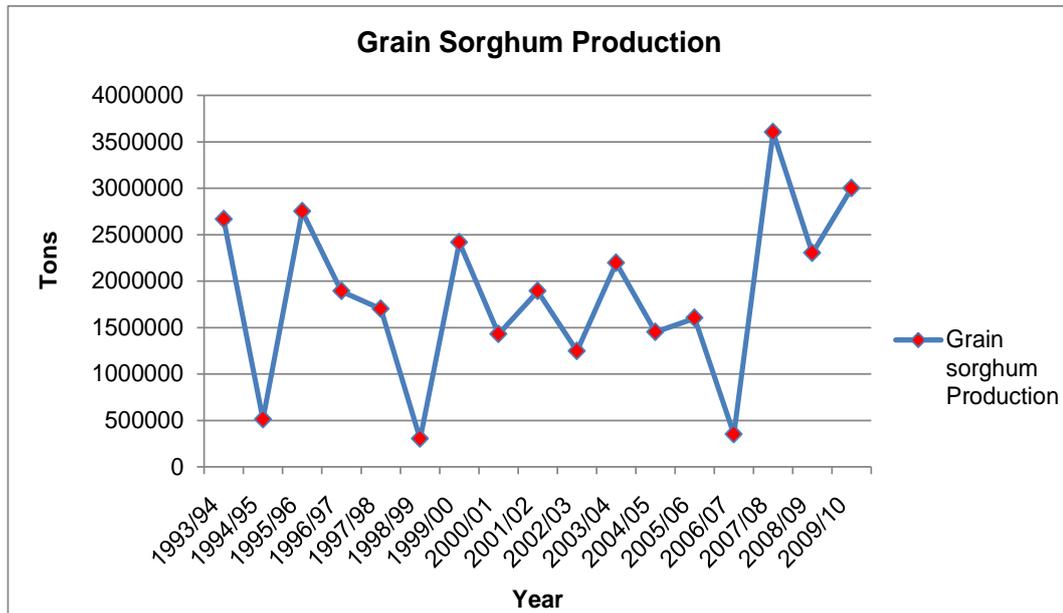
PROVINCE	IRRIGATED LAND (HA)	DRY LAND (HA)	YIELD PER IRRIGATED LAND (COTTON P/HA)	YIELD PER DRY LAND (COTTON P/HA)	PRODUCTION (200 KG BALES COTTON LINT)	CROP % HAND-PICKED
Mpumalanga	5,359	970	3,853	701	38,397	26
Limpopo	1,380	3,687	3,886	805	14,725	15
Northern Cape	1,933	142	3,900	700	14,130	10
KwaZulu-Natal	1,650	5,200	2,500	650	13,884	40
North West	150	0	3,800	0	1,055	0
Orange River	262	0	3,682	0	1,784	40
Eastern Cape	848	0	1,500	0	2,353	100
RSA Total/Ave.	11,582	9,999	3,495	676	86,328	26

Source: NATMAP Limpopo, October 2008

- Tobacco:** The main tobacco production region in Limpopo is the Ellisras - Waterberg area, which produces approximately 3,150 tons of air-cured tobacco from 1,000ha and approximately 7,800 tons of flue-cured tobacco from 2,400ha of land.

- Sorghum:** Figure 3-4 provides the sorghum grain production in Limpopo over the past years.

Figure 3-4: Historic Sorghum Grain Production in Limpopo Province

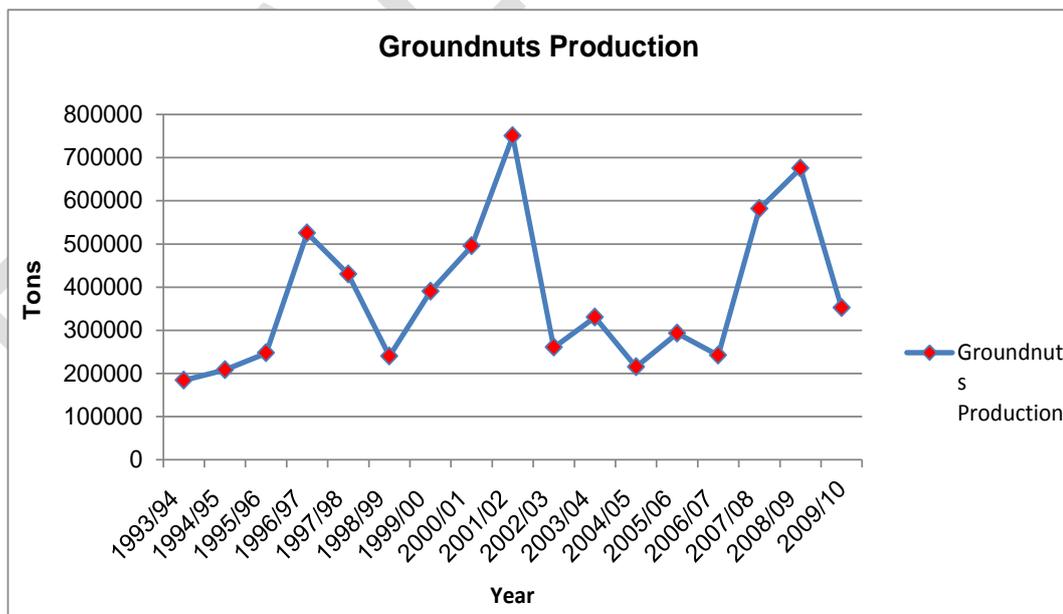


Source: Limpopo Freight Databank (2012)

Sorghum production has been fluctuating over the past years in the Province. The highest provincial sorghum production of about 3.5 million tons was achieved in the year 2007/08. Drastic reductions in its production were observed in 1994/95 (510,000 tons), 1998/99 (300,000 tons) and 2006/07 (350,000 tons).

- Groundnuts:** Figure 3-5 provides the historic ground nuts production in Limpopo over the past years.

Figure 3-5: Historic Ground Nuts Production in Limpopo Province



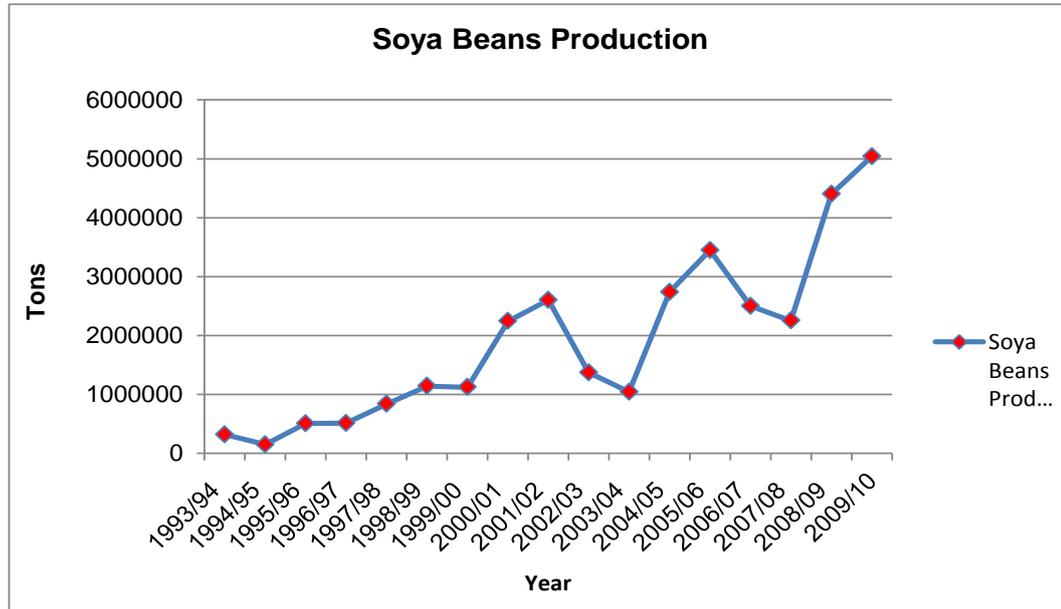
Source: Limpopo Freight Databank (2012)

There is an inconsistent trend of ground nuts production in the Province over the past 17 years. Maximum production of 750,000 tons and 675,000 tons was attained in 2001/02 and 2008/09 respectively. The lowest groundnut production of about 184,000

tons was seen in 1993/94. Production also declined in 2009/2010 to 352,000 tons compared to the production 2008/09.

- Soya beans:** Figure 3-6 provides the historic soya beans production in Limpopo over the past years.

Figure 3-6: Historic Soya Beans Production in Limpopo Province

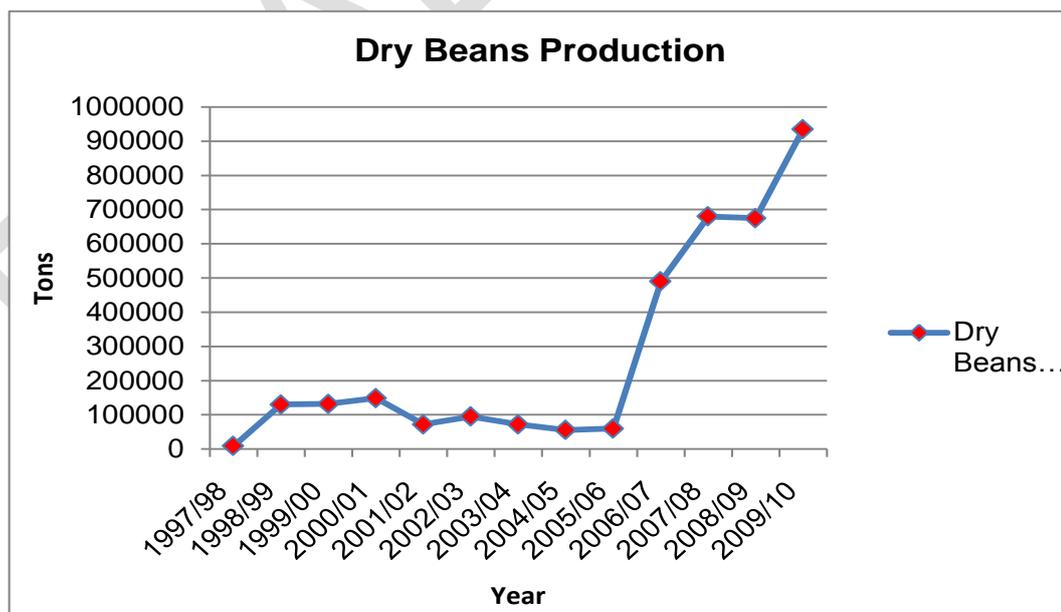


Source: Limpopo Freight Databank (2012)

The figure shows an increasing trend in soya beans production in the Province from 1993/94 to 2001/2002. From the year 2002/2003 a fluctuating production trend was observed over the years. The highest ground nut production was seen in 2009/2010 (5.0 million tons) and the least in 1993/94 (316,000 tons).

- Dry Beans:** The historic production in Limpopo over the past years is presented in Figure 3-7.

Figure 3-7: Historic Dry Beans Production in Limpopo Province



Source: Limpopo Freight Databank (2012)

The figure illustrates a relatively constant production of dry bean between the years 1998 and 2000. A decline in production was observed between 2002 and 2006. From

2006/07 to 2009/2010 a significant increase in production was achieved. The maximum production of 935,000 tons was attained in the year 2009/2010.

3.3.3.1 Agricultural Production Variability

The year-on-year change in crop production is illustrated through figures Figure 3-8 to Figure 3-14.

Figure 3-8: Year-on-Year Change in Maize Production

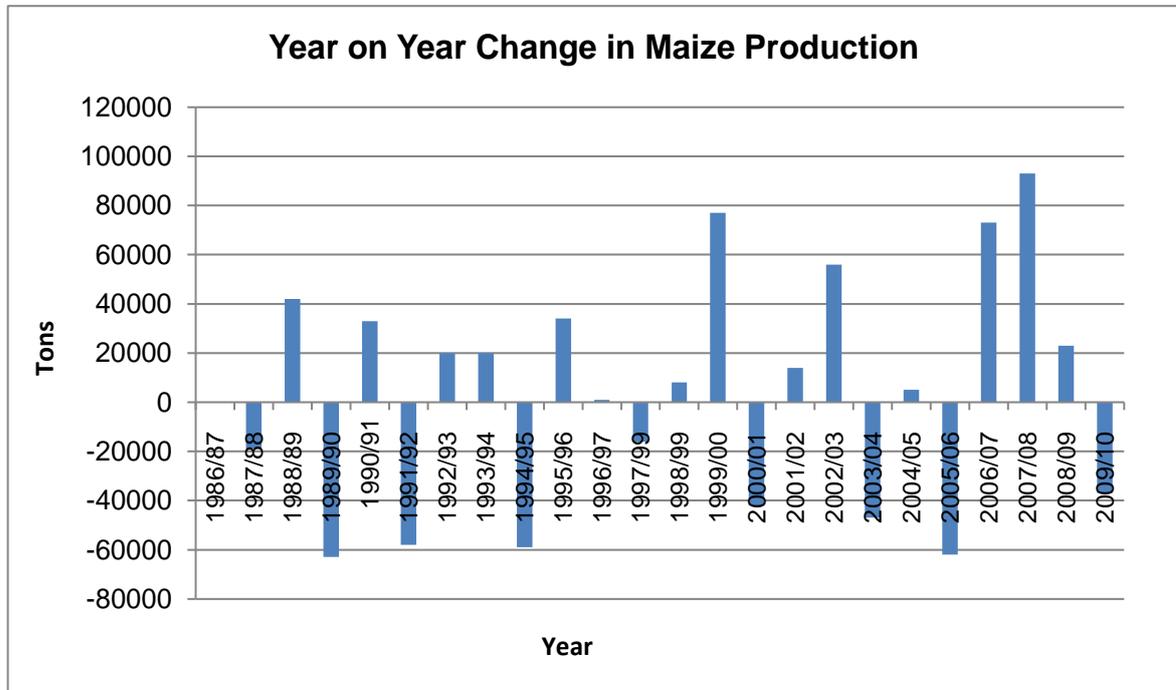


Figure 3-9: Year-on-Year Change in Wheat Production

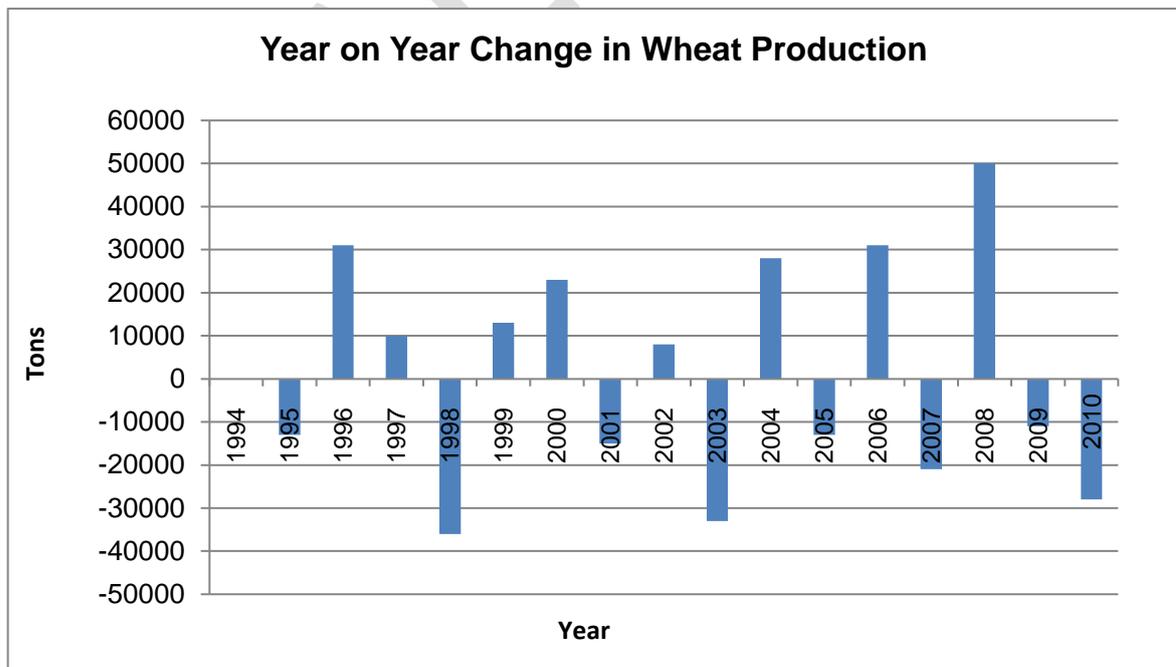


Figure 3-10: Year-on-Year Change in Sorghum Production

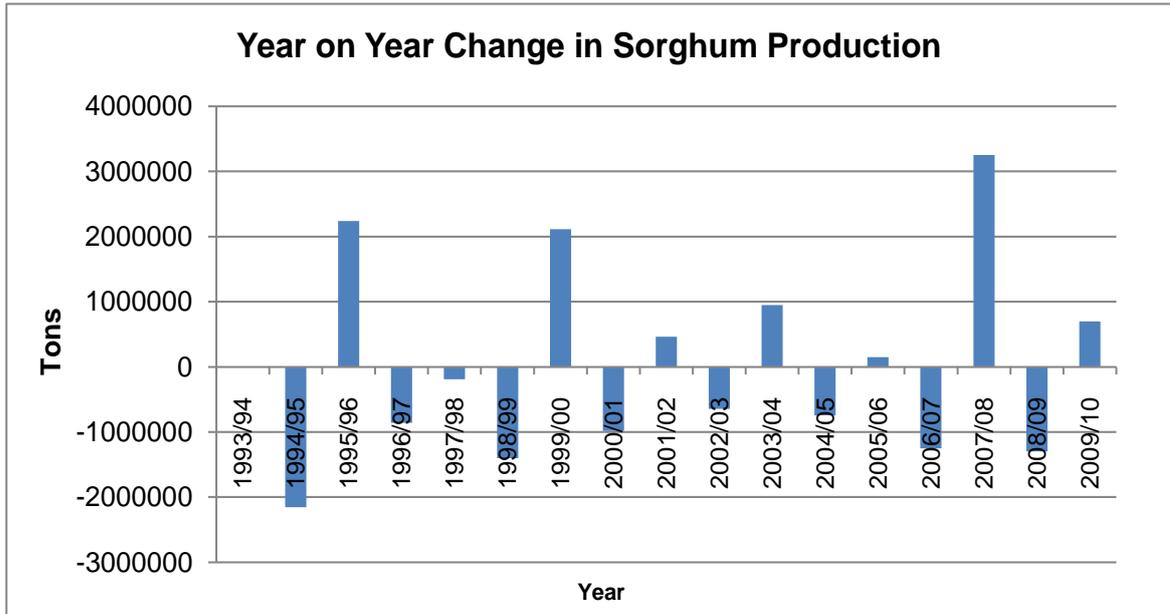


Figure 3-11: Year-on-Year in Groundnuts Production

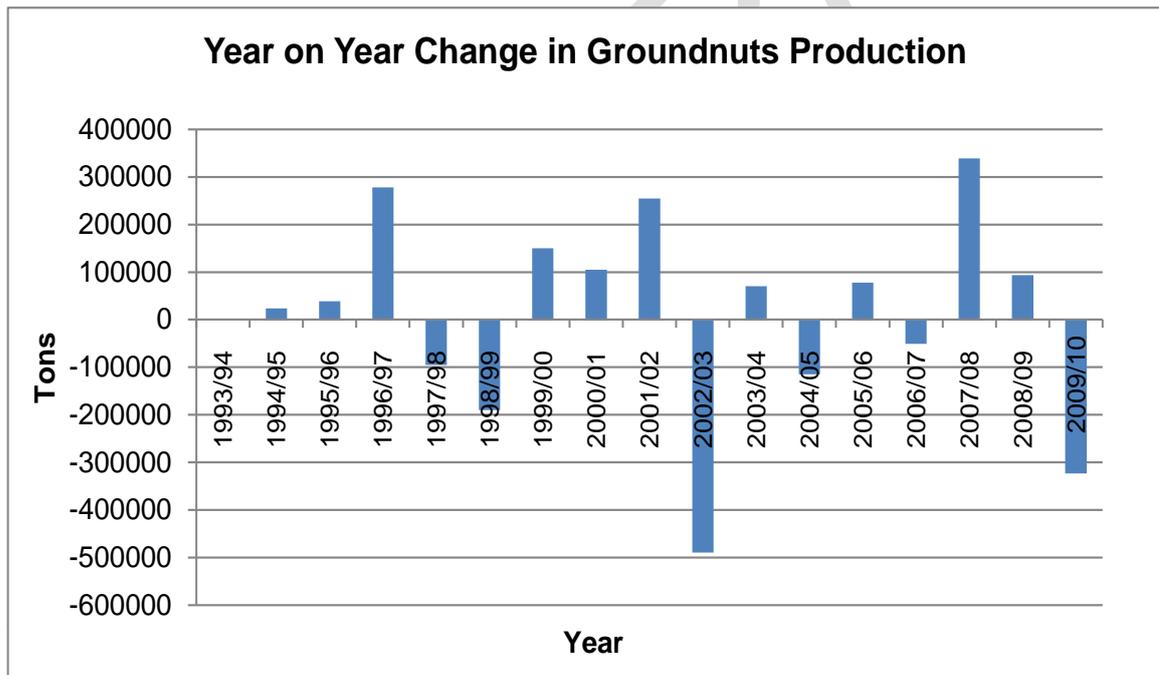


Figure 3-12: Year-on-Year in Sunflower Seed Production

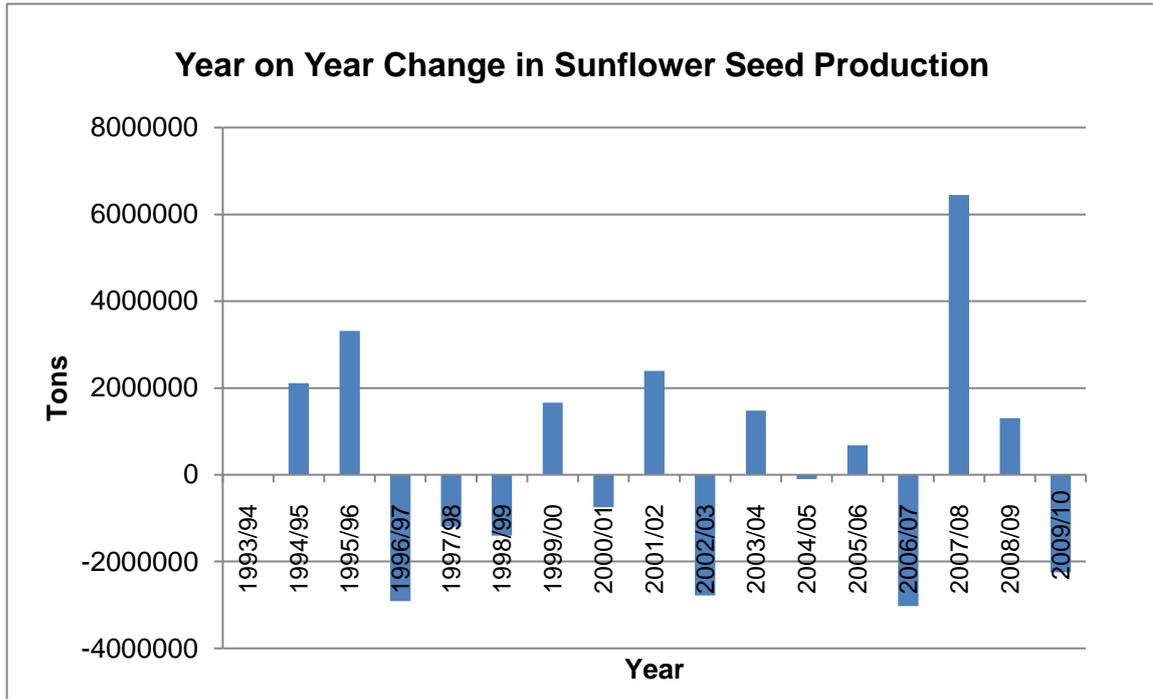


Figure 3-13: Year-on-Year Change in Soya Beans Production

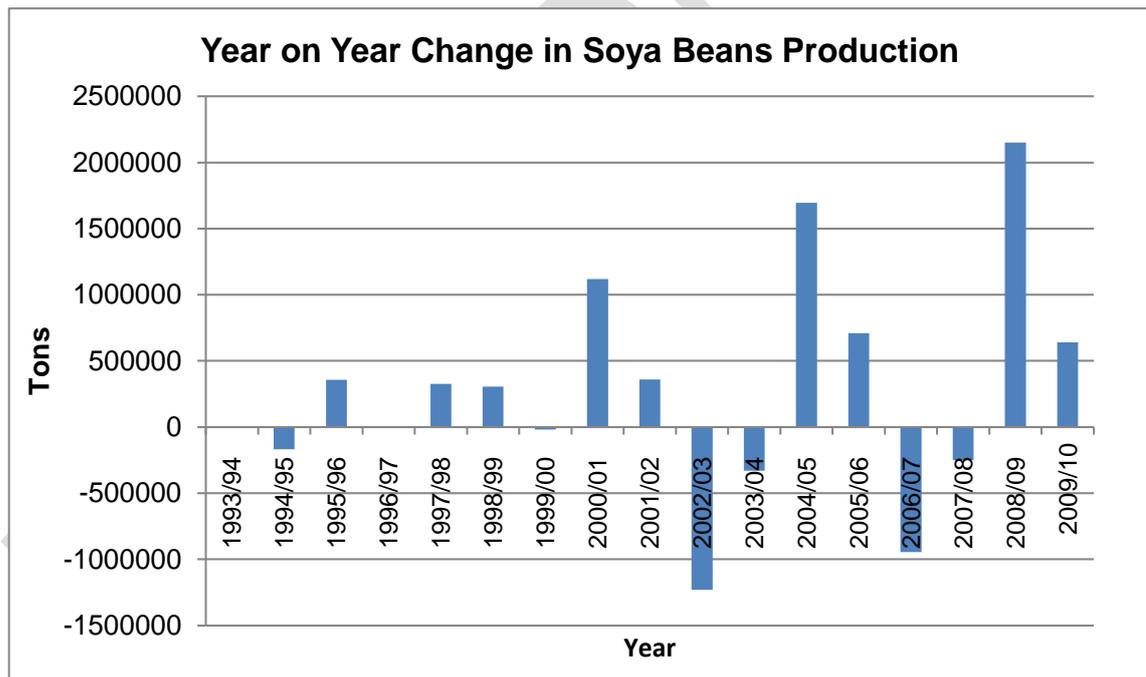


Figure 3-14: Year-on-Year Change in Dry Beans Production

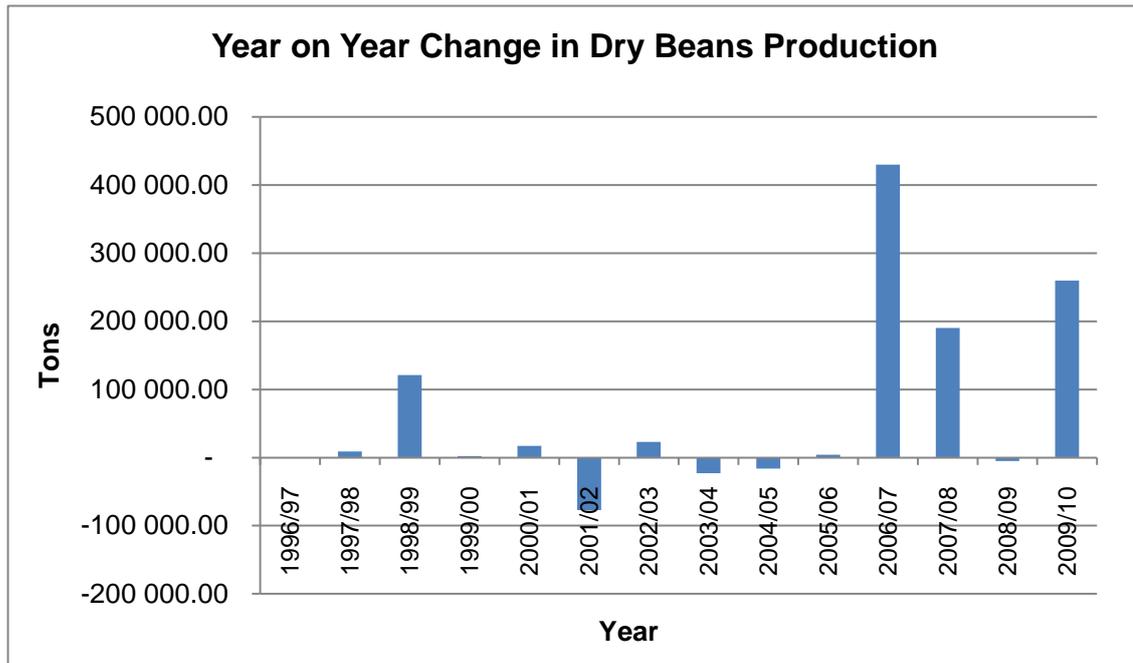


Table 3-7 presents indicative statistics with regard to production levels are summarized in for the respective crops. The estimated Coefficient of Variation, expressed as a percentage, shows the extent of variability in relation to the mean of the population

Table 3-7: Descriptive statistics of agricultural production Limpopo Province

	Maize	Wheat	Grain Sorghum	Groundnuts	Sunflower Seed	Soya Beans	Dry Beans
Average	110,250	63,765	1,840,471	377,471	4,203,294	1,893,824	273,462
Standard Deviation	57,684	20,864	926,553	172,822	2,255,166	1,437,889	308,616
CV (%)	52	33	50	46	54	76	113

Evaluation of the descriptive statistics indicates that the production of agricultural crops exhibits significant year-to-year variation. It should be borne in mind that agriculture and the production of agriculture goods are subject to a spectrum of indeterminate events which greatly influence production levels, directly and indirectly.

3.3.4 Livestock

Table 3-8 below provides an overview of livestock in South Africa for year 2006.

Table 3-8: Livestock Numbers per Province

PROVINCE	CATTLE	SHEEP	PIGS	GOATS
Western Cape	492,085	2,582,326	177,352	236,795
Northern Cape	487,639	6,341,801	23,242	556,764
Free State	2,373,367	5,128,445	131,735	226,065
Eastern Cape	3,170,607	7,712,631	135,365	2,531,384
KwaZulu Natal	2,867,210	754,175	165,001	924,503
Mpumalanga	1,388,079	1,718,657	133,618	97,687
Gauteng	268,389	91,165	179,960	43,858
North West	1,814,371	579,595	300,185	757,843
Limpopo	1,233,345	211,023	402,771	1,042,751
Total	14,095,092	25,119,818	1,649,229	6,417,650

Source: NATMAP Limpopo, October 2008

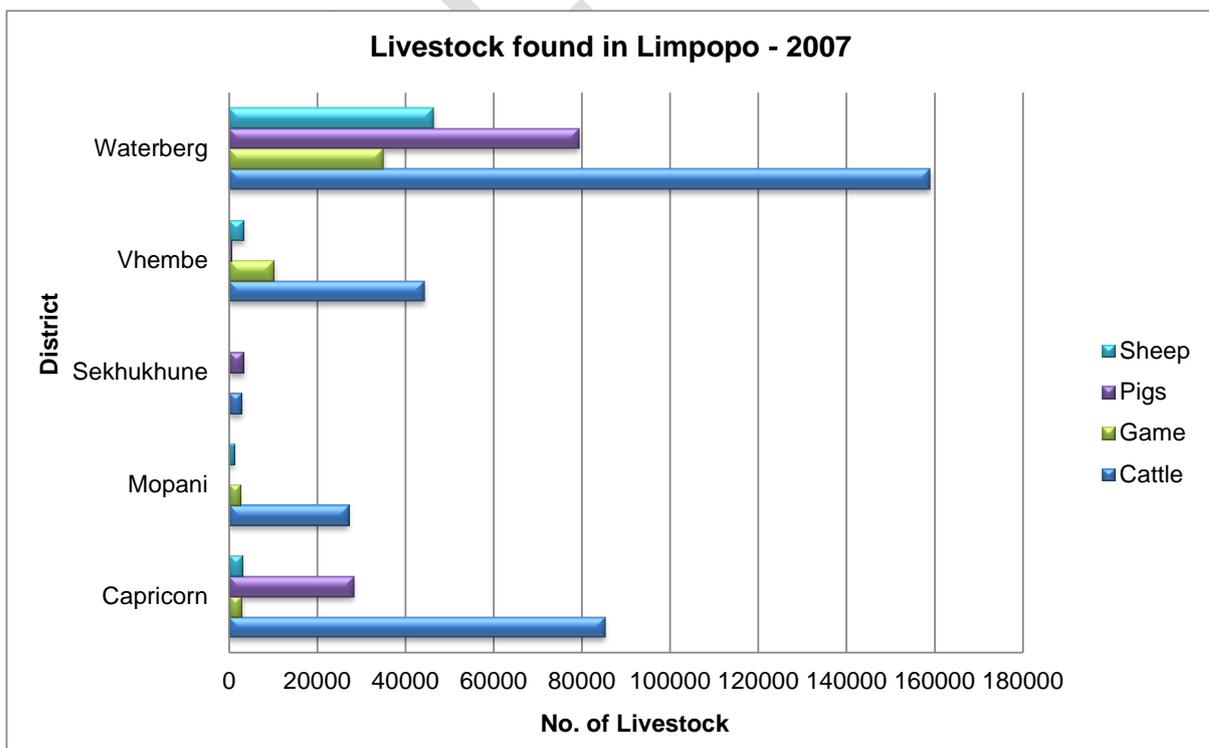
The following observations are made per livestock type:

- **Cattle:** Limpopo Province had 775,293 cattle (63%) classified as “communal” compared to 458,051 (37%) classified as “commercial”. The majority of commercial cattle are centred around the Makopane and Waterberg areas.
- **Sheep:** Limpopo has just over 200,000 sheep, mainly in the Ellisras, Soutpansberg and Polokwane areas. Only 98,438 sheep are found in commercial areas. The total sheep population of Limpopo is not significant in relation to the national total.
- **Pigs:** A large proportion of South Africa’s pig population occurs in the Limpopo Province, with 24% of the national total found in the Province. The main pig concentrations are in Polokwane and Mokopane areas as well as in the Bela-Bela and Waterberg areas.
- **Goats:** Limpopo had over 1 million goats in 2005 according to the NDA data by Province, making it the second largest goat-producing region in South Africa.
- **Poultry:** The poultry industry in Limpopo is centred around the Polokwane/ Mokopane areas and Bela-Bela. In 2002, over 4 million chickens (2,6 million-Bela-Bela & 1,1 million-Polokwane/Mokopane) were sold in Limpopo. Approximately 255 775 broilers are slaughtered per week in Limpopo, this equates to approximately 345 tons per week and close to 20 000 tons annually. Approximately 20 000 tons of eggs was produced in 2006. Only 3% of the boiler industry is concentrated in Limpopo.

Figure 3-15 presents livestock found in Limpopo Province in the year 2007. The following observations are made:

- Livestock is predominantly found in Waterberg District while Sekhukhune district has the least livestock numbers in the Province;
- Cattle is widely reared in the Province particularly in Waterberg, Capricorn and Vhembe where cattle figures were over 40,000 per district in the year 2007;
- About 80,000 pigs were found in Waterberg, 28,000 in Capricorn and small number was found in Sekhukhune district in 2007; and,
- High numbers of game and sheep were primarily found in Waterberg district.

Figure 3-15: Number of Livestock found in the Province in 2007



Source: Limpopo Freight Data Bank (2012)

3.3.5 Forestry

There is approximately 557,000ha of forests in Mpumalanga and Limpopo, concentrated along Makhado in the north of Limpopo right through to Piet Retief in the south of Mpumalanga.

The state owned sections of the forests amount to approximately 140,000 hectares of the total (Limpopo and Mpumalanga), and although progress has been made there is still uncertainty about the ultimate privatisation of the government owned forests, due to various disruptions of the process. Limpopo has about 23,445 hectares of state owned forest plantations and 28,541 hectares of privately owned plantations.

The softwood plantation area constitutes 4% of the national figure of 721,357ha. Likewise, the hardwood plantation area in hectares is only 4% of the national figure of 612,206ha as indicated in Table 3-9. The annual production in Limpopo from the 51,986ha of forest is approximately 700,000 tons of timber that is produced from 170 plantations.

700,000 tons of forest timber is transported from the forests to transshipment zones or rail sidings by tractor-trailer combinations, specialised off-road trucks, and by conventional road vehicles depending on terrain, there is very little option to use rail.

Much of the forested area of Limpopo is very difficult as the rugged escarpment is very rocky and steep and this makes road building and maintenance particularly complicated. The sawn timber cut at the mills and other timber product which is likely to be around 400 000 tons, at present also moves by road but for certain destinations, could be potential rail cargo for the future.

Table 3-9: Forestry Plantation Area by Species

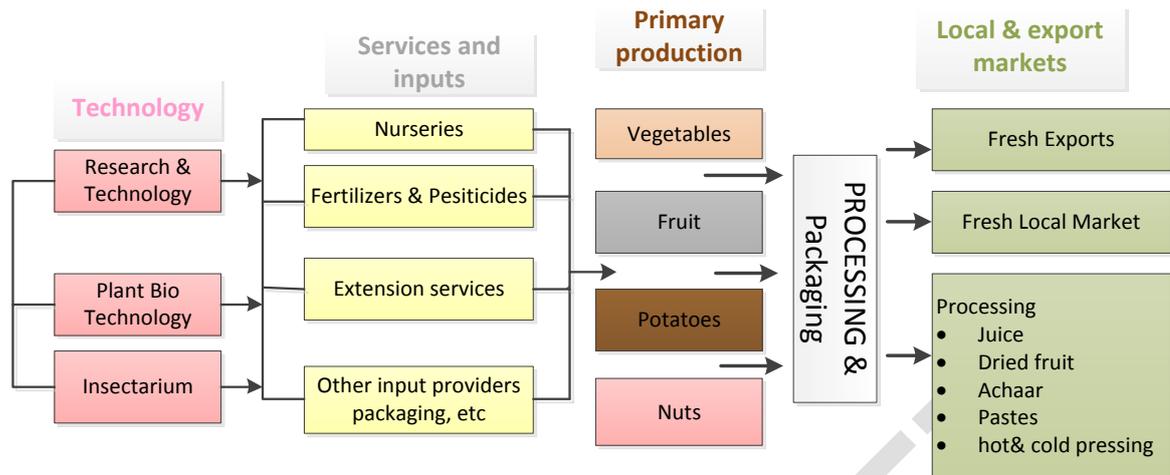
PROVINCE	PLANTATION AREA (HA)			% OF TOTAL AREA
	SOFTWOOD	HARDWOOD	TOTAL	
Limpopo	27,816	24,170	51,986	4
Mpumalanga	317,308	207,835	525,143	39
North West	101	0	101	0
Gauteng	0	0	0	0
Free State	0	0	0	0
KwaZulu Natal	183,555	356,355	539,910	41
Eastern Cape	135,112	21,735	156,847	12
Northern Cape	0	0	0	0
Western Cape	57,465	2,111	59,576	5
Total RSA	721,357	612,206	1,333,563	100

Source: NATMAP Limpopo, October 2008

3.3.6 Agricultural Demand and Supply

Figure 3-16 illustrates the typical processes of an agricultural and horticulture economic cluster. From the figure it is evident that the success of any of the processes or industries, be it primary production or freight (import & export) is determined by the success of the whole system, hence the advantage of promoting an economic agriculture and horticulture cluster.

Figure 3-16: Typical Processes of an Agriculture and Horticulture Economic Cluster



Source: Waterberg District Municipality

In 2004 the agricultural sector produced approximately 54 254 000 metric tonnes of various commodities as indicated in the Table 3-10. It is evident that Limpopo yielded a total of 1,968,000 metric tonnes of agricultural supply. This is equivalent to 4% of South Africa's total supply.

Table 3-10: Agricultural Supply and Demand per Province (2004)

PROVINCE	SUPPLY (000 TONS)	% OF TOTAL SUPPLY	DEMAND (000 TONS)	% OF TOTAL DEMAND
KwaZulu-Natal	20,389	38	14,452	27
Gauteng	1,833	3	10,737	20
Western Cape	7,785	14	9,293	17
Free State	7,289	13	4,841	9
Eastern Cape	2,092	4	4,589	8
Mpumalanga	6,789	13	3,682	7
North West	4,750	9	2,640	5
Limpopo	1,968	4	2,630	5
Northern Cape	1,358	3	1,391	3
Total	54,254	100	54,254	100

Source: NATMAP Limpopo Province, October 2008

As indicated previously, South Africa vegetable production is mainly exported to SADC. According to the PIA Development Option Feasibility Study (2009) not only do vegetable exports yield lower revenue than fruit exports in South Africa, but also, the average price of vegetables exports in the region are the lowest compared to other geographic regions. Table 3-11 below illustrates.

Table 3-11: Average Price of Vegetable Exports by Geographic Region (R/kg Analysis)

COUNTRY	2002	% CHANGE	2003 ⁷
Europe	R3.44	8.7%	R3.74
Rest of the World	R9.39	5.2%	R9.98
SADC	R2.14	7.8%	R2.31
Grand Total	R2.69	7.0%	R2.88

Source: PIA – Development Option Feasibility Study, 2009

⁷ Latest data available for the province.

3.4 Manufacturing Economic Cluster

Limpopo Province has a range of industrial undertakings that have been established with the main manufacturing concentrations found in the Polokwane and Mokopane areas, with other industries being adjacent to mines or sources of raw materials. The Province has extensive logistics facilities, warehousing and supply centres for the handling of foodstuffs, household goods, building materials, fuel, and agricultural supplies, and is a major purchasing area for neighbouring countries to the north.

The following major manufacturing industries are observed in Limpopo:

- The major **chemical industry** in Limpopo is based at Phalaborwa where sulphuric acid and phosphoric acid are produced as by-products of the mining activities in the area. A significant proportion of the large volume of phosphate rock sent to Richards Bay is processed into phosphates for domestic use in the fertilizer industry.
Approximately 471,000 tons of phosphoric acid was railed to six other Provinces countrywide in 2005 and 23,000 tons of sulphuric acid was railed to the Democratic Republic of Congo. Chemicals transported by road on all national and provincial roads in the Province totalled approximately 1,2 million tons in 2005.
- Processing of **agricultural products** (inputs, primary production, processing) in South Africa consists of 11 downstream agricultural sub-sectors of which, preservation of fruit and vegetables processing plays a major role in Limpopo. The locations and specialisations of the agri-processors in Limpopo Province are shown in Table 3-12 below.

Table 3-12: List of Agro-processors in the Limpopo Province

TYPE OF RAW PRODUCT	PROCESSED PRODUCT								LOCATION
	PACKING HOUSE	MILLS	DRIED FRUIT	JUICE	PASTE	ATCHAR	OIL	PEANUT BUTTER	
Mango			13	6		12			Musina, Tzaneen, Letsitele, Hoedspruit, Trichardsdal
Macadamia	3								Levhubu, Makhado
Citrus	14		1	3					Zebediela, Letaba
Groundnuts								2	Zebediela
Tomatoes					2				Musina
Avocadoes	15						1		Vhembe, Mopani
Maize		5							Marble Hall, Mokopane
Cotton	3								Marble Hall, Mokopane
Total	35	5	14	9	2	12	1	2	

Source: NATMAP Limpopo, October 2008

- The **building materials** industry in Limpopo is a major user of road transport and this can be expected to continue into the foreseeable future.
A major cement production plant in the Limpopo is found in Dwaalboom. The plant produces approximately 900 000 tons of cement and this is expected to increase to 1.9 million tons per annum.
For the manufacturing of clay bricks in Limpopo an estimated 21, 000 tons per annum of coal, mainly from Witbank is transported by road. The coal is mixed together with an estimated 22, 000 tons per annum of clay, which is transported in by road from Midrand and Kranskop.

3.5 Profile of Logistics Sector in Limpopo

Table 3-13 summarises the profile⁸ of the logistics sector in Limpopo according to category (type of company), key companies in Limpopo and their location. From the table below, it is evident that the overall logistics sector in the Province is relatively small in relation to the other Provinces. In spite of this, major national and international freight companies, such as Nomad Freight, Cargo Services, Spoornet and GAAL, are based in the Province, mainly in Musina. However, the interviews conducted showed that many companies use freight operators that are not based in Limpopo, but Cape Town and Mpumalanga. Nonetheless from the Road Freight Association member database, a total of 124 road freight companies operate in Limpopo (see Appendix A2), of which only two are based in the Province and over 50% are based in Gauteng Province.

Table 3-13: Profile of the Logistics Sector in Limpopo

CATEGORY	KEY COMPANIES IN LIMPOPO	LOCATION
Infrastructure Operators ¹	Spoornet	Musina
	GAAL	Polokwane
Rail Services ¹	Spoornet	Musina
Air Services ¹	n/a	
Registered Road Hauliers, Freight Forwarders, Couriers and Logistics Companies	Refer to Appendix A2	

¹Excludes small scale private and public operators

Map 3-5 illustrates Limpopo's logistics cluster. From the figure, it is evident that the multi-modal transport system in the Province is made up of road, rail and air transport.

While air services are almost non-existent in the Province, freight forwarders, couriers and logistics companies are prominence in the market, especially in Musina. The latter can be due to the fact that firstly, most airports in the Province do not offer cargo services, and secondly, the cost to transport by air is generally higher than by road and rail, which are the most commonly used modes in the Province.

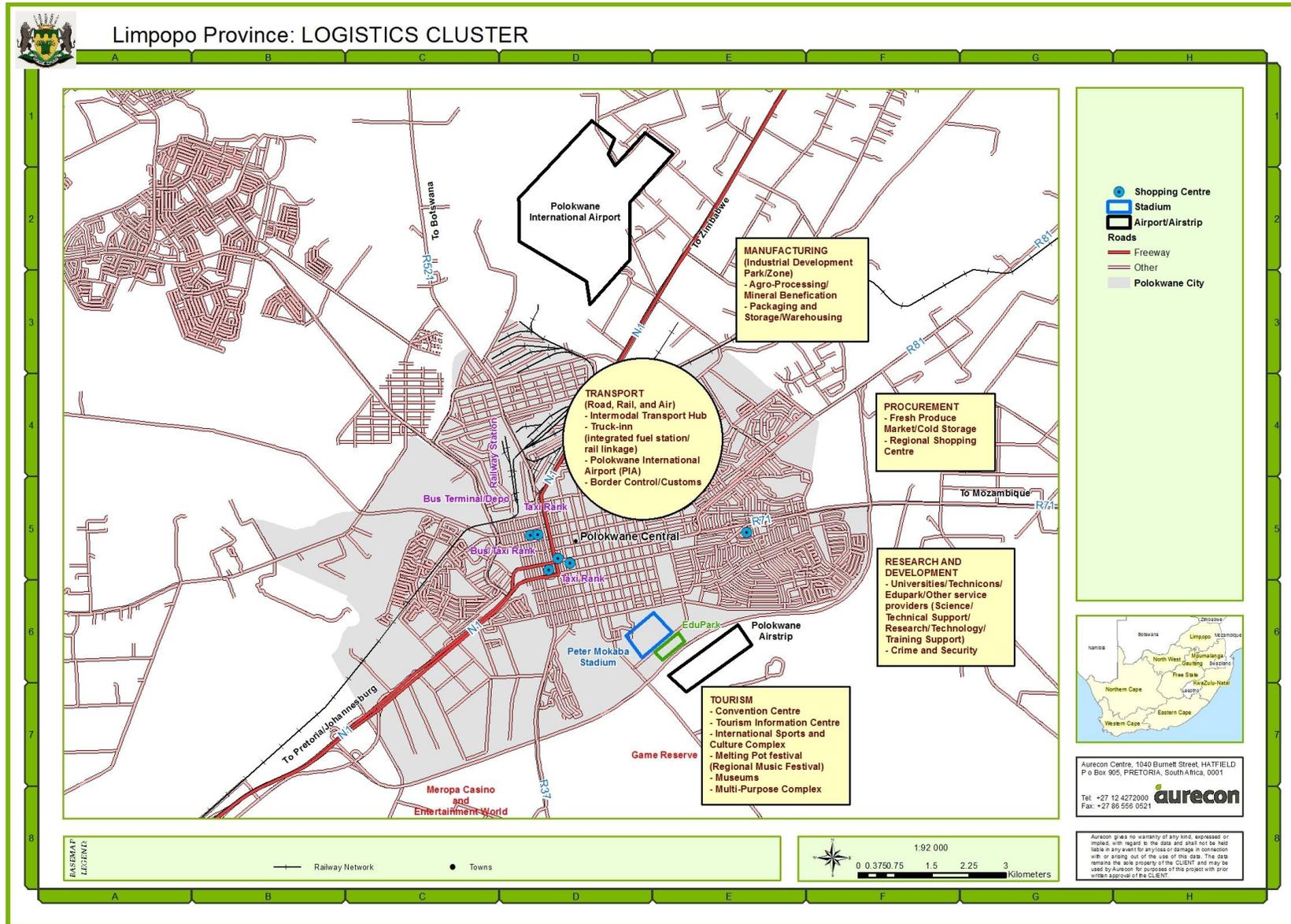
Additionally, while rail is usually more cost effective than roads for freight, in Limpopo roads have a market share of almost 90%. This can be generally attributed to the fact that the railway network is in poorer conditions and lacks effective management. Similarly, the fact that a significant portion of the Province's freight is agricultural produce, i.e. perishable goods, which are sensitive to time, makes roads the most time-effective mode. With the lack of cargo services in PIA, most of the Province's produce is transported by road to Gauteng, Durban and Cape Town.

In spite of its unstable market share in the Province, rail plays a major role in the mining industry, which according to the PIA – Development Option Feasibility Study (2009) contributes to over a fifth of Limpopo's economy. The mining industry mainly requires bulk commodity shipping, with few storage and/or additional requirements. Likewise most mines in the Province have good access to the rail network, thus making rail the most convenient and cost effective mode of transport.

In conclusion, the envisaged Regional Industrial Development Action Plan will crystallise industrial development – it is envisaged that the plan will encompass *regional and local economic corridors; economic development hubs; export processing zones and industrial development zones*.

⁸ No database on logistics operators in Limpopo was available. Data was based on The South African Association of Freight Forwarders (SAAFF) and Road Freight Association (RFA) member database and internet-based search.

Map 3-5: Limpopo's Logistic Cluster



3.6 Assessment of Transport Needs of the Economic Cluster

In an attempt to gather information to be used in drafting the Limpopo Provincial Freight Transport Strategic Plan, an economic cluster survey questionnaire was distributed to various freight stakeholder enterprises that are based in and operating businesses in the Limpopo Province.

Following the low response rate received from the stakeholder enterprises concerned, follow-up telephonic interviews were conducted and this section presents the outcome thereof. The majority of economic cluster stakeholder enterprises that participated in the survey are involved in the manufacturing activities producing commodities such as value-added meat products, fruit juices, newspapers and office goods. Other enterprises are involved in Agri-business rearing livestock, producing animal feed and fruits. Mining activities also include the production of silicon.

Most transport their goods across the country to places such as Cape Town, Bloemfontein, Johannesburg and Durban with others transporting their goods across the border to the North American continent.

The majority of freight stakeholder survey participants use road transport with only a marginal making use of rail transport. The reason for this is that the rail transport system is inefficient and transporting goods by road is a lot quicker and a lot more reliable.

The freight transport infrastructure challenges highlighted in the survey are as follows:

- Lack of sufficient road maintenance in the Province;
- Lack of sufficient maintenance of the rail network; and
- Lack of provision of road bypasses.

The operational challenges highlighted in the survey are:

- Long waiting periods at weighbridges; and
- Queuing for long at the weigh bridges even though some trucks are empty.

The institutional challenges highlighted in the survey are:

- Lack of coordination within the freight transport sector; and
- The non-prioritization of rail transport.

Other challenges mentioned are:

- Narrow roads;
- Potholes;
- Condition of road damaging trucks and goods being transported; and
- Labour strikes in the transport sector affecting operations.

3.7 Assessment of the Economic Cluster

In assessing the Economic Cluster in Limpopo, the following strengths, weaknesses, opportunities and threats were identified as indicated in Table 3-14.

Table 3-14: SWOT Analysis of the Economic Cluster in Limpopo⁹

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> Limpopo Province contributes about 9% to National GDP (LEGDP stats); Limpopo is investment-friendly for large investors. 	<ul style="list-style-type: none"> Insufficient consideration to long-term outlook to integrated economic regions; Lack of thought to the potential of industrialised sector; Inadequate promotion of labour-absorbing industrial sector; Insufficient productive capacities in the local economies; Lack of interventions to broaden and diversify the provincial industrial base.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> Road network linkages promote freight between SA, Province and neighbouring countries; Increasing mining activity(extend and diversity) in the Province; Clusters can generate additional state revenue, increase productivity, competitiveness and efficiency; Opportunities for regional and international business, commercial and industrial development. Clusters promote competitive advantage. 	<ul style="list-style-type: none"> Limpopo is one of SA's poorest Provinces - high poverty level (60% in 2004) and unemployment rate (46% in 2010); Loss of SMMEs; Lack of skills to execute the Limpopo Mining and Mineral Beneficiation Initiative. The inconsistency agricultural production will hamper some of the opportunities that the agricultural and horticulture economic cluster has.

3.8 Key Economic Cluster Challenges

From the situational analysis and conducted SWOT analysis, the following key economic cluster challenges were identified as shown in Table 3-15.

Table 3-15: Key Economic Cluster Challenges

KEY CHALLENGE	DESCRIPTION
Diversification of the economy	<ul style="list-style-type: none"> Limited promotion of industrialisation – particularly manufacturing; No intervention to widen and expand provincial industrial base.
High poverty levels as well as high unemployment rate.	Existing levels of poverty and unemployment restrains the tapping into the power of the new economy.
Skills and capacity.	Technical skills are scarce in the Province, impacting on projects implementation
Lack of coordination in planning.	Participation of relevant governmental departments during project initiation, planning and implementation.

⁹ Limpopo Employment Growth and Development Plan (LEGDP 2009-2014); Limpopo in Motion, NATMAP.

4. Policy and Legislative Framework guiding Freight Transport Planning in Limpopo

There are various regional, national and provincial legislative directives that have been developed to guide freight transport planning. This section of the report provides an overview of key policies and strategies which will inform the strategic focus of the freight transport implementation strategy.

4.1 Regional Freight Transport Perspective

South Africa, as part of the Southern African Development Community (SADC) is bound by treaties that exist between it and other member state of the SADC¹⁰. Limpopo Province is the gateway to three of the other member states of SADC, namely Botswana, Mozambique and Zimbabwe.

SADC was established in April of 1980, with the aim of providing a brief approach to regional integration. The member states developed the SADC Protocol on Transport, Communications and Meteorology in the Southern African Development Community Region. Table 4-1 outlines protocols that impact on freight transport planning:

Table 4-1: SADC Protocol on Transport

AREA OF COMMONALITY	AGREEMENT
Transport Integration	<p>Member States shall promote economically-viable integrated transport service provision in the Region -</p> <ul style="list-style-type: none"> • characterised by high performance standards and consistent levels of efficiency and reliability of all individual component parts of the transport chain; • on the basis of complementarily and co-operation between modes, modal choice optimisation, seaport hinterland optimisation and with due regard to modal advantages; • bearing in mind the need to preserve the Region's transportation infrastructure; • by encouraging the development of multimodal service provision; and • Compatible with responsible environmental management; to support the development of major regional development corridors and facilitate travel between their territories.
Integrated Transport Policy	<p>Member States agree to develop a harmonised integrated transport policy, which includes the -</p> <ul style="list-style-type: none"> • establishment of infrastructure, logistical systems and institutional frameworks; • establishment of appropriate legal and financial frameworks; execution of research and technology transfer; and • development of effective communication networks; which support intra- and intermodal synergy and optimal utilization of modes. <p>Member States shall apply the following principles –</p> <ul style="list-style-type: none"> • the right of freedom of transit for persons and goods; • the right of land-locked Member States to unimpeded access to and from the sea; • the right of coastal Member States to unimpeded access to and from land-locked Member States; • equality of treatment of the nationals and passenger service providers of Member States with regard to the provision, access and use of infrastructure and immigration and clearance procedures; • the right of individual Member States to negotiate access and freedom of transit rights consistent with the principles of this Protocol, while recognising that individual needs of Member States may require specific bilateral arrangements; and

¹⁰ Member States include: Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, Zambia and Zimbabwe.

AREA OF COMMONALITY	AGREEMENT
	<ul style="list-style-type: none"> all modes of transport are allowed the necessary economic space to operate in a self-sustaining free market environment. <p>Member States shall, in the exercise of their full sovereignty over their territory, have the right to take all measures necessary to ensure that the application of the principles contemplated in paragraph 2 shall in no way infringe their legitimate interests</p>
Infrastructure	<p>Member States shall co-operate in providing, operating and maintaining transport infrastructure which supports the provision of integrated transport services, considering that infrastructure should progressively be self-sustaining with funding based on a user pay principle.</p> <p>Member States shall create and maintain regulatory frameworks, investment regimes and incentives which may facilitate the provision of such infrastructure by the private and/or public sector.</p> <p>Member States shall promote the effective management of existing and future infrastructure by both public and private sector and encourage -</p> <ul style="list-style-type: none"> joint ventures by multinational groupings to develop commercial facilities dedicated to the handling of regional trade; the development of strategically located and commercially viable dry ports where appropriate; the integration of infrastructure development along identified regional development corridors.
Logistics Systems	<p>Member States shall co-operate in incrementally promoting the development of logistical systems by public and private sector bodies to support effective intermodal transport operations characterised by -</p> <ol style="list-style-type: none"> intermodal synergy; intramodal co-operation, especially between established service providers and small, medium and micro enterprises; and optimal use of unutilised loading units such as freight containers and pallets to transport cargoes. <p>The logistical systems shall aim to enhance the efficiency of specific regional development corridors in -</p> <ul style="list-style-type: none"> the trans-shipment of cargoes; the processing of cargoes and persons at trans-shipment points, frontiers and destination points; and the planning and operation of transport equipment and infrastructure. <p>Member States shall in particular focus on -</p> <ul style="list-style-type: none"> the harmonisation of domestic legislation, including provisions dealing with statutory liability of service providers; the development of simplified and harmonised documentation which supports the movement of cargoes along the length of the logistical chain, including the use of a harmonised nomenclature; the implementation of state-of-the-art rapid communication, information and data processing and exchange facilities to support corridor operations and supplying real-time logistical and other information to corridor users; the encouraging of containerisation, including the balancing of supply and demand; the improvement of rail transit times; the enhancement of performance of rail and freight container information tracking systems; the limitation of dwell times in ports and dry ports; the implementation of measures to enhance the security of cargoes; and the development and implementation of quality controls including safety standards applicable to all modal transport operators.

AREA OF COMMONALITY	AGREEMENT
	<p>Member States shall encourage the adoption of simplified measures falling outside the sectors addressed in this Protocol which may also contribute towards the objectives of this Chapter. Such measures may include -</p> <ul style="list-style-type: none"> • clearance and pre-clearance procedures at borders and dry ports for goods and pre-clearance of freight containers; • financial requirements for import, export and transit movement of goods and road vehicles; and • clearance procedures for SADC nationals, including immigration and public health measures. <p>Member States shall promote the necessary liaison between their various ministries and departments to execute the provisions of the above.</p>
Institutional Framework	<p>Member States shall establish institutional frameworks involving all transport modes to promote inter-and intra-modal co-operation between stakeholders and to support the development of regional development corridors facilitating unimpeded access and travel between the territories of the Member States.</p> <p>Member States shall establish criteria to identify regional development corridors which may include all modes or be modal specific.</p> <p>Member States shall promote the establishment of cross-border multimodal Corridor Planning Committees comprising of public and private sector stakeholders in the Member State or States whose territory or territories are traversed by such corridors.</p> <p>Member States shall support the functioning of Corridor Planning Committees by developing -</p> <ul style="list-style-type: none"> • performance criteria for major regional development corridors to facilitate planning and prioritisation; • databases on infrastructure and operational matters to deliver recent, comparable and relevant information on transport and travel needs of the Region to support planning and development by all stakeholders; and • Institutional models for such committees. <p>Corridor Planning Committees shall include adequate representation by -</p> <ul style="list-style-type: none"> • all modal transport operators servicing the corridor including multimodal transport operators; • transport and infrastructure authorities with responsibilities in respect of the provision and management of transport and related infrastructure facilities along the corridor; • customs and excise authorities with responsibilities in respect of the corridor; • freight forwarding and clearing agents servicing the corridor; • trade and industry authorities and bodies; • financial and insurance institutions, industrialists and developers; • border post authorities; • immigration authorities with responsibilities in respect of the corridor; • users of corridor systems and facilities; and any other stakeholders. <p>Corridor Planning Committees shall be structured and assume functions according to the specific requirements of a corridor.</p>

4.2 Southern African Customs Union (SACU)

The Southern African Customs Union MOU provides for the establishment of various technical committees. The Transport Liaison Committee's role is to assist and advise the Commission in its work.

4.2.1 Responsibilities of the Transport Liaison Committee

4.2.1.1 The Terms of Reference for the Transport Liaison Committee comprises generic and specific aspects.

4.2.1.1.1 Generic Aspects

- Provide technical advice to the Commission on transport and other related matters;
- Monitor the implementation of the SACU Agreement and its Annexes in so far as they relate to transport and other related matters, with a view to advise Commission;
- Support and facilitate the establishment and operation of SACU institutions provided for in the SACU Agreement;
- Facilitate the development and propose amendments to Annexes relating to transport and other related matters;
- Appoint task teams, where necessary, to facilitate the work of the TLC;
- Carry out all duties and perform all functions assigned to it by the Commission; and
- Make proposals, from time to time, to Commission for any amendments to the Terms of Reference.

4.2.1.1.2 Specific Aspects

- Facilitate an integrated and seamless conveyance of goods and passengers with a view to reducing transportation costs and transit times;
- Facilitate easier access and promote simplification and harmonization of procedures for land-locked Member States to port facilities;
- Promote the application of equal treatment to the national transport providers of Member States with regard to the provision, access and use of infrastructure, customs and immigration clearance procedures;
- Promote effective utilization of all modes of transport to encourage complementarity and efficiency in the region;
- Facilitate cooperation and mutual assistance among the respective authorities involved in the conveyance of goods and passengers within SACU;
- Facilitate the simplification and harmonization of all policies, laws, regulations, procedures and administrative measures pertaining to the conveyance of goods and passengers within SACU;
- Facilitate the development of a programme of cooperation in transport and other related matters; and
- Promote the exchange of information pertaining to transport matters.

Article 6.6 deals with loads on vehicles and provides as follows:

1. Member States shall implement harmonised permissible axle mass loads and gross vehicle mass and gross combination mass limitations with due consideration of the need to balance financial needs and interests of preserving the Region's road infrastructure, optimising road transport operations and enhancing road traffic safety.
2. In order to attain the objectives stated in paragraph 1, Member States shall develop a sustainable strategy, which shall include -
 - a) an action programme for the incremental or phased in implementation of harmonised maximum axle mass loads by Member States which are not in a position to implement such loads immediately;
 - b) the procurement of adequate and sustainable funds for improvement, extension and maintenance of the Region's road infrastructure contemplated in Chapter 4; and

- c) the development and implementation of a regional overloading control strategy which shall provide for, amongst others -
- (i) coordinated programming of overloading control activities;
 - (ii) co-operation with regard to the sharing of weighbridge facilities and equipment in the Region;
 - (iii) a coordinated approach in respect of the maintenance and calibration, practices and procedures and the management of information collected at weighbridges;
 - (iv) harmonised legislation which ensures the necessary legislative authority to prosecute offenders;
 - (v) harmonised penalties or administrative fees for vehicle overload offences which take account of factors such as pavement damage and travel distance;
 - (vi) effective enforcement procedures;
 - (vii) the introduction of special training programmes for traffic officers, prosecutors and transport operators and their employees;
 - (viii) common training standards and the provision of joint training to enforce the sharing of technical resources and expertise;
 - (ix) the possibility of involving the private sector as a form of self-regulation in order to promote voluntary compliance;
 - (x) the introduction of administrative control measures in respect of habitual offenders; and
 - (xi) the launching of public awareness campaigns.
3. Member States shall adopt a harmonised position with regard to the application of a bridge formula.

Article 6.7 prescribes how abnormal, awkward and hazardous substance loads should be dealt with and provides as follows:

1. Member States shall develop and implement harmonised standards for the conveyance of abnormal, awkward and hazardous substance loads in respect of, amongst others -
 - a) the classification of such loads; and
 - b) the requirements and conditions in respect of the conveyance of such loads including -
 - (xii) the issuing of authorisations;
 - (xiii) the nature and mass dimensions of the load;
 - (xiv) the designation of routes;
 - (xv) the need for escort vehicles;
 - (xvi) maximum speed limits; and
 - (xvii) harmonised authorisation, escort and other relevant fees in this regard.
2. Member States which have not yet acceded to the Basel Convention on the Transboundary Movements of Hazardous Substances and their Disposal, 1989, shall consider acceding to that Convention.

4.3 National Freight Transport Perspective

There are numerous policy documents outlining statements that are to guide transport planning in the republic. This section of the report provides an overview of ‘what these policies say about freight transport planning’.

4.3.1 The South African Constitution (1996)

The South African Constitution allocates the responsibility of exercising legislative and executive power to Provinces on the following:

- Road Traffic Safety and regulation; and
- Public Transport, both whose promotion is the responsibility of the Department of Transport.

4.3.2 National Land Transport Strategic Framework

The National Land Transport Strategic Framework (NLTSF) exemplifies the national five-year land transport strategy (2006 – 2011) which acts as a guide for transport planning and land transport delivery initiatives by the National Government, nine Provinces and 284 new municipalities over the five year period. The NLTSF is based on the requirements of Section 21 (3) of the NLTTA, which states the following:

“The National Land Transport Strategic Framework (NLTSF) must set out national policy with respect to land transport.”

Additionally, issues that were considered to be important in the provision of a more holistic framework i.e. public transport, rural transport and safety, were included. Efficient freight movement is crucial for the development of a country as it increases the countries’ global competitiveness and also minimises the cost of internal movements of goods. Therefore the implementation of a decisive freight transport strategy is imperative. In South Africa’s context, the NLTSF was formulated in an attempt to align freight transport logistics with economic and industrial development strategies; and also allow for the development of ports and operations with freight flow demand patterns and sea freight trends.

Strategies for freight transport outlined in the NLTSF include the following:

- To promote a strong, diverse, efficient and competitive freight transport industry within the limits of sustainable transport infrastructure;
- To promote improved conditions of employment and participation within the freight industry; and
- To promote a shift of freight from road to rail.

Strategies for Inter-Provincial Land Transport outlined in the NLTSF include the preparation of a high level, long-distance inter-provincial land transport strategy which will assist the Provincial Licensing Boards (POLBs) in disposing of applications for inter-provincial services.

The strategies for Cross-Border Road Transport outlined in the NLTSF are of establishing a needs-basis to assist the CBRTA Regulator Committee in making decisions on the allocation of cross-border permits in the context of the SADC protocol; and to promote improved levels of service to passengers and freight at border posts.

Other Strategies outlined in the NLTSF are for Public Transport, Urban Land-Use Restructuring, Roads, Rural Transport Development, Traffic Safety and Enforcement and Tourism and Transport, amongst others.

4.3.3 National Transport Policy (1996)

Land Freight Transport is one of the focus areas of the Green Paper on National Transport Policy. Land freight transport comprises both domestic and international conveyance of goods by road and rail. The main functional areas thereof include the management of operations; maximising modal capacity; equitable infrastructure cost recovery and administrative and institutional aspects. Detailed issues concerning the functional areas include land freight transport management and operations; modal capacity; equitable distribution of infrastructure costs; administration and institutional aspects; cross-border operations; international relationships and road traffic and transport law enforcement on the road network.

Some of the strategic objectives for Land Freight Transport outlined in the National Transport Policy are as follows:

- Development of a comprehensive land transport information system;
- Establishment of stakeholder consultative forums;
- Promotion of a strong, diverse, efficient and competitive transport industry in the limits of sustainable transport infrastructure; and
- Optimisation of road transport law enforcement.

4.3.4 National Road Traffic Act (1996)

The Road Traffic Act, 1996 (Act No. 93 of 1996), and the Road Traffic Regulations made in terms of this Act establishes the maximum mass limits of vehicles used on public roads. The Act also determines the powers of traffic officers regarding the enforcement of the mass limits. These mass restrictions and powers are discussed in this section.

Some of the sections relevant to freight transportation in the National Road Traffic Act are outlined below.

- Section 71 of Chapter 12 of Presumptions and Legal Procedure of the National Road Traffic Act (NRTA) asserts that where it is suspected that an offence was committed with regards to the mass of a motor vehicle, the vehicle will be subjected to weight measurement by means of a mass-measuring bridge or other mass measuring instruments and results thereof will be accepted as correct should there be no evidence to prove the contrary;
- Documents issued by the manufacturer stating the gross vehicle mass of a particular motor vehicle shall act as proof of the actual mass of the vehicle;
- Chapter 13 of the NRTA stipulates that the Minister of Transport has the authority to make regulations, after consultations with MECs, that are not inconsistent with the Act. Other sub-sections of this Act pertain to the regulation of the size, height, width and length of a particular vehicle, diameter of wheels and the width; the emission of exhaust gas, smoke, fuel, oil, visible vapours, sparks etc. Specific regulations for vehicles carrying dangerous goods are also provided for in Section 75 (h) of Chapter 13. These regulations relate to “the classification of dangerous goods, the powers of traffic officers in respect of the transportation of dangerous goods; the manner and conditions on which specified dangerous goods may be transported; and the dangerous goods which may not be transported”.

The numbers of the relevant regulations are 234, 235, 236, 237, 238, 239, 240, 241, 242 and 243. In addition, section 69 to 73 and regulation 248 formulate a number of presumptions that are applicable to regulations 234 to 243. Specific regulations are discussed in the table below:

Table 4-2: Relevance of the Regulations in Overloading Control

REGULATION	OBJECTIVE	OVERLOADING CONTROL MEASURE
Regulation 238: The loading limit of tyres	Prescribes the mass restrictions that apply to the different vehicle tyre sizes and it also deals with tyre pressure. The aim of this regulation is to ensure safety.	The permissible mass, given the type of tyre and/or the tyre pressure, can be read off a table.
Regulation 239: The carrying capacity of the vehicle	Prescribes restriction mass-load in accordance with the carrying capacity of the vehicle. The aim of this regulation is to ensure road safety.	Regulation 239 refers to three different matters that are all concerned with the carrying capacity of the vehicle itself (engine, chassis and body)
Regulation 240: The carrying capacity of the road	Prescribes the mass-load restriction on axles and axle units in accordance with the restricted carrying capacity of the road (i.e. pavement damage). The aim of this regulation is to protect roads.	The threshold of vehicle or a combination of vehicles (with pneumatic tyres) on public roads is outlined for heavy vehicles
Regulation 241: The carrying capacity of bridges (bridge formula)	Determines the total mass-load of groups of axles excluding the axle units covered by regulation 240(b). The aim of this regulation is to protect bridges.	The regulation must restrict the total mass load of vehicles to a level that corresponds with the carrying capacity of road bridges.
Regulation 242: Distribution of the mass-load on the vehicle	Determines the maximum permissible difference between the wheel mass-loads on the left and right-hand side of a vehicle and the ratio between the mass of the steering axle of a vehicle and the mass of the rest of the axles of such a vehicle or the so-called under-loading of the steering axle. The aim of this regulation is to ensure safety.	Specification of a minimum mass on the steering axle as a percentage of the mass of all the axles of such a vehicle.
Regulation 243: Vehicles fitted with tyres other than pneumatic tyres	Determines the permissible axle mass-loads of vehicles that are not fitted with pneumatic tyres. The aim of this regulation is to ensure safety and to protect the road pavement.	

Source: www.nra.co.za

4.3.5 Moving South Africa: Towards a Transport Strategy for South Africa for the year 2020 (1999)

Moving South Africa (MSA) was designed to produce a data-driven for strategic action that extends the short to medium-term policy formulation documented in the Transport White Paper into a long-term formulation which embodies the sets of trade-offs and choices necessary to realise the vision as set out in the White Paper. It acknowledges the role on transport within the sector as a critical input to other industries and that the goals of the sector should be to meet the national and social (non-transport) objectives of the nation.

Examples include:

- Economic growth, creating a high and rising standard of living for all citizens as set out in GEAR and the RDP,

- Increased trade, especially with neighbouring SADC countries,
- Improved access to employment opportunities, or
- Increased social integration.

Customer needs, national objectives and systems sustainability issues are the foundation of freight strategy choices. MSA project initiated a review through primary research of national and customer objectives. An evaluation of the transport system against set objectives and identified strategic challenges to be mitigated was conducted. These challenges were classified into two groups: Those outside the transport system requiring prior choices to be made by others outside the transport sector and those within the system requiring choice and action from the Department of Transport, provincial, local transport authorities, provider or stakeholders.

Outcomes of the research on customer needs revealed a certain level of dissatisfaction on some aspects of the system particularly that of rail freight prices and service; and prices at ports. Performance against international benchmarks, aside for export bulk freight, was poor. Strategic challenges with regard to freight transport were classified into two groups:

- Lack of support for export competitiveness; and
- Low levels of system sustainability.

The MSA outlines three strategic actions for the freight system:

- Build density in the transport system by focusing freight flows in select corridors by supporting and reinforcing current trends to build the backbone of the system, at the same time as reducing complexity and investment requirements;
- Build economies of scale within the different modes by focusing the role of the modes, maximising scale economies within each mode and offering differentiated services where economically sustainable; and
- Improve competitiveness by removing obstacles, improving integration, ensuring sufficient reinvestment to maintain quality infrastructure and operations, restoring price and value signals between customers and providers and building an industry platform which drives differentiation and innovation.

4.3.6 National Spatial Development Perspective (1999)

The National Spatial Development Perspective (NSDP) acts as a mechanism for the coordination of policy in relation to the spatial inference of infrastructure programmes at the national, provincial and local level of government. It outlines principles and methods for guiding infrastructure investment development decisions; it interprets spatial realities and the repercussions for government's; and clarifies spatial appearance of the main social, economic and environmental tendencies which should ultimately share the understanding of the national economy.

The NSDP also identifies categories of economic potential which include the production of high value, differentiated goods; public services and administration; retail and private sector services; and tourism.

The NSDP acknowledges the importance of the role that rail and road infrastructure plays in the socio-economic development of the country as a whole and that investing in its development is crucial. Roads and rail play an important part as they offer support to the flow of goods and materials between manufacturers and consumers, nationally. Therefore a national freight network is essential for sustaining this interaction.

4.3.7 White Paper on Spatial Planning and Land Use Management (2001)

The objective of this White Paper is to “facilitate the allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resource system”.

The main goal for the White Paper is to create a legislative and policy framework that will allow the government to develop policies, plans and strategies for the use and development of land which will be aimed at addressing and resolving spatial, economic, social and environmental problems of the country. This White Paper serves as a guide to practical ways in which South Africa can adopt this approach. This will require the satisfaction of the following needs:

- The development of policies to ensure the best usage of land and the management thereof;
- The improvement of management, planning, monitoring and evaluation processes;
- The strengthening of institutions and coordinating mechanisms;
- The development of methods to ensure the satisfaction of the needs and objectives of communities and people at the local level;
- The basis of the system will be principles and norms aimed at achieving sustainability, equality, efficiency, fairness and good governance in spatial planning and land use management. The decisions of planning authorities, whether related to the formulation of plans such as IDPs or the consideration of land development applications such as rezonings, must all be consistent with these principles and norms. A failure by an authority to affect this enables the Minister to intervene in the decision, either to require that it is reconsidered or in extreme cases to take the decision him or herself.
- Land use regulators; and
- IDP-based local spatial planning.

Municipalities have the responsibility of compiling a spatial development framework for their area. The spatial development framework has four components:

- Policy for land use and development;
- Guidelines for land use management;
- Capital expenditure framework showing where the municipality intends spending its capital budget; and
- Strategic environmental assessment.

4.3.8 National Freight Monitoring Framework (2002)

The National Freight Monitoring Framework is aimed at addressing challenges that are faced in capturing; processing and presenting freight information for the support of decision making of the Department and its stakeholders. This framework will enable the Department and its stakeholders' access to reliable information on goods and services in the country. The NFMF will also address the challenges faced in the capturing, processing and presentation of freight information.

Currently, the following short-comings have been identified:

- All data available to document the landscape has been taken from sources that are static, and vary in terms of age from one to four years old
- The data is inconsistent in terms of freight classification and various measurements
- There are no indications of freight origin and destination
- Freight classification indicates no particular freight type classification
- Most of the data is related to provincial views and not to corridors;
- Overall data quality is poor;
- There are gaps in understanding the corridor performance including bottlenecks such as inter-modal depot waiting time and bottlenecks due to traffic congestion;
- No data in support of the above congestion and the challenge of re-routing and capacity planning is available;

- Most of the information available is not shared between organisations;
- No consolidation across modes and between nodes is currently taking place;
- No maintenance and co-ordination of any standards for the exchange of data from one mode to another exists;
- No information in support of deficiencies in infrastructure for the accurate forecasting of the state of infrastructure and demand exists;
- There is insufficient data for accurately monitoring what, why, when and where effectiveness is compromised; and
- No “just-in-time” logistics data is available to establish where freight is and how to prioritise port space management.

Other benefits of the NFMF include the ability to monitor freight overloading, licensing enforcement, identification of bottlenecks in freight traffic transport allowing for the mitigation of these issues, integration of information captured with other existing systems to enable reliable decision-making, ensure compliance with the Container Safety Initiative (CSI) and the International Ships and Port Security (ISPS) code for the profiling of cargo operators.

The NFMF will include all transport modes, i.e. road, rail, aviation, maritime and pipeline. Three critical components for achieving the envisaged end goal of the framework are Freight Information Flows, Intelligence and Decision Support.

Freight Corridors identified in the NFMF are:

- Gauteng – Durban Corridor (transportation of goods mainly in containers);
- Gauteng – Cape Town Corridor (cargo transported by road, rail and air);
- *Gauteng – Beitbridge Corridor (cargo transported by road, rail and air);*
- Gauteng – Port Elizabeth Corridor;
- Gauteng - Maputo Corridor;
- Gauteng – Lobatse – Walvis Bay Corridor; and
- Gauteng – East London Corridor.

Suppliers of information are identified as follows:

- Road Traffic Management Corporation (RTMC);
- South African Road Agencies Limited (SANRAL);
- South African Revenue Services (SARS);
- Cross Border Road Transport Agency (CBRTA);
- Department of Public Enterprises (DPE);
- Department of Trade and Industry (DTI);
- Department of Minerals and Energy (DME);
- Airports Company of South Africa (ACSA);
- Provincial Department of Roads and Transport; and
- Private Sector (Freight Logistics Industry).

Guiding principles for the development of a monitoring framework are as follows:

- Data to be collected must be cost effective and also be cost effective to report on;
- Reported indicators must be measurable and cover key areas effectively and not only focus on logistics;
- Suitable user-friendly applications must be used (i.e. GIS and MS Excel) and should be available across the whole value chain; and
- Learning from existing Databanks and other DOT reporting systems.

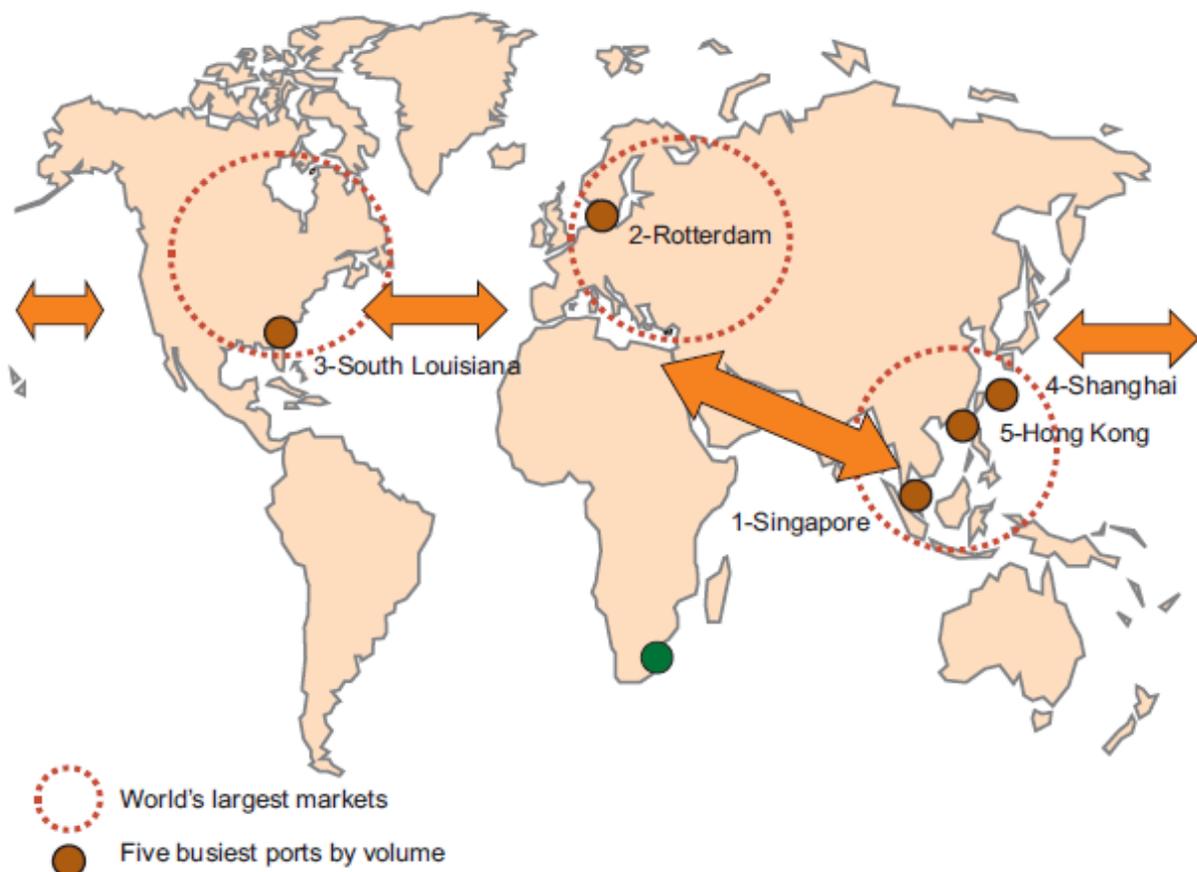
4.3.9 National Freight Logistics Strategy (2005)

The National Freight Logistics Strategy (NFLS) is the DoT’s response to the freight system’s inability to fulfil the demand for cargo movement process, levels of service, quality of service at acceptable levels of reliability in a manner that supports national development strategies. This failure stems from an inappropriate institutional and regulatory structure that does not punish inefficiently and reward efficiently. It is structurally incapable of appropriately allocating external costs and raising efficiency. Although the elements of the system, such as the national road network, are of high standard and even surpass those of other developed economies, it is the system-level performance and state of infrastructure that need attention. Improvement can only be achieved by an integrated system-level approach. This strategy signals a shift toward demand-driven delivery of freight logistics services, rather than a supply approach.

The strategy seeks to address a number of issues that undermine the competitive advantage that South Africa enjoys and renders it less competitive and relevant in world markets. South Africa’s geographic position, relative to global routes, is a disadvantage itself. It is therefore important that the transport system support South African products/ goods and services in order for them to be and remain competitive in global markets that are not skewed in their favour already because of our geographic location.

Figure 4-1 illustrates the well-developed global routes around highly efficient port systems with huge base markets that South Africa’s products must compete with.

Figure 4-1: Global Product Routes and Ports



Source: NLFS

The inefficiency of inland transport in serving an increasing hinterland is detrimental to the socio-economic development of South Africa. The majority of freight movement is internal, contrary to the perceived importance of corridor movements that maintain exports and imports throughout the country’s ports. It is therefore important for the system to be able to

bring marginalised and/or rural producers of goods and services into the primary freight transport system and also respond to the increasing freight on the transport network.

The main challenges facing South African export and imports as identified by the NFLS, are inefficiencies that constrain the entire transport system and these are:

- Low levels of investment in certain infrastructural and operational equipment
- Rigid management practices formed by supply-driven strategies
- Rigid costing approaches that are not customised.

Funding and financing transport infrastructure, network development and maintenance is not constant and responsive to transport demand and infrastructure utilisation over the long term.

The vision of the NFLS is to respond to problems in institutional and regulatory frameworks, infrastructure, ownership management, operations, skills, financing structures and methodologies for the freight system. This requires the government to take a more interventionist approach to regulating the freight system and to ensure that the incidental costs of externalities and inefficiencies are not merely passed on to cargo owners, but are correctly allocated.

The institutional objectives of the NFLS are as follows:

- To promote private-public partnerships;
- To create and maintain a programme aimed at addressing operational weaknesses and existing restrictions;
- To develop integrated planning across all spheres of government incorporating the views of all stakeholders; and
- To develop freight logistics planning for operations and infrastructure across the various corridors enabling the integration of South Africa, the region and continent as a whole.

The strategic objectives of the NLFS are as follows:

- To secure the sustainability of the sector thereby ensuring the adaptability of the sector to changes within the industry and the government;
- To respond to challenges facing the freight sector;
- To develop, plan, implement, monitor and update strategies and programmes that enable further enhancement of infrastructure, systems and operations along freight corridors and sub-corridors including airports, border posts, intermodal facilities, pipelines, port facilities, rail network and roads;
- To improve the capacity of the system; and
- To develop provincial freight scenarios for 2010.

The operational objectives of the NLFS are:

- To reduce the transport and logistics related cost of doing business; and
- To reduce transit time.

Policies informing the NLFS framework are as follows:

- **Policies of the National Transport Policy**
 - White Paper on National Transport Policy
 - White Paper on National Commercial Ports Policy
 - White Paper on National Policy on Airports and Airspace Management
 - Moving South Africa: The Action Agenda; and
 - National Land Transport Strategic Framework
- **Policies of the Department of Public Enterprises**
 - An Accelerated Agenda Towards the Restructuring of State Owned Enterprises

- **Policies of the Department of Trade and Industry**
 - Accelerating Growth and Development: the Contribution of an Integrated Manufacturing Strategy (IMS)
 - Integrated Industrial Strategy
 - Microeconomic Reform Strategy
 - Motor Industry Development Plan and
 - BEE Strategy
- **Policies of the National Department of Agriculture**
 - A Strategic Plan for South Africa Agriculture;
- **BEE Commission Report.**

4.3.10 Road Infrastructure Strategic Framework for South Africa (2005)

The Road Infrastructure Strategic Framework for South Africa document is a resultant of consultative processes initiated after the 2001 National Department of Transport discussion document An approach to a long-term national roads plan for South Africa to meet the economic, social and development needs of South Africa. The rationale behind the study was to supply a plan of action for tackling the most critical challenges impeding on road infrastructure in relation to the catalytic role it plays in development and in providing accessibility and mobility in the country. It addresses the following concerns related to the following:

- The optimisation of efficiency and effectiveness through the improvement of institutional arrangements;
- The consideration of functionality and ownership should network classification be conducted;
- Methods of implementing information systems to enable optimal decision-making processes;
- Sustainable funding mechanisms that ensure the sustainability of the system and the funding of access roads in the poorest rural and urban areas; and
- The development of the human capital of the roads sector and the extension of capacity to satisfy demands and the role the sector should play in the alleviation of poverty and unemployment.

The priority areas of the strategic framework include the following:

- Revising funding arrangements for roads, including reviewing toll road policies, strategies and recommendations for charging appropriate levies for freight transport haulers;
- Reviewing the restructuring of institutional arrangements for road planning and delivery at the provincial and municipal level; and
- Reviewing and re-declaring separate elements of the total road network based on revised classification approach to show the country's overall roads needs efficiently.

The road infrastructure strategic framework acknowledges the “road/rail” debate on freight haulage which is based on the notion that the market share of rail freight transport is declining due to inefficiencies in the rail system resulting in road being the preferred mode for transporting freight. To this end, the framework asserts that there is a need to develop strategies that will bring about sustainable investment in rail infrastructure and rolling stock, to ensure that cargo which was previously transported by rail reverts back to the rail mode which will lessen the fiscal burden for road network management. The framework also takes cognisance of the important role that roads play in the promotion of economic growth and social development in the country's policy and its role in encouraging growth in other economic sectors. Additionally, it recognises the importance of linking and harmonising with the SADC road network.

4.3.11 National Land Transport Act (2009)

Chapter 4 of the NLTA outlines general principles for transport planning and its integrations with land-use and development planning. Also, it provides integrated transport plans which are formulated to give structure to the planning activities that are undertaken by municipalities as mentioned in the Part B of Schedule 4 to the Constitution. These integrated transport plans should form part of the transport section of the integrated development plans of municipalities.

Provisions for freight transport are outlined in Section 37 of Chapter 4 (Transport Planning) of the National Land Transport Act (NLTA). According to these provisions, it is the responsibility of planning authorities to develop a freight transport policy at both national and provincial levels which covers the transportation of goods by road, rail, pipelines, from ports and airports. This strategy must identify the various routes for the movement of goods to promote flawless movement and avoid conflict with road traffic. Additionally, the strategy must include a plan for the movement of dangerous goods.

4.4 Provincial Freight Transport Perspective

This section presents what provincial policies and Integrated Development Plans entail about freight transport, challenges hindering its development as well as its future in the Limpopo Province.

4.4.1 White Paper on the Limpopo Provincial Transport Policy (2000)

The White Paper on Limpopo Provincial Transport Policy was never promulgated as an official policy document by the Limpopo Province. Its review is therefore not included in this write up.

4.4.2 Limpopo Province Freight Transport Strategy (2002)

The Limpopo Freight Strategy (2002) was developed against the background of the changes in the national political and economic environment, and also changes in the transport sector and global transport trends that affected transport infrastructure and operations in South Africa.

The strategy therefore adhered to national policy objectives with regard to freight transport. These objectives include amongst other excellent service for customers to enhance their global competitiveness, and to support job creation.

The following routes are presented by the Limpopo Freight Strategy (2002) as the main freight routes currently utilised by freight operators in the Limpopo Province:

- N1 main freight corridor in the Province, runs in a North-South direction towards Beitbridge Border Post at the RSA-Zimbabwe border;
- R35 between Martin's Drift Border Post (RSA-Botswana border) and Potgietersrus;
- R518 between Stockpoort Border Post (RSA-Botswana Border) and Potgietersrus;
- R517 between Stockpoort Border Post and Nylstroom;
- R510 between Stockpoort Border Post and Thabazimbi;
- R511 between Thabazimbi and Warm Baths;
- R36 and R40 from Louis Trichardt into Mpumalanga, towards the N4 in an Eastern Direction to Komatipoort Border Post (RSA-Mozambique border);
- R37 between Pietersburg and Nelspruit;
- R518 between Pietersburg and Nelspruit; and
- R518 and R37 between Potgietersrus and Nelspruit.

The Limpopo Freight Strategy also highlights the importance of an applicable legislative framework to the development of freight transport in the Province. These include:

- **White Paper Policy**

Aimed to provide effective and efficient coordinated seamless freight transport services within the broad national policy framework that will contribute to the economic development of the Limpopo Province with the minimum externalities and side effects to the community and environment

- **Mandate of the Province**

The mandate of the Province emanates from the Constitution of South Africa, 1996 (Act No. 108 of 1996). Its functions aligned to freight transport include:

- Industrial promotion;
- Road traffic regulation; and
- Trade.

- **Cross Border Road Transport Act (1998)**

It seeks to provide for co-operative and co-ordinated provision of advice, regulation, facilitation and law enforcement in respect of cross-border road transport by public and private sectors. Furthermore provides for the establishment of the Cross-Border Road Transport Agency.

- **Road Transportation Agreements with other Governments**

The Road Transport Agreements seek to ensure the provision of the following:

- Authorisation through issuing of permits of goods transport;
- Joint Committees;
- Vehicle and driver requirements;
- Harmonisation of Standards;
- Application of Legislation;
- Law Enforcement; and
- Information Management.

Legislation consulted at National Level included:

- Transport Deregulation Act, 1988 (Act No. 80 of 1988);
- National Land Transport Act 2009 (Act No. 5 of 2009);
- Cross-Border Road Transport Act, 1998 (Act No. 4 of 1998);
- Transport Appeal Tribunal Act, 1998 (Act No. 39 of 1998);
- South African Road Board Act, 1988 (Act No. 74 of 1988);
- Road Transportation Act, 1977 (Act No. 74 of 1977);
- National Land Transport Transition Act, 2000 (Act No. 22 of 2000);
- International Health Regulations Act, 1974 (Act No. 28 of 1974);
- Customs and Excise Act, 1964 (Act No. 91 of 1964);
- Counterfeit Goods Act, 1997 (Act No. 27 of 1997);
- National Road Traffic Act, 1996 (Act No. 93 of 1996);
- Administrative Adjudication of Road Traffic Offences Act, 1998 (Act No. 46 of 1998);
- Road Traffic Management Corporation Act, 1999 (Act No. 20 of 1999); and
- National Environmental Management Act, 1998 (Act NO. 107 of 1998).

Legislation consulted at Provincial level which was then reviewed included:

- The Northern (Limpopo) Province Road Traffic Act, 1997 (Act No. 5 of 1997);
- The Northern (Limpopo) Province Road Safety Act, 1997 (Act NO. 6 of 1997);

- The Northern (Limpopo) Province Roads Agency Limited and Provincial Roads Act, 1998 (Act No. 7 of 1998).

The Limpopo Freight Strategy (2002) states challenges regarding the development of freight transport in Limpopo Province. Overloading control was cited as the main challenge which gives rise to infrastructure and operational issues. Other issues include:

Infrastructure Issues

- Poor road conditions, which implies that overloading control is not being exercised;
- At some traffic control centres there are inadequate facilities to deal with overloading.

Operational Issues

- Bribery at weighing bridges occurs frequently, especially at Mantsole Traffic Control Centre;
- Personnel are not adequately trained in computer systems and issuing of documents, and therefore inefficient;
- Inconsistent and corrupt policing exists which leads to unfair competition;
- Weighbridge not calibrated correctly leading to incorrect weight distribution.

Limpopo Freight Strategy (2002) also stated other challenges impacting on the development of the freight industry in the Province. They include border post operations, safety and road conditions.

Border Post Operation Challenges

- Lack of standard documentation for SADC countries for Customs and Excise currency control;
- Long delays due to inefficient border post operations and insufficient personnel capacity to deal with traffic volumes; and
- Computer system problems.

Safety requirements and general challenges

- Hijackings of freight vehicles while transporting commodities;
- Too low speed limits which cause fatigue resulting in road traffic accidents;
- Inadequate parking facilities in towns; and
- Insufficient HIV/AIDS awareness campaigns.

Road condition challenges

- Insufficient road maintenance;
- Insufficient weighbridge facilities and overloading control.

The interventions proposed to overcome these challenges and promote freight transport in Limpopo, as stated by the Limpopo Freight Strategy (2002) are as follows:

- Provision of more weigh bridges on more routes;
- Utilisation of random mobile weigh bridges;
- Strengthening enforcement on international overloaded trucks entering the country;
- Weigh bridges are not calibrated correctly which leads to incorrect weight distribution;
- Provision of safe rest and parking areas;
- Provision of HIV/AIDS awareness campaigns to freight operators.

4.4.3 Limpopo in Motion (2005)

According to the Limpopo in Motion of 2005, the mission statement for freight transport is to ensure that all goods movement by all modes, within and across provincial boundaries, is cost effective and controlled within a healthy competitive environment; and that all produce reaches the markets in time and in good quality and safely (Limpopo in Motion, 2005).

The Limpopo Motion further specifies the main objectives regarding freight transport in the Province as

- Co-ordination of freight transport;
- Regulation and law enforcement;
- Capacity building;
- Freight transport infrastructure;
- Road freight effectiveness;
- Externalities;
- Economic development.

Challenges and issues regarding the development of freight transport in Limpopo Province as presented in the Limpopo in Motion include (1) the National and Provincial roads are utilised for freight movements linking South Africa with neighbouring countries; (2) the road infrastructure in the Province is generally poor except for the N1 worsening the situation is the lack of sufficient funding to fund underdeveloped provincial roads; (3) the main factor attributing to the poor condition of road infrastructure in the Province is the excessive overloading of heavy vehicles.

Therefore the Province identified the following needs:

- To strengthen the traffic control capacities and enforcement at weighbridge stations;
- To develop strategic objectives and strategies in order to overcome the challenges hindering the improvement of freight transport in Limpopo and
- To develop suitable institutional arrangements

The Limpopo in Motion states that freight transport will develop in the Province if the following interventions are taken into consideration:

- Development and implementation of a master plan for freight transport facilities on major routes;
- Identification of infrastructure requirements for road freight operations;
- Determination of the development and implementation of effective cross border institutional coordination;
- Development of road freight infrastructure requirements;
- Improvement of general safety and trucking activities;
- Development and maintenance of freight transport routes (road and rail infrastructure) including the routes that would be appropriate for the movement of hazardous material;
- Implement load control strategies to protect the key freight transport network in the Limpopo Province; and
- Intensify overloading control and weighbridge operations.

4.4.4 Limpopo Growth and Development Strategy 2004 - 2014 (2007)

The mission of the Limpopo Growth and Development Strategy is to stimulate, promote and sustain unity and an enabling environment conducive for economic development, social justice and improved quality of life for its people.

There are seven industrial clusters which promote economic development in the Province namely:

- Platinum mining cluster,
- Coal mining and Petrochemical cluster,
- Fruit and vegetable clusters,
- Logistic cluster,
- Red and white meat cluster and
- Forestry cluster.

These clusters are envisaged to promote freight transport in the Province in the sense that the goods produced will have to be transported to other Provinces and countries. The Limpopo Growth and Development Strategy presents each cluster as follows:

- **Platinum mining cluster** on the Dilokong Corridor between Polokwane and Burgersfort (Sekhukhune District): Anchor projects on this cluster include the new platinum mines and smelter as well as the chrome mines and all ensuing up-stream developments (input suppliers) that emerge from these developments. Down-stream activities refer to the smelter that has already been constructed with the potential for expansion, as well as a refinery that is envisaged in the future and other high value uses like in the autocatalytic, glass, dentistry, fuel cells industries, etc.
- **Coal mining and Petrochemical cluster** at Lephalale on the East-West Corridor (Waterberg District): Anchor projects comprise of the expansion of the existing Grootgeluk Coal Mine and the power station and also to build an aromatics extraction factory, which form the core of this cluster. The factory will be fed with chemical grade coal from Grootgeluk Mine. A wide range of down-stream opportunities exists in the styrofoam, plastic, nylon, rubber product, non-recovery coking and char industries.
- **Fruit and vegetable (horticulture) cluster** in Vhembe, Mopani and Bohlabela Districts: Anchor projects consist of the development of a fruit and vegetable processing facility. The cluster value-chain should be extended up-stream to include the local production of inputs for the growing of selected fruit and vegetable commodities, such as plant material production, nurseries, pesticides and fertilisers (including organic fertilizers). The value-chain down-stream includes processing, packaging and exporting industries.
- **Logistic cluster** in Polokwane under Capricorn District: This proposed cluster should promote Polokwane as a destination of choice for people and cargo whereby the city can act as gateway to Southern Africa. The logistics cluster should therefore be centred on providing inter-modal transportation that incorporates Polokwane International Airport, the rail station and the proposed truck inn. Additional demand for air traffic will have to be induced, for example, by tendering to become a United Nations Logistics Depot for Sub-Saharan Africa. This will create opportunities up-stream for food production and down-stream for manufactured products, such as tarpaulins, water cans, basic medical supplies and packaging material. Manufacturing activities in the industrial parks adjacent to the airport should therefore become part of this cluster concept.
- **Red and white meat cluster** on all the corridors (all districts): This cluster should build on current and emergent cattle and poultry production, as well as animal-feed production, and should be expanded to incorporate under-utilised facilities such as state farms across the Province. Up-stream development opportunities include sorghum production by emergent farmers (a major substitute for maize), as a strategy to raise the competitiveness of animal-feed and meat production in Limpopo. Down-stream activities should include improved efficiencies at abattoirs, as well as the packaging and distribution supply chain.
- **Forestry cluster** in the Mopani and Vhembe Districts: Existing plantations are at the centre of this cluster. Up-stream activities include nurseries and plant material production, whereas down-stream activities refer to sawmills and other timber processing facilities.

The Limpopo Growth and Development Strategy presents interventions required to promote the freight industry in Limpopo based on the development clusters as follows:

- The upgrading of the road between Burgersfort and Polokwane, water source development education and skills development with specific reference to the mining sector;
- The approval for the expansion of the power station at Grootgeluk Coal Mine, water source development, education and skills development with specific reference to the chemical industry, and a rail link to Richards Bay in the long term;
- Improvements to logistical capacity and investment in plant biotechnology commercialisation of state farms, water resource development, rehabilitation of community irrigation schemes, skills development among emerging farmers and the encouragement of public-private partnerships with established commercial farmers;
- Negotiations with the United Nations regarding the utilisation of the airport as a logistics depot for Southern Africa; and
- Manage the impact of plantation forestry on already stressed watercourses.

4.4.5 Limpopo Provincial Land Transport Framework (2007)

The mission statement as stated in the White Paper on the Limpopo Provincial Transport Policy (2000) “to provide a framework within which road traffic in the Province can move in a safe and controlled environment, whereby human life can be protected, traffic flow be optimised, road user cost be minimised, road infrastructure be safeguarded against misuse and it be utilised in the most efficient manner”.

Challenges associated with freight transport in Limpopo Province include:

- Increased accident risks;
- Noise pollution;
- Environmental Intrusion;
- Deterioration of road infrastructure due to over loading; and
- Weighbridge evasion and deviation to minor roads.

The Limpopo Provincial Land Transport Framework (2007) presents interventions that are required for the promotion of freight industry in the Province. They include:

- There is a need for effective control of overloaded heavy vehicles in order to minimise the damage caused to road pavements by high axle loads
- Alternative routes through towns by heavy vehicles must be identified, appropriately signed, maintained and enforced. Furthermore truck stops, climbing lanes, convenient shops, and accommodation (truck inns) should be considered on heavy vehicle routes and at border posts and towns.
- Building density in the transport system through focusing freight flows in select corridors and effectively using the different modes within the transport system
- South African National Roads Agency Limited and the Department of Roads and Transport have developed an Overload Control Strategy for Limpopo Province

4.4.6 Limpopo Spatial Development Framework (2007)

The main objective with the provincial Spatial Development Framework (SDF) was to formulate a spatial framework which would guide and encourage equitable distribution of investment in terms of a functional settlement hierarchy, to achieve spatially balanced development across the Limpopo Province and support investment in sustainable settlements (Limpopo SDF, 2007).

The Limpopo SDF further states the criteria used for identifying settlement clusters associated with freight transport in the Province

- Existing and potential future economic activities such as businesses, mining and/or tourism potential and activities in or in close proximity of these development clusters have also played an important role in the identification of clusters with growth points and population concentrations within these settlement clusters;
- The existing and proposed industrial clusters and development corridors;
- The way in which the development of the settlement is influenced by factors such as agricultural potential, environmental sensitivity and mineral and mining occurrences.

4.4.7 Limpopo Employment, Growth and Development Plan (2009)

The main objective of the provincial Employment, Growth and Development Plan (LEGDP) is to provide a framework for provincial government, local municipalities and the private sector to work together in tackling economic challenges. Some of the challenges that hinder economic development from a transportation point of view include:

- Lack of good roads;
- Under-utilisation of airport infrastructure;
- Unsustainable market share between goods transported by roads and rail;
- Lack of extensive rail infrastructure; and
- Poor maintenance of rail and road infrastructure.
- Some of the identified policy responses include:
 - Fostering good relations with private sector to mobilise investment for developmental projects;
 - Formation of a clearing house to scrutinise major strategic projects;
 - Improvement of asset register;
 - Fostering partnerships with educational institutions to enhance technical skills.

4.4.8 Districts Integrated Development Plans

The following statements regarding freight transportation were extracted from the current district's Integrated Development Plans:

Capricorn District-Integrated Development Plan (IDP) 2008/9-2010/11

The Capricorn District (IDP) states that Polokwane which falls under the district is known as the logistic hub of the Province, placing Capricorn District as the economic champion of the Limpopo Province. There are four development corridors of the Province that converge in the District namely:

- The Trans-Limpopo Corridor – follows the N1 from Gauteng to the rest of Africa via Zimbabwe;
- The Phalaborwa Corridor – stretches from the N1, north of Polokwane, eastwards through agricultural area around Tzaneen towards Phalaborwa. It then turns south to link with Maputo;
- East-West Corridor – leads to Botswana. It covers the mining and ecotourism areas in the west-central region of the Province; and
- Dilokong Corridor – covers the platinum mining area in the east-central region of the Province.

According to the Capricorn IDP, these corridors are used to transport fuel, food and spare parts by road.

Greater Sekhukhune District – Integrated Development Plan (IDP) 2006/7 to 2008/11

There is a railway line that runs in two local municipalities (Greater Marble Hall and Greater Tubatse) which are used for transporting freight commodities from mining and agriculture economic sectors. This line links with the main railway line running between Pretoria and Polokwane (Sekhukhune District IDP).

Development of agriculture, mining and manufacturing economic sectors would give rise to the promotion of freight transport planning in the district. The following objectives regarding the development of the economic sectors should be taken into consideration:

- To facilitate the development and expansion of the Agricultural sector, this could be achieved by the development of an Agricultural sector strategy;
- To diversify the local economy by increasing economic activities that supports the mining sector. This could be achieved by the development of mining oriented activities;
- To stimulate value adding activities relating to primary sectors i.e. mining and agriculture, this could be achieved through the promotion of primary sector local value activities.

The Greater Sekhukhune ITP calls for the development of an agricultural sector strategy, expansion of mining oriented activities and the promotion of primary sector local value activities in order to promote freight transport in the district.

Mopani District Integrated Development Plan (IDP) 2006-2011

According to the Mopani District IDP, rail is mostly used as goods carriers in the district. This is mainly found in the Greater Tzaneen, Greater Letaba, and Ba-Phalaborwa areas. There is a rail link from Groenhout to Mooketsi running to Modjadjiskloof. Tzaneen, Letsitele, Gravelotte through to Maputo.

Challenges faced by Mopani District regarding the promotion of freight transport include:

- Lack of road signs;
- Non-maintained roads and lack of route names and numbers
- The fence along main routes has been removed, this has resulted in stray animals on the road causing road accidents

Mopani District Municipality is situated within a number of strategic corridors in the Province which have a potential to offer opportunities of freight development (Mopani District IDP). The main corridors include:

Ba-Phalaborwa Spatial Development Initiative (SDI): This corridor is particularly well endowed with mining deposits with a number of mining operations already underway.

Tzaneen – Letaba Agricultural Hub: This is where most of the citrus fruits, sub-tropical fruit and vegetables in the districts are produced. This offers opportunities for processing of secondary products from fruit produce.

Giyani Sub-region: This region is potentially rich in good agricultural soils and mining deposits.

According to the Mopani IDP, Mopani is situated within a number of strategic corridors in the Province which have a potential to offer opportunities for freight development namely B-Phalaborwa Development Initiative (SDI), Tzaneen-Letaba Agricultural Hub and Giyani Sub-region.

Vhembe District – Integrated Development Plan (IDP) 2008/9

Agriculture, mining and manufacturing are vital economic sectors for promoting freight transport in the Province. Mining within Musina LM appears to be declining with many mines shut down however there is a potential for coal mining should the road infrastructure be improved (Vhembe IDP)

The N1 passes through Musina and is mainly utilised to transport fuel, goods and services, and spare parts to our neighbouring country Zimbabwe. There is a need for improvement at the border for efficiency purposes.

Challenges with regard to agriculture in the district

- Lack of formalised, organised, reliable transit for perishable goods
- High cost of transport for bulky items
- Lack of production facilities
- Lack of infrastructure for small scale farmers
- Lack of market access particularly for livestock farmers

Vhembe district has potential opportunities with regard to agricultural production. This include fruit and vegetable processing, dairy production, establishment of abattoirs, meat processing, animal feed production, expansion of saw mill, furniture making, medicinal plants etc.

The Vhembe IDP provided interventions required for developing freight transport in the district. They include:

- Identification and prioritisation of roads that need upgrading through a consultative process
- Improvement of freight facilities at the border posts
- Agriculture and forestry value chain development and integration
- Mining sector value chain development and integration as well as diversification of the economic sector

Waterberg District-Integrated Development Plan (IDP) 2008-2009

Provision of transport infrastructure is vital for the development of the freight transport in Limpopo Province. According the Waterberg District IDP: 2008-2009, there are certain busy roads in the district that are essential to the improvement of logistics for the expanded mining. They include (1) Gakgabudi through Mapela to Marken road – central to expanded platinum mining in Platreef; (2) Koedoeskop to Northam and Dwaalboom road – specifically for new cement kiln currently under construction at Dwaalboom; and (3) D1639 road – essential to platinum mine expansion at Northam.

The Waterberg IDP further states the roads that are currently on the tarring programme after the year 2010 and are of consequence to the mining sector. They include (1) completion of the Mapela - Marken road; (2) linking Polokwane with Lephalale via Giklead and Marken; and reconstruction of R33 between Lephalale and Modimolle.

The key challenges facing Waterberg District regarding freight transport planning include:

- Lack of funding for implementation of projects identified in the Waterberg District Integrated Transportation Plan e.g. the reconstruction of R33
- Huge backlog of about 4 043 km (numbered roads only) road infrastructure
- Lack of enough funds to build new roads
- Lack of road safety improvements mechanisms
- Few strategic routes i.e. road and rail are suitable for freight
- Poor road condition and lack of connections

The Waterberg IDP states that for the freight industry to develop in the district the following interventions should be taken into consideration:

- The extension, maintenance and management of the R33 and the N11 as these roads are essential for linking resource extraction;
- Upgrading and reorientation of railway stock to improve connectivity with economic centers and service points; and

- Investment in road infrastructure in the localities connecting Botswana and South Africa.

4.4.9 National Transport Master Plan 2005-2050 (2010)

The National Transport Master Plan is a framework that addresses the needs of transport infrastructure in the Province, taking into account land use, population and economic outlook of the Province.

The NATMAP process commenced in 2007 with data search and collection of the status of all modes of transport in the Province as well as population and land use characteristics. This phase was followed by the analysis of all data to identify trends and to determine the basis of future projections. The analysis phase was followed by the testing and evaluation of alternatives, with the final activity being the provision of preferred alternatives. The project was concluded with the preparation of an Action Agenda, which drew up a national and provincial goals achievement matrix.

- The Limpopo NATMAP Report stated the following with regards to freight transportation:
- Road freight volumes are expected to also increase over the NATMAP period, with major corridors handling increase general cargo. The report also envisaged some reduction in the localised transportation of coal;
- Rail freight volumes are also expected to also increase over the NATMAP period – with the Lephalale mainline being the prominent rail line;
- Some of the proposals from the NATMAP process include expansion of the N1 and the potential of a new transport infrastructure to address the needs in the Lephalale area.
- Other freight planning processes for road freight transport in Limpopo Province that are not being addressed include the issue of heavy vehicle haulage on provincial roads as the result of branch line service levels; the issue of toll road avoidance by means of provincial road usage and the consequent damage to provincial roads and selective use of sections of the toll routes; development of contingency plans, to resolve the issue of peak oil and possible future fuel shortage; improvement of systems and facilities to manage the transport of Dangerous Goods by road; development of strategies to promote intermodal transport and improve the usage of the rail system and planning to provide long term direct road access from the Limpopo mining areas to Richards Bay.

4.5 Freight Policy Assessment

The purpose of this section is to provide an assessment of existing policy that governs freight transport planning by highlighting their strengths, weaknesses, threats and opportunities.

The SWOT assessment will be followed by the summary of a list of potential problem areas that should be considered during Phase 2 of the project.

4.5.1 Freight Policy SWOT Assessment

Table 4-3 below presents an overview of aspects that have an impact on the realisation of current freight transport planning policy statement. Strengths, weaknesses, opportunities and threats (SWOT) with regard to transport infrastructure in Limpopo Province

Table 4-3: Aspects Impacting on Freight Transport Legislative - SWOT Analysis

KEY POLICY	SPHERE	OBJECTIVE & POLICY STATEMENTS W.R.T FREIGHT TRANSPORT	PROMOTERS	OBSTRUCTORS
SADC Protocol on Transport – Logistic Systems	Regional	<p>Policy Statements: Unified freight systems – documentation; communication, data processing and exchange facilities;</p> <p>Quality controls and assurance standards applicable to all modal transport operators;</p> <p>Enhancement of performance of rail and freight container information tracking systems;</p> <p>Processes for cargo security improvement. Bureaucracy due to systems of the different member states;</p> <p>Capacities of implementing agencies for the member states</p>	Political will to ensure cooperation during the implementation of Southern African logistical systems	<p>Bureaucracy due to systems of the different member states;</p> <p>Capacities of implementing agencies for the member states;</p> <p>Sustainable Public Private Partnerships;</p> <p>Achieving Legal Reform across the member states;</p> <p>Sustainable Committees;</p> <p>Sustainable corridor development across the complete corridor</p>
National Land Transport Strategic Framework	National	<p>Align freight transport logistics with economic and industrial development strategies</p> <p>Policy Statement Promotion of freight transport industry within the limits of sustainable transport infrastructure;</p> <p>Improved conditions of employment and participation within the freight industry;</p> <p>Promote shift of freight from road to rail.</p>		<p>Lack of guideline for shifting of freight from road to rail;</p> <p>Lack of improved conditions of employment and participation within the freight industry;</p> <p>Poor transport infrastructure.</p>
National Transport Policy	National	<p>Provide safe, reliable, effective, efficient and fully integrated land freight transport operations and infrastructure.</p> <p>Policy Statement Controlling operator fitness through the implementation of the Road Transport Quality</p>	<p>Promotion of road transport law enforcement and management of cross-border routes</p> <p>Promoting equitable competition in road transport;</p>	<p>Deficient current road traffic law enforcement relating to various aspects of freight transport.</p> <p>The Road Transport Quality System (RTQS) is regarded as too complicated and has not yet been fully implemented;</p>

KEY POLICY	SPHERE	OBJECTIVE & POLICY STATEMENTS W.R.T FREIGHT TRANSPORT	PROMOTERS	OBSTRUCTORS
		<p>System (RTQS),</p> <p>Establishing a monitoring system</p> <p>Undertaking cost recovery studies to determine and equitably allocate costs for the provision, management, operation, and maintenance of all freight transport infrastructure (including road, rail, port, and airport);</p> <p>Supportive of small and medium business;</p> <p>Establishing a formal consultative forum between government, public and private sectors, operators, and stakeholders;</p> <p>Road transport law enforcement and management of cross-border routes;</p> <p>Impose strict government regulations to control the transportation of hazardous materials and substances;</p> <p>Simplify the Road Transport Quality System RTQS, but not relax quality standards;</p> <p>Promote the entry of SMMEs to the road freight sector.</p>		
Moving South Africa	National	<p>Taken together, the customer needs and demand, national objectives, and sustainability requirements create a set of integrated performance objectives for the freight system into the future.</p> <p><u>Freight System Performance Objectives</u> Increase value to customers through increasing</p>	<p>Build density in the transport system by focusing freight flows in select corridors by supporting and reinforcing current trends to build the backbone of the system;</p> <p>Build economies of scale within the</p>	<p>Lack of support for export competitiveness; and</p> <p>Low levels of system sustainability.</p>

KEY POLICY	SPHERE	OBJECTIVE & POLICY STATEMENTS W.R.T FREIGHT TRANSPORT	PROMOTERS	OBSTRUCTORS
		<p>the competitiveness of businesses by improving reliability and transit time for freight;</p> <p>Lower transport system costs in order to increase profitability and sustainability in the transport industry;</p> <p>Decrease the distorting effects of cross-subsidisation so as to increasing the potential to reinvest;</p> <p>Promoting value-based competition over price-based competition by internalising externalities and decreasing the burden on the fiscus.</p>	<p>different modes by focusing the role of the modes, maximising scale economies within each mode and offering differentiated services where economically sustainable; and</p> <p>Improve competitiveness by removing obstacles, improving integration, ensuring sufficient reinvestment to maintain quality infrastructure and operations, restoring price and value signals between customers and providers and building an industry platform which drives differentiation and innovation.</p>	
National Freight Logistics Strategy	National	<p>Secure the sustainability by ensuring the adaptability of the sector to changes within the industry and the government and respond to challenges facing the freight sector;</p> <p>Develop, plan, implement, monitor and update strategies and programmes that enable further enhancement of infrastructure, systems and operations along freight corridors and sub-corridors including airports, border posts, intermodal facilities, pipelines, port facilities, rail network and roads;</p> <p>Improve the capacity of the system; and develop provincial freight scenarios for 2010.</p> <p>Reduce the transport and logistics related cost of doing business; and transit time.</p> <p>Policy Statement</p>	<p>National Freight Logistics Strategy responds to problems in institutional and regulatory frameworks, infrastructure, ownership management, operations, skills, financing structures and methodologies for the freight system.</p>	<p>Lack of legislation limiting freight transport to designated national routes;</p> <p>Lack of legislation with the provision of incentives for mode shift from road to rail;</p> <p>Legislative efforts should be made through the new proposed Rail Act to provide incentives to move freight back from the road to the rail mode, provided rail infrastructure and operations are sufficiently improved;</p> <p>Legislation should limit freight transport to designated national routes, or measures such as pre-tolling should be used to counter the problem of abuse of provincial and regional roads;</p> <p>Low levels of investment in certain infrastructural and operational equipment;</p>

KEY POLICY	SPHERE	OBJECTIVE & POLICY STATEMENTS W.R.T FREIGHT TRANSPORT	PROMOTERS	OBSTRUCTORS
		Address a number of issues that undermine the competitive advantage that South Africa enjoys and renders it less competitive and relevant in world markets		Rigid management practices formed by supply-driven strategies; and Rigid costing approaches that are not customised.
National Freight Monitoring Framework	National	<p>Address the challenges faced in capturing, processing and presenting freight information for intelligence and decision support to both the Department and its stakeholders</p> <p>Policy Statement Form the basis from which to achieve complete freight transit and storage life-cycle insight using monitoring processes and technology to improve management, planning and regulatory functions of the Department and key stakeholders;</p> <p>Encompass all modes of transport e.g. road, rail, aviation, maritime and pipeline;</p> <p>Gain insight into the current landscape in terms of the available freight information across all modes of transport;</p> <p>Investigate challenges facing both the department and the respective stakeholders</p> <p>Investigate solutions available solutions globally and come up with recommendations</p>	<p>Ability to monitor freight overloading, licensing enforcement, identification of bottlenecks in freight traffic transport allowing for the mitigation of these issues;</p> <p>Ability to monitor integration of information captured with other existing systems to enable reliable decision-making and report capability;</p> <p>Ensure compliance with the Container Safety Initiative (CSI) and the International Ships and Port Security (ISPS) code for the profiling of cargo operators.</p>	<p>Overall data quality is poor</p> <p>Inconsistent data in terms of freight classification and various measurements</p> <p>No indications of freight origin and destination;</p> <p>Lack of Freight classification;</p> <p>Most of the data is related to provincial views and not to corridors;</p> <p>There are gaps in understanding the corridor performance including bottlenecks such as inter-modal depot waiting time and bottlenecks due to traffic congestion;</p> <p>There is no data in support of the above congestion and the challenge of re-routing and capacity planning is available;</p> <p>There is insufficient data for accurately monitoring what, why, when and where effectiveness is compromised; and</p> <p>No Just-in-time logistics data is available to establish where freight is and how to prioritize port space management.</p> <p>Customs do not want to stamp the CBRT's consignment notes due to the fact that Customs have changed their systems at the border posts.</p>

KEY POLICY	SPHERE	OBJECTIVE & POLICY STATEMENTS W.R.T FREIGHT TRANSPORT	PROMOTERS	OBSTRUCTORS
National Road Traffic Act	National		<p>Approach and conditions on transportation of dangerous goods specified;</p> <p>Where it is suspected that an offence was committed with regards to the mass of a motor vehicle, the vehicle will be subjected to weight measurement by means of a mass-measuring bridge or other mass measuring instruments and results thereof will be accepted as correct should there be no evidence to prove the contrary.</p>	<p>Absolute lack of law enforcement leads to overloading offender not being prosecuted;</p> <p>Traffic law enforcement officers are not properly trained to enforce overloading legislation;</p> <p>Fraud and corruption is rife amongst traffic and transport law enforcers.</p> <p>Lack of cooperation between Customs, CBRT and Limpopo law enforcers (Limpopo is responsible for overloading control and the CBRT is responsible for the enforcement of the RTQS;</p> <p>SADC countries' road traffic legislation is still not harmonised;</p> <p>The CBRT should be involved in the enforcement of overloading control.</p>
Limpopo in Motion	Provincial	<p>Develop effective coordinating measures for freight transport and maintain freight transport routes. Also identify infrastructure requirements for road freight operations</p> <p>Policy Statement Ensure movement of goods by all modes within and across provincial boundaries, are effective, cost effective and controlled within a healthy competitive environment; and Ensure that all produce reaches the markets in time and in good quality and safe.</p>	<p>Identification of gaps with regard to safety and regulatory requirements for road freight operations</p> <p>Identification of infrastructure requirements for road freight operations</p> <p>Improvement of the general safety and security of trucking activities</p>	<p>Lack of road freight infrastructure requirements plan;</p> <p>Lack of road traffic safety law enforcement;</p> <p>No load control strategies Excessive overloading of trucks in Province</p> <p>Lack of development and maintenance of freight transport routes (road and rail infrastructure).</p>
Limpopo Growth & Development Strategy 2004 – 2014 (2007)	Provincial	To raise the international competitiveness and investment rating of the Province, create employment opportunities, combine public and private sector contributions to development and	Seven industrial clusters envisaged to promote freight transport in the Province namely: Platinum mining cluster, coal mining and petrochemical cluster, Fruit	Scarcity of water in the Province. Since the formation and promotion of cluster development is aligned with a water resource and a management strategy to ensure optimal use

KEY POLICY	SPHERE	OBJECTIVE & POLICY STATEMENTS W.R.T FREIGHT TRANSPORT	PROMOTERS	OBSTRUCTORS
		<p>to align the interventions of various public development institutions for greater impact</p> <p>Policy Statement Provides ample room for co-operative governance for the seven industrial clusters.</p>	<p>and vegetable clusters, logistic cluster, Red and white meat cluster and forestry cluster</p> <p>The upgrading of the road between Burgersfort and Polokwane, water source development education and skills development with specific reference to the mining sector;</p> <p>The approval for the expansion of the power station at Grootgeluk Coal Mine, water source development, education and skills development with specific reference to the chemical industry, and a rail link to Richards Bay in the long term;</p> <p>Improvements to logistical capacity and investment in plant biotechnology commercialisation of state farms, water resource development, rehabilitation of community irrigation schemes, skills development among emerging farmers and the encouragement of public-private partnerships with established commercial farmers</p>	<p>Lack of education and skills development with reference to mining sector, chemical industry and agricultural production</p>
<p>Capricorn District - IDP</p>	<p>Local</p>		<p>Polokwane is the logistical hub of the Province</p> <p>There are 4 development corridors that converge in Capricorn District namely: Trans-Limpopo Corridor, Phalaborwa Corridor, East-West Corridor and</p>	

KEY POLICY	SPHERE	OBJECTIVE & POLICY STATEMENTS W.R.T FREIGHT TRANSPORT	PROMOTERS	OBSTRUCTORS
			<p>Dilokong Corridor.</p> <p>These corridors are used to transport fuel, food and spare parts by road.</p>	
Greater Sekhukhune District IDP	Local		<p>Good transport infrastructure base</p> <p>Potential for primary and manufacturing sectors to the promotion of freight transport planning.</p>	Lack of economic diversification
Mopani District IDP	Local		<p>Rail is primarily used to transport goods in the Province;</p> <p>Mopani is situated within a number of strategic corridors in the Province which have potential to offer opportunities for freight development namely Ba-Phalaborwa Development Initiative (SDI), Tzaneen-Letaba Agricultural Hub and Giyani Sub-region</p>	
Vhembe District IDP	Local		<p>The N1 passes through Musina and is the main route used to transport fuel, goods and services and spare parts to Zimbabwe.</p>	<p>Poor road infrastructure</p> <p>Lack of formalised and reliable transport for perishable commodities</p> <p>High cost of transporting bulky goods</p> <p>Lack of identification and prioritization of roads that require upgrading</p> <p>Need for freight facilities at the border posts</p> <p>Lack of tapping into the agricultural potential opportunities with regard to agricultural production</p> <p>Declining of mineral resources</p>

KEY POLICY	SPHERE	OBJECTIVE & POLICY STATEMENTS W.R.T FREIGHT TRANSPORT	PROMOTERS	OBSTRUCTORS
				<p>Lack of mining, agricultural and forestry value chain development and integration</p> <p>Lack of diversification of the economic sector</p>
Waterberg District IDP	Local		<p>Identification of roads within the district which are essential for the improvement of logistics and expanded mining include:</p> <ul style="list-style-type: none"> • Gakgabudi through Mapela to Marken road – central to expanded platinum mining in Platreef; • Koedoeskop to Northam and Dwaalboom road – specifically for new cement kiln currently under construction at Dwaalboom; • D1639 road – essential to platinum mine expansion at Northam <p>Extension, maintenance and management of the R33 and the N11 as these roads are essential for linking resource extraction;</p> <p>Upgrading and reorientation of railway stock to improve connectivity with economic centres and service points; and</p> <p>Investment in road infrastructure in the localities connecting Botswana and South Africa</p>	<p>Lack of strategic routes for transporting freight commodities;</p> <p>Lack of maintenance of essential routes for transporting freight commodities.</p>

4.5.2 Key Freight Policy Challenges

The following key policy challenges have been identified:

- There is **lack of policy guidelines regarding road infrastructure improvements** to provide more definite collaboration between Government Spheres;
- There is **lack of co-ordination between National, Provincial and Municipal spheres** regarding road transport planning, maintenance and operations in the Province;
- **Lack of capacity to perform legislative functions** - policies, acts, frameworks are enacted at National and Provincial level but there is no mechanism or monitoring strategy to ensure that policy statements, legislation and objectives are effectively implemented;
- **Lack of legislation limiting Freight Transport to Designated National Routes** - the National Freight Logistics Strategy highlights that there should be legislation that will limit freight transport to designated national routes or measures such as pre-tolling should be used to counter the problem of abuse of provincial and regional roads;
- **Lack of Legislation with the Provision of Incentives for Mode Shift from Road to Rail** - the National Freight Logistics Strategy further highlights the lack of legislation providing incentives for mode shift from road to rail as a challenge for freight transport development. Legislative efforts should be made through the new proposed Rail Act to provide incentives to move freight back from the road to the rail mode, provided rail infrastructure and operations are sufficiently improved;
- **Lack of legislation compelling the provision for dedicated lanes for trucks on freight transport routes.** Currently heavy vehicles are mixed up with other vehicles on the roads. This results in conflicts which causes road traffic accidents.
- **Lack of legislation regulating the gathering and dissemination of transport data by the National Department of Transport, provinces, operators etc.** A draft Bill was prepared for the National Department of Transport but no progress has been made to take it through the required legislative processes.
- **Lack of legislation providing for the implementation of the planning, institutional and regulatory recommendations made in the "NATMAP" report.** A draft Bill (National Transport Planning and Implementation Bill) has been prepared and submitted to the National Department of Transport in 2011 but no progress has been made to take it further through the required legislative processes.

NOTE

It is quite evident that over the years many policy frameworks, strategic frameworks, institutional amendments, legislative amendments have been produced with apparently no significant improvement in the regulation of overloading, the protection of the road infrastructure and road safety problems. These problems have existed for many years now and the time has come for all roleplayers involved to make a proper commitment to improving the existing situation by effectively protecting the road infrastructure, improving rail freight infrastructure and services, implementing professional law enforcement practises, providing the necessary capacity and training to all relevant institutions and by implementing the recommendations made in the NATMAP Report and other policy studies as soon as possible.

It is important to note that the NATMAP 2050 Report also identifies the need for legislative review, but identifies that the biggest problem from a legislative view is that policies and legislation are not implemented; pointing out that proper implementation could have a great effect.

The National Transport Planning and Implementation draft Bill has, amongst others, the following objectives:

- “Consider and provide for an integrated multimodal transport infrastructure facilities development and planning across all spheres of government. The planning elements relating to multi-modal infrastructure will be incorporated in the proposed Bill.
- Consider provision for mandatory disclosures of all contents of containers at all points of entry and exit to and from the Republic.
- To empower the Department to identify and provide for sources of funding and to harmonize the same in all spheres of government with regards to the Constitution, 1996, The Provincial Tax Regulation Process Act, The Public Finance Management Act, The Municipal Finance Management Act and the Municipal Fiscal Powers and Functions Act.
- To make an enforceable provision for transport data collection as and when required by the Department, and/ or other transport institution in the three spheres of governance during the National Population Census Survey.
- The proposals contained in NATMAP 2050 regarding the Multi-modal Policy Forum, and in particular consideration of the two options given, namely the options of a forum being established by legislation or informally as a non-statutory structure.
- To ensure that the structures established to undertake transport planning have full access to information from all custodians of relevant and or desired transportation information e.g.; SARS, STATS SA, and from the private sector to enable proper planning to be done.

It is therefore very important that the National Department of Transport proceeds with the enacting of this draft Bill which will lead to many improvements with regard to the above-mentioned problems and constraints identified in this report.

5. Institutional Review

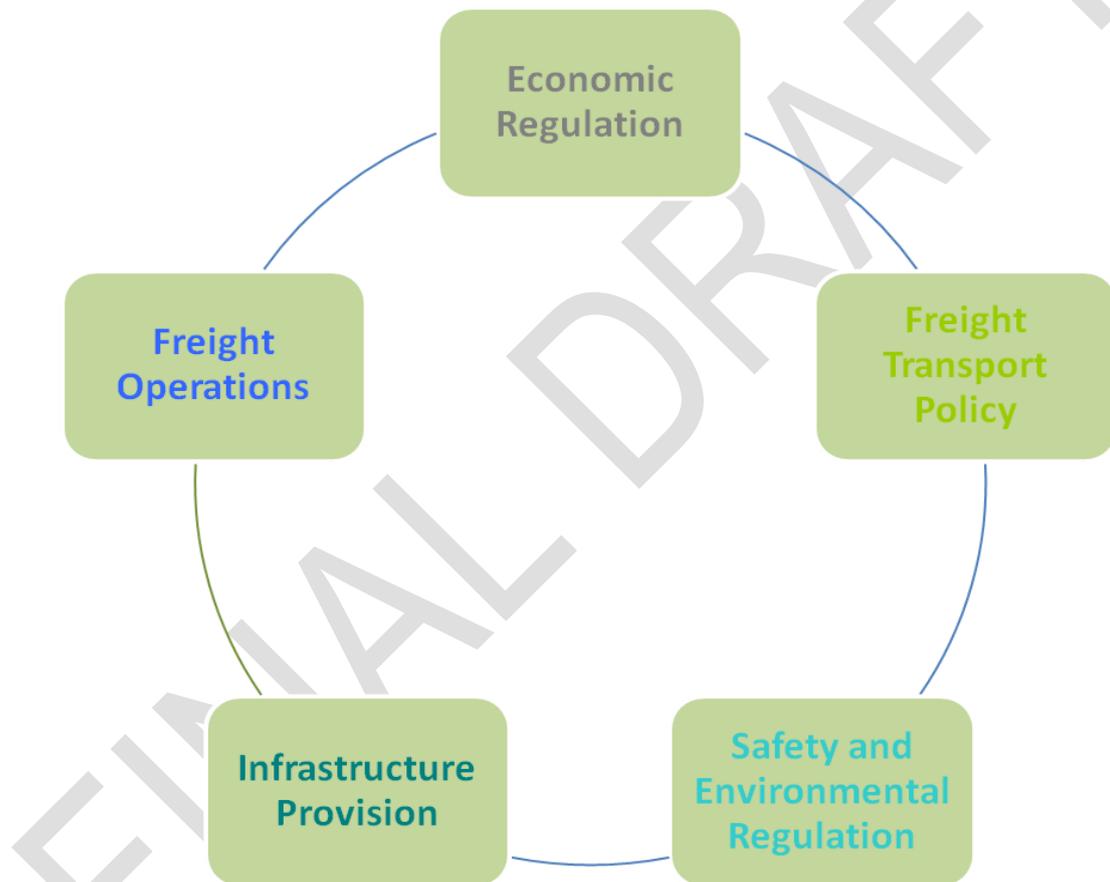
Freight transport planning, infrastructure management, regulation as well as industrial coordination and communication are guided by the type of institutional arrangement found in the Province.

This section of the report will provide an overview of current institutional arrangement that govern over freight transport in the Province, highlighting the key institutional players involved in freight transport in the Province. Furthermore an outline of the key issues that have been identified through research and stakeholder consultation will be discussed.

5.1 Institutional Arrangement

Figure 5-1 shows the area of expertise that governs freight transport in the Province.

Figure 5-1: Area of Expertise governing Freight Transport Institutional Arrangements



The institutions responsible within the area of responsibilities outlined in Figure 5-1 are as follows:

- The area of expertise listed in the figure cut across the modes of transport that exist in the Province, namely road, rail and air;
- For the Economic Regulation, the relevant organisations that cut across the three modes of transport operating in the Province (i.e. rail, road and air) include the Competition Commission, Department of Trade and Industry, South African Reserve Services and the Department of Transport;
- Freight transport policy are guided by:
 - Department of Transport and Transnet for the rail mode;
 - Department of Transport for the road mode; and

- Department of Transport, Airport Company South Africa and the Air Traffic and Navigation Services for the air mode.
- Safety and Environmental Regulations are guided by:
 - Department of Environmental Affairs and Tourism (DEAT) and Rail Safety Regulator for the rail mode;
 - DEAT and the Road Traffic Management Corporation for the road mode and
 - DEAT and the South African Civil Aviation Authority for the air mode.
- Infrastructure is the jurisdiction of:
 - Department of State Enterprise and Transnet for the rail mode;
 - All sphere of Government and agencies appointed by the republic (i.e. South African National Road Agency and Road Agency Limpopo) and
 - All spheres of Government and their appointed agencies (i.e. Gateway Airports Authority Limited) for the air mode.
- Freight operations is the jurisdiction of:
 - Transnet for the rail mode;
 - All sphere of Government and private operators for the road mode and
 - All spheres of Government and private operators for the air mode.

Regulation is a statutory requirement of the national departments and their respective agencies. Furthermore it is observed that national government and their agencies are the main role players in the provision of infrastructure and operations. Provincial and local government as well as private operators are prevalent within the road and air modes.

The role of each key institution is discussed in Section 5.2.

5.2 Institutional Mandate and Role

Table 5-1 below outlines the key actors involved in freight and logistics sector in the Limpopo Province as well as their role in freight transportation.

Table 5-1: Relevance of Key Actors

INSTITUTION	MANDATE	ACT PERMITTING MANDATE	DIRECTORATE / DEPARTMENT / AGENCY	ROLE IN FREIGHT TRANSPORT	SOURCE OF FUNDING
National Actors					
Department of Transport	Policy Formulation and Strategic Planning	Constitution of South Africa (1996)	Branch: Logistics (under the Integrated Transport Planning Programme)	<ul style="list-style-type: none"> Develops and coordinates the implementation of freight logistics strategies. Reviewing and implementing national freight logistics strategy. Development and updating a national transport database. Finalisation of the branch line strategy 	Monies appropriated by Parliament
			Programme: Rail Transport	<ul style="list-style-type: none"> Facilitate and coordinate the development of sustainable rail transport policies, rail economic and safety regulation. Facilitate and coordinate the development of sustainable infrastructure development strategies and systems that reduces system costs and improves customer services. Monitor and oversee the Railway Safety Regulator. Monitor and oversee the implementation of integrated rail services. 	
			Programme: Road Transport	<ul style="list-style-type: none"> Regulate road traffic management. Ensure maintenance and development of an integrated road network. Oversight of the road agencies and provincial road expenditure. 	
			Programme: Civil Aviation	<ul style="list-style-type: none"> Improvement of air freight services. 	
Transnet (Pty) Ltd	Rail Infrastructure Provision and Rail Freight	South African Transport Services Act 9 of 1989	Rail Engineering	<ul style="list-style-type: none"> Ensure upgrading and maintenance of all main lines 	<ul style="list-style-type: none"> Profit raised due to commercial operations; Loans
			Rail Freight	<ul style="list-style-type: none"> Plan and manage all rail based freight 	

INSTITUTION	MANDATE	ACT PERMITTING MANDATE	DIRECTORATE / DEPARTMENT / AGENCY	ROLE IN FREIGHT TRANSPORT	SOURCE OF FUNDING
	Operations			<ul style="list-style-type: none"> movement; • Work in partnership with special clients (mining) • Development of new routes and creating an conducive environment for investment on existing routes • Managing operational safety 	
South African National Roads Agency Limited (SANRAL)	National Road Infrastructure Provision	South African National Road agency Limited and the National Roads Act 7 of 1998		<ul style="list-style-type: none"> • Plan, design, construct, operate, manage, rehabilitate and maintain national roads; • Ensure collection of traffic and cross border information on national roads; • Ensure law enforcement and overloading on national roads; • Ensure incident management on national roads; • Generate revenues from the development and management of its assets 	<ul style="list-style-type: none"> • Capital invested in or lent to the Agency; • Levies on petrol and distillate fuel; • Loans; • Fees from tolling; • Monies appropriated by Parliament
Road Traffic Management Corporation (RTMC)	Regulation	Road Traffic Management Corporation Act 20 of 1999	Traffic Engineering Information and Research	<ul style="list-style-type: none"> • Manage and control the collection, investigation and recording of road crash data on a national basis and manage and oversee the National Incident Management Programme- • Provide reliable and accurate traffic information • Administer the Adjudication of Road Traffic Offences 	<ul style="list-style-type: none"> • Monies from transaction fees as a result of sale of services; • Penalties and fines; • Monies appropriated by Parliament
Railway Safety Regulator (RSR)	Regulation	National Railway Safety Regulator Act 16 of 2002	Rail Safety Regulation and Safety Assurance Division	<ul style="list-style-type: none"> • Oversee safety in railway transport, • Oversee safety in the railway transport industry; • Promote the use of rail mode through the improved safety performance; • Develop rail regulatory framework through the development of regulations and standards for safe railway operations 	<ul style="list-style-type: none"> • Monies appropriated by Parliament; • Fees from Safety Permit Applications; • Donations and Contributions

INSTITUTION	MANDATE	ACT PERMITTING MANDATE	DIRECTORATE / DEPARTMENT / AGENCY	ROLE IN FREIGHT TRANSPORT	SOURCE OF FUNDING
				<ul style="list-style-type: none"> • Monitor and ensure compliance to rail regulatory framework; • Collect and disseminate information relating to safe railway operations; • Promote the harmonisation of the railway safety regime of South Africa with Southern African Development Community (SADC) railway operations 	
Cross Border Road Transport Agency (CBRTA)	Regulation	Cross Border Road Transport Act 4 of 1998	Regulation and Law Enforcement Divisions	<ul style="list-style-type: none"> • Regulate cross border road transport; • Facilitate cross border operations; • Enforce law cross border operations; • Advise the Minister of Transport on matters affecting cross border • Control and regulate cross border road transport between RSA and other States through a permit system 	<ul style="list-style-type: none"> • Monies collected from issuing of cross-border permits; • Monies collected from fines; • Monies appropriated by Parliament; • Donations and Advisory fees
South African Civil Aviation authority (SACAA)	Regulation	South African Civil Aviation Authority Act 40 of 1998	Aviation Safety Promotion; Air Safety Operations and Air Safety Infrastructure	<ul style="list-style-type: none"> • Control the functioning of the civil aviation industry; • Regulate the functioning of the civil aviation industry; • Oversee the functioning of the civil aviation industry; • Promote the functioning of the civil aviation industry 	<ul style="list-style-type: none"> • User Fees; • Levies; • Government funding.
Air Services Licensing Council (ASLC)	Regulation	Air Services Licensing Act 115 of 1990		<ul style="list-style-type: none"> • Control functioning of the domestic air transport services; • Regulate functioning of the domestic air transport services; • Monitor functioning of the domestic air transport services; • Promote functioning of the domestic air transport services 	<ul style="list-style-type: none"> • Government funding.
Air Traffic and	Regulation	Air Traffic and		<ul style="list-style-type: none"> • Management of air services and air 	<ul style="list-style-type: none"> • Air traffic service levies;

INSTITUTION	MANDATE	ACT PERMITTING MANDATE	DIRECTORATE / DEPARTMENT / AGENCY	ROLE IN FREIGHT TRANSPORT	SOURCE OF FUNDING
Navigation Services Company (ATNS)		Navigation Services Company Act 45 of 1993		<ul style="list-style-type: none"> navigation infrastructure; Operation of air services and air navigation infrastructure; Development of air services and air navigation infrastructure; Maintenance of air services and air navigation infrastructure 	<ul style="list-style-type: none"> Loans
Provincial Actors					
Department of Roads and Transport	Coordination	Constitution of South Africa (1996) and the National Land Transport Act (2010)	Public and Freight Projects Programme	<ul style="list-style-type: none"> Lead the implementation of the freight strategy Regular management of the freight databank 	<ul style="list-style-type: none"> Government funding.
Department of Roads and Transport	Coordination	Constitution of South Africa (1996) and the National Land Transport Act (2010)	Transport Infrastructure Programme	<ul style="list-style-type: none"> The Directorate focuses on the maintenance of roads and roads related infrastructure. The Chief Directorate is also responsible for the implementation of the EPWP programme 	<ul style="list-style-type: none"> Government funding
Department of Roads and Transport	Coordination	Constitution of South Africa (1996) and the National Land Transport Act (2010)	Transport Regulations Programme	<ul style="list-style-type: none"> Chief Directorate is responsible for the provisioning of traffic control and traffic policing, road safety education and awareness, transport administration and licensing and traffic training services. Traffic control, traffic policing and overload control services are rendered by Traffic Stations and Traffic Control Centres in the different districts. 	<ul style="list-style-type: none"> Government funding
Road Agency Limpopo	Provincial Road Infrastructure Provision			<ul style="list-style-type: none"> Plan, design, construction and maintenance of road infrastructure; Sourcing alternative source of funding for road infrastructure investment; Data collection on corridors, freight movements and general information on the 	<ul style="list-style-type: none"> Government funding.

INSTITUTION	MANDATE	ACT PERMITTING MANDATE	DIRECTORATE / DEPARTMENT / AGENCY	ROLE IN FREIGHT TRANSPORT	SOURCE OF FUNDING
				road network.	
Gateway Airports Authority Limited (GAAL)	Provincial Air Infrastructure Provision			<ul style="list-style-type: none"> Plan, design, construction and maintenance of air infrastructure at Polokwane International Airport; Assist in the implementation of the Limpopo Air Cargo hub 	<ul style="list-style-type: none"> Government funding.
Department of Economic Development	Provincial Economic Regulation		Integrated Economic Development Services and Trade and Industry Development	<ul style="list-style-type: none"> Promotion of economic planning Lead and integrate provincial local economic development planning To stimulate economic growth through industry development, trade and investment promotion 	<ul style="list-style-type: none"> Government funding.

5.3 Institutional Review

A review of characteristics that have an impact - both positive and negative, on institutions to effectively carry out their mandate in freight transport planning was conducted. The following table highlights the outcome thereof.

Table 5-2: Review of Aspects impacting on Institutional Mandates

AREA OF EXPERTISE	INSTITUTION	PROMOTERS	HINDERERS
Freight Transport Policy	NDoT	<ul style="list-style-type: none"> Structuring of institutions to manage corridor development; Deployment of Agencies to carry out its competencies. 	<ul style="list-style-type: none"> Functions of road provision between various levels of government are confusing and fragmented. Poor coordination between the freight transport sector impedes on the efficiency and effectiveness of the sector; Lack of directive for rail, road and air freight operations; Absence of freight transport strategies at the provincial level; Lack of infrastructure funding through user charges and public/private sector investments. Government ownership of transport operations impedes on the intentions of government policy. The split responsibilities of Transnet to NDoT and as well as the Department of State Enterprise not conducive to efficient rail freight transport management.
Regulation Road	- Road Traffic Management Corporation (RTMC)	<ul style="list-style-type: none"> Capacity to enforce law for road traffic offences; Collection of accurate traffic data at a national level. 	<ul style="list-style-type: none"> Dependence on other organisations to perform critical tasks will impact on functional mandate; Need for vigorous traffic safety measures; Vehicle overloading and breaches of road safety regulations continue to cause problems; Implementation of the Road Transport Quality System (RTQS) is rendered ineffective by lack of trained personnel, inadequate numbers of inspection staff, infrequent road side inspections and operator disregard for the requirements to maintain vehicle condition.
Regulation Rail	- Railway Safety Regulator	<ul style="list-style-type: none"> Safety plans improving on rail freight operations; Promoting the use of rail transport through improved safety performance in the sector. 	<ul style="list-style-type: none"> Underinvestment in rail transport over extended periods of time which has resulted in the poor safety performance; Lack of integrating safety programme into the full life cycle of all rail capital improvement; The absence of a national rail safety information system; Resource capacity to undertake occurrence investigations, safety

AREA OF EXPERTISE	INSTITUTION	PROMOTERS	HINDERERS
			management system audits; technical audits and inspections.
Regulation - Road	CBRTA	<ul style="list-style-type: none"> Regulation and recording of cross-border operations. Reduces operational costs for cross-border transport industry; Regulates competition in terms of cross border road transport. 	<ul style="list-style-type: none"> Coordination between institutions operating at the border posts; Lack of bilateral strategies between affected neighbouring states; Long cross-border processing that are contributing to long waiting periods at the two border posts; Harassment and intimidation from operators originating from neighbouring states; Issuing of permits by provincial department; Lack of facilities at border posts – particularly parking facilities; Threat to safety of goods and persons at border posts; Lack of coordination with Justice Department regarding withdrawal of fines
Infrastructure Provision - Rail	Transnet	<ul style="list-style-type: none"> Capacity to develop new rail routes and maintain existing ones. With significant investment in rail freight, pressure on road infrastructure will be reduced where products such as coal could be transported by rail 	<ul style="list-style-type: none"> No efficient rail freight system in place; Lack of sufficient investment in rail infrastructure development will continue to increase the strain on the use of road freight as an alternative for transporting goods; Railways are short of qualified and experienced staff, in maintenance, operations, planning, management and engineering.
Infrastructure Provision - Road	SANRAL	<ul style="list-style-type: none"> Capacity to plan, design, construct and maintain national roads; Ability to collect traffic and cross-border data for future infrastructure planning purposes; Generation of revenue to be used for other road infrastructure development projects; Extensive road network across South Africa is one of the major factors that support the growth of the freight transport industry. 	<ul style="list-style-type: none"> The lack of legislation for provision for dedicated funding sources for national roads, provincial and municipal road; Due to the notion that national roads were prioritised, provincial and municipal roads are not in the best of condition.
Economic Regulation	DTI, SARS, NDoT	<ul style="list-style-type: none"> Stimulation of economic growth through the promotion of industry development, trade and investment in the sector. 	<ul style="list-style-type: none"> Lack of sharing of freight related information;
Coordination	Limpopo Roads and Transport		<ul style="list-style-type: none"> Lack of freight transport planning capacity and skills; Lack of effective coordination measures for freight transport.

5.4 Key Freight Transport Institutional Challenges

The following are key challenges hampering proper functioning of freight transport institutions in the Province:

1. Lack of Integrated Planning

Overall, there appears to be no clear process by which local economic strategies and projects are linked to transport planning – i.e. no mechanism by which projects are assessed for their transport requirements and impacts, and no process by which local strategies are aggregated and coordinated from a transport planning perspective.

With corridor planning across Provinces (i.e. Mpumalanga, Gauteng and North West Provinces) road maintenance and upgrades do not appear to be coordinated across Provinces on the main road corridors. Furthermore maintenance timing and upgrade activities are often poorly coordinated, and that freight transport use is generally not taken into account when maintenance schedules are developed.

Economic planning versus transport planning: There appears to be some level of interaction between the relevant institutions when it comes to aligning economic planning and transport planning. However there seems to be a lack of coordination at a project level (i.e. coordination exists at a strategic level and not at overall project level).

2. Lack of Freight Transport Expertise and Limited Local Capacity

The National Freight Logistics Strategy indicated the limited knowledge and expertise in freight issues within government departments outside of the national government as a concern.

Limpopo Province currently lacks sufficient capacity to address freight transport issues on a strategic or technical level, with the vast majority of its resources focused on public transportation.

As a result, there has been virtually no research to address freight related issues. Some of the challenges include a lack of sufficient funds for purposes of building capacity; limited access to key officials, limited stakeholder consultation and a lack of action on key decisions.

At a local level, the capacity constraints are even greater and the challenges more fundamental.

3. Lack of Freight Transport Information

One of the main challenges to freight transport planning has been the lack of information on traffic volumes in the Province. Currently, planners are operating with the 2006 traffic census data. This has major implications for road upgrade and maintenance planning. This issue needs to be addressed by regular updating of the Limpopo Freight Transport Databank.

The National Transport Master Plan (NATMAP) simulated freight traffic volumes on road and freight routes of national importance, taking into account potential future land use. The outcomes of the NATMAP project are practical in guiding the development of freight transport strategies in the Province; however the updating of the model needs continuous updating of the freight traffic information to validate simulation developed.

6. Freight Transport Infrastructure

6.1 Introduction

The Moving South Africa (1999) developed the concept of transport corridors in South African context, which has been seen as a critical aspect to achieve a more efficient freight transport system through the concentration of freight traffic along multi-modal transport corridors that link major industrial centres in the country and external destinations (ports and SADC countries). Furthermore, a second tier of lower density freight routes are seen as feeder routes distributing freight to and from corridors.

Map 6-1 shows the main national freight corridors, with the depiction of relative road and rail freight volumes. The following observations are made within the jurisdiction of the Province:

- The origin of freight into or traversing through the Province is from the Gauteng Province. There is no major freight connection directly from the neighbouring Provinces, namely North West and Mpumalanga Provinces.
- Main priority national freight routes traversing the Limpopo Province include the R101 and the N1;
- The above priority national freight routes through the Limpopo Province is one of the three SADC corridors; and
- Combined road and rail tonnage along these two corridors is between 10 – 20 metric tons.

The aim of this section is to provide a synopsis of the scale and extent of freight transport network across the Limpopo Province. The focal will be on each of the main freight mode of transport, with great emphasis on existing infrastructure, traffic levels, maintenance and upgrades as well as opportunities and challenges impacting on freight movement in the Province.

6.2 Road Network

6.2.1 Road Infrastructure

According to the 2006 Provincial Land and Transport Framework the Limpopo Province has a road network of approximately 23, 000 km, with 28% paved (6, 454km) and 72% unpaved roads (16,573 km) respectively.

Extent of Road Network

Table 6-1 shows the distribution of the road categories in the Province relative to other Provinces in the country.

Table 6-1: Distribution of Road Categories by Province (2005-2007)¹¹

PROVINCE	NATIONAL (km)	PROVINCIAL (km)	LOCAL & OTHER ROADS (km)	TOTAL ALL ROADS (km)	PROVINCIAL / NATIONAL ROADS (km)	LOAD CONTROL FACILITIES ¹²
Eastern Cape	1,759	47,816	23,040	72,615	49,575	Not available
Free State	1,891	28,356	20,000	50,247	30,247	3
Gauteng	466	4,830	28,830	34,126	5,296	19
KwaZulu-Natal	1,935	43,000	55,065	100,000	44,935	Not available
Limpopo	3,198¹³	7,266	11,760	22,224	10,464	10+0
Mpumalanga	2,753	14,557	21,000	38,310	17,310	8+11
Northern Cape	3,039	5,633	49,323	57,995	8,672	4+2
North-West	1,567	2,647	19,484	23,698	4,214	5
Western Cape	2,036	29,894	10,000	41,930	31,930	Not available

It is evident from Table 6-1 that Limpopo Province house 5% of the total roads in the country, with 17% of the total national road network found in the Province (refer to Map 6-2). Map 6-2 provides the current road categories and road ownership. The following conclusions are drawn:

- Section of the N1 from the border with Gauteng to Warmbaths is under the Bakwena Concession;
- The remainder of the N1 from Warmbaths to Beit Bridge is SANRAL tolled;
- Remainder of the National Road network is non-tolled.

Table 6-2 shows the total kilometre under the jurisdiction of the district municipalities, Road Agency Limpopo as well as SANRAL respectively. It is clear that the majority of roads in the Limpopo Province are under the management of the District Municipalities. Road Agency Limpopo, which is the custodian of all provincial roads in the Province, manages 33% of the total road network found in Limpopo Province.

Table 6-2: Total Km per Road Owner

ROAD OWNER	UNPAVED (KM)	PAVED (KM)
District Municipalities	11 142	618
RAL	4 207	3 059
SANRAL	27	3 171
Total	15 376	6 848

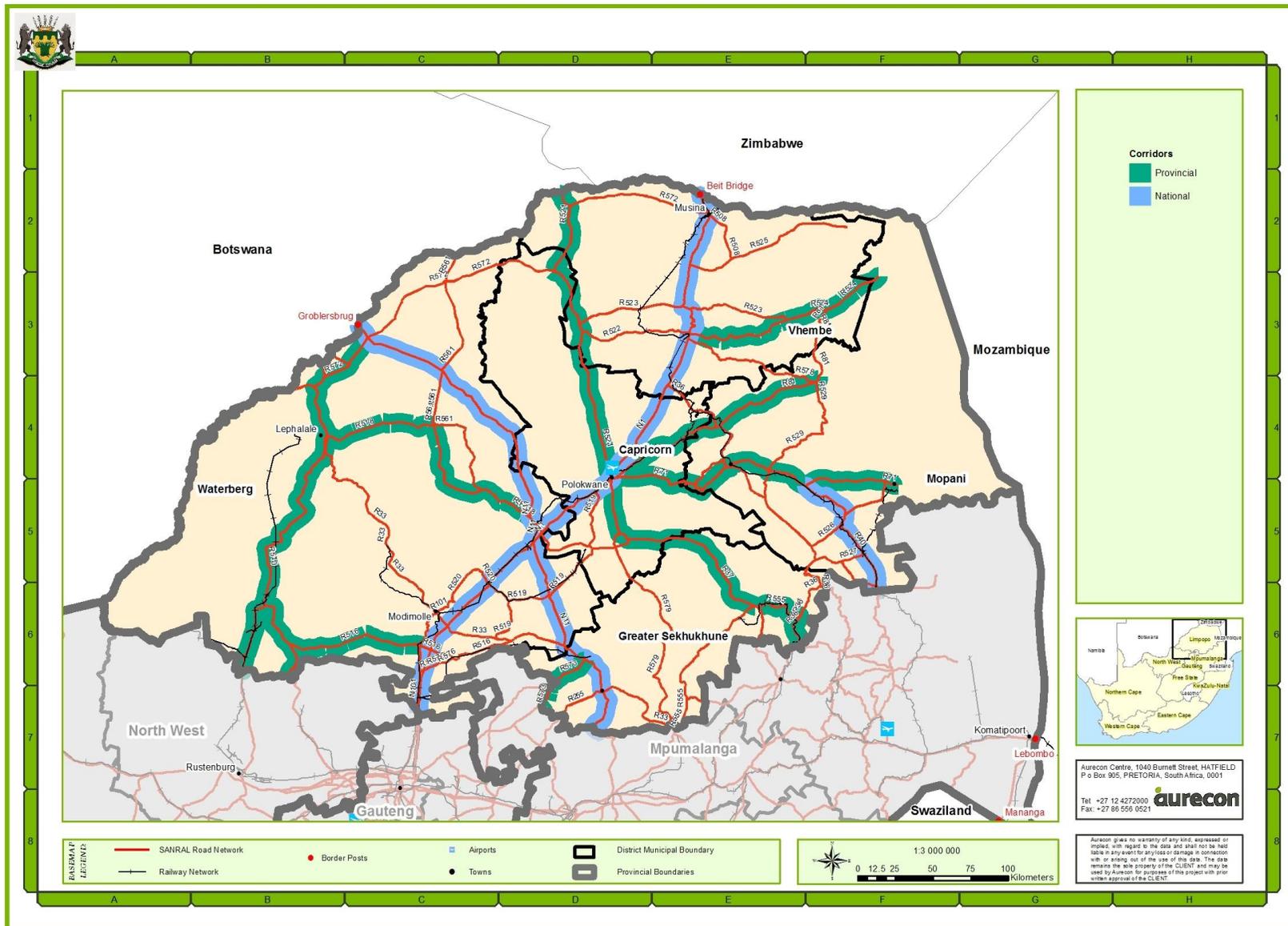
Source: Limpopo PLTF, 2006

¹¹ (Source for: Mpumalanga, Free State, KZN, Western Cape: Road Infrastructure Strategic Framework for South Africa and National Department of Transport; March 2006; Source for: Northern Cape: NC PLTF, 2003; North West: Road Network Management Systems: Strategic Needs Analysis; Limpopo: RAL, 2004; Gauteng: GPTRW, 2003) 2005, Phase 1 Report 2007 and Phase 2 Report 2008)

¹² Indicates Major Load Control Centers with weighbridge, buildings and services; + Lay-byes weighbridge, minimum services and buildings and inductive loop traffic counters

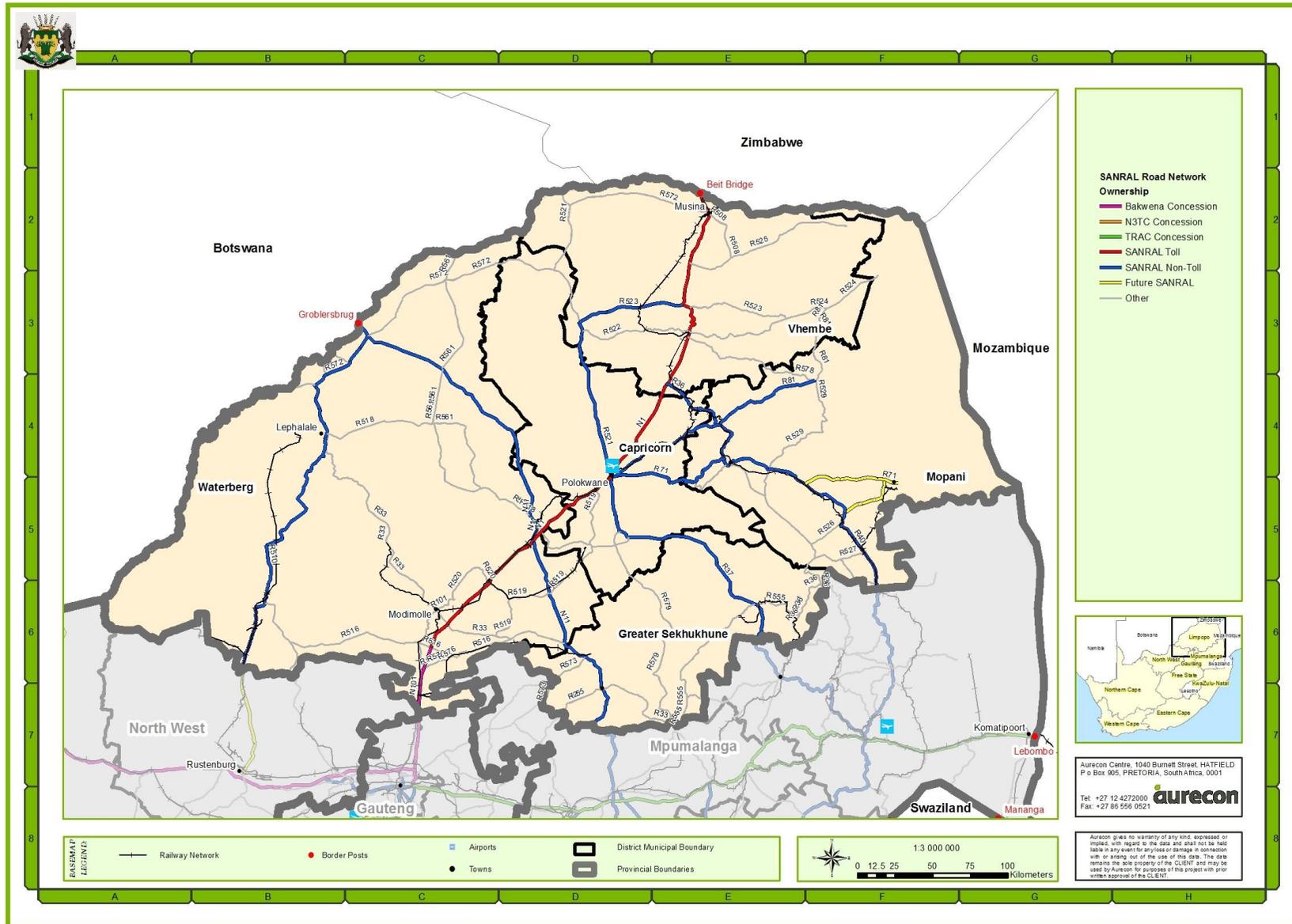
¹³ The current SANRAL dataset shows a total of 2,335 km

Map 6-1: National Freight Corridors within Limpopo province



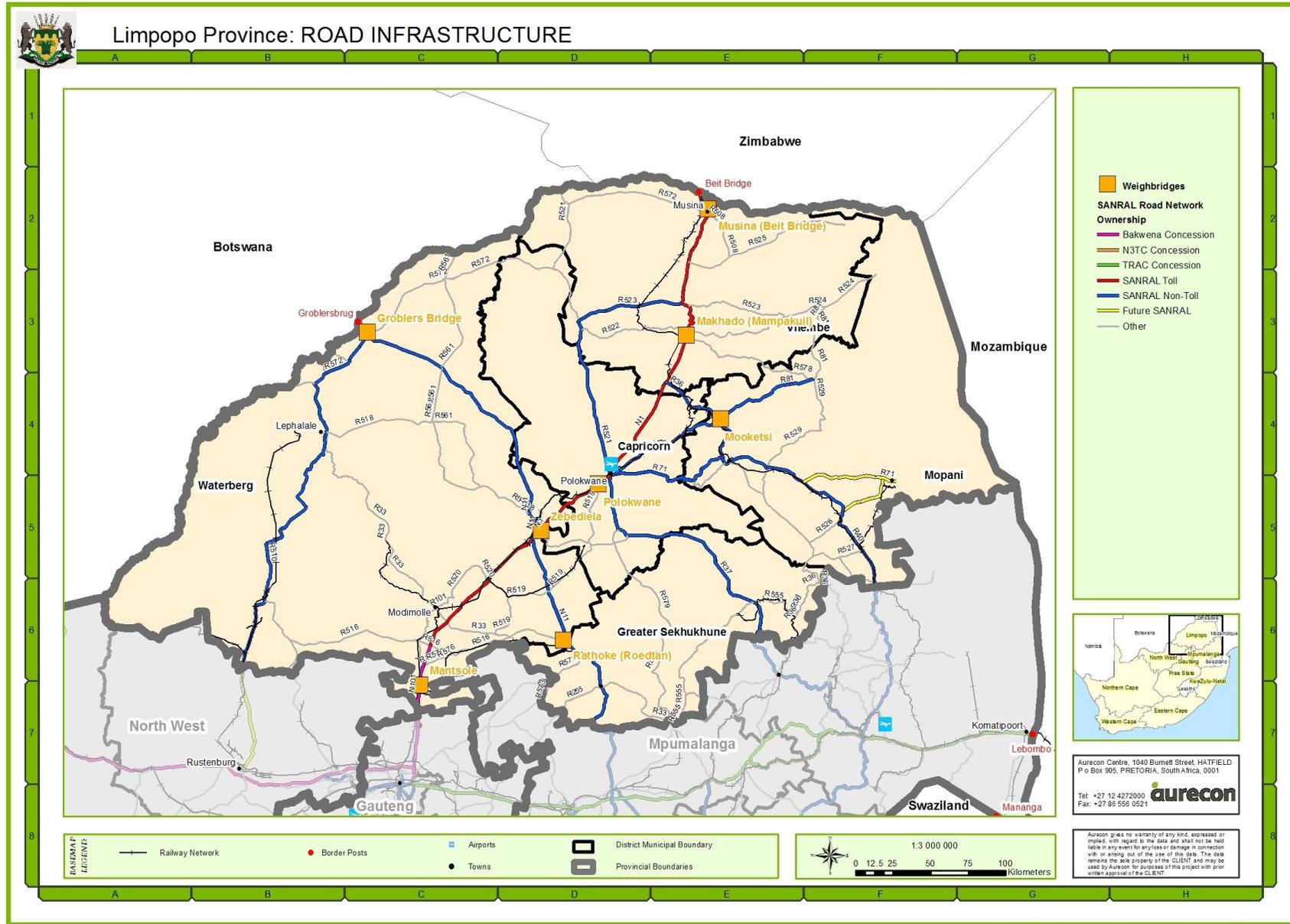
Source: NATMAP Limpopo Province, October 2008

Map 6-2: Limpopo Road Network



Source: NATMAP Limpopo Province, October 2008

Map 6-3: Limpopo Road Infrastructure



Road Network Condition

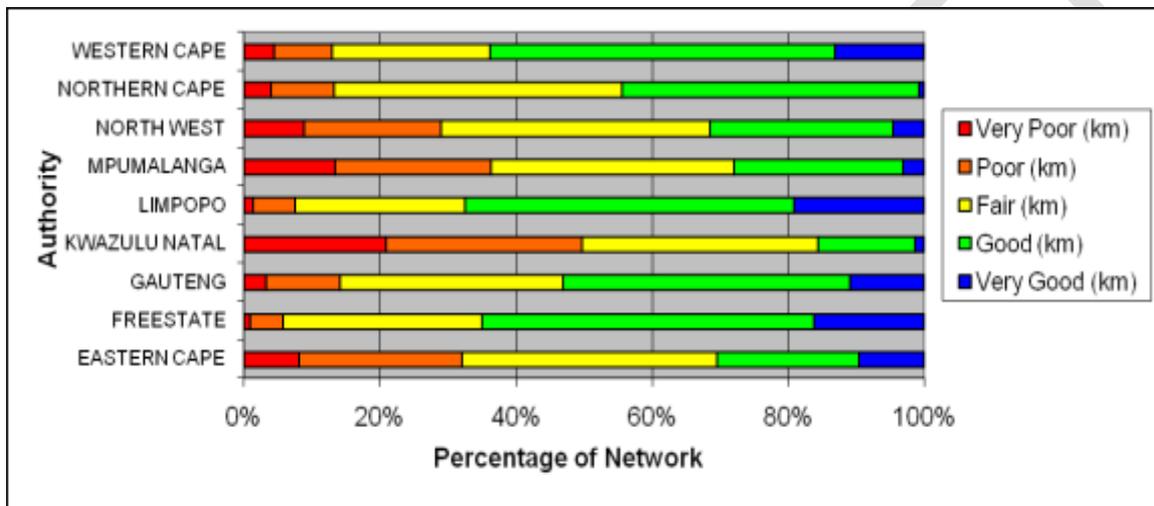
Table 6-4 below shows the visual Condition Index for paved roads in the Province.

Table 6-3: Road Infrastructure by Visual Condition Index¹⁴

ROAD NETWORK BY VISUAL CONDITION INDEX (%)				
Very Good	Good	Fair	Poor	Very Poor
25	37	27	8	3

The following observations are made from Table 6-3: (1) 89% of the road network in the Province has fair to very good condition; (2) 8% of the road network is under poor state, whilst (3) 3% is under a very poor condition. Figure 6-1 presents the condition of the paved road network when compared with other Provinces.

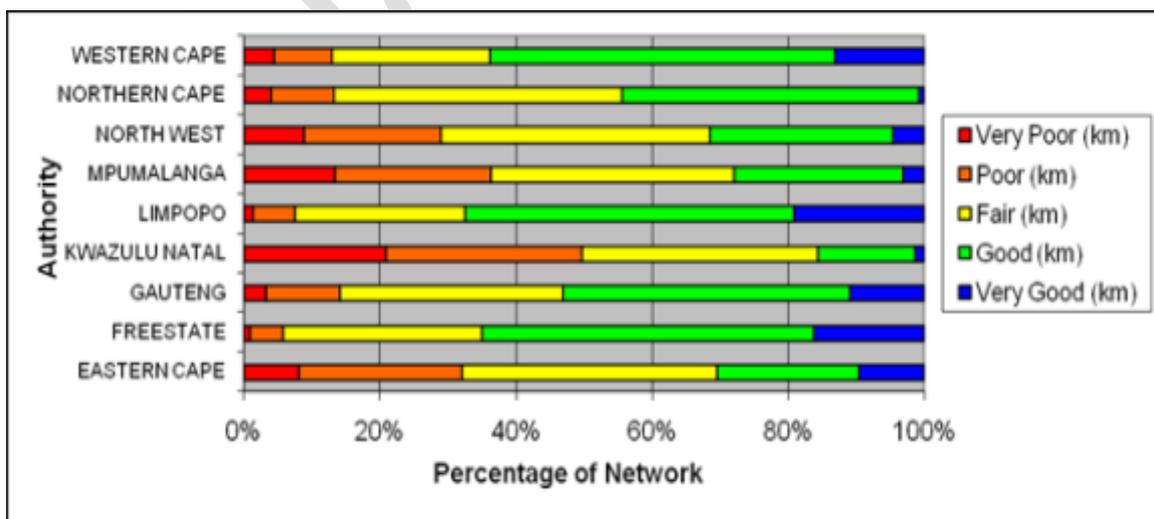
Figure 6-1: Provincial Paved Road Network Condition



Source; Limpopo Freight Databank (2012)

Figure 6-1 illustrates that over 65% of the paved road network in the Province is good condition, while over 20% is fair and less than 10% is poor in condition. Figure 6-2 below shows the condition of unpaved provincial road network.

Figure 6-2: Provincial Unpaved Road Network Condition



Source: Limpopo Freight Data Bank Review 2010/2011

¹⁴ Visual Condition Index Classifications: 10% = Very poor: 30%=Poor: 50%=Average; 70% = Good; 90%=Very Good N/A = Not Available

Figure 6-2 shows that a higher proportion of the unpaved road network is good in condition (over 60%). About 20% is fair and approximately 10% is poor in condition

Road Infrastructure Backlog

Insufficient funding for road infrastructure provision and improvement is a problem for all Provinces in the country. According to the Limpopo Freight Data Review, 2010/2011 the LDoRT, has in terms of road infrastructure improvement back log presented in Table 6-4.

Table 6-4: Road Infrastructure Backlog by LDoRT in the Province

Road Type/Infrastructure	Improvement Required	Estimated amount of backlog (R)
Surfaced Roads	Maintenance	4 030 million
Gravel to Surfaced Road	Upgrading	67 billion
Bridge	Maintenance	206 million
Gravel	Re-gravelling	783 million

Source: Limpopo Freight Data Bank Review: 2010/2011

From the table above, it is evident that there is a huge backlog of road upgrading in the Province with an estimated amount of approximately R67 billion and R4 813 million for the maintenance of both surfaced and gravel roads. In addition to that, there is a bridge maintenance backlog of an estimated amount of R206 million.

These backlogs impact negatively on the current infrastructure in the Province. The more time taken to improve the infrastructure the further it deteriorates and consequently increasing the estimated amount for infrastructure improvement.

Road Network Classification by Economic Activity Support

During the preparation of the Limpopo 2020 document (July 2003), a list of road infrastructure that support the mining and agricultural sector were identified. They are presented in Table 6-5

Table 6-5: Road Infrastructure of Economic Importance

ECONOMIC ACTIVITY	OWNERSHIP	ROAD	DESCRIPTION
Mining	SANRAL	P84/1	Nylstroom to Vaalwater, supporting mining of coal
Mining	SANRAL	D3390	Polokwane to P83/1, supporting coal mining
Mining	SANRAL	P198/1	Ellisras to Vaalwater, supporting the coal mines
Mining	RAL	D3584 / D2643	P83/1 – Marken, supporting the coal mines
Mining	RAL	P19/2	Marken – Ellisras, supporting coal mining
Mining	SANRAL	P33/1	Polokwane – Lebowakgomo – Chuenespoort, supporting platinum mining
Mining	SANRAL	P33/2	Gamagoba – Burgesfort, supporting platinum mining
Mining	SANRAL	D1483	Point – Musina, supporting industrial mining
Mining	SANRAL	P94/1	Polokwane – Vivo, supporting industrial mining
Mining	SANRAL	P94/2	Alldays – Pontdrift, supporting industrial mining
Mining	RAL	P94/2	Vivo – Aldays, supporting industrial mining
Agriculture	SANRAL	P98/1	Louis Trichardt – Thohoyandou
Agriculture	SANRAL	P146/1	Blyde River – Klaserie, supporting agriculture sector
Agriculture	RAL	D4100	Mohlaletsi-Apel-Veeplaats-Aribie

Source: Limpopo 2020 – Integrated Infrastructure Development Plan, July 2003

6.2.2 Overload Control Infrastructure

There are numerous overloading control infrastructures operating at the traffic control centres (TCC) in Limpopo Province. The entry points into Limpopo from the neighbouring countries are outlined in Table 6-6.

Table 6-6: Limpopo Overloading Control Facilities

TCC WITH OVERLOAD CENTRE	DISTRICT	CLOSEST TOWN	OPERATING HOURS	MANAGEMENT	COMMENT
Groblersbrug	Waterberg	Martin's Drift (10km on N11)	16hrs (06h00–22h00)	Department of Roads and Transport	Still operational
Beit Bridge	Vhembe	Musina (4km on the N1)	24hrs	Bakwena Concession on a PPP with SANRAL	Still operational
Baltimore	Waterberg	Tom Burke (20km on the N11)	n/a	Department of Roads and Transport	Closed
Mampakuil	Vhembe	Louis Trichardt (10km on the N1)	16hrs (06h00–22h00)	Department of Roads and Transport	Still Operational
Mantsole	Waterberg	Hammanskraal (21km on the N1)	24hrs	Bakwena Concession on a PPP with SANRAL	Still Operational
Mooketsi	Mopani	Mooketsi (700m on the R81)	14hrs (06h00–20h00)	Department of Roads and Transport	Still Operational
Northam	Waterberg	Northam (R510)	n/a	Department of Roads and Transport	Closed
Polokwane	Capricorn	Polokwane (10km on R101 and N1)	-	Department of Roads and Transport on partnership with SANRAL	New
Rathoke	Sekhukhune	Marble Hall (10km on N11)	14hrs (06h00–20h00)	Department of Roads and Transport	Still Operational
Vivo	Vhembe	Vivo (R523)	n/a	Department of Roads and Transport	Closed
Zebediela	Waterberg	Modimolle (10km on the N11/N1)	-	Department of Roads and Transport	New

Source: Department of Roads and Transport (email dated 4th August 2010)

Map 6-4 shows the extent of weighbridges in Limpopo. A closer assessment of the major individual weighbridges in the Province is provided in Table 6-7.

Map 6-4: Weighbridges in Limpopo Province with Heavy Vehicle Bypass Routes

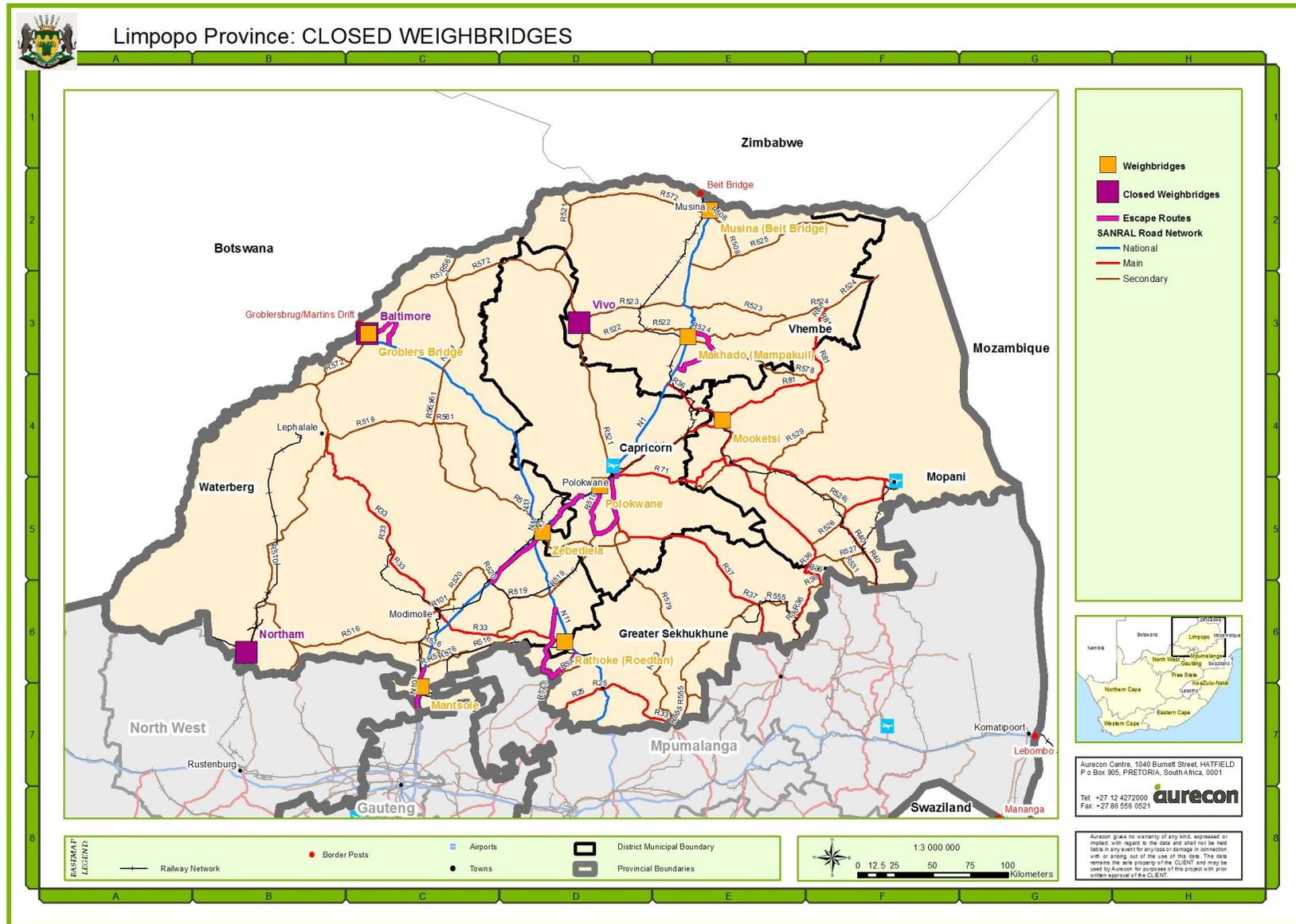


Table 6-7: Weighbridge Characteristics in Limpopo Province (2006)

TCC	CLASSIFICATION	SERVICES	OPERATION FREQUENCY	EQUIPMENT	THRESHOLD	VIEW OF OVERLOADING CENTRE
Mantsole	<ul style="list-style-type: none"> Grade A¹⁵ Centre Others: covers both directions of the freeways; parallel to R101 	<ul style="list-style-type: none"> Overloading of heavy vehicles Processing all transgressions with regard to driver and vehicle fitness issues 	24 hours, 7 days a week, 365 days a year	<ul style="list-style-type: none"> Multi-deck with over 120t capacity Entry point to exit point monitoring; Overloading warning signal Issuing of prosecution notices; 	500, 000 heavy vehicles per annum	
Musina	Grade B ¹⁶	<ul style="list-style-type: none"> Overloading of heavy vehicles Monitoring of road traffic offenses 	16 hours a day	<ul style="list-style-type: none"> Single-deck (4mx3m) , with 40t capacity; Data capturing equipment not classified 	Not specified	

¹⁵ highly strategic mass measuring site with high to very high heavy volumes, operated on a continuous basis, and serve not only as a weighing center, but also have the capability of being used for a broad spectrum of offences which falls under the Road Traffic Quality System (RTQS)

¹⁶ station is a moderately strategic mass-measuring site with medium to high heavy vehicle volumes

TCC	CLASSIFICATION	SERVICES	OPERATION FREQUENCY	EQUIPMENT	THRESHOLD	VIEW OF OVERLOADING CENTRE
Groblersbrug	Grade B	<ul style="list-style-type: none"> Overloading of heavy vehicles Monitoring of road traffic offenses 	16 hrs a day	<ul style="list-style-type: none"> Single-deck (4mx3m) , with 40t capacity; Data capturing technology not classified 	Not specified	
Mooketsi	Grade B	<ul style="list-style-type: none"> Overloading of heavy vehicles Monitoring of road traffic offenses 	16 hrs a day	<ul style="list-style-type: none"> Single-deck (4mx3m) , with 40t capacity; Data capturing technology not classified 	Not specified	
Rathoke	Grade B	<ul style="list-style-type: none"> Overloading of heavy vehicles Monitoring of road traffic offenses 	16 hrs a day	<ul style="list-style-type: none"> Single-deck (4mx3m) , with 40t capacity; Data capturing technology not classified 	Not specified	

Source: Limpopo Freight Databank, 2006

The following are observed from Table 6-6 and Table 6-7:

- Limpopo Province is home to eleven heavy vehicle overloading control centres;
- The use of three of the overloading control centres have been discontinued – with two in Waterberg (Northam and Baltimore) and one in Vhembe (Vivo);
- Of the eight that are operating
 - three are found in Waterberg District – on the N1 and two on the N11;
 - one in Sekhukhune – on the N11;
 - one in Capricorn District – on the R101 / N1;
 - one in Mopani District - on the R81; and
 - two in Vhembe District – both on the N1.
- Of the eight that are operating
 - five are operated by the Department of Transport;
 - two are operated by a Concessioner on behalf of Government; and
 - one is operated by the Department of Roads and Transport and SANRAL;
- Of the eight that are operating two operate 24 hours of the day whilst six operate during the day and partially at night; and
- All of the operating overloading centres are found along national routes.

6.2.3 Border Posts

There are numerous border posts in operations between the Limpopo Province and our neighbouring countries, namely Botswana, Zimbabwe and Mozambique. The entry points into Limpopo from the neighbouring countries are outlined in Table 6-8.

Table 6-8: Limpopo Border Posts

BORDER POST	ENTRY INTO	CLOSEST TOWN	OPERATING HOURS	FREIGHT DISCUSSION	FREIGHT	PASSENGERS
Stockpoort	Botswana	76km from Lephale	06h00 – 18h00	Only concessions are allowed		X
Groblers Bridge (Martin's Drift)		100km from Lephale	06h00 – 22h00	<ul style="list-style-type: none"> • Freight movement observed at the border; • Limited parking for trucks. 	X	X
Zanzibar		190km from Lephale	08h00 – 18h00	<ul style="list-style-type: none"> • Only concessions and empty trucks are allowed; • No bridge crossing to Botswana; • Road leading to the border is gravel. 		X
Platjan		230km from Lephale	08h00 – 18h00	<ul style="list-style-type: none"> • Only concessions and empty trucks are allowed; • No Bridge crossing into Botswana; • Road leading to the border in gravel. 		X
Pontdrift		100km from Musina	08h00 – 16h00	<ul style="list-style-type: none"> • Only concessions are permitted; • No bridge crossing to Botswana; • A cableway is 		X

BORDER POST	ENTRY INTO	CLOSEST TOWN	OPERATING HOURS	FREIGHT DISCUSSION	FREIGHT	PASSENGERS
				utilized when the Limpopo River is flooded.		
Beitbridge (Musina)	Zimbabwe	18km from Musina	24hrs	<ul style="list-style-type: none"> The busiest port of entry in Limpopo Province; Freight movement observed at the border 	X	X
Pafuri	Mozambique	170km from Musina	08h00 – 16h00			X
Giriyondo		100km from Phalaborwa	08h00 – 16h00 (Oct – March) 08h00 – 15h00 (April – September)			X

Source: www.home-affairs.gov.za/land_border_posts and <http://www.wcoesa.org/Limpopo/BeitBridgePOE.htm> and Limpopo Freight Data Bank Update: 2012

The following are observed from Table 6-8:

- Limpopo Province is home to eight border posts;
- The approved entry points for freight in Limpopo include Groblers Bridge, Beit Bridge and to insignificant degree Stockpoort, Zanzibar and Platjan;
- Only two border posts processes inbound and outbound cargo;
- Martin's Drift is located in Waterberg district on the N11, whilst the Beit Bridge border post is located in Vhembe district on the N1;
- Martin's Drift operates for 16 hours a day, whilst Beit Bridge operates for 24hours a day.
- Border posts bordering Limpopo Province and Botswana namely Platjan, Pointdrft, Stockpoort, and Zanzibar allow entry and exit to concessions and empty trucks;
- The road leading to Platjan, Pointdrift and Zanzibar border post is gravel;
- There is no bridge crossing to Botswana towards Platjan, Pointdrift and Zanzibar border posts.

From this information as presented above, it is evident that only two border posts allow any freight vehicles to cross, namely Beit Bridge (Musina) and Martin's Drift. Table 6-9 summarises their characteristics.

Table 6-9: Main & Border Post (handling freight) Characteristics (2006)

BORDER POST	SERVICES	OPERATION FREQUENCY	VIEW OF BORDER POST
Beit Bridge (Musina)	<ul style="list-style-type: none"> • Separate customs facilities for passengers and cargo; • No parking facilities for trucks 	24 hours, 7 days a week, 365 days a year	
Martin's Drift	<ul style="list-style-type: none"> • Customs facilities for passengers and cargo; • Small parking area for trucks; 	16 hours a day	

6.2.4 Truck Stop and Gas (Petrol) Stations

Part of servicing freight customers such as truck drivers who transport goods on the Limpopo road network is to provide service facilities which include truck stops as well as petrol stations.

The current truck stops and petrol stations that can serve trucks in the Province on the main freight network are indicated in Map 6-5.

6.2.4.1 Truck Stops

Truck stops are next to the road where freight vehicles can stop to spend the night and freshen up. There are currently several facilities with fencing, providing safety for the drivers and vehicles through the night, whereas others are open areas in the towns where freight vehicles stop to spend the night as can be seen in Figure 6-3.

Figure 6-3: Typical truck stop (Beit Bridge)



6.2.4.2 The Need for Truck Stops

6.2.4.2.1 Road Traffic Accidents

Road safety is discussed in detail in section 7.6.2. Historically the main causes of freight vehicle accidents in Limpopo were due to a combination of two or more of the following:

- Fatigue – 90% of accidents;
- Ignorance of speed limit – 50% of accidents;
- Overtaking – 50% of accidents;
- Non-roadworthiness – 50% of accidents;
- Driving under the influence of alcohol– 25% of accidents;
- Poor roads – 50% of accidents; and
- Other reasons – 25% of the accidents.

Research on Drowsiness / Driver Tiredness amongst Truck Drivers

Driver tiredness poses a significant risk to road safety – and several studies have indicated that this problem is experienced daily by Truck drivers.

International Research:

- In a study in the United states (US) more than 36% of truck drivers said that finding a rest area in which to park is a problem every night;
- More than 80% said that at least once a week, they continue to drive past the point of feeling "safe and alert" because they cannot find a place to stop and rest;
- Factors which discouraged Truck Drivers from parking in public rest areas in New York included inadequate parking, enforcement of the two-hour parking limit, prostitution, lack of security, and poor or expensive food; and
- In a 1997 survey of 593 long-distance truck drivers randomly selected at private truck stops and public rest areas in New York, 25% of the drivers said that at least once during the last year, they had fallen asleep while driving - and 17% said it occurred on more than one occasion.

South African Research

In South Africa a research study has been conducted by Nelisiwe Magubane & Mala Ramanna from the Interdisciplinary Accident Research Centre of KwaZulu –Natal on the topic "Truck Drivers and Road Crashes in South Africa". This study concluded amongst other findings:

- Main problems experienced by truck drivers: 39% Fatigue related; and
- Main causes of road crashes: 41% fatigue related;

The recommendations from this research include the following:

- More safe and clean truck stops are needed. Alternatively, along the route there should be lay-bys constructed with stadium lights and security so that drivers can sleep in relative safety;
- Trucks should be fitted with communication devices, e.g. two-way radios. This can act as a mechanism to warn other drivers of possible hijacking situations or as a tool to ensure the safety of the truck and driver;
- Almost all truck drivers are interested in participating in any government road safety strategy that will improve and promote their skill; and
- Drivers need to attend regular driver training courses to improve their skill as well as stop complacency. Further, there should be relevant training courses for truck drivers that carry specialized/ dangerous goods e.g. chemicals.

6.2.4.2.2 HIV / Aids and Truck Drivers

- The transfer of HIV/ Aids and sexually transmitted infections is a growing concern in the transport industry;
- These threats can only be addressed by way of the partnerships of our society: government and the private sector; workers and management; transport operators and commuters; and
- Truck Stops can be an important part of the strategy to protect Truck Drivers against these and other illnesses and provide information on these risks.

6.2.4.3 Advantages/ Characteristics of Modern Truck Stops

- The best way to address driver fatigue/ driver tiredness by offering a good sleep;

- Security systems with cameras and lighting can prevent the threats of hijacking, theft etc.;
- Increased sanitation with spotlessly clean ablution and shower facilities;
- High quality food;
- An excellent venue to address HIV education;
- An opportunity to boost the local economy with a continuous stream of travellers passing through;
- Additional income for local business providing truckers with various necessary services including food and drink, groceries as well as truck repair and parts provision;
- A Medical facility and medical care provide an opportunity for truck drivers to check HIV/AIDS and diabetes status and have their eyes tested;
- These facilities may have phones so truckers can safely call families and conduct other business during their meal breaks; and
- Modern Truck Stops have high speed wireless internet access and an internet kiosk.

It is envisaged that Trucks Stops will make a significant contribution towards road safety on the Lagos-Ibadan Expressway and in Nigeria as a whole.

6.2.4.4 Gas (Petrol) Stations

Gas/ Petrol stations are facilities which accommodate freight vehicles for refuelling and purchasing refreshments. These facilities have adequate turning space for freight vehicles as can be seen in Figure 6-4.

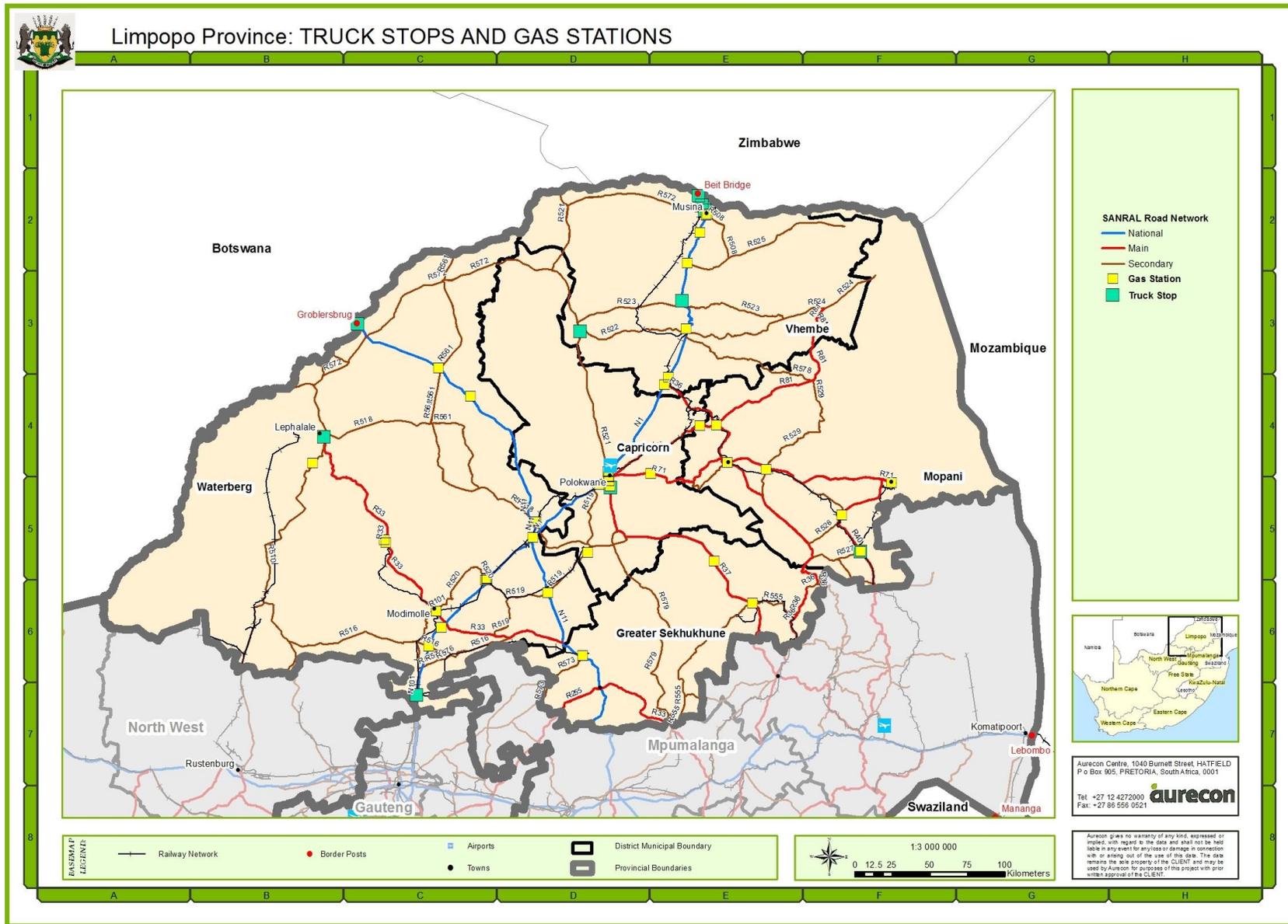
Figure 6-4: Typical gas station (Polokwane)



6.2.4.5 Conclusion and Recommendation

There are several truck stops and petrol stations currently on the main freight network in the Province. There is scope to investigate the feasibility of providing additional truck stop facilities on the main freight network that service truckers better in terms of their personal needs as well as needs for their trucks. These truck stops can develop a micro-economy in the surrounds and so benefiting the community as well as the truckers whilst simultaneously improving road safety by reducing the occurrence of driver fatigue.

Map 6-5: Truck Stops and Petrol Stations on the Main Road Network



6.3 Rail Network

6.3.1 Rail Infrastructure

The South African surface rail network comprises of 4 parts, namely

- Transnet operated core main line freight railway;
- Branch lines that feed the main lines – also operated by Transnet;
- The commuter rail network owned by SARCC and operated by Metro and

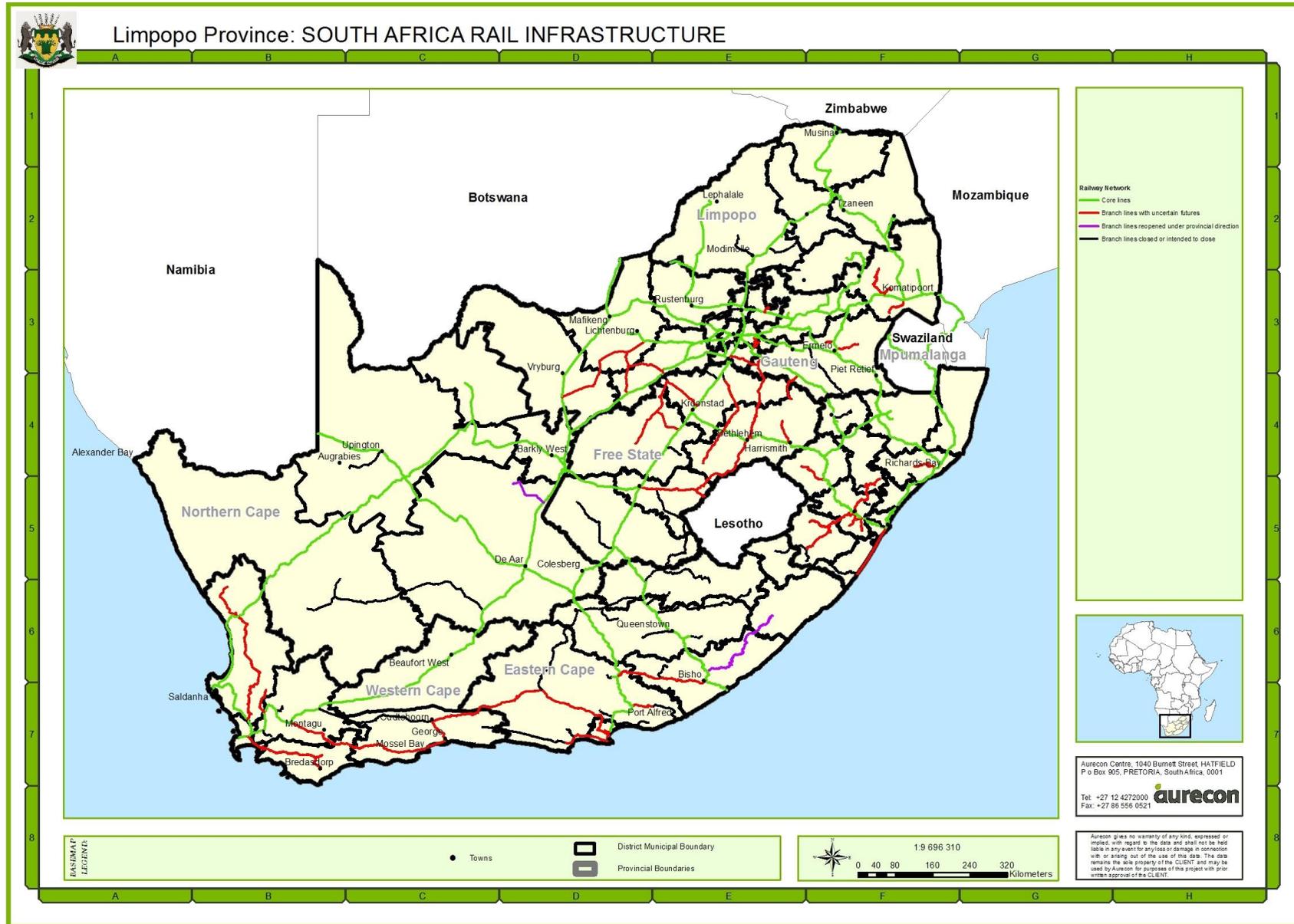


The main line passenger network also part of SARCC but running on Transnet lines (refer to Map 6-6). The core main line, which carries the freight, consists of 13,500 route kilometres (shaded green).

Map 6-7 shows the extent of rail network in Limpopo, whilst Map 6-8 indicates the rail network branch lines. The following observations are made:

- The Pretoria – Piensaarsrivier – Polokwane Musina – Beit Bridge main line is a 576km long railway that carries general international and domestic cargo. The main line is considered to be part of the Transnet’s Northern System. The main line has the following characteristics:
 - There are 12 railway stations along the main line and 11 halt stations;
 - It is a double railway line from the border with Gauteng Province to Piensaarsrivier station. The rest of the railway line is a single railway line;
 - It is electrified at 25kV AC from the border with the Gauteng Province to Polokwane and diesel operated for sections to the north;
 - Trains traversing the main line are controlled by the track warrant system;
 - The main line is considered to be a high density route, since it allows an axle loading of 20t per axle throughout its length; and
 - The main line was previously feed by two branches, namely the Marble Hall – Nutfield – Settlers – Piensaarsrivier branch line and the Zebediela – Roedtan – Mookgophong branch line. Both branch lines have been classified as closed lines by Transnet.
- The Pretoria North – Brits – Rustenburg – Thabazimbi – Lephalale is a branch line with “main line” standard. It constitute part of the Transnet’s Northern System and has the following features:
 - The 347km branch line serves coal, iron ore and chrome mines in North West and Limpopo Provinces;
 - It is a single railway line throughout its length that is located within Limpopo Province;
 - The branch line is electrified at 25 kV DC from the North West Province border up to Thabazimbi and runs by diesel from Thabazimbi to Lephalale;
 - Trains traversing the branch line are controlled by the track warrant system;
 - There are 3 railway stations along the branch line and 1 halt station;
 - The branch line is considered to be a high density route, since it allows an axle loading of 20t per axle throughout its length; and
 - The branch line is feed by a high volume feeder branch line that is part of the core network, namely the Middelwit – Northam branch line.

Map 6-6: National Rail Network



Map 6-7: Limpopo's Rail Network

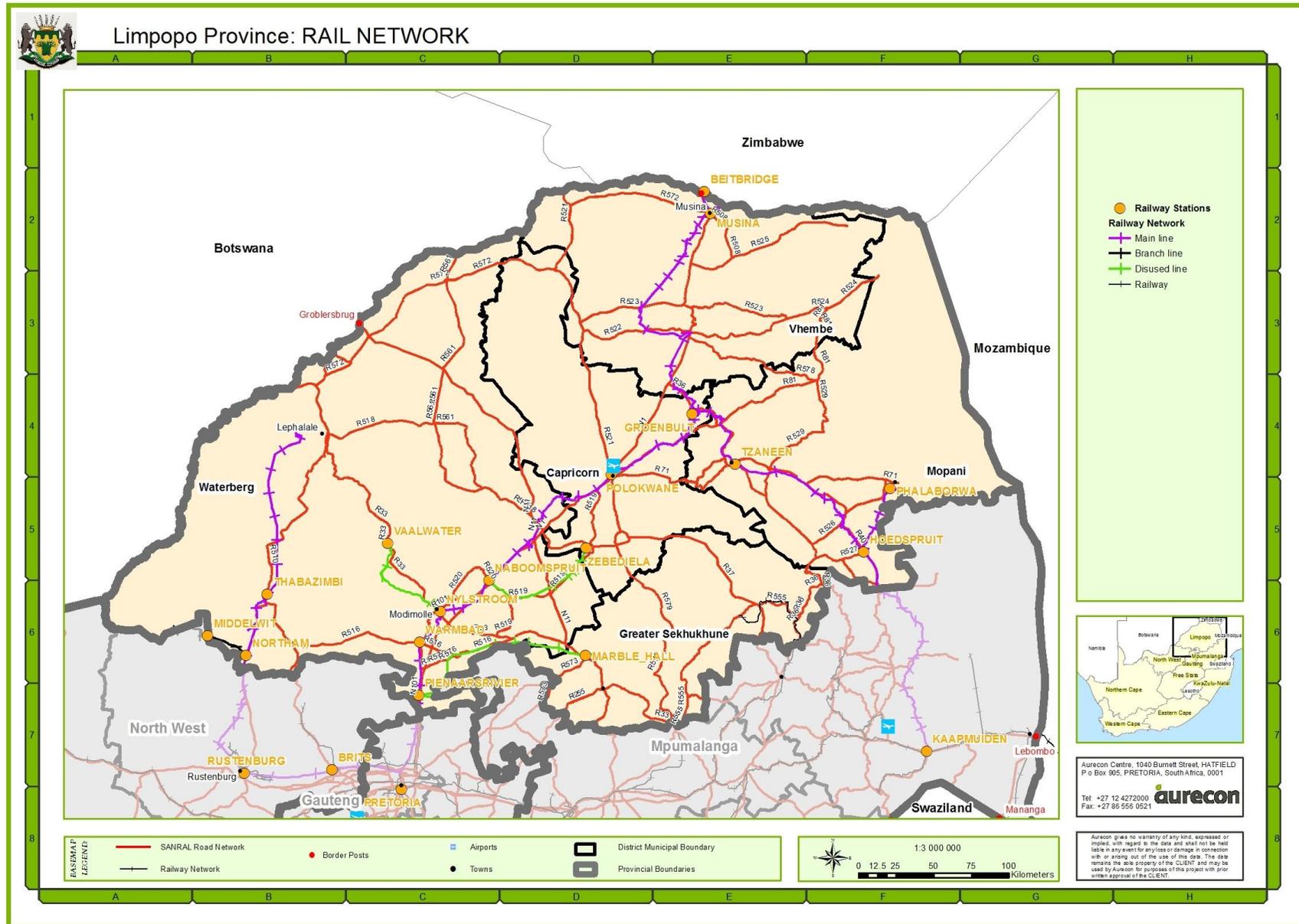
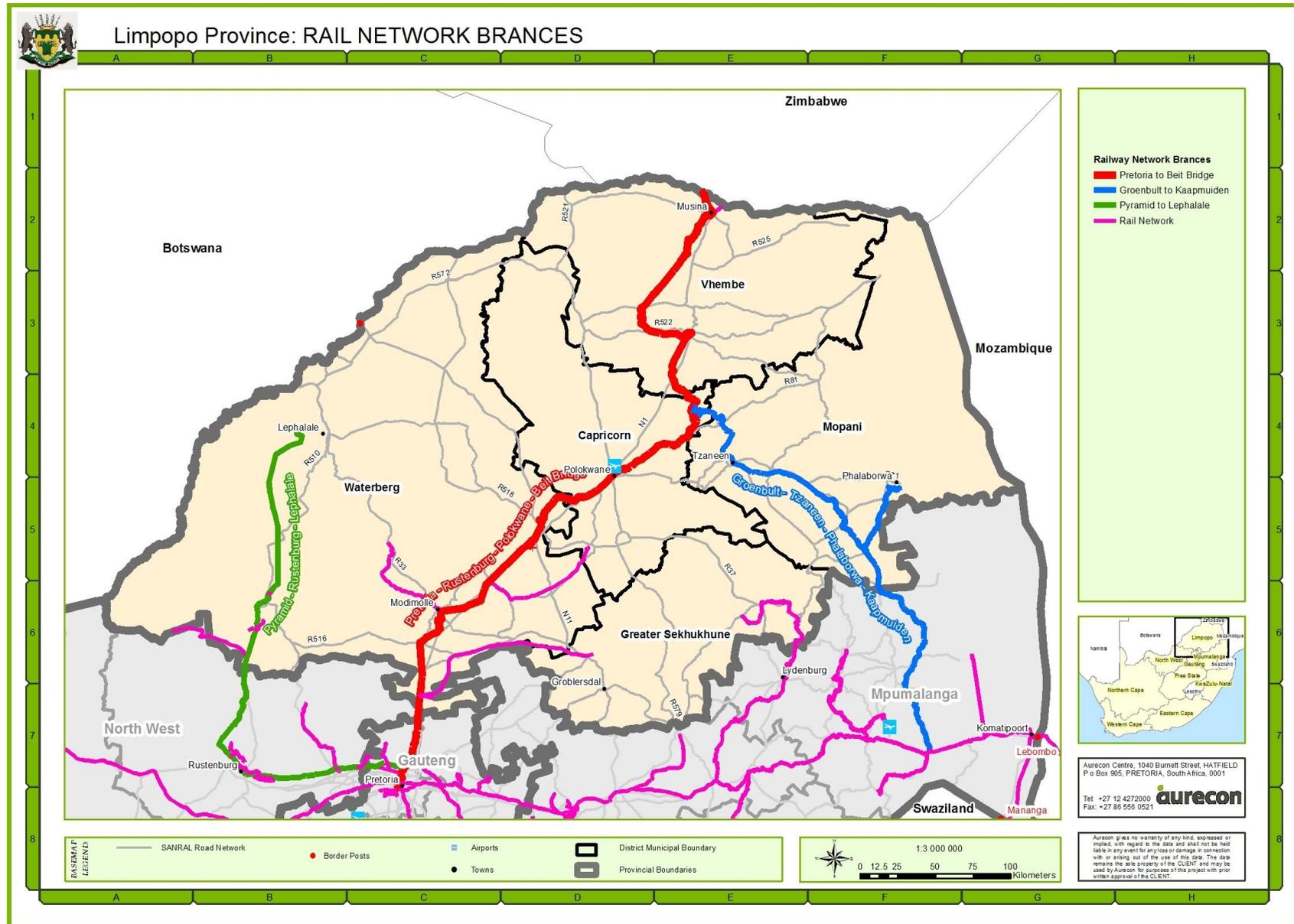


Table 6-10: Details of freight rail network in Limpopo Province

Description of line			General			Infrastructure Details								Operational Details					Comments & Notes
			Owner	Transnet Classification	Traffic Volume	Length of Line	Lines	Traction	Train Authorization	Ruling Grade	Track structure classification	Axle load	Track Quality Index	General Condition	Max speed	Max Train length	Line capacity in trains per day per direction		
From	To		Note 1	MGT	route km	No	Note 2	Note 3	1 in ...	Note 4	ton /axle	TQI	Note 5	km/h	No. Trucks	Theoretical	Actual	% Utilization	
1	Beit Bridge	Johannesburg																	
	<i>(This is a core line connecting to Zimbabwe. Bosplaas on border with Gauteng)</i>																		
1.1	Beit Bridge	Groenbult	Trans	C	> 5	216	1	D	TW		20			80		17	6	35%	
1.2	Groenbult	Polokwane	Trans	C	> 5	76	1	D	TW		20			80		27	8	30%	
1.3	Polokwane	Potgietersrus	Trans	C	> 5	57	1	D	TW		20			80		29	11	38%	
1.4	Potgietersrus	Drummondlea	Trans	C	> 5	24	1	25kVAC	TW		20			80		47	10	21%	
1.5	Drummondlea	Naboomspruit	Trans	C	> 5	33	1	25kVAC	TW		20			80		47	10	21%	
1.6	Naboomspruit	Nylstroom	Trans	C	> 5	41	1	25kVAC	TW		20			80		41	12	29%	
1.7	Nylstroom	Pienaarsrivier	Trans	C	> 5	63	1	25kVAC	TW		20			80		41	12	29%	
1.8	Pienaarsrivier	Bosplaas	Trans	C	> 5	12	2	25kVAC	TW		20			80		80	21	26%	
2	Groenbult	Hoedspruit																	
	<i>(This line joins the Phalaborwa to Kaapmuiden line at Hoedspruit.)</i>																		
2.1	Groenbult	Tzaneen	Trans	NC1	>.2 <5	89	1	D	TW		18.5			70		21	4	19%	
2.2	Tzaneen	Rubbervale	Trans	NC1	>.2 <5	42	1	D	TW		18.5			70		17	4	24%	
2.3	Rubbervale	Hoedspruit	Trans	NC1	>.2 <5	83	1	D	TW		18.5			70		13	4	31%	
3	Phalaborwa	Kaapmuiden																	
	<i>(A core line. Gutshwa on border with Mpumalanga)</i>																		
3.1	Phalaborwa	Hoedspruit	Trans	C	> 5	50	1	3kV DC	CTC		20			80		20	6	30%	
3.2	Hoedspruit	Gutshwa	Trans	C	> 5	137	1	3kV DC	CTC		20			80		45	9	20%	
4	Naboomspruit	Zebediela																	
	<i>(Feeder line)</i>																		
4.1	Naboomspruit	Zebediela	Trans	NC2	<.2	84		D	WTS		15			50		18	1	6%	
5	Nylstroom	Vaalwater																	
	<i>(Feeder line)</i>																		
5.1	Nylstroom	Vaalwater	Trans	NS	<.2	74	1	D	WTS		11.5					9	0	0%	

Source: National Transport Master Plan (Limpopo Chapter), October 2008

Map 6-8: Limpopo Rail Network Branches



- The Groenbult – Tzaneen – Hoedspruit – Kaapmuiden main line is part of the core network and it is further described as a cross-border interconnector. It has the following attributes:
 - The 384km in length arterial line has 5 railway stations and 5 halt stations;
 - It is a single railway line that is electrified at 3 kV from Phalaborwa, through to Hoedspruit and to the south (i.e. up to the border with Mpumalanga Province). It uses diesel traction between Hoedspruit and Groenbult;
 - Trains traversing the main line are controlled by centralised traffic control (CTC) from Phalaborwa to the border of Mpumalanga Province and the track warrant system is used from Hoedspruit to the south;
 - The main line is considered to be a high density route from Phalaborwa to the border with Mpumalanga Province since it allows an axle loading of 20t per axle. The section from Hoedspruit to the Groenbult
 - The branch line is considered to be a high density route from Phalaborwa to the border with Mpumalanga Province due to its allowance of an axle loading of 20t per axle. The section of the main line from Hoedspruit to the north has an allowance of 18.5t per axle; and
 - The main line is feed by a high volume feeder branch line that is part of the core network, namely the Phalaborwa – Hoedspruit branch line.

Other details of the freight rail network in Limpopo Province as described in Table 6-10 which include maximum train length, slot usage, ruling gradients, traction modes and axle load limits are shown for the national rail network in from Map 6-9 to Map 6-13.

6.3.2 Railway Sidings and Stations

It has been established that over 50 private sidings owners in the Province are located within industrial areas. They are said to access the Spoornet line through industrial lines owned by local municipalities. It has been further established that a number of these sidings are not operational primarily due to mode shifting from rail to road thus resulting in a drop in the rail freight market share. The table below presents the private sidings located in industrial areas which are connected directly to Spoornet Lines within Limpopo Province.

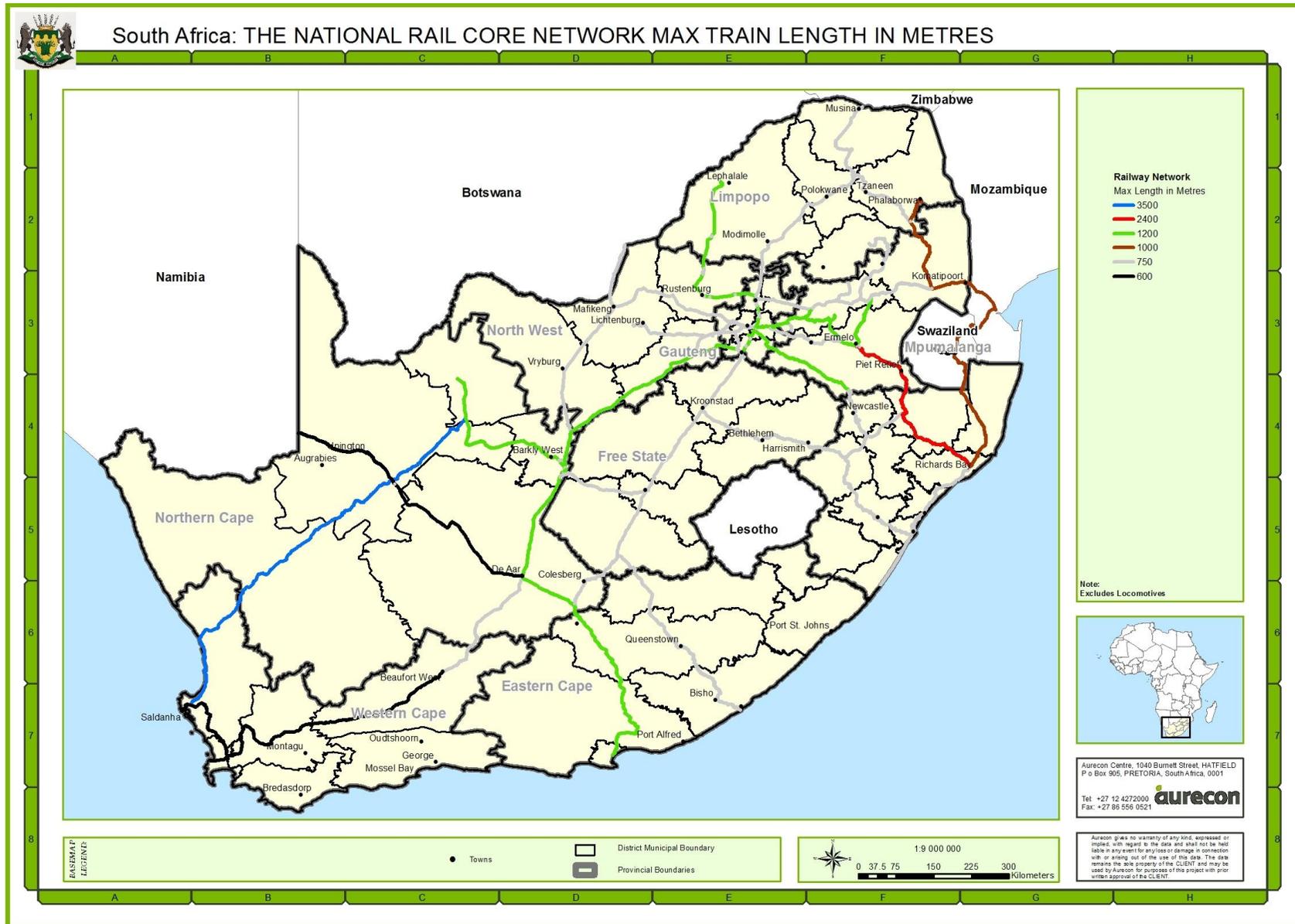
The following observations are made with reference to Table 6-11:

- About 7 industrial areas have been identified to have private sidings within their vicinity namely Bodirelo, Makhado, Mokopane, Musina, Polokwane, Dendron and Tzaneen;
- Currently private sidings are operational in 5 industrial areas (Makhado, Musina, Polokwane, Dendron and Tzaneen);
- The main commodities moved on these sidings depend primarily on what is produced in the industries within the vicinity. They include grains, liquid fuel, coal and cement;
- It should be noted that sidings in Bodirelo Industrial Estate and Makopane are not fully utilized. Prospects of fully operating these sidings in the future should be explored.

Table 6-12 provides the stations or halts for major rail freight clients in Limpopo Province. The following observations are made from Table 6-12:

- About 10 rail stations handling rail freight in the Province are operational and another 10 are not operational;
- Currently some stations have decreased the load per commodity that they used transport in the previous years e.g. in Mokopane about 260 000 tons of liquid fuel was moved in 2003/2004 while 90 000 tons was transported in 2010/2011;
- However in some other stations the loads currently moved per commodity have increased e.g. in Phalaborwa, the tonnage of Rock Phosphate and Magnetite have increased to over 2.0 million and 2.3 million tons in 2010/2011.

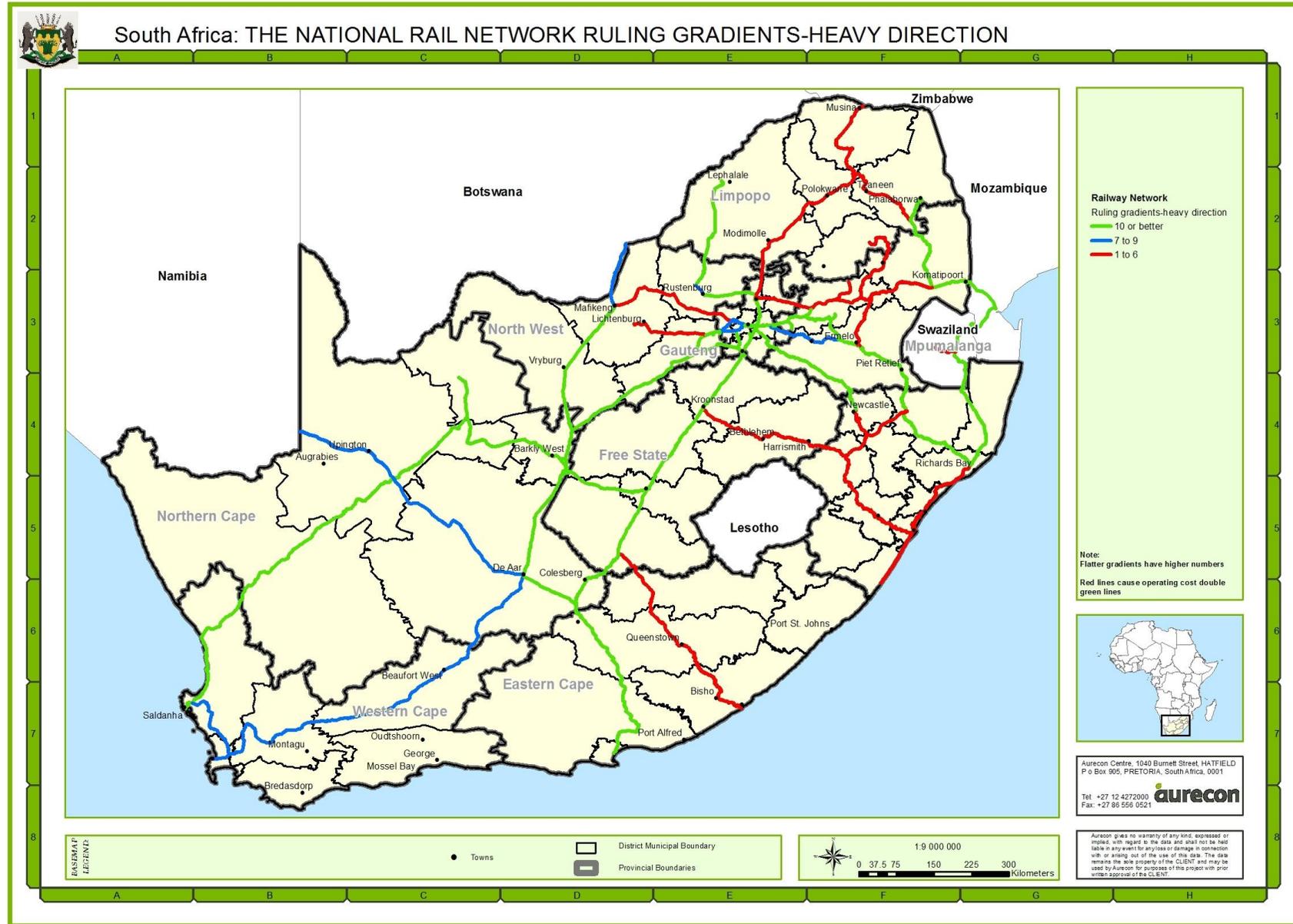
Map 6-9: National Rail Network Maximum Train Lengths



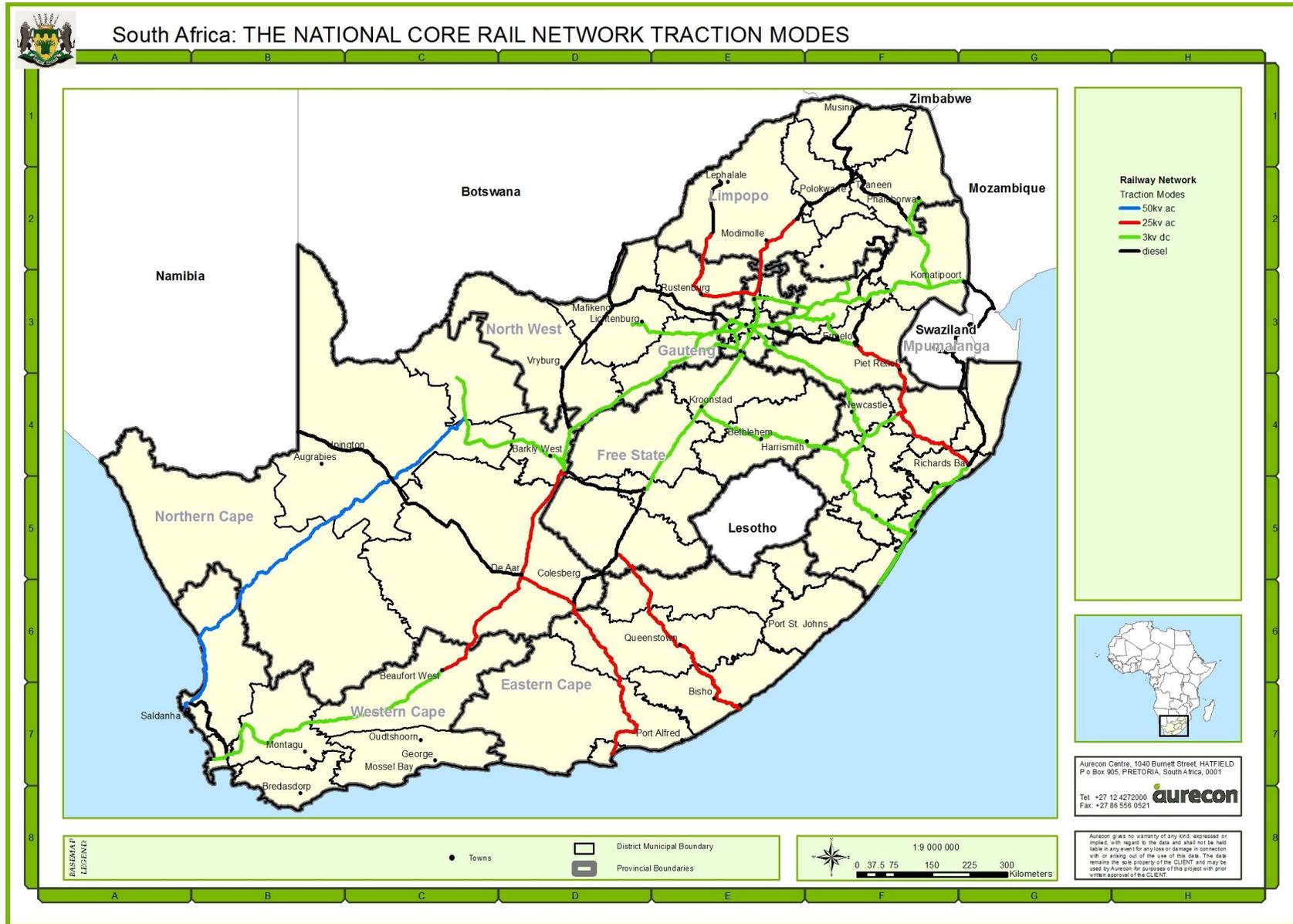
Map 6-10: National Rail Network Slot Usage



Map 6-11: National Rail Network Ruling Gradient



Map 6-12: National Rail Network Traction Modes



Map 6-13: National Rail Network Axle Load Maxima

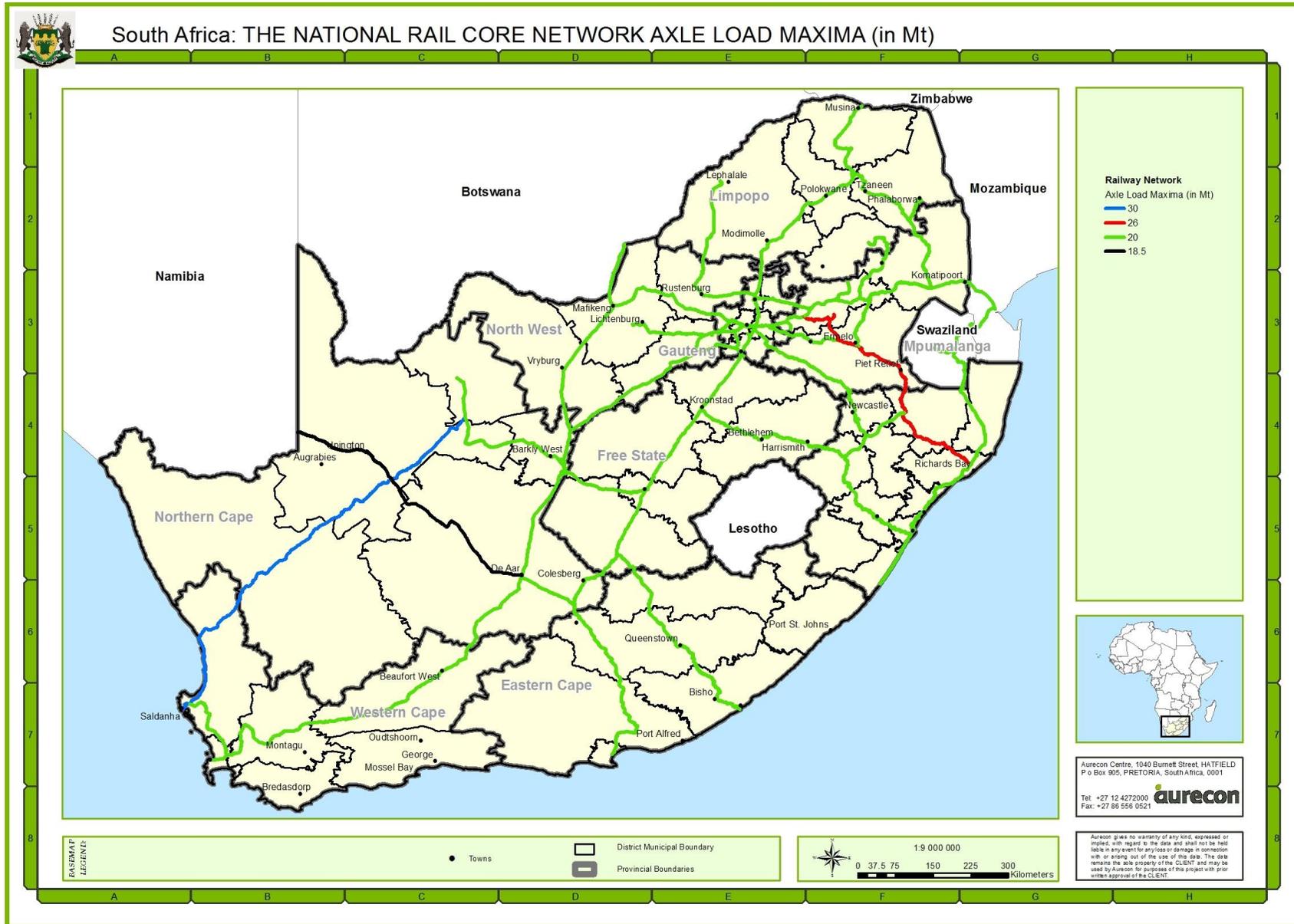


Table 6-11: Private Sidings located in Industrial Areas

INDUSTRIAL AREA	LOCATION	AVAILABILITY OF RAIL LINE WITHIN THE VICINITY OF INDUSTRY	OPERATIONAL/NOT OPERATIONAL	CONDITION OF LINE	COMMODITIES CURRENTLY MOVED
Bodirelo Industrial Estate	About 50 km North of Rustenburg on the R510	Yes		Rail Line has been improved since railway administration changed its policy	
Makhado (Louis Trichardt)	North of Railway station to the South along the Rail line, adjacent to the N1	Yes	Yes, two private sidings serving grain mills. Liquid fuel depots in the south are not operational	Good condition	Grain
Makopane	South of Rail Station	Yes	Not operational Serves a few private siding owners		
Musina	Southern side of town	Yes	Yes		Coal and grain
Polokwane	North of the Polokwane Urban Area	Yes	Several private sidings for liquid fuel companies, grain mills and a cement distributor		Fuel, grain and cement
Dendron		Yes	Private sidings serving liquid fuel depot and		Fuel, grain
Tzaneen		Yes	Private siding currently serves liquid fuel depot		Liquid fuel

Source: Limpopo Freight Databank (2012)

Table 6-12: Railway Stations or Halts for Major Rail Freight Clients

RAIL STATION	LOCATION W.R.T. RAIL LINE	LINE OPERATIONAL	COMMODITY MOVED/RECEIVED	LOAD HANDLED (TONS)		DESTINATION
				2003/2004	2010/2011	
Bela Bela	104 km north of Pretoria on Beit Bridge line)	No	Limestone Maize		12 000 12 000	Pyramid South
Crecy	20 km from Naboomspruit on the Zebediela branch	No	Ammunition and explosives	Small amount		
Duiwelskloof	66 km east of Groenbult on the Kaapmuiden line	No	Timber			
Ferrogate	31 km north of Northam on the Lephalale branch		Andalusite	Over 45 000		Durban and Richards Bay
Granite	21 km south of Makhado on the Pretoria – Beit Bridge main line	Yes	Aviation Fuel		4 254	
Immerpan	64 km east of Naboomspruit on the Zebediela branch)	No	Lime Products			
Kilkenny	10 km west of Northam on Middelwit branch	Yes	Chrome Ore	70 000	268 797	Richards Bay
Lephalale	Situated at the end of the long branch from Pretoria North	yes	Coal			Lephalale Power Station
Letsitele	118 km east of Groenbult on the Kaapmuiden line	Yes	Citrus		30 000	Durban
Marble Hall	Terminus of the branch from Pienaarsrivier	No	Dolomitic limestone	Over 85 000		
Middelwit (Dwaalboom)	27 km west of Northam and terminus of branch)	Yes	Cement		800 000 24 000	Gauteng Maputo
Mokopane	221 km north of Pretoria on the Beit Bridge line	Yes	Liquid Fuel	260 000	94 000	
Mooketsi	44 km east of Groenbult on the Kaapmuiden line)	No	Fruits			
Mookgophong	172 km north of Pretoria on the Beit Bridge main line	No	Grain Limestone	Not specified	280 451	
Mopane	88 km north of Makhado on the Pretoria – Beit Bridge main line	No	Fruit	2 000		Durban

RAIL STATION	LOCATION W.R.T. RAIL LINE	LINE OPERATIONAL	COMMODITY MOVED/RECEIVED	LOAD HANDLED (TONS)		DESTINATION
				2003/2004	2010/2011	
Musina	563 km north of Pretoria on the 581 km Beit Bridge main line)	Yes	Coal Petroleum products Maize		300 000 27 000 1 804	Vanderbijlpark and Pretoria
Orangedene	19 km south of Tzaneen on the Groenbult – Kaapmuiden line	Yes	Citrus Fruits		>16 000	Durban
Phalaborwa	Terminus branch from Hoedspruit	Yes	Rock Phosphate Magnetite	250 000	>2.0 Million >2.3 Million	
Thabazimbi	46 km north of Northam on the Lephalale branch	Yes	Iron ore		>2.7 million	Vanderbijlpark and Newcastle
Tzaneen	89 km south of Groenbult on the Kaapmuiden line)	No	Wood Chips Containerised traffic (Fruit) Liquid fuel	>5 000 >10 000 80 000	>35 000	Table Bay Harbour
Uitloop	227 km north of Pretoria on Beit Bridge line	Yes	Granite Maize Cement	35 000	20 000 5 000 17 000	

Source: Limpopo Freight Databank (2012)

It has been established that there are rail stations which have since suspended operations thus resulting in freight facilities within the vicinity being underutilized. It has further been said that these facilities are still very good in condition and prospects of utilizing them in the future should be explored.

Table 6-13: Non Operational Stations which should be explored for future prospects

RAIL STATION	LOCATION W.R.T. RAIL LINE	FREIGHT FACILITY WITHIN VICINITY	CURRENT MODE USED TO MOVE COMMODITIES
Northam	Junction of Middelwit and Lephale Branches	Grain Silo	Road
Politsi	76 km East of Groenbult on the Kaapmuiden line	Fruit loading shed	N/a
Mooketsi	44 km East of Groenbult on the Kaapmuiden line	Fruit loading shed	N/a
Roedtan	45 km East of Naboomspruit on the Zebediela Branch	Grain Silo	Road
Settlers	43 km East of Pienaarsriver on the Marble Hall Branch	Grain Silo	Road

Source: Limpopo Freight Databank (2012)

The following observations are made with reference to Table 6-13:

- The non-operational rail stations in the Province with freight facility within vicinity include Northam, Politsi, Mooketsi, Roedtan and Settlers.
- Operations in all the four rail stations have been suspended and road is utilized to move commodities.
- Grain silos are found within the vicinity of Northam, Roedtan and Settlers rail stations while fruit loading sheds found in Mooketsi and Politsi.

6.3.3 Intermodal Infrastructure

An intermodal infrastructure is defined as the point of connection where freight is transferred between different modes. Such intermodal infrastructures (or “freight hubs”) have a need of:

- *Access Point / Point of Connection between Modes:* intermodal facilities are usually located at intersection of different modes of transport and
- *Space and basic infrastructure:* intermodal hubs require substantial space of parking, loading and unloading.

There is a lot of freight activity that takes place at intermodal facilities as various modes of transport converge to offload and onload freight commodities to be transported to different parts of the province, other provinces or outside the country. Three intermodal facilities exist in the province namely:

- **Phalaborwa** – whereby an area adjacent to the station and yard is used for intermodal traffic which consists of skeletal tank containers and normal containers with export traffic;
- **Polokwane** - An intermodal container terminal is situated in Polokwane and is the most busiest facility;
- **Tzaneen** - whereby export fruit traffic has been loaded at this point and further development of this refrigerated container traffic can be expected.

Other potential locations of intermodal facilities include the envisaged Polokwane Freight Hub, which is expected to be developed on 40ha land as follows: (1) 20ha container terminal and (2) 20ha warehousing that will house a Fresh Produce Market, a Cold Storage and a Pack-house. The Polokwane Freight Hub is expected to be operational in 2014.

Furthermore it is expected that access roads as well as intermodal facilities at the Burgersfort / Marble Hall, Hoedspruit, Musina and Tzaneen stations will be improved to enable the movement of commodities to the Polokwane Fresh Produce Market.

The main routes used to move freight vehicles to the intermodal facilities include N1, R81, R71, R36, R40 and the Groenbuilt Kaapmuiden Rail line.

6.4 Air Network

According to the National Transport Master Plan Airports the following functional airport categories have been identified in South Africa:

1. international airports;
2. domestic airports; and
3. local airports and military airports.

An international airport accommodates cross border and domestic flights and as a rule is served by scheduled airline services. These airports are usually located in the capital of the Province and are limited to one or two per Province. These airports are all equipped with the facilities to ensure immigration, customs, security, agricultural and health control. The domestic airports accommodate domestic flights and serve to connect South African cities. These airports are served by scheduled airline services or they have a large number of tenants.



Local airports do not provide scheduled services and usually have a small number of tenants. Military airport, referred to as an Air Force Base, is generally not utilised for public or private aviation. These airports facilitate military operations / aircraft movements and as such these airports are not of significant general public transportation interest and will not be assessed further. There are only two military airports in Limpopo, which are indicated in the following table with the abbreviations “AFB” after the airport name. No assessment or write-up of these airports has been included. Table 6-15 (on the next page) shows the extent of the airports in the Province.

It is evident from Table 6-15 that the Limpopo Province has 3 airports of national importance (i.e. international and domestic status) and 21 other airports are considered to have local airfields status, military and private air facilities. Only one airport out of the three airports of national importance handles significant cargo traffic, namely Polokwane International Airport. The airport has the following attributes:

- Two runways – runway 01-19 and runway 05-23. The table below shows declared distances for both runways.

Table 6-14: Declared Distances for Runways 01-19 and 05-23

RUNWAY	TAKE-OFF RUN AVAILABLE	TAKE-OFF DISTANCE AVAILABLE	ACCELERATE STOP DISTANCE AVAILABLE	LANDING DISTANCE AVAILABLE
01	2560m	3662m	2660m	2560m
19	2560m	2660m	2660m	2560m
05	2320m	3235m	3175m	2320m
23	2320m	2360m	2320m	2320m

Source: Final Report on a Feasibility Study for Development Options for Polokwane International Airport, April 2009

Table 6-15: Airports in Limpopo Province

AIRPORT	FUNCTIONAL CLASSIFICATION	TOWN NAME	DISTRICT MUNICIPALITY	LOCAL MUNICIPALITY	ICAO	IATA	RUNAWAY PAVED	RUNAWAY
Alldays	Local	Alldays	Vhembe	Blouberg	FAAL	ADY	Yes	1450m x 30m
Dendron	Local	Dendron	Capricorn	Molemole	FADO		No	1200m
Dwaalboom	Local	Dwaalboom	Waterberg	Thabazimbi	FADB		No	1500m
Polokwane International	International	Polokwane	Capricorn	Polokwane	FAPB		Yes	01/19 2560m x 45m 05/23 2320m x 45m
Giyani	Local	Giyani	Mopani	Greater Giyani	FAGI	GIY	Yes	1800m
Gravelotte	Local	Gravelotte	Mopani	Ba-Phalaborwa	FAGV		No	1000m
Kobus de Villiers	Local	Groblersdal	Sekhukhune	Greater Groblersdal	FAGL		No	1000m
Kruger Park Gateway	Domestic	Phalaborwa	Mopani	Ba-Phalaborwa	FAPH	PHW	Yes	01/19 1369m x 18m
Hoedspruit	Local	Hoedspruit	Mopani	Maruleng	FAHT		No	975m
Hoedspruit AFB	Domestic	Hoedspruit	Mopani	Maruleng	FAHS	HDS	Yes	18/36 3991m x 46m 09/27 2115m x 27m
Louis Trichardt	Local	Makhado	Vhembe	Makhado	FALO	LCD	Yes	1189m
Louis Trichardt AFB	Local	Makhado	Vhembe	Makhado	FALT		Yes	3993m
Marble Hall	Local	Marble Hall	Sekhukhune	Marble Hall	FAMI		Yes	975m
Ellisras	Local	Lephalale	Waterberg	Lephalale	FAER	ELL		
Messina	Local	Musina	Vhembe	Musina	FAMS	MEZ		
Nylstroom	Local	Modimolle	Waterberg	Modimolle	FANY		Yes	10/28 1210m x 17m
Potgietersrus	Local	Mokopane	Waterberg	Mogalakwena	FAPP		No	1798m
Pietersburg	Local	Polokwane	Capricorn	Polokwane	FAPI	PTG	Yes	2400m
P.R. Mphephu	Local	Thohoyandou	Vhembe	Thulamela	FATH	THY	Yes	1950m
Tshipise	Local	Tshipise	Waterberg	Vhembe		TSD		
Letaba	Local	Tzaneen	Mopani	Tzaneen	FATZ	LTA	Yes	1500m
Venetia	Local	Venetia	Musina	Vhembe	FAVM		Yes	08/26 1550m x 15m
Warmbaths	Local	Bela-Bela	Waterberg	Bela-Bela	FAWA		No	1300m

- There are parallel taxiways serving both runways. Furthermore there are three additional linking taxiways, linking runways to the aircraft aprons;
- There are 4 aircraft parking aprons – a 11 500m², a 9 300m² and two 48 000m²
- Air traffic control centre that controls airport approaches and briefing of pilots;
- A navigation control system;
- A newly upgraded passenger handling terminal – international and domestic flights;
- Three parking areas that includes trucking facilities; and
- Other services provided include airport handling; clearing services (customs & Immigration); scheduled passenger services; aircraft charter services; aircraft maintenance; export and import agents and aviation fuel distribution.

Currently the airport does not have any dedicated freight handling facilities as yet.

6.5 Proposed Upgrades and New Infrastructure

This section of the chapter provides proposed upgrading and new provincial transport infrastructure by mode type.

6.5.1 Upgrades and New Road Infrastructure

There are numerous road works that can be implemented to effect the performance as well as the time in the pavement's life cycle, namely maintenance and development.

The former involves performing road works required to arrest the deterioration of roads, so as to lower road user costs. The latter involves the expansion of a road network capacity so as to provide stronger pavements.

This section provides current maintenance as well as the long-term development planned for the road network in Limpopo Province.

Maintenance

Current maintenance project include:

- The Zebediela Load Control Centre, coupled with special maintenance and resealing of the section of the N1 between Bela Bela Interchange and Polokwane;
- The strengthening of the N11 between Groblersdal and Limpopo border to Mpumalanga;
- The resealing of the N11 between Marble Hall and Groblersdrift Border Post, coupled with pedestrian safety project in Mokopane;
- The patching and resealing of shoulders on the R37 between Polokwane and Mpumalanga border;
- The patching and resealing of shoulders on the R81 between Polokwane and Giyani; and
- The patching and resealing of shoulders on the R523 between Vivo and Masekwaspoort.

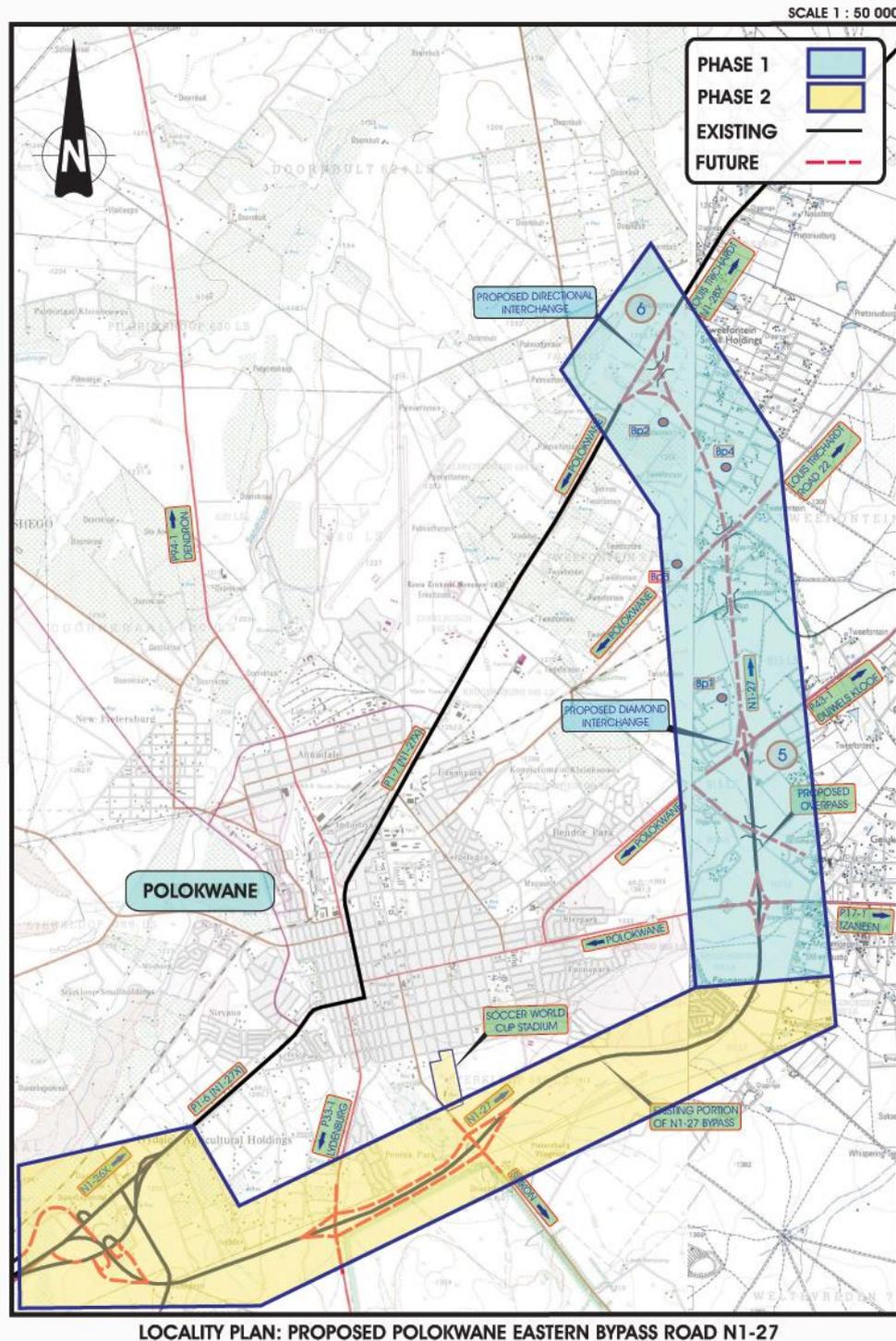
Development

The upgrades in Limpopo include:

- Upgrading of 140km of the R37 between Polokwane and Burgersfort, which will improve operations on the Dilokong Corridor. The road is expected to serve existing and proposed platinum and chrome mines. The upgrades include (1) widening of the road on all sections along the R37 from Burgersfort to Polokwane to a dual lane carriageway with a central reservation and (2) strengthening of the pavement to enable the road to accommodate the envisaged increase on heavy goods vehicles; and

- Construction and upgrading of the eastern ring road in Polokwane for purposes of removing through traffic from the Polokwane CBD. The upgrades include (1) 6.5km to complete the eastern ring road and (2) construction of interchanges with the R37 (to Burgersfort), R71 (to Tzaneen) and R81. Refer to Figure 6-5 for illustration of proposed upgrades.
- The current status of this project is that the N1 Eastern Bypass has been extended from R71 – Tzaneen Road up to where it joins the existing N1 Polokwane - Makhado.

Figure 6-5: N1 Eastern Bypass in the vicinity of Polokwane



Source: www.nra.co.za

Further to the above upgrades Phase 3 of the National Transport Master Plan provided an integrated Infrastructural Plan for the Province that encompassed the road, rail and air mode.

Thabazimbi – Amendelbut

- Between 2009-2014 light traffic is anticipated on the rail line, thus no capacity improvement is needed;
- Moderate traffic is expected in 2015 therefore operational redesign will be required to increase capacity;
- Heavy rail traffic is anticipated between 2016-2017, so minor infrastructure updates will be required for capacity purposes;
- Traffic limit is expected to be achieved in 2018 and major infrastructure updates will be required on that year;
- It is predicted that traffic will exceed acceptable limit from 2019-2025 and therefore new infrastructure will be required;
- System failure will occur from 2026-2040 and thus doubling/new lines will necessary to improve line capacity.

Musina – Louis Trichardt

- Between 2009-2023 light traffic is expected and so no capacity improvement will be required;
- Moderate traffic is anticipated between 2024-2027, thus operational redesign will be necessary to improve capacity;
- Between 2028-2029, heavy rail traffic is expected on the line and minor infrastructure updates will be required to increase capacity;
- It is anticipated that acceptable traffic limit will be attained in 2030 thus major infrastructure improvements will be needed to increase capacity;
- Between 2031- 2038, it is expected that traffic will exceed limit therefore new infrastructure will be needed; and
- System failure is anticipated to occur from 2039-2040 and doubling/new lines will be required to increase capacity.

Louis Trichardt- Soekmekaar

- Low traffic is expected on line from 2009-2020 and so no capacity improvement is required;
- Moderate traffic is anticipated between 2021 and 2024 while heavy traffic is expected between 2025 and 2026, therefore operational redesign and minor infrastructure updates will be required to improve line capacity;
- Rail traffic is expected to exceed limit between 2028 and 2029 thus new infrastructure is needed; and
- System failure is anticipated on rail line from 2030 to 2040 therefore doubling/new lines will be needed to increase capacity.

Soekmekaar-Polokwane

- It is forecasted that there will be light rail traffic on line from 2009 to 2029 and thus no capacity improvement will be needed; and
- Moderate traffic is expected on line from 2030-2038, while heavy traffic is expected from 2039-2040, and thus operational design and minor infrastructure updates will be necessary to improve capacity during those periods.

Polokwane – Modimolle

- It is projected that light rail traffic will run on this line from 2009 to 2032 consequently no capacity improvement will be required; and
- Operational redesign will be required to increase line capacity from 2033-2040, as moderate traffic is expected.

Modimolle – Bela Bela

- It is forecasted that there will be light traffic on this line from 2009- 2022 and so no capacity improvement will be required;
- Moderate traffic is expected on the line between 2022 and 2025 while heavy traffic is anticipated from 2026 to 2027 and therefore operational design and minor infrastructure updates will be required to increase line capacity during those periods;
- The rail traffic is expected to exceed limit between 2029-2031 thus new infrastructure will be needed; and
- System failure is predicted will occur from 2032-2040 consequently requiring doubling/new lines so as to increase line capacity.

Bela Bela – Hammanskraal

- It is projected that light rail traffic will run on this line from 2009-2029, so no capacity improvement will be required during this period;
- Moderate traffic is expected from 2030-2037 therefore operational redesign will be required to increase capacity;
- It anticipated that heavy traffic will run on the line from 2038-2040, and thus minor infrastructure updates will be required to improve capacity.

Hammanskraal – Pyramid

It is forecasted that there will be light traffic on this line from 2009-2040 consequently no capacity improvement will be required.

Phalaborwa – Hoedspruit

- Moderate traffic is expected on line from 2009 to 2011 while heavy traffic is predicted from 2012-2015 therefore operational redesign and minor infrastructure updates will be necessary to improve line capacity in those periods;
- It is predicted that rail traffic will exceed limit between 2016 and 2018 and new infrastructure will be required to increase capacity; and
- System failure is expected to occur from 2019 to 2040 and thus doubling/new lines will be required.

Transnet also have an investment plan to upgrade rail infrastructure country wide. Table 6-18 presents the Transnet's investment plan for upgrading rail infrastructure in the Province.

Table 6-18: Transnet's Investment Plan for Upgrading Rail Infrastructure in Limpopo

RAIL LINE	ESTIMATED TOTAL COST (million R)	PROPOSED YEAR OF IMPLEMENTATION			
		RESEARCH	CONCEPT STUDY	FEASIBILITY STUDY	CONSTRUCTION
Cross Border Lephalale to Mahalapye: New Line	1,818	2033	2034	2035	2036 - 2040
Waterberg link: Phases 1-5 upgrade	3,187	-	2010	2011	2012 - 2016
Coal Line extension to Waterberg. New single line	31,247	-	2012	2013 - 2014	2015 - 2020
Musina to Bela-Bela: Upgrades and passing loops	230	2021	2022	2023	2024 - 2027
Phalaborwa-Kaapmuiden: Upgrades, passing loops	120	-	2012	2013	2014 - 2016

Source: Transnet Infrastructure Plan, 2011

The following observations are made from Table 6-18:

- A new Cross border line is proposed from Lephalale to Mahalapye (Botswana) with an estimated total cost of about R1, 818 million , concept and feasibility studies will be undertaken between year 2034 and 2035, while construction is expected to commence between 2036 and 2040;
- A Waterberg link Phases 1-5 upgrade is projected to take place from 2012-2016 at an estimated total cost of about R3, 187 million;
- A Coal Line extension is proposed in Waterberg at an estimated total cost of about R31, 247 million, concept and feasibility studies will be undertaken from 2012 to 2014 while construction is scheduled to take place from 2015 to 2020;
- Musina to Bela Bela upgrades and passing loops are expected to cost about R 230 million , concept and feasibility studies are expected to be conducted between 2022 and 2023 and construction between 2024-2027; and
- Phalaborwa Kaapmuiden upgrades and passing loops – concept and feasibility studies will be undertaken between 2012 and 2013 and construction is anticipated to resume from 2014 to 2016. The whole upgrade is estimated to have a total cost of about R120 million

6.5.3 Upgrades and New Air Infrastructure

The Polokwane International Airport has undergone a number of upgrade proposals. In 1996 a Master Plan for the Polokwane International Airport was completed, with the following upgrade proposal:

- The following upgrades were recommended for the runway –
 - Runway 05-23 was to be retained as the main runway,
 - Improvements to the existing load classification number (LCN) conditions were to be considered;
 - Runway upgrading and lengthening to accommodate long-haul operations;
 - Raise or relocation of the control tower for purposes of achieving visibility to all runways; and
 - Determine noise levels for both runways.
- The following upgrades were considered for the taxiway –
 - Surfaced shoulders to accommodate larger aircraft operations;

- Improvements to the existing LCN conditions were to be considered; and
- New parallel taxiway for the ultimate phase.
- The following upgrades were recommended for the apron –
 - Improvements to the existing LCN conditions were to be considered;
 - Development of new apron, pending the choice of main runway.
- The following upgrades were recommended for the refuelling facilities –
 - Upgrading of the subsurface fuel reticulation to the apron from the fuel depot to accommodate increase in traffic movement; and
 - Provision of access for delivery purposes
- Other upgrades proposed during the 2004 and 2006 Master Planning of Polokwane International Airport include
 - A maintenance centre consisting of small hangars as well as one hangars for larger aircrafts;
 - A service centre consisting of hangars for private users and a parking area for aviation service providers;
 - An Aero City comprising of a terminal, trade fair centre, parking areas, a health centre, office blocks, an aviation academy, GAAL office and a hotel;
 - A cargo Hub with warehousing, cold storage and cargo holding facilities; and
 - Other upgrades include relocation of the control tower and the weather office, extension of the road network to access the terminal and parking areas.

According to the 2010 - 2015 Strategic Plan of the Gateway Airport Authority Limited the planning, development and implementation of a Cargo Hub at Polokwane International Airport is expected to take place during the fourth quarter of 2011.

6.6 Freight Transport Infrastructure Assessment

Drawing from Sections 6.2 to 6.5 the purpose of this section is to summarise the findings of the chapter as well as to highlight the strengths, weaknesses, threats and opportunities of the transport infrastructure in Limpopo Province and to present a consolidated list of potential problem areas that should be considered during the development of the Freight Implementation Strategy.

Table 6-19 below presents an overview of the main strengths, weaknesses, opportunities and threats (SWOT) with regard to transport infrastructure in Limpopo Province.

Table 6-19: SWOT Assessment of Transport Infrastructure in Limpopo Province

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Transport infrastructure in the Province allow for good connectivity with other states The major road route link South Africa with other countries (N1 and N11) 	<ul style="list-style-type: none"> • Lack of provincial freight transport corridors The Limpopo Freight Databank collated information along routes of national importance. Some of the provincial routes that are considered to support economic development in Limpopo were not included in the freight databank project. Therefore a need exist to reconcile the road network on which freight vehicles transverse and classify the freight routes to aid the development of a Provincial Freight Transport Corridors.
<ul style="list-style-type: none"> • Government’s commitment to improve general transport infrastructure The provincial government’s willingness to redress the challenges facing the transport infrastructure through the establishment of numerous transport infrastructure related strategies. 	<ul style="list-style-type: none"> • Network condition is by and large acceptable – however this is not essentially all through the transport system Road hauliers view the surfaced roads in the Province as acceptable on the whole - few interviewees indicated that the secondary transport network constrains their operations. Some of the issues raised include lack of maintenance for secondary network. There are a very high proportion of unpaved roads outside the main transport network, and the poor condition and lack of maintenance of these roads is a concern.
	<ul style="list-style-type: none"> • Lack of intermodal infrastructure Three informal intermodal infrastructures were identified during the process of developing the provincial freight databank - Polokwane, Musina and Phalaborwa. The Department of Roads and Transport is currently engaged with Transnet to develop a Citrus Freight Hub to be located in Polokwane.
	<ul style="list-style-type: none"> • Ineffective Overloading Control In general, there is poor road infrastructure within the Province, with the exception of the N1. This has been highlighted by a number of policies namely the Limpopo in Motion and Provincial District Integrated Development Plans. The poor road condition is attributable to the excessive overloading of heavy vehicles and has negative implications on the trucks as well as the commodities being transported. It result in high vehicle operating cost for trucks and the commodities being transported are damaged before they even reach their destination. Poor road infrastructure has been identified as one of the major challenges impeding the development of the freight industry in the Province for instance in Vhembe District it has impeded the potential development of the coal mine. Worsening the situation

	is the poor practice of road safety due to lack of road safety improvements mechanisms, lack of road signs, route name and numbers on the Provincial roads. There is also lack of fencing along the main routes which result in stray animals on the roads thus causing road traffic accidents.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> The Development of an Air Cargo Hub The envisaged Polokwane Freight Hub, which is expected to be developed on 40ha land, will house a 20ha container terminal and a 20ha warehousing for the fresh produce, cold storage and packing house. In addition to the Polokwane Freight Hub, the Burgersfort / Marble Hall, Hoedspruit, Musina and Tzaneen stations are expected to be improved to intermodal traffic. Potential of growing the air freight market 	<ul style="list-style-type: none"> Inadequate Maintenance Budgets Road freight transport system is totally dependent on the availability of road space and roads of suitable condition for transport of goods. Road infrastructure provision and maintenance become an integral part of ensuring an effective and sufficient road freight transport system. The provision of roads, in the context of space and maintenance is highly dependent on budgets for both national and provincial road upgrade and maintenance. Budgets for roads in Limpopo are allocated by national government based on an “equitable share” model. The Limpopo Province, with more than 17%¹⁷ of the national road network and 11% of the population, clearly faces funding challenges.
<ul style="list-style-type: none"> The Development of the Citrus Freight Hub in Polokwane The envisaged Polokwane Freight Hub, which is expected to be developed on 40ha land, will house a 20ha container terminal and a 20ha warehousing for the fresh produce, cold storage and packing house. In addition to the Polokwane Freight Hub, the Burgersfort / Marble Hall, Hoedspruit, Musina and Tzaneen stations are expected to be improved to intermodal traffic. 	<ul style="list-style-type: none"> Reduction in Rolling Stock and Locomotive During the planned streamlining of railway services between 1985 and 2000 many locomotives were taken out of service after having had relatively minor break-downs. With corporate downsizing these locomotives were seen to be surplus to future needs. Furthermore the scrapping of wagons – (from 120 000 in the early 1990’s to 80 000). The above reduction caused wagon shortages, which resulted in large quantities of chrome and ferrochrome, domestic coal and grain traffic switching to road transport. Bulk cement producers have been offered wagons, which are not effectively self-offloading, causing them to use road freight hauliers.
<ul style="list-style-type: none"> Potential Partnerships Public - Private Partnerships for building, upgrading transport infrastructure – airports, rail, and roads are feasible. 	

¹⁷ Based on 2005 information

6.7 Key Transport Infrastructure Challenges

Table 6-20 outlines the imperative issues identified through data collection and stakeholder consultation.

Table 6-20: Overview of Key Transport Infrastructure Challenges Identified

CATEGORY	CHALLENGES TO BE ADDRESSED
Road Transport Infrastructure	<ul style="list-style-type: none"> • Contribution to wear, damage and externalities that is caused by heavy vehicles is not adequately considered in Limpopo; • Establish the actual road usage cost of different categories of vehicles, to determine the share of road costs that should be allocated to the operation of road freight vehicles; • Less than 35% of road network in the Province is paved; • General lack of maintenance in all modes of transport. For roads in particular increases road user charges; • No dedicated fund for road maintenance and other transport corridors; • Lack of calibrated weighing equipment, knowledge and skills, enforcement and supervision to address the issue of overloading; • Lack of catering for specific needs of truckers in the provision of proper facilities such as truck stops; and • Excessive overloading on roads contributes to further deterioration of roads.
Rail Transport Infrastructure	<ul style="list-style-type: none"> • Underutilisation of rail infrastructure; and • Presently freight transport mainly consists of road and rail, with limited intermodal freight.
Air Transport Infrastructure	<ul style="list-style-type: none"> • Airport infrastructure is underutilized.

7. Freight Transport Operations

7.1 Introduction

The Limpopo transport system generates significant traffic which passes into neighbouring Provinces in South Africa as well as the neighbouring states. Freight transport operations is therefore of great strategic and economic value – it is a crucial element of the South African transportation system and is a significant factor in the movement of freight. This chapter of the report provides a holistic view of all freight transport volumes in Limpopo Province. It further builds a picture of the value of freight transport operations within the context of an overall “Freight Plan” for the Province.

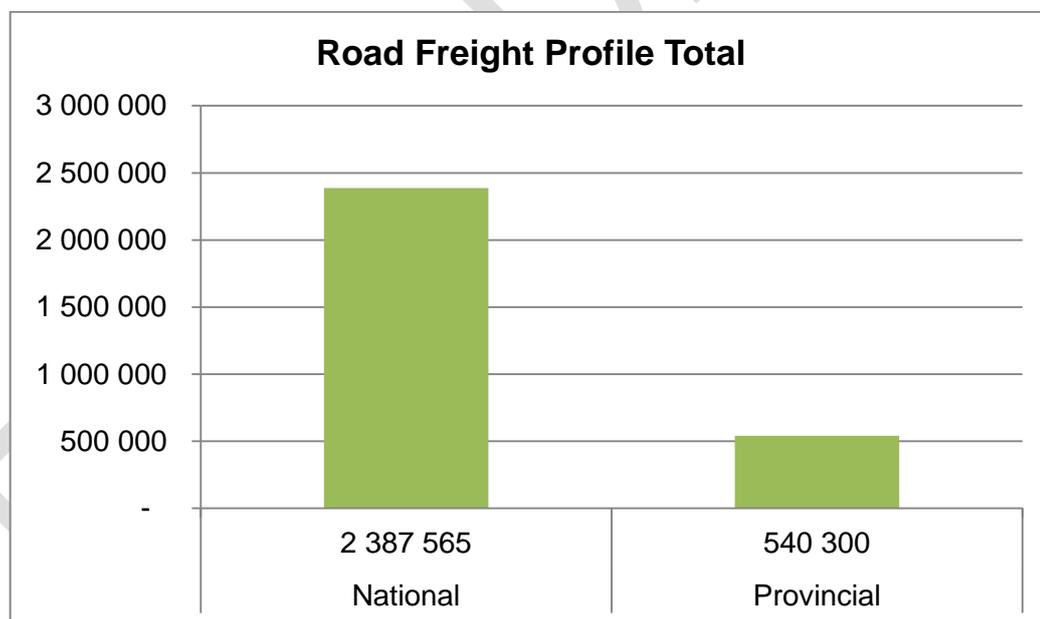
Freight transport operations are presented per mode of transport – with a consolidated view provided at the end of the section.

7.2 Road Freight Profile

7.2.1 Historic Road Freight Operations

According to the National Transport Master Plan (Limpopo Province Chapter), the estimated freight vehicle traffic traversing the Province equals 2.9 million vehicles carrying a total of 62 million tons of freight per annum. The National Freight Logistic Strategy captured the total road freight tonnage across South Africa at approximately 512 million tons, suggesting that the Limpopo Province carries 12% of total freight traffic in South Africa. Refer to Figure 7-1.

Figure 7-1: Comparison of Freight Traffic across National and Provincial Freight Routes in Limpopo



Source: Limpopo Freight Databank, 2006

In 2006¹⁸ the Limpopo Province, together with the National Department of Transport undertook a road-based survey to gather road freight information in the Province. Map 7-1 below shows the positions of survey points utilized to gather road freight information.

The following observations are made from Map 7-1 with respect to 2006 freight data collection:

- A total of 29 survey points were used to collate freight data information. Data for 27 survey points will be presented in this report;

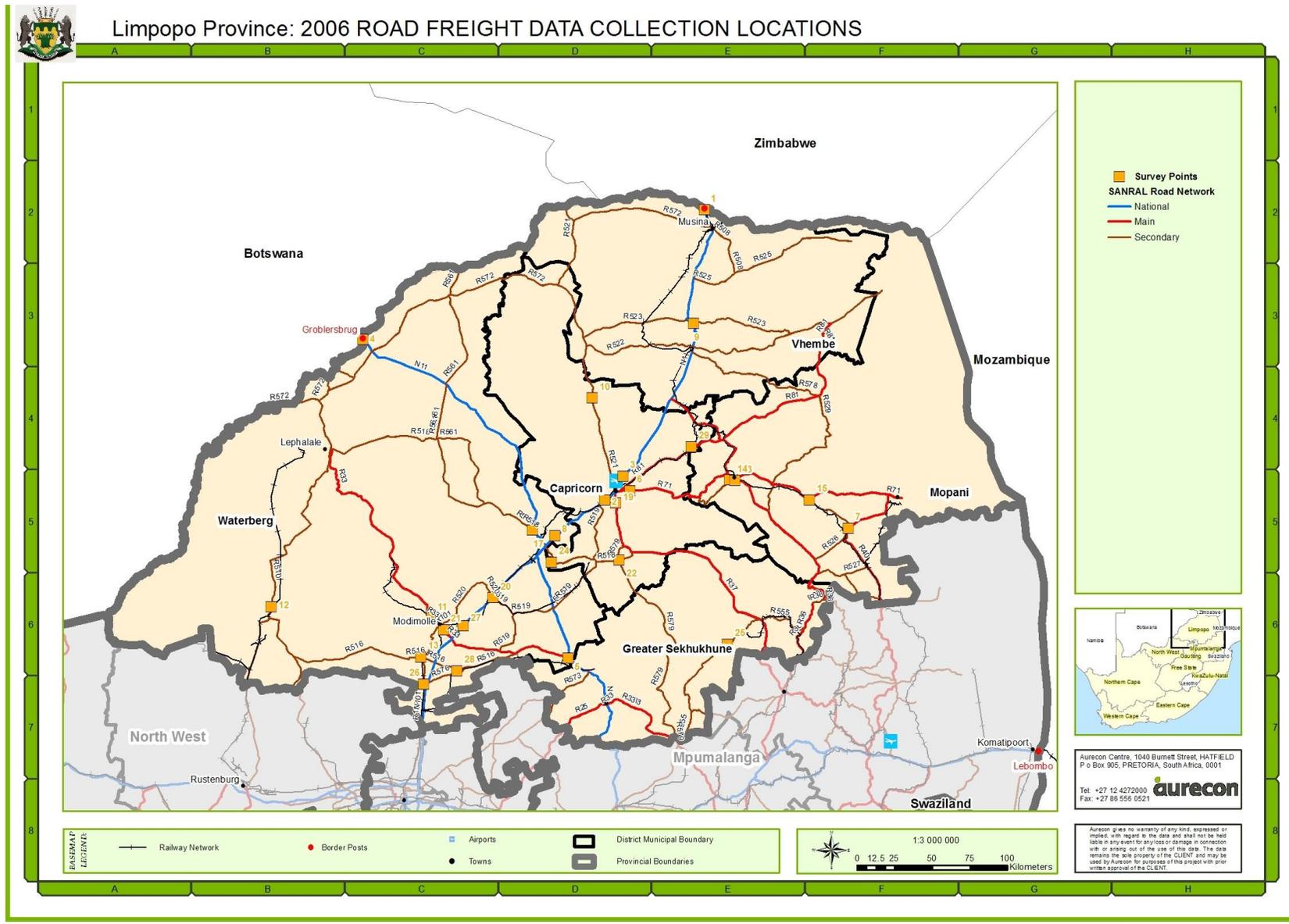
¹⁸ May 2006 – August 2006

- Freight traffic information was collected along the national freeway, national routes as well as strategic provincial routes.
- No freight traffic movement was observed at Stockpoort, Zanzibar and Platjan border posts.
- For each corridor, the following traffic data are presented:
 - Annual Average Daily Truck Traffic (AADTT),
 - total tonnage per annum;
 - average tonnage per vehicle;
 - vehicle directional split;
 - average vehicle per hour and
 - commodity composition.

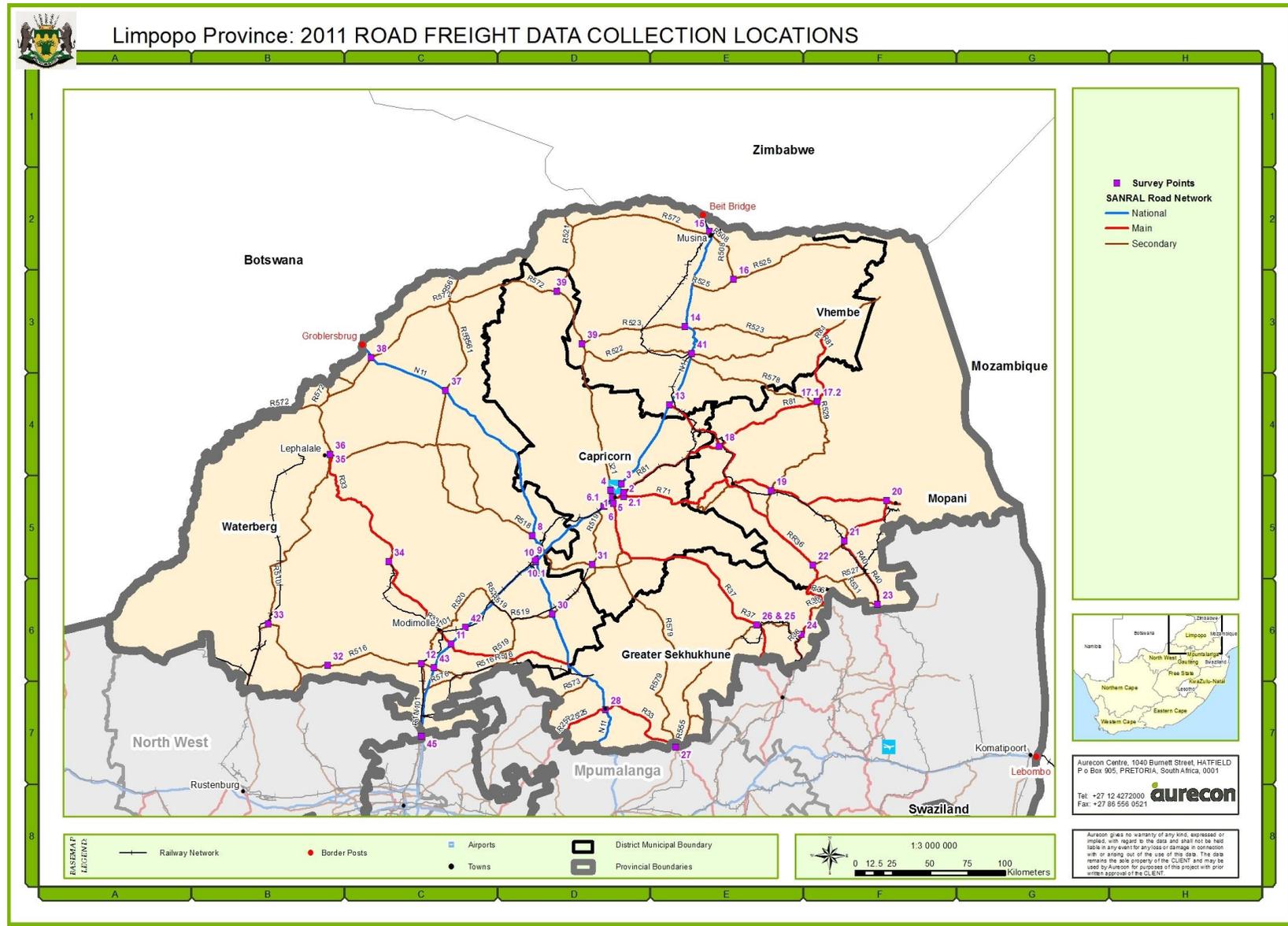
In 2010 (completed in 2012), the Province embarked on updating the outdated 2006 provincial freight databank. The purpose of updating the freight data bank was to establish the current freight scenario within the Province. Map 7-2 indicates the survey locations for the 2011 updated freight data bank.

The detailed observations per corridor are presented in the remainder of the section for both years of analysis.

Map 7-1: 2006 Freight Data Bank Survey Locations



Map 7-2: 2011 Freight Data Bank Survey Locations



7.2.1.1 2006 Freight Data Bank

A summary of the 2006 freight data bank data will be discussed in the following paragraphs. First the national routes will be discussed followed by the main provincial routes.

N1 Corridor

There were 4 survey points along the N1 corridor, which collated freight information along the following sections of the N1:

- Beit-Bridge – Musina;
- Louis Trichardt – Polokwane;
- Polokwane Mokopane; and
- Mokgoophong – Carousel.

Observations per section are presented below:

Beit-Bridge - Musina

The Beit-Bridge - Musina section is part of the N1 corridor, which is the main freight entry into the Zimbabwe. Table 7-1 shows the road freight profile for this section of the N1 corridor.

Table 7-1: Road Freight Profile – N1 (Musina – Beit Bridge)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLES/ HOUR
106,500 (4%)	2,523,900 (4%)	23.7	North (52%): South (48%)	7.4

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-1:

- A total of 4% of Limpopo freight vehicles (106, 500 vehicles per annum) passed through the Musina-Beit-Bridge section of the N1 carrying 4% (2.5millions tons) of the total tonnage per annum;
- On average each freight vehicle was carrying 24 tons;
- 52% of the 106,500 vehicles were going north, whilst 48% were going in the south direction;
- On average a total of 7 vehicles were recorded per hour.

Figure 7-2 and Figure 7-3 give an indication of the mix of commodities being handled on the Beit Bridge –Musina section of the N1 corridor and the direction of its travel. The following observations are made from these figures:

- Majority of heavy vehicles on this section of the N1 carried “sail/tarpaulin (46%)”; “others (15%) and “chemicals (8%);
- Bags/sacks”, “drinks/beverages”; livestock” and “agricultural products” were mostly southbound, whilst “fuels”, “perishables” and “containers” were northbound.
- Equal quantities of “iron/steel”, “rock/stone/ores” and “sail/tarpaulin” are being transported in both directions (northbound: southbound split closer to 50%).

Figure 7-2: Mix of Freight Traffic Tonnage by Commodity: on the Beit Bridge Musina Section

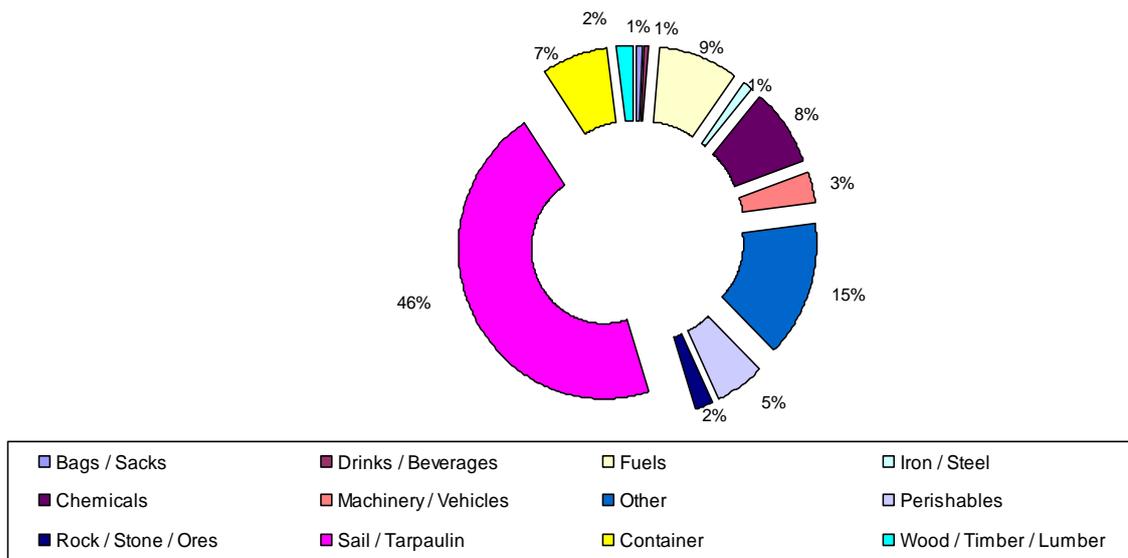
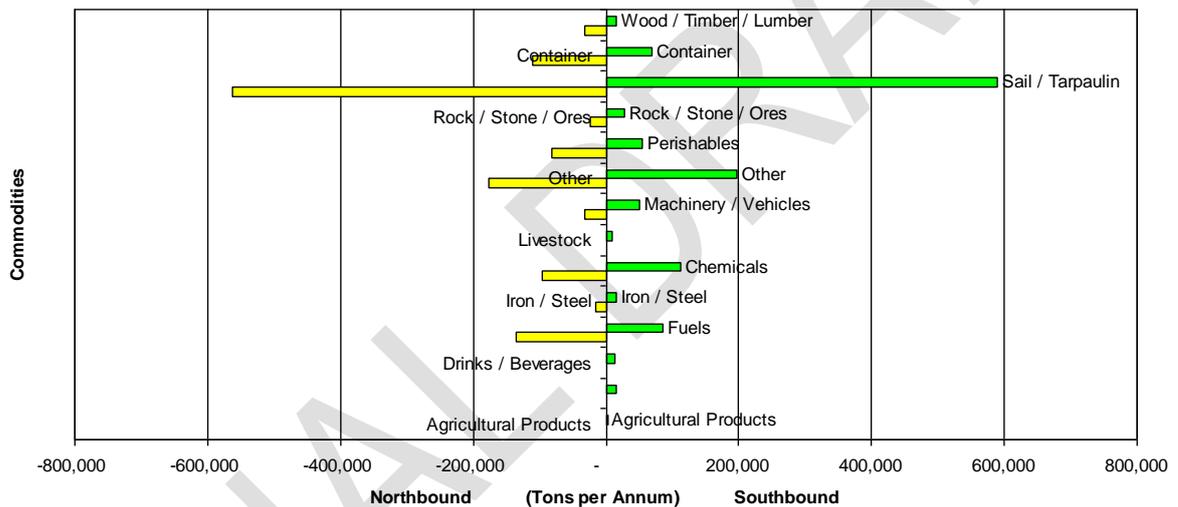


Figure 7-3: Balance of Commodities on the Beit Bridge-Musina Section



Louis Trichardt – Polokwane

The Louis Trichardt – Polokwane section is also part of the N1 corridor. Table 7-2 shows the road freight profile for this section of the N1 corridor.

Table 7-2: Road Freight Profile – N1 (Louis Trichardt – Polokwane)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLES/HOUR
231,840 (8%)	4,805,472 (8%)	20.7	North (52%); South (48%)	16.1

Source: Limpopo Freight Databank, 2006

The following observations are made:

- A total of 8% of Limpopo freight vehicles (231,840 vehicles per annum) passed through the Louis Trichardt – Polokwane section of the N1 transporting 8% (4.8 million tons) of the total tonnage per annum;
- On average each freight vehicle carried about 21 tons;

- 52% of the 231, 840 vehicles were going towards the north direction, while 48% were travelling towards the south direction;
- On average a total of 16 vehicles were recorded per hour.

Figure 7-4 and Figure 7-5 give an indication of the mix of commodities being handled on the Louis Trichardt – Polokwane section of the N1 and the direction of its travel.

Figure 7-4: Mix of Freight Traffic Tonnage by Commodity: on the Louis Trichardt – Polokwane Section

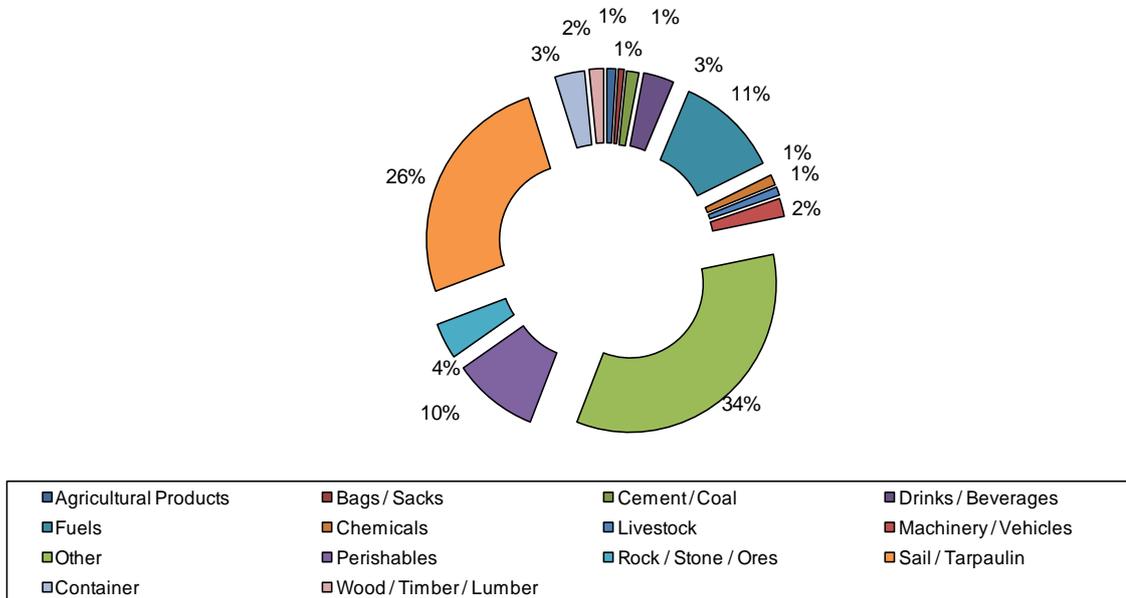
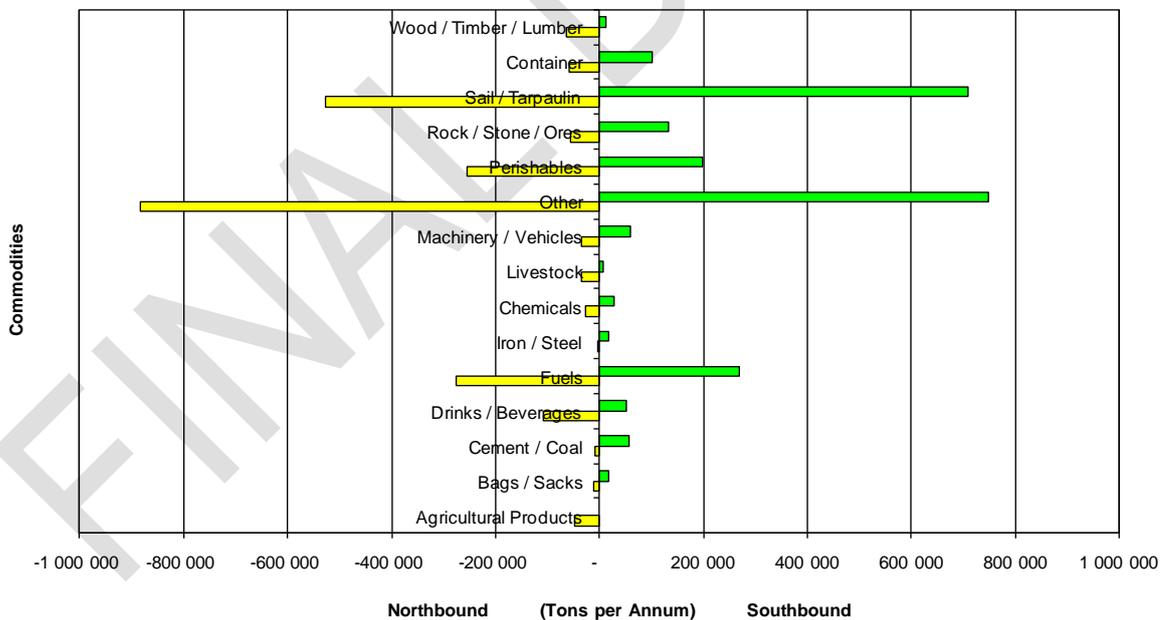


Figure 7-5: Balance of Commodities on the Louis Trichardt Section



The following observations are made:

- A predominant number of heavy vehicles on this section of the N1 carried “other” (34%), “sail/ tarpaulin” (26%), “fuels” (11%) and “perishables” (10%);
- “Drinks/beverages”, “perishables”, “wood/timber”, “livestock” “other” and “agricultural products” were mostly transported northbound whilst “cement/coal”, “rock/stone”, “containers”, “iron/steel”, “machinery/vehicles”, sail/tarpaulin” and “bags/sacks” were transported southbound;

- Approximately equal quantities of “fuels” and “chemicals” were being transported on both directions with about 50% split.

Polokwane – Mokopane

The Polokwane – Mokopane section is part of the N1 corridor as well. Table 7-3 illustrates the road freight profile for this section of the N1 corridor.

Table 7-3: Road Freight Profile – N1 (Polokwane - Mokopane)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
393,420 (13%)	8,548,170 (14%)	21.7	North (62%): South (38%)	27.3

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-3:

- Approximately 13% (393,420 vehicles) of the Limpopo freight vehicles recorded per annum passed through the Polokwane – Mokopane section of the N1 transporting 14% (8.5 million tons) of the Limpopo annual total tonnage;
- On average each freight vehicle carried approximately 22 tons;
- 62% of the 393,420 vehicles travelled northbound while 38% travelled southbound;
- On average a total of 27 vehicles were recorded per hour along this survey point.

Figure 7-6 and Figure 7-7 give an indication of the mix of commodities being handled on the Polokwane - Mokopane section of the N1 and the direction of its travel. The following observations are made:

- A bulk of heavy vehicles on this section carried “other” (36%), “sail/tarpaulin” (26%), “perishables” (9%) and “fuels” (9%);
- Large quantities of the majority of commodities were transported northbound. They include “agricultural products”, “bags/sacks”, “wood/timber”, “iron/steel”, “containers”, “cement/coal”, “drinks/beverages”, “perishables”, “fuels”, “other”, and “rock/stone” while “livestock”, “machinery/vehicles” and sail/tarpaulin were mainly transported southbound;
- Approximate equal quantities of “sail/tarpaulin” were being transported on both directions.

Figure 7-6: Mix of Freight Traffic Tonnage by Commodity on the Polokwane – Mokopane Section

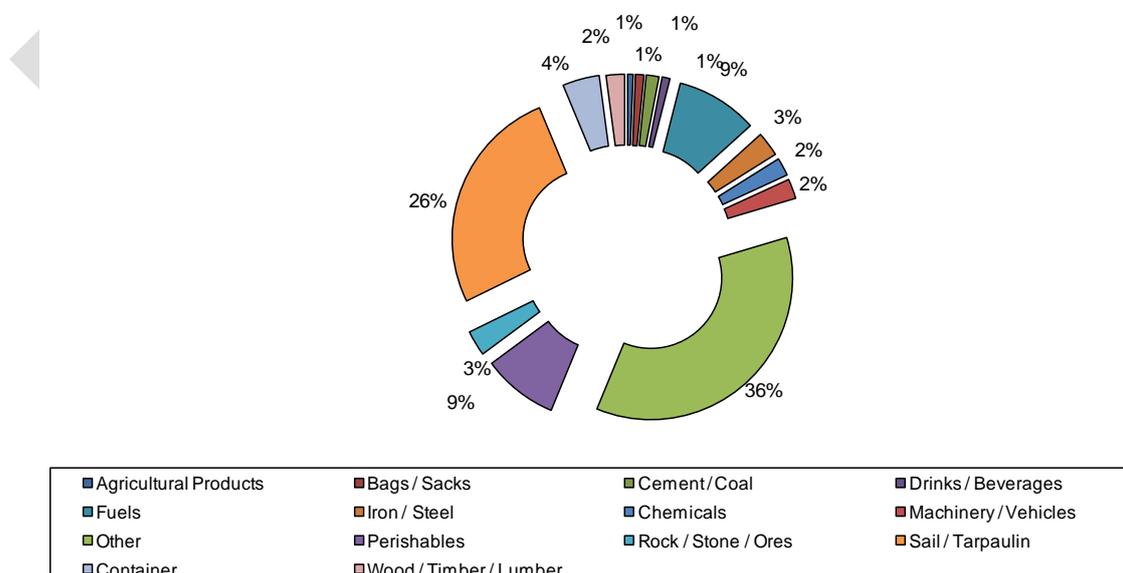
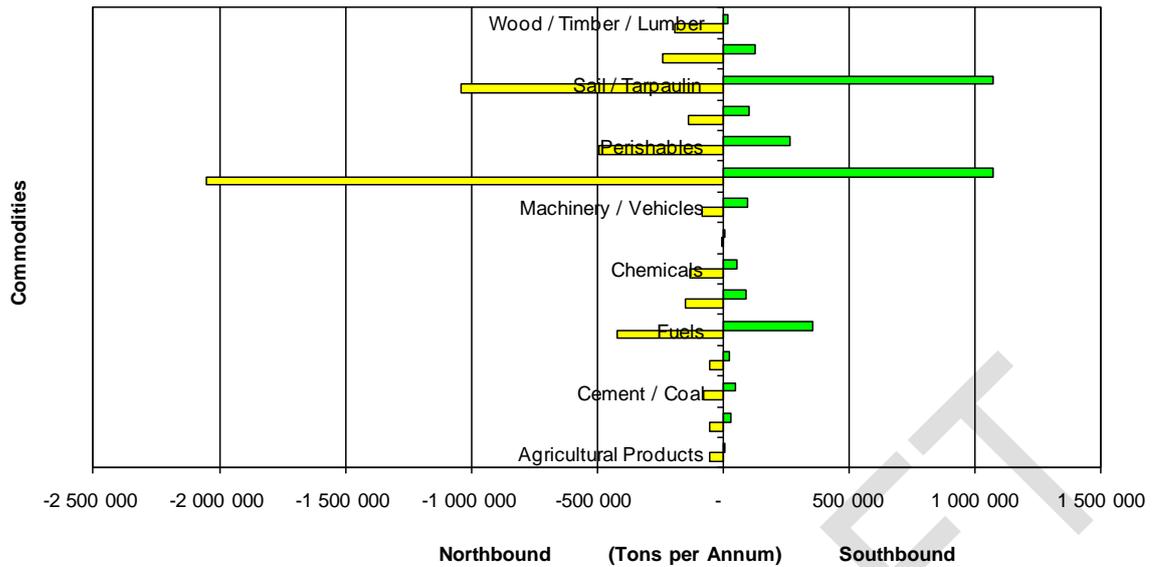


Figure 7-7: Balance of Commodities on the Polokwane -Mokopane Section



Mokgoophong – Carousel

The Mokgoophong – Carousel section is also part of the N1 corridor. Table 7-4 presents the road freight profile of this section.

Table 7-4: Road Freight Profile – N1 (Mokgoophong - Carousel)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
541,305 (18%)	12,870,915 (21%)	23.8	North (46%): South (54%)	37.6

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-4:

- About 18% (541,305 vehicles) of the Provincial freight vehicles recorded per annum, passed through Mokgoophong – Carousel section of the N1 carrying 21% (12.8 million tons) of the total tonnage recorded per year;
- Each vehicle carried about 24 tons on average.
- 46% of the 541,305 vehicles travelled towards the northern direction whilst 54% travelled towards the south;
- On average a total of 38 vehicles were recorded per hour;
- The Mokgoophong – Carousel section recorded a higher percentage of heavy vehicles that passed through carrying high tons than the other 3 sections of the N1.

Figure 7-8 and Figure 7-9 give an indication of the mix of commodities being handled on the Polokwane - Mokopane section of the N1 and the direction of its travel.

Figure 7-8: Mix of Freight Traffic Tonnage by Commodity: on the Mokgoophong – Carousel Section

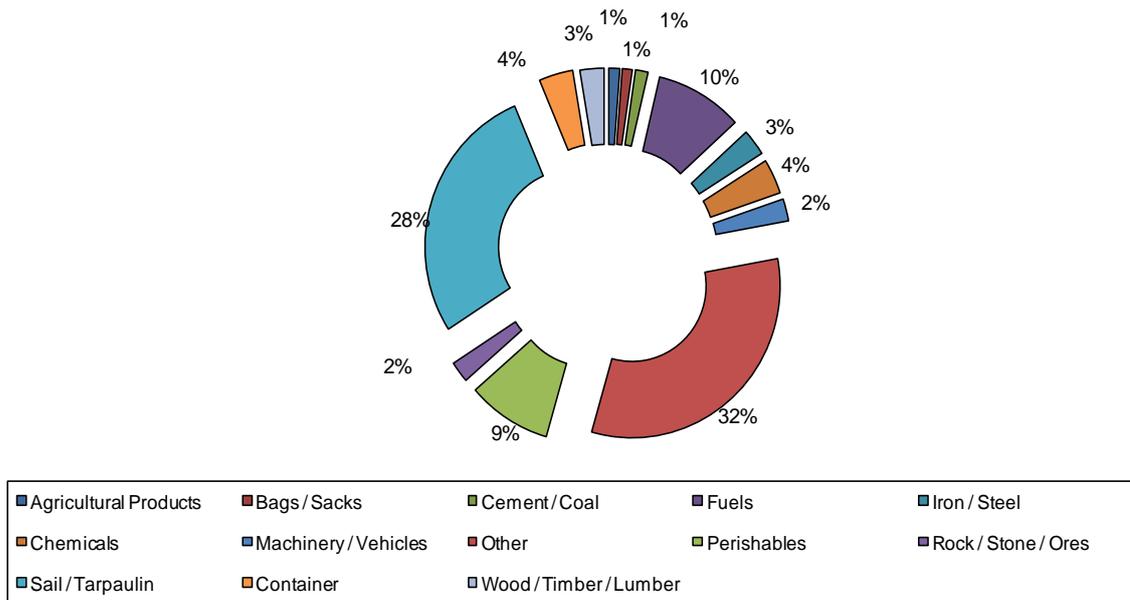
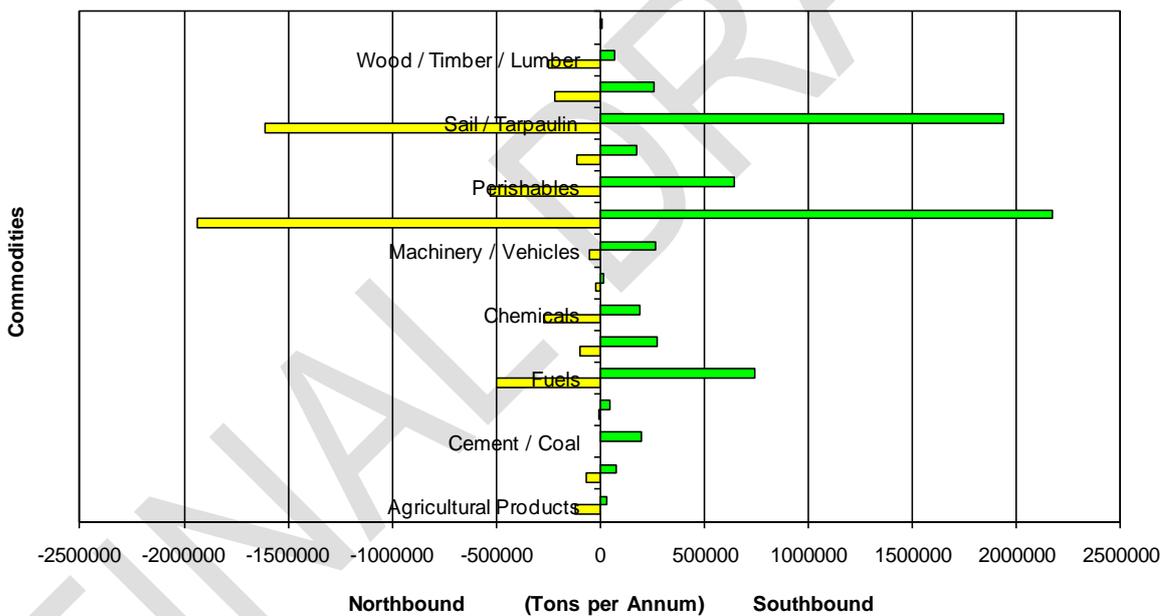


Figure 7-9: Balance of Commodities on the Mokgoophong – Carousel Section



The following observations are made:

- A bulk of heavy vehicles on this section carried “other” (32%), “sail/tarpaulin” (28%), “fuels” (10%) and “perishables” (9%);
- “Agricultural products”, “livestock”, “wood/timber” and “chemicals” were largely transported towards the north direction while “fuels”, “cement/coal”, “bags/sacks”, “iron/steel”, “other”, “rock/stone”, “drinks/beverages”, “containers” and “machinery/vehicles” were transported towards the south direction.
- Equal quantities of containers, were transported on both directions.

N11 corridor

There were 2 survey points along the N11 corridor, which collated freight information along the following sections of the N11, namely the Mokopane – Martins Drift section and the Roedtan – Marble Hall section. Observations per section are presented below:

Mokopane – Martins Drift

The Mokopane – Martins Drift section is part of the N11 corridor, which is the main freight entry into Botswana. Table 7-5 presents the road freight profile of this road section.

Table 7-5: Road Freight Profile – N11 (Mokopane – Martins Drift)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
46,200 (2%)	1,119,900 (2%)	24.2	North (65%): South (35%)	3.2

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-5:

- A total of 46,200 vehicles, 2% of the total Limpopo Freight vehicles recorded per annum passed through the Mokopane – Martins Drift section of the N11 transporting 1.1 million tons 2% of the total tonnage per annum;
- On average each vehicle carried about 24 tons;
- 65% of the 46,200 vehicles travelled towards the north direction while 35% travelled towards the south direction;
- On average a total of 3 vehicles were recorded per hour.

Figure 7-10 and Figure 7-11 give an indication of the mix of commodities being handled on the Mokopane – Martins Drift section of the N11 and the direction of its travel.

Figure 7-10: Mix of Freight Traffic Tonnage by Commodity: on the Mokopane – Martins Drift Section

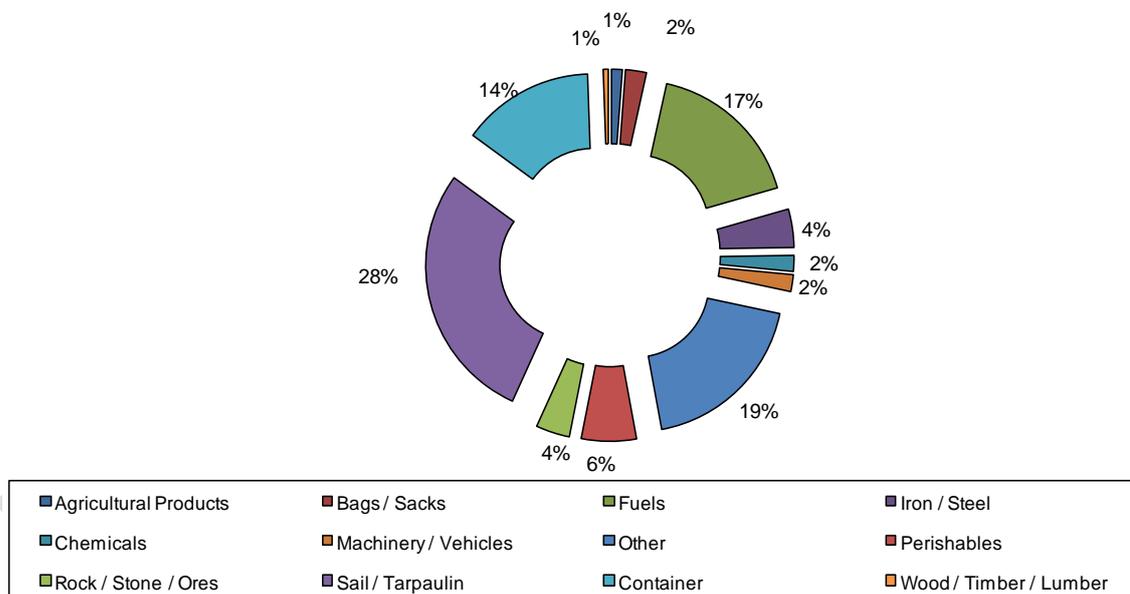
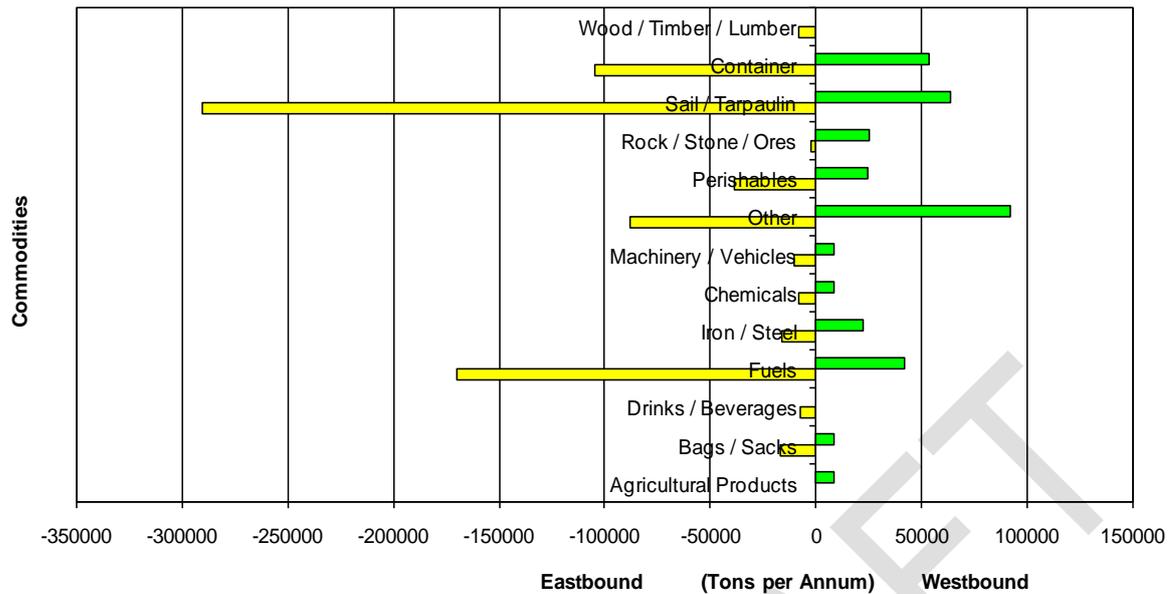


Figure 7-11: Balance of Commodities on the Mokopane – Martins Drift Section



The following observations are made:

Majority of heavy vehicles on this section carried “sail/tarpaulin” (28%), “other” (19%), “fuels” (17%) and “containers” (14%);

- “Bag/sacks”, “drinks/beverages”, “perishables”, “fuels”, “machinery/vehicles”, “containers”, “sail/tarpaulin” and “wood/timber” were mainly transported eastbound while “agricultural products”, “iron/steel”, “rock/stone” and “other” were transported westbound;
- “Chemicals” were equally transported on both directions (northbound: southbound split of 50%).

Roedtan – Marble Hall

The Roedtan – Marble Hall section is part of the N11 corridor. Table 7-6 illustrates the road freight profile of this road section.

Table 7-6: Road Freight Profile – N11 (Roedtan – Carousel)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
121,200 (4%)	2,755,200 (4%)	22.7	North (44%): South(56%)	8.4

Source: Limpopo Freight Databank, 2006

The followings observations were made from Table 7-6:

- About 4% (121, 200 vehicles) of the total Provincial Freight vehicles recorded per annum passed through the Roedtan – Marble Hall section of the N11 transporting 4% (2.7 million tons) of the total annual tonnage;
- On average each vehicle carried about 23 tons;
- Out of the 121,200 vehicles, 44% travelled towards the north while 56% travelled towards the south;
- On average a total of 8 vehicles were recorded per hour.

Figure 7-12 and Figure 7-13 give an indication of the mix of commodities being handled on the Roedtan – Marble Hall section of the N11 and the direction of its travel.

Figure 7-12: Mix of Freight Traffic Tonnage by Commodity: on the Roedtan – Marble Hall Section

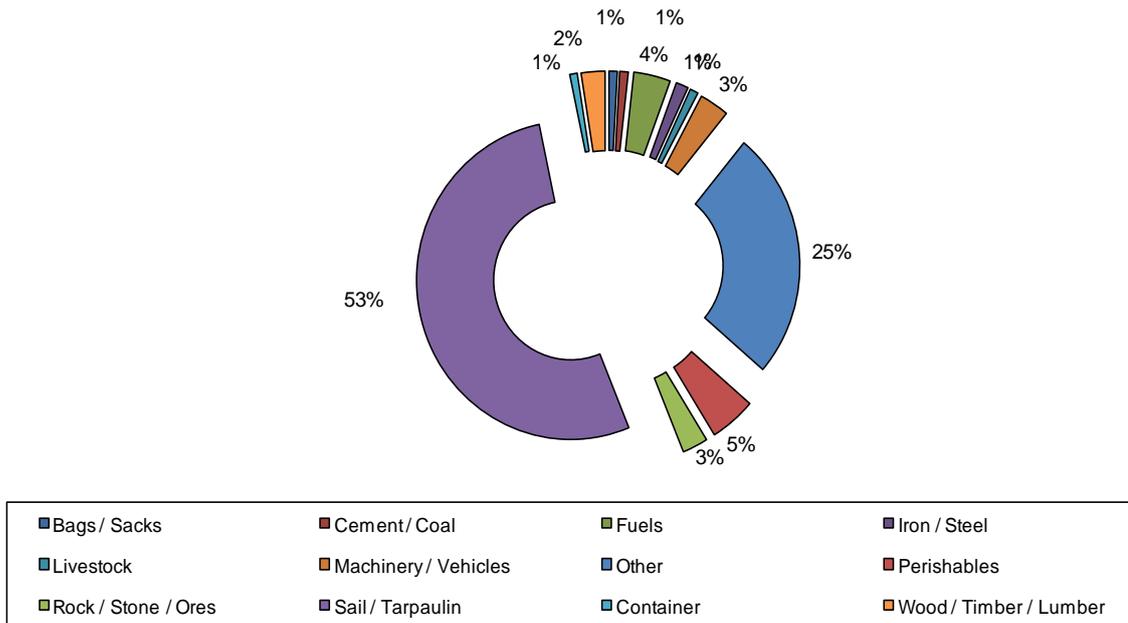
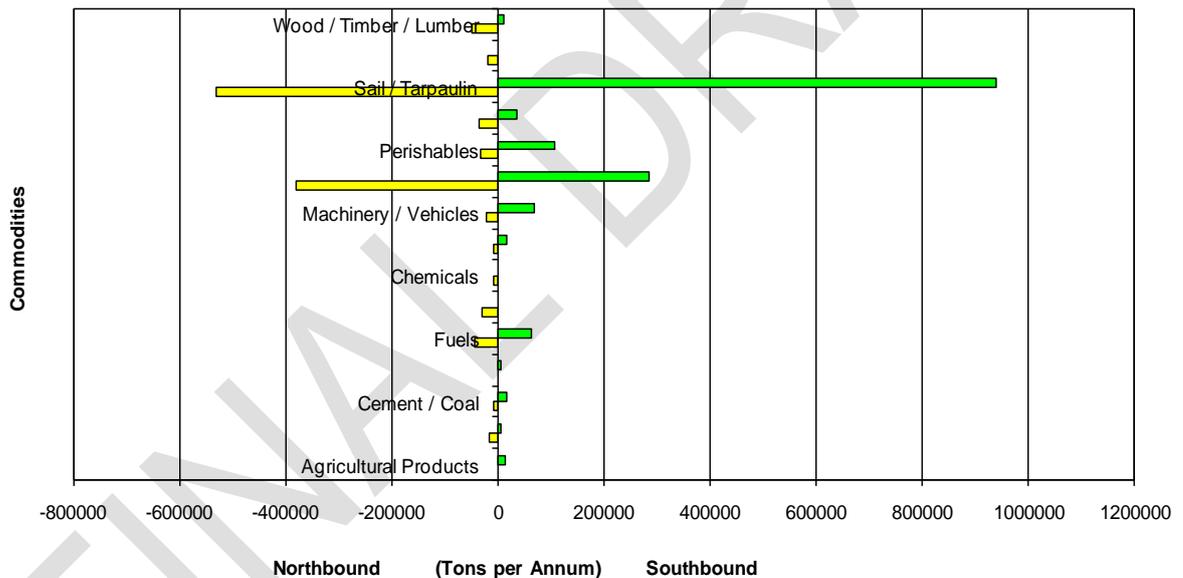


Figure 7-13: Balance of Commodities on the Roedtan – Marble Hall Section



The following observations are made:

- A predominant number of heavy vehicles on this section transported sail/tarpaulin (53%) and other (25%);
- “Bag/sacks”, “iron/steel”, “chemicals”, “containers”, “other” and “wood/timber” were mainly transported northbound while “agricultural products”, “cement/coal”, “machinery/vehicles”, “perishables”, “drinks/beverages” “fuels”, “sail/tarpaulin” and “livestock” were largely transported southbound;
- Approximate equal quantities of “rock/stone” were transported on both directions northbound and southbound.

R33 corridor

There were 2 survey points along the R33 corridor, which collated freight information along the following sections of the R33, namely Vaalwater – Lephhalale and Modimolle – Nutfield sections. Observations per section are presented below:

Vaalwater – Lephhalale

The Vaalwater-Lephhalale section is part of the R33 corridor. Table 7-7 shows the road freight profile of this road section.

Table 7-7: Road Freight Profile – R33 (Vaalwater - Lephhalale)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
112,800 (4%)	2,422,200 (4%)	21.5	North (44%): South (56%)	7.8

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-7:

- Approximately 4% (112,800 vehicles) of the total freight vehicles recorded per annum in the Province, passed through the Vaalwater-Lephhalale section of R33 carrying 4% (2.4 million tons) of the total annual tonnage recorded in Limpopo;
- Each vehicle carried about 22 tons on average;
- 44% of the 112,800 vehicles travelled towards the north direction while 56% travelled towards the south direction;
- On average about 8 vehicles were recorded per hour.

Figure 7-14 and Figure 7-15 give an indication of the mix of commodities being handled on the Vaalwater - Lephhalale section of the R33 and the direction of its travel.

Figure 7-14: Mix of Freight Traffic Tonnage by Commodity on the Vaalwater – Lephhalale Section

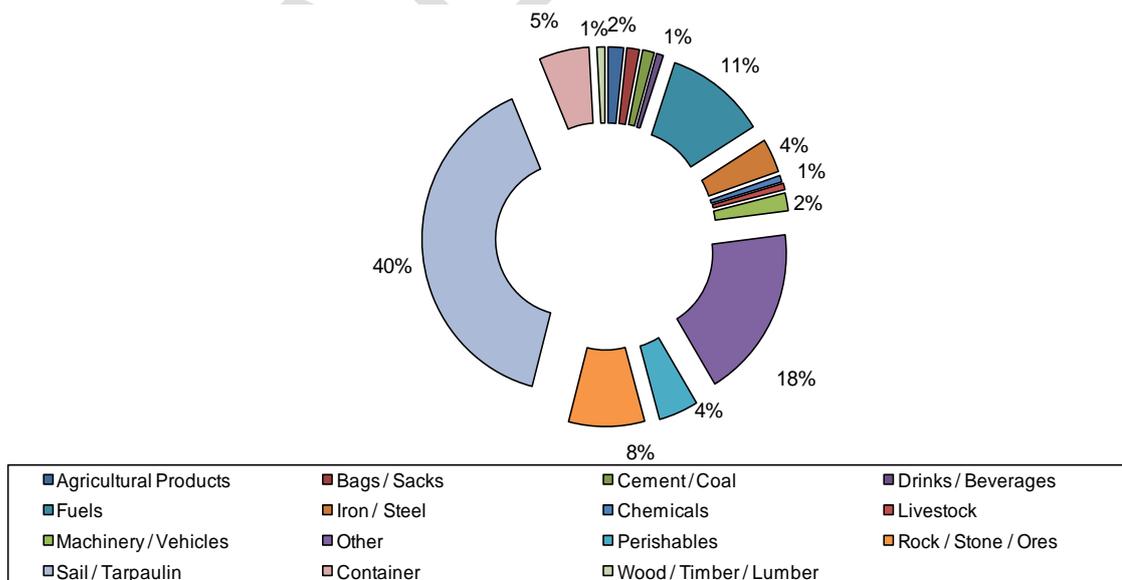
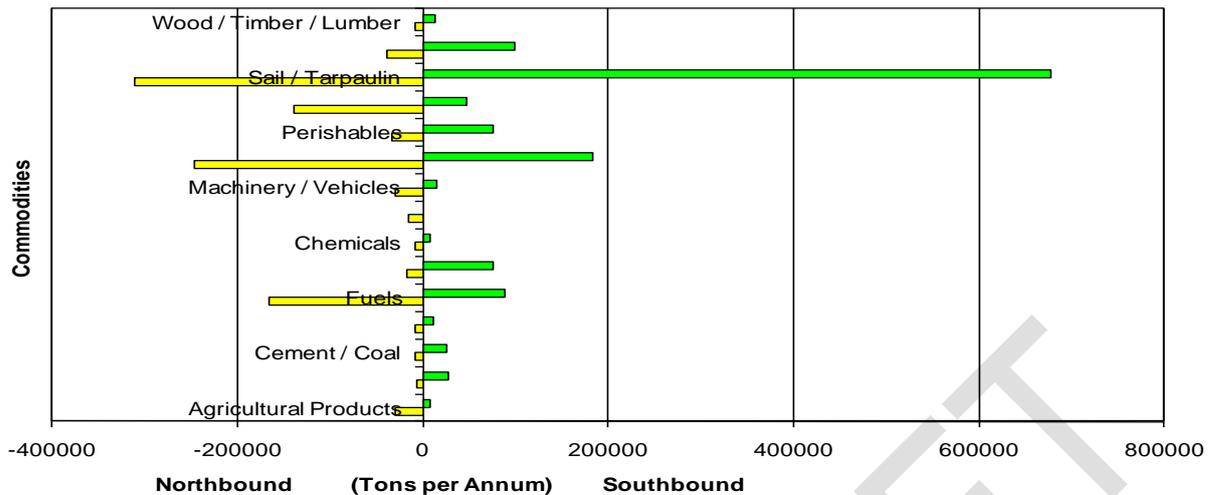


Figure 7-15: Balance of Commodities on the Vaalwater – Lephalale Section



The following observations are made:

- Heavy vehicles on this section primarily carried sail/tarpaulin (40%), other (18%), fuels (11%) and rock/stone (8%);
- “Agricultural products”, “fuels”, “machinery/vehicles”, “livestock”, “other” and “rock/stone” were primarily transported to the northern direction while “bags/sacks”, “cement/coal”, “iron/steel”, “perishables”, “wood/timber”, “sail/tarpaulin and “containers” were transported to the southern direction;
- Equal quantities of “chemicals” were transported on both directions (50% split northbound and southbound).

Modimolle – Nutfield

The Modimolle and Nutfield section is also part of the R33 corridor. Table 7-8 presents the road freight profile of this road section.

Table 7-8: Road Freight Profile – R33 (Modimolle - Nutfield)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
163,500 (6%)	3,457,200 (6%)	21.1	North (47%): South(53%)	11.4

Source: Limpopo Freight Databank, 2006

The following observations were made from Table 7-8:

- About 6% (163,500 vehicles) of the total Limpopo freight vehicles recorded per annum, passed through Modimolle – Nutfield section transporting 6% (3.5 million tons) of the total annual tonnage;
- On average each vehicle transported about 21 tons;
- Out of the 163,500 vehicles, 47% travelled northbound while 53% travelled southbound;
- On average a total of 11 vehicles were recorded per hour.

Figure 7-16 and Figure 7-17 give an indication of the mix of commodities being handled on the Modimolle – Nutfield section of the R33 and the direction of its travel.

Figure 7-16: Mix of Freight Traffic Tonnage by Commodity: on the Modimolle – Nutfield Section

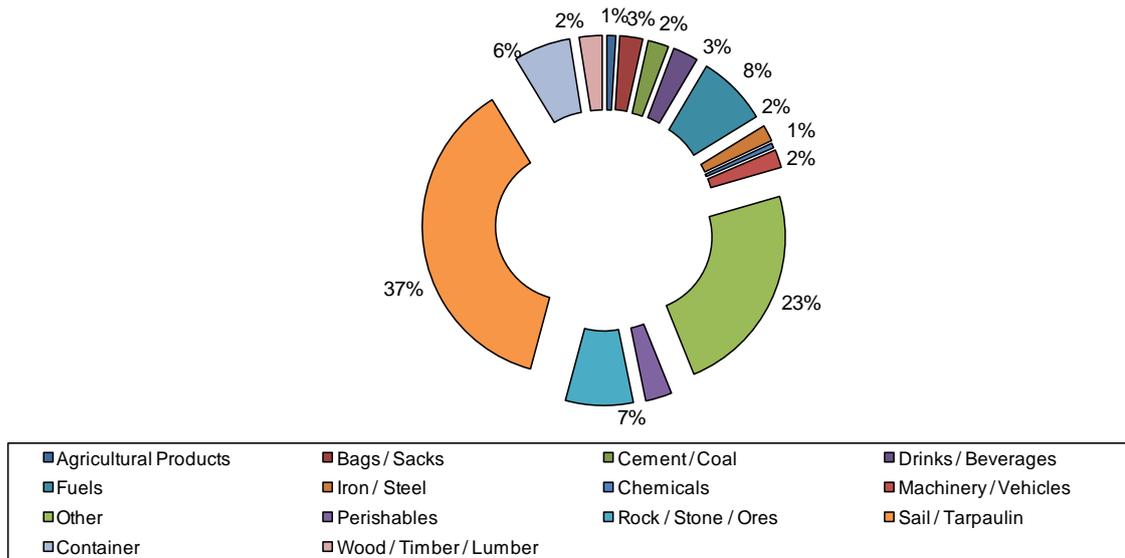
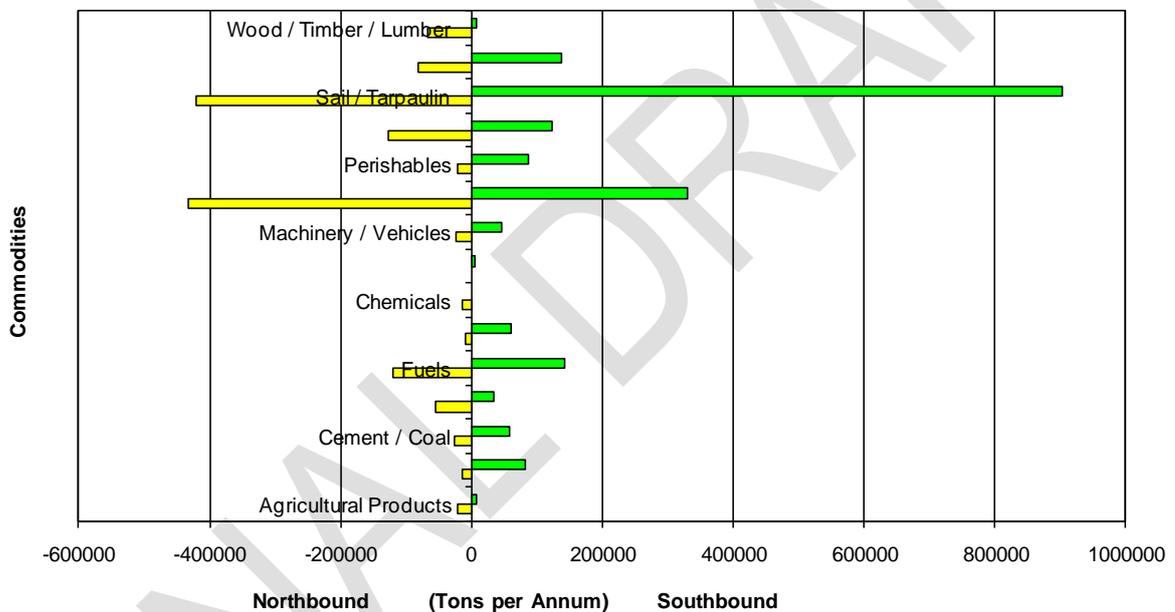


Figure 7-17: Balance of Commodities on the Modimolle – Nutfield Section



The following observations were made:

- A predominant number of heavy vehicles transported “sail/tarpaulin” (37%), “other” (23%) and “fuels” (8%);
- “Agricultural products”, “drinks/beverages”, “chemicals”, “other” and “wood/timber” were mainly transported to the north while “bags/sacks”, “cement/coal”, “iron/steel”, “livestock”, “machinery/vehicles”, “perishables”, “fuels”, “sail/tarpaulin” and “containers” were mostly transported to the south.

R40 corridor

There was only 1 survey point along the R40 corridor, which collated freight information from Mica to Phalaborwa. Mica-Phalaborwa section is part of the R40 corridor. Table 7-9 illustrates the road freight profile of this road section.

Table 7-9: Road Freight Profile – R40 (Mica - Phalaborwa)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
55,500 (2%)	1,140,900 (2%)	20.6	East (48%): West (52%)	3.9

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-9:

- A total of 55,500 vehicles about 2% of the Provincial freight vehicles recorded per annum, passed through Mica-Phalaborwa section transporting 1,1 million tons about 2% of the total annual tonnage;
- On average each vehicle carried about 21 tons;
- 48% of the 55,500 vehicles travelled to the east while 52% travelled to the west;
- On average about 4 vehicles were recorded per hour.

Figure 7-18 and Figure 7-19 give an indication of the mix of commodities being handled on the Mica - Phalaborwa section of the R40 and the direction of its travel.

Figure 7-18: Mix of Freight Traffic Tonnage by Commodity: on the Mica – Phalaborwa Section

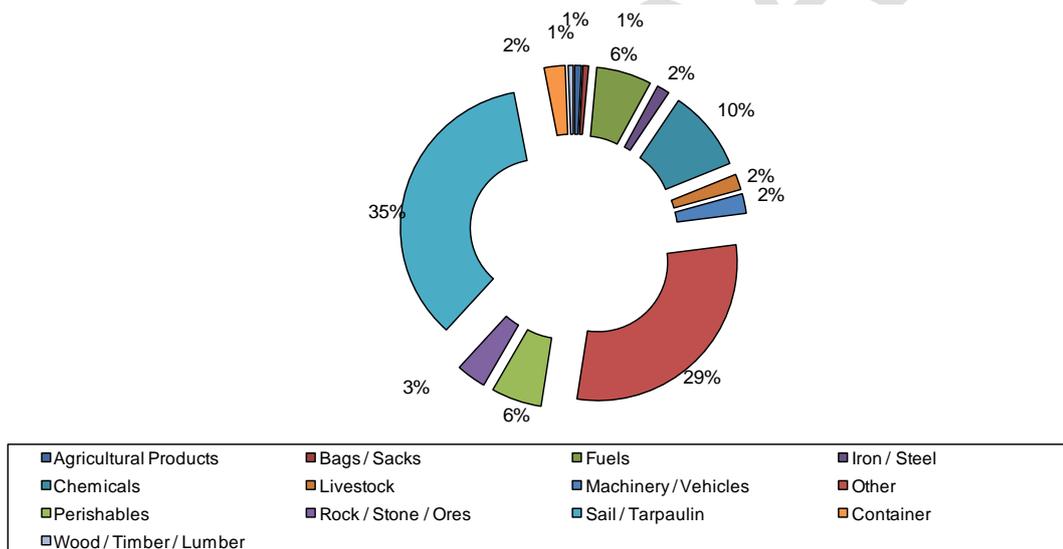
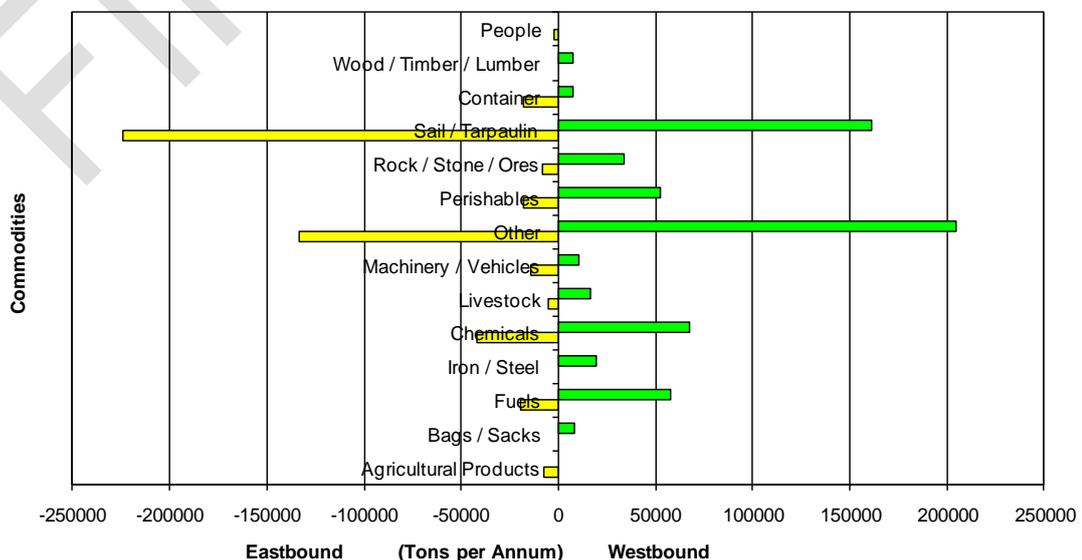


Figure 7-19: Balance of Commodities on the Mica – Phalaborwa Section



The following observations are made:

- Majority of heavy vehicles transported “sail/tarpaulin” (35%), “other” (29%) and “chemicals” (9%);
- “Agricultural products”, “machinery/vehicles”, “containers” and “sail/tarpaulin” were primarily transported to the east while “bags/sacks”, “fuels”, “iron/steel”, “chemicals”, “livestock”, “other”, “perishables”, “rock/stone” and “wood/timber” were mainly transported to the west.

R101 corridor

There were 2 survey points along the R101 corridor, which collated freight information as follows namely the Polokwane-Mokopane, a provincial road (see assessment in Table 7-10) and the Bela-Bela – Hammanskraal, which is interpreted in Table 7-11. Observations per section are presented below:

Polokwane – Mokopane

Polokwane-Mokopane section is part of the R101 corridor. Table 7-10 presents the road freight profile of this road section.

Table 7-10: Road Freight Profile – R101 (Polokwane - Mokopane)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
93,000 (3%)	1,846,800 (3%)	19.9	East (55%): West (45%)	6.5

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-10:

- About 3% (93,000 vehicles) of the total Limpopo Freight vehicles recorded per annum, passed through the Polokwane – Mokopane section of the R101, carrying 3% (1.8 million tons) of the total tonnage recorded per annum;
- On average each vehicle carried about 20 tons;
- Out of the 93,000 vehicles, 55% travelled eastbound while 45% travelled westbound;
- On average about 7 vehicles were recorded per hour.

Figure 7-20 and Figure 7-21 give an indication of the mix of commodities being handled on the Polokwane - Mokopane section of the R101 and the direction of its travel.

Figure 7-20: Mix of Freight Traffic Tonnage by Commodity on the Polokwane – Mokopane Section

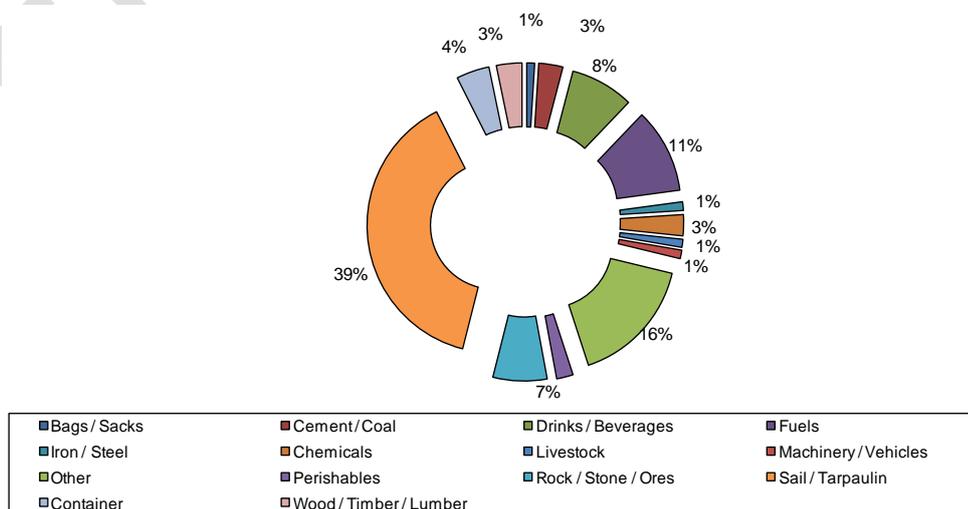
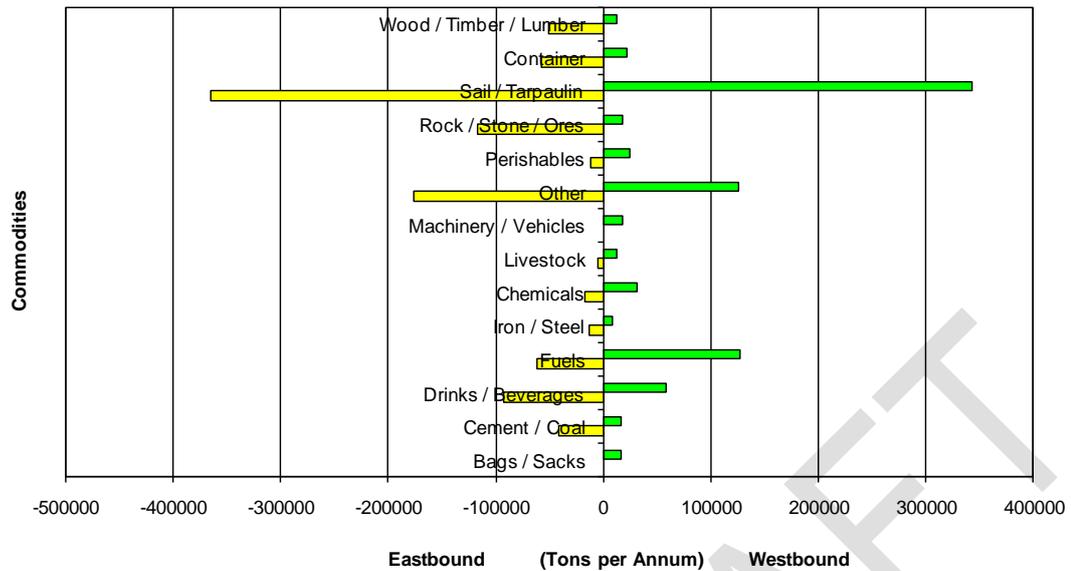


Figure 7-21: Balance of Commodities on the Polokwane – Mokopane Section Eastbound vs Westbound



The following Observations are made:

- The heavy vehicles on this section predominantly transported “sail/tarpaulin” (39%), “other” (16%), “fuels” (11%), and “drinks/beverages” (8%).
- “Cement/coal”, “drinks/beverages”, “iron/steel”, “other”, “rock/stone”, “sail/tarpaulin”, “containers”, and “wood/timber” were mostly transported eastbound while “bags/sacks”, “fuels”, “chemicals”, “livestock”, “machinery/vehicles” and perishables were mainly transported eastbound.

Bela-Bela - Hammanskraal

Bela-Bela – Hammanskraal section is also part of the R101 corridor. Table 7-11 shows the road freight profile of this road section.

Table 7-11: Road Freight Profile – R101 (Bela-Bela - Hammanskraal)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
59,400 (2%)	1,268,700 (2%)	21.4	North (45%): South (55%)	4.1

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-11:

- A total of 59,400 vehicles (approximately 2%) of the total Provincial Freight vehicles recorded per annum, passed through Bela-Bela – Hammanskraal section of the R101, transporting 1.2 million tons (approximately 2%) of the total annual tonnage;
- About 21 tons were transported by each vehicle on average;
- 45% of the 59,400 vehicles travelled to the northern direction while 55% travelled to the southern direction;
- On average about 4 vehicles were recorded per hour.

Figure 7-22 and Figure 7-23 give an indication of the mix of commodities being handled on the Bela-Bela - Hammanskraal section of the R101 and the direction of its travel.

Figure 7-22: Mix of Freight Traffic Tonnage by Commodity: on the Bela-Bela – Hammanskraal Section

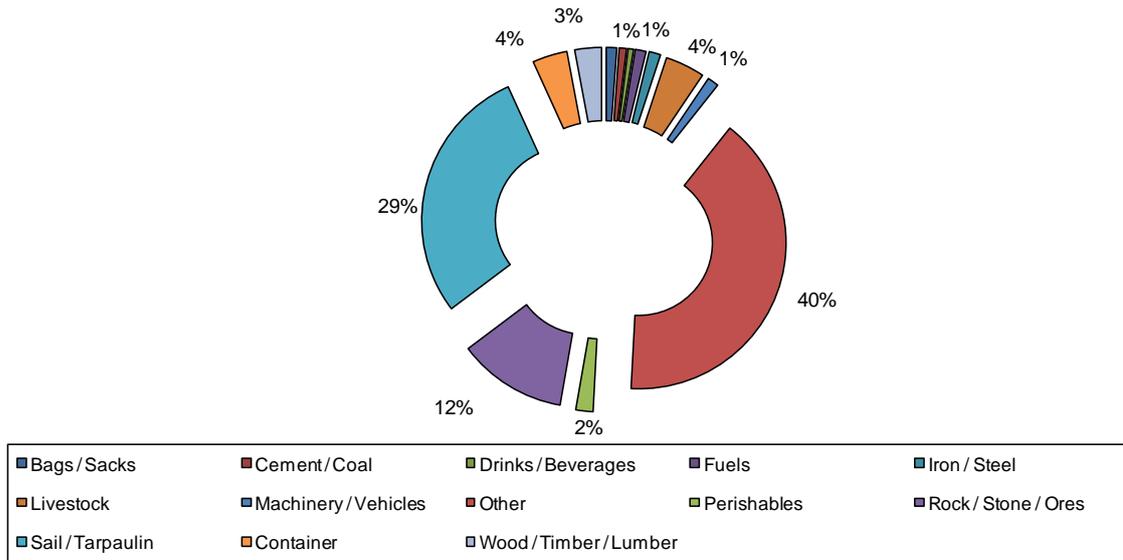
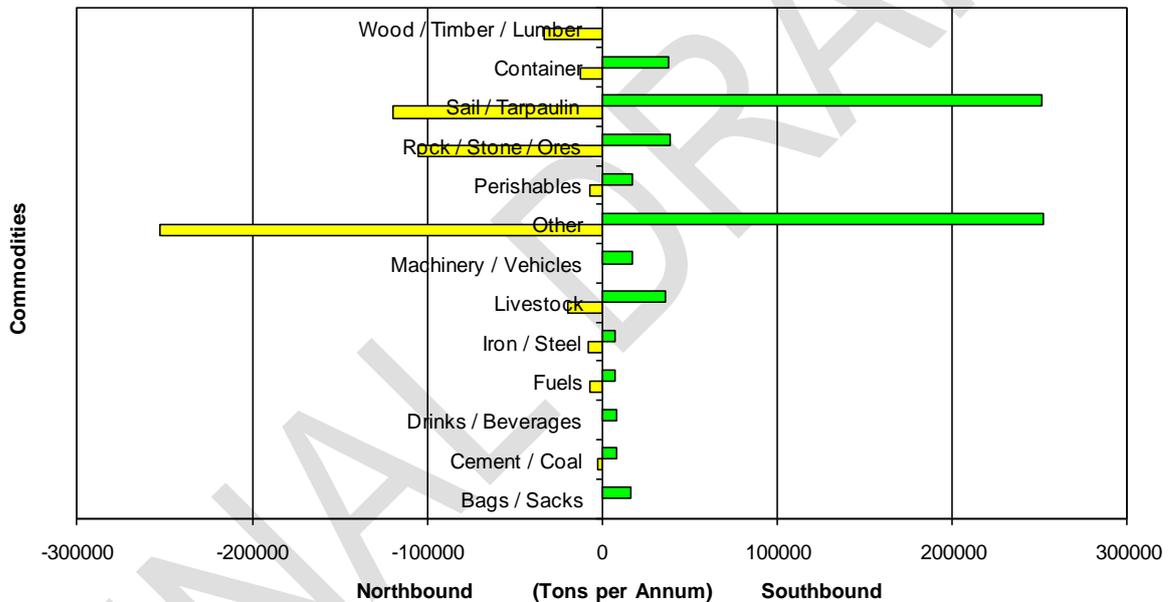


Figure 7-23: Balance of Commodities on the Bela-Bela – Hammanskraal Section



The following observations are made:

- A bulk number of heavy vehicles on this road section mainly transported “other” (40%), “sail/tarpaulin” (28%) and “rock/stone” (12%);
- Iron/steel, other, rock/stone, wood/timber were mostly transported to the northbound while bags/sacks, cement/coal, drinks/beverages, livestock, machinery/vehicles, perishables, sail/tarpaulin, and containers were mostly transported southbound;
- Equal quantities of fuels and other were transported on both directions northbound and southbound (50% split).

R510 corridor

There was only 1 survey point along the R510 corridor, which collated freight information from Thabazimbi to Lephalale (refer to Table 7-12).

Table 7-12: Road Freight Profile – R510 (Thabazimbi - Lephalale)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
44,400 (2%)	1,014,000 (2%)	22.8	North (37%): South 63%	3.1

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-12:

- Approximately 2% (44,400 vehicles) of the total Limpopo Freight vehicles recorded per annum, passed through Thabazimbi-Lephalale section, transporting 2% (1.0 million tons) of the yearly total tonnage;
- Each vehicle carried about 23 tons on average;
- 37% of the 44,400 vehicles travelled northbound while 67% travelled southbound;
- On average about 3 vehicles were recorded per hour.

Figure 7-24 and Figure 7-25 give an indication of the mix of commodities being handled on the Thabazimbi-Lephalale section of the R101 and the direction of its travel.

Figure 7-24: Mix of Freight Traffic Tonnage by Commodity on the Thabazimbi – Lephalale Section

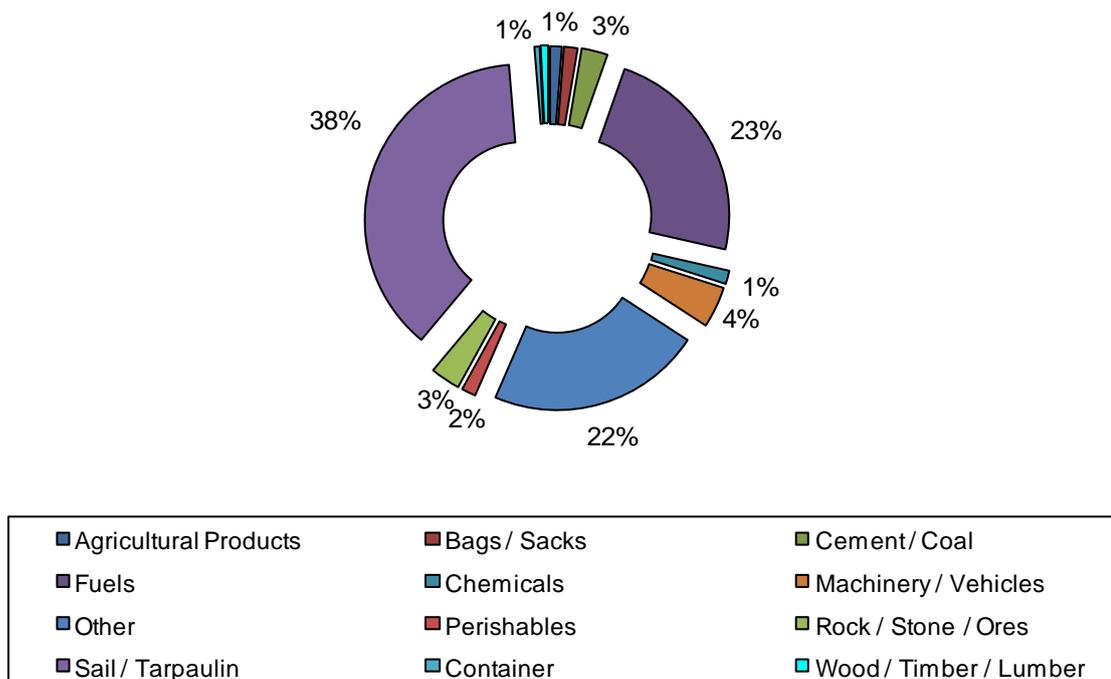
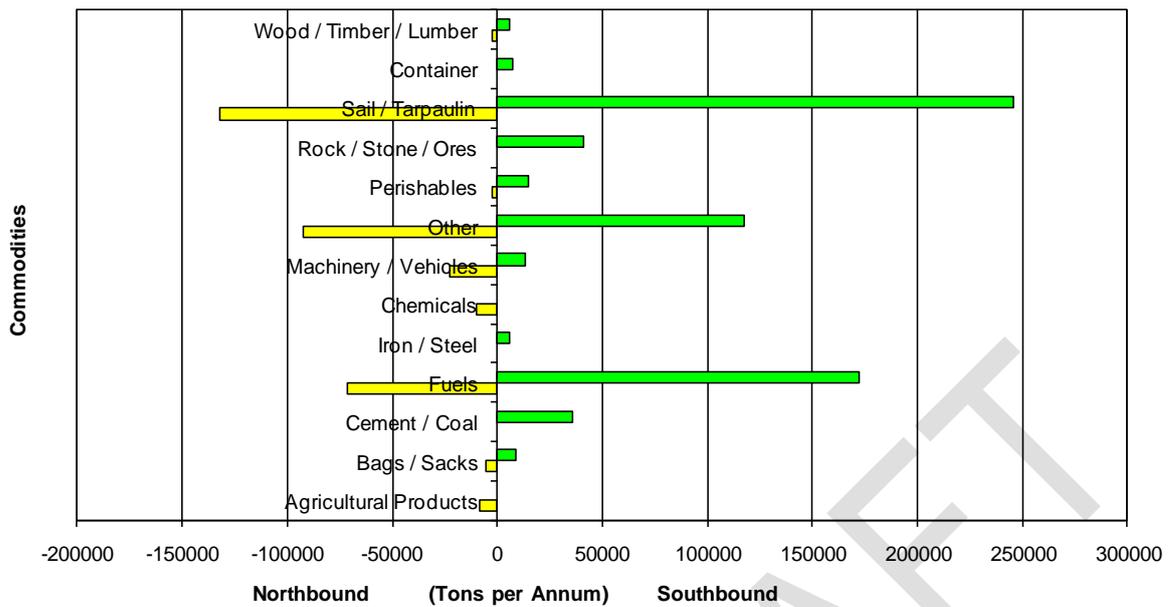


Figure 7-25: Balance of Commodities on the Thabazimbi – Lephalale Section



The following observations are made:

- Heavy vehicles on this section primarily transported “sail/tarpaulin” (38%), “fuels” (23%) and “other” (22%);
- The commodities transported mainly on the northern direction include “agricultural products”, “chemicals”, and “machinery/vehicles” while those transported on the southern direction comprise of “bags/sacks”, “cement/coal”, “fuels”, “iron/steel”, “other”, “perishables”, “rock/stone”, “sail/tarpaulin”, “containers” and “wood/timber”.

R521 corridor

The R521 has one survey point located between Dendron and Carlow. The table below illustrates the road freight profile of this road section.

Table 7-13: Road Freight Profile – R521 (Dendron - Carlow)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
52,200 (2%)	1,153,800 (2%)	22.1	North (42%): South (58%)	3.6

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-13:

- Approximately 2% (52,200 vehicles) of the total Provincial Freight vehicles recorded per annum passed through Dendron-Carlow section of the R521, carrying 2% (1.1 million tons) of the total tonnage recorded per annum;
- On average about each vehicle carried about 22 tons;
- Out of the 52,200 vehicles, 42% travelled northbound and 58% travelled southbound.

Figure 7-26 and Figure 7-27 give an indication of the mix of commodities being handled on the Dendron-Carlow section of the R521 and the direction of its travel.

Phalaborwa – Gravelotte

Phalaborwa-Gravelotte section is part of the R71 corridor. Table 7-14 shows the road freight profile of this road section.

Table 7-14: Road Freight Profile – R71 (Phalaborwa - Gravelotte)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
29,100 (1%)	501,600 (1%)	17.2	East (36%): West (64%)	2.0

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-14:

- A total of 29,100 vehicles (approximately 1%) of the total Limpopo Freight vehicles recorded per annum, passed through Phalaborwa – Gravelotte section of R71, transporting 0.5 million tons approximately 1% of the total annual tonnage;
- On average each vehicle carried about 17 tons;
- 36% of the 29,100 vehicles travelled eastbound and 64% travelled westbound;
- On average only 2 vehicles were recorded per hour.

Figure 7-28 and Figure 7-29 give an indication of the mix of commodities being handled on the Phalaborwa - Gravelotte section of the R71 and the direction of its travel.

Figure 7-28: Mix of Freight Traffic Tonnage by Commodity: on the Phalaborwa – Gravelotte Section

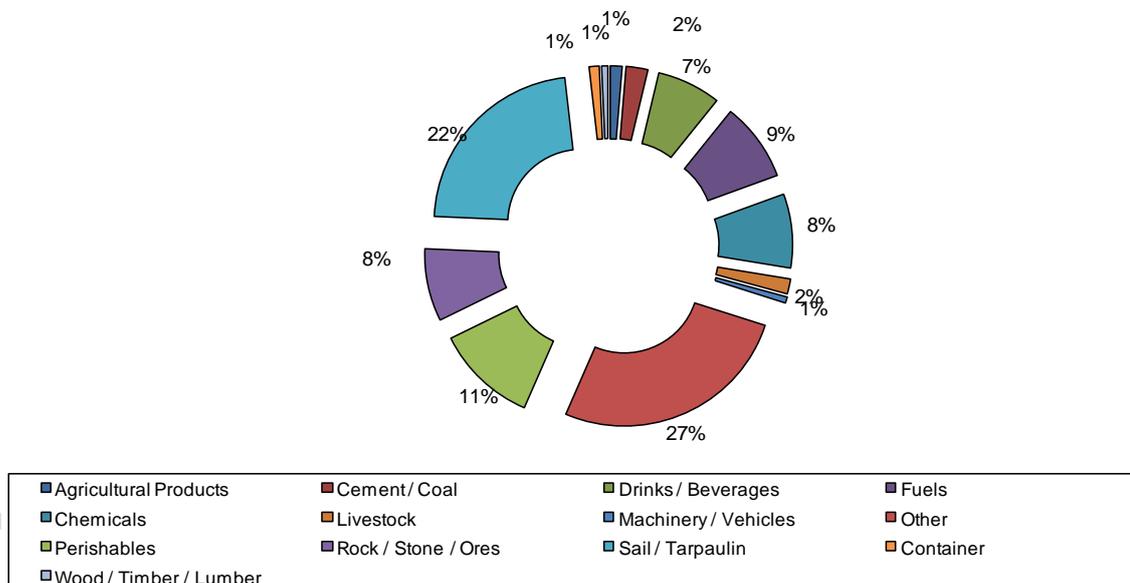
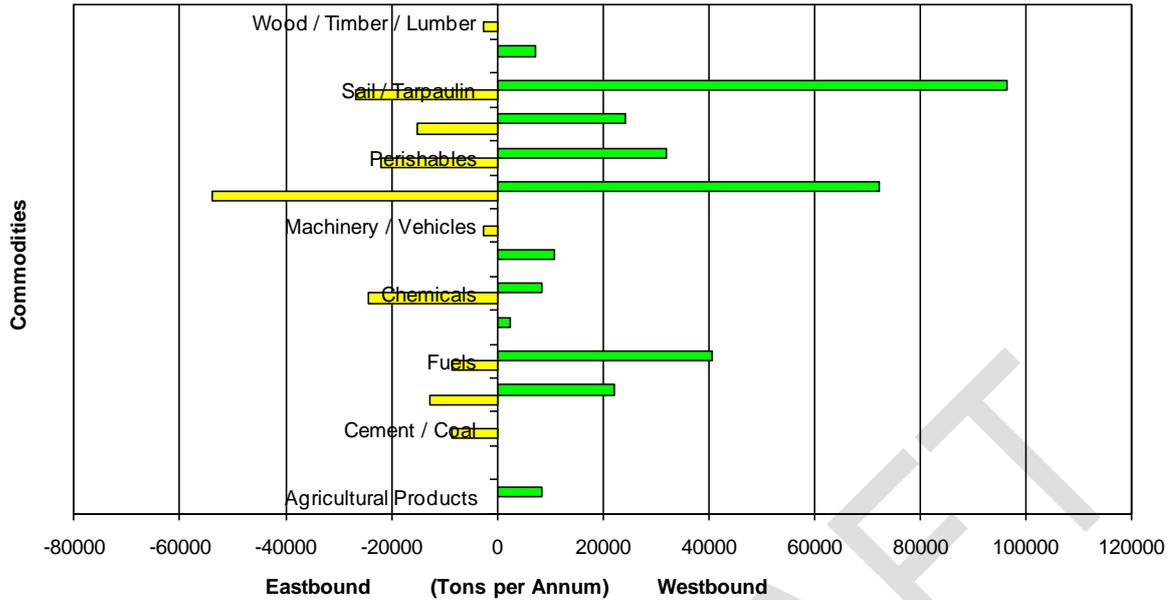


Figure 7-29: Balance of Commodities on the Phalaborwa – Gravelotte Section



The following observations are made:

- Majority of heavy vehicles on this section primarily transported “other” (27%), sail/tarpaulin (23%), “perishables” (11%), and “fuels”, (9%);
- The commodities transported mostly on the eastern direction include “cement/coal”, “chemical”, “machinery/vehicles”, and “wood/timber” while those transported mainly on the west include “agricultural products”, “drinks/beverages”, “fuels”, “iron/steel”, “livestock”, “other”, “perishables”, “rock/stone”, “sail/tarpaulin”, and “containers”;
- “Bags/sacks” were not transported on both directions eastbound and westbound. Polokwane - Tzaneen

The Polokwane –Tzaneen section is part of the R71 corridor. Table 7-15 presents the road freight profile of this section.

Table 7-15: Road Freight Profile – R71 (Polokwane - Tzaneen)

TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS PER ANNUM (% Limpopo Total)	AVERAGE TONS/ VEHICLE	DIRECTIONAL SPLIT	AVERAGE VEHICLE/ HOUR
100,500 (3%)	1,620,000 (1%)	16.1	East (51%): West (49%)	7.0

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-15:

- About 3% (100,500 vehicles) of the total Limpopo Freight vehicles recorded per annum, passed through the Polokwane –Tzaneen section, transporting about 1% (1.6 million tons) of the total tonnage recorded per annum;
- About 16 tons were transported by each vehicle on average;
- Out of the 100,500 vehicles, 51% travelled eastbound while 49% travelled westbound;
- On average 7 vehicles were recorded per hour.

Figure 7-30 and Figure 7-31 give an indication of the mix of commodities being handled on the Polokwane - Tzaneen section of the R71 and the direction of its travel.

Figure 7-30: Mix of Freight Traffic Tonnage by Commodity: on the Polokwane – Tzaneen Section

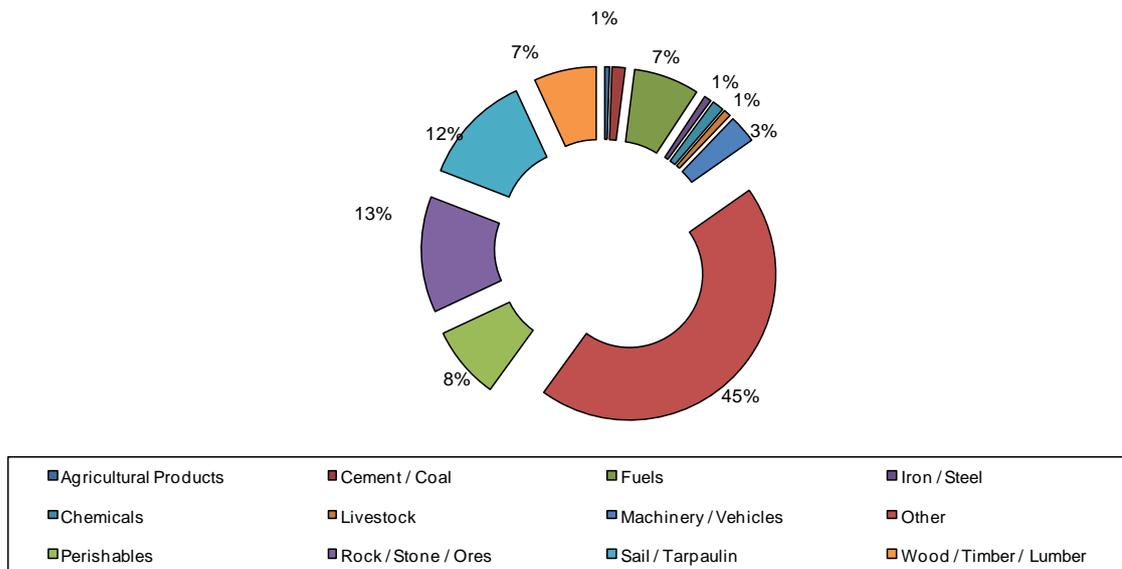
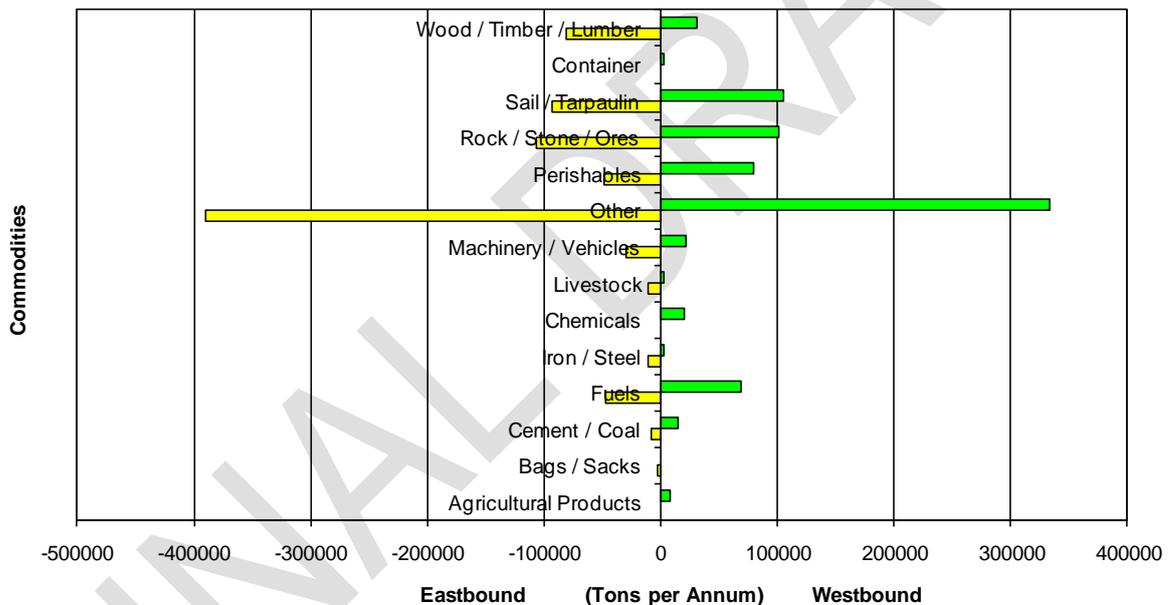


Figure 7-31: Balance of Commodities on the Polokwane – Tzaneen Section



The following observations are made:

- The bulk of heavy vehicles on this road section transported “other” (45%), “rock/stone” (13%) and “sail/tarpaulin” (12%);
- “Bags/sacks”, “iron/steel”, “livestock”, “machinery/vehicles”, “other”, “rock/stone” and “wood/timber” were mainly transported to the eastern direction while “agricultural products”, “cement/coal”, “fuels”, “chemicals”, “perishables”, “sail/tarpaulin” and containers were mostly transported to western direction.

Provincial Routes

The following section refers to provincial routes (Refer to Map 7-1).

The provincial roads that were surveyed during the development of the Limpopo Freight Databank are shown in Table 7-16 below.

Table 7-16: Road Freight Profiles – Provincial Roads

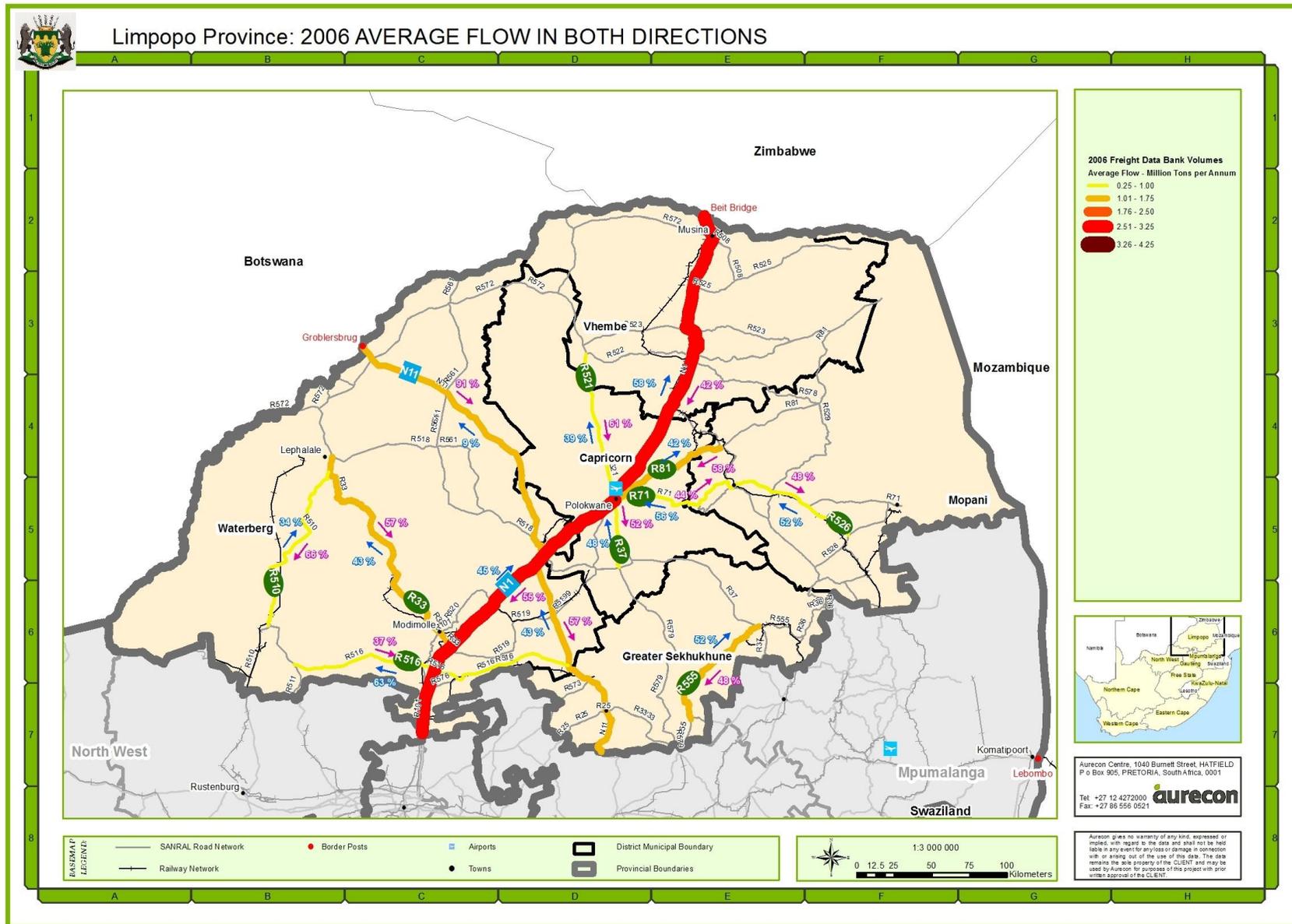
CORRIDOR	SECTION	TOTAL VEHICLE (% Limpopo Total)	TOTAL TONS (% Limpopo Total)	AVE TONS/ VEHICLE	AVE VEHICLES/ HOUR	DIRECTIONAL SPLIT
R555	Steelpoort - Roosenekal	152,400 (5%)	3,360,300 (5%)	22.0	10.6	East (51%) West (49%)
R101	Polokwane - Mokopane	93,000 (3%)	1,846,800 (3%)	19.9	6.5	East (55%): West (45)
R516	Bela Bela - Thabazimbi	80,700 (3%)	1,655,400 (3%)	20.5	5.6	East (43%): West (57%)
R519	Mookgophong -Roedtan	70,800 (2%)	1,402,200 (2%)	19.8	4.9	North (36%) South (64%)
R519	Polokwane- Roedtan	44,400 (2%)	886,200 (1%)	20.0	3.1	North (47%) South (53%)
R570	Lebowakgomo – Phokwane	37,800 (1%)	745,200 (1%)	19.7	2.6	North (57%) South (43%)
R523	Thohoyandou - N1	10,800 (0%)	176,400 (0%)	16.3	0.8	East (39%): West (61%)
R518	Mokopane - Zebediela	14,700 (1%)	258,900 (0%)	17.6	1.0	North (53%) South (47%)

The following observations are made with regard to operations on provincial freight routes:

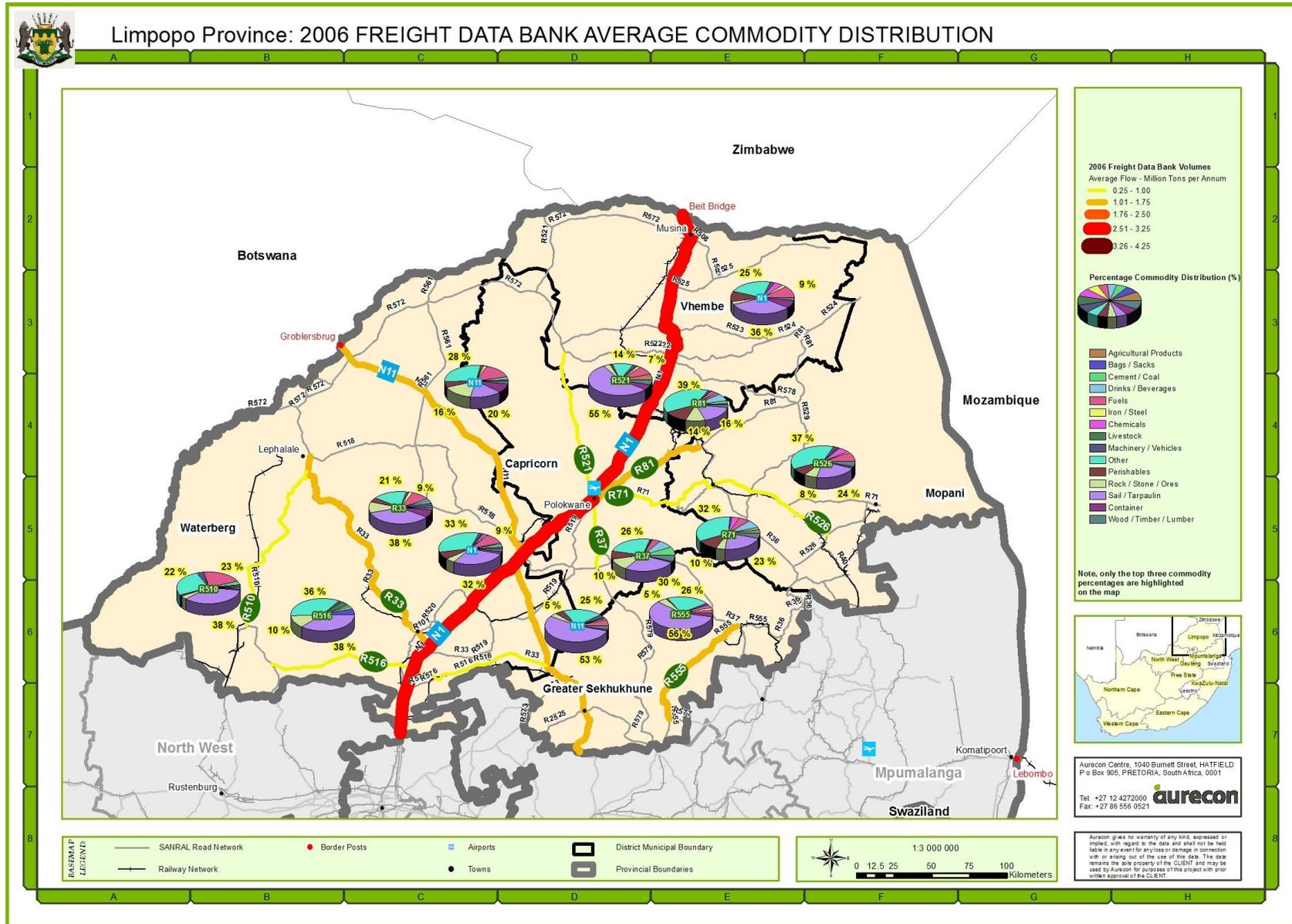
- Heavy vehicles and tons carried on these corridors ranges from 0-5% of the total Limpopo freight vehicles recorded per annum.
- Prominent freight routes include the R555; the section of R101 (Polokwane – Mokopane) managed by the Province, the R516 as well as the section of R519 that is between Mookgophong – Roedtan. The Steelpoort– Roseenekal section of the R555 recorded the highest number of heavy vehicle traffic (152,400 vehicles) that passed through a provincial corridor - transporting 3.3 million tons per annum. Each vehicle along the R555 transported approximately 22 tons with 51% of the commodities being transported eastbound and 49% transported westbound.
- The R519 between Polokwane – Roedtan, the R570, R523 and the R518 carry less than 50, 000 heavy vehicles per annum and freight volumes less than 900, 000 per annum. The Thohoyandou – N1 section of the R523 recorded the least number of heavy traffic (10,800 vehicles) that passed through the road section carrying 176,400 tons per section. On average each vehicle carried 16 tons with the majority of vehicles going to the west (61%) and 39% going to the east.

Map 7-3 and Map 7-4 indicates the 2006 average projected freight volumes in both directions onto the road network from the survey location as well as the commodity distribution on these corridors respectively.

Map 7-3: 2006 Freight Data Bank – Average Freight Volume Flow in Both Directions



Map 7-4: 2006 Freight Data Bank – Average Freight Volume Flow and Commodity Distribution in Both Directions



7.2.2 Current Road Freight Operations

The Limpopo Department of Roads appointed Safiri (Pty) Ltd to update the Provincial Freight Data Bank which commenced in 2010 and finished end of 2011. This data was received and the volumes projected onto the road network according to survey locations similarly to the 2006 data. Map 7-5 and Map 7-6 indicates the 2011 average projected freight volumes in both directions (including the percentage directional split) onto the road network from the survey location as well as the commodity distribution on these corridors respectively.

7.2.3 Road Freight Analysis

7.2.3.1 2006 and 2011 Freight Data Bank Comparison

The 2006 and 2011 freight data bank survey locations differed significantly as can be seen in Map 7-7. Furthermore the commodity definition and inclusion between the two data banks also differed as the 2011 contains 16 commodities versus the 13 commodities of the 2006 data bank as shown in Table 7-17. In 2006 cement and coal was counted together, whilst the 2011 break bulk, livestock, containers and empty trucks which were not defined in 2006.

All in all a comparison between the two databanks were not straightforward and therefore the freight volume projections onto the network were done to enable a sensible comparison. Unfortunately detail commodities could not be compared, but only reported.

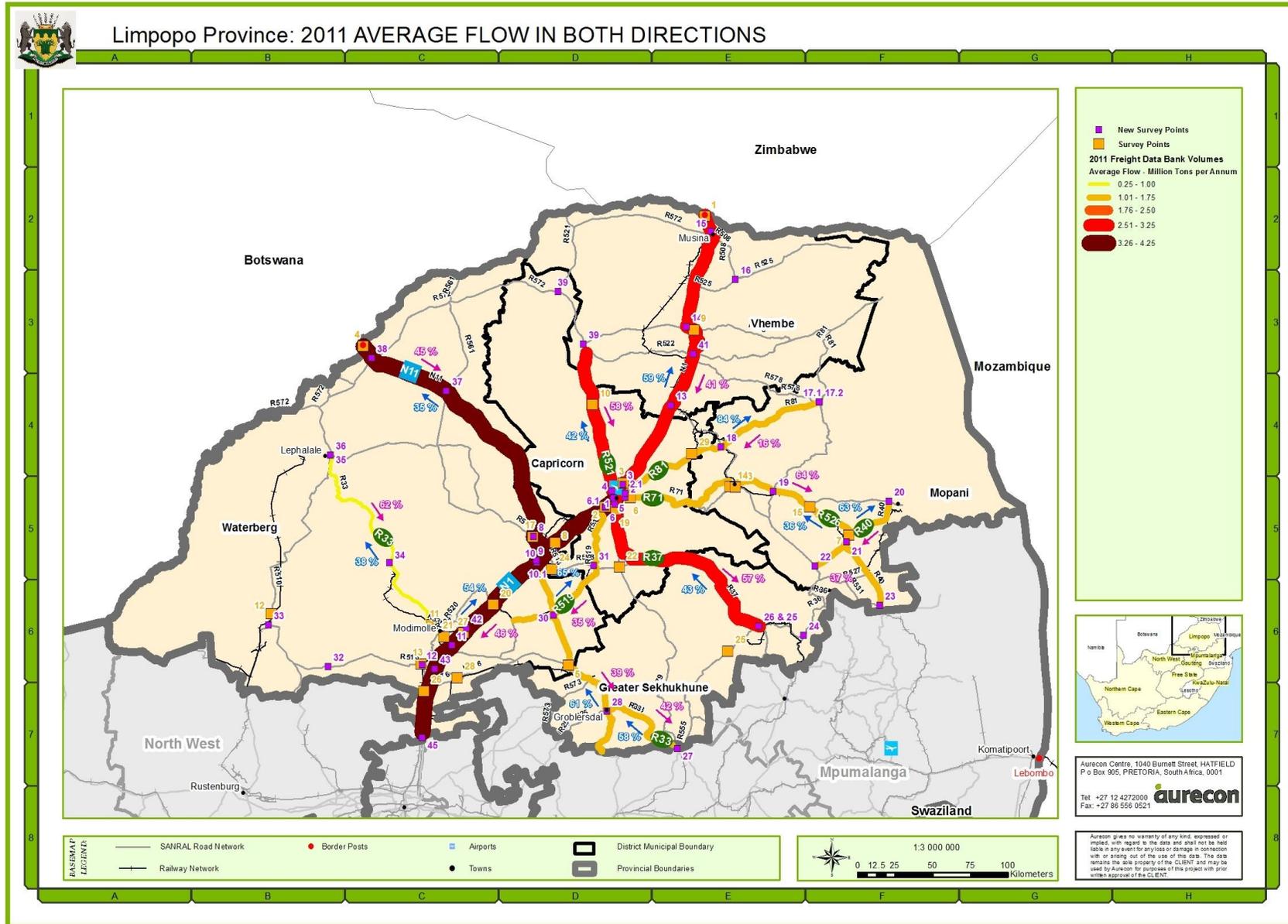
Table 7-17: 2006 and 2011 Freight Data Bank Surveyed Commodities

2006 COMMODITIES		2011 COMMODITIES	
CODE	DESCRIPTION	CODE	DESCRIPTION
A	Agricultural Products	A	Agricultural Products
B	Bags / Sacks	B	Bags / Sacks
C	Cement / Coal	Bb	Break Bulk
D	Drinks / Beverages	Ce	Cement
F	Fuels	D	Drinks / Beverages
I	Iron / Steel	T	Container
K	Chemicals	K	Chemicals
M	Machinery / Vehicles	E	Empty
O	Other	F	Fuel
P	Perishables	I	Iron / Steel
R	Rock / Stone / Ores	L	Livestock
S	Sail / Tarpaulin	M	Machinery / Vehicles
W	Wood / Timber / Lumber	P	Perishables
		R	Rock / stone / ores
		S	Sail / Tarpaulin
		W	Wood / timber / lumber

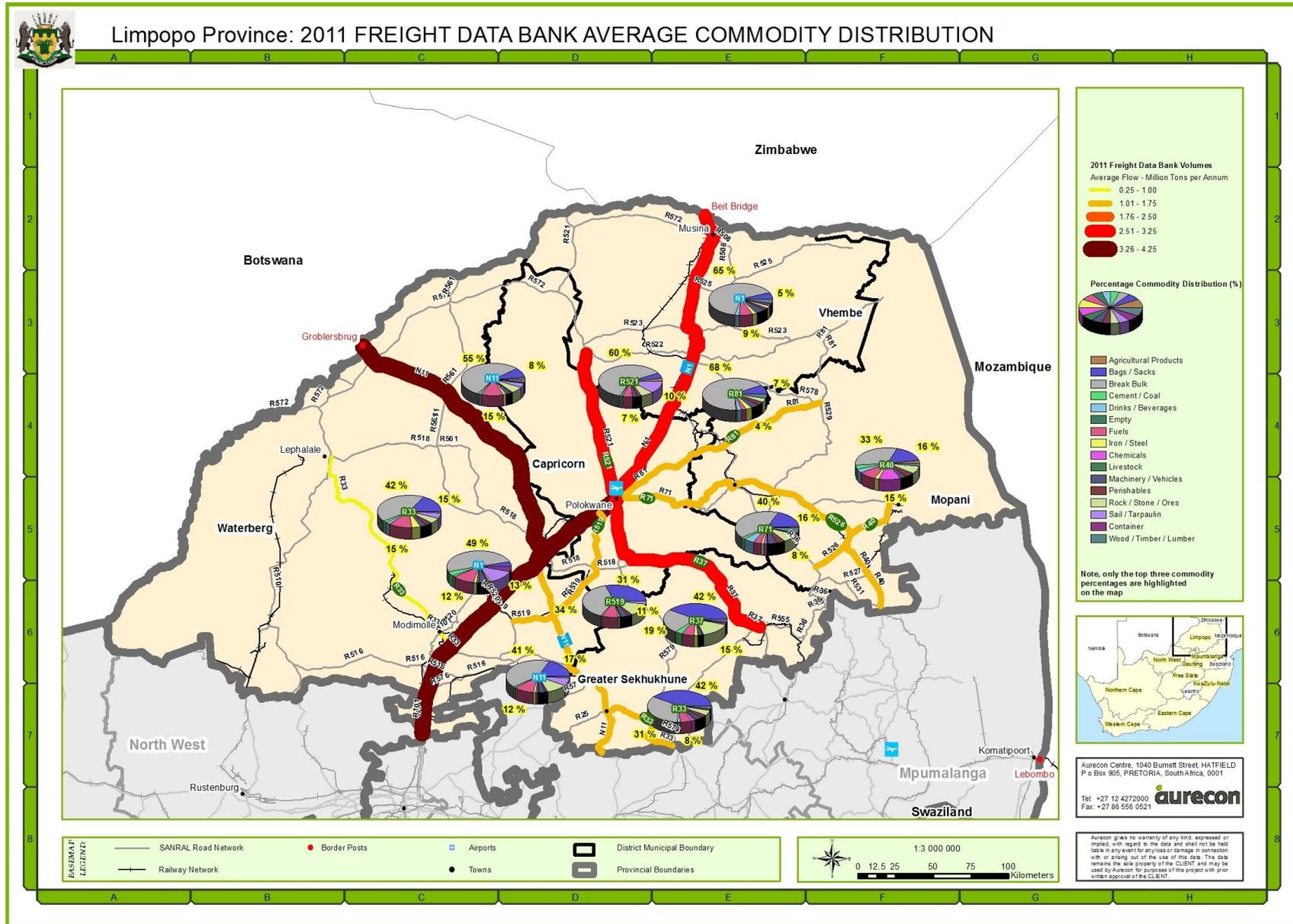
7.2.3.2 Background

A corridor analysis of the main freight routes was executed to determine freight movement patterns attained over the past five years. The freight travel patterns in Limpopo Province have changed significantly over the past five years. Road has become the predominant mode for transporting a majority of commodities. This is primarily due to mode shift from rail to road due to closure of some of the rail lines/stations in the province that used handle freight commodities. Other evident reasons for the road mode preference are speed, convenience, security and lack of rail capacity to handle general freight.

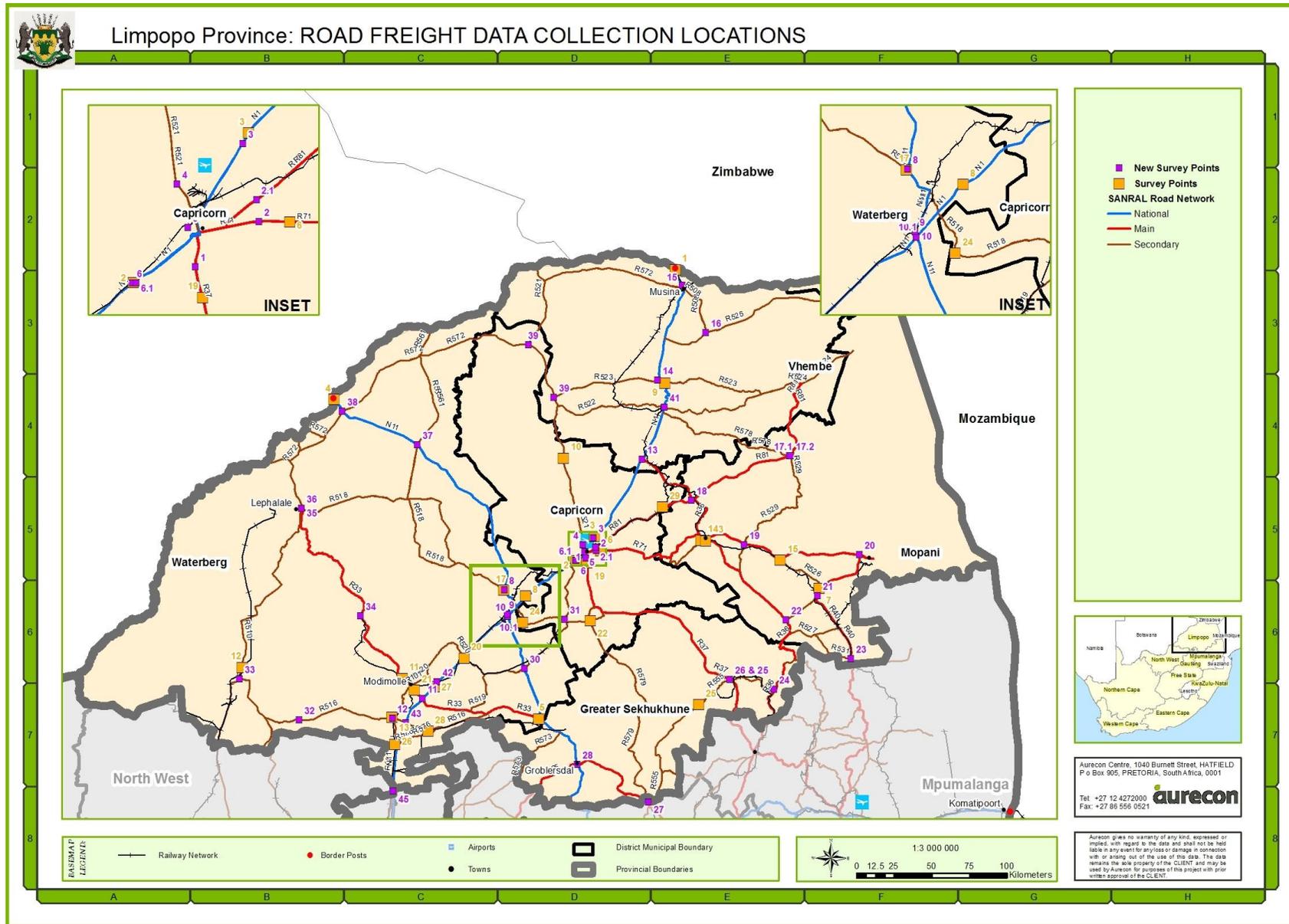
Map 7-5: 2011 Freight Data Bank – Average Freight Volume Flow in Both Directions



Map 7-6: 2011 Freight Data Bank – Average Freight Volume Flow and Commodity Distribution in Both Directions



Map 7-7: 2006 versus the 2011 Freight Data Bank Survey Locations



7.2.3.3 Changing Freight Patterns

This section presents a comparison of freight movement on the main freight corridors as revealed by the 2006 and 2012 Provincial freight data banks. The main freight corridors under consideration include the N1, N11, R33, R521, R37, R71 and R36. They are graphically illustrated on Map 7-3 and Map 7-5, for the 2006 and 2011 freight movement assessment respectively.

N1 Corridor

Map 7-3 and Map 7-5 show that the freight movement analysis on the N1 was undertaken on two sections of the corridor, for the 2006 and 2012 data banks. The sections are namely:

- Beit Bridge – Polokwane; and
- Polokwane – Pretoria.

N1- Beit Bridge - Polokwane

Table 7-18 presents the average total annual freight volumes transported between Beit Bridge and Polokwane in the years 2006 and 2011.

Table 7-18: Annual volumes moved between Beit Bridge and Polokwane in 2006 and 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)		VOLUME DIRECTIONAL SPLIT	
	NORTH	SOUTH	NORTH	SOUTH
2006	3.22	2.32	58%	42%
2011	3.08	2.15	59%	41%
% increase/decrease	-5%	-8%		

Table 7-18 shows that about 3.22 million tons of freight traffic on average was transported northbound towards Zimbabwe while 3.08 mill tons were moved southbound towards Polokwane. Over the past five years on the same corridor, the freight cargo moved to the northern and southern directions declined to 3.08 and 2.15 million tons respectively, representing a 4% and 7% decrease.

N1- Polokwane – Pretoria

Table 7-19 provides a comparison between the annual freight volumes transported on the Polokwane- Pretoria section per direction as revealed by the 2006 and 2012 data banks.

Table 7-19: Annual volumes moved between Polokwane and Pretoria in 2006 and 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)		VOLUME DIRECTIONAL SPLIT	
	NORTH	SOUTH	NORTH	SOUTH
2006	2.89	3.47	45%	55%
2011	3.73	3.22	54%	46%
% increase/decrease	23%	-8%		

Table 7-19 illustrates that in 2006; approximately 45% (2.89 mill tons) of the total freight volume transported on this section of the N1 went towards the northern direction while 55% (3.47 mill tons) moved southbound towards Pretoria. However in 2011, changes in the freight movement patterns were observed on this section of the corridor. About 54% (3.73 mill tons) of the total freight volumes transported were moved towards the North while 46% (3.22 mill tons) was transported to the south resulting in a 29% increase and 7% decrease of freight traffic moved to the northern and southern directions.

N11 Corridor

The assessment of the movement of freight traffic on the N11 was done on one section for the 2006 and 2012 data banks namely:

- Groblersbrug – Makopane.

N11- Groblersbrug – Makopane

Table 7-20 presents the average total annual freight volumes transported between Groblersbrug and Makopane in the years 2006 and 2011.

Table 7-20: Annual volumes moved between Groblersbrug and Makopane in 2006 and 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)		VOLUME DIRECTIONAL SPLIT	
	NORTH	SOUTH	NORTH	SOUTH
2006	0.24	0.45	35%	65%
2011	4.61	3.8	55%	45%
% increase/decrease	95%	88%		

Table 7-20 illustrates that on average about 0.24 million tons (35%) of the freight traffic volumes were transported to the North towards Groblersbrug, while 0.45 million tons (65%) were transported to the southern direction. Over the past five years freight volumes moved on this section of the N11 increased significantly. In 2011 4.61 million tons (55%) and 3.8 million tons (45%) on average were moved to the Northern and Southern directions representing an over 100% increase as compared to the freight volumes transported on this section of corridor in 2006.

R33 Corridor

The movement of freight traffic was assessed on one section of the corridor namely:

- Lephalale to N1-Modimolle.

R33- Lephalale to N1-Modimolle

Table 7-21 provides a comparison between the annual freight volumes transported on the Lephalale to N1-Modimolle section of the R33 corridor per direction as revealed by the 2006 and 2012 data banks.

Table 7-21: Annual volumes moved between Lephalale and N1-Modimolle in 2006 and 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)		VOLUME DIRECTIONAL SPLIT	
	NORTH	SOUTH	NORTH	SOUTH
2006	1.248	1.6917	42%	58%
2011	0.56	0.92	38%	62%
% increase/decrease	-55%	-46%		

Table 7-21 shows that the average total annual freight traffic volumes transported on this section of the corridor on both directions sharply declined in 2011 as compared to freight volumes transported in 2006. A decrease of 55% and 46% was recorded for freight traffic volumes moved to the North and South respectively.

R71 Corridor

The assessment of the movement of freight traffic on the R71 was done for the whole corridor for the 2006 and 2012 provincial freight data banks.

R71- Polokwane to Tzaneen

Table 7-22 provides a comparison between the annual freight volumes transported on the Polokwane to Tzaneen route per direction as shown by the 2006 and 2012 provincial freight data banks.

Table 7-22: Annual volumes moved between N1-Modimolle and Groblersdal in 2006 and 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)		VOLUME DIRECTIONAL SPLIT	
	WEST	EAST	WEST	EAST
2006	1.04	0.82	56%	44%
2011	0.75	1.35	36%	64%
% increase/decrease	-28%	65%		

Table 7-22 illustrates that on average a total of 1.86 million tons (1.04 and 0.82 million tons) of freight volumes was transported in both directions per annum. However in 2012 the average total volumes transported on this section of the corridor for both directions increased to 2.10 million tons (0.75 and 1.35 million tons). Comparing the 2006 and 2011 volumes revealed that freight volumes to the west decreased by 28% while those that were transported to the east increased by approximately 65%.

R37 Corridor

Table 7-23 presents a comparison of the movement of freight traffic on the R37 as revealed by the 2006 and 2012 provincial data banks.

Table 7-23: Annual volumes transported on the R37 corridor in 2006 and 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)		VOLUME DIRECTIONAL SPLIT	
	NORTH	SOUTH	NORTH	SOUTH
2006	0.39	0.42	48%	52%
2011	2.21	2.97	43%	57%
% increase/decrease	464%	600%		

From Table 7-23, it obvious that the annual average freight volumes moved on the R37 corridor on both directions have increased significantly over the past five years. In 2006, an average total of 0.82 million tons (0.39 million tons and 0.42 million tons) was transported on both directions in 2006 as compared to 5.18 million tons of freight volumes (2.21million tons - North and 2.97 million tons - South) moved on the corridor in 2011. This represents an over 100% increase freight volumes transported on the corridor in both directions.

Conclusion

In general freight volumes increased from 2006 to 2011, especially the N11 towards Groblersbrug, the R521 and the R37. Freight volumes declined on the R33, but this can be due to deteriorating road condition (Refer to Figure 7-32) and construction activities causing truckers to rather make use of other roads of which the N11 towards Groblersbrug is the main alternative road to cross the border into Botswana.

Figure 7-32: Road condition of the R33 between Vaalwater and Lephalale (July 2012)



7.2.3.3.1 Corridors with a 2011 Freight Profile Only

R 81 Corridor

The analysis of the movement of road freight was done for the whole corridor. Table 7-24 presents the annual road freight volumes transported in 2011.

Table 7-24: Annual volumes transported on the R81 corridor in 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)			VOLUME DIRECTIONAL SPLIT	
	EAST	WEST	TOTAL	EAST	WEST
2011	2.05	0.40	2.45	84%	16%

An average annual total of 2.45 million tons of road freight volumes was transported on the R 81 in 2011. About 84% (2.05 million tons) of the road freight volume were transported to the eastern direction while 16% (0.40 million tons) were moved towards the west.

R521 Corridor

Road freight assessment on this corridor was executed for the whole corridor. Table 7-25 provides the annual average total road freight volumes transported on the R521 in 2011.

Table 7-25: Annual volumes transported on the R521 corridor in 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)			VOLUME DIRECTIONAL SPLIT	
	NORTH	SOUTH	TOTAL	NORTH	SOUTH
2011	2.49	3.44	5.93	42%	58%

Table 7-25 shows that approximately 6.0 million tons of road freight volumes was transported on the R521 corridor in both directions as revealed by the provincial current freight data bank. About 2.49 million tons (42%) of the freight volumes were transported to the north while approximately 3.44 million (58%) was moved to the southern direction.

R519 Corridor

On this corridor the road freight analysis was undertaken for the whole corridor. Table 7-26 presents the annual average total road freight volumes transported on the R519 in 2011.

Table 7-26: Annual volumes transported on the R519 corridor in 2011

YEAR	AVERAGE TOTAL ANNUAL VOLUMES (mill tons)			VOLUME DIRECTIONAL SPLIT	
	EAST	WEST	TOTAL	EAST	WEST
2011	0.71	1.32	2.04	35%	65%

Table 7-26 illustrates that an annual total of 2.04 million tons on average was moved on the R 519 corridor in 2011. About 35% of these road freight volumes were transported to the east while approximately 65% were moved to the west.

7.2.3.3.2 2011 Commodity Movement

This section presents a commodity analysis of the main commodities that were transported on the above mentioned corridors as revealed by the 2006 and 2011 Provincial freight data banks. The 2006 commodity breakdown is discussed in detail in section 7.2.1.1. The three main commodities hauled per corridor per direction will be highlighted.

Map 7-6 illustrates the main freight commodities that were moved in 2011 on the main freight corridors. This map shows that break bulk is the main commodity transported on the main freight corridors in 2011 within the province. Other notable commodities moved on the freight routes include fuel, sail/ tarpaulin covered cargo, bag/ sacks and rock/ stone and ores.

N1 Corridor

N1- Beit Bridge – Polokwane

The three main commodities transported to the North and Southern direction on this section of the N1 corridor in 2011. They include break bulk with 68% of the freight volumes hauled towards the north and 61% to the south. Other notable commodities moved on this section of the corridor include fuel with 8% transported to the north and 10% to the south, machinery/vehicles with 7% moved to the north and bags/sacks with 7% transported southbound.

N1- Polokwane – Pretoria

The primary commodities moved on this section of the N1 corridor to the Northern direction include break bulk with 61%, fuel with 9% and sail and tarpaulin with 7%. The same commodities were also mainly transported to the south with different percentages break bulk 38%, sail and tarpaulin 19% and fuel 15%. (Refer to Map 7-6).

N11 Corridor

N11- Groblersbrug – Makopane

The main commodities moved on this section of the N11 corridor on both the North and southern directions include break bulk with 60% north and 50% south, fuel with 11% north and 19% south and bags/sacks with 6% north and 11% to the south. (Refer to Map 7-6).

N11- Makopane- Marble Hall

The three main commodities transported on this section of the N11 to the northern direction include break bulk, bag/sacks and fuel with 43%, 27% and 8%. The same commodities were also primarily transported to the southern direction.

R33 Corridor

R33- Lephalale to N1-Modimolle

Break bulk (36%), bags and sacks (20%) and fuel (14%) were the primary commodities transported northbound on this section of the R33 corridor. The same commodities were also mainly moved to the southern direction break bulk (64%), fuel (22%) and bags/sacks (12%).

R33-N1-Modimolle to Groblersdal

On this section of the R33 Corridor, 63% of the freight volumes transported to the west was bag/sacks and 10% each break bulk and fuel. On the eastern direction break bulk (52%), bags/sacks (21%) and fuels (6%) were also predominantly moved.

R37 Corridor

The three main commodities mainly transported on the R37 corridor include, bags/sacks, break bulk and rock/stone/ores. Bags/sacks (41%), break bulk (19%) and rock/stone/ores (18%) transported to the northbound. Relatively the same percentages of the same commodities were predominantly moved towards the southern direction as well.

R71 Corridor

Break bulk, bags/sacks, rock/stone/ores and fuel were mainly moved on the R71 Corridor on both the western and eastern direction. Out of the 2011 annual road freight volumes transported to the western direction about 45% were break bulk, 17% bags/sacks and 7% fuel. While out of those moved to the eastern direction 36% was break bulk, 16% bags/sacks and 11% rock/stone/ores.

R81 Corridor

The commodities largely transported on the R81 include break bulk, bags/sacks, iron/steel and machinery/vehicles. On the eastern direction, break bulk (58%), bags/sacks (9%) and iron/steel (6%) were mainly transported. While on the western direction break bulk (78%) was the main commodity moved followed by bags/sack (5%) and machinery/vehicles (4%).

R521 Corridor

The main commodities primarily moved on the R521 include break bulk, fuel, rock/stone/ores and sail/tarpaulin. Out of the annual road freight volume transported to the North in 2011, 54% was break bulk, 11% each fuel and rock/stone/ores. While on the south, 67% of the annual road freight volumes moved was break bulk and 18% sail/tarpaulin.

R519 Corridor

The three main commodities mainly transported on the R519 corridor include, bags/sacks, break bulk and rock/stone/ores. Bags/sacks (32%), break bulk (31%) and rock/stone/ores (12%) transported to the northbound. Relatively the same percentages of the same commodities were predominantly moved towards the southern direction as well.

7.2.4 Operations at Heavy Vehicles Overloading Centres

7.2.4.1 Historic Overload Information

Weighing statistics for the Limpopo Province are provided in Table 7-17 to Table 7-25 below. Heavy vehicles are weighed for overloading according to the following procedures as described in:

- Regulation 365: Overloading on individual axles;
- Regulation 365A: Overloading in terms of the bridge formula and
- Regulation 362D: Overloading in terms of gross combined mass (GCM).

Table 7-27: Summary of Overloaded Vehicles in Limpopo from 2001 to 2005

YEAR	VEHICLES WEIGHED	VEHICLES OVER-LOADED	VEHICLES CHARGED	VEHICLES OVER-LOADED (Reg 365)	VEHICLES OVER-LOADED (Reg 365A)	VEHICLES OVER-LOADED (Reg 362D)
2001	127, 572	23,931	11,185	2,335	3,667	5,183
2002	45,362	12,984	6,114	1,162	2,433	2,519
2003	101,780	9,570	6,630	1,193	3,845	1,592
2004	98,133	16,336	7,935	1,746	5,307	882
2005	129, 896	27,554	7,970	1,734	4,883	1,853

Source: NATMAP Limpopo, 2008

Table 7-28: Average Overloading of Vehicles (in kg) from 2001 - 2003 (per Regulation)

YEAR	REGULATION 365	REGULATION 365A	REGULATION 362D
2001	2, 335	3,667	5,183
2002	1,162	2,433	2,519
2003	1,193	3,845	1,592

Source: NATMAP Limpopo, 2008

All the weigh bridges are located at Traffic Control Centres (TCC). Table 7-19 provides a summary of traffic control centres' statistics presented in Table 7-20 to Table 7-25.

Table 7-29: Summary of Traffic Control Centres Statistics

TRAFFIC CONTROL CENTRE	CLOSEST NODE (ROUTE)	MANAGEMENT	AVERAGE HEAVY VEHICLE (veh / month)	AVERAGE OVERLOADED VEHICLES (veh / month)	AVERAGE CHARGED VEHICLES (veh / month)
Mantsole	Hammaskraal (N1)	Bakwena Concession	16, 550	3, 910	730
Groblersbrug	Groblers Bridge Border Post ((N11)	Provincial	1, 475	300	40
Musina	Beit Bridge Boarder Post (N1)	Provincial	1, 900	300	40
Mooketsi	Tzaneen (R81)	Provincial	940	145	65
Rathoke / Roedtan	Marble Hall (N11)	Provincial	250	65	25
Polokwane	Polokwane (N1)	Provincial	No statistics		
Mampakuil	Louis Trichardt (N1)	Provincial			
Total			21, 110	4, 720	900

Source: Own calculation from Table 7-20 to Table 7-25

Table 7-30: Total All Weighbridges in Limpopo Province (2006)

VEHICLES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Weighed	23,027	20,370	18,529	19,451	19,239	23,823	21,564	22,895	0	0	0	0	168,898
Overloaded	4,647	4,206	4,444	5,211	4,653	5,246	5,142	4,220	0	0	0	0	37,769
% Overloaded	20.2	20.6	24	26.8	24.2	22	23.8	18.4	0	0	0	0	22.4
Charged	811	752	779	988	756	1081	1110	930	0	0	0	0	7207
%Charged	3.5	3.7	4.2	5.1	3.9	4.5	5.1	4.1	0	0	0	0	4.3
Vivo	No recorded weighings												
Polokwane	No recorded weighings												
Northam	No recorded weighings												
Mampakuil	No recorded weighings												
Baltimore	No recorded weighings												

Source: National Transport Master Plan 2050 – Limpopo Chapter, 2007

Table 7-31: Total Freight Vehicles in Groblersbrug (2006)

VEHICLES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Weighed	1752	1,680	1,901	1,574	0	3,228	1,656	0	0	0	0	0	11,791
Overloaded	135	210	400	435	0	481	754	0	0	0	0	0	2,415
% Overloaded	7.7	12.5	21	27.6	0	14.9	45.5	0	0	0	0	0	20.5
Charged	35	53	41	33	0	60	108	0	0	0	0	0	330
%Charged	2	3.2	2.2	2.1	0	1.9	6.5	0	0	0	0	0	2.8

Source: National Transport Master Plan 2050 – Limpopo Chapter, 2007

Table 7-32: Total Freight Vehicles in Mantsole (2006)

VEHICLES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Weighed	17,708	14,895	13,167	13,387	15,696	17,146	17,502	2,2895	0	0	0	0	132,396
Overloaded	3,984	3,386	3,452	4,017	4,072	4,088	4,045	4,220	0	0	0	0	31,264
% Overloaded	22.5	22.7	26.2	30	25.9	23.8	23.1	18.4	0	0	0	0	23.6
Charged	632	560	572	806	598	875	846	930	0	0	0	0	5,819
%Charged	3.6	3.8	4.3	6	3.8	5.1	4.8	4.1	0	0	0	0	4.4

Source: National Transport Master Plan 2050 – Limpopo Chapter, 2007

Table 7-33: Total Freight Vehicles in Beit Bridge (2006)

VEHICLES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Weighed	2,667	2,401	2,010	2,897	2,060	2,021	1,147	0	0	0	0	0	15,203
Overloaded	296	387	270	471	384	477	118	0	0	0	0	0	2,403
% Overloaded	11.1	16.1	13.4	16.3	18.6	23.6	10.3	0	0	0	0	0	15.8
Charged	65	32	29	52	50	56	27	0	0	0	0	0	311
%Charged	2.4	1.3	1.4	1.8	2.4	2.8	2.4	0	0	0	0	0	2

Source: National Transport Master Plan 2050 – Limpopo Chapter, 2007

Table 7-34: Total Freight Vehicles in Mooketsi (2006)

VEHICLES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Weighed	620	1,050	1,211	1,316	1,183	1,183	932	0	0	0	0	0	7,495
Overloaded	120	145	224	210	146	143	158	0	0	0	0	0	1,146
% Overloaded	19.4	13.8	18.5	16	12.3	12.1	17	0	0	0	0	0	15.3
Charged	54	78	109	63	80	64	89	0	0	0	0	0	537
%Charged	8.7	7.4	9	4.8	6.8	5.4	9.5	0	0	0	0	0	7.2

Source: National Transport Master Plan 2050 – Limpopo Chapter, 2007

Table 7-35: Total Freight Vehicles in Rathoke (2006)

VEHICLES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Weighed	280	344	240	277	300	245	327	0	0	0	0	0	2,013
Overloaded	112	78	98	78	51	57	67	0	0	0	0	0	541
% Overloaded	40	22.7	40.8	28.2	17	23.3	20.5	0	0	0	0	0	26.9
Charged	25	29	28	34	28	26	40	0	0	0	0	0	210
%Charged	8.9	8.4	11.7	12.3	8.3	10.6	12.2	0	0	0	0	0	10.4

Source: National Transport Master Plan 2050 – Limpopo Chapter, 2007

Table 7-19 shows the following:

- Mantsole Traffic Control Centre handles the highest number of heavy vehicles – an average of 16, 550 heavy vehicles per month. 23% of the heavy vehicles are overloaded, with only 18% of the overloaded vehicles being charged;
- The remainder of the traffic control centres handled 9% of the total monthly heavy vehicles.

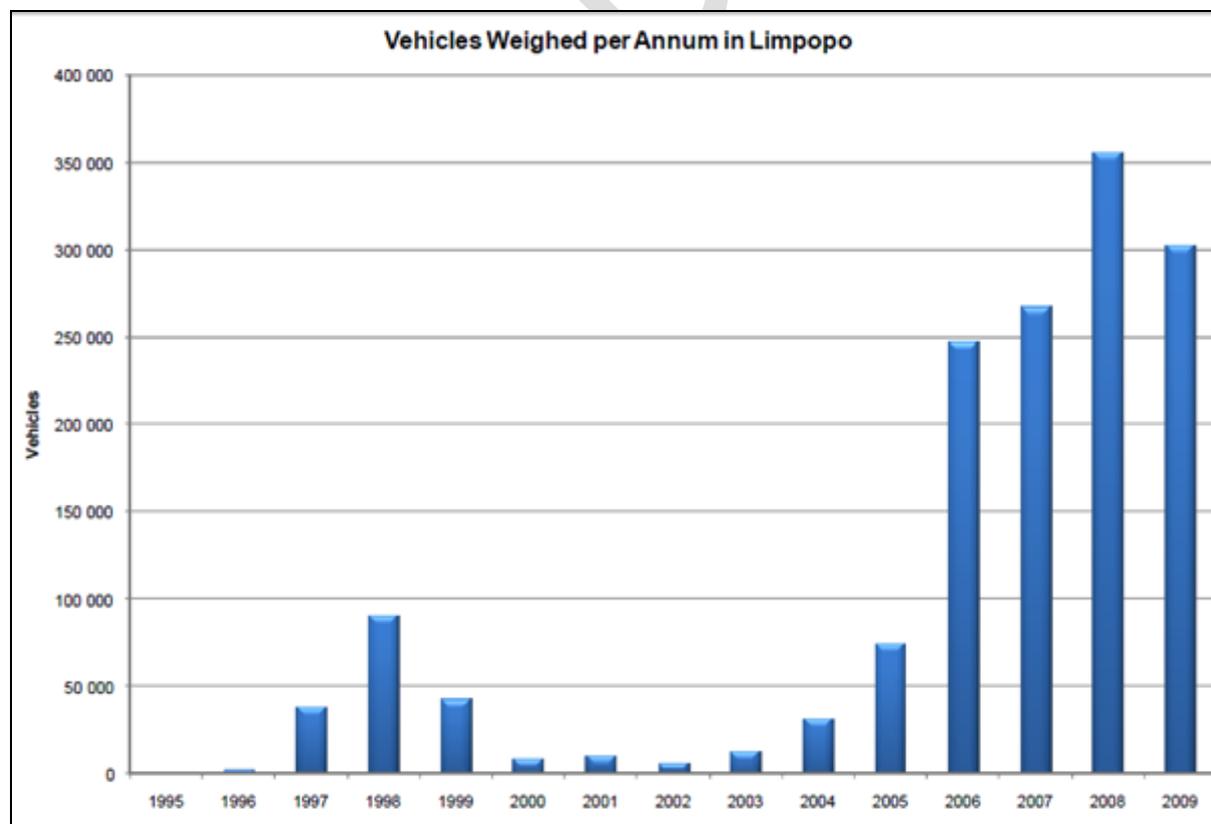
Five out of nine traffic control centres do not have weighing statistics. From the tables above it is evident that an unacceptable number of heavy vehicles in Limpopo are overloaded, indicating a need for a comprehensive overloading control strategy for the Province. There are several new overload control centres planned for the Limpopo Province at Polokwane, Mokopane, along the R37, N11 and Beit Bridge – Zimbabwe Border Post. Overload control is done at weighbridges strategically positioned along the main transport corridors.

7.2.4.2 Current Overload Information

Current overloading information was not readily available on writing of the report. It was highlighted that the reasons for it unavailability was:

- Most of the information is captured manually with information requiring a lot of effort to extract, process and analyse; and/or
- Some of the overloading control centres are undergoing a migration from manual data capturing to computerised data capturing.
- Figure 7-33 presents the number of vehicles weighed at the provincial traffic control centres per annum from 1995 to 2009.

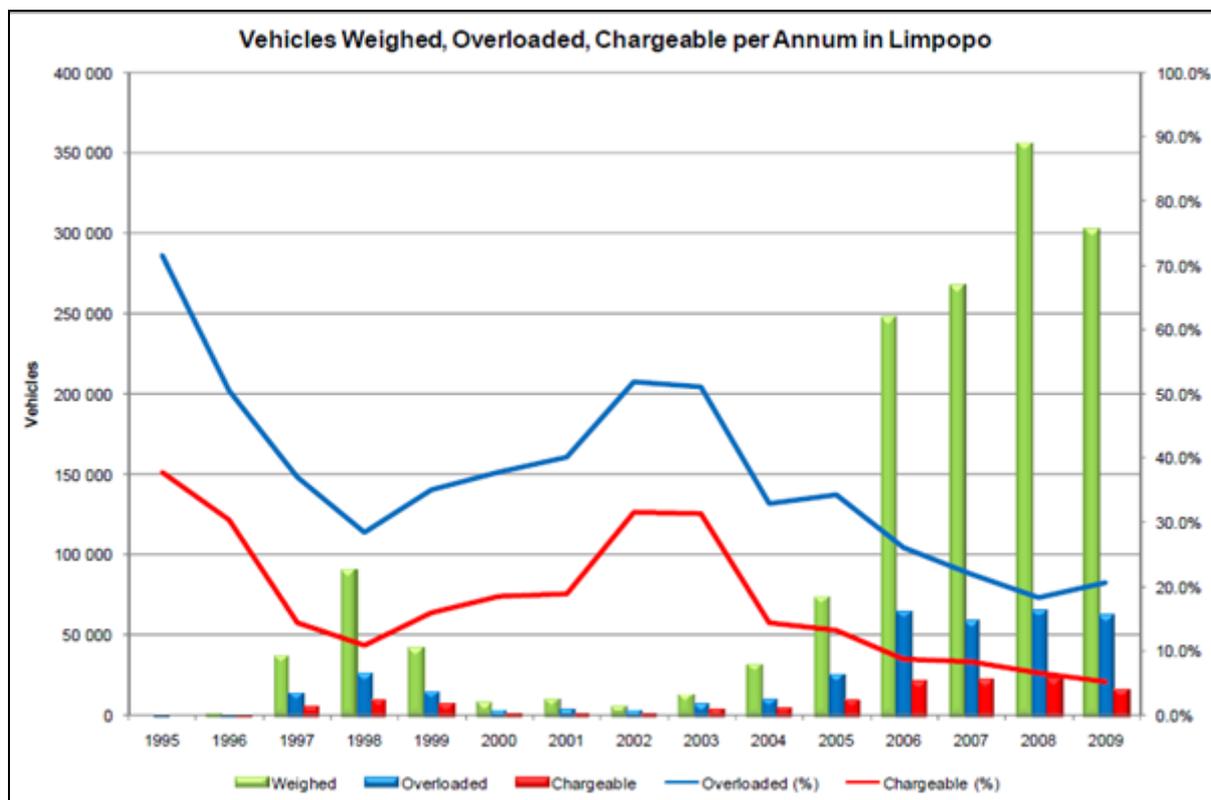
Figure 7-33: The Annual Number of Vehicles Weighed at TCC's in Limpopo Province



Source: Limpopo Freight Databank (2012)

- From the figure above it is established that the number of heavy vehicles weighed per annum has improved significantly, dating back to the year 2002 to 2008. However, in the year 2009 the number of weighed heavy vehicles went down by approximately 50 000 heavy vehicles. According to the Limpopo Freight Databank Review (2010/2011), the decrease is attributable to global recession which took place in 2008. Figure 7-34 provides the number of heavy vehicles charged for overloading offences at TCC's in Limpopo Province.

Figure 7-34: The Number of Heavy Vehicle Overloading Offences per Annum Charged at TCC's



Source: Limpopo Freight Data, 2010/2011

- It is observed that the trend (%) of overloaded vehicles and that of charged vehicles is exactly the same. The only difference is that the (%) number of overloaded heavy vehicles is higher than that (%) number of charged vehicles. According to the Freight Data Bank Review, 2010/2011 the % number of charged vehicles ranged from between 5% to 8% from the year 2006 to 2009

7.2.5 Operations at Border Posts

Table 7-26 shows the historic operations at the two significant border posts in Limpopo Province.

Table 7-36: Border Post Operations in Limpopo Province (2006)

BORDER POST	DAILY FREIGHT TRAFFIC	ANNUAL FREIGHT VOLUMES	OPERATING TIMES	PROCESSING TIMES
Beit Bridge	292	2.52 million tons	24 hours	<ul style="list-style-type: none"> Break-bulk vehicles: 3days Sealed tankers and Refrigerated vehicles: 3 hours

BORDER POST	DAILY FREIGHT TRAFFIC	ANNUAL FREIGHT VOLUMES	OPERATING TIMES	PROCESSING TIMES
				Average: 22hours
Martin's Drift	126	1.19 million tons	06h00 – 22h00	Average: 8hours

Source: Limpopo Freight Databank, 2006

The following observations are made from Table 7-26:

- Both border post handled approximately 420 heavy vehicles per day;
- Beit Bridge handled 69% of the heavy vehicles, whilst Martin's Drift handled 31% of the heavy vehicles;
- Both border post handled approximately 3.71m tons of cargo per annum;
- Beit Bridge handled 67% of the cargo, whilst Martin's Drift handled 33%
- Both border posts operate for more than 12 hours, with Beit Bridge being a 24-hour center, whilst Martin's Drift is closed between 22h00 and 6h00.
- The processing times at both border posts was recorded as 22 hours for Beit Bridge and 8 hours for Martin's Drift.

Updated data is available which was obtained by conducting a survey with road haulers as discussed in the following section 7.2.6.

7.2.6 Road Haulier Survey at Mantsole Traffic Control Centre

The Road Haulier Survey was undertaken on 25 August 2010 at Mantsole Weighbridge station. Mantsole weighbridge station was selected for this survey as it is central and carries the majority of freight transport (Freight Data Bank, 2006). The survey was conducted for 12 hours with the purpose of obtaining freight transport challenges (including infrastructure, operational and institutional challenges) encountered by road freight hauliers while transporting commodities within the country and outside borders.

A total of 107 road hauliers were interviewed during the survey. 68% of the interviewed road hauliers are domestic freight movers whilst 32% are international freight road hauliers.

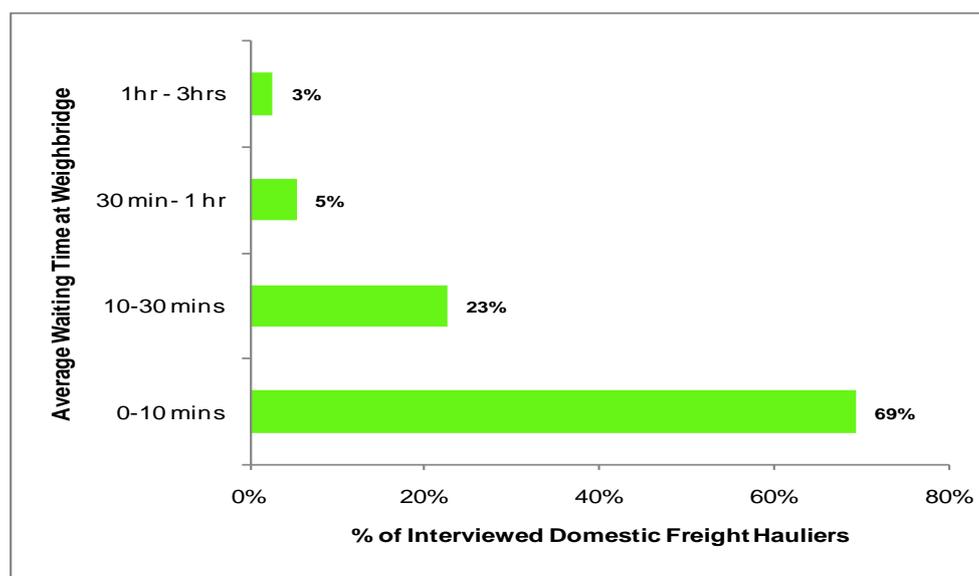
Domestic Freight

A majority of the interviewed domestic freight originated from other Provinces namely Gauteng, Mpumalanga, KZN, Limpopo, Western Cape and Free State were destined primarily to Limpopo. About 9 600 tons of commodities are transported by interviewed domestic freight hauliers per month. The N1 freeway (95%) was the most preferred route to transport freight commodities while the R101, R21 and R33 were the least popular routes among domestic freight movers with 3%, and 1% each respectively.

The R33 and R101 routes were identified by interviewed road hauliers to require upgrade and maintenance. Capacity improvement in-terms of lane additions is required on the R33 while the R101 is said to be bumpy and has a lot of potholes thus require road maintenance.

Figure 7-35 shows the average waiting time spent by domestic freight hauliers at the weighbridge stations.

Figure 7-35: Average Waiting Time at Weighbridge by Domestic Freight Hauliers



With reference to Figure 7-35, the following can be concluded:

- A majority of the domestic road hauliers (69%) spent 10 minutes at most waiting at the weighbridge stations;
- 23% spent between 10-30 minutes and 5% spent an hour at most;
- A very small proportion of domestic hauliers (3%) spent 1-3 hours waiting at the weighbridge stations.

According to the majority of interviewed domestic road hauliers delays at weighbridge stations occur regularly. Notably a number of delays were encountered in the month of August 2010.

The main reasons collated for waiting long at weighbridge include:

- Congestion of overloaded trucks at the station;
- Non-functional weighing machine; and
- Delays due to obtaining fines.

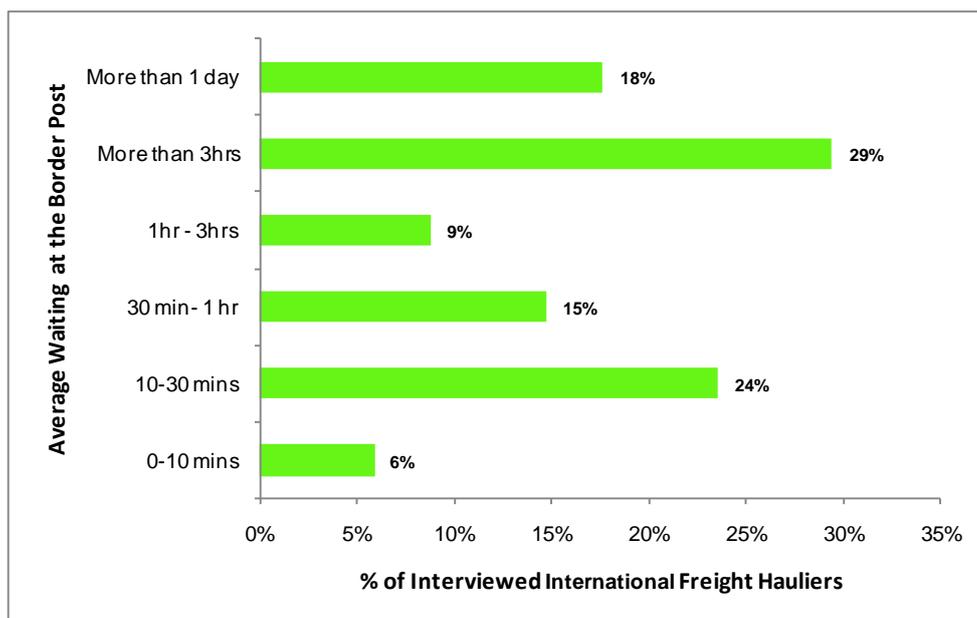
The main reasons described above for delays can be addressed by optimising the system at overload control centres.

International Freight

A considerable number of interviewed international freight hauliers originated from Zimbabwe and were also destined to Zimbabwe. Others major areas of origin captured for international freight include Gauteng Province, Musina, Malawi, Botswana and Democratic Republic of Congo. Approximately 5 800 tons of commodities are transported per month by the interviewed international freight hauliers. 97% of the international freight movers preferred to use the N1 while 3% preferred the R101 route.

Similarly to domestic hauliers a significant number of interviewed hauliers spent between 0-10 minutes waiting at weighbridge stations. Figure 7-36 presents the average waiting time spent by international freight hauliers waiting at the border posts.

Figure 7-36: Average Waiting Time at Border Posts by International Freight Hauliers



With reference to Figure 7-36, the following conclusions can be made:

- About 29% of the interviewed international freight hauliers spent more than 3 hours waiting at the border posts while 18% were delayed more than one day;
- 24% spent 30 minutes at most at the border post while another 24% spent between 31 minutes to 3 hours due to delays at the borders;
- A small percentage of the international freight hauliers (6%) spent 10 minutes at most at the border posts.

The main reasons for these delays pointed out by the interviewed international hauliers include:

- Congestion at the border posts;
- Lengthy process of processing paperwork;
- Lack of capacity among border post officers; and
- Non-cooperative and rude border post officers;

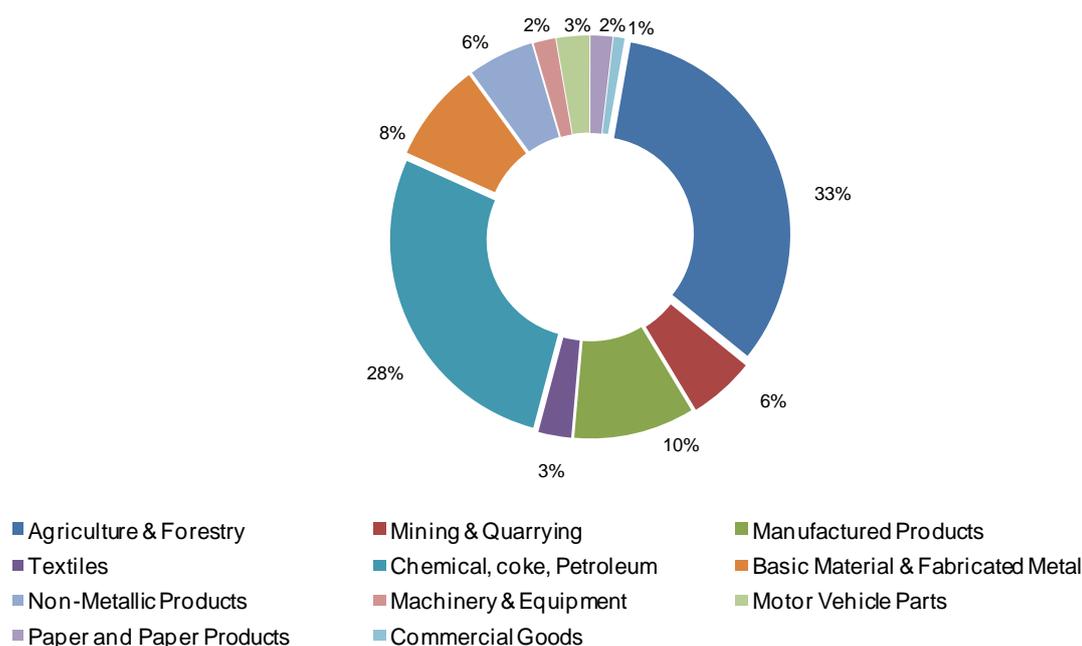
According to the international road freight hauliers, border post payments are mainly paid by their companies and they range from R250 to R820 per truck.

The main reasons for delays can be addressed by optimising the systems at border posts and even investigating the feasibility of one-stop border posts at Martin's Drift (border post with Botswana) and Beit Bridge (border post with Zimbabwe).

Commodities Transported

Figure 7-37 shows the type of commodities transported by interviewed road hauliers. This figure shows that 33% of the freight commodities transported by the interviewed hauliers was agriculture and forestry products. This was followed closely by chemical, coke and petroleum products with 28%. Other major commodities transported include manufacturing products with 10%, basic metal and fabricated metal products with 8%, mining and quarrying and non-metallic products 6% each. The least transported commodities include motor vehicle parts and textiles with 3% each, machinery and equipment and paper and paper products with 2% and commercial products with 1%.

Figure 7-37: Commodities Transported by Interviewed Road Hauliers



The peak month of transporting the commodities varies per month. Approximately 67% of the interviewed road hauliers who responded to this question transport the commodities all year round, there are no particular peak months.

7.2.7 Road Haulier Origin-Destination Survey at Four Traffic Control Centres

Origin-Destination (OD) surveys were undertaken from 30 November 2011 to 1 December 2011 at four of the Traffic Control Centres (TCC) in the province namely:

- Beit Bridge TCC;
- Grobler Bridge TCC;
- Rathoke TCC; and
- Mantshole TCC.

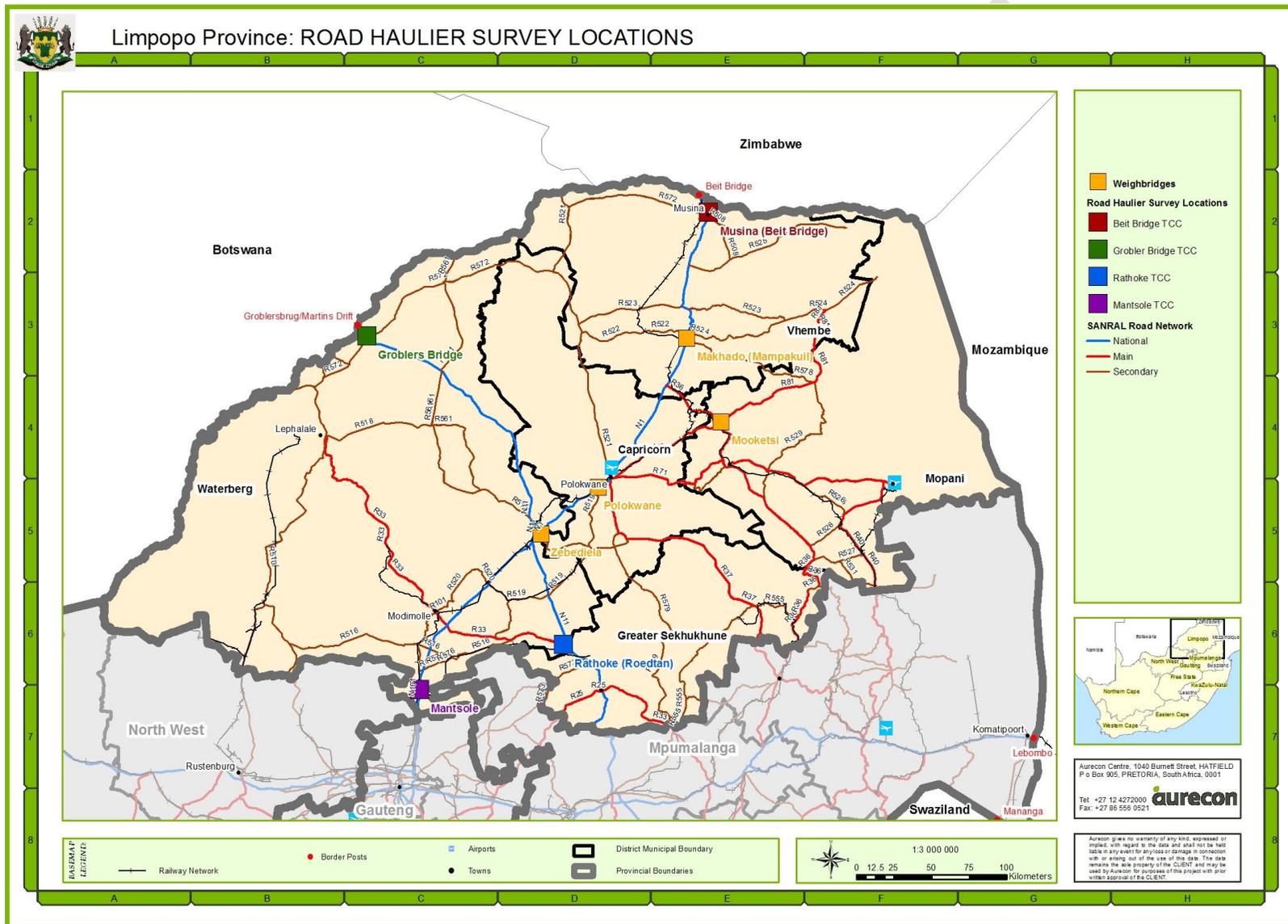
Refer to Map 7-8 for the locations of these four TCCs.

Map 7-9 and Map 7-10 respectively. The following observations are made from these maps:

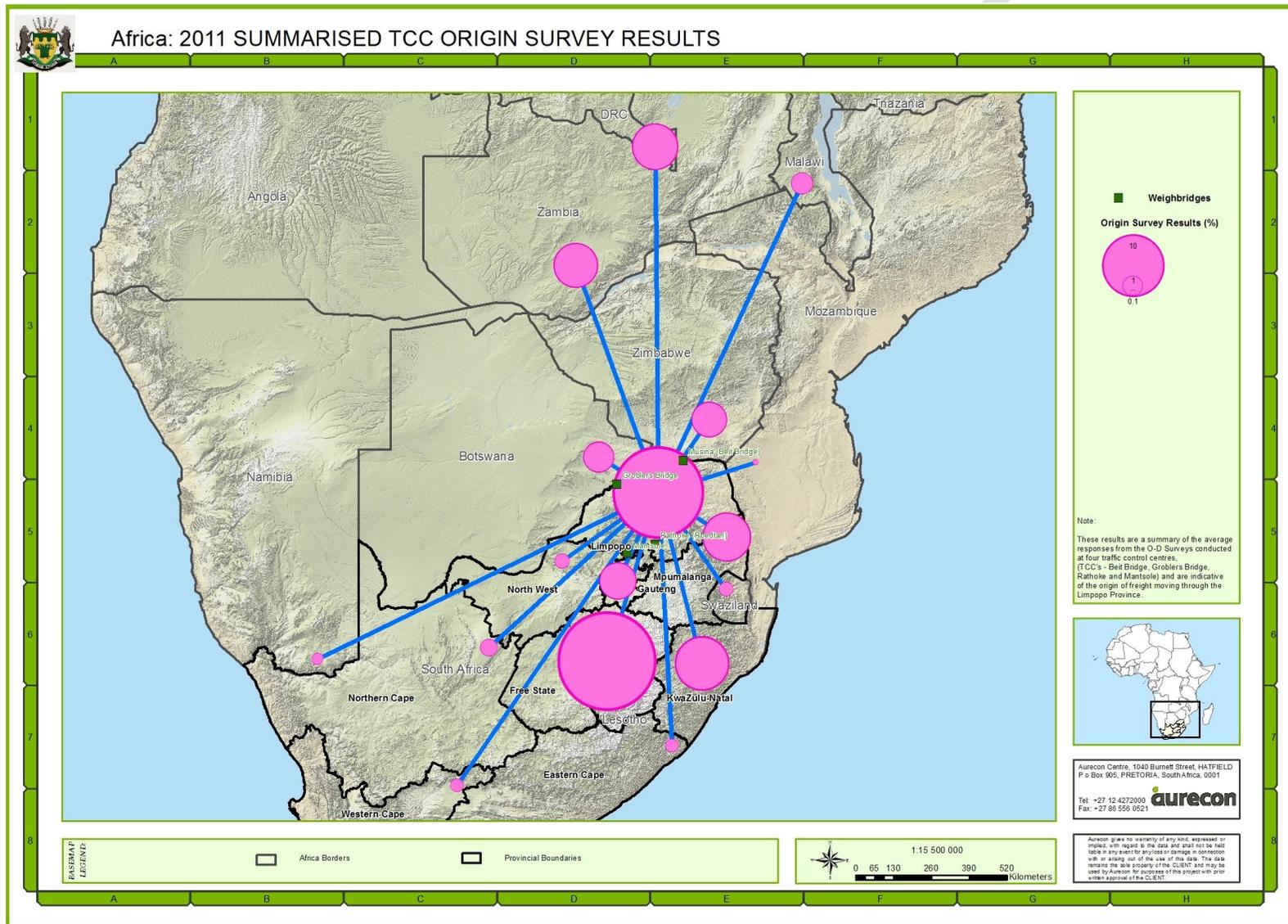
- Most of the truckers travelling nationally originated in the Free State (26%) followed by the Limpopo (22%) province itself;
- Most of the truckers travelling internationally originated in Zambia (5%) and the Democratic Republic of Congo (DRC – 6%);
- Most of the truckers travelling nationally were destined for Limpopo (27%) itself as well as the Free State (21%) province;
- Most of the truckers travelling internationally were destined for Zimbabwe (11%) and Zambia (10%);

OD Survey Results at the four Main TCCs in Limpopo Province are discussed in more detail in the paragraphs to follow.

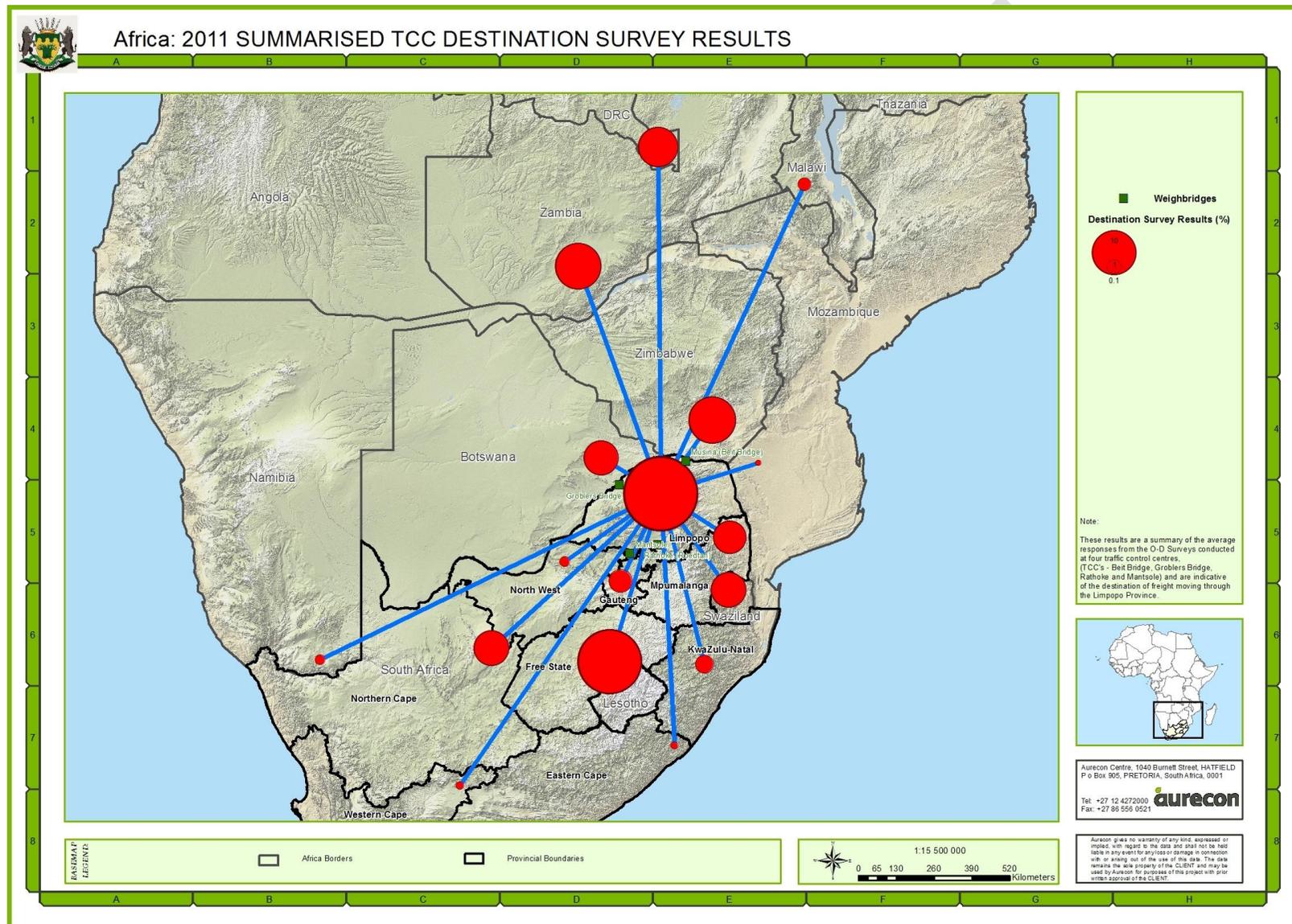
Map 7-8: Road Hauler Survey Locations



Map 7-9: Road Hauler Survey – Trucker Origins



Map 7-10: Road Hauler Survey – Trucker Destinations



Beit Bridge TCC

A total of 323 heavy vehicles were surveyed at Beit Bridge TCC during the 2 – day survey period. A majority of the trucks originated from Gauteng Province and were destined to other countries namely DRC, Malawi, Zambia and Zimbabwe. The interviewed truck drivers at Bridge TCC indicated that the N1 is the main route that they utilize for moving their cargo. Table 7-37 presents the OD pairs recorded at Beit Bridge TCC.

Table 7-37: Origin-Destination Combinations per Country (as a% of all trips) at Beit Bridge TCC

ORIGIN	DESTINATION						Total	%
	RSA	DRC	MALA.	MOZ.	ZAMB.	ZIMBA.		
RSA	5	17	19	2	71	108	222	69%
DRC	16	-	-	-	-	-	16	5%
MALA.	14	-	-	-	-	-	14	4%
MOZ.	-	-	-	-	-	-	-	-
ZAMB.	20	-	-	-	-	-	20	6%
ZIMBA.	47	-	-	1	1	2	51	16%
Total	102	17	19	3	72	110	323	
%	32%	5%	6%	1%	22%	34%		

The following observations are made from Table 7-37:

- About 69% of the surveyed trucks at Beit Bridge TCC originated from South Africa, 16% from Zimbabwe, 6% from Zambia, 4% Malawi, 3% DRC and 2% Congo;
- A predominant number of trucks which originated from South Africa were primarily destined to Zimbabwe, Zambia and Malawi;
- The surveyed trucks which originated from Zimbabwe, Zambia, Malawi, DRC and Congo were mainly destined to South Africa
- About 34% of the surveyed vehicles at Beit Bridge TCC, were destined to Zimbabwe, 32% South Africa, 22% Zambia, 6% Malawi, 3% Congo, 2% DRC and 1% Mozambique.

Table 7-38: Origin Destination Pairs per Province and Country at Beit Bridge TCC

ORIGIN	DESTINATION														Total (%)
	LP	GP	FS	KZN	MP	NW	NC	EC	WC	DRC	MALA.	MOZ.	ZAMB.	ZIMBA.	
LP	1%	0.3%	-	-	-	-	-	-	-	-	-	-	1%	3%	5%
GP	-	-	-	-	-	-	-	-	-	3%	6%	0.3%	17%	26%	52%
FS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KZN	-	-	-	-	-	-	-	-	-	2%	0.3%	-	4%	4%	10%
MP	-	-	-	-	-	-	-	-	-	0.3%	-	0.3%	-	-	1%
NW	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3%	0.3%
NC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WC	-	-	-	-	-	-	-	-	-	0.3%	-	-	0.3%	-	1%
DRC	0.3%	4%	-	1%	-	-	-	-	-	-	-	-	-	-	5%
MALA.	-	4%	-	-	-	-	-	-	-	-	-	-	-	-	4%
MOZ.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZAMB.	1%	6%	-	-	-	-	-	-	-	-	-	-	-	-	6%
ZIMBA.	1%	11%	0.3%	2%	-	0.3%	-	-	-	-	-	0.3%	-	1%	15%
Total (%)	3%	25%	0.3%	2%	-	0.3%	-	-	-	6%	6%	1%	22%	34%	100%

The following conclusions can be made from Table 7-38:

- The OD survey revealed that Gauteng Province (52%) was the major origin of the surveyed vehicles at Beit Bridge followed by, Zimbabwe (15%) and KZN (10%)
- The vehicles originating from Gauteng Province were destined to Zimbabwe (26%), Zambia (17%), Malawi (6%), DRC (3%) and Mozambique (0.3%);
- The major destination of the surveyed vehicles was mainly Zimbabwe (34%) and Zambia (22%);
- It was also observed that out of the vehicles surveyed at Beit Bridge very few vehicles originated and were destined to other provinces within the country.

Commodities Transported at Beit Bridge TCC

The OD survey at Beit Bridge revealed the following:

- A majority of the commodities were from Johannesburg destined to Zimbabwe, Malawi, Zambia, and DRC;
- The main commodities moved across the borders include fuel, groceries, clothing, chemicals, machinery, electrical appliances, furniture, cars, building material and metals;
- Johannesburg was a major destination of commodities that originated from Zimbabwe, Malawi, Zambia, Congo and DRC;
- The commodities include copper and copper wire, mixed load, maize, flour, chemicals, machinery, steel, lockers, blankets, detergents and coke breeze.

Grobler Bridge TCC

A total of 104 heavy vehicles were surveyed at Grobler Bridge TCC during the 2-day survey period. The surveyed truck drivers indicated that they used the N11 as the main route for transporting freight. Similarly to Beit Bridge TCC, a predominant number of trucks originated from the Gauteng Province to countries across the borders i.e. Botswana, DRC, Congo, Namibia and Zambia. Table 7-39 presents the OD pairs recorded at the Grobler Bridge TCC.

Table 7-39: Origin-Destination Combinations per Country (as a % of all trips) at Grobler Bridge TCC

ORIGIN	DESTINATION						Total	%
	RSA	BOTS.	DRC	NAMI.	ZAMB.	ZIMBA.		
RSA	5	20	21	2	18	-	66	64%
BOTS.	8	-	-	-	-	-	8	8%
DRC	14	1	-	-	-	-	15	15%
NAMI.	1	-	-	-	-	-	1	1%
ZAMB.	12	-	1	-	-	-	13	13%
ZIMB.	1	-	-	-	-	-	1	1%
Total	41	21	22	2	18	-	104	
	40%	20%	21%	2%	17%	0%		

The following observations are made from Table 7-40:

- About 64% of the surveyed trucks at Grobler TCC originated from South Africa, 15% DRC, Zambia 13%, Botswana 8% and 1% each from Namibia and Zimbabwe;

- A predominant number of trucks which originated from South Africa were mainly destined to Botswana, DRC and Zambia;
- The surveyed trucks which originated from DRC, Botswana, and Zambia were primarily destined to South Africa;
- About 40% of the surveyed vehicles at Grobler TCC were destined to South Africa, 20% Botswana, 21% DRC, 17% Zambia, 2% Namibia.

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Table 7-40: Origin Destination Pairs per Province and Country at Beit Bridge TCC

ORIGIN	DESTINATION														
	LP	FS	GP	KZN	MP	NW	NC	EC	WC	BOTS.	DRC	NAMI.	ZAMB.	ZIMB.	Total
LP	1%	-	4%	-	-	-	-	-	-	4%	-	-	1%	-	10%
FS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GP	-	-	-	-	-	-	-	-	-	13%	18%	1%	14%	-	47%
KZN	-	-	-	-	-	-	-	-	-	2%	2%	1%	2%	-	7%
MP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BOTS.	-	-	7%	-	1%	-	-	-	-	-	-	-	-	-	8%
DRC	-	-	13%	-	-	-	-	-	-	1%	-	-	-	-	14%
NAMI.	-	-	-	1%	-	-	-	-	-	-	-	-	-	-	1%
ZAMB.	3%	-	8%	1%	-	-	-	-	-	-	1%	-	-	-	13%
ZIMB.	1%	-	-	-	-	-	-	-	-	-	-	-	-	-	1%
Total	5%	-	32%	2%	1%	-	-	-	-	20%	21%	2%	17%	0%	100%

From Table 7-40, it is evident that:

- A predominant number of the surveyed trucks at Grobler Bridge TCC, originated from Gauteng Province (47%), 10% from Limpopo Province and 7% from KZN province;
- Major trip destinations within South Africa were to Gauteng Province (32%), Limpopo 5%, KZN 2% and Mpumalanga Province with 1%; and
- It was observed that only 5% of surveyed vehicles originated and were destined to other provinces within the country.

Main Commodities Handled at Grobler TCC

The Grobler TCC OD survey result revealed that

- A large number of commodities originated from Johannesburg destined to Botswana, DRC and Congo;
- The commodities include mixed load, iron, steel balls/cable, plastic pipes, chemicals, metal/metal sheets, furniture, lead/lead balls, mining equipment, groceries, and mixed goods;
- Johannesburg was viewed as the major destination of the commodities that were transported from outside the country;

The commodities transported from other countries include copper/copper concentrate, copper powder, chrome, cotton, maize, machinery, chemicals, cobalt concentrate, agricultural products, salt and mixed load

Rathoke TCC

A total of 108 heavy vehicles were interviewed at Rathoke TCC during the 2-day survey period. The interviewed truck drivers at Rathoke TCC indicated that they utilised the N11 as the main route for moving their cargo. A predominant number of the surveyed trucks originated within the country and destined to different parts of the province, other provinces and countries. Table 7-41 shows where surveyed vehicles at Rathoke TCC came from as well as where they were destined for.

Table 7-41: Origin-Destination Combinations per Country (as a percentage of all trips) at Rathoke TCC

ORIGIN	DESTINATION						Total	%
	RSA	BOTS.	DRC	SWAZ.	ZAMB.	ZIMBA.		
RSA	95	1	2	1	1	2	102	94%
BOTS.	0	0	0	0	0	0	0	0%
DRC	0	0	0	0	0	0	0	0%
SWAZ.	1	0	0	0	0	1	2	2%
ZAMB.	1	0	0	0	0	0	1	1%
ZIMB.	3	0	0	0	0	0	3	3%
Total	100	1	2	1	1	3	108	
%	93%	1%	2%	1%	1%	3%		

The following observations are made from Table 7-41:

- Over 90% of the heavy vehicles surveyed at Rathoke TCC originated in South Africa and were destined to different parts of the country;
- Very few trucks originated and were destined to other countries;
- About 3% of the surveyed vehicles originated from Zimbabwe, 2% from Swaziland and 1% from Zambia.

Table 7-42: Origin Destination Pairs per Province and Country at Rathoke TCC

ORIGIN	DESTINATION														
	LP	FS	GP	KZN	MP	NW	NC	EC	WC	BOTS.	DRC	SWAZ.	ZAMB.	ZIMB.	TOTAL
LP	19%	1%	5%	1%	13%	-	1%	1%	1%	-	-	1%	-	-	43%
FS	1%	-	-	-	-	-	-	-	-	-	-	-	-	-	1%
GP	13%	-	-	-	1%	-	-	-	-	-	2%	-	-	-	16%
KZN	5%	-	-	-	-	-	-	-	-	1%	-	-	1%	1%	7%
MP	19%	-	1%	-	3%	-	-	-	-	-	-	-	-	1%	24%
NW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NC	3%	-	-	-	-	-	-	-	-	-	-	-	-	-	3%
EC	1%	-	-	-	-	-	-	-	-	-	-	-	-	-	1%
WC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BOTS.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWAZ.	1%	-	-	-	-	-	-	-	-	-	-	-	-	1%	2%
ZAMB.	-	-	1%	-	-	-	-	-	-	-	-	-	-	-	1%
ZIMB.	-	-	-	-	3%	-	-	-	-	-	-	-	-	-	3%
TOTAL	62%	1%	6%	1%	19%	-	1%	1%	1%	1%	2%	1%	1%	3%	100%

The following observations are made from Table 7-42:

- The majority of the surveyed vehicles at Rathoke TCC originated in Limpopo Province with 43%, Mpumalanga 24%, Gauteng 16% and KZN 7%;
- Limpopo and Mpumalanga provinces with 62% and 19% were the main destinations of the surveyed trucks; and
- It was also observed that a substantial number of the surveyed trucks originated and were destined within Limpopo Province (19%).

Main Commodities Handled at Rathoke TCC

The Rathoke TCC OD survey results revealed the following:

- It was observed that a majority of the surveyed vehicles at Rathoke TCC were empty;
- The commodities carried by the surveyed vehicles mainly originated from the Limpopo Province destined to other parts of the province and other provinces like Mpumalanga, Gauteng and KZN;
- These commodities include agricultural products, cement, stones/granite, chrome, meat/meat products, chicken/chicken products, pig food, chicken food and manure.
- Some commodities were moved from other provinces to Limpopo and they include fuel, coal and charcoal, grass, electrical appliances, machinery, paints, building material and furniture;
- Very few commodities were transported from outside the country like Zimbabwe, Zambia and Swaziland at Rathoke TCC and they include coke breeze, alcohol, timber and copper.

Mantshole TCC

Mantshole is one of the busiest traffic control centre in Limpopo Province. OD surveys were undertaken at two points, recording heavy vehicles travelling towards the Northern direction and those travelling towards the South.

A total of 408 heavy vehicles were surveyed at the control centre during the 2-day survey period. About 47% (190 vehicles) of the total heavy vehicles surveyed, travelled towards the Northern while 53% (218 vehicles) travelled towards the South. The surveyed truck drivers driving towards the north indicated that they use the N1 as main route for their trip while those travelling towards the south stated that they make use of the N1 and N11 for their trips. Table 7-43 presents the OD combinations by country at Mantshole TCC by country.

Table 7-43: Origin-Destination Combinations at Mantshole TCC

ORIGIN	DESTINATION							Total	%
	RSA	BOTS.	DRC	MALA.	MOZA.	ZAMB.	ZIMB.		
RSA	256	5	5	4	-	4	25	299	78%
BOTS.	8	-	-	-	-	-	-	8	2%
DRC	11	-	-	-	-	-	-	11	3%
MALA.	5	-	-	-	-	-	-	5	1%
MOZA.	1	-	-	-	-	-	-	1	0%
NAMI.	1	-	-	-	-	-	-	1	0%
ZAMB.	29	-	-	-	-	-	-	29	8%
ZIMB.	31	-	-	-	-	-	-	31	8%
Total	342	5	5	4	-	4	25	385	
%	89%	1%	1%	1%	-	1%	6%		

The following observations are made from Table 7-43:

- The OD survey revealed that a considerable amount of trips surveyed at Mantshole originated from Gauteng province, destined to Limpopo Province and countries across the borders namely Botswana, DRC, Malawi, Zambia and Zimbabwe;
- About 78% of the heavy vehicles surveyed at Mantshole originated from South Africa, approximately 8% each from Zimbabwe and Zambia, 3% from DRC, 2% Botswana and 1% from Malawi;
- A largest number of surveyed trucks (about 89%) were destined to South Africa;
- The trucks from Zimbabwe, Zambia, DRC, Botswana and Malawi were primarily destined to South Africa.

Table 7-44: Origin Destination Pairs per Province and Country at Mantsole TCC

ORIGIN	DESTINATION															Total
	LP	FS	GP	KZN	MP	NW	NC	EC	WC	BOTS.	DRC	MALA.	MOZA.	ZAMB.	ZIMB.	
LP	1%	1%	25%	1%	0.3%	-	-	-	0.3%	0.3%	-	-	-	-	-	29%
FS	1%	-	-	-	-	-	-	-	-	-	0.3%	-	-	-	-	2%
GP	31%	-	-	-	-	-	-	-	-	1%	1%	1%	-	1%	5%	39%
KZN	2%	-	-	-	-	-	-	-	-	1%	1%	-	-	-	1%	4%
MP	0.5%	0.3%	-	-	-	-	-	-	-	-	-	-	-	-	-	1%
NW	2%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2%
NC	0.3%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3%
EC	0.5%	-	-	-	-	-	-	-	-	-	-	-	-	0.3%	-	1%
WC	1%	-	-	-	-	-	-	-	-	-	-	-	-	0.3%	-	1%
BOTS.	-	-	2%	-	-	-	-	-	-	-	-	-	-	-	-	2%
DRC	-	-	3%	0.3%	-	-	-	-	-	-	-	-	-	-	-	3%
MALA.	-	-	1%	-	-	-	-	-	-	-	-	-	-	-	-	1%
MOZA.	-	-	-	0.3%	-	-	-	-	-	-	-	-	-	-	-	0.3%
NAMI.	0.3%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3%
ZAMB.	0.3%	-	6%	1%	-	-	-	-	-	-	-	-	-	-	-	8%
ZIMBA.	0.5%	-	6%	0%	-	2%	-	-	-	-	-	-	-	-	-	8%
Total	40%	1%	43%	3%	0%	2%	-	0%	0%	1%	1%	1%	-	1%	6%	1

The following observations are made from Table 7-44:

- Limpopo and Gauteng Provinces were the main areas of origin and destination for the interviewed trucks;
- About 25% originated from Limpopo Province to Gauteng Province while 31% originated from Gauteng to Limpopo Province;
- A total of 39% originated from other provinces to Limpopo while over 28% originated from Limpopo Province destined to other provinces.

Main Commodities Handled at Mantshole TCC

- A majority of commodities carried by surveyed vehicles at Mantshole TCC were from Johannesburg destined to various parts of Limpopo Province and Zimbabwe;
- The commodities carried include wine, soap, stationary, groceries, building material, electrical appliances, furniture, cement, fuel, machinery and soya meals.
- Public transport vehicles (big buses) carrying passengers were also surveyed at Mantshole TCC. Johannesburg was the main area of origin of these buses destined to Polokwane and Zimbabwe;
- There were also commodities transported from South Africa's neighbouring countries like Malawi, Zimbabwe, Botswana, Zambia, DRC and they include copper, copper concentrate, tobacco, coke breeze, nickel, salt, agricultural products, maize bran, clothing, cobalt concentrate and chemicals.

7.2.8 Dangerous Goods (Hazardous Materials) Transport

7.2.8.1 Overview

Dangerous goods are also known as hazardous materials (shortened as Hazmat) refer to commodities or substances which are capable of posing a risk to health, safety, property or the environment. The transportation of dangerous goods in South Africa is regulated by The National Road Traffic Act 93 which was implemented in the year 2000. This act provides for the Dangerous goods Act which stipulates that any person transporting hazardous goods and substances in quantities above the exempt quantity will have to be fully compliant with the Act. The transportation of dangerous goods in the country is also done in accordance with the South African Bureau of Standards, "Code of Practice". The following requirements should be adhered to when moving dangerous goods in the country:

- Dangerous Goods transportation vehicles need to be placarded so as to indicate the type of substances in transit;
- Drivers of vehicles above 3500 gvm require Professional Driving Permits with category D;
- Drivers must carry relevant required documentation regarding the transportation of hazmat commodities or substances including a Transport Emergency Card and a Dangerous Goods Declaration;
- Insurance must be in place to cover Civil Liability and Recovery and Rehabilitation costs;
- Suitable vehicles for the goods and/or substances being carried should utilised;
- Emergency responders should be informed about the dangerous goods /substances being transported in advance before trip is undertaken;
- Drivers must have suitable Dangerous Goods Training and must be in possession of the certificate which is renewable annually; and
- Multi-loads must be compatible in terms of the Dangerous Goods Legislation and special multi-load placards must be in place on the vehicle.

7.2.8.2 HAZMAT Commodities moved within Limpopo

Methodology for Identifying Hazmat Commodities on the 2006 and 2012 Freight Data Banks

A list of commodity groups transported on the main freight routes was established from the 2012 and 2006 freight data banks. There are nine classes of dangerous goods identified by the legislation and associated code of practise. Fuel and Chemicals was the only commodity groups included in the freight data banks that fall into these categories.

The annual tonnage of these commodities was determined per freight route. Map 7-11 and Map 7-12 present the annual tonnage of hazmat commodities transported on the main freight routes in 2006 and 2011 respectively. These volumes are the average freight volumes in both directions and the bar charts indicate the percentage split between fuel and chemicals transported on the route.

From Map 7-11 it is evident that fuel was the main hazmat commodity transported on the main freight routes in 2006. Higher percentages of fuel transported were observed in all the freight routes while chemicals hauled were primarily observed on R555, R81, R526 and the northern part of the N1. The significant volumes of hazmat commodities were transported on the northern part of the N1 between Polokwane and Beit Bridge, about 0.4 million tons on average per annum. Other notable routes that moved considerable annual volumes of hazmat commodities in 2006 include N11, Northern part of R33 (between N1 and Lephalale), R81, R71, R510, and R555 are the main corridors that hauled.

Map 7-12 shows that the hazmat freight pattern has changed over the last five years in the province. The transportation of fuel on the main freight routes has increased drastically whereas the transportation of chemicals has declined. The transportation of fuel is predominant on the N1, N11, R33, R37, R71, R519, R518 and R40 while that of chemicals is prevalent on the R71, R526 and R33. Large annual volumes of hazmat commodities were transported on N11 (between Groblersbrug and N1) about 0.7 million tons, N1 (between Polokwane and Pretoria) about 0.43 million tons. The southern part of the N11, northern part of N1-Polokwane to Beit Bridge, R37, R521 and R526 transported the average hazmat commodities ranging from 0.16 to 0.40 million tons per annum.

Conclusion

The 2006 and the 2011 data banks revealed that:

- Overall tonnage of hazmat commodities being transported in the province has increased significantly on the main routes except on the R33 which remained the same. This is most probably because of the deteriorating condition of the R33 and construction activities that commenced which forced truckers to make use of the alternative route of the N1 and then the N11 towards the Botswana border; and
- The transport of fuel increased dramatically versus chemicals. This can potentially be due to increasing fuel exports to neighbouring countries that are experiencing fuel shortages as well as provincial demand that increased due to vehicle ownership.

7.2.8.3 Challenges for transporting Hazmat in Limpopo Province

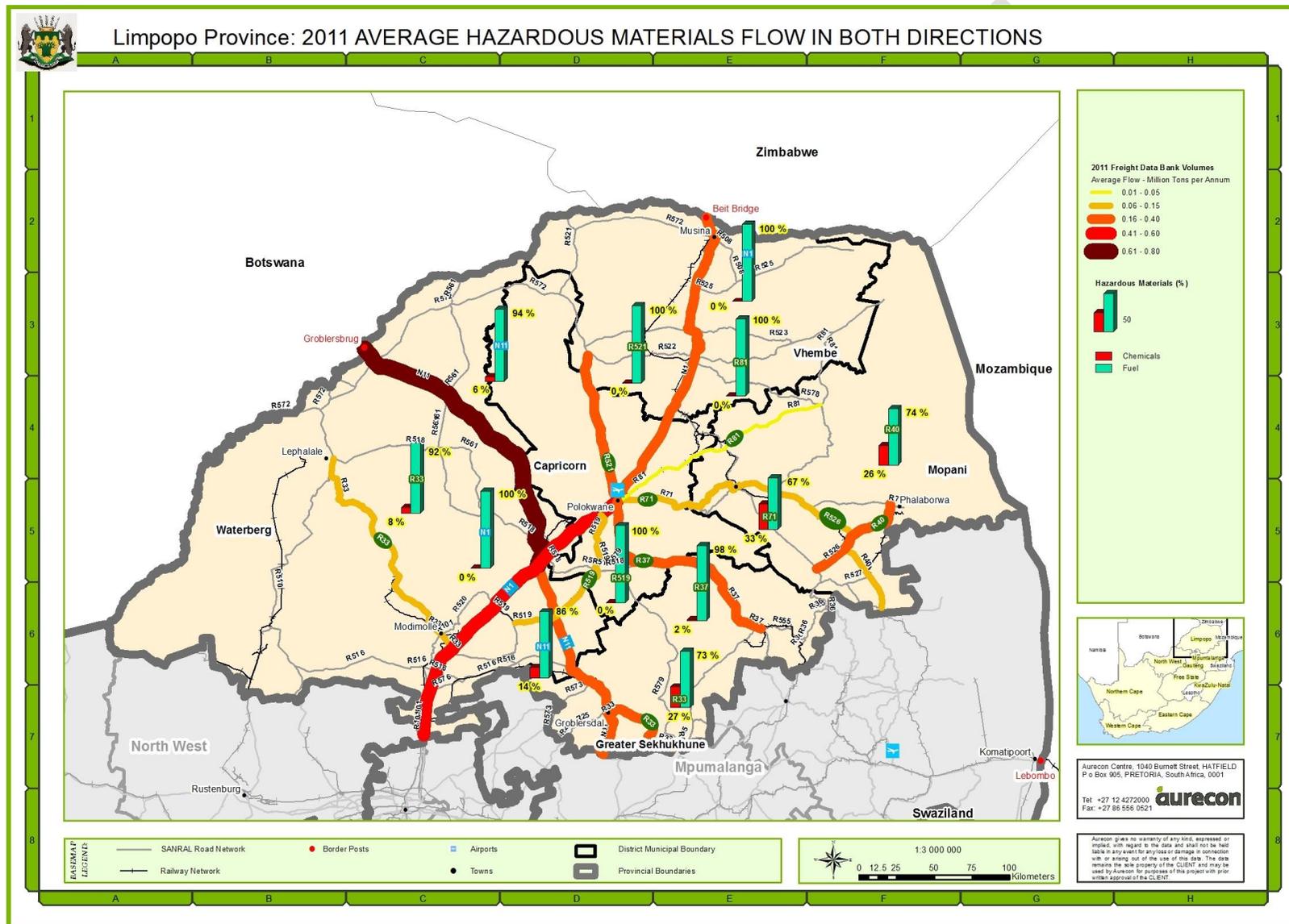
The key challenges identified with regard to the transportation of hazmat commodities in the province include:

- Lack of designated hazmat routes within the Province, specifically bypass routes around main economic areas like Polokwane, Makopane, Modimolle and Tzaneen. Alternative routes within cities and towns can also be determined to avoid sensitive areas should an accident cause spillage;

- Lack of hazmat specific incident management systems put in place in other freight routes (except the N1) e.g. the N11;
- Uncertainty on the procedure to be followed by hauliers regarding the acquisition of licences for transporting hazmat commodities; and
- Lack of enforcement ensuring that hauliers have the correct documentation (permits/licences/certificates) for transporting hazmat commodities.

FINAL DRAFT

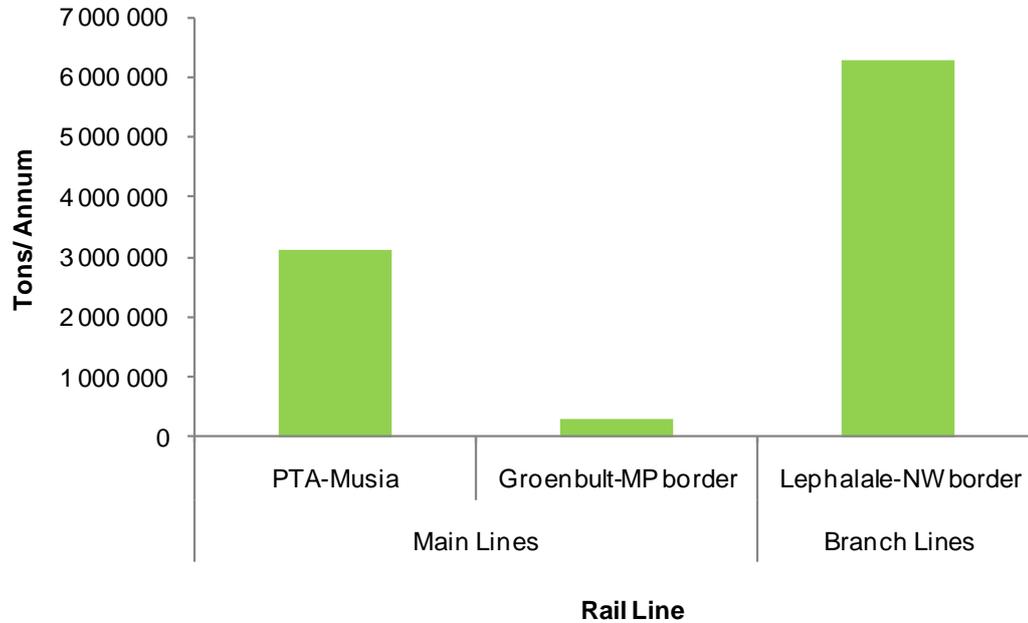
Map 7-12: 2011 Average Hazardous Materials Volumes



7.3 Historic Rail Freight Profile

There are two main rail freight lines in the Limpopo Province namely Pretoria-Musina and Groenbult-Komatipoort and two branch lines which run between Lephalale and North West Border and Marble Hall and Zebediela. The Marble Hall – Zebediela Line has been closed since. The total annual freight volumes recorded from these lines in Limpopo ranges from 0.29 million tons to 6.29 million tons. (Freight Databank, 2006).

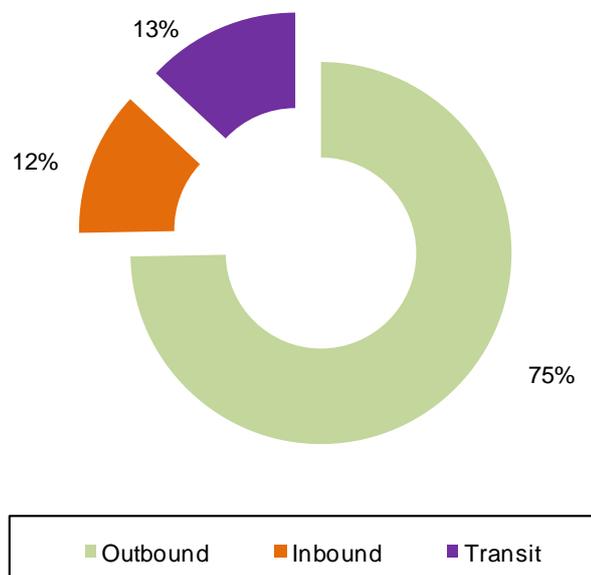
Figure 7-38: Total Freight Volumes on Limpopo Rail Line



The Lephalale – North West border branch line recorded the highest tons per annum. Approximately 65% (6.29 million tons) of the total annual tonnage was transported on this line per annum. The Pretoria – Musina line recorded a total of 3.11 million tons annually and Groenbult-Komatipoort line transported a total of 0.29 million tons per annum.

Figure 7-39 gives an indication of the overall annual mix of freight traffic data that is handled by all the three rail freight lines in the Province.

Figure 7-39: Overall Mix of Freight Volume



Outbound freight traffic volume refers to freight traffic volumes primarily generated from other provincial stations or exported to other countries while inbound traffic volume refers to freight traffic volumes received at provincial stations from other Provinces or imported from other countries. Transit traffic is the freight traffic transiting the Limpopo Province from one Province to another. The following observations are made:

- Approximately 75% of the total annual freight tonnage handled by the 3 lines was transported to other Provinces and countries;
- While 12% was received at provincial stations from other Provinces or imported from other countries;
- Approximately 13% of the annual total handled freight tonnage was freight traffic on transit en route the Limpopo Province from one Province to another.

Pretoria - Musina Line

The Pretoria – Musina main line handles about 3.11 million tons per annum. Table 7-45 presents the rail freight profile for the Pretoria Musina Main Line.

Table 7-45: Rail Freight Profile – Pretoria Musina Line

FINANCIAL YEAR	INBOUND TONNAGE (% Inbound)	OUTBOUND TONNAGE (% Outbound)	TRANSIT TONNAGE (% Transit)	TOTAL TONNAGE (% Total Limpopo)
2003/2004	1,067,216 (34%)	885,379 (28%)	1,161,115 (37%)	3,113,710 (32%)
2010/2011	261,646 (20%)	616,982 (47%)	425,435 (32%)	1,313,849

Source: Limpopo Freight Databank, 2006 and Limpopo Freight Data Bank Review, 2010/2011

The following observations are made:

- The total annual tonnage handled at the Pretoria Musina Line has dropped drastically over the years, about 3.11 million tons was handled in 2003/2003 as compared to 1.31 million tons moved in 2010/2011;
- About 1,067,216 of the tons handled in 2003/2004 was received from other Provinces and countries while in 2010/2011 only 261,646 tons were received;
- In 2003/2004, approximately 885,379 tons handled on the line was transported to other Provinces and countries as compared to 616,982 tons moved in the year 2010/2011;
- Approximately 37% of the yearly tonnage handled at the line in 2003/2004 was on transit to other Provinces while 32% was on transit in 2010/2011;
- The total annual tonnage handled at the Pretoria Musina line is about 32% of the total annual rail freight tonnage handled in Limpopo Province.

Figure 7-40 to Figure 7-42 provide the mix of rail freight commodities which were either transported inbound, outbound or on transit at the Pretoria Musina Line.

The following observations were made with reference to commodities found on the Pretoria – Musina main line:

- “Petroleum liquids”, “maize” and “cement “ were the mainly transported inbound while “coal”, “lime products” and “fluorspar” were predominantly transported to other Provinces and countries;
- Majority of the commodities handled on the Pretoria – Musina Line were on transit to other Provinces.

Figure 7-40: Inbound Freight Traffic - Pretoria Musina Line

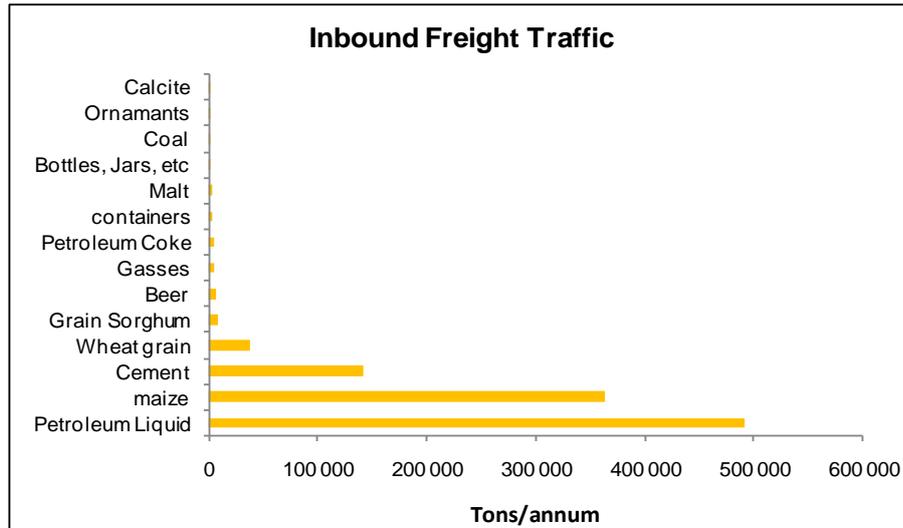


Figure 7-41: Outbound Freight Traffic - Pretoria Musina Line

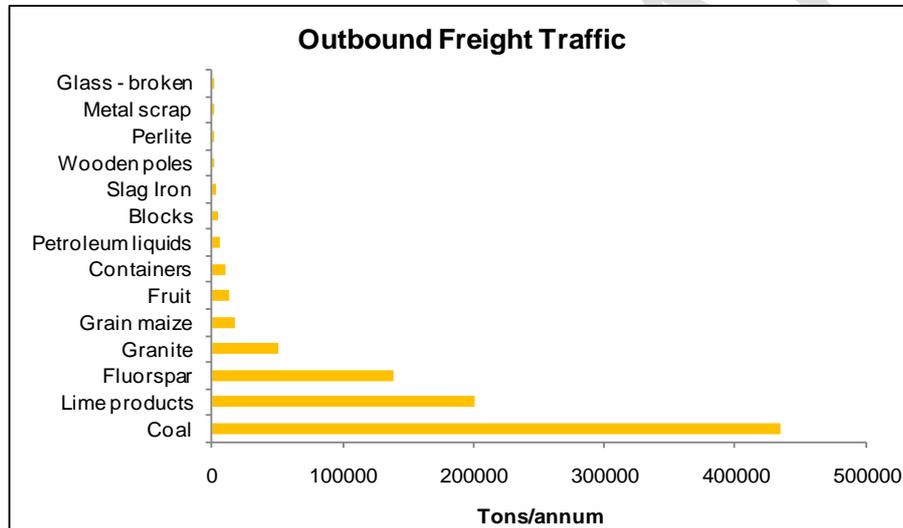
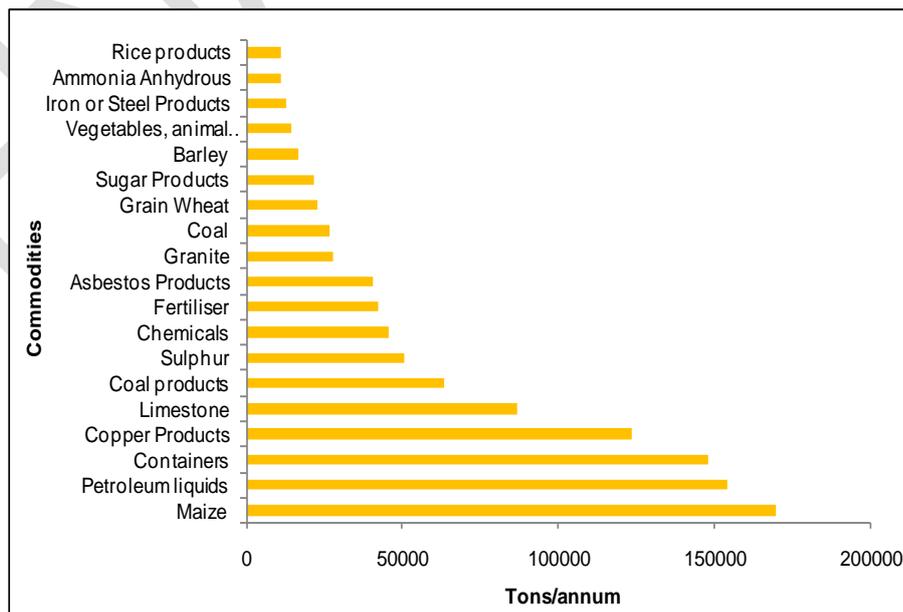
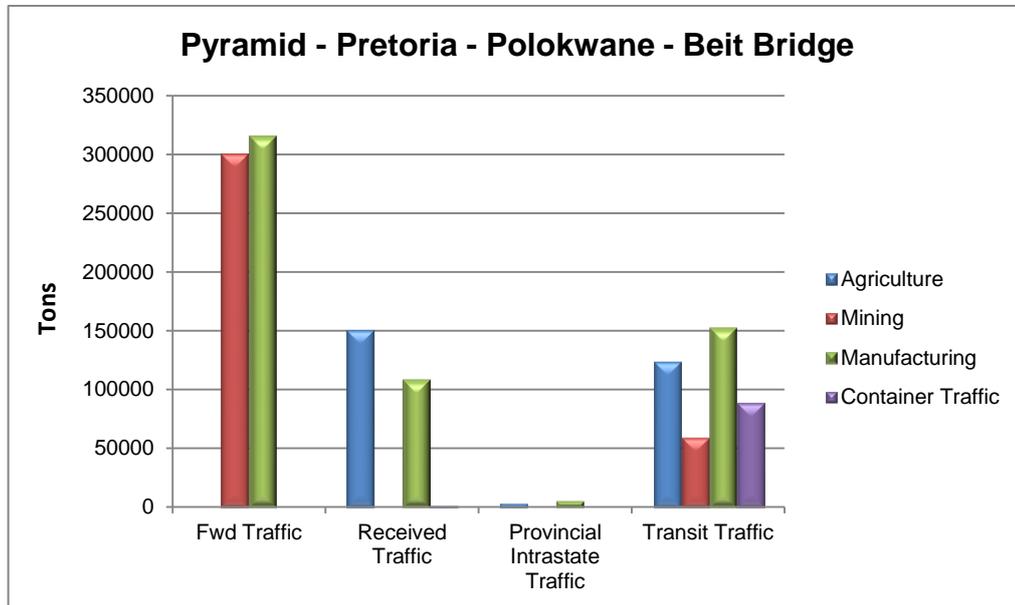


Figure 7-42: Transit Freight Traffic – Pretoria Musina Line



Map 7-13 indicates the rail freight volumes of the 2011 freight data bank. According to the 2010/2011 Limpopo Freight Data Bank Review, over 1.5 million tons of freight cargo was transported on the Pretoria – Pienaarsrivier – Polokwane – Musina – Beit Bridge line for 2010/2011 financial year. Out of the total rail freight traffic moved in the 2010/2011 financial year, 400 000 tons was transit traffic and 600 000 tons was received from other stations. Figure 7-43 shows the movement of rail freight per commodity group on the line

Figure 7-43: Rail Freight Traffic moved on the Pyramid- Pretoria – Polokwane – Beit Bridge

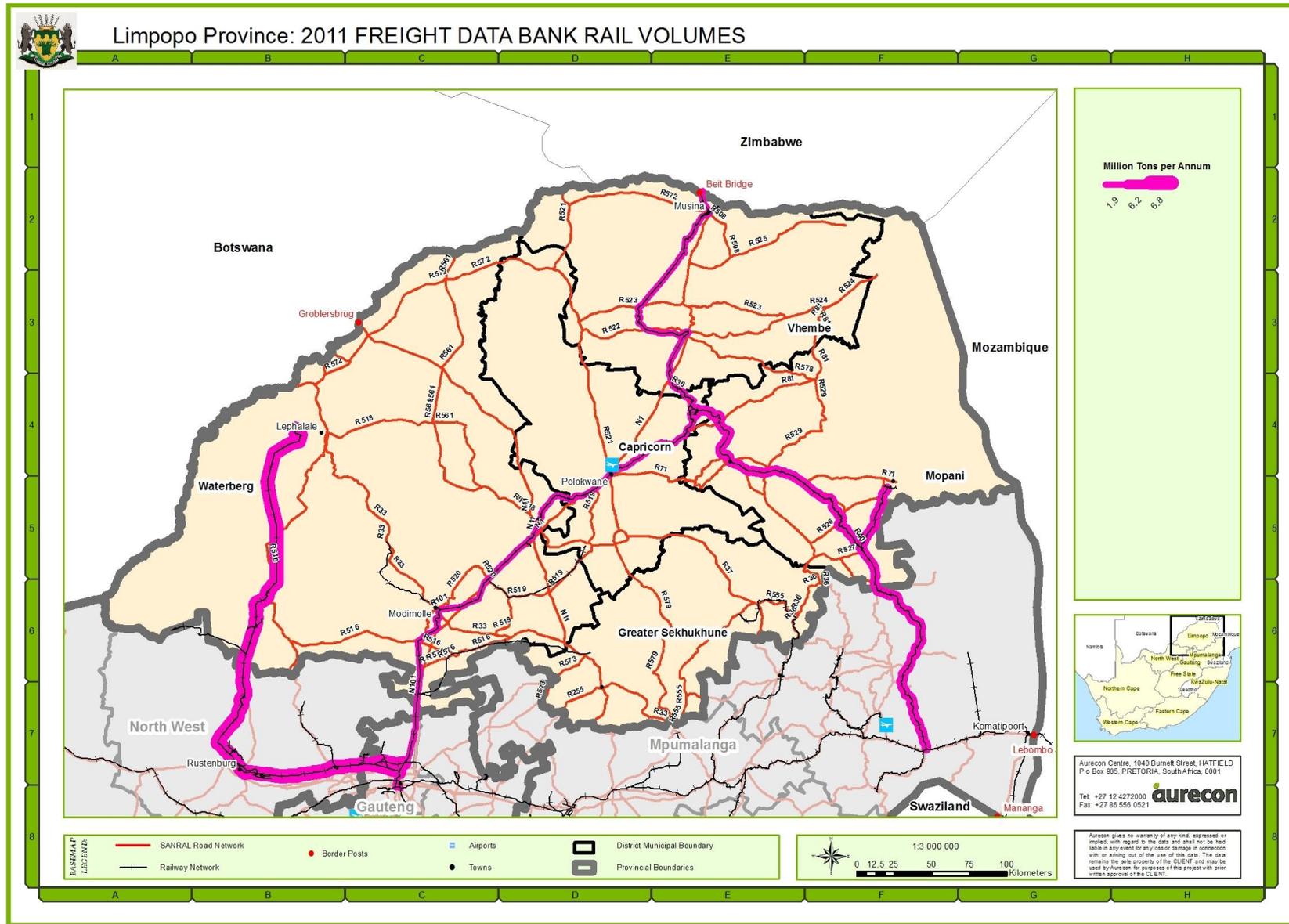


Source: Limpopo Freight Databank (2012)

The mining and manufactured traffic was mainly forwarded to other lines in the 2010/2011 period. Transit traffic comprising of agriculture, mining, manufactured and containerised commodities was also handled on this line. Upgrades on line to increase capacity include:

- The section between Germiston, Pretoria and Pyramid South (about 77 km) has been electrified on the old 3000 volt DC system;
- North of Polokwane section electrified at 25 000 volts AC (25 kV);
- The branch to Laphalale electrified at 25 000 volts AC (25 kV) and Phalaborwa-Hoedspruit-Kaapmuiden section is on the 3 000 volt DC system;
- The section between Pyramid South and Polokwane is controlled by a computer driven Radio Train Order system. On average about 10 trains are operated per direction ranging from 40 wagon vacuum-brake trains to longer air brake trains.

Map 7-13: 2011 Freight Data Bank Rail Volumes



Groenbult-Komatipoort Line

The Groenbult Komatipoort main line handled the least total annual freight volume (approximately 0.29 million tons per annum). Table 7-46 shows historic rail freight profile for the Groenbult Komatipoort line.

Table 7-46: Rail Freight Profile – Groenbult Komatipoort Line

FINANCIAL YEAR	INBOUND TONNAGE (% inbound)	OUTBOUND TONNAGE (% outbound)	TRANSIT TONNAGE (% transit)	TOTAL TONNAGE (% Total Limpopo)
2003/2004	85,829 (29%)	105,866 (36%)	105,309 (35%)	297,004 (3%)
2010/2011	75,143 (1%)	5,067,571 (98%)	9,940 (0.2%)	5,152,654

Source: Limpopo Freight Databank, 2006 and Limpopo Freight Data Bank Review, 2010/2011

The following observations are made:

- A total of 5,152,654 tons was handled on the Groenbult-Komatipoort line in 2010/2011 while only about 297,007 tons were handled in 2003/2004 – an increase of 62% ;
- About 85,829 tons (approximately 29% of the annual total tonnage) handled on the Groenbult Komatipoort line was received in 2003/2004 from other provinces and countries while about 75,143 tons was received in 2010/2011;
- A total of 105,886 tons in 2003/2004 was carried to other provinces and countries as compared to 5,067,571 tons moved in 2010/2011 which marks a major increase of outbound traffic handled on the line over the years;
- Transit traffic handled on the line decreased in 2010-2011, is about 9,940 tons as compared to 105,309 tons moved in 2003/2004;
- The Groenbult Komatipoort line annual tonnage represents about 3% of the total rail freight tonnage handled in the Province per annum.

Figure 7-44 and Figure 7-45 provides the mix of rail freight commodities which were either transported inbound, outbound or on transit at the Groenbult Komatipoort main line.

The following observations are made:

- “Petroleum liquids” were primarily transported inbound while “citrus fruits” and “zinc and zinc concentrate” were mostly transported outbound;
- A number of commodities were transiting the province to other provinces. The main commodities include “copper products”, “sulphur”, “granite”, “chemicals”, “granite” and “fertiliser”.

Figure 7-44: Freight Commodities Handled - Groenbult Komatipoort Line

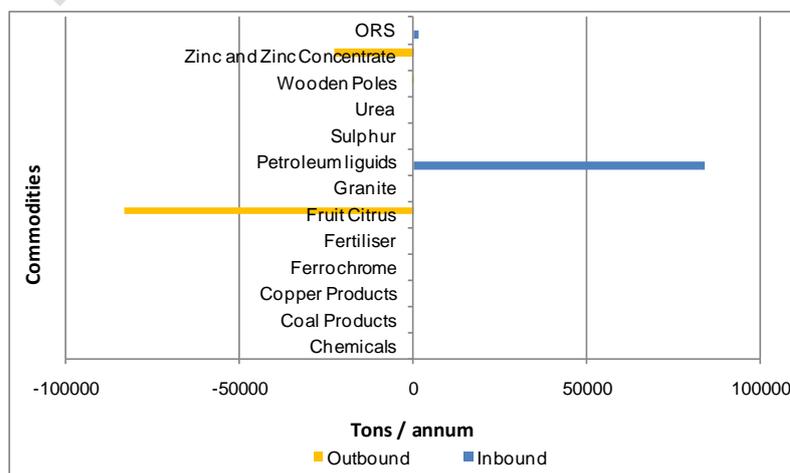
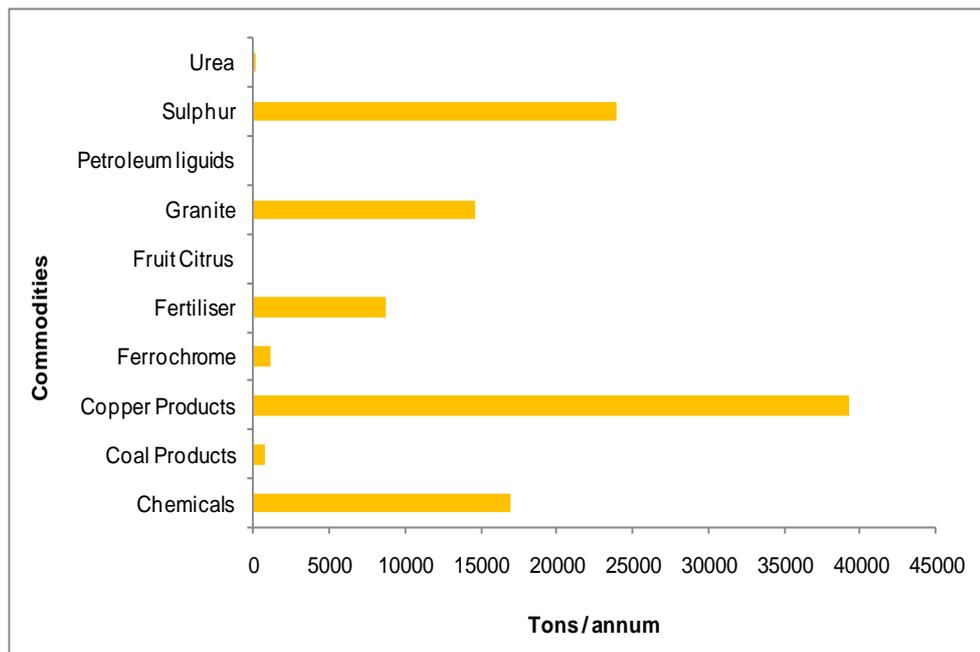
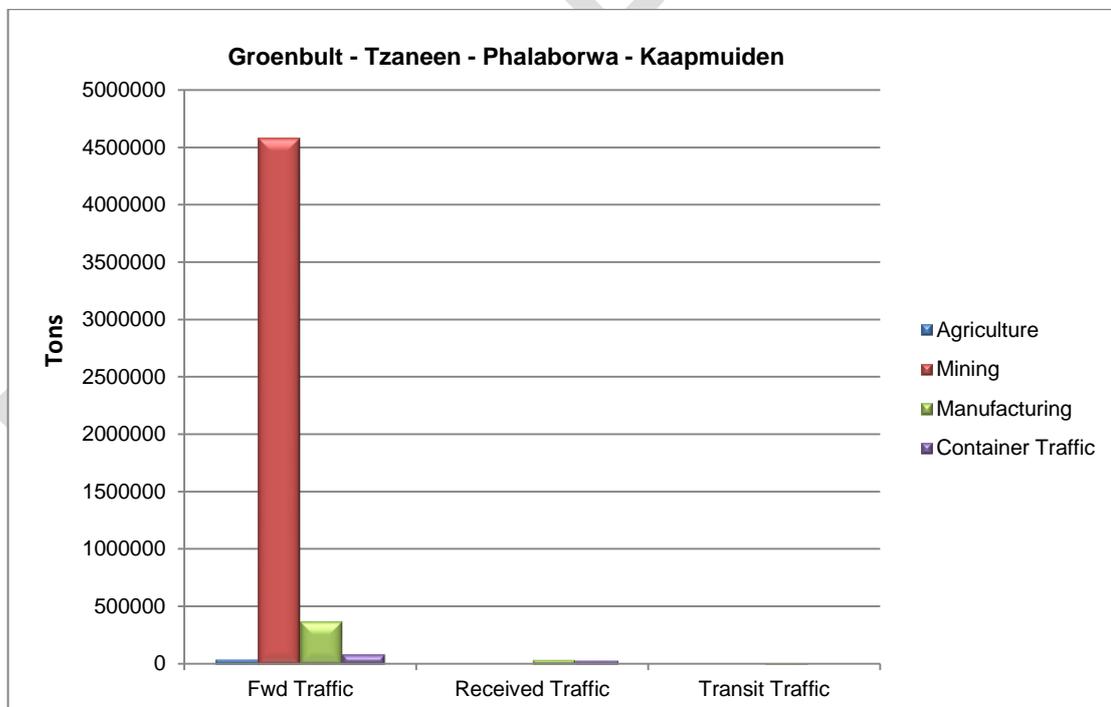


Figure 7-45: Transit Freight Traffic - Groenbult Komatipoort Line



According to the 2010/2011 Limpopo Freight Data Bank Review, over 3 million tons of rail freight traffic was moved on this line in the 2010/2011 financial year. This rail freight traffic was generated from the Phalaborwa branch. Groenbult–Tzaneen – Hoedspruit – Phalaborwa – Kaapmuiden. Out of the rail freight traffic moved about 2 million tons was rock phosphate traffic and 1.4 million tons magnetite.

Figure 7-46: Rail Freight Traffic Moved on Pyramid-Groenbult-Tzaneen-Phalaborwa-Kaapmuiden Line



Source: Limpopo Freight Databank (2012)

Figure 7-46 shows that mining commodities were predominantly forwarded on this line in the 2010/2011 period. In addition to that manufactured and containerised rail traffic was also forwarded to other lines but in smaller quantities (less that 500 000 tons in total). *Upgrades on line to increase capacity include:*

- Between Kaapmuiden and Phalaborwa line is electrified at 3kV;
- Between Tzaneen and Groenbult, and junction of Polokwane –Beit Bridge section of the mainline from Pretoria utilizes diesel traction;

Furthermore, an investigation is being conducted to determine the feasibility of constructing a new line from Lephalale to link the Richards Bay coal line in order to ease the pressure on the present route. It has also been further established that an estimated 1.63 billion tons of coal has been discovered in the Waterberg area which includes Lephalale, towards the Botswana border and along the Soutpansberg.

Lephalale – North West Border Line

The Lephalale-North West Border branch line handled the most provincial rail freight tons, approximately 6.29 million tons in 2006. Table 7-47 shows the rail freight profile for the Lephalale-North West border line.

Table 7-47: Rail Freight Profile – Lephalale North West Border Line

FINANCIAL YEAR	INBOUND TONNAGE (% Inbound)	OUTBOUND TONNAGE (% Outbound)	TRANSIT TONNAGE (% Transit)	TOTAL TONNAGE (% Total Limpopo)
2003/2004	33,908 (1%)	6,257,399 (99%)	0 (0%)	6,291,307 (65%)
2010/2011	124,288 (0.1%)	84,965,173 (99%)	0 (0%)	86,084,311

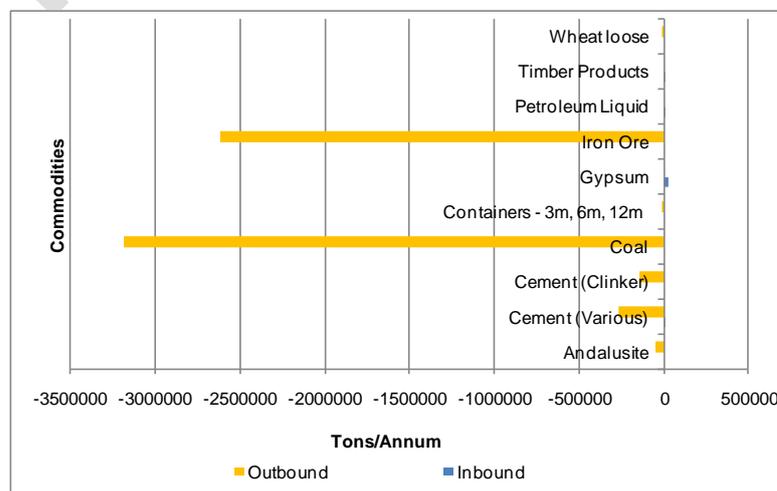
Source: Limpopo Freight Databank, 2006 and Limpopo Freight Data Bank Review, 2010/2011

The following observations are made:

- The total tonnage transported on this line has increased significantly over the years, about 6.29 million tons was moved in 2003/2004 as compared to about 86 million tons transported in 2010/2011;
- Approximately 99% (6, 257,399 tons in 2003/2004 and 84,965,173 in 2010/2011) of the total tons handled on the Lephalale-North West border line was transported to other Provinces and countries while only 1 and 0.1% was transported in the Province in 2003/2004 and 2010/2011;
- There was no transit freight traffic handled over the years;
- Approximately 65% of the total annual rail tonnage handled in Limpopo is from the Lephalale-North West border line.

Figure 7-47 provides the mix of rail freight commodities which were either transported inbound, outbound or on transit at the Lephalale North West border line.

Figure 7-47: Freight Commodities Handled – Lephalale – North West Border Line



The following observations are made:

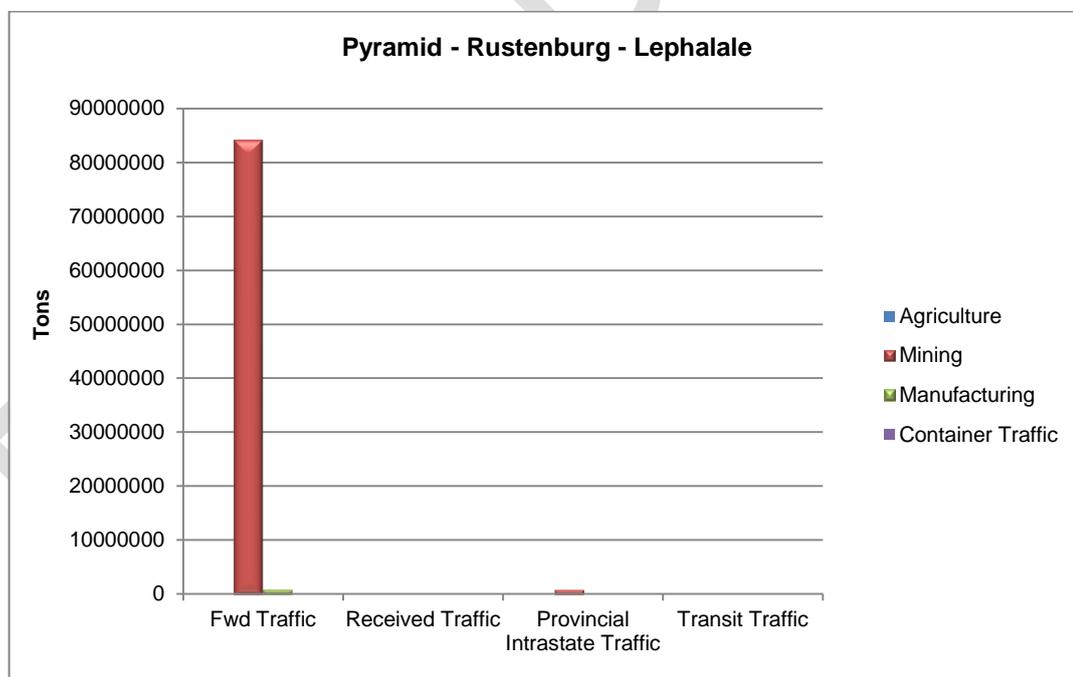
- The main commodity transported into the Province was “gypsum”;
- “Iron ore” and “coal” were mainly transported to other provinces and countries;
- No transit commodities were handled at the Lephalale North West Border Line.

The Limpopo Freight Data Bank Review, 2010/2011 revealed that this line moves about 5 million tons of coal from Lephalale to Gauteng, KZN and Western Cape Province. Out of the total tonnage of the coal moves about 750 000 tons is exported. The review further revealed that over 2.7 million tons of iron ore is transported from Thabazimbi to Gauteng and KZN Province. In addition to that about 800 000 tons of cement are moved on the Pyramid South – Brits – Rustenburg – Thabazimbi – Lephalale per annum. Figure 7-48 presents rail freight traffic transported on the Rustenburg – Lephalale line in the 2010/2011 financial year.

The figure indicates that mining commodities were primarily transported on this line in the 2010/2011 period. The upgrades required to increase capacity on the line include:

- The section from Pretoria North to Rosslyn is electrified at 3kV DC and freight traffic is handled by 25 kV AC locomotives;
- A new line from Pyramid south was constructed to Wildebeeshoek to enable through running of AC trains to Pyramid South, from where they change to a DC operation to Sentrarrand;
- Between Pyramid south and Lephalale train control is applied by radio train order.
- On average about 12 trains are operated per direction on daily between Pyramid South and Rustenburg;
- About 6 trains run on to Thabazimbi and 3 to Lephalale. These trains have a capacity of pulling about 80 wagons.

Figure 7-48: Rail Freight Traffic Moved on Pyramid-Rustenburg - Lephalale Line



Source: Limpopo Freight Data Bank Review 2010/2011

Table 7-48 presents the summary of the main freight commodities transported in and outside the Province at the 3 rail lines.

Table 7-48: Summary of Main Commodities transported inbound and outbound in Limpopo

LINE	MAIN COMMODITIES HANDLED	DIRECTION OF FREIGHT	ORIGIN	DESTINATION
Pretoria Musina	Petroleum Liquid	Inbound	Various Provinces	Polokwane, Musina, Mokopane, Louis Trichardt
	Maize	Inbound	Various Provinces	Polokwane, Musina, Mokopane, Louis Trichardt
	Coal	Outbound	Musina	Bijlkor
	Lime products	Outbound	Bela Bela	Pyramid Suid
Groenbult-Komatipoort	Petroleum Liquid	Inbound	Various Provinces	Tzaneen
	Citrus Fruits	Outbound	Lesitele, Orangene	Durban, Maputo, WC
Lephalale- North West	Coal	Outbound	Lephalale	Various Provinces
	Iron Ore	Outbound	Thabazimbi	Vereeniging
	Gypsum	Inbound	Gauteng, Northern Cape	Middelwit

7.4 Air Freight Profile

There are currently two airports that handle substantial air freight in Limpopo Province namely Polokwane and Phalaborwa airports. This section presents current air freight profiles at these airports as well as potential freight movement at other airports located within the jurisdiction of the Province. Historic data on this issue is not available.

7.4.1 Air Freight – Polokwane Airport

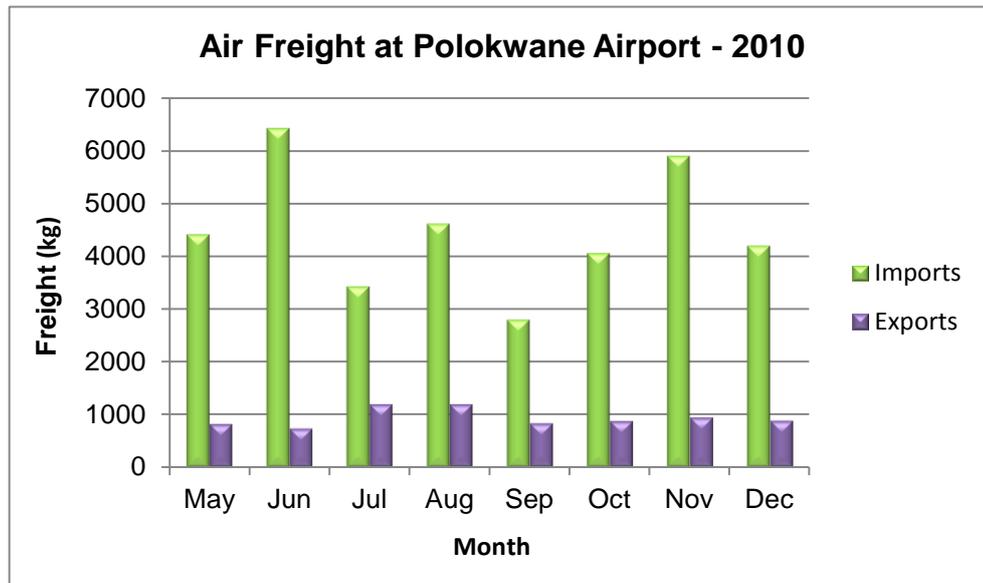
There is currently a domestic route being operated between OR Tambo international Airport and Polokwane International Airport. Table 7-49 shows current operations between the two freight routes:

Table 7-49: Air Routes to Polokwane International Airport

AIR ROUTE	NUMBER OF FLIGHTS PER DAY	FREQUENCY PER WEEK
Johannesburg – Polokwane	7	39
Polokwane – Johannesburg		

Figure 7-49 provides the air freight handled at Polokwane Airport from May to December 2010, as provided by Airlink.

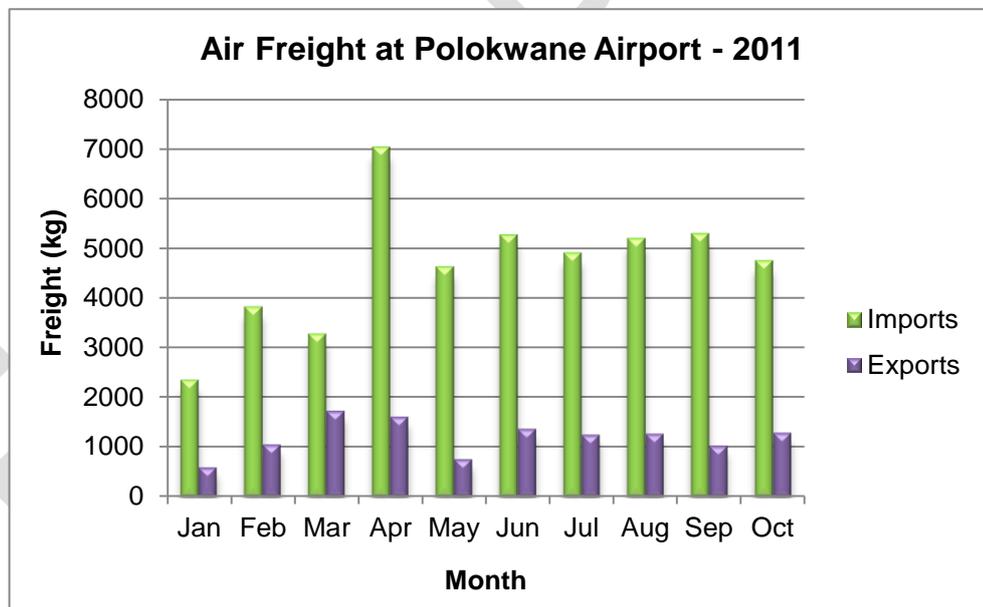
Figure 7-49: Air Freight moved at Polokwane Airport in 2010



It is evident that there were more imports than exports handled at the airport during May to December 2010, and June and November were the peak months. According to the Limpopo Freight Data Bank Review, 2010/2011, a total of 35,897 kg of air freight was imported for the period under consideration, with an average of 4,487 kg imported per month. While in the same period a total of 7,385 kg was exported from the airport.

Figure 7-50 provides the air freight handled at Polokwane Airport from January to October 2011, as provided by Airlink.

Figure 7-50: Air Freight moved at Polokwane Airport in 2011



More imports were handled as compared to exports moved from January to October 2011 at Polokwane Airport. A total of 46,622 kg of import cargo was received the airport at an average of 4,662 kilograms per month. While a total of 11,862 kg was export cargo was transported to other Provinces and countries at 1,186 kg per month.

Polokwane Airport

A comparison of imports and exports attained between 2010 and 2011 for the months of May to October as well as the % increase/decrease thereof at Polokwane Airport was determined.

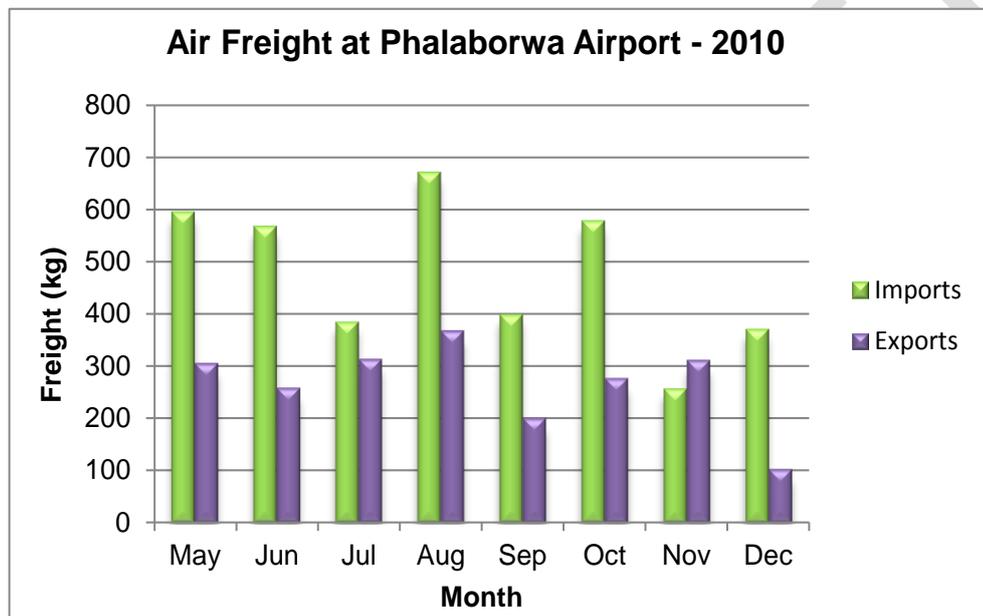
The comparison between 2010 and 2011 resulted in an increase in imports ranging from 5% to 89% with September recording the highest increase (89%) and May the least increase (5%). It was observed that June recorded a decrease (-18%) in the quantity of commodities imported at Polokwane Airport.

The increase in exports attained for the same period was relatively the same as the imports and ranged from 5% to 87%. The highest increase in exports was observed in June (87%) and the least increase in July (5%). A decline of -7% in the quantity of exports was observed in May.

Phalaborwa Airport

Figure 7-51 provides the air freight handled at Phalaborwa Airport from May to December 2010.

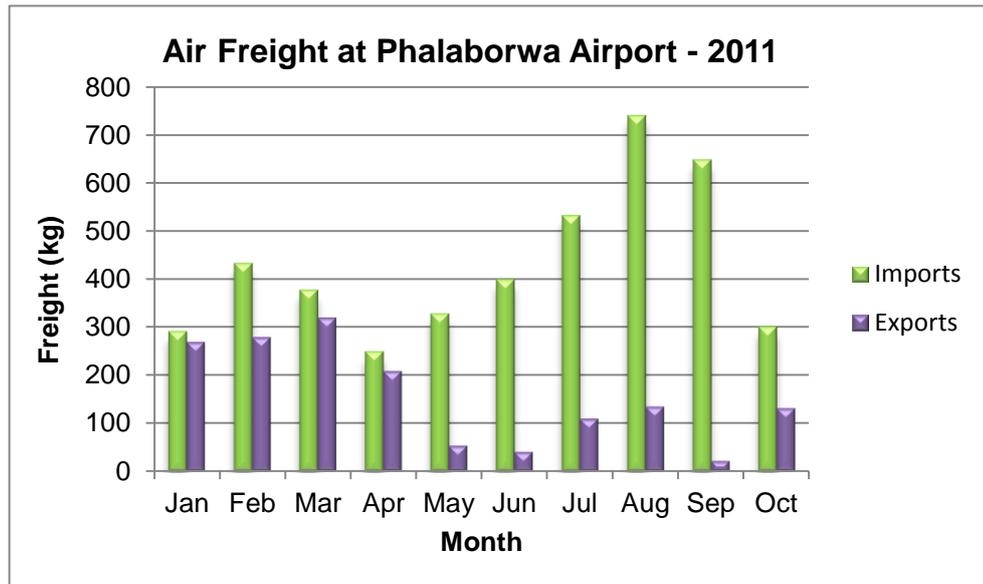
Figure 7-51: Air Freight moved at Phalaborwa Airport in 2010



The figure illustrates that a total of 3,824 kg was imported and 2,133 kg exported at Phalaborwa Airport from May to December 2010. On average about 478 kg imports and 266 kg exports are were handled per month during the period under consideration.

Figure 7-52 provides the air freight moved at Phalaborwa Airport from January to October 2011.

Figure 7-52: Air Freight moved at Phalaborwa Airport in 2011



The figure shows that the amount of freight handled at Phalaborwa Airport fluctuated over the months. Import cargo was mostly handled at the airport a total of 4,308 kg was received while about 1,571 kg was transported to other Provinces during January to October 2011.

Table 7-50 provides the comparison of imports and exports made in 2010 and 2011, for the months of May to October at Phalaborwa Airport, as well as the percentage increases/decreases thereof.

Table 7-50: The Percentage Increase of Imports and exports at Phalaborwa Airport between the years 2010-2011

MONTH	2010		2011		% INCREASE/DECREASE	
	IMPORTS (kg)	EXPORTS (kg)	IMPORTS (kg)	EXPORTS (kg)	IMPORTS	EXPORTS
May	595	305	329	54	-45%	-82%
June	568	258	400	41	-30%	-84%
July	385	313	533	110	38%	-65%
August	671	367	741	135	10%	-63%
September	399	200	649	22	63%	-89%
October	578	276	302	132	-48%	-52%

Table 7-50 shows that the quantity of exports transported at the Phalaborwa airport decreased in 2011 by over 50% in all the months under consideration. While for imports, decreases were observed in May, June and October. Nonetheless increases in imports were seen in July to September and the highest increase was recorded in September (63%) and the least in August (10%).

7.4.2 Comparison of Air Freight handled in Polokwane and Phalaborwa Airports

Table 7-51 presents air freight for 2010 (May-Dec) and 2011 (Jan-Oct) handled at Polokwane and Phalaborwa airports.

Table 7-51: Tonnage of Imports and Exports at Phalaborwa and Polokwane Airports

	MAY-DEC 2010		JAN-OCT 2011	
	IMPORTS (tons)	EXPORTS (tons)	IMPORTS (tons)	EXPORTS (tons)
Phalaborwa	3.8	2.1	4.3	1.6
Polokwane	35.9	7.4	46.6	11.9
Total	39.7	9.5	50.9	13.5

Source: Airlink 2011

The following observations are made:

- There were more imports than exports at Phalaborwa and Polokwane airports in the surveyed months in 2010 and 2011;
- Polokwane airport moves higher tons of commodities as compared to Phalaborwa airport;
- A total tonnage of about 39.7 was imported to Limpopo Province from both airports as opposed to 9.5 tons exported in May-December 2010;
- In 2011 (January to October), the total tonnage imported and exported in the Province escalated to 50.9 and 13.5 tons respectively.

7.4.3 Air Freight Potential in Limpopo Province

Table 7-52 presents the air freight potential at the available airports in the Province.

Table 7-52: Air Freight Potential at Provincial Airports

AIRPORT IN LIMPOPO	FREIGHT POTENTIAL	DESCRIPTION
Burgersfort	low	There is hardly any high-value freight in the area, unless significant beneficiation of platinum takes place like manufacturing of high-value products
Musina	low / insignificant	There is no high-value freight in the area and no future projections thereof
Thohoyandou	low	Very little expectation that high-value freight will be available unless agro-processing takes place in the future
Tzaneen	low	Very little beneficiation / manufacturing taking place to produce high-value freight in the area
Phalaborwa	low	Very little beneficiation / manufacturing taking place to produce high-value freight in the area
Lephalale	Limited	Lephalale's economy is envisaged to grow substantially in the next 20 – 30 years but none of the development is envisaged will bring high value freight
Hoedspruit	Limited	Courier type cargo envisaged
Polokwane	High	It is estimated that Polokwane International could attract about 3 600 tonnes of air freight per annum, which equates to about 45 flights by an 80-tonne freighter aircraft

Source: Limpopo Aviation and implementation Plan, 2010

From Table 7-52, it can be established that a majority of the Provincial airports have a low freight potential due to the unavailability and limited possibilities of handling high value freight at respective areas where they are located at. Freight potential would improve in these airports provided significant economic activity take place within the vicinity. These airports include Burgersfort, Musina, Thohoyandou, and Phalaborwa.

Lephalale and Hoedspruit airports have a limited freight potential due to the type of economic activity envisaged to occur in the future in the areas where they are located. Polokwane Airport on the other hand has high air freight potential.

According to the Limpopo Aviation and implementation plan, 2010, Polokwane International Airport is the only airport in the Province with infrastructure suitable for air freight. It is also said to have International status which is necessary to comply with customs requirements. This implies that all international air freight in the Province will have to be flown from and into PIA.

Air freight limitations that will need improvement at Polokwane International Airport include:

- Current economic production patterns in the Province indicate a low potential for air freight;
- The airports are served by smaller planes which limits air freight capacity as these planes were designed for commuter travel not freight movement;
- There is no established air freight market in the Province implying that there is no real demand for air freight. This is due to the unsuitable products or commodities produced in the Province, a weak market structure as well as proximity of the Province to Gauteng and OR Tambo International Airport.

7.5 Future Projected Freight Traffic Volumes

The National Transport Master Plan developed a comprehensive model of the freight transport systems of the country that has been created from the available data, covering ports, road corridors, rail corridors, pipeline transport and air cargo. The information has been collected from a variety of sources, including:

- **Rail freight data** was obtained from Transnet, covering all movements for the financial year 2005;
- **Road freight data** was collated from the 2006 Limpopo databank and then adapted and updated with industry information, press reports, road count information and import-export data;
- **Ports information** was obtained from Transnet National Ports Authority (TNPA) for all commodity movements through all ports for the period 2003 -2008;
- **Pipeline data** was obtained from Transnet for 2006 and was adapted from press reports for envisaged developments and
- **Air Cargo information** was been obtained from ACSA and various sources.

The information was integrated into a model of the national freight system where the origins and destinations of cargo movements were defined into a national matrix of 145 areas (zones) covering the whole country and include transport to and from neighbouring states.

Furthermore a system of 14 major commodity groups was used for the land transport modes in order to make the model manageable and to provide comparability between modes. The commodity groups included (1) Agricultural products; (2) Grains and cereals; (3) Crops and Fruit; (4) Wood and Timber; (5) Beverages; (6) Chemicals; (7) Fuel; (8) Containers; (9) Cement; (10) Iron and Steel; (11) Machine and Vehicles; (12) Coal; (13) Rock and Ores and (14) Others.

The NATMAP freight transport analyses were based on national commodity and major route volumes only – movement of goods between Provinces is not therefore not illustrated. Furthermore, the NATMAP process also excluded urban distribution tonnage and the short haul rural freight movement. The emphasis of the NATMAP Freight Transport Model is therefore on the main commodity groupings and major national corridors and parallel provincial routes.

Outcome of the NATMAP Freight Transport Model per mode is presented below.

7.5.1 Road Mode

Phase 3 of the National Transport Master Plan provided an integrated Infrastructural Plan for the Province that encompassed the road, rail and air mode.

The methodology used to determine required service capacity for passengers and freight operations as well as bottlenecks on provincial and national roads was transport demand modelling (EMME2) and first-order network assessment (FONA). The FONA process produced the following road traffic, presented in Table 7-53.

Table 7-53: FONA Highest Trafficked Roads within Limpopo

ROAD CORRIDOR	HIGHEST TRAFFICKED ROADS WITHIN LIMPOPO		
	MINIMUM	AVERAGE	MAXIMUM
N1	102	1 191	2 366
N11	74	442	1 381
R101	43	143	882
R71	43	117	427
R528	43	98	427
R573	102	141	256
R511	43	73	192
R518	43	63	192
R25	102	102	102
R520	102	102	102
R533	102	102	102
R555	102	102	102
R519	102	102	102
R521	43	63	102
R510	43	89	102
R516	43	89	102
R33	43	81	102
R561	43	71	102
R36	43	51	102
R37	43	51	102

Source: National Transport Master Plan: Limpopo Chapter (October 2009)

Traffic growth patterns are envisaged to take place at the following areas:

- the N1 section between Gauteng and Polokwane;
- the N1 section between Polokwane and Makhado; and
- the N11 section between Mokopane and Groblers Bridge.

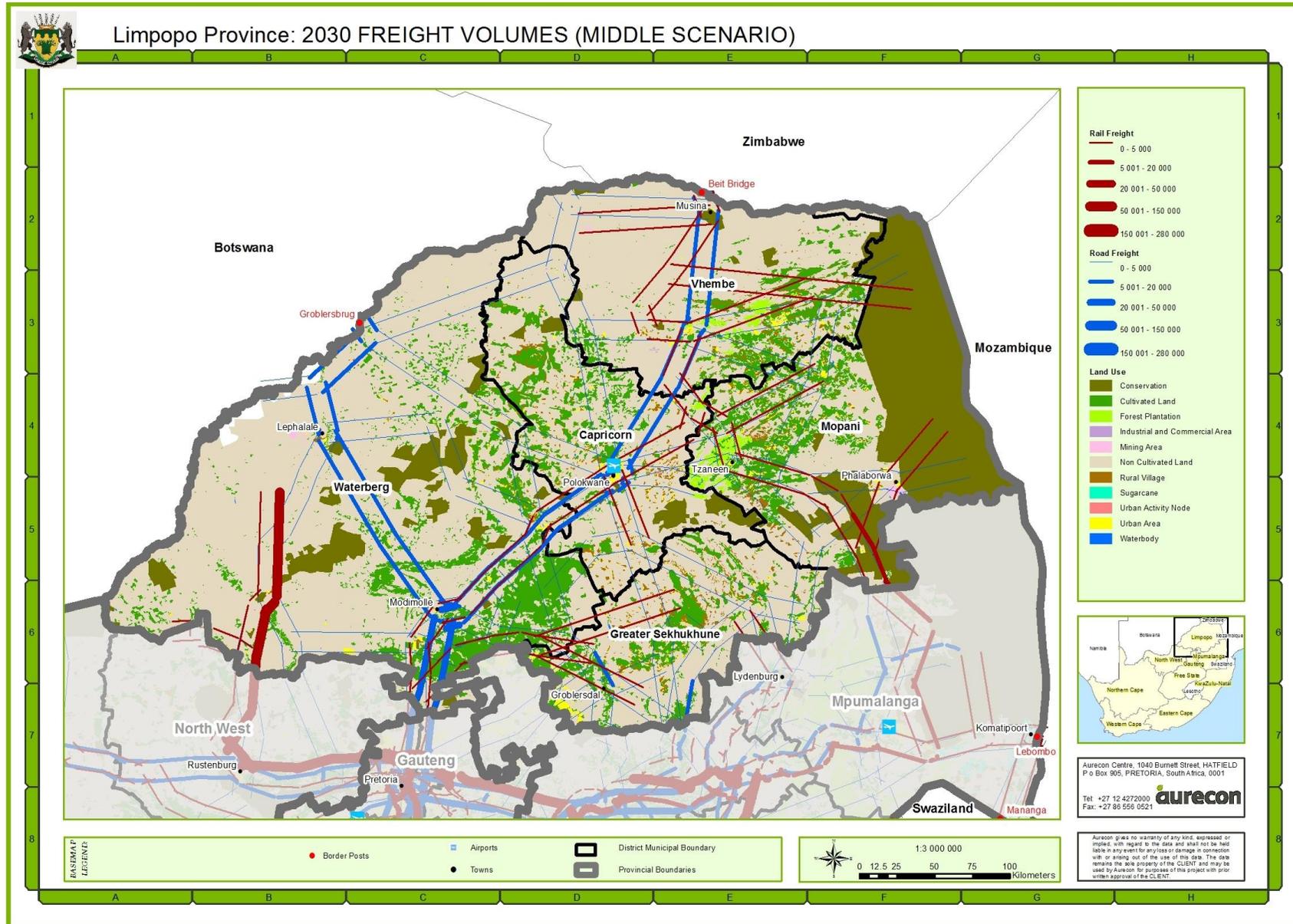
The road freight volumes handled in Limpopo are also expected to increase over the 45 year period. Table 7-54 presents the 2010 to 2050 road freight projections in the Province, with the 2010 and 2030 road freight movement depicted in Map 7-14 and Map 7-15 respectively.

Table 7-54: Current and Future Movement of Road Freight in Limpopo

Road Corridor	ROAD FREIGHT VOLUME (million tons)		
	2010	2030	2050
N1	9.8	<20	
N11	2.2	<5	
Provincial Routes	<1.0	<5	

Source: National Transport Master Plan: Limpopo Chapter (October 2009)

Map 7-15: 2030 Natmap Predicted Freight Volumes



7.5.2 Rail Mode

The rail freight volumes in Limpopo are expected to increase over the coming years. Table 7-55 presents the current (2010) and future rail freight movements in the Province, with the 2010 and 2030 rail freight movement depicted in Map 7-14 and Map 7-15.

Table 7-55: Current and Future Movement of Rail Freight in Limpopo

Rail Corridor	RAIL TONS - NATMAP				
	2010	2020	2030	2040	2050
Gauteng – Musina (Pretoria- Musina Line)	1.9	2.5	3.4	4.4	4.7
Gauteng – Lobatse (Lephalale – NW Border Line)	1.2	1.6	2.2	3.3	3.0
Gauteng – Ressano Garcia – (Groenbult – Komatipoort Line)	1.1	1.5	2.1	3.2	2.9

Source: National Transport Master Plan: Limpopo Chapter (October 2009)

Table 7-55 shows that approximately currently 1.9 million tons of rail freight is expected to be handled on the Gauteng – Musina corridor, 1.2 million tons at Gauteng – Lobatse corridor and 1.1 million tons at the Gauteng – Ressano Garcia corridor. These rail freight volumes per corridor are expected to increase significantly over the coming years. In the year 2050, it is forecasted that freight volumes will increase to 4.7 million tons on the Gauteng – Musina Corridor, 3.0 million tons on the Gauteng Lobatse corridor and 2.9 million on the Gauteng Ressano Garcia.

According to NATMAP projections the coal-link line between Limpopo via Mpumalanga to Maputo is anticipated to carry 2.5 million tonnes of minerals for the current year. The Northern line between Gauteng and Beit Bridge is expected to handle 1.4 million tonnes for 2010, and these volumes are anticipated to grow in line with recovery of mineral exports. The line from Lephalale via North West Province to Gauteng carries 12.7 million tonnes of coal and ores at present.

The annual tonnage on rail between Phalaborwa and Maputo is anticipated to grow to approximately 6 million tonnes, subject to capitalisation for infrastructure, locomotives and rolling stock. Some increase in tonnage is expected on the Northern line to Beit Bridge. The volume on the line from Lephalale to Gauteng is expected to increase in the southbound direction to 16 million tonnes in the period.

The volume on the line from Lephalale to Gauteng is expected to increase in the southbound direction to over 50 million tonnes in the period. Further growth of minerals tonnage is anticipated on the line between Phalaborwa, Hectorspruit and Maputo, with further development of the port terminals for coal and magnetite. Exports on the Richards Bay coal line are expected to level off before 2050, but a significant tonnage will be derived from Limpopo.

7.5.3 Air Mode

The Feasibility Study for the Development Options for Polokwane International Airport (April 2009) provided potential inbound and outbound cargo demand at the Polokwane Airport.

The following assumptions were used as a base of developing the options:

- Current fresh produce statistics were used to derive the base cargo tonnage for all fresh produce;
- Current tonnage carried by SAA Airlink were also an input;
- Mining, manufacturing and other sectors that are not traditional users of freight services are assumed to be potential customers once facilities are available;
- Cargo handling facilities and infrastructure are installed at the airport; and

- An annual growth rate of 2% was assumed for all commodities except for tomatoes (15% growth rate) and citrus (6% growth rate).

Furthermore to the above, the following analytical assumptions were made:

- 10% of the agricultural production will be exported through the airport starting in 2010;
- 10% of courier express deliveries couriered from Limpopo will pass through the airport;
- 5% of manufacturing, mining and other sectors tonnage will be exported from Limpopo; and
- Southbound cargo into the airport will grow from a 14% of the total outbound capacity in 2010, with a general increase of 2% per annum.

The scenarios generated include:

- Scenario 1 (Base Case) – all markets available to the airport are appropriately penetrated. Thus a full market potential is achieved;
- Scenario 2 - an optimistic outlook with an above average air traffic movement through the airport; and
- Scenario 3 – a pessimistic outlook to average traffic movement, with general low economic growth in South Africa and Limpopo, coupled with weakened destination marketing.

Summary of the above assumptions are captured in Table 7-56.

Table 7-56: Scenario Assumption for Freight Modelling at Polokwane International Airport

RATIO OF TONNAGE TO BE EXPORTED FROM THE AIRPORT	SCENARIOS		
	BASE CASE	OPTIMISTIC	PESSIMISTIC
Agriculture Produce	10	20	5
Courier Express Delivery	10	30	5
Manufacturing, Mining and Other Sectors	20	30	5

Source: Final Report: Feasibility Study for the Development Options for Polokwane International Airport, April 2009

According to the report Scenario 3 was considered to the most likely scenario at the stage of preparing the analysis. The following are the outcome of this scenario:

- A total cargo tonnage of 156, 000 tonnes can be achieved during the base year; and
- Utilisation level of cargo aircraft is relatively low at 36%, but growing rapidly above 82% after the base year.

Further to the analysis the report also provided the following potential challenges:

- Efforts for economic development and transport infrastructure provision are not coordinated;
- Positioning strategy for the airport needs to be assessed – does the airport become a business hub like OR Tambo International Airport or does it remain a cargo hub;
- Sustaining the attractiveness of the route;

The above findings were used to develop the airport's development options, with cargo related presented in Table 7-57.

Table 7-57: Cargo Development Option Analysis at Polokwane International Airport

DEVELOPMENT OPTION	PATH DECRPTION	ENVIRONMENTAL SCAN	KEY FACTORS TO CONSIDER
Small cargo handling facilities on existing site	New development inside airport perimeter	<ul style="list-style-type: none"> • SAA Airlink bumping off cargo; • Mostly for rest of SA bound cargo 	<ul style="list-style-type: none"> • Competitive pricing against road transport; • Bigger and more airlines; • Belly cargo focus; • Airline operators with freight handling and forward capacity; • Better use of unutilised hangar space
Major cargo handling facilities on the airside	New development at the entrance of the airport and outside airport perimeter	<ul style="list-style-type: none"> • Severe competition from road freighting; • Cargo trends follow the direction of economically-downturn means decrease in cargo; • Most agricultural produce very bulky; • Most mining produce bulky and non-perishable – no beneficiation; • Transportation to ports and shipped; • Not economical, air-freighting too expensive; • Virtually no international freighting possible for other airports outside of ORTIA; • Dead legs on return international and African cargo freight flights; • Potential fresh product demand throughout the year 	<ul style="list-style-type: none"> • Competitive pricing with road transport; • Bigger and more airlines at airport to seek competition • Belly cargo and all-cargo freighting focus • International route – market development • Operate belly cargo in Africa to avoid dead legs; • Operate both belly-cargo and all cargo from European routes; • Have to have freight handling and forwarders based at the airport; • Needs to be driven as a provincial priority; • Needs significant provincial initiative implementation; • Needs government subsidisation; and • Long term focus

Source: Final Report: Feasibility Study for the Development Options for Polokwane International Airport, April 2009

The final recommendations for further preliminary feasibility assessment include the implementation of a small new cargo facility with a new hotel, conference centre, commercial and retail.

The final risk assessment of the above recommendation indicated that:

- Gateway Airports Authority Limited will carry the primary risk for the development and maintenance;
- The risk is of high level; and
- The likelihood of mitigating GAAL's risk is low.

7.5.4 Conclusion

Overall there is significant growth in the freight that needs to be transported in future in Limpopo province by means of road, rail and air. Infrastructure investment should be aligned to meet these future demands and freight operations activities should be optimised as this is critical to the overall success of freight transport in Limpopo province.

Furthermore the unique location of Limpopo province within South Africa means that the situation and needs in neighbouring countries have a direct effect on the transport network of Limpopo, especially on freight volumes.

7.6 Freight Transport Safety

7.6.1 Railway Safety

The Railway Safety Regulator (RSR) has been mandated by the Department of Transport to regulate railway safety in the country.

RSR make use of standards, regulations and the Act to implement its mandate, which includes provision of safety management systems and technical control. Their mandate spans across the regulation the safety of new lines; existing mainlines and branch-lines as well as the safety of any revitalised railways.

The RSR oversees the safe operation of all surface railways within South Africa – ranging from small private sliding handling infrequent rail traffic to Transnet and PRASA. RSR has segmented operators by industry.

Table 7-58: Railway Operation Classification for Regulation Purposes

RISK PROFILE	INDUSTRY	OPERATIONAL SITES
High	Class 1 railways (incl. Transnet Rail Freight and PRASA)	67
	Petro-chemicals	107
	Tourism	16
Medium	Manufacturing	216
	Mining	68
	Municipality	18
	Ports	26
Low	Sidings / terminals	47
	Agriculture	217

Source: Railway Safety Regulator 2008/09 Annual Report

Limpopo Province had 5 operational sites by 2008/2009. Each operator is required by law to report railway occurrences to the RSR. The major occurrence reported by Transnet Freight Rail includes derauling and collisions, whilst vandalism and theft of operational assets is the main security-related occurrence.

In keeping with the objective of building viable and sustainable rail transportation network recourse is needed to address the trend of unsafe and unsecure railway network. The 2007/08 State of the Railway Safety Report drew the following findings:

- General state of railway safety and security has not improved;
- The cost associated with incidents were still high and impact negatively on the reliability of railway operations;
- Causes of rail occurrences include (1) poor state of infrastructure and rolling stock; (2) human error; (3) poor maintenance; and (4) poor management practices and inadequate operating procedures; and
- Perception regarding rail safety, security and operational efficiency is negative.

7.6.2 Road Safety

The Road Traffic Management Cooperation (RTMC) has been mandated by the Department of Transport to regulate road safety in the country.

Some of the roles of RTMC include investigation and recording of road crash data on a national basis and manage and oversee the National Incident Management Programme; providing reliable and accurate traffic information and administering the Adjudication of Road Traffic Offences.

Within this section the following road safety aspects are provided:

- Historic and current number of registered heavy vehicles;
- Historic and current million vehicle-kilometer travelled; and
- Historic and current accidents information.

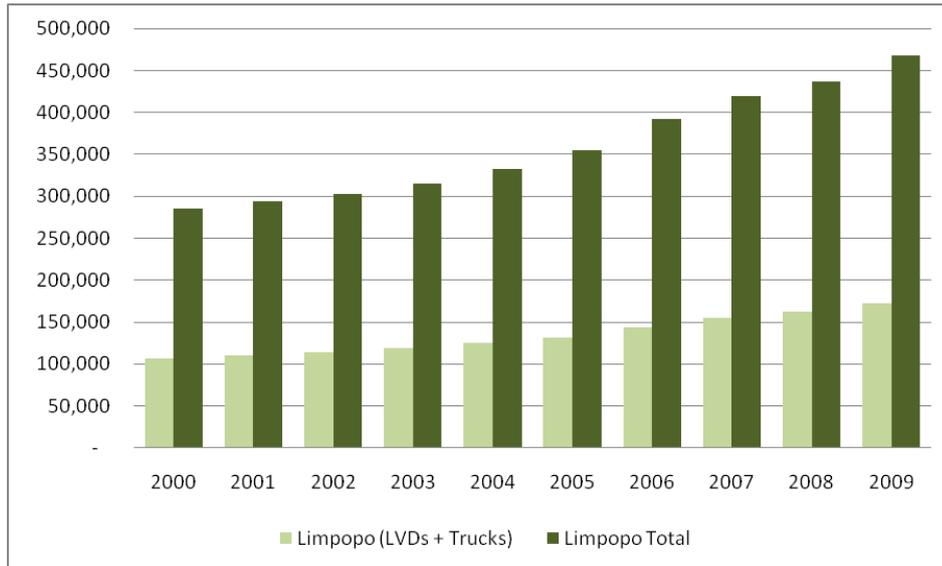
Historic information is based on the 2006 Limpopo Freight Databank as well as the RTMC's Road Traffic Report of 2006 and 2007. Current information is extracted from the RTMC's Road Traffic Report of 2009.

Number of Registered Vehicles

The 2009 database of registered vehicles provided vehicle registration for a period of 2000 to 2009 in the Province. The information is divided into the different modes of transport, with the light delivery vehicles (LDVs) and trucks constituting freight transport vehicles. The following observations are made:

- On average a total of 360, 000 vehicles are registered in the Province per annum – constituting between 4-5% of the national registered vehicles;
- Approximately 105, 000 freight vehicles were registered in 2000, constituting 37% of the registered vehicles in Limpopo;
- The number of freight vehicles registered in Limpopo increase to 173, 000 vehicles, constituting 37% of registered vehicles in Limpopo.

Figure 7-53: Number of Registered Vehicles in Limpopo

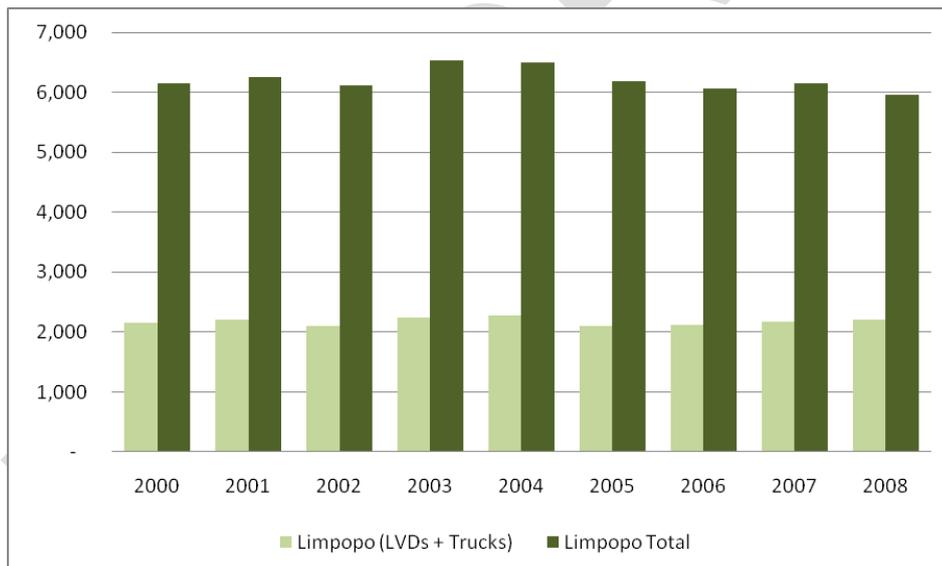


Source: Road Traffic Management Cooperation, 2009

Distance Travelled

The 2009 database of million vehicles vehicle-kilometre travelled is shown in Figure 7-54.

Figure 7-54: Number of Vehicle-Kilometre Travelled in Limpopo

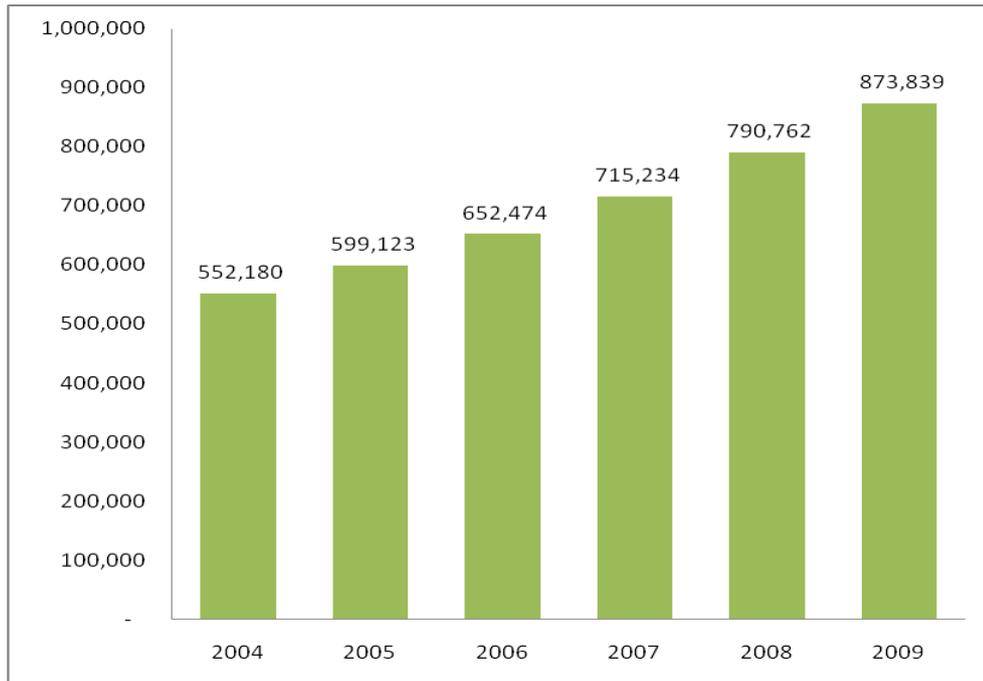


Source: Road Traffic Management Cooperation, 2009

On average a total of 2,200 million vehicle-kilometer were travelled in the Province, with the highest record of 2,275 million vehicle-kilometer in 2004. On average the total million vehicle-kilometer travelled by freight vehicles constitute 35% of the total million vehicle-kilometer in the Province. On average each freight vehicle travelled 63, 000 kilometers per annum, with the highest record captured for 2001.

Figure 7-55 shows the extent of professional driver registration between 2004 and 2009. The extent of professional driver registration captured in the figure below comprises of general goods category, a mixture of passenger and goods category; dangerous good and general goods category and a mixture of dangerous goods, passenger and general goods category.

Figure 7-55: Extent of Professional Driver Registration (2004 – 2009)



Source: Road Traffic Management Cooperation, 2009

There is an increase in the issuing of professional licenses over the 6 year period, with an increase of between 8 – 10% per annum. Currently the Province has over 875, 000 professional licenses issued.

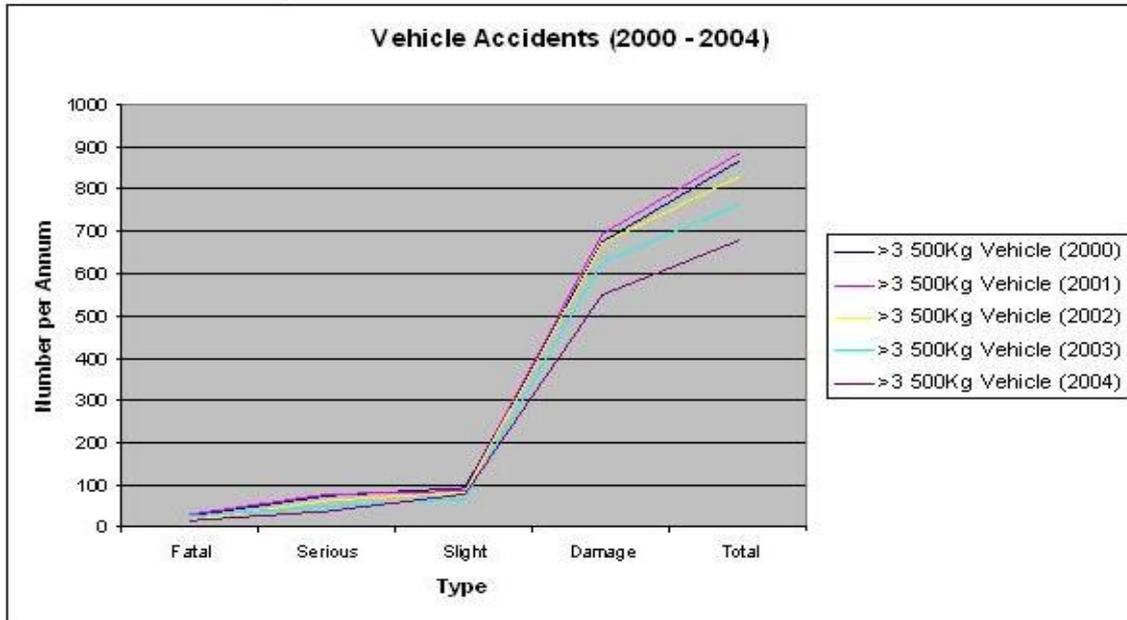
Account of Freight Vehicles Accidents

Accidents occurring on provincial and municipal roads are reported by SAPS or Road Traffic Officers, and those occurring on the national routes by the toll concessionaire or DoT. Historically the main causes of freight vehicle accidents in Limpopo were due to a combination of two or more of the following:

- Fatigue – 90% of accidents;
- Ignorance of speed limit – 50% of accidents;
- Overtaking – 50% of accidents;
- Non-roadworthiness – 50% of accidents;
- Driving under the influence of alcohol– 25% of accidents;
- Poor roads – 50% of accidents and
- Other reasons – 25% of the accidents.

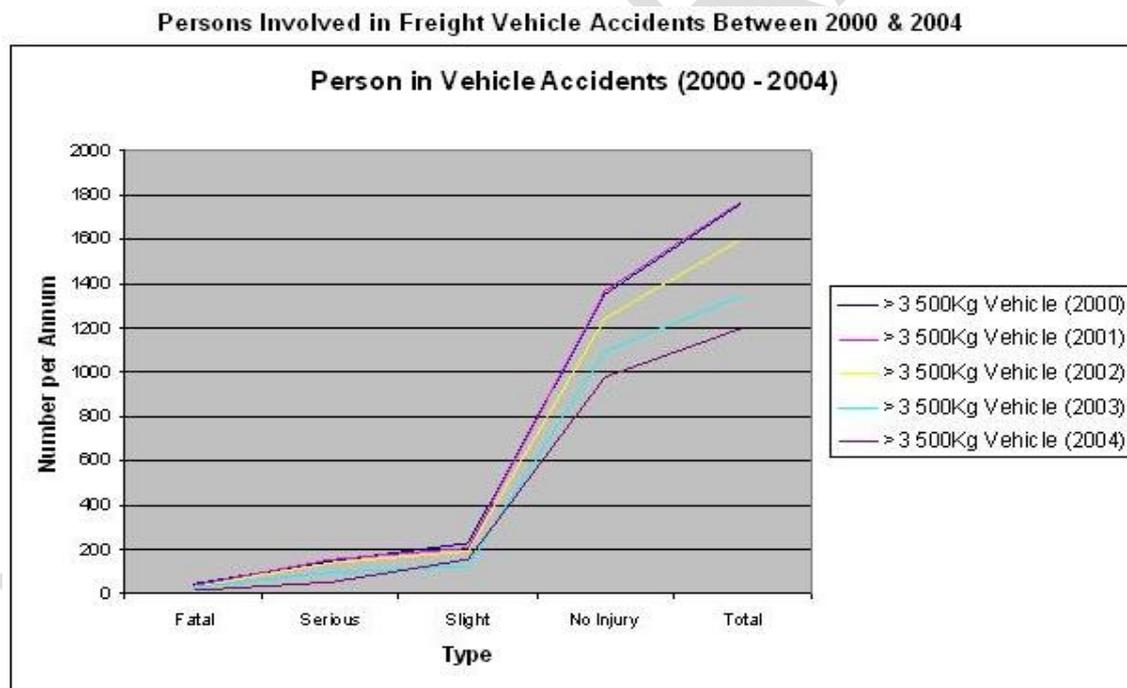
Figure 7-56 and Figure 7-57 illustrate the freight vehicle accidents between the years 2000 and 2004 for vehicles with a mass greater than 3 500Kg and injuries to persons.

Figure 7-56: Freight Vehicle Accidents (2000 – 2004)



Source: Limpopo Freight Databank, 2006

Figure 7-57: Persons involved in Vehicle Accidents (2000 – 2004)

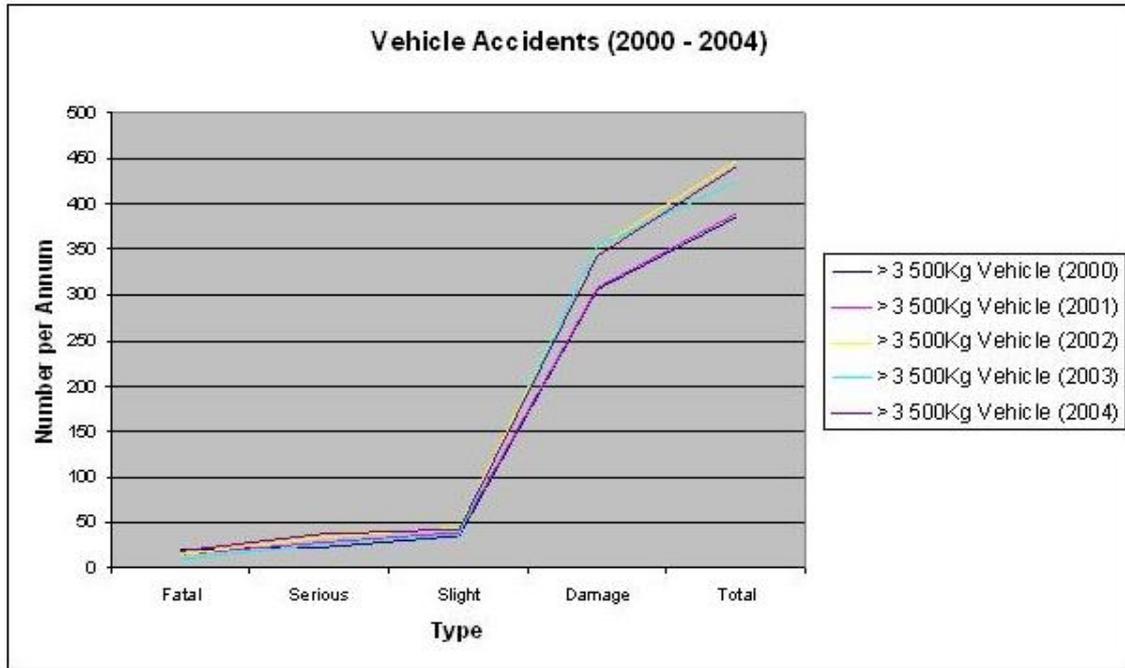


Source: Limpopo Freight Databank, 2006

The graphs indicate a steady decline in both the accidents and the number of people involved for the four year period.

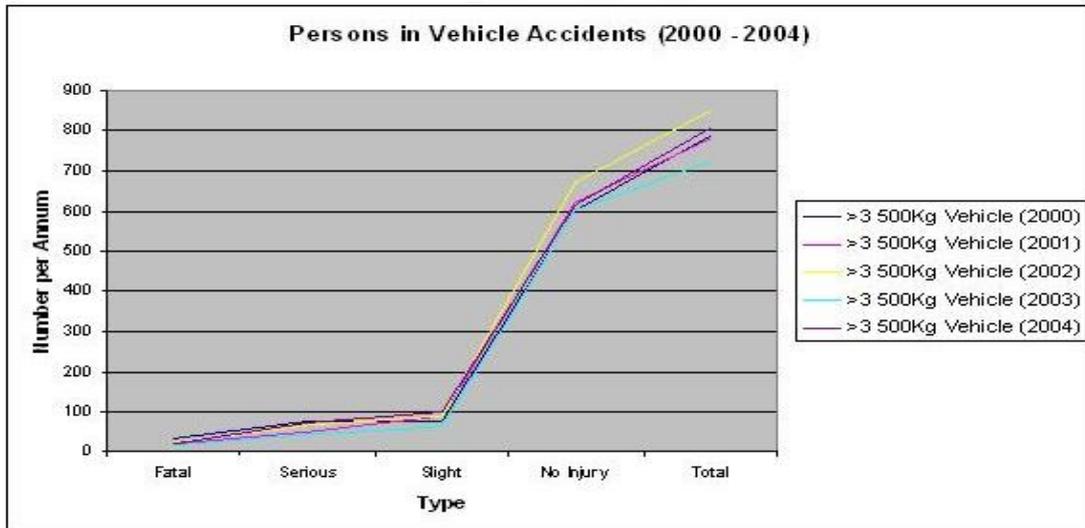
Figure 7-58 and Figure 7-59 illustrate the number of freight vehicle accidents for articulated trucks and injuries to persons between 2000 and 2004. The graphs indicate that the number of accidents for articulated trucks and the number of people involved remained constant.

Figure 7-58: Articulated Freight Vehicle Accidents (2000 – 2004)



Source: Limpopo Freight Databank, 2006

Figure 7-59: Persons involved in Articulated Vehicle Accidents (2000 – 2004)



Source: Limpopo Freight Databank, 2006

Current fatal crash statistics for freight vehicles in Limpopo is shown in Table 7-59.

Table 7-59: Fatal Crash Statistics by type of Freight Vehicle

TYPE OF VEHICLE	FATAL CRASHES BY TYPE OF FREIGHT			
	2007/08		2008/09	
	NUMBER	%	NUMBERS	%
LDV	354	84%	393	85%
Trucks	69	16%	65	15%
Provincial Total	423	11%	458	13%
National Total	3991		3546	

Source: Road Traffic Report, September 2009

There was a decrease in the number of trucks related crashes in Limpopo, whilst fatal crashes involving light delivery vehicles increased between 2007 and 2008. The Province experienced a reduction in the number of fatal crashes involving freight vehicles in the Province, whilst the national total decreased during the same period.

Current statistics of persons involved in freight vehicles crashes in Limpopo is shown in Table 7-60.

Table 7-60: Fatalities by type of Freight Vehicle

TYPE OF VEHICLE	FATAL CRASHES BY TYPE OF FREIGHT			
	2007/08		2008/09	
	NUMBER	%	NUMBERS	%
Freight Vehicles	296	32%	320	31%
Provincial Total	932	11%	1044	12%
National Total	8582		8911	

Source: Road Traffic Report, September 2009

There was an increase in the number of persons (drivers and passengers) who lost their lives during freight vehicles crashes between 2007 and 2008. The provincial statistics as well as the national statistics increased during the same period. Over and above the fatalities shown in the table above, the 2009 Road Traffic Report recorded pedestrian deaths that involved freight vehicles of over 100 persons for both the 2007/08 and 2008/09 period.

7.6.3 Air Safety

The Air Traffic and Navigation Services Company (ATNS) are mandated by the Department of Transport to regulate air services and navigation in the country. At the Polokwane International Airport air traffic control is provided through the following levels:

- Air traffic control services are housed in the control tower;
- SAPS Ports of Entry is located on the ground floor;

Air traffic and navigation services are operational from 06h00 to 20h00 throughout the week.

Current air control and navigation aids are considered to be adequate for the current visual approach operations at the Polokwane International Airport. It was however recommended that destination and intersection signs should be upgraded to assist pilots during taxing. Furthermore, it was observed that additional visual and navigational aids will be required if traffic movements are to increase.

7.7 Freight Transport Operations Assessment

Table 7-61 below presents an overview of the main strengths, weaknesses, opportunities and threats (SWOT)¹⁹ with regard to freight transport operations in Limpopo Province.

¹⁹ During Workshop 1 and Stakeholder Interviews; National Freight Logistics Strategy; National Overload Control Strategy; Limpopo Chapter of the National Transport Master Plan.

Table 7-61: SWOT Assessment of Freight Transport Operations in Limpopo Province

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> Development and promotion of rail safety culture Through interventions such as safety audits, inspections, occurrence investigation; introduction of safety management system and development of safety standards operators are able to place rail safety as part of operational performance. 	<ul style="list-style-type: none"> Overloading Control causing maintenance problem A major cause of road maintenance problems in the Province, as elsewhere in South Africa, is the overloading of heavy vehicles. The effect of overloading does not only increases the maintenance challenge faced by the Province, but also raises costs of other transport operators (due to higher vehicle maintenance costs), and seriously compromises road safety. National statistics on overloading suggest that overloading is a substantial problem in the Province – the Province shows a 22% overloads versus a national average of 28%.
	<ul style="list-style-type: none"> Transportation of Dangerous Goods not comprehensive In spite of extensive development of legislation for control of the transport of dangerous goods by road, there is very little effective control of these operations. The main problem is that the legislation has become so complex as to be incomprehensible to most casual operators and the enforcement officials, with the result that it is largely ignored until disasters occur.
	<ul style="list-style-type: none"> Reduced Operating Efficiency To illustrate the impact of reduced operations an example on the North-South Corridor operation between Phalaborwa and Richards Bay is summarised: <ul style="list-style-type: none"> The designed turn time between Phalaborwa and Richards Bay is 96 hours for the round trip; Currently the turn time is recorded at between 120 and 150 hours; The reasons for increased turn time include (1) unreliability of both diesel and electric locomotives as well as (2) the effect of traffic delays due to subsequent breakdowns. Hold ups in the change from electric to diesel traction at Komatipoort because of poorly timed train connections and air brake test delays is also a major factor.
	<ul style="list-style-type: none"> Lack of Efficiency at Border Posts The lack of efficiency at border posts particularly at Beit Bridge Border post has been raised by Provincial policies as another challenge hindering the development of freight transport in Limpopo. This has eventuated due to the lack of cooperation from the Customs and Excise on the use of standardised freight operator's documentation for the SADC region.

	The lack of freight infrastructure facilities at the border posts, as well as the lack of sufficient border post officers to deal with the heavy traffic volumes, are challenges encountered at the borders which result in the lack of efficiency.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Potential for Airport Hub at Polokwane International Airport 	<ul style="list-style-type: none"> • Loss of Rail Market Share The rail industry has been experiencing loss of market share, which has been attributed to the following attributes: (1) age of equipment; (2) reduced line capacities; (3) reduction in rolling stock and locomotives amongst others. • Reduction in Railway Line Capacity In general, many of the branch lines have operating restrictions in terms of speed and axle loading. • Impact of Tariff Increase Recent rail freight tariff increases ranged from 40 – 90%²⁰, which was expected to be spread over a two year period. The increase in tariff is expected to impact greatly on the movement of certain commodities from rail to road. These commodities are inclusive of grain, sugar cane and forest products. Some of the factors that have impact on the costs of rail transport in South Africa are; <ul style="list-style-type: none"> • The asymmetric distribution of origins and destinations - there are very serious distortions of cargo availability with the major inland origins of bulk freight being approximately 500km from destinations at the ports. • The deregulation of road transport in the 1990's was accompanied by legislation that permits some of the biggest road freight vehicles in the world for usage on the general road system of the country, without geographic restriction. The proliferation of 7 to 9 axle road freight combinations with carrying capacities with up to 40 tons means that their cost per tonne kilometre for two way haulage is comparable with current general cargo tariffs on rail. • Capital expenditure by the railway has been limited for approximately 20 years. A large proportion of the equipment is over 20 years old and much of it is older.

²⁰ National Transport Master Plan: Freight Operations Report, dated February 2009.

7.8 Key Freight Operations Challenges

This section of the report outlines some of the key challenges identified with respect to freight operations in Limpopo. The sources of identification for these freight challenges include stakeholder consultation²¹ and secondary data²².

Table 7-62: Overview of Key Transport Operations Challenges Identified

CATEGORY	CHALLENGES TO BE ADDRESSED
Road Operation	<ul style="list-style-type: none"> Overloading control contributing to deterioration of road infrastructure; Border crossing processing requiring reviewing; Lack of law enforcement; Transport of hazardous materials challenges such as the lack of incident management system (IMS); and Licensing of vehicles and drivers requiring reviewing.
Rail Operations	<ul style="list-style-type: none"> Loss of market share by rail freight; Lack of rail services.
Air Operations	<ul style="list-style-type: none"> The outcome of Polokwane International Airport as a cargo hub.

²¹ During Workshop 1 and Stakeholder Interviews

²² Gateway Air Cargo Study, National Freight Logistics Strategy, National Transport Master Plan (Limpopo chapter)

8. Summary of Infrastructure and Operational Findings

8.1 Provincial Economic Planning and Growth

Chapter 2 and 3 discussed the socio-economic profile of Limpopo province in detail as well as the possible implication on freight transport. From these chapters, the following aspects are highlighted.

8.1.1 The Key Projects Expected to Drive Freight Transport

The key projects that are expected to drive freight transport in Limpopo are aligned to the following provincial development clusters namely:

- Platinum mining cluster on the Dilokong Corridor between Polokwane and Burgersfort (Sekhukhune district) and also in the Waterberg district;
- Coal mining and petrochemical cluster at Lephalale on the East-West Corridor (Waterberg district);
- Fruit and Vegetable (horticulture) cluster in Vhembe, Mopani and Bohlabela;
- Logistics cluster in Polokwane (Capricorn district);
- Red and White meat cluster on all the corridors (all districts);
- Eight tourism sub-clusters at a number of high-potential destinations; and
- Forestry cluster in the Mopani and Vhembe districts.

From these sectors mining and agriculture are the most significant together with associated industries that develops in the province.

8.1.2 Implication of Provincial Economic Plans on Freight Transport Planning

The mining, agriculture and manufacturing economic sectors are expected to triple in size by 2015 in the Province²³. This would imply that more exports will be realised and there will be pressure to get them to the harbours on time. The expansion for transport infrastructure and weighbridge control stations in the Province will have implications on the freight transport planning.

Furthermore the following should be taken into account with freight transport planning for the province:

- **Economic Stability and Good Governance:** Macro-economic stability and good governance promote a steady economic environment and attract foreign direct investment (FDI), which will require well maintained transport network;
- **Regional Integration, Cooperation and Networking:** Clusters are products of a global superstructure – they should therefore be built through interactions with different states. The latter will in turn, ensure that the spill-over effects reach regional scale;
- **Mining Industry:** The envisaged exploiting of untapped minerals will result in a need for bulk movement systems – preferably rail network;
- Furthermore plans to **expand current logistical hubs** (i.e. planned Mining Input Suppliers Parks and Beneficiation Hubs) , that will function as manufacturing innovation centre will require connectivity to ensure movement of manufactured goods;
- **Agricultural and Horticultural Industry:** The viable exporting of vegetable and fruit production offers the Province with an opportunity to increase its economic spectrum. However, it is critical for the Province to ensure the exporting of agricultural products is done to create a competitive transportation market between the different transport mode;

²³ Limpopo Growth & Development Strategy, 2005

- **Manufacturing Industry:** The planned preparation of the Regional Industrial Development Action Plan will require input from the Freight Transport Planning Sector to ensure the incorporating of transport infrastructure needs during the planning stage; and
- **Political Will and Commitment:** While economic clusters can develop spontaneously, government can direct and fast track the process, through well-informed implementation strategies and plans.

8.2 Legal Review and Implications to Freight Transport Planning

Chapter 4 presented freight transport-related legislation. The following key challenges were identified.

8.2.1 Key Freight Legal and Policy Challenges

The following key legal and policy challenges have been identified:

- There is **lack of policy guidelines regarding road infrastructure improvements** to provide more definite collaboration between Government Spheres;
- There is **lack of co-ordination between National, Provincial and Municipal spheres** regarding road transport planning, maintenance and operations in the Province;
- **Lack of capacity to perform legislative functions** - policies, acts, frameworks are enacted at National and Provincial level but there is no mechanism or monitoring strategy to ensure that policy statements, legislation and objectives are effectively implemented;
- **Lack of legislation limiting Freight Transport to Designated National Routes** - the National Freight Logistics Strategy highlights that there should be legislation that will limit freight transport to designated national routes or measures such as pre-tolling should be used to counter the problem of abuse of provincial and regional roads;
- **Lack of Legislation with the Provision of Incentives for Mode Shift from Road to Rail** - the National Freight Logistics Strategy further highlights the lack of legislation providing incentives for mode shift from road to rail as a challenge for freight transport development. Legislative efforts should be made through the new proposed Rail Act to provide incentives to move freight back from the road to the rail mode, provided rail infrastructure and operations are sufficiently improved;
- **Lack of legislation compelling the provision for dedicated lanes for trucks on freight transport routes.** Currently heavy vehicles are mixed up with other vehicles on the roads. This results in conflicts which causes road traffic accidents.
- **Lack of legislation regulating the gathering and dissemination of transport data by the National Department of Transport, provinces, operators etc.** A draft Bill was prepared for the National Department of Transport but no progress has been made to take it through the required legislative processes.
- **Lack of legislation providing for the implementation of the planning, institutional and regulatory recommendations made in the "NATMAP" report.** A draft Bill (National Transport Planning and Implementation Bill) has been prepared and submitted to the National Department of Transport in 2011 but no progress has been made to take it further through the required legislative processes.

NOTE

It is quite evident that over the years many policy frameworks, strategic frameworks, institutional amendments, legislative amendments have been produced with apparently no significant improvement in the regulation of overloading, the protection of the road infrastructure and road safety problems. These problems have existed for many years now and the time has come for all roleplayers involved to make a proper commitment to

improving the existing situation by effectively protecting the road infrastructure, improving rail freight infrastructure and services, implementing professional law enforcement practises, providing the necessary capacity and training to all relevant institutions and by implementing the recommendations made in the NATMAP Report and other policy studies as soon as possible.

It is important to note that the NATMAP 2050 Report also identifies the need for legislative review, but identifies that the biggest problem from a legislative view is that policies and legislation are not implemented; pointing out that proper implementation could have a great effect.

The National Transport Planning and Implementation draft Bill has, amongst others, the following objectives:

- “Consider and provide for an integrated multimodal transport infrastructure facilities development and planning across all spheres of government. The planning elements relating to multi-modal infrastructure will be incorporated in the proposed Bill.
- Consider provision for mandatory disclosures of all contents of containers at all points of entry and exit to and from the Republic.
- To empower the Department to identify and provide for sources of funding and to harmonize the same in all spheres of government with regards to the Constitution, 1996, The Provincial Tax Regulation Process Act, The Public Finance Management Act, The Municipal Finance Management Act and the Municipal Fiscal Powers and Functions Act.
- To make an enforceable provision for transport data collection as and when required by the Department, and/ or other transport institution in the three spheres of governance during the National Population Census Survey.
- The proposals contained in NATMAP 2050 regarding the Multi-modal Policy Forum, and in particular consideration of the two options given, namely the options of a forum being established by legislation or informally as a non-statutory structure.
- To ensure that the structures established to undertake transport planning have full access to information from all custodians of relevant and or desired transportation information e.g.; SARS, STATS SA, and from the private sector to enable proper planning to be done.

It is therefore very important that the National Department of Transport proceeds with the enacting of this draft Bill which will lead to many improvements with regard to the above-mentioned problems and constraints identified in this report.

8.3 Freight Institutional Set up and Implications to Freight Transport Planning

Chapter 5 presented key institutions involved in freight transport planning together with their mandate and responsibility. The following main institutional requirements and implications for freight transport were determined.

8.3.1 Freight Institutional Set Up

INSTITUTION	MANDATE	ACT PERMITTING MANDATE	ROLE IN FREIGHT TRANSPORT
Department of Transport	Policy Formulation and Strategic Planning	Constitution of South Africa (1996)	Drafting and implementation of policies and strategies concerning freight transport to ensure (1) reduction in transit, storage and processing time; (2) reduce environmental impact; (3) reduce costs; (4) create integration in the economy and (5) increase capacity of sector

INSTITUTION	MANDATE	ACT PERMITTING MANDATE	ROLE IN FREIGHT TRANSPORT
			<ul style="list-style-type: none"> • Co-develop overloading control strategies in partnership with Provinces • Monitor and disseminate overloading information and trends • Facilitate the management of a safe and internationally competitive regulatory framework for rail, road and air transport • Manage search and rescue operations as well as accident and incident investigations for all transport modes • Manage integrated infrastructure network development • Manage the development and implementation of transport economic regulation frameworks; • Manage logistic border operations and control
Transnet (Pty) Ltd	Rail Infrastructure Provision and Rail Freight Operations	South African Transport Services Act 9 of 1989	<ul style="list-style-type: none"> • Ensure upgrading and maintenance of all main lines • Plan and manage all rail based freight movement; • Work in partnership with special clients (mining) • Development of new routes and creating an conducive environment for investment on existing routes • Managing operational safety
South African National Roads Agency Limited (SANRAL)	National Road Infrastructure Provision	South African National Road agency Limited and the National Roads Act 7 of 1998	<ul style="list-style-type: none"> • Plan, design, construct, operate, manage, rehabilitate and maintain national roads; • Ensure collection of traffic and cross border information on national roads; • Ensure law enforcement and overloading on national roads; • Ensure incident management on national roads; • Generate revenues from the development and management of its assets
Road Traffic Management Corporation (RTMC)	Regulation	Road Traffic Management Corporation Act 20 of 1999	<ul style="list-style-type: none"> • Manage and control the collection, investigation and recording of road crash data on a national basis and manage and oversee the National Incident Management Programme- Provide reliable and accurate traffic information • Administer the Adjudication of Road Traffic Offences
Railway Safety Regulator (RSR)	Regulation	National Railway Safety Regulator Act 16 of 2002	<ul style="list-style-type: none"> • Oversee safety in railway transport, • Oversee safety in the railway transport industry; • Promote the use of rail mode through the improved safety performance; • Develop rail regulatory framework through the development of regulations and standards for safe railway operations • Monitor and ensure compliance to rail regulatory framework; • Collect and disseminate information relating to safe railway operations; • Promote the harmonisation of the

INSTITUTION	MANDATE	ACT PERMITTING MANDATE	ROLE IN FREIGHT TRANSPORT
			railway safety regime of South Africa with Southern African Development Community (SADC) railway operations
Cross Border Road Transport Agency (CBRTA)	Regulation	Cross Border Road Transport Act 4 of 1998	<ul style="list-style-type: none"> Regulate cross border road transport; Facilitate cross border operations; Enforce law cross border operations; Advise the Minister of Transport on matters affecting cross border Control and regulate cross border road transport between RSA and other States through a permit system
South African Civil Aviation authority (SACAA)	Regulation	South African Civil Aviation Authority Act 40 of 1998	<ul style="list-style-type: none"> Control the functioning of the civil aviation industry; Regulate the functioning of the civil aviation industry; Oversee the functioning of the civil aviation industry; Promote the functioning of the civil aviation industry
Air Services Licensing Council (ASLC)	Regulation	Air Services Licensing Act 115 of 1990	<ul style="list-style-type: none"> Control functioning of the domestic air transport services; Regulate functioning of the domestic air transport services; Monitor functioning of the domestic air transport services; Promote functioning of the domestic air transport services
Air Traffic and Navigation Services Company (ATNS)	Regulation	Air Traffic and Navigation Services Company Act 45 of 1993	<ul style="list-style-type: none"> Management of air services and air navigation infrastructure; Operation of air services and air navigation infrastructure; Development of air services and air navigation infrastructure; Maintenance of air services and air navigation infrastructure
Department of Roads and Transport	Coordination	Constitution of South Africa (1996) and the National Land Transport Act (2010)	<ul style="list-style-type: none"> Lead the implementation of the freight strategy Regular management of the freight databank
Road Agency Limpopo	Provincial Road Infrastructure Provision		<ul style="list-style-type: none"> Plan, design, construction and maintenance of road infrastructure; Sourcing alternative source of funding for road infrastructure investment; Data collection on corridors, freight movements and general information on the road network.
Gateway Airports Authority Limited (GAAL)	Provincial Air Infrastructure Provision		<ul style="list-style-type: none"> Plan, design, construction and maintenance of air infrastructure at Polokwane International Airport; Assist in the implementation of the Limpopo Air Cargo hub
Department of Economic Development	Provincial Economic Regulation		<ul style="list-style-type: none"> Promotion of economic planning Lead and integrate provincial local economic development planning To stimulate economic growth through industry development, trade and investment promotion

8.3.2 Implications of Institutional Review to Freight Transport Planning

The main implications identified for Freight Transport Planning are as follows:

- Absence of Freight transport framework at provincial level
Freight Transport is coordinated at the national level through the NFLS and NFMF whilst there is no framework guiding freight transport planning and coordination at the provincial level.
- Freight transport coordination structure is none-existent
A coordination framework guiding interaction on freight related projects is needed to ensure all stakeholders interact in freight transport related matters.
- Fragmented functions of roads between various levels of government
Functions of roads provision between various levels of government is not at par with regarding to funding level as well as competency of resources.
- Strengthening regulatory framework implementation
Regulatory framework for majority of freight transport aspects exist, with the formation of the necessary institutions to implement these frameworks existing. There is however a need to capacitate these statutory bodies to ensure regulatory mandate is achieved.
- Does the rail freight monopoly benefiting the freight industry?
Government owns the bigger portion of transport infrastructure as well as the service providers operating ports, railways excluding road freight. This has led to the monopolization of services provided, allowing service levels and tariffs regulation to achieve profit objective rather than customer satisfaction.

8.4 Transport Infrastructure Provision and Implications to Freight Transport Planning

8.4.1 Freight Transport Infrastructure Assessment

Drawing from Sections 6.2 to 6.5 the purpose of this section is to summarise the findings of the chapter as well as to highlight the strengths, weaknesses, threats and opportunities of the transport infrastructure in Limpopo Province and to present a consolidated list of potential problem areas that should be considered during the development of the Freight Implementation Strategy.

Table 8-1 below presents an overview of the main strengths, weaknesses, opportunities and threats (SWOT) with regard to transport infrastructure in Limpopo Province.

Table 8-1: SWOT Assessment of Transport Infrastructure in Limpopo Province

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> Transport infrastructure in the Province allow for good connectivity with other states The major road route link South Africa with other countries (N1 and N11) 	<ul style="list-style-type: none"> Lack of provincial freight transport corridors The Limpopo Freight Databank collated information along routes of national importance. Some of the provincial routes that are considered to support economic development in Limpopo were not included in the freight databank project. Therefore a need exist to reconcile the road network on which freight vehicles transverse and classify the freight routes to aid the development of a Provincial Freight Transport Corridors.
<ul style="list-style-type: none"> Government’s commitment to improve general transport infrastructure The provincial government’s willingness to redress the challenges facing the transport infrastructure through the establishment of numerous transport infrastructure related strategies. 	<ul style="list-style-type: none"> Network condition is by and large acceptable – however this is not essentially all through the transport system Road hauliers view the surfaced roads in the Province as acceptable on the whole - few interviewees indicated that the secondary transport network constrains their operations. Some of the issues raised include lack of maintenance for secondary network. There are a very high proportion of unpaved roads outside the main transport network, and the poor condition and lack of maintenance of these roads is a concern.
	<ul style="list-style-type: none"> Lack of intermodal infrastructure Three informal intermodal infrastructures were identified during the process of developing the provincial freight databank - Polokwane, Musina and Phalaborwa. The Department of Roads and Transport is currently engaged with Transnet to develop a Citrus Freight Hub to be located in Polokwane.
	<ul style="list-style-type: none"> Ineffective Overloading Control In general, there is poor road infrastructure within the Province, with the exception of the N1. This has been highlighted by a number of policies namely the Limpopo in Motion and Provincial District Integrated Development Plans. The poor road condition is attributable to the excessive overloading of heavy vehicles and has negative implications on the trucks as well as the commodities being transported. It result in high vehicle operating cost for trucks and the commodities being transported are damaged before they even reach their destination. Poor road infrastructure has been identified as one of the major challenges impeding the development of the freight industry in the Province for instance in Vhembe District it has impeded the potential development of the coal mine. Worsening the situation

	is the poor practice of road safety due to lack of road safety improvements mechanisms, lack of road signs, route name and numbers on the Provincial roads. There is also lack of fencing along the main routes which result in stray animals on the roads thus causing road traffic accidents.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> The Development of an Air Cargo Hub The envisaged Polokwane Freight Hub, which is expected to be developed on 40ha land will house a 20ha container terminal and a 20ha warehousing for the fresh produce, cold storage and packing house. In addition to the Polokwane Freight Hub, the Burgersfort / Marble Hall, Hoedspruit, Musina and Tzaneen stations are expected to be improved to intermodal traffic. Potential of growing the air freight market 	<ul style="list-style-type: none"> Inadequate Maintenance Budgets Road freight transport system is totally dependent on the availability of road space and roads of suitable condition for transport of goods. Road infrastructure provision and maintenance become an integral part of ensuring an effective and sufficient road freight transport system. The provision of roads, in the context of space and maintenance is highly dependent on budgets for both national and provincial road upgrade and maintenance. Budgets for roads in Limpopo are allocated by national government based on an “equitable share” model. The Limpopo Province, with more than 17%²⁴ of the national road network and 11% of the population, clearly faces funding challenges.
<ul style="list-style-type: none"> The Development of the Citrus Freight Hub in Polokwane The envisaged Polokwane Freight Hub, which is expected to be developed on 40ha land will house a 20ha container terminal and a 20ha warehousing for the fresh produce, cold storage and packing house. In addition to the Polokwane Freight Hub, the Burgersfort / Marble Hall, Hoedspruit, Musina and Tzaneen stations are expected to be improved to intermodal traffic. 	<ul style="list-style-type: none"> Reduction in Rolling Stock and Locomotive During the planned streamlining of railway services between 1985 and 2000 many locomotives were taken out of service after having had relatively minor break-downs. With corporate downsizing these locomotives were seen to be surplus to future needs. Furthermore the scrapping of wagons – (from 120 000 in the early 1990’s to 80 000). The above reduction caused wagon shortages, which resulted in large quantities of chrome and ferrochrome, domestic coal and grain traffic switching to road transport. Bulk cement producers have been offered wagons, which are not effectively self-offloading, causing them to use road freight hauliers.
<ul style="list-style-type: none"> Potential Partnerships Public - Private Partnerships for building, upgrading transport infrastructure – airports, rail, and roads are feasible. 	

²⁴ Based on 2005 information

8.4.2 Key Transport Infrastructure Challenges

Table 8-2 outlines the imperative issues identified through data collection and stakeholder consultation.

Table 8-2: Overview of Key Transport Infrastructure Challenges Identified

CATEGORY	CHALLENGES TO BE ADDRESSED
Road Transport Infrastructure	<ul style="list-style-type: none"> Contribution to wear, damage and externalities that is caused by heavy vehicles is not adequately considered in Limpopo; Establish the actual road usage cost of different categories of vehicles, to determine the share of road costs that should be allocated to the operation of road freight vehicles; Less than 35% of road network in the Province is paved; General lack of maintenance in all modes of transport. For roads in particular increases road user charges; No dedicated fund for road maintenance and other transport corridors; Lack of calibrated weighing equipment, knowledge and skills, enforcement and supervision to address the issue of overloading; Lack of catering for specific needs of truckers in the provision of proper facilities such as truck stops; and Excessive overloading on roads contributes to further deterioration of roads.
Rail Transport Infrastructure	<ul style="list-style-type: none"> Underutilisation of rail infrastructure; and Presently freight transport mainly consists of road and rail, with limited intermodal freight.
Air Transport Infrastructure	<ul style="list-style-type: none"> Airport infrastructure is underutilized.

8.5 Freight Operations Summary and Implications to Freight Transport Planning

8.5.1 Freight Transport Operations Assessment

Table 8-3 below presents an overview of the main strengths, weaknesses, opportunities and threats (SWOT)²⁵ with regard to freight transport operations in Limpopo Province.

²⁵ During Workshop 1 and Stakeholder Interviews; National Freight Logistics Strategy; National Overload Control Strategy; Limpopo Chapter of the National Transport Master Plan.

Table 8-3: SWOT Assessment of Freight Transport Operations in Limpopo Province

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> Development and promotion of rail safety culture Through interventions such as safety audits, inspections, occurrence investigation; introduction of safety management system and development of safety standards operators are able to place rail safety as part of operational performance. 	<ul style="list-style-type: none"> Overloading Control causing maintenance problem A major cause of road maintenance problems in the Province, as elsewhere in South Africa, is the overloading of heavy vehicles. The effect of overloading does not only increases the maintenance challenge faced by the Province, but also raises costs of other transport operators (due to higher vehicle maintenance costs), and seriously compromises road safety. National statistics on overloading suggest that overloading is a substantial problem in the Province – the Province shows a 22% overloads versus a national average of 28%.
	<ul style="list-style-type: none"> Transportation of Dangerous Goods not comprehensive In spite of extensive development of legislation for control of the transport of dangerous goods by road, there is very little effective control of these operations. The main problem is that the legislation has become so complex as to be incomprehensible to most casual operators and the enforcement officials, with the result that it is largely ignored until disasters occur.
	<ul style="list-style-type: none"> Reduced Operating Efficiency To illustrate the impact of reduced operations an example on the North-South Corridor operation between Phalaborwa and Richards Bay is summarised: <ul style="list-style-type: none"> The designed turn time between Phalaborwa and Richards Bay is 96 hours for the round trip; Currently the turn time is recorded at between 120 and 150 hours; The reasons for increased turn time include (1) unreliability of both diesel and electric locomotives as well as (2) the effect of traffic delays due to subsequent breakdowns. Hold ups in the change from electric to diesel traction at Komatipoort because of poorly timed train connections and air brake test delays is also a major factor.
	<ul style="list-style-type: none"> Lack of Efficiency at Border Posts The lack of efficiency at border posts particularly at Beit Bridge Border post has been raised by Provincial policies as another challenge hindering the development of freight transport in Limpopo. This has eventuated due to the lack of cooperation from the Customs and Excise on the use of standardised freight operator's documentation for the SADC region.

	<p>The lack of freight infrastructure facilities at the border posts, as well as the lack of sufficient border post officers to deal with the heavy traffic volumes, are challenges encountered at the borders which result in the lack of efficiency.</p>
<p>OPPORTUNITIES</p>	<p>THREATS</p>
<ul style="list-style-type: none"> • Potential for Airport Hub at Polokwane International Airport 	<ul style="list-style-type: none"> • Loss of Rail Market Share The rail industry has been experiencing loss of market share, which has been attributed to the following attributes: (1) age of equipment; (2) reduced line capacities; (3) reduction in rolling stock and locomotives amongst others.
	<ul style="list-style-type: none"> • Reduction in Railway Line Capacity In general, many of the branch lines have operating restrictions in terms of speed and axle loading.
	<ul style="list-style-type: none"> • Impact of Tariff Increase Recent rail freight tariff increases ranged from 40 – 90%²⁶, which was expected to be spread over a two year period. The increase in tariff is expected to impact greatly on the movement of certain commodities from rail to road. These commodities are inclusive of grain, sugar cane and forest products. Some of the factors that have impact on the costs of rail transport in South Africa are; <ul style="list-style-type: none"> • The asymmetric distribution of origins and destinations - there are very serious distortions of cargo availability with the major inland origins of bulk freight being approximately 500km from destinations at the ports. • The deregulation of road transport in the 1990's was accompanied by legislation that permits some of the biggest road freight vehicles in the world for usage on the general road system of the country, without geographic restriction. The proliferation of 7 to 9 axle road freight combinations with carrying capacities with up to 40 tons means that their cost per tonne kilometre for two way haulage is comparable with current general cargo tariffs on rail. • Capital expenditure by the railway has been limited for approximately 20 years. A large proportion of the equipment is over 20 years old and much of it is older.

²⁶ National Transport Master Plan: Freight Operations Report, dated February 2009.

8.5.2 Key Freight Operations Challenges

This section of the report outlines some of the key challenges identified with respect to freight operations in Limpopo. The sources of identification for these freight challenges include stakeholder consultation²⁷ and secondary data²⁸.

Table 8-4: Overview of Key Transport Operations Challenges Identified

CATEGORY	CHALLENGES TO BE ADDRESSED
Road Operation	<ul style="list-style-type: none"> Overloading control contributing to deterioration of road infrastructure; Border crossing processing requiring reviewing; Lack of law enforcement; Transport of hazardous materials challenges such as the lack of incident management system (IMS); and Licensing of vehicles and drivers requiring reviewing.
Rail Operations	<ul style="list-style-type: none"> Loss of market share by rail freight; Lack of rail services.
Air Operations	<ul style="list-style-type: none"> The outcome of Polokwane International Airport as a cargo hub.

²⁷ During Workshop 1 and Stakeholder Interviews

²⁸ Gateway Air Cargo Study, National Freight Logistics Strategy, National Transport Master Plan (Limpopo chapter)

9. Conclusion

This document presented the status of freight transport in Limpopo Province. The document presented

- An overview of Limpopo's socio-economic profile;
- Key economic clusters found in Limpopo;
- Key policy documents assessment;
- An assessment of institutional actors that are responsible for providing an enabling environment for movement of goods;
- Freight transport infrastructure review; and
- A description of current freight operations in the Province.

The next step that the project team will undertake to conclude the project is the performance of Freight Transport Gap Analysis for the following aspects – legislation; institutional arrangements; transport infrastructure and freight transport operations. The outcome of Freight Transport Gap Analysis will form an integral part of the formulation of the freight transport implementation strategy.

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APPENDIX A1

Road Hauliers Involved in Data Collection at Mantsole

FINAL DRAFT



	COMPANY NAME	LOCATION
1	Dyanamic Road Freight	Johannesburg
2	HRP	Cape Town
3	Sabot	Zimbabwe
4	Hestony Tradepost	Bloemfontein
5	Wiggil Farms	Limpopo
6	Marble Vervoer	Limpopo
7	Tiger Transport	Zimbabwe
8	SMT	Polokwane
9	Fast Fuel	Limpopo
10	Arctic Rubber	Malawi
11	Bop carriers	Northern cape
12	Reef tankers	Pretoria
13	Marrio meat wholesalers	Germiston
14	Kangola transport	Pretoria
15	Dyanamic Road Freight	Kempton Park
16	CJ Johnson vervoer	Gauteng Brakpan
17	Kira	Limpopo
18	Total	Pretoria
19	Royal parafin	Gauteng Benoni
20	ZZ2	Limpopo
21	Sabot limited	Zimbabwe
22	Sabot limited	Harare
23	Super Group	Durban
24	Ritz en seun meubel Vervoere	Musina
25	imperial logistic	Germiston
26	MSP Transport	Gauteng
27	Wemer logistics	Sasolburg(jhb)
28	Hallander Vervoer	Free State
29	T A Transport	Zimbabwe
30	Premier	Polokwane
31	CS Johnson	Brakpan
32	Zimbulle	Congo
33	Truckafrica	Germiston
34	Dyanamic Road Freight	Pretoria
35	Unitrans	Francistown
36	Refuel	Sandton
37	Manline	Pertemaritzburg
38	Matshwanes	Roodeport
39	Devos	Boskborg
40	Unitrans	Alberton
41	Crossmoot	Pinetown
42	Shaya Supa maize meal	Pretoria
43	Anderson Transport	Cape Town



COMPANY NAME		LOCATION
44	Pesket	Midrand
45	Kemoeti	Berea
46	Durban Clearing	Durban
47	Zimbuk Tankers	Johannesburg
48	Sabot	Zimbabwe Harare
49	Bromax	Limpopo
50	Skeerpoort	Skeerpoort
51	Tanker services	Gauteng
52	JR Du toit	Mpumalanga
53	Unitans	Botswana
54	Sabot Unlimited	Gauteng
55	Germiston FSL	Gauteng
56	Sabot Management limited	Zimbabwe
57	Zalawi	Zambia
58	CR Viser Transport	Gauteng
59	Dynamic Transport	Limpopo
60	EIF	Gauteng
61	Transport Brokers	Harare
62	Tankers Molama	Gauteng
63	Lomar Landgoed Bothaville	Freestate
64	Pick n pay	Gauteng
65	Isuza Carries	Nelspruit
66	ASA	Limpopo
67	Sabot	Zimbabwe
68	Nandi Distributors	Gauteng
69	GDC	Zimbabwe
70	Colbro	Zimbabwe
71	Bisco Plies	Gauteng
72	Unitans	Durban
73	Zambuk Tankers	Jhb
74	Bosveld Saapmetal	Limpopo
75	Jct	Durban
76	Buitendag	Pretoria
77	Xinergistix	Capetown
78	Tanker services	Jhb
79	Caspian Freight	KZN
80	Unitrans	Durban
81	Hallander Vervor	Freestate
82	Xinergistix	Gauteng
83	Xinergistix	Ugie
84	Compressor Values	Gauteng
85	M.C Welthagen	Freestate
86	Transverat	Moderfontein



	COMPANY NAME	LOCATION
87	Reef Tankers	Johannesburg
88	Sally's creatins	Zambia
89	Alsi Logistics	Durban
90	Sasol	Johannesburg
91	Shoprite	Gauteng
92	Dynamic Transport	Durban
93	Transit	Gauteng
94	Shoprite	Midrand
95	Jmarimbire	Gauteng
96	Metalpaints	Gauteng
97	Faith Wheels	Bopsfontein
98	Bosveld Metals	Limpopo
99	Avee	Durban
100	Meadow	Jhb
101	Hestony transport	Freestate
102	Larkon Enterprises	Zimbabwe
103	Machine moving	Johannesburg
104	Costal Petroleum	Pretoria
105	Etosha	Namibia
106	Jo Smit Vervoer	Mpumalanga
107	Deldepoort	Boksburg

APPENDIX A2

Road Freight Operators Operating in Limpopo

FINAL DRAFT



	OPERATOR	LOCATION
1	Afriworld Removals	Bloemfontein
2	Iceburg Trading 680 t/a Iceburg Logistics CC	Bloemfontein
3	Sparta Beef	Bloemfontein
4	Viking Transport	Bloemfontein
5	A & B Movers (Cape Town)	Cape Town
6	AB Logistics (Division of Amcor)	Cape Town
7	Advance Transport	Cape Town
8	Cape Express Removals (Pty) Ltd	Cape Town
9	Execu-Move (Pty) Ltd	Cape Town
10	H & M Removals Worldwide	Cape Town
11	J H Retief Transport	Cape Town
12	Laser Transport Group	Cape Town
13	Pro-Pack Removals	Cape Town
14	Xinergistix Management Services (Pty) Ltd	Cape Town
15	Sifikile Transport	Cape Town & Centurion
16	3G Relocations & Transport	Centurion, Gauteng
17	Freemans Transport (Pty) Ltd	Drakensberg, KwaZulu Natal
18	Biddulphs International	Durban
19	Hughcor	Durban
20	Lovemore Bros Transport (Pty) Ltd	Durban
21	Nadasens Transport (Pty) Ltd	Durban
22	Pam and Mlu Logistics and Shipping CC	Durban
23	Renwood Carriers CC	Durban
24	Stanley Removals cc	Durban
25	Tarzan Carriers CC	Durban
26	Mafuta Transport cc	Free State
27	Agrimol Transport (Pty) Ltd	Gauteng
28	AGS Frasers International	Gauteng
29	Amadwala Freight Consultants	Gauteng
30	Amazing Transport And Warehousing	Gauteng
31	Atang Logistics	Gauteng
32	Auto Commodities (PTY) Ltd	Gauteng
33	Berco Express (Pty) Ltd	Gauteng
34	Brytons Removals of SA cc	Gauteng
35	Canto Carriers (Pty) Ltd	Gauteng
36	Capstone 665 CC	Gauteng
37	Car Towing Services East (Pty) Ltd	Gauteng
38	Cargo Carriers Ltd	Gauteng
39	Carlbank Mining Contracts (Pty) Ltd	Gauteng
40	City Shuttle Trading	Gauteng
41	Colbri Agencies cc	Gauteng
42	Coleman Transport	Gauteng
43	Consolidated Trucking & Logistics (Pty)Ltd	Gauteng
44	Coyote Freight	Gauteng
45	Crossroads Distribution (Pty) Ltd	Gauteng
46	Deugro (South Africa) (PTY) LTD	Gauteng



	OPERATOR	LOCATION
47	DHL International (Pty) Ltd	Gauteng
48	Dumehlezi Transport	Gauteng
49	Econoload (Pty) Ltd.	Gauteng
50	Ecosse Tankers (Pty) Ltd	Gauteng
51	Elliott International (Pty) Ltd	Gauteng
52	Frits Kroon Transport (Pty) Ltd	Gauteng
53	Fuelogic	Gauteng
54	Global Motions	Gauteng
55	Grange Mining Enterprise	Gauteng
56	Imperial Logistics	Gauteng
57	J H Retief Transport	Gauteng
58	Kealo Construction-Logistics cc	Gauteng
59	Liebentrans (Pty) Ltd	Gauteng
60	LTS Bulk cc	Gauteng
61	MacDonald's Transport	Gauteng
62	Makwande Supply and Distribution (Pty)Ltd.	Gauteng
63	Massyn Moves	Gauteng
64	Master Movers International	Gauteng
65	Nesh Freight	Gauteng
66	Nieuwstad Roadfreight (Pty) Ltd	Gauteng
67	Nina Logistics	Gauteng
68	Northern Haulage (SA) (Pty) Ltd	Gauteng
69	NTC Logistics SA (Pty) Ltd	Gauteng
70	O'Neals Transport	Gauteng
71	Ocean Freight & Logistics (Pty) Ltd	Gauteng
72	Omnipact SA Investments 91 (Pty)	Gauteng
73	Patrick Removals (Pty) Ltd	Gauteng
74	Penta Transport	Gauteng
75	Perfecto Carriers (Pty) Ltd	Gauteng
76	Rotran (Pty) Ltd	Gauteng
77	Selection Cartage	Gauteng
78	Siyasebenza Siyabonga	Gauteng
79	Southern Sky Logistics	Gauteng
80	Stix Siyabonga	Gauteng
81	Super Group Ltd	Gauteng
82	Tar-Jet Transport	Gauteng
83	Templer Transport	Gauteng
84	TFD Network Africa (Pty) Ltd.	Gauteng
85	Transfreight International	Gauteng
86	Transvaal Heavy Transport (Pty) Ltd	Gauteng
87	Value Logistics Ltd	Gauteng
88	ZSR Transport	Gauteng
89	Express Hauliers (Pty) Ltd	Isando, Gauteng
90	De Langes Transport	King Williams Town, Eastern Cape
91	Warloc Investments CC	KwaZulu Natal
92	Eagle Logistics cc	Mpumalanga



OPERATOR		LOCATION
93	Marble Vervoer	Mpumalanga
94	North East Carriers (Pty) Ltd	Mpumalanga
95	Suntrans	Mpumalanga
96	Wamatha Logistics	Mpumalanga
97	Haulin' Brothers CC	n/a
98	Kubuta Transport	n/a
99	Luhluhambo Transport & Logistics	n/a
100	Mminanoko Trading and Projects CC	n/a
101	Moribula Business Enterprises	n/a
102	Mponokie Investments	n/a
103	N.D Mokgoatjane t/a NDM Logistics	n/a
104	Northern Cape NINO Investment cc	n/a
105	Orcom Trading 35 (Pty) Ltd t/a Loubser Transport	n/a
106	Van Wettens Breakdown Services	Nelspruit
107	Buffelshoek Transport	North West
108	F J Beukes en Seun Vervoer	North West
109	Outback Transport CC	North West
110	APC Nieuwoudt & Seun	Northern Cape
111	Superdoc Thirteen t/a Lowe Lines	Northern Cape
112	Time Freight	Pietermaritzburg, KwaZulu Natal
113	Fruitone (PTY) Ltd	Polokwane
114	IANI Developers	Polokwane
115	Dacmac Logistics CC	Port Elizabeth
116	Master Trucking CC	Port Elizabeth
117	Elliott International t/a Ward Afrovan	Uitenhage, Eastern Cape
118	PBD Boere Dienste	Vereeniging, Gauteng
119	Vision Transport	Vereeniging, Gauteng
120	S&S Cartage	Virginia, Free State and North West
121	Colyn's Transport	Western Cape
122	RSA Tankers PTY Ltd t/a United Bulk	Western Cape
123	Thornlands Transport (Pty) Ltd	Western Cape
124	HRP Distribution Services	Western Cape, Gauteng, Eastern Cape

Please note that this list has been compiled based on the member database of The Road Freight Association (RFA); therefore, it is not exhaustive. Additionally, the RFA database does not incorporate member's branch location, therefore, these were assumed based on the telephone details and internet search.

APPENDIX B

Mining, Manufacturing and Agricultural Stakeholders

FINAL DRAFT



SECTOR: MINING

Commodity	Name of the mine
Sekhukhune District Municipality	
Chromium	Dilokong Chrome Mine
Platinum Group Metals	Lebowa Platinum Mine
Platinum Group Metals	Modikwa Platinum Mine
Platinum Group Metals	Twickenham Platinum Mine
Waterberg District Municipality	
Coal	Grootgeluk Coal Mine
Limestone and Dolomite	Inca Lime
Platinum Group Metals	Amandebult Platinum Mine
Platinum Group Metals	Pprust Platinum Mine
Diamond	Klipspringer Mine
Mopani District Municipality	
Antimony	Consolidated Murchison
Copper	Maranda Minie
Zinc	Maranda Mining
Zircon	Foskor
Gold	Consolidated Murchison
Vhembe District Municipality	
Andalusite	Rhino Minerals (Pty) Ltd
Coal	Tshikondeni Coal Mine
Diamond	Venetia Diamond Mine
Capricorn District Municipality	
Platinum Group Metals	Messina Platinum Mine
Platinum Group Metals	Polokwane Smelter
Silicon	Silicon Smelter



SECTOR: MANUFACTURING

Company Name	Activity
Capricorn District Municipality	
Arenel Enterprises cc Rubber Stamps	Rubber Stamps
BSB Drukkers	Printing
Grannor Passi	Fruit processing
EMR	Manuf. Electrical Machinery
Northern Press	Printing
Pietersburg RainWater Goods Bk	Manuf. Gutters and Downpipes
Progress Mills	Milling of maize
Quality Engineering	Manufacturing Shafts and Gears
Rocla	Concrete products
S A Bottling CO	Manuf/distribute beverages
N T K Polokwane	Maize products
Habakuk Cane Furnisher	Manuf furniture
Sekhukhune District Municipality	
Rakgoadi Bakery	Bread making
Mopani District Municipality	
Letaba Citrus Processors	Manuf. Fruit Juice
Cast Crete Brick & Concrete Manuf.	Bricks, Building and Paving
Khulani Timber Industries	Treated Poles
Matana	Food Processing
Matume Sawmills	Manuf. Pallets & Mining Products
Miami Canning	Food Processing
Northern Bakeries Ltd	Bakery products
Phalaborwa Drukkers Bk	Printing
Stevens Lumber Pty Ltd	Ceiling boards
Vixtrix Signs	Sign Manufacturers
Vhembe District Municipality	
Niel Fourie Vleis (Edms) Bpk	Abattoir
Hope Bricks (Pty) Ltd	Brickmaking
Laeveld Stone Bk	Brick Making
Leach Printers & Signs cc	Printing
Mondi Forest	Sawmills
Newoo	Meat Processing
Propaint	Paint Manuf.
Sibasa Bakery	Bread baking
Vancrete	Paving Bricks Manufacturers
Zoutpansberger Bk	Publishing
Waterberg District Municipality	
Amira Uitgewers Bk	Publishing
Ayos Foods Pty Ltd	Custard powder and supplements
B B Kombuis	Kitchen Units, Built-in Cupboards
Barbarian Klerevervaardigers Bk	Clothes
DMH Engineering cc Delta hydraulics	Manufacturing Hydraulic Equipments
Noorta Verwe Edms Bpk	Paints and Varnishes
Nylstene (Edms) Bpk	Bricks and Blocks
Venter Man.Co.	Trailer Manufacturing



SECTOR: AGRICULTURE

Company Name	Activity (ies)
Mopani District Municipality	
Letaba Citrus Processing	Citrus Processing
Matana Foods	Fruit Juices and Dried Fruits
Econo Foods	Soya Processing
Miami Cannerns	Canning vegetables and fruits
ZZZ	Tomatoes
Bosveld Citrus	Citrus growing
Sapekoe Estates	Tea
Peppadew Tzaneen	Peppadew processing
Granor Passi	Citrus Processing
Unilever Best Foods Robertsons S A	Food Consumer Helpline Call
Phalaborwa Abattoir	Abattoirs
Citrus Growers Association of SA	Citrus
Bananas Growers Association of SA	Banana
SA Avocados Growers Association	Avocado
SA Mangoes Growers Association	Mango
Letaba Estates	Abattoirs
Vhembe District Municipality	
Valley Farms	Granadilla, Mangoe, Guava juice, Macadamia Nuts
Capricorn District Municipality	
I & J	Frozen Vegetables
Hygienic Dairy	Dairy products & Juices
Penguin Foods	Fish Products
North Snax	Zimba Chips
Bohlabela District Municipality	
Bonanza Fruits	Manufacture of Achaar and Mangoe Juice
Potatoes Producers Organisation	Potato
Onions Producer Organisations	Onion
Tomato Producer Organisation	Tomatoes
National Department of Agriculture	
National Cotton Producers' Organisation	Cotton
Coffee Growers Secretariat of SA	Coffee
SA Papaya Exporters Association	Papaya
Pineapple Growers Association	Pineapple

APPENDIX C1

Workshop 1 – Minutes and Attendance Register

FINAL DRAFT



LIMPOPO DEPARTMENT OF ROADS & TRANSPORT

DEVELOPMENT OF A FREIGHT TRANSPORT IMPLEMENTATION STRATEGY FOR LIMPOPO PROVINCE

Report on: First Project Workshop

11 May 2010

Bolivia Lodge, Limpopo Province

1. Agenda

In the proposal it was suggested that two workshops will be held during the course of the study period. The first workshop to be held at the beginning of the project, with the objectives of informing stakeholders of the project and the related process, and then a second workshop to take place closer to the end of the project, in order to provide feedback to relevant stakeholders on the outcome of the project and to validate the data.

The workshop started with a plenary session during which the study was introduced, setting out the need for the study, the objectives that the study wishes to achieve, identification of preliminary issues that might be relevant to the study and specific questions addressed to stakeholders to obtain the required input. The plenary session was continued with parallel discussion groups during the remainder of the day for focussed discussions and group feedback.

2. Attendance

The workshop was attended by thirty stakeholders representing the public and private sectors in the Limpopo Province. Please see Annexure A attached.

3. Welcome address

The Acting General Manager of the Limpopo Department of Roads & Transport, Ms Elmien Koedyk welcomed all the delegates to the workshop and continued to highlight the need realised by the Department for the study and introduced the consultant.

Mr Lesiba Ledwaba, Technical Director, Project Management from Aurecon Polokwane, introduced the project team.

4. Project approach and programme

Dr Yolanda Fourie briefly discussed the workshop programme, followed by a presentation on the project approach and work plan.

5. Overview of Limpopo Province

Dr Paul Lombard made a presentation providing an overview of the Limpopo Province under the following headings:

- Institutional Aspects
- Economic, Land-use and Population
- Infrastructure (Road, Rail, Air)
- Freight Operations
- Issues Identified

6. National Department of Transport Initiatives

Ms Ledile Nong, Deputy Director from the National department of Transport was given the opportunity to present the current initiatives undertaken by the Department in order to

prevent duplication of initiatives and to align the NDOT initiatives with the development of the Limpopo Freight Transport Implementation Strategy. The following initiatives were mentioned:

- *National Freight Strategy* which is being reviewed as certain aspects have been changed since it was approved by cabinet in 2005.
- *Branch Line Strategy* which is currently in its final draft stage.
- *Road Freight Strategy* focusing on the following issues:
 - Lack of road infrastructure maintenance
 - Lack of funding
 - Road fund not being plunged back into maintenance
 - Weighbridge design (current weighbridges not strategically located)
 - Lack of law enforcement.
- *Border Freight Optimisation Plans* identifying the need for truck-stops, parking areas and the integration of operations between the different role-players such as SARS, CBRTA, SANRAL, SAPS and other authorities/officials at border posts.
- *National Corridor Updates Initiative* where each province will be responsible for updating their databank and feeding it into the National Freight Databank.
- *Identification of Funding Mechanisms* through agreements such as PPP's and approaching donors.

7. Discussion of topics

The stakeholders were divided into three working groups and the objective was to work through the discussion topics provided.

After the lunch break, each group was given the opportunity to give feedback on their discussions. The feedback per discussion topic was as follows.

7.1 Where will the main freight corridors in Limpopo Province be in future? What main type of freight will be transported? Think about internal, external and international corridors. Also specify types of commodities.

Group 1:

a) For agricultural products:

- The main destination is from the Limpopo Province to Johannesburg and Pretoria as the main distribution points.
- There has been a 18% increase in fresh produce production in the Northern Areas of the province over the last year. The total metric tons to JHB & PTA was 117 745 in March 2009 and 141 909 in March 2010.
- There are no less than 110 trucks per day delivering fresh produce, this does not include maize/wheat.
- The Secondary network is in poor condition.

b) For mining products:

- Rail in the province is constrained.
- In operational services provided, frequency of trains, rolling stock problems,

- The infrastructure is in bad condition in some cases,
 - And in certain area of the province the rail capacity is insufficient considering the mining potential.
 - Transnet is busy investigating the utilisation of Cape Town port for exportation of goods from Limpopo, however the stakeholders would also like to see a corridor to Maputo port being established.
 - Rail links are also required in the Lephale mining area.
- c) In terms of important roads these were provided as:
- The N1 one is the main route in the province.
 - R528 – Between Polokwane and Tzaneen
 - D36/R81 – Mooketsi to Polokwane
 - R33 – to Lephale
 - N11 – N1 to Grobler's Bridge (Brug)
 - R37 – Polokwane to Nelspruit
 - R555 – Burgersfort to Middleburg
 - Regional SADC connections, N1, N11, R33, R510

Group 2:

- a) Lephale Corridors
- To Gauteng
 - To Polokwane
 - To Rustenburg
 - To Mpumalanga (Maputo) – west-east connection.
- b) Musina to Nelspruit (Maputo)
- c) Intensify the usage of North-South Corridor, combination of rail & road.

Type of freight to move on corridors: mining products, agricultural products & construction material.

Group 3:

The origin of freight by district in the province was summarised as follows:

Agricultural – Tzaneen, Thohoyandou, Marble Hall, Hoedspruit, Dendron (vegetables), Northern Province & Polokwane (hunting & meat).

Minerals/ores – Eastern, Western & Central Limpopo, Lephale & Waterberg.

Chemicals – Phalaborwa. Currently fuel to Lephale is being transported by road and is foreseen to double in 5 years.

It was stated that the R555 serve a national purpose and the proposal is on the table to divert it to a corridor.

It was further suggested that all main towns in the province should be linked to sea ports and all 9 access routes to Limpopo should be treated as 9 corridors in and out of Limpopo.

It was also brought under our attention that a regional study for rail/road freight movement in Lephale has been conducted and study to be gathered from Exxaro Resources Ltd.

7.2 What is the infrastructure issues facing freight transport in Limpopo Province? Please rank from most to least important.

Issues	Group 1	Group 2	Group 3
Lack of expenditure on road maintenance/poor road condition	-	2	2
Overloading on roads	-	3	4
Rail infrastructure in poor condition	4	1 (not optimally used)	1 (non existing)
Infrastructure management systems are ineffectual	2/3	4	5
Road safety problems	-	5	3
Lack of intermodal facilities	5	6	6
Lack of provision for bypasses	-	Added	-
Poor workmanship	1 (skills shortage)	-	Added
Management of maintenance plans	2/3	-	Added
Legislation for Heavy Vehicles on Roads	Added	-	-
Insufficient Infrastructure	Added	-	-

7.3 What are the *operational* issues facing freight transport in Limpopo Province? Please rank from most to least important.

Issues	Group 1	Group 2	Group 3
Lack of rail services	1 (cost vs efficiency)	2	2
Lack of overloading control	6	5 + uniformity of implementation	4
Demand for rail transport taken up by road transport	2	1	3
Border posts: Delays, long process times and C&E operations	4	3 (turn-around time)	5
Licensing of vehicles and drivers	7	4	6
Security and safety of operators	3	7	1
Skills shortage	5	6	7

7.4 What are the *institutional* issues facing freight in Limpopo Province? Please rank from most to least important.

Issues	Group 1	Group 2	Group 3
Various levels of government involved in transport planning	1	1	1
Different national departments responsible for different modes of transport	2	2	2
Co-ordination in the transport industry	3	3	3
Lack of shared vision between decision makers (lack of continuity)	-	Added	-
Streamlining of legislative frameworks (e.g having National and Local Government only)	-	Added	-
Allocation of resources to municipalities	-	Added	-

7.5 What innovations do you want to see in freight transport in the Limpopo Province?

Group 1:

- Funding mechanisms of projects to be done via PPPs and donor agencies
- Privatisation of Transnet
- Upgrading of the secondary network
- Logistics hubs in different areas of the province

Group 2:

- Alternative modes transport i.e. air freight, conveyer belts etc
- Construction of freight consolidation centres (e.g. in Polokwane and Musina)
- Upgrading of specific routes for dedicated products
- Revitalisation of branch lines
- Innovative funding mechanism (e.g. concessions, PPP etc)

Group 3:

- Look further than the N1
- Integrated systems between road & rail
- Weighbridge allocation – need to also protect minor roads
- Freight Transport Forum for the province – revive this forum.
- Grid network needs to be prioritised.
- Lack of intermodal systems and lack of understanding the concept.

- LDoT support for RTMS & PBS initiatives
- Published road network usage statistics and related road conditions and maintenance plans/priorities

8. Closing remarks

Dr Paul Lombard briefly summarised the conclusions derived from the group feedbacks as follows:

- **Main issues**
 - Rail services quality and availability
 - Overloading control issues
 - Road maintenance inadequate
 - Border post constraints
 - Law enforcement – vehicles and drivers
 - Mining logistics
- **Needs/innovations**
 - Logistical hubs
 - PPPs, donor funding

The way forward was summarised as follows:

- Assess new information gathered
- Data collection to continue and identify gaps
- Conduct follow-up consultations with stakeholders
- Data analysis in line with freight needs, constraints and national framework
- Strategy development
- Next workshop scheduled for middle August.

Dr Lombard thanked the delegates for attending and for a successful workshop. The workshop was then closed.

Annexure A

Attendance register 11 May 2010 Bolivia Lodge, Limpopo Province

Surname	Name	Institution/ Organisation	Position	Contact number	E-mail
Mahanyele	Shirley	GAAL	Acting CEO	083 455 4832	Shirley.mahanyele@gaal.co.za
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Masipa	Maxwell	CBRTA	Inspector	072 850 0990	maxwellmasipa@yahoo.com
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Kritzinger	Thys	Exxaro Resources Ltd	Sales Manager	083 445 9106	Thys.kritzinger@exxaro.com

Surname	Name	Institution/ Organisation	Position	Contact number	E-mail
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Van Tonder	Theuns	SVPF (Anglo Plantinum)	Engineer Spatial Develop	082 564 3750	theunsvt@anglop.com
Roets	Leon	SVPF (Siyazi Limpopo)	Transport Engineer	082 371 0253	Limpopo@siyazi.co.za
Dladla	Thuthuka	Transnet Freight Rail	SnC Man Capacity	083 380 9057	thuthukadladla@transnet.net
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Thami	Mahlangu	Transnet Freight Rail	Supply Chain Manager	083 980 0121	Thami.mahlangu@transnet.net
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Bezuidenhout	Corrie	Agri Limpopo	Member	082 465 0514	corbez@mindsmail.co.za

Surname	Name	Institution/ Organisation	Position	Contact number	E-mail
Molomo	Maesela	Greater Sekhukhune	Manager Municipal Works	082 578 0153	maeselam@sekhukhune.co.za
Muroa	Lesley	Sekhukhune District Municipality	Project Manager	072 752 1559	muroam@sekhukhune.co.za

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APPENDIX C2

One-on-One Interaction

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Institution	Contact Person	Location	Phone number	Cell	Email	Scheduled Meeting
Department of Roads and Transport	Elmien Koedyk	Polokwane	015 295 1011	082 803 6019	koedykw@drt.limpopo.gov.za	24-Aug-10
Road Agency Limpopo	Neels Nothnagel	Polokwane		082 779 0871	'nothnagelcc@ral.co.za	No meeting as yet
	Richard Rikhotso	Polokwane	015 291 4236	015 291 3773	RikhotsoKR@ral.co.za	
Transnet	William Mothibedi	Joburg	011 544 9635	083 461 6810	William.Mothibedi@transnet.net	No meeting as yet
Transnet	Thuthuka Dladla	Joburg	011 330 8041	083 380 9057	Thuthuka.Dladla@transnet.net	
Gateway Airports Authority Limited	Shirley Mahanyele	Polokwane	015 2880122	083 455 4832	Shirley.mahanyele@gaal.co.za	24-Aug-10
	Wilfred Mogodi	Polokwane		083 205 0996	Wilfred.mogudi@gaal.co.za	
CBRTA	Brenda Mtsweni	Mokopane		082 412 2741	bmtshweni@cbarta.co.za	01-Sep-10
Rail Safety Regulator	Maryna du Plessis	Joburg	011 417 0021		mphor@rsr.org.za	4 August 2010, 11am

FINAL DRAFT

APPENDIX C3 Economic Cluster Survey Form

FINAL DRAFT



LIMPOPO ROADS AND TRANSPORT DEPARTMENT

PROJECT: DEVELOPMENT OF FREIGHT TRANSPORT IMPLEMENTATION STRATEGY FOR LIMPOPO PROVINCE

Key Economic Cluster Survey

Purpose of the survey

The *Key Economic Cluster Survey* is a once of survey covering a sample of key economic cluster enterprises that generate freight goods in Limpopo Province. The results of the survey will be used to guide the drafting of the Limpopo Provincial Freight Transport Strategic Plan.

Confidentiality

The completed questionnaire remains confidential to the Limpopo Roads and Transport Department. It will be used only for the purpose of developing comprehensive freight transport strategies for the province.

Part 1: Sector Classification of the Enterprise

1.1 ENTERPRISE DETAILS

DETAILS OF ENTERPRISE	
Name	
Company Name	
Head Office (Town)	
Provincial Branches	

Please indicate what best describes the main/core activities of the enterprise by ticking in the appropriate block.

1.2 MAIN/CORE ACTIVITY

SECTOR	X	CORE ACTIVITY(IES)
Mining Sector		
Agri-business		
Manufacturing		
Any Secondary Activities (e.g. Processing Plants)		

Part 2: Freight Production

Please indicate production attributes by writing in the appropriate block or writing where applicable.

COMMODITIES PRODUCED

SECTOR	ACTIVITY	COMMODITY	PRODUCTION PER ANNUM (TONS)
Agriculture Sector	Agriculture & forestry products	Grain / Wheat	
		Fruits	
		Vegetables	
		Nuts	
		Livestock, nuts, fresh produce, crops, oil seeds	
		Logs/ timber	
Mining Sector	Mining & quarrying products	Coal	
		Iron Ore	
		Gold	
		Diamond	
		Copper / Nickel	
		Sand / Gravel	
Manufacturing Sector	Manufactured food, beverages & tobacco products	Animal feed, refrigerated goods, sugar, canned foods, vegetable- animal oil; fats, beverages (alcoholic and non-alcoholic), tobacco, etc.	
	Textiles, clothing & leather goods	Fabrics (curtains, table cloths, etc), clothing, tents and other canvas goods, knitted garments, carpets, rugs, etc.	
	Chemical, coke, petroleum, rubber, plastic & other mineral products	Chemicals (acids, non-beverages, alcohol, fertilizer, insecticides), fuel (leaded and unleaded petrol, diesel, jet fuel), tyres, paint, etc.	
	Basic metal & fabricated metal products	Iron, steel, non-ferrous metals, cable and wire products, gates, etc.	
	Non metallic products	Glass, cement, ceramic, plaster, etc.	
	Machinery & equipment	Agriculture machinery and equipment, tractors, planting and seeding equipment and parts, cultivators, etc.	
	Motor vehicles, parts and accessories	Motor vehicles, trailers and tippers and motor vehicle parts and accessories, etc.	
	Paper & paper products	Stationary, pulp, newspaper, white paper, paper and paperboard, etc.	
Commercial & Households goods	Household or office goods		



PROMINENT CUSTOMERS AND THEIR LOCATION

CUSTOMER	LOCATION (PROVINCE, TOWN)

TRANSPORT CARRIER USED

FREIGHT TRANSPORT CARRIER	LOCATION (PROVINCE, TOWN)	MODE
In cases of multi-modal usage, please indicate percentage modal split, e.g. where road and rail modes are used > Road: Rail = 70%:30% average split in the past 2-3years		

Part 3: Good Transportation Challenges

Please indicate challenges you face in the transportation of your production by a cross (x) where applicable – for freight transport infrastructural; freight transport operational and freight transport institutional arrangements in Limpopo. You are at liberty to add more challenges you are facing under "Add others below":

FREIGHT TRANSPORT CHALLENGES

AREA	FREIGHT CHALLENGES	X	ADDITIONAL COMMENT
INFRASTRUCTURE	Road	Lack of maintenance	
		Lack of provision for bypasses	
	Rail	Lack of maintenance	
		Lack of provision for bypasses	
		Add others below:	
OPERATIONS		Long waiting time at Border Post and Weighbridge	
		Licensing of vehicles and drivers	
		Add others below:	
INSTITUTIONAL		Lack of coordination in the transport industry	
		Add others below:	

Part 3: Additional Comments

Comments can be added below:

THANK YOU

I

APPENDIX C4

Road Hauliers Survey Form

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LIMPOPO ROADS AND TRANSPORT DEPARTMENT

PROJECT: DEVELOPMENT OF FREIGHT TRANSPORT IMPLEMENTATION STRATEGY FOR LIMPOPO PROVINCE

Road Haulier Survey

DETAILS OF ENTERPRISE	
Name	
Company Name	
Origin (Province, Town)	

Purpose of the survey

The Road Haulier Survey is a once of survey covering a sample of private sector enterprises predominantly engaged in the conveyance of freight goods in Limpopo Province. The results of the survey will be used to guide the drafting of the Limpopo Provincial Freight Transport Strategic Plan.

Confidentiality

The completed questionnaire remains confidential to the Limpopo Roads and Transport Department. It will be used for purposes of developing comprehensive freight transport strategies for the province.

Part 1: Industrial Classification of the Enterprise

Please indicate what best describes the main/core activities of the enterprise by ticking in the appropriate block.

MAIN/CORE ACTIVITY

CORE ACTIVITY	EXAMPLES	X
Domestic freight transportation	Freight which is only transported within the South African border, originating or terminating in Limpopo Province (Pretoria to Tzaneen, etc).	
International freight transportation	Freight which is transported outside the South African border (Johannesburg to Zimbabwe, etc).	

DESTINATION

CORE ACTIVITY	EXAMPLES	ENTER DESTINATION HERE
Domestic freight transportation	Gauteng Province – Limpopo (Polokwane)	
	Intra-Limpopo Province (Polokwane – Musina)	
International freight transportation	Gauteng Province - Zimbabwe (via Polokwane)	

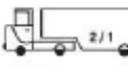
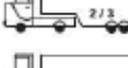
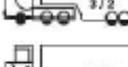
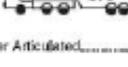
ROUTE PREFERENCE

CORE ACTIVITY	EXAMPLES	ENTER ROUTE HERE
Domestic freight transportation	Gauteng Province – Limpopo (Polokwane): R101	
	Limpopo Province (Thohoyandou – Tzaneen): R523	
International freight transportation	Gauteng Province - Zimbabwe (via Polokwane): N1 Freeway	
Any specific road used needing upgrade and maintenance?		
Type of upgrade and maintenance needed →		

AVERAGE MONTHLY FREIGHT ACTIVITY

PARAMETER	International freight transportation	Domestic freight transportation
PAYLOAD (TONS)		
LADEN DISTANCE TRAVELLED (KMS)		
ONE WAY BORDER POST PAYMENT		NOT APPLICABLE

TYPE OF VEHICLE USED AND QUANTITIES

RIGID	RIGID + TRAILER	ARTICULATED
 OR  <input type="checkbox"/> 11	 <input type="checkbox"/> 26	 <input type="checkbox"/> 31
 <input type="checkbox"/> 12	 <input type="checkbox"/> 21	 <input type="checkbox"/> 32
 <input type="checkbox"/> 13	 <input type="checkbox"/> 22	 <input type="checkbox"/> 33
 <input type="checkbox"/> 14	 <input type="checkbox"/> 23	 <input type="checkbox"/> 34
Other Rigid..... <input type="checkbox"/> 15	 <input type="checkbox"/> 24	 <input type="checkbox"/> 35
	Other Rigid + Trailer..... <input type="checkbox"/> 25	Other Articulated..... <input type="checkbox"/> 35

COMMODITIES TRANSPORTED

SECTOR	COMMODITY	ANNUAL AV VOLUMES (TONS)	PEAK MONTH
Agriculture & forestry products	Livestock, wheat, grain, nuts, fresh produce, crops, oil seeds, logs, timber, etc.		
Mining & quarrying products	Coal, iron ore, gold, diamonds, copper, nickel, sand, gravel, etc.		
Manufactured food, beverages & tobacco products	Animal feed, refrigerated goods, sugar, canned foods, vegetable- animal oil; fats, beverages (alcoholic and non-alcoholic), tobacco, etc.		
Textiles, clothing & leather goods	Fabrics (curtains, table cloths, etc), clothing, tents and other canvas goods, knitted garments, carpets, rugs, etc.		
Chemical, coke, petroleum, rubber, plastic & other mineral products	Chemicals (acids, non-beverages, alcohol, fertilizer, insecticides), fuel (leaded and unleaded petrol, diesel, jet fuel), tyres, paint, etc.		
Basic metal & fabricated metal products	Iron, steel, non-ferrous metals, cable and wire products, gates, etc.		
Non metallic products	Glass, cement, ceramic, plaster, etc.		
Machinery & equipment	Agriculture machinery and equipment, tractors, planting and seeding equipment and parts, cultivators, etc.		
Motor vehicles, parts and accessories	Motor vehicles, trailers and tippers and motor vehicle parts and accessories, etc.		
Paper & paper products	Packaging, stationary, pulp, newspaper, white paper, paper and paperboard, etc.		
Commercial goods	Movement of household or office goods from one place to another, where they will be sold (e.g. from one furniture store to another).		
Used household and office goods	Movement of household or office goods from one place to another, not for selling purposes.		

Part 2: Freight Operations at Weighbridges and Border Post

Please indicate a worst case incident you have experienced at a weighbridge only (domestic freight transport) and/or border post (International freight transport). When was this incident experienced (Month, year) and what was the reason:

DOMESTIC FREIGHT TRANSPORTATION ONLY

PARAMETER	10MINS	10-30MINS	30MINS-1HR	1HR-3HRS	MORE THAN 3 HRS	MORE THAN 1 DAY
Average waiting time at Weighbridge						
When was this? (Month, Year)						
If more than 1 hr, state reason →						

INTERNATIONAL FREIGHT TRANSPORTATION ONLY

PARAMETER	10MINS	10-30MINS	30MINS-1HR	1HR-3HRS	MORE THAN 3 HRS	MORE THAN 1 DAY
Average waiting time at Weighbridge						
Average waiting time at Border Post						
When was this? (Month, Year)						
If more than 1hour, state reasons →						

Part 3: Freight Transport Challenges and Potential Solutions

Please indicate challenges you face as an enterprise by a cross (x) where applicable – for freight transport infrastructural; freight transport operational and freight transport institutional arrangements in the Limpopo. You are at liberty to add more challenges you are facing:

FREIGHT TRANSPORT CHALLENGES

AREA	FREIGHT CHALLENGES	X	ADDITIONAL COMMENT
INFRASTRUCTURE	Lack of Intermodal Facilities		
	Lack of provision for bypasses		
	Lack of truck stop		Potential Location: _____
	Add others below:		
OPERATIONS	Long waiting time at Border Post and Weighbridge		Border Post: _____ Weighbridge: _____
	Licensing of vehicles and drivers		
	Add others below:		
INSTITUTIONAL	Lack of coordination in the transport industry		
	Add others below:		

Part 3: Additional Comments

Comments can be added below:

THANK YOU