



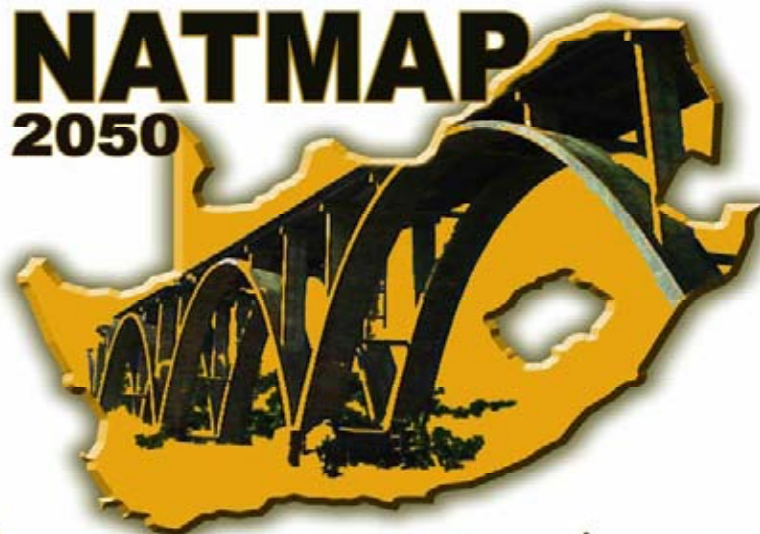
transport

Department:
Transport
REPUBLIC OF SOUTH AFRICA



National Transport Master Plan

NATMAP 2050



You pay for good transport whether you've got it or not

KwaZulu-Natal

STATUS QUO

FINAL DRAFT: OCTOBER 2008

REFERENCE No: KZN/PH1/OCT.08





DOCUMENT SUMMARY SHEET	
Electronic Reference:	T00.PTA.000186 \ Reports \ Phase 1 Status Quo Reports \ SQ rev 4 submitted November 2008
Status:	Draft Report, Version 4.0
Document Title:	NATIONAL TRANSPORT MASTER PLAN 2050: KWAZULU-NATAL PROVINCE PHASE 1: STATUS QUO – 4th DRAFT
Date:	November 2008
Prepared For:	 <p>Department of Transport Forum Building, cnr Struben and Bosman Streets, Pretoria Private Bag X193, Pretoria, 0001</p>
Prepared By:	<p>SSI Engineers and Environmental Consultants (Pty) Ltd PO BOX 25302 MONUMENT PARK 0105 TEL NO: 012 367 5800</p>  <p>In association with:</p> <ul style="list-style-type: none"> • Nick Poree • Namela Consulting • Mandatum • Plan Associates <p style="text-align: center;">     </p>

TABLE OF CONTENTS

1.	INTRODUCTION.....	1
1.1	BACKGROUND.....	1
1.2	OBJECTIVES OF THE STUDY.....	1
1.3	SCOPE OF THE STUDY.....	3
1.4	METHODOLOGY.....	3
1.4.1	The Terms of Reference.....	3
1.4.2	Broad Approach.....	4
1.4.3	Detailed Methodology – Phase 1 Inventory.....	5
1.5	PROJECT MANAGEMENT STRUCTURE AND STAKEHOLDER CONSULTATION.....	8
1.6	STRUCTURE OF THIS REPORT.....	9
2.	INTRODUCTION TO KWAZULU-NATAL.....	10
2.1	STUDY AREA.....	10
3.	INFORMATION SYSTEMS.....	16
3.1	OBJECTIVE.....	16
3.2	NATIONAL INFORMATION SYSTEMS.....	16
3.2.1	The NATMAP databank.....	16
3.2.2	Existing national databases.....	17
3.2.3	Data Bank, GIS and Model design.....	17
3.3	PROVINCIAL INFORMATION SYSTEMS.....	19
3.4	ISSUES AND CONCERNS.....	19
4.	DEMOGRAPHIC AND SOCIO-ECONOMIC.....	21
4.1	OBJECTIVE.....	21
4.2	FINDINGS BY DISTRICT MUNICIPALITY.....	21
4.2.1	Salient Demographic Features.....	21
4.2.2	Data needed for passenger transport modelling purposes.....	23
4.3	ECONOMIC PROFILE OF PROVINCE.....	30
4.4	ISSUES AND CONCERNS.....	31
5.	LAND-USE AND DEVELOPMENT CORRIDORS.....	33
5.1	OBJECTIVE.....	33
5.2	CONTEXTUAL SETTING: OVERVIEW OF DEVELOPMENT POLICIES.....	33
5.2.1	Background.....	33
5.2.2	National Spatial Development Perspective (NSDP).....	33
5.2.3	Urban Development Framework (UDF).....	41
5.2.4	Integrated Sustainable Rural Development Strategy (ISRDS).....	41
5.2.5	Industrial Development.....	42
5.3	PROVINCIAL LAND USE PATTERNS AND CHARACTERISTICS.....	47
5.3.1	Major Provincial Land Uses.....	47
5.3.2	District Specific Perspective.....	63
5.4	TRANSPORTATION CORRIDORS.....	120
5.5	DEVELOPMENT OPPORTUNITIES AND CONSTRAINTS.....	123
5.6	ISSUES AND CONCERNS.....	125
6.	EXISTING TRANSPORTATION INFRASTRUCTURE FACILITIES.....	127
6.1	OBJECTIVE.....	127
6.2	ROAD.....	127
6.2.1	Extent.....	127

6.2.2	Usage	130
6.2.3	Condition	132
6.2.4	Overloading Control Facilities.....	141
6.2.5	Road safety	141
6.2.6	Planned Development	141
6.3	RAILWAY.....	144
6.3.1	Background	144
6.3.2	Extend of the National Rail Network.....	145
6.3.3	KwaZulu-Natal Rail Freight Network	152
6.3.4	Marshalling Yards, locomotive and related facilities in KZN.....	157
6.3.5	Inter-modal terminals.....	161
6.3.6	KwaZulu-Natal Suburban Network	162
6.3.7	Usage and classification of the KwaZulu-Natal Network.....	167
6.3.8	Condition of the Infrastructure	169
6.3.9	Capacity and Constraints	171
6.4	AVIATION	173
6.4.1	Outline of the approach	173
6.4.2	Functional airport categories	174
6.4.3	Airports in KwaZulu-Natal.....	176
6.4.4	Pietermaritzburg Airport (FAPM)	177
6.4.5	Durban International Airport (FADN)	180
6.4.6	The new International Airport at La Mercy.....	187
6.4.7	Margate Airport (MA)	189
6.4.8	Richards Bay	191
6.4.9	Air passenger origins and destinations.....	193
6.5	PORTS AND HARBOURS	195
6.5.1	Extent	195
6.5.2	Port of Durban	197
6.5.3	Port of Richards Bay.....	206
6.6	ISSUES AND CONCERNS	211
6.6.1	Roads	211
6.6.2	Railway.....	212
6.6.3	Aviation.....	213
6.6.4	Ports and Landside Linkages	213
7.	PASSENGER TRAVEL PATTERNS AND CHARACTERISTICS	216
7.1	OBJECTIVE	216
7.2	MARKET SEGMENTS	217
7.2.1	Adaptation of the Moving South Africa market segmentation.....	217
7.3	TRANSPORT DEMAND.....	218
7.3.1	Trip generation	221
7.3.2	Origin and Destination Data	226
7.3.3	Transport Mode Choice Selection	236
7.3.4	Passenger Volumes	241
7.4	TRANSPORT SUPPLY (2005).....	242
7.4.1	Private Car Access and Ownership.....	243
7.4.2	Vehicle Fleets and Public Transport Routes	250
7.4.3	Travel Times and Fares.....	262
7.5	EXISTING PASSENGER TRANSPORT PLANS.....	262
7.5.2	The National Passenger Strategy and Action Plan	262
7.5.3	National Rail Plan.....	267
7.5.4	Status of public transport plans in ITP's	275
7.6	ISSUES AND CONCERNS	282

8.	FREIGHT TRAVEL PATTERNS AND CHARACTERISTICS.....	284
8.1	OBJECTIVE.....	284
8.2	MARKET SEGMENTS	284
8.2.1	Road.....	284
8.2.2	Rail	285
8.2.3	Coastal shipping.....	285
8.2.4	Pipelines.....	285
8.2.5	Air Cargo	285
8.3	TRANSPORT DEMAND (2005).....	285
8.3.1	Road.....	285
8.3.2	Summary – Transport Demand	290
8.4	TRANSPORT SUPPLY (FREIGHT FLOW CHARACTERISTICS AND PATTERNS)	292
8.4.1	KwaZulu-Natal Transport Modes.....	292
8.4.2	Commodities and Tonnages:.....	296
8.4.3	Airfreight	297
8.4.4	Import-Export Shipping Cargoes:	297
8.4.5	Provincial Transport Corridors.....	298
8.4.6	Tonnage on Main KwaZulu-Natal Routes by Commodity 2005.....	299
8.4.7	Summary – Transport Supply.....	300
8.5	ISSUES AND CONCERNS	302
8.5.1	Bottlenecks	302
8.5.2	Concerns	302
8.5.3	Infrastructure / Service gaps.....	303
8.5.4	Modal Competition.....	303
9.	INSTITUTIONAL STRUCTURE.....	304
9.1	OBJECTIVE.....	304
9.2	NATIONAL OVERVIEW OF INSTITUTIONAL STRUCTURE	304
9.2.1	Institutional Policy Principles	305
9.2.2	Institutional Parameters per Transport Mode	306
9.2.3	Unique Provincial Institutional Structures	308
9.2.4	List of Policies Reviewed.....	308
9.2.5	List of Other Documents Reviewed.....	308
9.2.6	Conclusions and Issues of Concerns	308
9.3	INSTITUTIONAL STRUCTURE IN THE PROVINCE OF KWAZULU-NATAL	308
9.3.1	Departments/institutions responsible for transport matters	308
9.3.2	Unique provincial institutions	310
9.3.3	Municipalities in KwaZulu-Natal.....	311
9.4	ISSUES AND CONCERNS	313
10.	LEGAL STRUCTURE	314
10.1	OBJECTIVE.....	314
10.2	NATIONAL OVERVIEW OF LEGAL STRUCTURE	314
10.2.1	Background	314
10.2.2	National legislation	315
10.2.3	Provincial legislation	317
10.2.4	List of Policies Reviewed.....	318
10.2.5	Conclusion.....	319
10.3	LEGAL STRUCTURE IN THE PROVINCE KWAZULU-NATAL.....	320
10.3.1	Legislation	320
10.3.2	Policy documents	323
10.4	ISSUES AND CONCERNS	323
11.	TRANSPORT FUNDING MECHANISMS	324

11.1	OBJECTIVE.....	324
11.2	NATIONAL OVERVIEW OF FUNDING MECHANISMS	324
11.2.1	General.....	324
11.2.2	Road.....	325
11.2.3	Rail	326
11.2.4	Air	327
11.2.5	Maritime.....	327
11.3	FUNDING MECHANISMS IN PROVINCE	327
11.3.1	Provincial Department of Transport.....	327
11.3.2	eThekweni Metropolitan Municipality.....	330
11.4	ISSUES AND CONCERNS	335
12.	SUMMARY AND CONCLUSIONS	336
12.1	OVERVIEW	336
12.2	INFORMATION SYSTEMS.....	337
12.3	DEMOGRAPHIC AND SOCIO-ECONOMIC	338
12.4	LAND USE AND DEVELOPMENT CORRIDORS	339
12.5	TRANSPORT INFRASTRUCTURE FACILITIES	340
12.5.1	Road network	340
12.5.2	Railway	341
12.5.3	Aviation.....	341
12.5.4	Marine Ports and Landside Linkages	342
12.6	PASSENGER TRAVEL PATTERNS AND CHARACTERISTICS	342
12.7	FREIGHT TRAVEL PATTERNS AND CHARACTERISTICS	344
12.7.1	Bottlenecks	344
12.7.2	Concerns	345
12.7.3	Infrastructure / Service gaps.....	345
12.7.4	Modal Competition.....	346
12.8	INSTITUTIONAL STRUCTURE.....	346
12.9	LEGAL STRUCTURE	346
12.10	TRANSPORT FUNDING MECHANISMS	346
13.	LIST OF REFERENCES	348

LIST OF FIGURES

Figure 1:	Structure and outputs of Phase 1 Inventory and subsequent phases	5
Figure 2:	Structure Population by Income Group	24
Figure 3:	Employment Status of the Economically Active Population in KwaZulu-Natal	27
Figure 4:	Employment Status of the Economically Active Population in KwaZulu-Natal	28
Figure 5:	Provincial Distribution (Visitors).....	58
Figure 6 :	Round Wood Production by Province (2005)	63
Figure 7:	Plantation Area by Species and Province (2005)	63
Figure 8:	Transnet Freight Network and Classification of Lines	147
Figure 9:	Maximum Allowable Axle Load on Lines	148
Figure 10:	Train Authorization Systems on the Rail Lines	149
Figure 11:	Traction Supply on Rail Lines.....	150
Figure 12:	KZN Rail Lines and Stations.....	153
Figure 13:	Diagrammatic Layout of the KwaZulu-Natal Suburban Rail Network ...	166
Figure 14:	Gross Ton per Year on the Freight Rail.....	167
Figure 15:	Rail Line Asset Usage	171
Figure 16:	DIA: Percentage Spare Capacities for Different Flights	184
Figure 17:	International and regional flights to DIA compared with RSA as a whole... ..	186
Figure 18:	Port of Durban Current Layout	198
Figure 19:	Richards Bay: Current Layout	207
Figure 20:	Moving South Africa South 1998 and DoT 2000 Market Segmentation of the worker travel market.....	218
Figure 21:	Mode for Holiday Trips	238
Figure 22:	Mode for Business Trips.....	239
Figure 23:	Mode for Migrant Trips	239
Figure 24:	Route Network of Shosholoza Meyl Scheduled Services.....	252
Figure 25:	Trans Natal Economy and Tourist Passenger Volumes	253
Figure 26:	Composition of the registered vehicle fleet in KZN.....	261
Figure 27:	KwaZulu-Natal Rail Network.....	270
Figure 28:	Municipalities meeting economic and development criteria	272
Figure 29:	High priority corridors	273
Figure 30:	Spoornet rail infrastructure enhancements compared to the passenger demand corridors.....	274
Figure 31:	Proposed Phases of the eThekweni (draft) IRPTN network	276
Figure 32:	Proposed Phases BRT network in Msunduzi north	280
Figure 33:	The BRT distribution network in Msunduzi CBD	281
Figure 34:	Proposed Phases BRT network in Msunduzi south	281
Figure 35:	Heavy Vehicle Flows (ADTT) on the N2 from Kokstad south to Illovo River	287
Figure 36:	Heavy Vehicle Flows (ADTT) on the N2 from Amanzimtoti to Mkuze ..	287
Figure 37:	Heavy Vehicle Flows (ADTT) on N3 from EB Cloete - Sanctuary Road	289
Figure 38:	Heavy Vehicle Flows (ADTT) on N3 from Chatterton to Van Reenen ..	289
Figure 39:	Heavy Vehicle Flows (ADTT) on the N11 from Ladysmith Piezo to Volksrust Piezo.....	290

LIST OF TABLES

Table 1:	Objectives of the NATMAP Project.....	2
Table 2:	Salient Demographic Features of the KwaZulu-Natal District Municipalities, 2001	22
Table 3:	Households and population by income group In KZN districts 2005	23
Table 4:	Population Density by District Municipality - 2005	24
Table 5:	Employment Status of The Economically Active Population Of KZN By District, 2005.....	26
Table 6:	Employment By Economic Sector In KwaZulu-Natal, 2005.....	28
Table 7:	Regional GDP by activity in 2005	30
Table 8:	Current inflation rate for KZN 2007.....	31
Table 9:	Official unemployment rates in South Africa 2001 to 2006.....	31
Table 10:	Summary List of Submitted Candidate Projects for Infrastructure Funding	46
Table 11:	Areas Planted and Final Production Tonnages in KZN for the 2005/2006 Season	53
Table 12:	Livestock Numbers in KZN for the 2005/2006 Season.....	54
Table 13:	Mineral Production in KZN (2005)	57
Table 14:	Major Land Use Areas in KZN.....	64
Table 15:	National Road Classification System (RISFSA, 2005)	128
Table 16:	RISFSA Classification: KZN National and Provincial Road Networks..	130
Table 17:	Visual Condition Index for Blacktop Provincial Roads.....	132
Table 18:	Details of Freight Rail Network in the KwaZulu-Natal Province.....	158
Table 19:	Suburban Rail statistics: 1980 and 2005	163
Table 20:	Details of Suburban Passenger Rail Network in the KwaZulu-Natal Province.....	164
Table 21:	List of Aerodromes in KwaZulu-Natal.....	176
Table 22:	Information about Pietermaritzburg Airport.....	178
Table 23:	Capacity of Pietermaritzburg Airport.....	179
Table 24:	Demand at Pietermaritzburg Airport.....	179
Table 25:	Pietermaritzburg Airport yearly air passengers and scheduled ATM's (2007)	179
Table 26:	Pietermaritzburg Airport daily air passengers and ATM's (2007)	180
Table 27:	Pietermaritzburg Airport dimensions	180
Table 28:	Information about Durban International Airport (FADN)	181
Table 29:	Runways at DIA.....	182
Table 30:	Durban International Airport Terminals.....	182
Table 31:	Demand at DIA	182
Table 32:	DIA yearly air passengers and ATM's (2007).....	183
Table 33:	DIA daily air passengers and ATM's (2007)	184
Table 34:	DIA yearly ATM's from 2003/2004 to 2006/2007.....	184
Table 35:	Runways at DIA.....	187
Table 36:	Information about the new International Airport at La Mercy	188
Table 37:	Capacity of the new International Airport at La Mercy.....	188
Table 38:	Runways at KSIA.....	189
Table 39:	Information about Margate Airport.....	189
Table 40:	Demand at MA.....	190

Table 41:	Margate Airport yearly air passengers and ATM's (2007)	190
Table 42:	Margate Airport daily air passengers and ATM's (2007)	190
Table 43:	Margate Airport yearly ATM's	191
Table 44:	Runways at MA	191
Table 45:	Information about Richards Bay Airport	191
Table 46:	Demand at RBA	192
Table 47:	Richards Bay Airport yearly air passengers and ATM's (2007)	192
Table 48:	Richards Bay Airport daily air passengers and ATM's (2007)	192
Table 49:	Richards Bay ATM's from 2003 to 2007	193
Table 50:	Runways at RBA	193
Table 51:	Quay Structure Characteristics	199
Table 52:	Port Throughput and Capacity	203
Table 53:	Port of Durban: Conditions of Berths	204
Table 54:	Quay Structure Characteristics	208
Table 55:	Port Throughput and Capacity	210
Table 56:	The Condition of the Berths, assessed in 2005	211
Table 57:	KwaZulu-Natal approximate number of home-based trips per person per day	221
Table 58:	Average number of trips from home	222
Table 59:	An approximation of trip generation based on outward and return trips in KwaZulu-Natal	223
Table 60:	Trip-making by income group of household	223
Table 61:	Holiday trip rates	224
Table 62:	Business trip rates in KwaZulu-Natal	224
Table 63:	Migrant trip rates in KwaZulu-Natal	225
Table 64:	The days of the week on which migrant travel takes place in KZN	225
Table 65:	Rates of week-day travel by households for all trip purposes	226
Table 66:	Base year inter-district O-Ds in KwaZulu-Natal	227
Table 67:	Work trip O-Ds by public, private and non-motorised transport	228
Table 68:	Travel time to work by municipality and TAZ (Source: NHTS)	229
Table 69:	Education trip origins and destinations by municipality	230
Table 70:	O-Ds of education trips by public, private and non-motorised transport	231
Table 71:	Travel times to education in KwaZulu-Natal	232
Table 72:	Number of persons making holiday trips in KwaZulu-Natal	232
Table 73:	Origins and destinations of most recent holiday trips with destinations in KwaZulu-Natal	233
Table 74:	Provincial origins and destinations of holiday trips	233
Table 75:	Business trips by workers in KwaZulu-Natal	234
Table 76:	Provincial origins and destinations of business trips	234
Table 77:	Migrant trip origins and destinations in KwaZulu-Natal	235
Table 78:	Origins and destinations of migrant travel in the RSA	236
Table 79:	Mode to work from origins in KwaZulu-Natal	237
Table 80:	Mode of travel to education from trip origins in KwaZulu-Natal	238
Table 81:	Modes of transport used for the most recent holiday trip originating in KwaZulu-Natal	240
Table 82:	Mode of travel for business trips in KwaZulu-Natal	240
Table 83:	Modes of travel used for migrant trips originating in KwaZulu-Natal	241
Table 84:	Traffic Flow Information – Average Daily Traffic (ADT)	242

Table 85:	Base year car ownership in KwaZulu-Natal.....	243
Table 86:	Average number of cars per household	244
Table 87:	Relationship between car ownership and income	245
Table 88:	Vehicle registrations in KwaZulu-Natal and RSA	245
Table 89:	New vehicle sales in KwaZulu-Natal	246
Table 90:	Weekly use of cars for all trip purposes.....	247
Table 91:	Work trips by car.....	248
Table 92:	Car trips to education centres.....	248
Table 93:	Car use for holiday trips.....	249
Table 94:	Car use for business trips.....	249
Table 95:	Current Shosholozu Meyl Services	251
Table 96:	Current Fleet in Use in the RSA	251
Table 97:	Capacity Utilisation	254
Table 98:	Daily Schedule.....	256
Table 99:	Typical Schedule and Ticket Price Details	257
Table 100:	Provincially Subsidised Bus Fleet.....	259
Table 101:	KwaZulu-Natal and Ethekewini Taxi Fleets	260
Table 102:	Vehicles registered KZN – Jan 2005	261
Table 103:	Public transport destinations adjusted to reflect the distribution of formal employment.....	277
Table 104:	Phases and rough costing of infrastructure for the ETA IRPTN	278
Table 105:	Origins and destinations of trips to work by public transport in Msunduzi	279
Table 106:	Coastwise Shipping, SA Ports (Jan-Dec 2006)	295
Table 107:	KZN DoT Sources of Funding: 2003/04 – 2009/10	328
Table 108:	KZN DoT Budget or Estimated Payments: 2003/04 – 2009/10	329
Table 109:	KZN DoT Transfers to Local Government: 2003/04 – 2009/10	330
Table 110:	EM Operating Revenue by Source: 2005/06 – 2009/10.....	331
Table 111:	EM Operating Expenditure by GFS: 2005/06 – 2009/10	332
Table 112:	EM Capital Funding by Source: 2005/06 – 2009/10.....	332
Table 113:	EM Capital Expenditure by GFS: 2005/06 – 2009/10.....	333

LIST OF MAPS

Number	Name
Map 2.1A	National Base Map
Map 2.1B	Provincial Base Map
Map 4.2A:	2005 Population Density per District Municipality
Map 4.2B:	2005 Formal workers by sector
Map 5.2A:	The 26 Functional Urban Areas As Identified By NSDP
Map 5.2B:	Distribution of Economic Activity Based On GVA
Map 5.2C:	District Economic Profiles: National Perspectives
Map 5.2D:	Economic Concentrations
Map 5.2E:	Concentration of People Living under Minimum Living Level
Map 5.2F:	Administrative and Functional Context

- Map 5.3A: Land Use - Settlement Patterns
 Map 5.3B: Agricultural Potential
 Map 5.3C: Agricultural Activity
 Map 5.3D: Mining Activity and Reserves
 Map 5.3E: Tourism
 Map 5.3F: Land Use per District Municipality and Metro (Ugu DM)
 Map 5.3G: Land Use per District Municipality and Metro (Umgungundlovu DM)
 Map 5.3H: Land Use per District Municipality and Metro (Uthukela DM)
 Map 5.3I: Land Use per District Municipality and Metro (Umzinyathi DM)
 Map 5.3J: Land Use per District Municipality and Metro (Amajuba DM)
 Map 5.3K: Land Use per District Municipality and Metro (Zululand DM)
 Map 5.3L: Land Use per District Municipality and Metro (Umkhanyakude DM)
 Map 5.3M: Land Use per District Municipality and Metro (Uthungulu DM)
 Map 5.3N: Land Use per District Municipality and Metro (iLembe DM)
 Map 5.3O: Land Use per District Municipality and Metro (Sisonke DM)
 Map 5.3P: Land Use per District Municipality and Metro (Ethekwini MM)
- Map 5.4: Land Use – Transportation Corridors
- Map 6.2A: Existing Transportation Infrastructure Facilities - Road Network
 Map 6.2B: Existing Transportation Infrastructure Facilities – Annual Average Daily Traffic (Total)
 Map 6.2C: Existing Transportation Infrastructure Facilities – Annual Average Daily Traffic (Heavy)
 Map 6.2D: Existing Transportation Infrastructure Facilities - Counting Stations
 Map 6.2E: Existing Transportation Infrastructure Facilities – Average Daily Traffic Counts per Station
 Map 6.2F: Existing Transportation Infrastructure Facilities – Average Daily Truck Traffic Counts per Station
 Map 6.2G: Existing Transportation Infrastructure Facilities - Road Conditions
 Map 6.2H: Existing Transportation Infrastructure Facilities - Overloading Control Facilities
- Map 6.3: Existing Transportation Infrastructure Facilities – Rail Network
- Map 6.4A: Major Airports in South Africa
 Map 6.4B: Airports Demand
- Map 6.5: South African Ports
- Map 6.6: Pipelines and Pumps in South Africa
- Map 8.3: Freight Travel Patterns and Characteristics – National Freight Corridors

LIST OF ABBREVIATIONS

AADT	Average Annual Daily Traffic
AADTT	Annual average Daily Truck Traffic
ACSA	Airports Company South Africa
ADT	Average Daily Traffic
AGISA	Accelerated & Shared Growth Initiative for SA
AIDS	Acquire Immunodeficiency Syndrome
AMPS	Annual All Media Products Survey
ARTS	Refuse Transfer Station at Athlone
ASGISA	Accelerated and Shared Growth Initiative
ATNS	Air Traffic and Navigation Services Company
AVR	Abnormal Vehicle Register System
BBBEE	Broad Based Black Economic Empowerment
BEE	Black Economic Empowerment
BMR	Bureau of Market Research
BMS	Bridge Management System
BRT	Bus Rapid Transit
BSP	Background and Strategy Paper
CARNS	Community Access Roads Needs Study
CBD	Central Business District
CBPWP	Community - Based Public Works Programme
CFO	Chief Financial Officer
CIBD	Construction Industry Development Board
CMIP	Consolidated Municipal Infrastructure Programme
COCT	City of Cape Town
COLTO	Committee of Local Transport Officials
CPPK	Cost per passenger kilometre
CPs	Minor roads
CPTR	Current Public Transport Record
CSIR	Council of Scientific and Industrial Research
CTIA	Cape Town International Airport
DBSA	Development Bank of South Africa
DDG	Deputy Director General
DEAT	Department of Environmental Affairs and Tourism
DG	Director General
DLTS	Driving License Testing System
DNA	District Management Area
DOT	Department of Transport
DPLG	Department of Provisional and Local Government
DPWRT	Department of Public Works, Roads and Transport
DRs	Divisional roads
DWAF	Department of Water Affairs and Forestry
ECDC	Eastern Cape Development Co-orporation
EEI	Economic Employment & Investment Cluster
ELMET	East London Metropolitan Area
EPWP	Expended Public Works Programme
ESRI	Environmental Systems Research Institute
EU	European Union
FDI	Foreign Direct Investment
FES	Financial and Economic Support
FET	Further Education and Training
FFC	Finance & Fiscal Commission
FIFA	International Federation of Association of Football

FOHOD	Forum of Heads of Department
FTP	File Transfer Protocol
FTPD	Freight Transport Policy Development
FSPG	Free State Provincial Government
GDP	Gross Domestic Product
GDPTRW	Gauteng Department of Public Transport, Roads and Works
GEMS	Government Employee Medical Scheme
GIS	Geographic Information System
GM	General Manager
GVA	Gross Value Add
HCDS	Human Capital Development Strategy
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
HOD	Head of Department
HR	Human Resources
HVs	Heavy Vehicles
HWM	High Water Mark
IA	Implementing Authority
IASC	International Air Services Council
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ICT	Information and Commercialization Technologies
IDIP	Infrastructure Delivery Improvement Programme
IDP	Integrated Development Plan
IDP	Integrated Development Planning
IDT	Independent Development Trust
IDZ	Industrial Development Zone
IEA	Infrastructure Enhancement Allocation
ILRP	Integrated Law Reform Project
IMF	International Monetary Fund
IMT	Intermediate Means of Transport
IP&C	Infrastructure Planning and Coordination
ISRDP	Integrated and Sustainable Rural Development Programme
ISRDS	Integrated Sustainable Rural Development Strategy
IS	Information Systems
IT	Information Technology
ITMS	Inter Technology Manage System
ITP	Integrated Transport Plan
ITS	Intelligent Transport Systems
KPI	Key Performance Indicators
KZN	KwaZulu-Natal
LDO	Local Development Objectives
LDV	Light Delivery Vehicle (Bakkie)
LED	Local Economic Development
LEDs	Local Economic Development Strategies
LRTB	Local Road Transportation Board
LTP	Land Transport Promotion
LTPS	Land Transport Permit System
MEC	Member of Executive Council
MEC	Member of the Executive Committee
MEDS	Microeconomic Development Strategy
MELD	Mdantsane East London Development
MINCOM	Ministerial Committee of Provincial Transport Ministers

MINMEC	Ministers and Members of the Executive Council
MIS	Management Information System
MML	Minimum Living Level
MPCC	Multi-Purpose Community Centres
MPT	Multi-purpose Terminal
MRs	Main roads
MSA	Moving South Africa
MTA	Metropolitan Transport Area
MTAs	Metropolitan Transport Areas
MTEF	Medium Term Expenditure Framework
MTT	Marine Tanker Terminal
NAAMSA	National Association of Automobile Manufacturers of South Africa
NAMPO	National Maize Producers Organization
NATIS	National Traffic Information System
NATMAP	National Transport Master Plan
NATMAP	National Roads Masterplan
NATMAP	National Transport Master Plan
NDA	National Development Agency
NDoT	National Department of Transport
NEPAD	New Partnership for Africa's Development
NHTS	National Household Travel Survey
NLTSF	National Land Transport Strategic Frameworks
NLTTA	National Land Transport Transition Act
NMT	Non-motorized Transport
NPA	National Ports Authority
NRTDS	National Rural Transport and Development Strategy
NSDP	National Spatial Development Perspective
NSG	National Standards and Guidelines
NTTT	National Taxi Task Team
O-D	Original Destination
OLAS	Operating License Administration System
OLB	Operating Licence Board
OLS	Operating License Strategy
Orex	Operations and Spoornet
PA	Planning Authority
PEMET	Port Elizabeth Metropolitan Area
PFMA	Public Finance Management Act
PFMA	Provisional Finance Management Act
PGDS	Provincial Growth and Development Strategy
PGWC	Provincial Government Western Cape
PIG	Provincial Infrastructure Grant
PIMSS	Planning and Implementation Management Support System
PLTF	Provincial Land Transport Framework
PMS	Pavement Management System
PMU	Project Management Unit
PPP	Public Private Partnership
PROVTECH	Provincial form with Technical / Official representatives from all local municipalities in the Province
PSDF	Provincial Spatial Development Framework
PTOE	Public Transport Operating Entity
PTP	Public Transport Plan
PTPD	Passenger Transport Policy Development
PTPD	Passenger Transport Policy Development (Monitoring & Evaluation)

RDA	Rural Development Agency
RIDS	Regional Industrial Development Strategy
RIM	Road Infrastructure Management
RNIS	Road Network Information System
RO	Rail Operations
RSA	Republic of South Africa
RTS	Rural Transport Services
S.P.M.	Single Point Mooring
SA	South African
SAARF	South African Advertising Research Foundation
SACAA	South African Civil Aviation Authority
SADC	South African Development Community
SAMSA	South African maritime Safety Authority
SANRAL	South African National Roads Agency
SARCC	South African Rail Commuter Corporation
SATAWU	South African Transport and Allied Workers
SC	Steering Committee
SCM	Supply Chain Management
SCS	Social Capital Strategy
SDF	Spatial Union Development Framework
SDIP	Sustainable Development Implementation Plan
SDIs	Spatial Development Initiatives
SFF	Strategic Fuel Fund
SHSS	Sustainable Human Settlements Strategy
SIP	Strategic Infrastructure Plan
SMF	Supervising and Monitoring Firm
SMME	Small Medium Micro Enterprise
SOW	Scope of Work
SP	Safety Promotions
SSATP	Sub-Sahara African Transport Programme
SSS	Scarce Skills Strategy
StatsSA	Statistics South Africa
TA	Transport Authority
TETA	Transport Education Training Authority
TEU	Twenty Foot Equivalent Unit (Containers)
TIA	Traffic Impact Assessment
TNPA	Transnet National Ports Authority
ToR	Terms of Reference
TPR	Transport Planning Requirement
TRs	Trunk roads
UDF	Urban Development Framework
UMET	Umtata Metropolitan Area
UNISA's	University of South Africa
USA	United States of America
V/C	Volume Capacity
VLCC	Very Large Crude Carriers
WC	Western Cape
WCDEPW	Western Cape Department of Transport and Public Works

EXECUTIVE SUMMARY

INTRODUCTION

This report is for Phase 1 of the KwaZulu-Natal component of the Status Quo Inventory of the National Transport Master Plan (NATMAP). The first Chapter provides an overview of the scope and objectives of the study and describes the methodology applied. The report gives an overview of the province, the status of information systems, and covers demographic and socio-economic characteristics, land use and development corridors, transport infrastructure facilities, passenger and freight transport, institutional structures, legislation, and funding mechanisms.

This report addresses the Phase 1 Transport Inventory of the KwaZulu-Natal Province, and it is the second report produced in the project, following the Inception report. This is the fourth and final draft of the Inventory report, incorporating the comments received from various national and the provincial stakeholders, including those of the DoT and the Academic Team on the project.

OVERVIEW OF KWAZULU-NATAL

A description is provided of the metropolitan, district and local municipalities which provide the institutional structures in the province. There is a description of the spatial distribution of the main urban settlements and the transport infrastructure which links the settlements within and beyond the province.

The report devotes attention to defining the main characteristics of the metropolitan municipality and each of the district municipalities. The major provincial development initiatives are introduced. Main details of KZN are summarised below.

KwaZulu-Natal (KZN) is the fifth largest Province in terms of geographical size and the largest in terms of population. Its land area is 94,701km² which constitutes 7,6% of South Africa's total land area. The estimated 2005 population is 9,9 million, 21% of the national total.

KwaZulu-Natal Province comprises ten District Municipalities and one Metropolitan Municipality, the Ethekewini Metropolitan Municipality (see Map 2.1 A and B). The district municipalities are: Ugu-, Umgungundlovu-, Uthukela-, Umzinyathi-, Amajuba-, Zululand-, Umkhanyakude-, Uthungulu-, ILembe- and Sisonke District Municipality

INFORMATION SYSTEMS

Chapter 3 provides a description of the information system existing in the province. In terms of province wide transport related systems, the most relevant ones will be the SANRAL, KZN Department of Transport and Transnet systems.

The KwaZulu-Natal Department of Transport has a GIS running on the ArcGIS 9.2 platform. It is linked to a database platform Oracle Server. This department also has access to GIS data from other provincial departments including the Department of Agriculture and Environmental Affairs and Local Government and Traditional Affairs. An IMS server which serves the GIS data on the World Wide Web at www.kzndotgis.gov.za is maintained by the KZN Department of Transport.

The Department has a roads management system in Oracle format, which is fully linked to the GIS. Since the GIS data has been moved to the IMS server, the full GIS linkage has not been restored yet, but it is in process of being restored.

DEMOGRAPHIC AND SOCIO-ECONOMIC

Chapter 4 provides demographic information for each of the district municipalities and Ethekwini. A more detailed breakdown of the population is provided in the database.

The total population in KwaZulu-Natal increased from 9,4 million people in 2001 to 9,9 million in 2005. One third (3,2 million) of the population resided in the Ethekwini Metropolitan Area, whereas, the remainder of the population was distributed between 9 of the ten District Municipalities (ranging between 5-10%) of the population.

The population composition in KwaZulu-Natal can be described as largely homogenous and mainly comprises Africans (85% (8,4 million)), followed by Asians (9%), Whites (5%) and Coloureds (1%).

Only 33% (3,2 million) of the population is economically active which is lower than the average for South Africa, namely 37%. "Economically active" refer to all people between the ages of 15-65 years who provide their labour for production of goods and services, and includes people in the formal and informal sectors, as well as the unemployed.

The average annual household income in KwaZulu-Natal was R39 048 which is low compared with the average for South Africa (R47 970).

Construction is the most rapidly growing sector with a 12% growth between 2004-2005. This follows from the explosive growth in the demand for new developments, both infrastructural and private. The next most rapidly growing sector is the wholesale and retail trade with a 6,5% growth over the same period. The largest

contributor to GDP was manufacturing, generating R39,5 billion. This was closely followed by the finance sector with R28,7 billion.

KwaZulu-Natal's unemployment rates are marginally greater than the national average. Over the last several years there has been a definite overall decline in unemployment. From a high in 2002 of 35%, unemployment has decreased to 26,6% by the end of 2006.

Currently, the major area of concern is the rising inflation rate. However, it must be noted that this is a countrywide problem. The economy is growing rapidly and this is having positive impacts on unemployment, but is likely to further stoke inflation if supply cannot meet the increasing demand. Overall, KwaZulu-Natal has a sound macroeconomic foundation.

LAND USE AND DEVELOPMENT CORRIDORS

The Province is characterised by an extensive mosaic of scattered rural settlements and villages. Vast numbers of these settlements and villages occur within the Zululand, Umkhanyakude, Umzinyathi and Ugu District Municipalities earmarked as Rural Development Nodes by the Government's ISRDS programme. The presence of villages, informal settlements, and formal urban areas increase towards the coastline with the most significant urban conurbation being located within the eThekweni Metropolitan Municipality. A string of urban areas are also located along the coastline, predominantly in a southerly direction towards East London. An extensive urban area is however found towards the north at Richards Bay within the uMhlathuze Local Municipality.

Apart from the eThekweni metropolitan area, prominent urban areas are found towards the interior of the Province, within the local municipalities of Msunduzi, Emnambithi / Ladysmith, Endumeni, Newcastle, and Abaqulusi. Many of these urban areas are located either along the intersection of major national / provincial routes, commercial ports, areas of agriculture or industry, or tourist attractions.

The major towns and cities in the Province comprise the following:

- Durban which represents the main activity node and concentration of people in the Province;
- Pietermaritzburg, Richards Bay, Newcastle, and Ladysmith which represent some of the major secondary activity nodes in the province; and
- A range of smaller towns and villages like Estcourt, Ulundi, Howick, Vryheid, Mooi River, Dundee, Kokstad, KwaDukuza (Stanger), Kwamakhutha, Amanzimtoti, Umkomaas, Port Shepstone, and St Lucia.

From a national perspective the N2 and N3 constitute the primary movement and activity corridors. The N2 links directly to the Eastern Cape Province and beyond, ending in the City of Cape Town. To the north the N2 links Durban with Richards

Bay, Pongola, and Ermelo in Mpumalanga. The N3 is particularly important as goods are moved by truck from Johannesburg to be shipped out of the Port of Durban and vice versa. The N11 is also an important trade route linking Ladysmith with Newcastle and several coal-mining towns within the Umzinyathi and Amajuba Districts. Furthermore, this road forms a link to Mpumalanga Province and an alternative route to Gauteng. Secondary corridors include the very prominent R56, which traverses the interior of the Province in a southerly direction from Pietermaritzburg to Kokstad, connecting a number of prominent towns with one another in KwaZulu-Natal and the Eastern Cape; the route from Edenburg to Ezingoleni; the route from Mpunzi Drift to Ezingoleni; the route from Moguntia to Mthimude; the R102 linking the coastal towns; and the R612 running inland to Umzinto and onwards. Apart from these intra-national corridors, the Province plays host to two Transfrontier Corridors. These are the KwaNgwanase to Maputo (Mozambique), and the Ingwavuma to Big Bend (Swaziland). An additional activity corridor is found on the new MR439 road from Hluhluwe to Maputo.

The most important railway line is the “coal line”. The line passes through Zululand carrying coal from the Mpumalanga mines to Richards Bay. This line is currently being upgraded. From Richards Bay, two lines extend in opposite directions. The one crosses-over into Swaziland, whilst the other stretches down the eastern coast towards Durban. From Durban one primary line extends to Johannesburg and onwards, via Pietermaritzburg and Ladysmith. This line also links the town of Newcastle into the rail network. Metrorail operates a commuter rail service in Durban and the surrounding area. The Metrorail network runs from Durban Station outwards as far as Stanger on the north coast, Kelso on the south coast, and Cato Ridge in the interior.

Durban and Richards Bay constitute two of South Africa’s largest and busiest harbours, with Durban being the busier of the two. Richards Bay is South Africa’s premier harbour for the export of coal, aluminium, titanium and other heavy minerals. A number of airports are also found throughout the Province with the more prominent ones being Durban International, Margate, Pietermaritzburg, Richards Bay, Ulundi, Harding, Mkuze and Newcastle. Plans are currently at an advanced stage for the construction of a new airport at La Mercy, north of the Durban CBD.

Some of the land use issues facing the provision of transportation infrastructure in the Province include:

- the topography of the Province presents significant barriers to movement in the form of deeply incised river valleys, ridges, and steep lands;
- rural access roads are in a poor condition and are in need of urgent upgrading and maintenance; and
- the encroachment of residential and commercial land uses onto major road reserves is creating a potential traffic hazard.

EXISTING TRANSPORT INFRASTRUCTURE FACILITIES

Road

It is estimated that the length of all public roads within the province is approximately 100 000 km. National and Provincial Roads in KwaZulu-Natal are well defined in legislation and details of these follow:

The National Roads in the Province total 1 935 km in length and are described below:

- N2 from Brook's Nek through to the Mpumalanga Border;
- N3 from Durban to Van Reenen;
- N11 from N3 (near Ladysmith) to Volksrust;
- N20 from Port Shepstone to Umtamvuna River;
- N22 from N2 (near Hluhluwe) to Manqusi Ponta do Ouro; and
- N720 from Pongola to Golela.

In terms of the KwaZulu-Natal Provincial Roads Act (Act 4 of 2001), the Provincial Road network consists of Main, District and Local Roads. The identified Provincial Road network totals approximately 43 000 km.

A number of the Provincial roads are currently earth tracks, being used by public transport and/or general traffic. These qualify as Provincial Roads in terms of the KZN DoT assessment criteria, but still require upgrading to gravel roads to bring them up to a maintainable standard.

With the exception of the National and Provincial Roads located within its boundaries, the eThekweni Transport Authority manages the public roads infrastructure within their Metropolitan area.

Other Municipalities in the Province in general maintain the historical municipal road networks that are located mostly within the urbanised areas including formal and informal township areas.

The KZN DoT has reviewed the network under its jurisdiction and has taken responsibility for approximately 43 000 km, even though funding allocations are totally inadequate. This adjusted road network has been termed a minimal equity network that is the first step in moving towards a balanced network.

The KZN Department of Transport has identified that in 2007/2008, the lifecycle management plan for the minimum equity provincial road network is under funded by at least R 1,6 billion per annum, ignoring current maintenance and renewal backlogs. Some 52% of these Provincial blacktop roads are in a poor or very poor condition and are in need of rehabilitation. The estimated cost of this required rehabilitation work is at least R4,5 billion.

On the Provincial gravel roads, the outputs of the 2005 gravel road assessments indicates that 4 193 km of the assessed roads had less than 50 mm of gravel. The estimated cost to regravell this backlog is R880 million. Present rates of regravelling are lower than the rates of gravel loss.

Within the larger urbanised areas in the Province, a number of the Provincial Roads that fall into the Regional Distributor classification have serious traffic congestion problems, with motorists experiencing low levels of service. Examples of these are:

- P398 from Virginia to Umhlanga;
- P398 in the Ballito area;
- P94 through Umhlanga and Mount Edgecombe;
- P2-2 from Duff's Road through to Tongaat;
- P1-1 and P1-2 through Pinetown, Fields Hill and Hillcrest;
- P255 through Hillcrest and Waterfall;
- P82 from the N2 through to the N3;
- P197-1 from the Durban International Airport to the Adams Road Area;
- P496 from Empangeni through to Richards Bay;
- P395 from Port Shepstone to Ramsgate;
- P200 South of Port Shepstone.

The road network that needs to be modelled must be defined considering:

- The road network of national significance, which is defined as all national routes, plus provincial and municipal primary roads giving access to land use of national significance;
- the level of detail of the selected zoning system, and zone centroids to be linked up representing centres of gravity of nationally significant land uses;
- population and employment densities.

Rail

There are two important mainline railway arterial routes running from Durban to Gauteng (NATCOR) and Richards Bay to the Mpumalanga coal fields (COALLINK). There are, in addition, four important secondary main line routes: one which runs from Durban to Port Shepstone on the South Coast and the second from Durban to Golela on the North Coast. The latter line forms an international connection with Swaziland Railways, providing an additional through corridor to Mpumalanga and Mozambique. The third line is the Glencoe – Vryheid line, which forms an important link between the KZN mainline (Natcor) and the coal line. The fourth line runs from Ladysmith to Van Reenen Pass and creates a vital link with the Free States and points west.

In 2000, proposals were made to establish an inland “container terminal” at Mooi River, some 200 kilometres inland and served by both road and rail. Road traffic to and from the interior would exchange container loads to rail but for this concept to have been successful it would have required an even flow of traffic in both directions – a requirement that would probably not have been possible. A more recent proposal

has been to establish an inter-modal facility at Cato Ridge to perform a similar function to the earlier Mooi River concept. Feasibility and cost benefit analyses will determine the potential of the project.

NOT KZN material

In respect of KwaZulu-Natal, inter-modal operations should be promoted in rural areas. In the past, rail was used for all long-haul traffic and traffic was transferred to a dedicated road transport system (the Road Motor Transport division of the railway administration) Consideration should be given to re-introducing this system, using modern technology. This will create job opportunities in rural areas and empower communities to have a greater say in the distribution of goods and services in their areas.

The South African Rail Commuter Corporation and Metrorail have now been consolidated into one unit falling under the Department of Transport. In the Durban operating area, 208 kilometres of track are utilised by Metrorail trains which use 102 stations including the main Durban station. Shosholozha Meyl and Metrorail trains run over the Mariannhill to Cato Ridge mainline while Metrorail trains share the North and South Coast line, otherwise all freight. This includes the Rosburgh to Kelso portion of the South Coast line and the Durban station to Stanger portion of the North Coast line.

Unfortunately, general maintenance of rolling stock was allowed to fall behind in the recent past and a significant proportion of coaches have gone beyond the 13 year requirement of having an 'A Class' overhaul. Because of this, many coaches are standing out of use for safety reasons. In Durban for example, there is an allocation of about 800 suburban coaches but only 600 are in service. Because of this, trains are chronically overcrowded and there appears to be no short-term solution. The private sector could assist with rebuilding coaches but to date the railway administration has not made a request for such services.

Aviation

This section is the status quo report on the KwaZulu-Natal airports and contains all relevant data pertaining to airports of national importance including:

- information from the Airports Company of SA (ACSA), as well as other stakeholders;
- data related to airport infrastructure (capacity and expansion potential);
- historical and present usage (passengers and flights);
- Origin destination demand lines;
- Demand forecasts from masterplans;
- Airport master plans; and
- Users (airlines, workers, precinct, freight).

This information was analysed in line with the expectations of Phase 1: Inventory, of NATMAP including making the links to other modes of transport. The task was

intended to provide base year information on the airports including both airside (air passengers and number of flights) and landside (vehicles (pcu)) which will be input to the Phase 2 Analysis of future trends in demand for airports in the RSA. The task also has the objective of determining recent trends in growth in airside demand.

There are 17 airfields in KZN of which four airports are of national importance:

- Pietermaritzburg Airport;
- Durban International Airport;
- Richards Bay Airport; and
- Margate Airport.

Maritime

The port of Durban, Africa's largest and busiest general cargo port, serves the immediate Durban/Pinetown industrial areas, Gauteng and the Southern African region. The port of Durban operates 24 hours a day 365 days a year. The entrance channel has a depth of 12,8m from Chart Datum. The channel width is 122 m but work is proceeding to widen the channel by a further 100m and to deepen it to 16.5 metres in 2008.

The port, like all others in South Africa, is operated on a common-user basis and is managed by TRANSNET National Port Authorities (TNPA), which provides and maintains the infrastructure as well as the superstructure of the port.

The port of Richards Bay provides cargo handling (except stevedoring aboard vessels which is undertaken by private enterprise) and marine services including tugs and pilotage. Ship repair facilities are available at the Prince Edward Graving Dock that has an overall docking length of 352,04m.

Situated at Longitude 32° 02' E and Latitude 28° 48' S, Richards Bay, South Africa's most northernmost and easterly port, is 87 nautical miles (160 km) northeast of Durban and 252 nautical miles (465 km) southwest of Maputo. The port occupies 2,157 ha of land area and 1,495 ha of water area at present. The entrance channel is dredged to a permissible draught of 17,5 metres with a -19,5 m depth in the entrance channel. Berthing varies between 8m (small craft berth) and 19m (coal berths).

Pilotage is compulsory for all vessels and the port operates a fleet of five tugs owned and operated by the Transnet National Ports Authority (TNPA).

Facilities at Richards Bay consist of a Dry Bulk Terminal, a Multi Purpose Terminal and the privately operated Coal Terminal. Other private operators within the port include several wood chip export terminals and a bulk liquid terminal. The port has extensive rail and conveyor belt systems servicing the berths from nearby factories and plants.

Infrastructure concerns

Some infrastructure concerns include the following:

i. Rural Road Network

Currently the rural road network is in need of considerable improvement. There are approximately 15 000 km of provincial earth roads that require reforming, drainage and gravelling to bring them into a maintainable condition. Roads within the numerous rural villages are also in need of upgrading. Backlogs in terms of maintenance and rehabilitation requirements are very substantial.

ii. Branch Rail Lines

The branch lines in KwaZulu-Natal are in need of extensive overhaul and operational upgrade in order to make them competitive with the road haulage of the major commodities which are timber, sugar and on one line only, coal transport.

iii. Main Rail Lines

Main line operations through KwaZulu-Natal have been severely reduced over recent years due to operational inefficiencies and considerable amount of upgrading would be required of systems, staffing, rolling stock and locomotives in order to regain the competitiveness of main line rail by comparison with long haul road transport.

iv. Coal-link

The coal-link main line from the interior to Richards Bay requires a considerable amount of upgrading and replacement of rolling stock to keep pace with the continual growth of demand for export coal from Richards Bay port.

v. Container Terminal

The container terminal at the port of Durban has adequate capacity for present throughput but with the planned expansion will require extensive upgrading and development of the rail and road network to accommodate the future growth projections.

vi. Road access to Ports

The port of Durban requires a considerable amount of planning and investment to improve the access to the port and over the long term will require additional rerouting of the major corridors to the port in order to reduce current congestion and inefficiency.

vii. Road rail competition

A feature of the road- rail competition in KwaZulu-Natal has been the increasing switch from rail to road over the past ten years with consequent over utilisation of the main road corridors and under-utilisation of the rail system.

PASSENGER TRAVEL PATTERNS AND CHARACTERISTICS

Chapter 7 of the report details the passenger market segments, the modes of travel used for work, education, business and holiday and the origins and destinations of trips made for these purposes.

Demand factors included in the report include household and person trip rates for all the main trip purposes and the use of and availability of cars. Supply factors covered in the report are car ownership, vehicle registrations and new car sales and public transport vehicles and rolling stock.

The existing O-D patterns and travel times help to highlight gaps and bottlenecks in existing networks – these are revealed by long travel times, even where “straight-line” distances between O-Ds are relatively low. Such is the case in rural KZN where travel times are not so much a function of travel distance as of poor quality transport services.

In summary, the conclusions on travel patterns are as follows:

- trip generation rates highlight the dualism of the South African economy. They indicate the effect of income in the case of work trips and social and income factors in the case of education trips. There are more work trips by higher income individuals and households and more education trips by medium income households;
- other trips reflect the social conditions of the households, with lower income houses with fewer people involved in work and education activities, spending more time on visiting and recreational trips;
- business trips are a reflection of the employment, income and location of workers relative to the RSA as a whole. Holiday trips reflect the socio-economic strata of the population and migrant trips are a function of race composition, the level of economic activity and the geographic location of workers;
- with rising car ownership and use, pressure on the road network can be expected to mount considerably in the coming decades.

Apart from the fact that the O-D information is useful in understanding the Status Quo of origin-destination patterns in the different parts of KwaZulu-Natal, the information produced by this task will form the base year information for the analysis of future O-D patterns in the province.

The existing O-D patterns and travel times help to highlight gaps and bottlenecks in existing networks – these are revealed by long travel times, even where “straight-line” distances between O-Ds are relatively low. Such is the case in Kwa Mashu where travel times are not so much a function of travel distance as of poor quality transport services.

In summary, the conclusions are as follows:

1. EtheKwini dominates the travel patterns of KwaZulu-Natal;
2. KwaZulu-Natal is home to 21% (9,9 million) of the RSA population;
3. Many work trips in KwaZulu-Natal are made in EtheKwini (nearly 1 million or 27% of all work trips) and very few are cross-boundary trips;
4. The main cross border trips are between Ugu and Umgungundlovu to EtheKwini;
5. Walking is the main mode in DM's and car and public transport in EtheKwini;
6. Long distance work travel is mostly found in EtheKwini where more than 16% of workers travel for more than 60 minutes on their regular trip to work;
7. 27% of education trips are in EtheKwini and there is little cross-boundary movement for these trips;
8. Walking to education is the main mode everywhere except EtheKwini where about 39% use other modes;
9. Travel times to education of less than 15 minutes are rare (24% in KZN and 28% in EtheKwini); a large proportion travel for more than 60 minutes (10% in KZN and 6% in EtheKwini);
10. Most holiday trips from EtheKwini are made by whites and Asians;
11. On average those who make holiday trips make about 2,2 per year;
12. 27% of business trips originate from EtheKwini;
13. Gauteng and KZN are the main business trip destinations;
14. Air travel is most prevalent for business trips; and
15. Migrant trips are mostly in taxis.

The base year information on car ownership will be used to forecast future patterns in work, education, business, holiday and migrant travel between the provinces.

Future car ownership and use will be one of the cornerstones of the NATMAP project, helping to motivate the blueprint for future policy about car restraint and the provision of alternative transport systems and infrastructure for people-movement in urban areas and in respect of domestic, holiday, business and other travel and for international tourist travel in particular.

In summary, the conclusions are as follows:

1. KwaZulu-Natal is home to 21% (9,9 million) of the RSA population;
2. 14% of cars and LDVs registered in the RSA are found in KZN;
3. eTheKwini contains 33% of the population of KZN but 59% of all the cars owned by households;
4. Between 1995 and 2006 annual car sales increased by 92% in KZN and 81% in the RSA as a whole;
5. Between 2001 and 2005 total vehicle registrations increased by 8% in KZN and 10% in the RSA as a whole;

6. More eThekweni residents have access to household owned cars (30%) than do residents of the other districts (21 - 7%);
7. The average number of cars per household in Ethekewini (0,44) is much higher than the other districts (0,32 in Umgungundlovu & Amajuba down to 0,11 in Sisonke);
8. There is a strong correlation between income and car ownership;
9. Entry income level for ownership appears to be about R3 000 / month;
10. 76% of households earning R6 000 or more per month own cars;
11. In eThekweni over 650 thousand people use a car at least once per week.

FREIGHT TRAVEL PATTERNS AND CHARACTERISTICS

This chapter of the report discusses freight market shares and freight demand and supply in the base year 2005. Issues and concerns are listed.

The road freight tonnage on the main corridor routes in the province where parallel road and rail make competition possible amounts to approximately 35,0 million tonnes per annum and the general rail freight is about 13 million tonnes giving rail a 27% market share.

There is a clear indication that goods transport is increasingly shifting from rail to road transport with concomitant need for additional road funding, and causing urban congestion, road safety and environmental implications and the under utilisation of existing rail infrastructure.

The overall volume of rail freight in the KZN has diminished considerably in recent years, due largely to road competition. Many commodities such as domestic and export fruit and vegetables, as well as refrigerated fish directed to Gauteng and chilled meat from the north has been transferred to road. Even some grain, fertiliser and coal traffic has been lost to road.

The total volume of cargo (approximately 2.3 million tonnes p.a.) being landed and shipped by coastal shipping at KZN ports is relatively low.

There is 6,9 million tonnes p.a. of commodities transported by pipeline (petroleum products and gas) in addition to the tonnages carried by rail and road.

As there is no standardised system in South Africa to record airfreight cargo movements, it is difficult to establish this information. The airfreight industry particularly the private charter operators, are generally unwilling to impart this information. Another factor that makes cargo tonnage difficult to assess is that substantial quantities of cargo booked as international airfreight, actually travels by road transport from Durban to Johannesburg.

Market segmentation is a difficult concept to apply in the context of road freight on account of the variety of commodities carried and the huge differences in their weight and value. Full available details of cargoes and tonnage by different modes are contained in the Data Base.

Demand

Transport demand occurs by mode (road, rail, air, sea and pipelines). The consumption of transport services and infrastructure is by individuals and firms. The demand for transport is a derived demand, i.e., it is a means to an end such as to get to work or shops or to move goods from one place to another. Consumers of transport services base their decisions not only on price but also on factors such as trip and delivery times, convenience, comfort, safety, reliability and (in the case of goods transport) minimisation of losses in transit.

Many of the factors influencing transport supply also influence demand. Thus, a transport policy skewed in favour of one particular mode might lead to more of the infrastructure for that mode being supplied and less of the infrastructure for another mode being supplied even though, all other things being equal, the consumer might in fact prefer more of the latter and less of the former. Because of policy and investment distortions there are also distortions in market demand.

Statistics relating to the demand for transport in the KwaZulu-Natal are as follows:

Road –

Total vehicle fleet (2006)	1087,539 (of which motor cars 692,661, minibuses 40,209, buses 5,920, motorcycles 28,435, LDVs 246,813, trucks 44,062 and other or unknown 29,439.
-------------------------------	--

Volumes cargo	Available only for each survey point on the main routes and not for the province as a whole.
------------------	--

Rail (2005/06)–

Mainlines	126 million tonnes
Branch lines	1,6 million tonnes

Port Freight Volumes (2006) –

Durban	43,8 million tonnes
Richards Bay	86,3 million tonnes

Airports (2006/07) –

Durban International	2,132,405 passenger departures
Airfreight DIA	6 375 tonnes per annum

KwaZulu-Natal has the busiest freight corridors in South Africa and the objective for this province is the efficient movement of goods by sea, road, and rail to and from the interior.

Freight transport policy must be primarily directed at creating conditions that support that objective, whilst recognising the role of government in the provision of infrastructure and defining and enforcing the acceptable standards for issues such as safety, environment, employment and infrastructure usage.

Supply

Transport supply consists of physical infrastructure and equipment. Physical infrastructure refers to, for example, roads, railway track and stations, bridges, airport runways and terminals, and docks. Equipment embraces vehicles, locomotives and rolling stock, traffic control, cranes, etc.

Physical infrastructure tends to be supplied primarily by various tiers of government, including parastatals, while capital equipment and transport services are supplied by the public sector, firms and individuals. It is these different suppliers who are responsible for making decisions on investment. Such decisions in turn are influenced by the political process (especially in public-sector investment), economic conditions (including the trade cycle and perceptions about political and economic stability), and economic policies (especially policy consistency, government regulations and the degree of competition both inter-modal and intra-modal).

Related to the issue of investment is the problem of resource allocation. The price mechanism is not an adequate one for allocating transport services, both because of policy distortions in the form of taxes and subsidies, and because of the failure to recover full costs for the use of infrastructure, and thus resources are not allocated optimally among modes. Environmental and social policies also influence price and investment decisions. Although the supply of transport is located in both the public and private sectors, the influence of government is overwhelming: it is the direct provider of services and infrastructure, levies taxes, pays subsidies, and sets regulations.

The supply of infrastructure by the public sector is determined by project appraisal in which cost-benefit analysis distinguishes between financial and economic viability. The former examines the project from the point of view of the investor/operator, and the latter from the point of view of society as a whole. Thus, a project that produces an acceptable financial return might not meet the minimum required economic return once externalities such as accidents, congestion, air and noise pollution, and other environmental effects are included in the analysis.

The supply of transport in KwaZulu-Natal is shown by the following statistics:

Roads:

Public roads within Province	100 000km
Surfaced National and Provincial Roads	9 086km
Unsurfaced Provincial Roads	18 943km
Weighbridges	16

Railways:

Mainlines	777km
Secondary mainlines	678km
Rural branchlines	875km
Suburban/metro	208km

Pipeline:

KwaZulu – Gauteng	3 000km
-------------------	---------

Airports:

International	1
Other (numerous smaller airports and landing strips)	

Ports:

Major	2
-------	---

INSTITUTIONAL STRUCTURE

Chapter 9 provides a national overview of institutional structures and itemises the relevant institutional structures in KwaZulu-Natal. It concludes with a section dealing with institutional issues and constraints.

There are numerous Acts, policies, discussion papers, plans, reviews and other documents regarding transport in South Africa. The institutional inventory has focused on determining the institutional structures of the various national transportation entities, as categorised in the six transport sectors.

The main transport institutions in the province of KZN are as follows:

- the KwaZulu-Natal Department of Transport:
- the KwaZulu-Natal Public Transport Licensing Board:
- the KwaZulu-Natal Provincial Transport Registrar
- the KwaZulu-Natal Appeals Tribunal:
- Municipalities in KwaZulu-Natal: and
- the eThekweni Transport Authority (ETA).

The problems experienced by the ETA will probably also apply to other transport authorities when they are established, and are being addressed by the revision of the

NLTTA. These are mainly a lack of own funding sources and the confusion created by the local government legislation that has post-dated the NLTTA.

A problem with the ETA is the fact that there are too few councillors on the Governing Body (only three), and they reportedly have too many other duties to be able to devote sufficient time to ETA transport matters.

LEGAL

Chapter 10 provides a national overview of LEGAL structures and itemises the relevant laws in KZN. It concludes with a section dealing with legal issues and constraints.

Specific legislation which applies in KZN includes the following:

- the KwaZulu-Natal Provincial Roads Act 4 of 2001;
- the Advertising on Roads and Ribbon Development Act 21 of 1940;
(Repealed for Provincial Roads only)
- the Urban Transport Act 78 of 1977;
- the KwaZulu-Natal Public Transport Act 22 of 2000;
- the National Land Transport Transition Act 22 of 2000;
- the KwaZulu-Natal Interim Minibus Taxi Act 4 of 1998;
- the Road Transportation Act 74 of 1977; and
- the KwaZulu-Natal Road Traffic Act 7 of 1997.

As regards roads, the KwaZulu-Natal Provincial Roads Act focuses on provincial roads and leaves municipal roads issues to be dealt with by municipal by-laws. Following the acceptance of the Road Infrastructure Strategic Framework for SA document, consultation is proposed between the Province and the municipalities to review the municipal networks. This may result in provincial legislation relating to municipal roads.

The KwaZulu-Natal Road Traffic Act 7 of 1997 needs to be amended or replaced to respond to the amendments to the National Road Traffic Act and to the AARTO and RTMC Acts.

In the case of public transport, the NLTTA has given rise to the situation where there are different and diverse laws in the provinces replacing Chapter 3, which makes for a lack of uniformity and consistency, and is confusing for people who must implement the legislation. This aspect is under discussion with the revision of the NLTTA.

A serious problem appears to be the fact that regulations for the KwaZulu-Natal Public Transport Act have not been promulgated yet. This makes it impossible to implement many of the provisions of the Act.

TRANSPORT FUNDING MECHANISMS

Chapter 11 provides a national overview of transport funding and funding mechanisms. Relevant provincial sources of money in KZN are detailed. It concludes with a section dealing with funding issues and concerns.

Analysis of the provincial and metropolitan MTEF budgets and budget trends over the past few years gives an indication of the relative importance of transport and the amounts allocated to planning, operations and infrastructure.

The primary sources of information were:

- KwaZulu-Natal Province, Budget Statement 2007, Vote 12: Transport; and
- eThekweni Municipality, Medium Term Budget 2007/08 to 2009/10.

The budget tables were analysed using Excel spreadsheets. Relevant data was extracted in keeping with the objectives of the Task. This data was summarised into tables for inclusion in this report.

Analysis of the provincial and metropolitan MTEF budgets and budget trends over the past few years gives an indication of the relative importance of transport and the amounts allocated to planning, operations and infrastructure.

In KwaZulu-Natal, more than two-thirds of the provincial transport budget is funded by Treasury, with motor vehicle license fees as the largest source of departmental funding. The provincial transport budget has increased significantly (57% in nominal terms) over the period 2003/04 (R2,12 billion) to 2006/07 (R3,34 billion), and is estimated to increase by a further 55 percent to R5,18 billion by 2009/10.

More than three-quarters of the provincial transport budget is allocated to expenditure on roads infrastructure. About 40% of the infrastructure budget is spent on maintenance and 50% on construction.

Expenditure on public transport and traffic management comprises about 16% of the provincial transport budget. In 2006/07, nearly R500 million was received from national Department of Transport for bus subsidies and this is projected to grow by 35% to R670 million by 2009/10.

Transfers from the province to local government average less than one percent of provincial transport expenditure over the period 2003/04 to 2009/10.

Total operating revenue for the eThekweni Municipality (EM) is estimated to increase nominally by 14 percent annually from R12,63 billion in 2006/07 to R16,2 billion in 2008/09, largely due to a nominal increase in grants of over 85% over this period. Property rates comprise about 25% of the total revenue and service charges a further 40%.

The largest operating expenditure items for the EM are electricity (about 28%), water (about 18%), and finance and administration (about 12%). Road transport accounted for seven and 11 percent of operating expenditure in 2005/06 and 2006/07 respectively, and fluctuates between five and 13% over the MTEF. Operating expenditure on the eThekweni Transport Authority forms a constant 2% of total operating expenditure.

Capital grant funding to EM from national government is estimated to increase by 44% in 2007/08 and a further 68% in 2008/09, before decreasing in 2009/10. Provincial grant funding shows a similar pattern.

EM capital expenditure on road transport declined from 18% of the capital budget in 2005/06 to only four percent in 2007/08 and eight percent in 2009/10. Capital expenditure on the eThekweni Transport Authority averages about two percent of total capital expenditure.

The metropolitan trends in transport expenditure clearly reflect the impact of the FIFA 2010 World Cup and the resulting increased transport investment. It is of some concern that the trend is for transport operating and capital budgets to fall by 2009/10, which may suggest that sustained transport investment beyond 2010 is currently not being adequately considered, or could just be as a result of the end of this MTEF cycle. The fluctuations in transport funding are also of some concern, since it is difficult to plan ahead when the budgets keep increasing and decreasing on an almost annual basis.

SUMMARY AND CONCLUSIONS

Chapter 12 summarises the findings of the data collected in the status quo. Comments received from various national and KZN stakeholders on the First Draft Status Quo report were incorporated in this Second Draft. Critical data gaps are the data requested from TRANSNET and the road freight O-D data, but these are currently being addressed through the DoT.

Further analysis will be undertaken in Phase 2 when many relationships and the underlying causes of problems will become even clearer. This Executive Summary has summarised the main findings of the Status Quo analysis.

Conclusions are listed in every section of the report. These will be followed by recommendations as the picture painted by the Status Quo analysis becomes clearer.

1. INTRODUCTION

1.1 BACKGROUND

The main purpose of the Transport Master Plan is to motivate a prioritized program of interventions to upgrade the transport system in South Africa. Its goal is to develop a dynamic; long term; and sustainable land use/multi-modal transportation systems framework, for the development of networks, infrastructure facilities; interchange termini facilities and service delivery.

The services provided by the SSI Consortium are in line with those specified in the Terms of Reference (ToR) , namely professional, covering civil, traffic and transport engineering, regional and urban planning, transport economics, legal and financial services, data-base and information systems management amongst others. The services will include those necessary to undertake field surveys, analysis systems and economic evaluation, design, costing and procurement.

This report addresses the Phase 1 Transport Inventory of the KZN Province, and it is the second report produced in the project, following the Inception report. This is the second draft of the Inventory report, incorporating the comments received from various national and the KZN provincial stakeholders, including those of the DoT and the Academic Team on the project.

1.2 OBJECTIVES OF THE STUDY

From the terms of reference it is deduced that the Proposed National Transport Master Plan 2005-2050 has the goal of developing a dynamic; long term; and sustainable land use/multi modal transportation systems framework for the development of networks, infrastructure facilities, interchange and termini facilities and service delivery strategies for the RSA. The framework and strategies need to:

- be demand responsive to national/provincial/district and /or any socio-economic growth strategy, and/or any sectoral integrated spatial development plan; and
- have a coordinated implementation schedule and/or action agenda for the whole country; and/or specific national and provincial spatial development corridors and regions until 2050.

In other words the objective is to prepare a physical development plan, sometimes referred to as a Master Plan, as the framework by which RSA's future state-of-the-art multi-modal transportation systems planning, implementation, maintenance, operations, investments, and monitoring decisions are to be made. It is an action plan.

The objectives of the Project are to identify, examine, assess, and propose;

- various land use/spatial development models to sustain investment in state-of-the-art multi-modal urban/rural transportation systems;

- cost effective models for an integrated public/private sector corridor/regional economic development;
- vision, goals and objectives for each of the national development corridor and/or economic regions;
- integrated growth and development strategies for each development corridor and/or region of national importance;
- potential economic development projects and compile a comprehensive economic status map of national importance;
- integrated multi-modal infrastructure facilities development Plan;
- cost effective policies promulgation, and/or changes to enhance coordination of transportation services;
- cost effective institutional arrangements model for efficient and effective investment, planning, implementation, operations, maintenance, and monitoring;
- action agenda for the various key stakeholders, based on the preferred development strategy and integrated development plan

The specific objectives of the Phase 1 Inventory are to provide information germane to the contents of **Table 1**. **Table 1** shows the main tasks in the inventory which provide an indication of the objectives of the NATMAP Project.

Table 1: Objectives of the NATMAP Project

Objectives	
1	Demographics – population issues – density, distribution etc.
Socio-economic	
2	Social issues, employment and incomes
3	Car ownership and use
4	Trip origins and destinations
5	Land use – ownership values, density, potential, current development strategies
Travel patterns and characteristics	
6	Passenger trip generation, purposes, mode shares
7	Freight volumes per corridor, commodity split in corridors and in main freight O-D pairs
8	Traffic flows on national and provincial road network (passenger – from various traffic counts including SANRAL)
9	Traffic flows on national and provincial road network (Freight – from various traffic counts including SANRAL)
Current transport infrastructure	
10	Road network – extent (lane km), ownership, facility type, condition, practical and spare capacities etc.
11	Rail network, stations, marshalling and storage facilities – conditions, practical and spare capacities
12	Civil aviation facilities – airports, passenger and freight volumes and practical and spare capacities
13	Maritime facilities status quo etc.
14	Transport funding and financing mechanisms
15	Institutional (organizations) jurisdictions capacities and performance
16	Review of reference documents including sectoral plans
17	Data base development

1.3 SCOPE OF THE STUDY

The NATMAP study covers the specific topics outlined in **section 1.2** above. In addition the following aspects are covered in the Phase 1 report in line with the ToR and Inception report.

- Information systems;
- Demographics and socio-economic characteristics;
- Land use and development corridors in the province;
- Existing infrastructure and facilities;
- Passenger travel patterns and characteristics including segmentation, demand and supply factors and issues arising there from;
- Freight travel patterns and characteristics including segmentation, demand and supply factors and issues arising there from;
- Financial, Legal and Institutional aspects relevant to the Western Cape; and
- The conclusions arising from the inventory investigation, including problems that need to be analysed in Phase 2 or the Project.

It should be noted that although status quo information on urban transport, such as commuter, school, and non-motorised travel, are provided in this report, the main scope of the NATMAP project focuses on transport infrastructure relating to networks of national significance and giving access to national land uses. The typical urban problems will not be addressed by NATMAP, except in so far they can be addressed by national policy, legislation, institutional and financial mechanisms.

1.4 METHODOLOGY

1.4.1 The Terms of Reference

On account of the decision to build the national Master Plan from provincial Master Plans generated in each of the nine provinces, there are a number of gaps which have required national co-ordination. These relate particularly to the Phase 1 Inventory and the compilation of a national Data-Base. It is essential that there should be a consistent approach to the quantification of population, employment and economic activity for both the base year and for the subsequent forecasts of population, employment and economic growth.

Likewise, at municipal level, the salary grading of officials has been linked to the population size of the municipalities. Thus it is natural that population estimates and forecasts at provincial or local level can be inflated. Similarly, in some circumstances it has been expedient to deflate figures to make the administrations look more effective, for example, relating to job vacancies or unemployment or crime statistics.

An approach which defines the national situation by aggregating provincial forecasts runs the risk of producing unrealistic national forecasts. For this reason it was recommended that demographic and economic specialists be appointed to provide the following:

- population and employment (economic) base year data for the RSA, disaggregated by province and local municipality
- population forecasts for the RSA and 9 provinces in five year intervals from 2005 to 2050, differentiating between high and low growth based on different scenarios for AIDS trends, political stability (migration) and economic changes;
- employment, income and economic forecasts for the RSA and 9 provinces in five year intervals from 2005 to 2050, differentiating between low and high growth based on different scenarios for global competitiveness and demand, changes in economic policy, energy and technology etc.

The experts appointed for population and economic forecasting in the SSI Consortium, will use the above population and employment forecasts in tandem with the information they generate about land use changes, to allocate future land use (population and economic activity) to the different municipalities within the province. This will provide the information necessary to quantify the passenger and freight demand or interaction between major nodes (municipalities). This information will be used in Phase 2 to reveal the future corridor interactions and will highlight the need for new or expanded infrastructure.

1.4.2 Broad Approach

The broad approach is depicted in **Figure 1**. The Project consists of four phases as follows:

- Phase 1: Inventory of transport demand and supply
- Phase 2: Analysis of base year transport demand and supply to quantify current bottlenecks and related problems, as well as future demand estimation
- Phase 3: Forward planning and evaluation of alternative plans
- Phase 4: Action Agenda and implementation programme

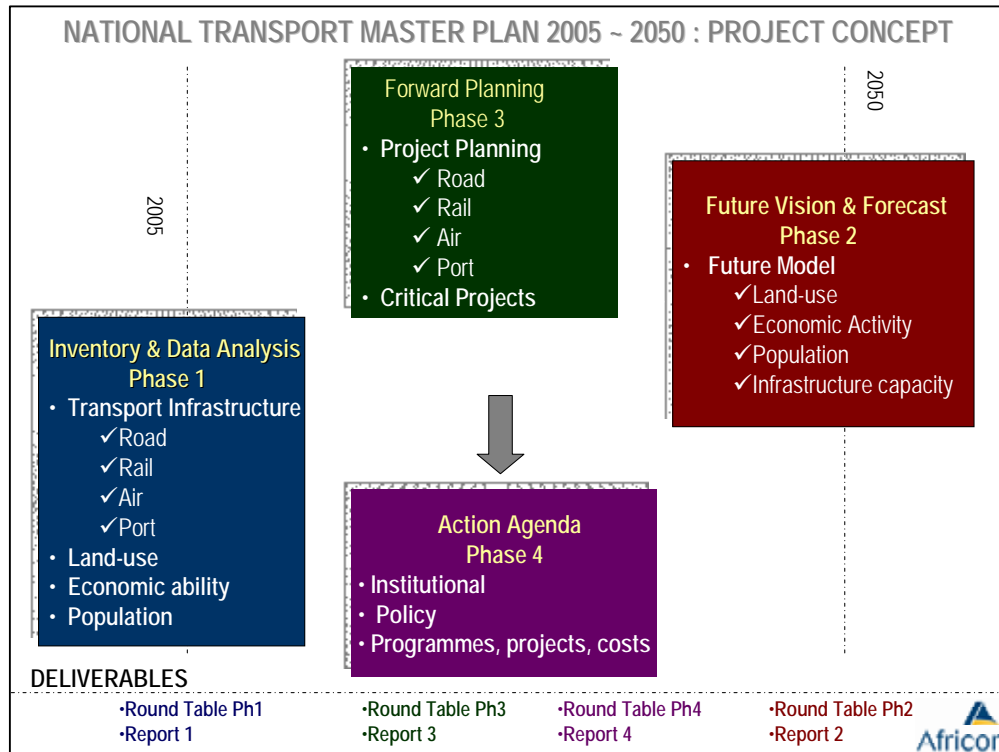


Figure 1: Structure and outputs of Phase 1 Inventory and subsequent phases

The Phase 1 Inventory delivers the information about the existing supply and capacity of transport, the main demand side drivers and problems and deficiencies, for input into the next three phases. Existing committed plans are also referenced for further analysis in Phase 2.

1.4.3 Detailed Methodology – Phase 1 Inventory

The first task at the provincial planning level was implemented through a one-on-one consultation process aimed at consolidating the existing statutory planning data held by provincial departments and local authorities. The task had the following objectives:

- to collect, review and consolidate data from existing statutory planning processes;
- to identify and assess value conflicts between existing plans;
- to summarise major issues and challenges in terms of provincial development goals.

The task provided data inputs to the following master planning focus areas:

- Review of demographic and socio-economic issues
- Review of existing data banks
- Review of reference documents, including sectoral & integrated development plans

In general, data was obtained from the following sources:

- KZN Province, KZN Department of Transport and Public Works (Public Transport, Public Works & Roads Infrastructure Branches);
- EThekweni Transport Authority (ETA);
- District Municipalities;
- ACSA;
- SANRAL (South African National Roads Agency Limited);
- NPA (National Ports Authority);
- Spoornet;
- SARCC (South African Rail Commuter Corporation);
- Rural Transport Strategy for South Africa;
- National Freight Logistics Strategy;
- National Land Transport Strategic Framework;
- White Paper on Freight and current draft Green Paper on KZN Provincial Transport Policy (in process);
- KZN Provincial Land Transport Framework;
- Local Municipality Integrated Transport Plans;
- The National Ports Master Plan has now become available and will be incorporated in the next version of the report.

In summary, the Inventory comprises the following:

- Demographics (StatsSA Population Census 2001 updated to a base year estimate of 2005 by UNISA's Bureau of Market Research (BMR) for each local municipal area in the province);
- Socio-economics (employment numbers by sector at residential locations from the Census – updated to the 2005 base year, employment numbers at the place of employment from the National Household Travel Survey [NHTS] updated to 2005, incomes from Stats SA and the NHTS, car ownership from the NHTS);
- Land-use by major category in each municipality covering residential, industry, retail and commercial, agriculture by main type, mining, forestry, institutional, other state-owned land from Integrated Development Plan (IDP) and or municipal Master Plans, Structure Plans or Town Planning Schemes;
- Travel and transport patterns and characteristics from the NHTS for work and education trips including modes used, origins, destinations, travel times, departure and arrival times;
- Current supply of transport infrastructure from ACSA, Portnet, Spoornet and/or SARCC, SANRAL, Provincial Roads MIS, KZN and ETA information systems, other municipal sources (the breakdown in the case of roads will be lane kilometres of roads by type (standard) and condition on network links (between network nodes));
- Use of existing transport infrastructure from the above authorities including aircraft landings and departures, port berthing, train movements and road-based vehicle and traffic counts;

- Infrastructure facilities including; capacity of airports, ports, container depots, stations and main terminals and interchanges;
- Current transport infrastructure facilities funding / financing mechanisms from the transport authorities
- Current institutional organisation, jurisdiction / interaction, capacities and performances
- Data bank development which will involve establishing the provincial data platform.

Consolidation of spatial and economic sector development data was implemented through a one-on-one consultation process aimed at consolidating relevant spatial & industrial development data held by the key provincial industry development stakeholders. The task had the following objectives:

- to consolidate spatial & industrial sector development data from organised industry, sectoral plans and state-owned enterprises with development interests in the province;
- to identify and assess value conflicts within the context of public planning objectives; and
- to establish a preliminary spatial development rationale for further guidance of the master planning process.

Phase 1 provided data inputs to the following master planning focus areas:

- review of land use intensity & density, and stability of major urban-, rural, and nationally significant land uses;
- review of spatial development initiatives; and
- review of existing travel patterns, characteristics, and volumes

In respect of the above, however, strategic information was also obtained from national sources such as the National Household Travel Survey (NHTS) disaggregated for the KwaZulu-Natal into its local municipal components.

In general, data was obtained from the following sources amongst others:

- Industry Sector Bodies;
- KwaZulu-Natal based economic development research institutes;
- Petronet (Transnet – Pipeline Fuel Transport) ;
- SAPO (South African Ports Operations);
- Spoornet (GFB Commercial, Orex, Luxrail, and Shosholozza Meyl);
- SAFCOL (Forestry and Ecotourism in the KwaZulu-Natal Region);
- Draft Regional Industrial Development Strategy (Department of Trade & Industry);
- Local Municipality Spatial Development Frameworks.

Transport Systems Data was collected with the following objectives:

- to assess the institutional, political and technical contexts for transport planning in the province;

- to establish the implications that the province's common development goals have for transport system development;
- to outline shortcomings in current public policy objectives.

The task provided data inputs to the following master planning focus areas:

- review of reference documents, including sectoral development plans;
- review of current supply and use of transport systems, modes, network infrastructure facilities, multimodal termini facilities, equipment, and rolling stock;
- review of modal utilization of infrastructure facilities by origin & destination, trip purpose and travel times;
- review of current financial trends of transport infrastructure facilities, equipment and rolling stock;
- review of Public-Private Partnership initiatives in the supply of transport systems;
- review of current institutional/ organizational capacities and performance;
- review of policy promulgations and changes.

1.5 PROJECT MANAGEMENT STRUCTURE AND STAKEHOLDER CONSULTATION

The Project is managed through the following structures:

- Project Management Technical Committee (PMTT): Management of project operations between Client and Consultants, including progress review, project planning, and deadlines.
- National Technical and Finance Committee (TFC): Platform for technical review, brainstorming, technical inputs attended by senior officials from national government stakeholders and agencies.
- National Steering Committee: Platform for policy decisions and giving strategic guidance, attended by Heads of Departments, CEO's or their representatives.
- Similar structures than above at provincial level.

The Service Providers appointed by the DoT consist of:

- SSI Consortium doing Western Cape and Kwa-Zulu Natal provincial master plans
- Ingerop Consortium doing Gauteng and Limpopo provincial master plans
- Africon doing the five rural provincial masters plans
- DoT Consolidated Working Group compiling the national master plan
- National Working Groups coordinating work between the above four Consortia.

Extensive stakeholder consultation is done at national and provincial level through the various committees, as well as at Round Table Conferences at the end of each Phase.

1.6 STRUCTURE OF THIS REPORT

The structure of this report follows that agreed by members of the Project Management Task Team in consultation with the DoT's Project Implementation Manager. Aside from the preliminaries, the report contains the following sections:

1. Introduction to the KZN Province;
2. Information systems in the province;
3. Demographic and socio-economic information;
4. Land-use and development corridors;
5. Existing transportation infrastructure facilities;
6. Passenger travel patterns and characteristics;
7. Freight travel patterns and characteristics;
8. Institutional structures;
9. Legal structures;
10. Transport funding mechanisms; and
11. A summary of findings and conclusions.

Each of the above main sections is broken down to reflect the following:

1. Objectives;
2. A national overview and;
3. Provincial aspects such as the demand and supply of passenger and freight movements, infrastructure by modes such as aviation, rail, road and marine; and
4. Issues and concerns.

2. INTRODUCTION TO KWAZULU-NATAL

2.1 STUDY AREA

Although KwaZulu-Natal (KZN) is only the fifth largest Province in terms of geographical size, it produces a significant proportion of the country's economic output. It also features the largest total population per province (9,9 million). Its land area is 94 701km² which constitutes 7,6% of South Africa's total land area.

The Province is characterised by an extensive mosaic of scattered rural settlements and villages. Vast numbers of these settlements and villages occur within Zululand, Umkhanyakude, Umzinyathi, and Ugu District Municipalities. The presence of villages, informal settlements, and formal urban areas increase towards the coastline with the most significant urban conurbation being located within the eThekweni Metropolitan Municipality. A string of urban areas are also located along the coastline and towards the interior of the Province along the intersections of major national and provincial routes. Apart from these, Richards Bay also constitutes a major urban area. The population distribution co-insides/mirrors the distribution and prevalence of settlements, with the highest densities found towards the coastal areas, and around the dominant urban complexes of Durban, Pietermaritzburg, Newcastle and Richards Bay. One third (3,2 million) of the Province's population resided in the Ethekeeni Metropolitan area, with the remainder of the population distributed among the remaining 9 District Municipalities.

More specifically, the Newcastle-Madadeni-Osizweni complex situated within the Amajuba District Municipality forms the mining and manufacturing node of the Province; Impendle and Howick/Hilton are epicentres of commercial agriculture; and the "North Coast" and "South Coast" represent nationally and internationally acclaimed tourist destinations. Regardless of all the other uses, the dominant land use characterising the Province are commercial agriculture (sugarcane, fruit, vegetables, grains and mixed farming), vast expanses of subsistence farming and forestry, and extensive portions of land dedicated to conservation activities. At present the Province has a total of 6,5 million hectares of land at its disposal for farming purposes of which 82% is suitable for extensive livestock production, and 18% is arable land. As a sector, agriculture contributes approximately 15-16% of the GGP of KwaZulu-Natal.

Construction is the most rapidly growing sector with an annual growth rate of 12%. In 2005 the construction industry contributed R4 562 billion to the GDP. The construction industry is followed by the wholesale and retail industry with an annual growth of 6,5%, and a contribution of R25 973 billion. In spite of being the dominant land uses, agriculture, forestry, mining and quarrying only contributed R11 185 billion to the GDP. The manufacturing industry made the biggest contribution with R39 568 billion. This said, the main activities associated with the manufacturing industry is the preparation of agricultural products such as sugarcane, sheep, cattle, dairy, fruits, corn, cotton, bananas, pineapples and sorghum. Transport and communication, and

finance and business services also performed strongly, contributing R23 580 and R25 715 billion respectively to the GDP.

Although KwaZulu-Natal's unemployment rate exceeds the national average, over the last several years there has been a definite overall decline from 35% in 2002 to 26,6% by the end of 2006. Overall KwaZulu-Natal has a sound macro-economic foundation. This can be ascribed to the relative diversity of its economy, and a well-developed transport infrastructure. In this regard KwaZulu-Natal boasts 4 airports (1 of international status), two international ports (Durban and Richards Bay), and is connected to Gauteng by the N3, whilst the N2 connects the Province to all the major settlements along the coast (Port Elizabeth, East-London and Cape Town). As a vital centre for multi-nodal transportation and value-added activities, KwaZulu-Natal acts as a gateway to Southern Africa. Presently, the ports of Durban and Richards Bay handle approximately 78% of South Africa's cargo tonnage.

More recently, the Province has identified several strategic projects to affect economic development and growth. These include:

- The new International Airport at la Mercy;
- The Dube Trade Port; and
- An Automotive electronics factory (already operational).

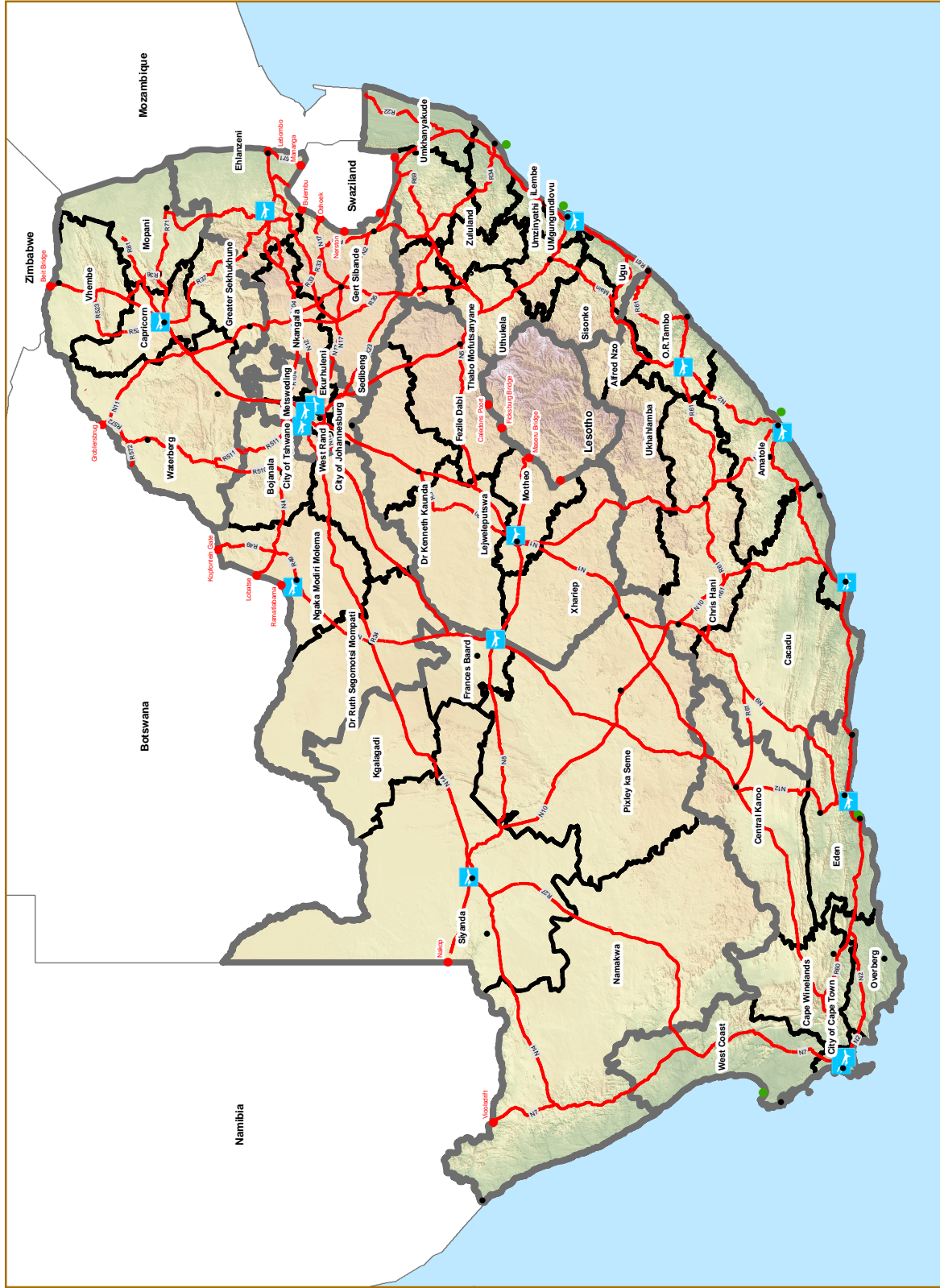
KwaZulu-Natal Province comprises ten District Municipalities and one Metropolitan Municipality, the Ethekwini Metropolitan Municipality (see **Map 2.1A and B**). The district municipalities are: Ugu-, Umgungundlovo-, Uthukela-, Umzinyathi-, Amajuba-, Zululand-, Umkhanyakude-, Uthungulu-, ILembe- and Sisonke District Municipality

KwaZulu-Natal includes the following District and Local Municipalities

1. Ugu District Municipality including:
 - Vulamehlo Local Municipality;
 - Umdoni Local Municipality;
 - Umzumbe Local Municipality;
 - uMuziwabantu Local Municipality;
 - Ezingoleni Local Municipality;
 - Hibiscus Coast Local Municipality.
2. Umgungundlovu District Municipality including;
 - uMshwathi Local Municipality;
 - uMngeni Local Municipality;
 - Mooi Mpofana Local Municipality;
 - Impendle Local Municipality;
 - Msunduzi Local Municipality;
 - Mkhambathini Local Municipality;
 - Richmond Local Municipality;
 - Highmoor/Kamberg Park Local Municipality.

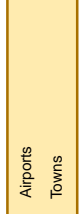
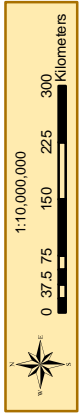
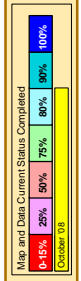
South Africa: NATIONAL BASE MAP

MAP 2.1A National Base Map



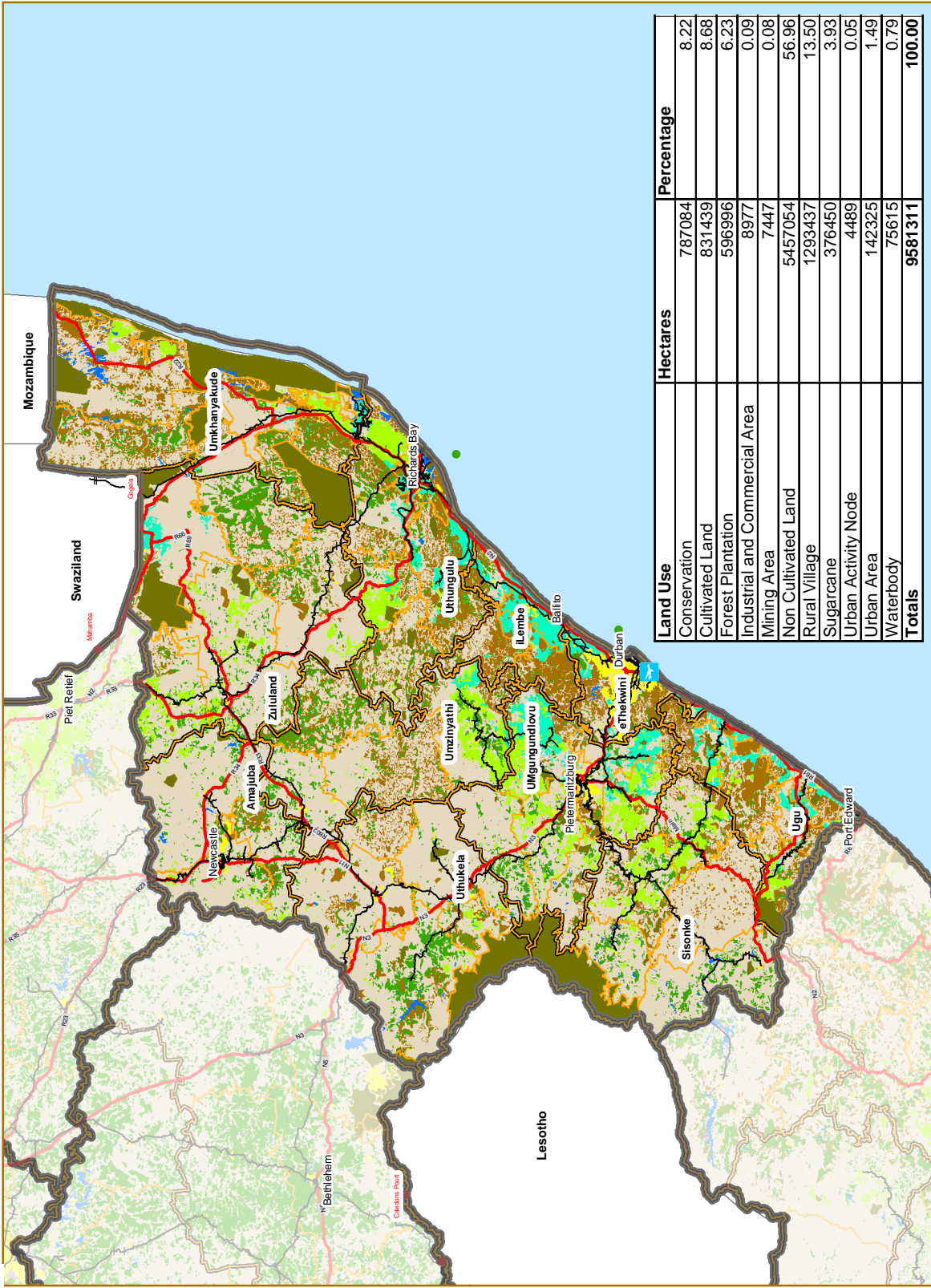
NATIONAL

BASE MAP



BASEMAP LEGEND

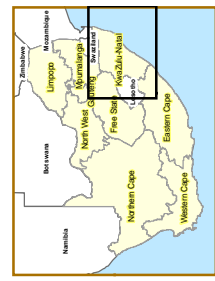
KwaZulu-Natal Province: PROVINCIAL BASE MAP



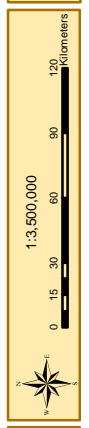
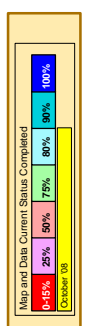
LAND USE PATTERNS

LAND USE CATEGORIES

- Conservation
- Cultivated Land
- Forest Plantation
- Industrial and Commercial Area
- Mining Area
- Non Cultivated Land
- Rural Village
- Sugarcane
- Urban Activity Node
- Urban Area
- Waterbody



Land Use	Hectares	Percentage
Conservation	787084	8.22
Cultivated Land	831439	8.68
Forest Plantation	596996	6.23
Industrial and Commercial Area	8977	0.09
Mining Area	7447	0.08
Non Cultivated Land	5457054	56.96
Rural Village	1293437	13.50
Sugarcane	376450	3.93
Urban Activity Node	4489	0.05
Urban Area	142325	1.49
Waterbody	75615	0.79
Totals	9581311	100.00



District Municipal Boundary
 Provincial Boundaries
 Airports
 Local Municipal Area

Border Posts
 Harbours
 Towns

SANRAL Road Network
 Railway Network

3. Uthukela District Municipality, including;
 - Emnambithi/Ladysmith Local Municipality;
 - Indaka Local Municipality;
 - Umtshezi Local Municipality;
 - Okhahlamba Local Municipality;
 - Imbabazane Local Municipality;
 - Giants Castle Game Reserve Local Municipality.

4. Umzinyathi District Municipality including;
 - Endumeni Local Municipality;
 - Nqutu Local Municipality;
 - Msinga Local Municipality;
 - Umvoti Local Municipality.

5. Amajuba District Municipality including;
 - Newcastle Local Municipality;
 - Utrecht Local Municipality;
 - Dannhauser Local Municipality.

6. Zululand District Municipality including;
 - eDumbe Local Municipality;
 - uPhongolo Local Municipality;
 - Abaqulusi Local Municipality;
 - Nongoma Local Municipality;
 - Ulundi Local Municipality.

7. Umkhanyakude District Municipality comprising the local municipalities of;
 - Umhlabuyalingana Local Municipality;
 - Jozini Local Municipality;
 - The Big 5 False Bay Local Municipality;
 - Hlabisa Local Municipality;
 - Mtubatuba Local Municipality;
 - St Lucia Park Local Municipality.

8. Uthungulu District Municipality including;
 - Mbonambi Local Municipality;
 - uMhlathuze Local Municipality;
 - Ntambanana Local Municipality;
 - uMlalazi Local Municipality;
 - Mthonjaneni Local Municipality;
 - Nkandla Local Municipality.

9. ILembe District Municipality comprising

- eNdongakusuka Local Municipality;
- KwaDukuza Local Municipality;
- Ndwedwe Local Municipality;
- Maphumulo Local Municipality.

10. Sisonke District Municipality

- Ingwe Local Municipality;
- Kwa Sani Local Municipality;
- Umzimkhulu Local Municipality;
- Greater Kokstad Local Municipality;
- Ubuhlebezwe Local Municipality;
- Mkhomazi Wilderness Area Local Municipality.

3. INFORMATION SYSTEMS

3.1 OBJECTIVE

The goal is to provide the information systems that will facilitate the analyses, estimation and communication of the passenger and freight transport demand and supply for various years from 2005 up to 2050, and support the development of the national transport master plan.

The objectives are:

- to develop a national land-use transport information system that is GIS-based and user-friendly for use by the DoT and its officials;
- to develop a national data bank, GIS system and transport demand model, which will be compatible with the DoT GIS specifications and with provincial information systems; and
- to facilitate communication of the national transport planning information to other national and provincial government departments through a web-based management information system.

3.2 NATIONAL INFORMATION SYSTEMS

3.2.1 The NATMAP databank

A Framework for the national information system had been compiled and documented by the GIS, Databank and Modelling Working Group (GDM Working Group). The National Information System will consist of the following components:

- databank based on a relational database providing for various summaries and analyses of the transport demand and supply information
- GIS system, linked to the databank, to provide for the spatial queries of the demand and supply information
- transport demand model estimating the transport demand for three future scenarios and for 5 year intervals from 2005 to 2050.
- management information system (MIS) providing for user-friendly, menu-driven, web-based access to key planning information by stakeholders.

The Information System will be provided to the DoT on software platforms that will be compatible with the Department's internal information and IT systems, as well as with other government departments.

The GIS specifications of the DoT have been reviewed and coordination needs discussed with the DoT's GIS Unit. The DoT specifications were found to be compatible in principle with the National Information Framework. The Information System will function as the planning component of the DoT's GIS and will be integrated with the DoT's GIS.

All the key inventory information used in the NATMAP project, including the estimated future land use-transport demand and supply information for various years and scenarios, will be supplied on a Management Information System (MIS) that is

GIS-based, menu-driven and user-friendly. This will allow DoT planners and other stakeholders, who are not database or GIS experts, to extract information in terms of reports, tables, graphs, and maps.

3.2.2 Existing national databases

Access to key national databases has been obtained, as follows:

- SANRAL road management system including road planning for next 10 to 15 years;
- ACSA airport status quo and master planning information;
- CSIR (Transportek) national GIS model for mapping and analysing the spatial economy. It incorporates various national data bases and contains settlement patterns, land use, population, and economic activities, based on 2500 zones;
- Department of Land Affairs: Spatial Planning Information;
- Department of Minerals and Energy
- Council for Geosciences
- Department of Agriculture (National and KZN)
- Dept of Environmental Affairs (GIS data of environmental sensitive land and tourism accommodation);
- Dept of Water Affairs: GIS system used for water resource planning containing population, economic and land use data;
- Passenger travel patterns from the National Household Travel Survey of SA Stats and DoT (2003). This data incorporates Population Census data;
- Vehicle ownership trends from the National Household Travel Survey, NATIS, the All Media Products Surveys (AMPS) and NAAMSA;
- National Freight Databank of DoT containing freight transport status quo data from all provinces;
- Population and Economic Forecasts from Global Insight and the Bureau of Market Research (BMR) of UNISA;
- SARCC (National Passenger Rail Master Plan);
- Land cover and land use data from satellite images from Satellite Application Centre (SAC) and CSIR; and
- National and Provincial Spatial Development Frameworks.

3.2.3 Data Bank, GIS and Model design

The DoT has appointed SITA to analyse their GIS system requirements and develop a System Prospectus. The purpose of the prospectus is to document the requirements of DoT towards the implementation of an integrated GIS solution.

It is important to note that NATMAP will comply with the requirements as set out in the System Prospectus completed by SITA. It is also important to note that there is currently no integration between a GIS system or specifications at National level with any GIS systems or specification that exist on Provincial levels. The document completed by SITA includes a recommended solution for a holistic and coordinated

approach. It promotes both a philosophy and set of best practices intended to coordinate business processes across multiple business units. A web GIS, that would give access to information for all role players, is recommended.

From the above national databases, as well as the various provincial data that were collected, a comprehensive status quo dataset is available for use in the project as well as for designing and developing the Databank, GIS and transport model. The detailed design will be done during the Phase 2 Analysis Phase.

Local Municipal (LM) boundaries will form the smallest geographic unit for all input data, for the land-use, Databank/GIS and the demand estimation. In terms of metropolitan areas, the area will be divided into National Travel Survey TAZ zones that will allow transport demand to be estimated between the main economic nodes of the metropolitan area.

For modelling purposes, the National Household Travel Survey (NHTS) data and National Freight Data Bank will provide the key base year transport data at national level. The national information will be supplemented with provincial data at a more detailed level, where necessary. To fill any gaps that may exist, provincial road management systems (for most provinces) have been obtained.

Future projections of key demographic and economic activities from 2005 to 2050 by Local Municipality will be provided by Global Insight and BMR, based on various assumptions of international trends and on three scenarios of national drivers. Factors such as energy supply, HIV and AIDS, production and land carrying capacities, political interventions, environmental concerns, and technological advancements, will be considered.

The Transport Model will be developed at national level and will be based on approximately 140 to 150 transport zones and transport networks of national significance. Passenger and freight flows will be estimated between the zones. These transport flows will be allocated to different modes of transport, i.e. road, rail, air and sea, as well as to different national and provincial corridors.

All six metropolitan areas, including Buffalo City, have transport models, which will be used to supplement the national transport model. Gauteng is the only province with a transport model, and this model will be used for the purposes of the project in the Gauteng region.

The model will be calibrated and validated against existing freight and passenger volumes obtained from the NHTS and National Freight Databank, as well as against traffic counts and operator volumes.

3.3 PROVINCIAL INFORMATION SYSTEMS

The KwaZulu-Natal Department of Transport has a GIS running on the ArcGIS 9.2 platform. It is linked to a database platform Oracle Server. Currently only the head office has access to the GIS. Later access may be expanded to regional and cost centre divisions, and even to external service providers. The Department has an IMS server which serves the GIS data on the World Wide Web at www.kzndotgis.gov.za.

This department also has access to GIS data from other provincial departments including the Department of Agriculture and Environmental Affairs, and Local Government and Traditional Affairs.

The KZN DoT's GIS is the most valuable from a transport perspective, although the other provincial departments (Agriculture, Local Government) have the goal to develop comprehensive provincial GIS systems. None of these GIS systems are integrated.

The KZN DoT also has a roads management system in Oracle format, which is fully linked to the GIS. Since the GIS data has been moved to the IMS server, the full GIS linkage has not been restored yet, but it is in process of being restored.

Other Departmental road management systems are:

- Pavement Management System on the DTIMS platform
- Gravel Road Management System on the DTIMS platform
- Bridge Management System developed by the CSIR in MS Access

A traffic counting system and a project information management system, which is to be linked to the GIS, is presently under development.

3.4 ISSUES AND CONCERNS

There are various GIS and transport related management systems in existence within different departments and authorities. In terms of province wide transport related systems, the most relevant ones will be the SANRAL, KZN Department of Transport and Transnet systems.

A major concern with the data for modelling purposes is the lack of origin-destination (O-D) flows between different areas of the country, especially in terms of road freight. The Freight Data Bank does not yet contain any O-D data, and it will require major effort, time and cost to collect. A number of cost proposals have been provided to the DoT ranging from deriving O-D's from link volumes and knowledge of demand and supply areas, to limited road O-D surveys, and ultimately, a comprehensive road O-D survey.

The sample of the NHTS data is adequate for a national survey, but is very small for municipal level analysis. This will be supplemented with link volume data to adjust the O-D matrices to realistic levels.

In terms of the data limitations, it is not viable to develop the transport model to zones much smaller than District Municipal boundaries.

In terms of the national GIS and planning data, a major problem is the lack of proper coordination and integration between all national departments, let alone between provinces. Many departments have, or plan to, develop GIS systems for planning (DWAF, DEAT, CSIR, SARCC, SA STATS) and while they attempt to coordinate, there is a crucial need for one national department, or organisation, and one senior manager to coordinate and integrate GIS data and systems at national level. The largest costs and time spent on a national master plan such as this goes into the collection, formatting and processing of data from different sources into a uniform format suitable for use. A national GIS coordinator will make a huge improvement on the efficiency of master planning, which will expedite design and implementation, and ultimately economic development.

It is recommended that:

- the national freight transport origin-destination surveys should be planned for 2008. Thereafter, these surveys should be updated every five years; and
- a national GIS coordinator be appointed and mandated to set national GIS standards and specifications, coordinate GIS data collection, development and dissemination, among all national departments, and ultimately between all provinces.

4. DEMOGRAPHIC AND SOCIO-ECONOMIC

4.1 OBJECTIVE

The objective of this section of the report is to provide the following:

- socio-economic indicators by district municipality (2001);
- population by district municipality (2005);
- dwelling units by income group by district municipality (2005);
- employment status by district municipality (2005); and
- main industry by district municipality (2005).

The following sources of information were used in compiling the status quo report:

- Statistics SA: Census of the Population, 2001;
- National Travel Household Survey, 2003, Department of Transport, 2003;
- BMR and Global Insight Data, 2005;
- Statistics SA: Mid-year Population Estimates, South Africa, 2006; and
- various other reports such as Integrated Development Plans (IDP's), Integrated Transport Plans (ITP's) and Economic Reports.

The most recent official population census (2001) was used in the compilation of the demographic profile of the province. The 2005 estimates of population, employment status, and employment by main industry were received from the Bureau of Market Research (BMR) and Global Insight. Various models were used in the generation of the data.

The results will be adjusted to accord with the final base year population when the results of the sub-contract with UNISA's Bureau for Economic Research are received. A description of the most salient demographic features of KwaZulu-Natal follows in the next section.

4.2 FINDINGS BY DISTRICT MUNICIPALITY

4.2.1 Salient Demographic Features

At the time when Census 2001 was conducted, 2,2 million households and 9,43 million people resided in KwaZulu-Natal. The population has since increased to 9,9 million in 2005. A summary of the demographic features of the population of KZN is shown in **Table 2**.

One third (3,2 million) of the population resided in the Ethekwini Metropolitan Area, whereas, the remainder of the population was distributed between 9 of the ten District Municipalities (ranging between 5-10%) of the population.

The population composition in KwaZulu-Natal can be described as largely homogenous and mainly comprises Africans (85% (8,3 million)), followed by Asians (9%), Whites (5%) and Coloureds (1%).

The age profile of KwaZulu-Natal compares well with the national average, with 46% of the population regarded as children (0-19 years), 10% as young adults (20-24 years), 41% falls in the working age category (25-64 years), and 3% is older than 65 years.

The gender division of the population in KwaZulu-Natal is fairly equal, with 49% males and 51% females. The education levels in KwaZulu-Natal are slightly lower compared to the national average. A major concern is the relatively high percentage (18%) (1,5 million) of people older than 5 years who received no schooling. In fact, the Umzinyathi and Umkhanyakude Districts reported a “no schooling” percentage of 32% each. Ethekwini reported the highest level of education with 20% of the population completed grade 12, and 7% achieved some form of tertiary education.

In terms of mode of transport to get to work or school, the majority of the population reached their destination on foot (63%) (2,9 million); in terms of motorised transport, mini-bus taxi reported the highest ridership (10%), followed by passengers in cars (9%), private car (8%) and bus (7%). Only 1% made use of rail (67 000 people).

Table 2: Salient Demographic Features of the KwaZulu-Natal District Municipalities, 2001

	Ugu	Umgungun- dlovu	Uthukela	Umzinyathi	AmaJuba	Zululand	Umkhanya- kude	Uthungulu	iLembe	Sisonke	Ethekwini	Zulu Natal	SOUTH AFRICA
Total Population	704 036	927 846	656 983	456 455	468 040	804 457	573 340	885 972	560 392	298 394	3 090 123	9 426 038	44 819 778
	7.5%	9.8%	7.0%	4.8%	5.0%	8.5%	6.1%	9.4%	5.9%	3.2%	32.8%	100.0%	
Population Group													
African	646 012	767 069	620 722	439 808	431 566	786 535	568 839	838 691	509 383	280 322	2 110 481	8 002 028	35 416 167
Coloured	5 223	20 486	4 013	2 647	2 138	1 554	915	4 069	2 569	10 063	67 298	141 862	3 284 595
Asian	24 055	73 145	17 160	6 632	11 899	629	365	11 257	37 446	1 011	614 907	798 506	1 115 467
White	28 748	67 146	15 089	7 369	21 469	13 739	3 221	31 955	10 374	6 997	277 437	483 544	4 293 637
Total	704 037	927 846	656 984	456 456	468 040	804 457	573 340	885 972	560 392	298 393	3 090 123	9 426 040	44 819 776
Age													
0-4	76 009	87 367	79 504	60 160	52 103	103 540	76 957	105 293	63 171	35 445	273 097	1 012 646	4 449 817
5-9	91 176	98 510	86 772	67 633	56 847	116 193	83 375	117 335	70 473	40 101	286 611	1 117 026	4 353 557
10-14	94 515	102 970	88 380	66 996	56 914	119 928	86 944	116 679	71 671	41 499	294 817	1 141 319	5 061 915
15-19	90 354	104 596	84 552	59 120	56 814	111 365	78 239	111 793	68 769	37 449	323 330	1 126 381	4 981 722
20-24	60 673	92 148	58 842	36 055	45 768	69 649	50 015	51 872	33 160	25 623	83 150	905 311	4 294 521
25-64	263 061	411 530	238 473	149 975	187 502	258 304	177 916	325 885	216 761	108 993	1 501 861	3 841 261	19 750 959
65+	28 249	30 719	19 460	16 516	12 091	25 479	17 894	25 627	17 675	9 284	78 932	292 094	1 427 291
Total	704 036	927 845	656 983	456 455	468 039	804 457	573 340	885 972	560 392	298 394	3 090 124	9 426 037	44 819 782
Gender													
Male / Female	48:52	50:50	49:51	50:50	50:50	49:51	50:50	49:51	50:50	50:50	49:51	49:51	48:52
No schooling	132 568	123 132	120 404	124 813	60 016	181 226	156 274	186 033	114 153	49 820	290 725	1 539 164	6 389 650
Some Primary	236 597	257 572	201 254	141 825	131 933	249 564	176 250	265 027	169 017	105 566	690 947	2 625 592	12 084 349
Complete Primary	44 200	59 220	40 845	23 292	23 323	44 079	29 683	49 340	34 288	20 295	179 615	655 059	2 809 829
Some Secondary	147 144	243 357	144 466	74 116	120 531	156 941	92 067	174 817	119 875	908 649	2 243 580	11 276 089	
Grade 12	50 622	115 661	54 919	24 654	56 882	52 438	33 120	79 670	49 082	18 458	558 578	1 093 884	5 621 593
Higher	16 898	41 656	15 586	7 621	17 456	15 768	8 977	25 831	10 803	7 176	188 495	356 167	2 188 454
Total	628 029	840 498	577 474	395 321	415 940	780 916	493 371	780 718	497 198	282 332	2 817 099	8 413 406	40 369 964
Mode of Transport													
On foot	246 246	276 498	226 835	174 241	152 876	344 527	238 343	325 355	195 083	120 945	595 335	2 897 214	13 770 342
By bicycle	1 481	2 636	1 668	1 104	2 342	2 453	1 483	2 478	1 012	568	6 984	24 209	197 460
By motorcycle	1 837	3 116	1 063	1 191	834	1 983	1 659	2 543	1 224	882	6 093	24 425	100 728
By car as a driver	13 338	43 030	11 993	5 249	13 400	8 870	4 398	20 692	10 752	5 025	214 619	351 366	2 292 870
By car as a passenger	21 508	48 455	16 501	10 206	14 893	14 797	10 612	28 501	20 860	10 116	206 338	403 587	2 006 950
By minibus/taxi	24 953	73 182	32 180	3 058	24 846	10 847	4 455	18 231	21 890	5 266	258 012	479 530	2 670 214
By bus	9 250	17 712	9 162	4 192	16 495	13 235	4 163	43 258	15 229	1 926	196 831	331 453	1 391 800
By train	1 515	1 875	895	538	660	1 180	918	1 454	4 201	386	53 187	66 809	582 244
Other	2 676	4 509	733	1 052	1 001	1 058	1 001	4 432	3 272	495	12 476	32 757	163 034
Total	322 804	471 013	301 030	202 832	227 398	398 893	267 289	447 874	273 513	145 629	1 553 075	4 611 350	23 174 656
Employment Status													
Not Economically Active	523 806	561 241	473 540	362 144	306 234	633 225	470 707	640 768	396 692	216 075	1 716 124	6 300 466	28 411 943
Economically Active Population	180 231	366 606	183 534	94 309	161 804	171 232	102 634	245 204	163 699	82 318	1 374 000	3 125 571	16 407 834
Total Population	704 037	927 847	656 984	456 453	468 038	804 457	573 341	885 972	560 391	298 393	3 090 124	9 426 037	44 819 777
Employed	85 985	197 062	75 654	35 636	72 533	65 866	38 220	121 770	85 186	40 732	782 946	1 602 380	6 843 762
Unemployed	94 246	169 544	107 880	58 673	89 481	104 366	64 414	123 434	78 513	41 586	591 054	1 523 191	9 524 772
Total Economically Active	180 231	366 606	183 534	94 309	161 804	171 232	102 634	245 204	163 699	82 318	1 374 000	3 125 571	16 407 834
Occupation													
Legislators, senior officials and managers	3 659	8 966	3 204	1 348	2 653	2 422	1 446	4 630	3 201	50 329	83 703	522 435	
Professionals	3 433	12 203	3 256	1 680	3 569	3 028	2 087	6 457	2 886	1 543	61 143	101 285	675 949
Technicians and associate professionals	8 336	19 190	8 303	4 765	7 977	8 561	6 026	12 225	6 312	3 591	87 079	172 365	925 306
Clerks	6 598	18 044	6 384	2 577	5 744	5 981	2 919	10 960	5 823	3 150	106 649	174 829	1 053 763
Service workers, shop and market sales workers	8 996	19 576	7 406	3 747	6 926	6 743	4 847	10 938	6 499	3 847	86 700	166 225	985 806
Skilled agricultural and fishery workers	3 826	11 054	2 321	1 825	2 300	3 873	2 132	5 179	3 897	3 553	5 676	45 636	277 337
Craft and related trades workers	8 111	18 894	9 438	2 693	10 527	5 140	2 811	13 647	11 864	3 019	94 985	181 127	1 171 465
Plant and machine operators and assemblers	7 149	18 772	12 151	2 595	9 057	5 515	2 856	11 551	10 942	3 609	77 528	161 725	849 384
Elementary occupations	29 558	59 017	18 018	11 543	18 357	18 953	8 957	32 134	27 185	13 978	163 393	401 093	2 565 530
Undetermined	7 961	14 250	6 133	3 571	5 048	8 223	5 100	16 188	7 902	3 442	56 895	135 703	973 630
Total	87 626	199 965	76 614	36 344	73 158	64 439	38 181	123 909	85 511	41 578	790 365	1 623 691	9 700 616
Average annual household income	R 25 977.60	R 42 358.71	R 23 042.06	R 20 849.49	R 30 056.14	R 24 995.14	R 19 074.53	R 35 590.41	R 25 376.29	R 22 221.61	R 56 118.82	R 39 048.51	R 47 967.78

Source: Statistics South Africa, 2001

Source: 2001 Population Census

Only one third (3,2 million) of the population is economically active which is lower than the average for South Africa, namely 37%. “Economically active” refer to all people between the ages of 15-65 years who provide their labour for production of goods and services, and includes people in the formal and informal sectors, as well as the unemployed.

According to Census 2001, nearly half (1,5 million) of the economically active population was unemployed. The eThekweni Metropolitan Municipality registered the lowest unemployment rate (43%), whereas the highest was found in the Umkhanyakude District Municipality (63%). The largest number of unemployed people (591 000) was however registered in the EThekweni Metropolitan area.

The percentage of employed persons (15-65) by occupation compares well with the national average. It remains a concern that elementary occupations top the list with 25%, followed by craft and related trades, clerks, technicians and associated professionals (11% each). The average annual household income in KwaZulu-Natal was R39 048 which is low compared to the national average.

4.2.2 Data needed for passenger transport modelling purposes

This section of the report deals with a description of the most salient features of population, employment status, and industry by District Municipality (2005).

However, for transportation modelling purposes data is needed at a traffic zone level. See Task Report for conversion table between Local Municipalities and traffic zones.

4.2.2.1 Households and Population by Income Group (2005)

Table 3 and **Figure 2** reflects the breakdown of households and population by income group by District Municipality.

Table 3: Households and population by income group In KZN districts 2005

District Municipality	Households by Income Group					Population by Income Group				
	High (R6000+)	Medium (R3001-R6000)	Low (up to R3000)	Total	%	High	Medium	Low	Total	%
Ugu	18,973	32,547	111,762	163,282	6.9%	77,006	137,313	496,554	710,873	7.1%
uMgungundlovu	46,721	55,238	140,068	242,027	10.2%	178,973	214,628	555,334	948,935	9.5%
Uthukela	10,599	23,501	112,598	146,698	6.2%	48,817	109,804	544,729	703,350	7.1%
Umzinyathi	5,594	13,291	84,208	103,093	4.4%	24,360	59,035	393,440	476,835	4.8%
Amajuba	14,663	19,644	72,049	106,356	4.5%	65,198	88,052	339,082	492,332	4.9%
Zululand	7,960	18,861	120,343	147,164	6.2%	43,017	102,082	652,633	797,732	8.0%
Umkhanyakude	4,236	12,409	89,090	105,735	4.5%	23,066	68,656	500,343	592,065	5.9%
Uthungulu	28,379	37,013	119,638	185,030	7.8%	134,054	184,671	615,466	934,191	9.4%
iLembe	13,506	30,096	102,179	145,781	6.2%	47,830	113,197	400,497	561,524	5.6%
Sisonke	4,334	12,849	99,146	116,329	4.9%	17,877	53,401	404,888	476,166	4.8%
eThekweni MM	206,512	181,405	519,648	907,565	38.3%	745,403	654,780	1,875,663	3,275,846	32.9%
Kwa Zulu Natal	361,477	436,854	1,570,729	2,369,060	100.0%	1,405,601	1,785,619	6,778,629	9,969,849	100.0%
%	15.3%	18.4%	66.3%	100.0%		14.1%	17.9%	68.0%	100.0%	

Source: Global Insight SA, 2008

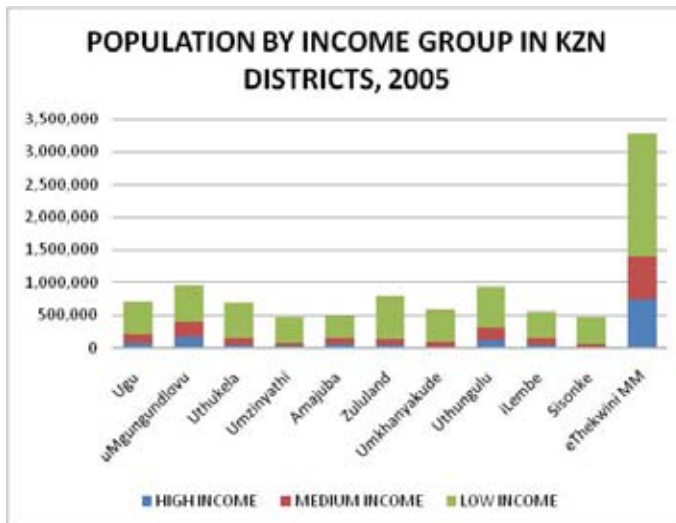


Figure 2: Structure Population by Income Group

The total population in KwaZulu-Natal is estimated at approximately 9,9 million, about 21% of the national total. The majority of the population fall into the low income category (68% (6,8 million people)), followed by 18% medium income, and 14% high income people.

A third (3,2 million) of the population in KwaZulu-Natal is concentrated in the eThekweni Metropolitan Area, followed by Umgungundlovu- (10%), Uthungulu- (9%), and Zululand District Municipality (8%).

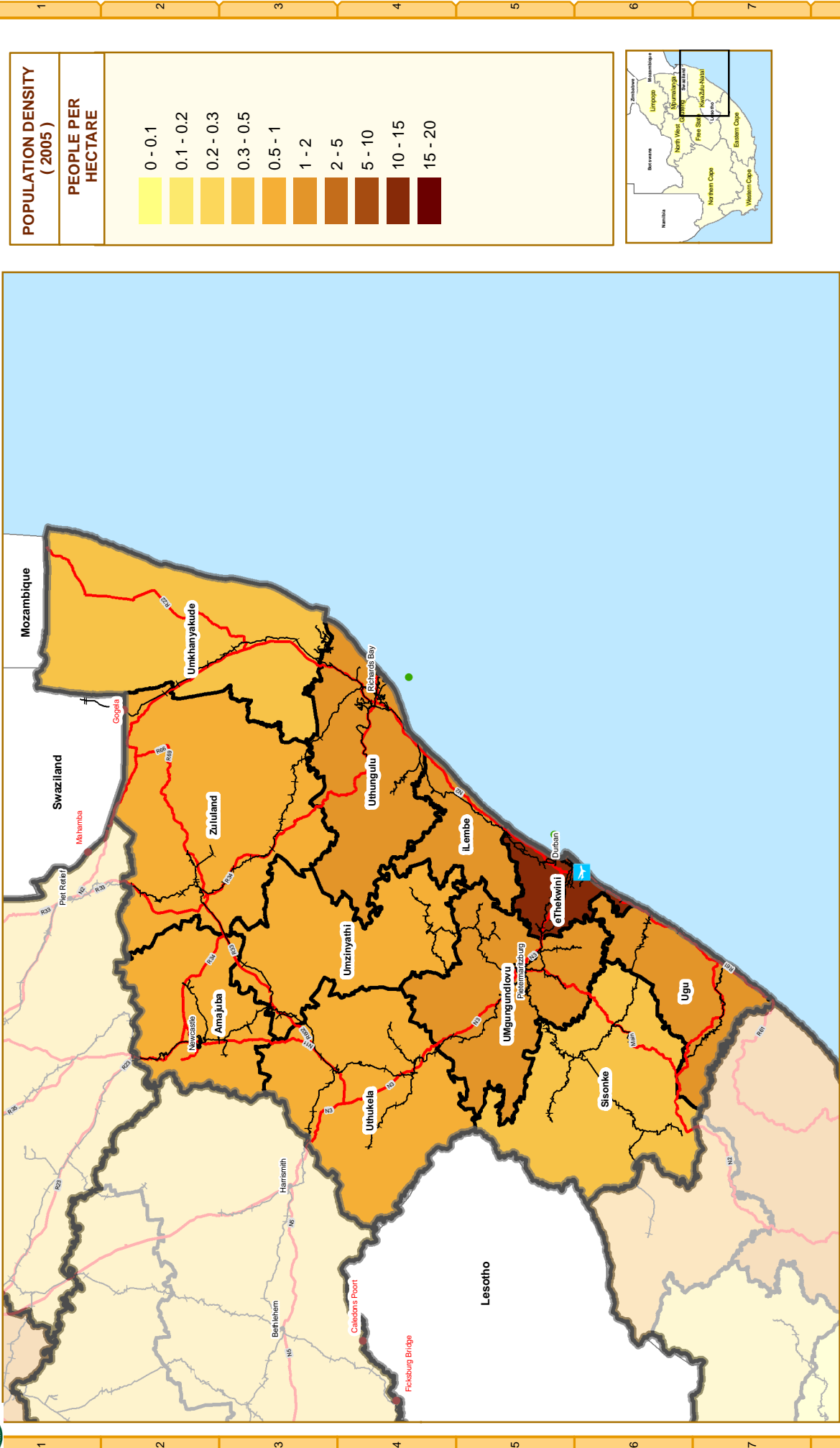
4.2.2.2 Employment Status, 2005

Table 4 and **Map 4.2A** show the population density by District Municipality.

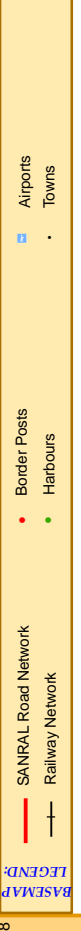
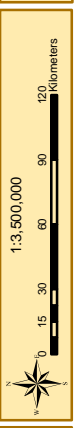
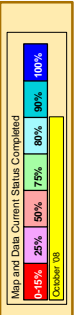
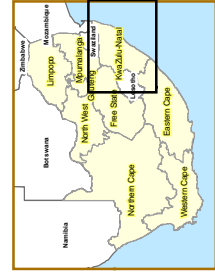
Table 4: Population Density by District Municipality - 2005

DISTRICT MUNICIPALITY	Area (ha)	Population	Density (pop/ha)
Ugu	506,326	710,873	1.4
uMgungundlovu	896,457	948,935	1.1
Uthukela	1,136,730	703,350	0.6
Umzinyathi	862,005	476,835	0.6
Amajuba	693,673	492,332	0.7
Zululand	1,488,570	797,732	0.5
Umkhanyakude	1,390,860	592,065	0.4
Uthungulu	824,332	934,191	1.1
iLembe	328,022	561,524	1.7
Sisonke	1,116,420	476,166	0.4
eThekweni MM	229,973	3,275,846	14.2
Kwa Zulu Natal	9,473,368	9,969,849	1.1

KwaZulu-Natal Province: 2005 POPULATION DENSITY PER DISTRICT MUNICIPALITY



POPULATION DENSITY (2005)	PEOPLE PER HECTARE
0 - 0.1	0 - 0.1
0.1 - 0.2	0.1 - 0.2
0.2 - 0.3	0.2 - 0.3
0.3 - 0.5	0.3 - 0.5
0.5 - 1	0.5 - 1
1 - 2	1 - 2
2 - 5	2 - 5
5 - 10	5 - 10
10 - 15	10 - 15
15 - 20	15 - 20



Total employment was estimated at 1,8 million workers. The majority of the workers were employed in the eThekweni area (52% (944 650)), followed by the Umgungundlovu District Municipality (11%). The rest of the Districts employed less than 8% of each.

4.2.2.3 Employment by Industry, 2005

Table 5 and Figure 3 shows the employment status of KZN's economically active population.

Table 5: Employment Status of the Economically Active Population of KZN by District, 2005

District	Economically active				Not economically active			
Municipality	Employed	Unemployed	Total	%	Total	%	Total Population	%
Ugu	104,424	89,768	194,192	5.9%	516,681	7.7%	710,873	7.1%
	% 53.8%	46.2%	100.0%					
			27.3%		72.7%		100.0%	
uMgungundlovu	199,046	167,293	366,339	11.2%	582,596	8.7%	948,935	9.5%
	% 54.3%	45.7%	100.0%					
			38.6%		61.4%		100.0%	
Uthukela	77,490	96,187	173,677	5.3%	529,674	7.9%	703,351	7.1%
	% 44.6%	55.4%	100.0%					
			24.7%		75.3%		100.0%	
Umzinyathi	29,310	59,229	88,539	2.7%	388,295	5.8%	476,834	4.8%
	% 33.1%	66.9%	100.0%					
			18.6%		81.4%		100.0%	
Amajuba	94,946	76,831	171,777	5.3%	320,555	4.8%	492,332	4.9%
	% 55.3%	44.7%	100.0%					
			34.9%		65.1%		100.0%	
Zululand	58,537	107,356	165,893	5.1%	631,839	9.4%	797,732	8.0%
	% 35.3%	64.7%	100.0%					
			20.8%		79.2%		100.0%	
Umkhanyakude	36,793	62,848	99,641	3.0%	492,424	7.3%	592,065	5.9%
	% 36.9%	63.1%	100.0%					
			16.8%		83.2%		100.0%	
Uthungulu	123,406	117,028	240,434	7.4%	693,758	10.4%	934,192	9.4%
	% 51.3%	48.7%	100.0%					
			25.7%		74.3%		100.0%	
iLembe	105,128	65,321	170,449	5.2%	391,074	5.8%	561,523	5.6%
	% 61.7%	38.3%	100.0%					
			30.4%		69.6%		100.0%	
Sisonke	44,157	55,769	99,926	3.1%	376,239	5.6%	476,165	4.8%
	% 44.2%	55.8%	100.0%					
			21.0%		79.0%		100.0%	
eThekweni MM	944,646	552,534	1,497,180	45.8%	1,778,667	26.5%	3,275,847	32.9%
	% 63.1%	36.9%	100.0%					
			45.7%		54.3%		100.0%	
Kwa Zulu Natal	1,817,883	1,450,164	3,268,047	100.0%	6,701,802	100.0%	9,969,849	100.0%
	% 55.6%	44.4%	100.0%					
			32.8%		67.2%		100.0%	

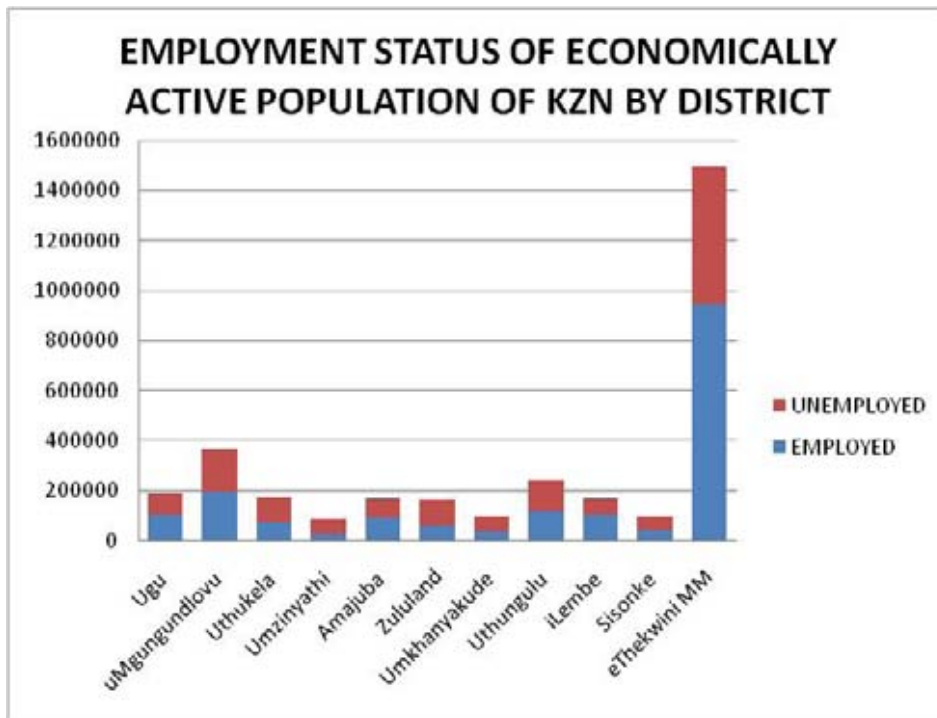


Figure 3: Employment Status of the Economically Active Population in KwaZulu-Natal

“Economically active” refers to all people between the ages of 15-65 years who provide their labour for production of goods and services and includes the formal- and informal sectors, as well as the unemployed. The expanded definition of unemployed was used for modelling purposes.

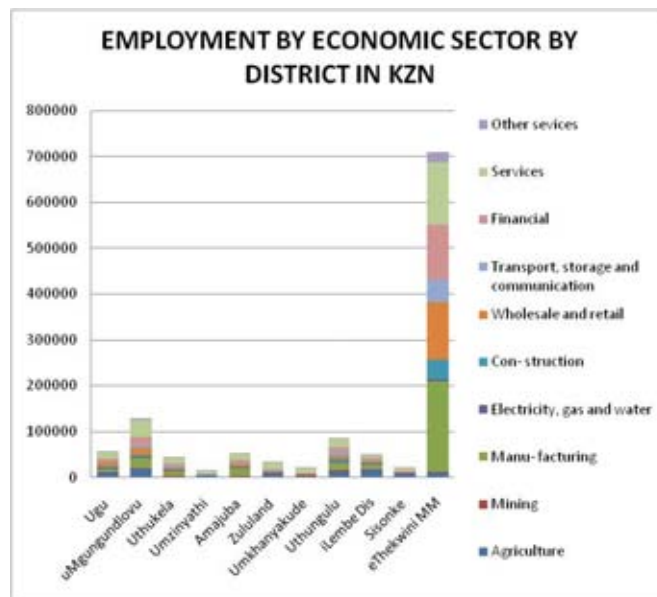
Total employment was estimated at 1,8 million workers. The majority of the workers were employed in the eThekweni area (52% (944 650)), followed by the Umgungundlovu District Municipality (11%). The rest of the Districts employed less than 8% of each.

4.2.2.4 Employment by Industry, 2005

The breakdown of the employed by main industry is reflected in **Table 6 and Figure 4**.

Table 6: Employment by Economic Sector In KwaZulu-Natal, 2005

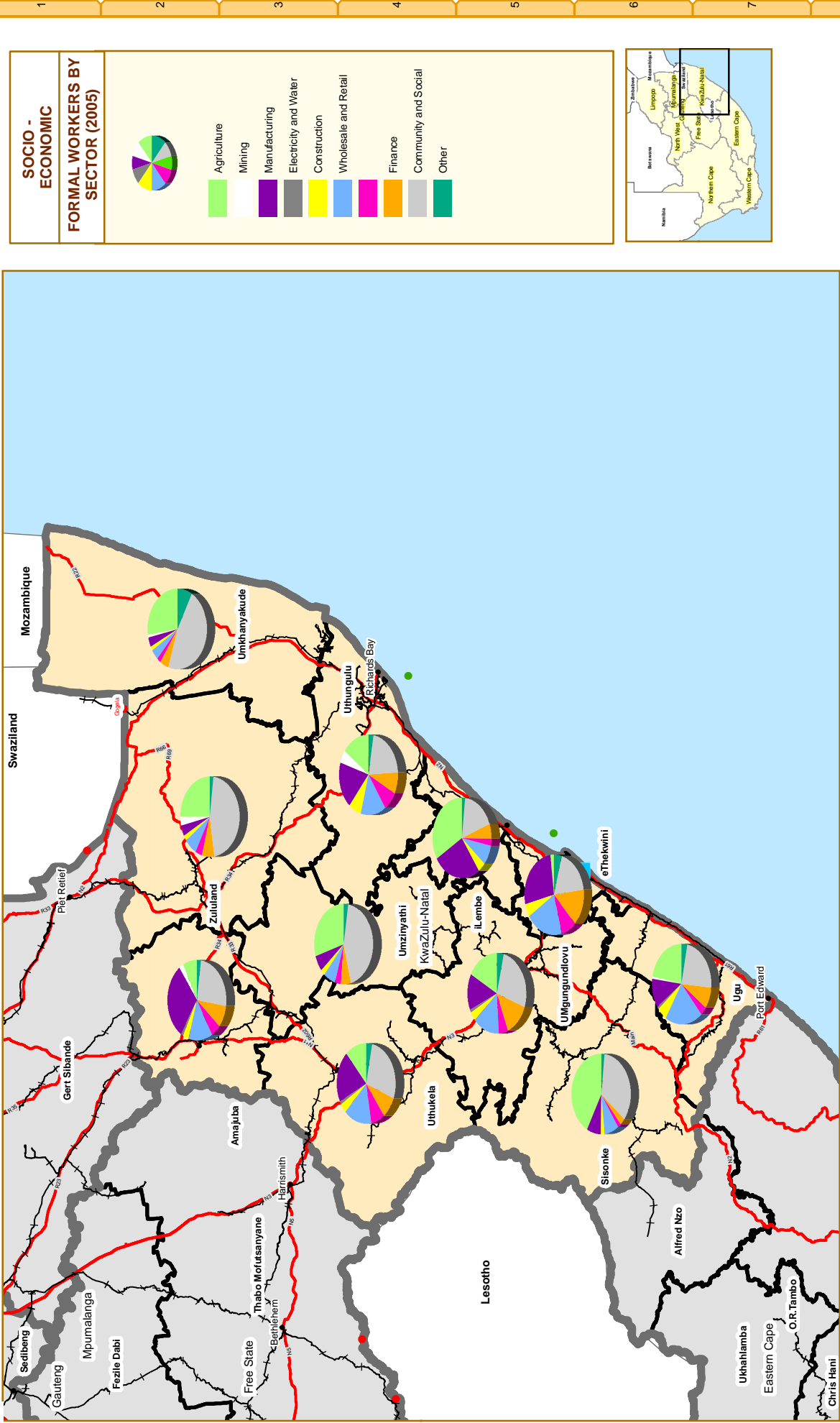
DISTRICT MUNICIPALITY	Main industry										Total Formal
	Agriculture	Mining	Manu-facturing	Electricity, gas and water	Con-struction	Wholesale and retail	Transport, storage and communication	Financial	Services	Other services	
Ugu	12,276	614	8,071	629	2,872	9,967	2,055	5,650	13,964	1,513	57,611
%	21.3%	1.1%	14.0%	1.1%	5.0%	17.3%	3.6%	9.8%	24.2%	2.6%	100.0%
uMgungundlovu	20,066	312	22,859	1,784	4,856	16,260	5,552	17,058	37,021	3,926	129,695
%	15.5%	0.2%	17.6%	1.4%	3.7%	12.5%	4.3%	13.2%	28.5%	3.0%	100.0%
Uthukela	4,517	75	10,825	589	1,729	5,850	2,918	4,107	13,444	1,131	45,187
%	10.0%	0.2%	24.0%	1.3%	3.8%	12.9%	6.5%	9.1%	29.8%	2.5%	100.0%
Umzinyathi	5,114	128	1,162	75	379	970	436	709	7,395	328	16,696
%	30.6%	0.8%	7.0%	0.5%	2.3%	5.8%	2.6%	4.2%	44.3%	2.0%	100.0%
Amajuba	3,489	1,117	18,326	592	1,516	5,780	2,624	5,453	14,053	1,022	53,971
%	6.5%	2.1%	34.0%	1.1%	2.8%	10.7%	4.9%	10.1%	26.0%	1.9%	100.0%
Zululand	8,537	1,427	1,694	321	801	2,222	1,061	1,854	15,807	545	34,270
%	24.9%	4.2%	4.9%	0.9%	2.3%	6.5%	3.1%	5.4%	46.1%	1.6%	100.0%
Umkhanyakude	6,224	323	1,003	142	404	945	478	904	10,614	1,491	22,529
%	27.6%	1.4%	4.5%	0.6%	1.8%	4.2%	2.1%	4.0%	47.1%	6.6%	100.0%
Uthungulu	11,362	4,845	18,214	694	5,064	9,793	6,627	8,820	18,388	1,811	85,619
%	13.3%	5.7%	21.3%	0.8%	5.9%	11.4%	7.7%	10.3%	21.5%	2.1%	100.0%
iLembe Dis	18,020	94	11,781	199	1,920	4,574	1,880	3,748	8,442	765	51,423
%	35.0%	0.2%	22.9%	0.4%	3.7%	8.9%	3.7%	7.3%	16.4%	1.5%	100.0%
Sisonke	9,672	59	1,443	100	360	1,492	387	579	8,015	342	22,450
%	43.1%	0.3%	6.4%	0.4%	1.6%	6.6%	1.7%	2.6%	35.7%	1.5%	100.0%
eThekweni MM	12,210	299	196,292	6,001	42,209	124,688	51,195	118,580	134,743	23,134	709,351
%	1.7%	0.0%	27.7%	0.8%	6.0%	17.6%	7.2%	16.7%	19.0%	3.3%	100.0%
Kwa Zulu Natal	111,488	9,294	291,669	11,127	62,110	182,543	75,215	167,463	281,885	36,007	1,228,802
%	9.1%	0.8%	23.7%	0.9%	5.1%	14.9%	6.1%	13.6%	22.9%	2.9%	100.0%

**Figure 4: Employment Status of the Economically Active Population in KwaZulu-Natal**

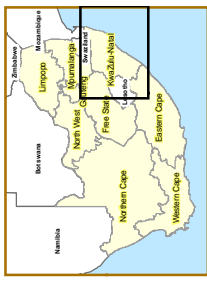
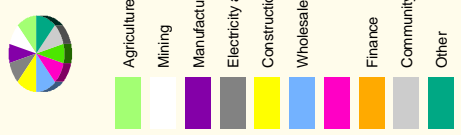
The number of employed individuals (age 15-65) by industry reveals that 24% (291 670) are employed in the manufacturing sector, followed by services (23% (281 885), wholesale and retail (15% (182 540), financial (14%) (167 460) and agricultural sectors (9%) (111 490).

Map 4.2B shows the breakdown of workers by sector for each District Municipality.

KwaZulu-Natal Province: FORMAL WORKERS BY SECTOR (2005)



SOCIO - ECONOMIC FORMAL WORKERS BY SECTOR (2005)



Map and Data Current Status Completed
 0-45% 25% 50% 75% 80% 80% 100%
 (Color key for map completion status)



Legend:
 ■ Airports
 • Towns
 □ District Municipal Boundary
 □ Provincial Boundaries

Legend:
 ● SANRAL Road Network
 ● Railway Network
 ● Border Posts
 ● Harbours

4.3 ECONOMIC PROFILE OF PROVINCE

This section describes the current macro-economic situation in KwaZulu-Natal (KZN). There are three broad areas that will be analysed, namely, gross regional domestic product (GDPR), inflation and employment.

KZN is the second largest province in terms of GDPR in South Africa. Most of the economic activity in KZN occurs within the eThekweni municipality. The GDPR in 2005 was R251,3 billion in current prices and R183,3 billion in constant 2000 prices. GDPR has been increasing at an average of 3,35% p.a. over the period 1995-2005 with the 2005 growth rate at 5,3% p.a. Over the last four years there has been an upward trend in the growth rate.

Table 7 details the various industries' contributions to GDPR in KZN and their growth rates. Unsurprisingly, construction is the most rapidly growing sector with an annual growth rate of 12%. This follows from the explosive growth in the demand for new developments, both infrastructural and private. The next most rapidly growing sector is the wholesale and retail trade with 6,5% annual growth. The largest contributor to GDPR was manufacturing, generating R39,5 billion. This was closely followed by the finance sector with R28,7 billion.

Table 7: Regional GDP by activity in 2005

GDPR by Activity		
Constant 2000 prices	2005	
Industry	% Change	Value (R million)
Primary Industries	3,4	11,185
Agriculture, forestry and fishing	4,2	8,625
Mining and quarrying	0,7	2,561
Secondary Industries	5,9	48,301
Manufacturing	5,6	39,568
Electricity and water	2,7	4,170
Construction	12,0	4,562
Tertiary industries	5,4	107,991
Wholesale & retail trade; hotels & restaurants	6,5	25,973
Transport and communication	5,1	23,580
Finance, real estate and business services	5,9	28,715
Community, social and other personal services	5,1	10,017
General government services	3,7	19,708
All industries at basic prices	5,4	167,478
Taxes less subsidies on products	4,4	15,904
GDPR at market prices	5,31%	183,382

As with all the other provinces, KZN has breached the 6% inflation target set by the South African Reserve Bank. As of June 2007 year-on-year inflation in KZN stood at 6,8%, with the rural areas contributing the highest levels (9,8%) in the country. **Table 8** details the inflation data for KZN.

Table 8: Current inflation rate for KZN 2007

Year-on-Year Inflation, June 2007	
KwaZulu-Natal	Inflation Rate (%)
Province	+6,8
Durban/Pinetown	+6,5
Pietermaritzburg	+7,7
Other urban areas	+6,3
Rural areas	+9,8

KwaZulu-Natal's unemployment rates are marginally greater than the national average. Over the last several years there has been a definite overall decline in unemployment. From a high in 2002 of 35%, unemployment has decreased to 26.6% by the end of 2006. **Table 9** shows the downward trend of unemployment over the period 2001-06.

Table 9: Official unemployment rates in South Africa 2001 to 2006

Official Unemployment Rates in South Africa, September 2001-06						
Province	2001	2002	2003	2004	2005	2006
Western Cape	17,7	19,6	19,5	18,6	18,9	15,0
Eastern Cape	31,4	32,7	31,7	29,6	29,9	32,0
Northern Cape	25,0	24,9	26,4	24,5	24,7	28,7
FreeState	27,0	29,1	28,0	28,6	30,2	26,5
KwaZulu-Natal	33,8	35,0	31,6	28,7	32,8	26,6
NorthWest	28,6	30,6	28,4	28,0	27,4	29,7
Gauteng	30,4	30,5	27,6	25,7	22,8	23,2
Mpumalanga	29,2	30,1	25,3	24,8	26,9	28,0
Limpopo	34,6	34,1	31,1	27,8	30,1	32,0
RSA Average	29,4	30,4	28,0	26,2	26,7	25,5

4.4 ISSUES AND CONCERNS

21% of South Africa's population resides in KwaZulu-Natal and this population is slightly less educated compared to the national average. There is a very high unemployment rate, especially in the uMkhanyakude and Zululand Districts in the Northern portion of the Province. This is also an area of the province with the least developed transport infrastructure.

Only 33% of the population is economically active, which is lower than the national average of 37%. In mitigation, the growth in the economy is reducing unemployment and overall KwaZulu-Natal has a sound macroeconomic foundation.

In terms of mode of transport to get to work or school, 63% reach their destination on foot, 10% by mini-bus taxi, 9% by passengers in cars, 8% by private car, 7% by bus and only 1% by rail.

Currently, a major area of concern is the rising inflation rate. However, it must be noted that this is a countrywide problem. The economy is growing rapidly and this is having positive impacts on unemployment, but is likely to further stoke inflation if supply cannot meet the increasing demand. Overall, KwaZulu-Natal has a sound macroeconomic foundation.

5. LAND-USE AND DEVELOPMENT CORRIDORS

5.1 OBJECTIVE

The purpose of this report is twofold as follows:

- firstly, to provide a spatial perspective of the current development policies and plans pertaining to all three spheres of government in South Africa, with specific focus on the KZN; and
- secondly, to highlight some of the major development initiatives and plans which may impact on decisions made by the National Department of Transport (NDoT) regarding future infrastructure developments.

Chapter 5.2 provides a national overview of development policies, while chapter 5.3 provides provincial land use patterns and characteristics. The information contained in these sections, were extracted from an array of official government policy documents, recent publications from the CSIR and Cities Network, the Growth and Development Strategies of the various provinces in South Africa and the Integrated Development Plans of the district and Local Municipalities. Consequently, exact amounts in respect of percentages and indicators quoted were not always available.

5.2 CONTEXTUAL SETTING: OVERVIEW OF DEVELOPMENT POLICIES

5.2.1 Background

Development in South Africa is broadly guided and directed by a wide range of legislation. Some legislation is discipline specific e.g. housing, transport and environment, while others are more generic in nature, focusing on planning processes, alignment of planning processes and proposals, and the legal requirements pertaining to plans to be compiled.

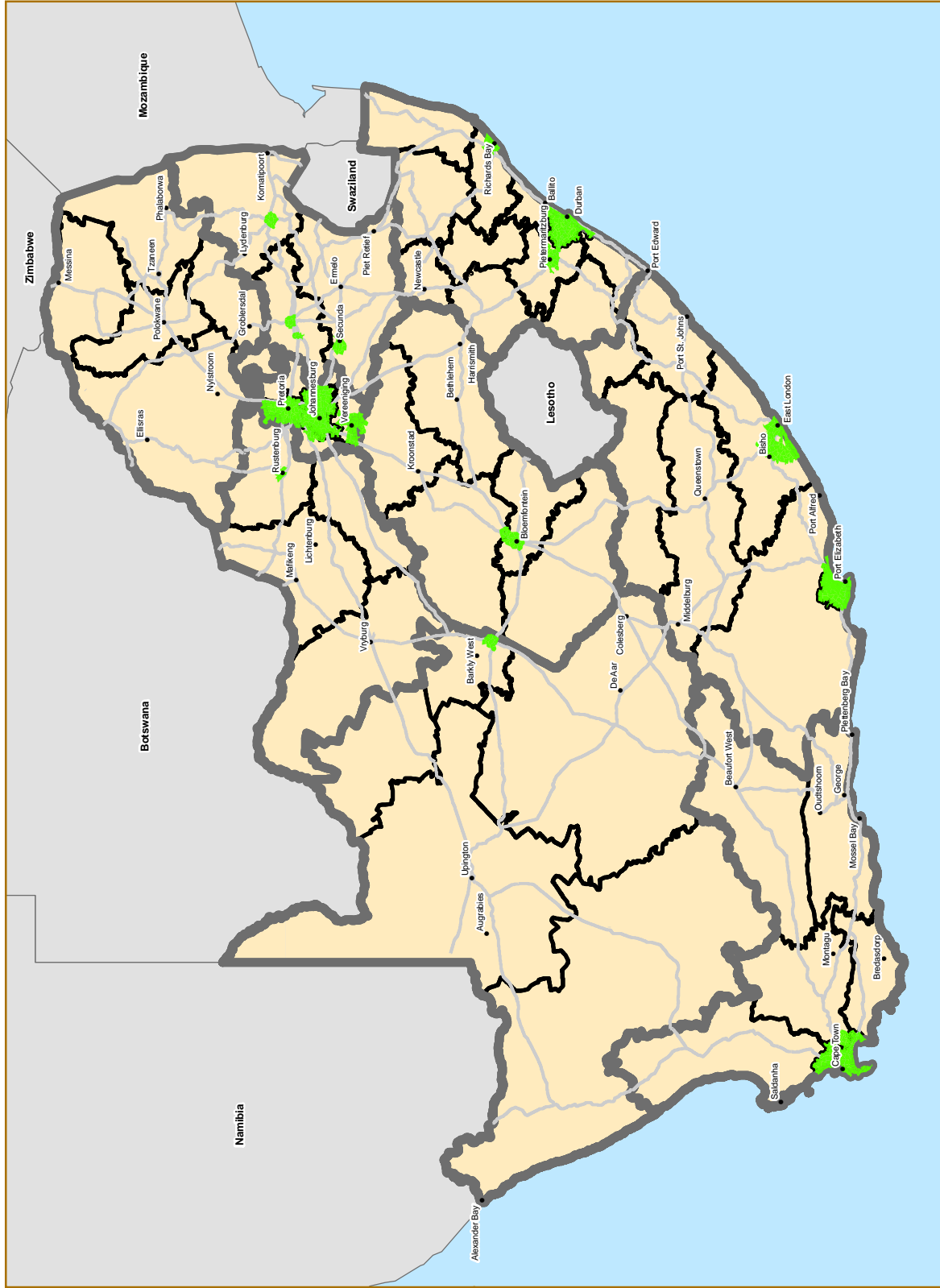
In addition to existing legislation, a range of national, provincial and local development policies and plans exist to further guide and direct development in South Africa. These include, inter alia, the following:

5.2.2 National Spatial Development Perspective (NSDP)

The National Spatial Development Perspective was initiated in 1999 with the aim of not only providing a strategic assessment of the spatial distribution and socio-economic characteristics of the South African population, but gaining an understanding of the distribution of economic activity and potential across the South African landscape. Based on the research conducted, and with key trends and issues identified, the NSDP currently delineates a number of guidelines for infrastructure investment in South Africa.

One of the most significant findings to have emerged from the research conducted for the NSDP, is that the majority of South Africa's economic activity and output is realised in about 26 functional urban areas (see **Map 5.2A**). The 21 largest functional urban areas with their key cities and towns cover only 2% of the South African land

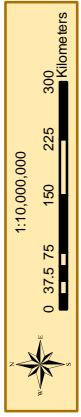
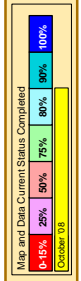
South Africa: THE 26 FUNCTIONAL URBAN AREAS AS IDENTIFIED BY NSDP



LAND USE

URBAN AREAS

26 Functional Areas



Legend

- SANRAL Road Network
- Towns
- District Municipal Boundary
- Provincial Boundaries

BASEMAP

surface, but account for almost 70% of the national gross value added (GVA) (**Map 5.2B**). Together these cities accommodate 41,7% of the total population of South Africa. Yet, despite their economic power in a regional context they also host 24,7% of persons living below the minimum living level (MLL). The distribution of economic activity as defined by the NSDP (Gross Value Added) (GVA) is shown in **Map 5.2B**. District economic profiles are shown in **Map 5.2C**. National economic concentrations are shown in **Map 5.2D**. Finally, **Map 5.2E** shows the distribution of people living under the minimum living level (MLL).

The true significance of South Africa's urban areas can be grasped in view of the fact that 84,46% of the national population and 77,31% of people living under the MLL are located within 60km of areas that generate at least R 1 billion of GVA per annum. Whilst only constituting 31,24% of the national land surface, these catchments generate 95,59% of the total national GVA. Furthermore, in the current South African milieu, cities provide key spaces for black economic empowerment due to employment opportunities and avenues for economic advancement. In 2001, the five biggest city economies provided 4,223,449 jobs, which represent 44,1% of the national number of jobs. The importance of South Africa's urban areas in creating a viable future cannot be underestimated. They host a large share of the population, account for the majority of economic output, and supply approximately half of all job opportunities within just five of the major cities – Johannesburg, Cape Town, Tshwane, **eThekweni**, and Ekurhuleni. However, there can also be no denying that urban areas do present a number of problems ranging from poverty and inequality to environmental degradation. **Consequently, the quality of life in South Africa will increasingly depend on the quality of life its cities can offer.**

The important contribution made by the 21 largest functional urban areas in respect of the South African economy is reflected by the contributions made in each of the below mentioned sectors:

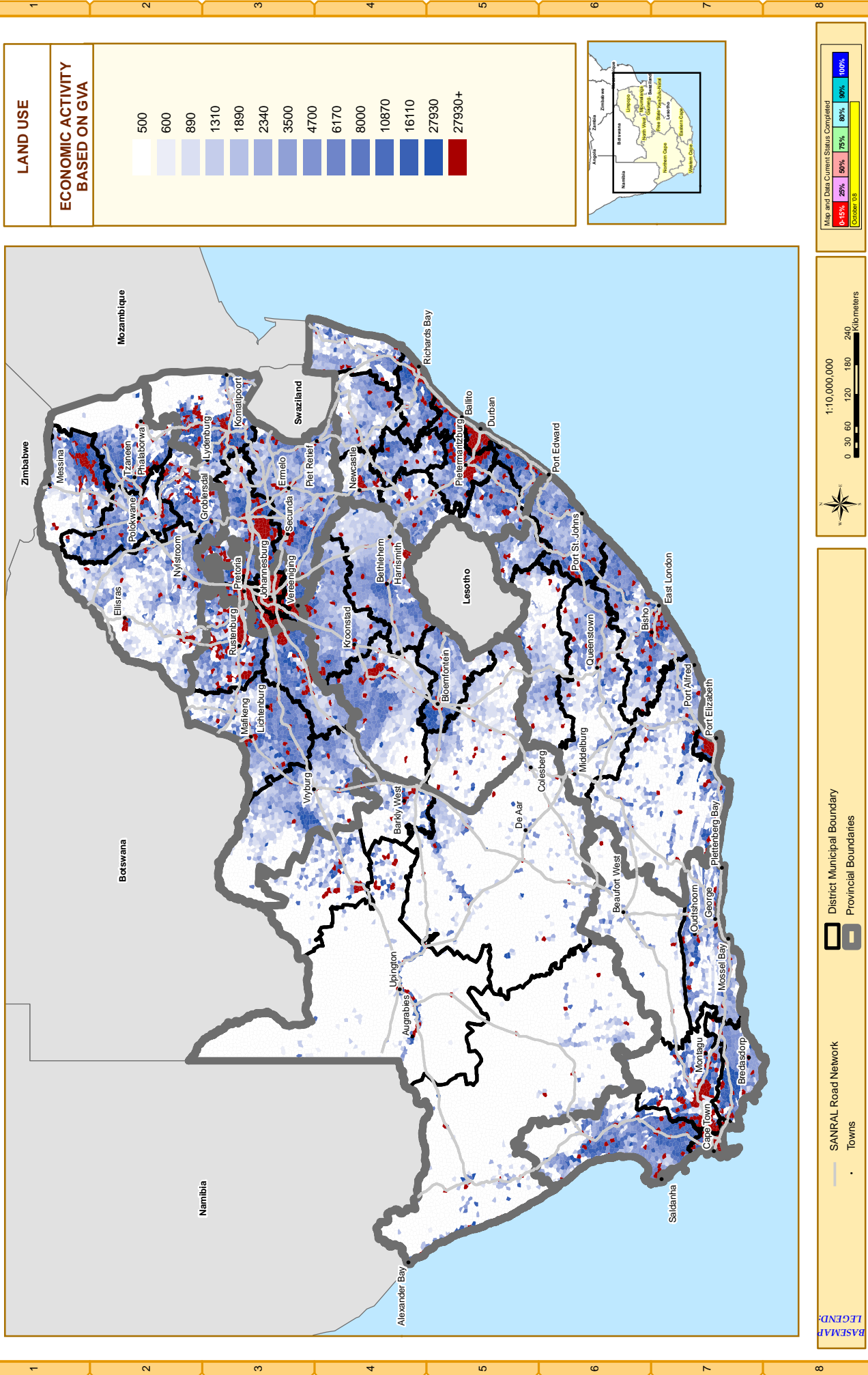
- 79,13% of the national GVA in manufacturing;
- 69,79% of the national GVA in construction;
- 74,20% of the national GVA in wholesale and retail trade;
- 80,96% of the national GVA in transport, storage and communication;
- 85,77% of the national GVA in financial, intermediation, insurance, real estate and business services; and
- 66,78% in community, social and personal services.

Apart from the fact that the majority of South Africa's economic activity is realised in her cities, an analysis of the catchment areas surrounding the 21 functional areas (estimated at 60 minutes driving time for metropolitan areas and 30 minutes for the other centres) indicate that:

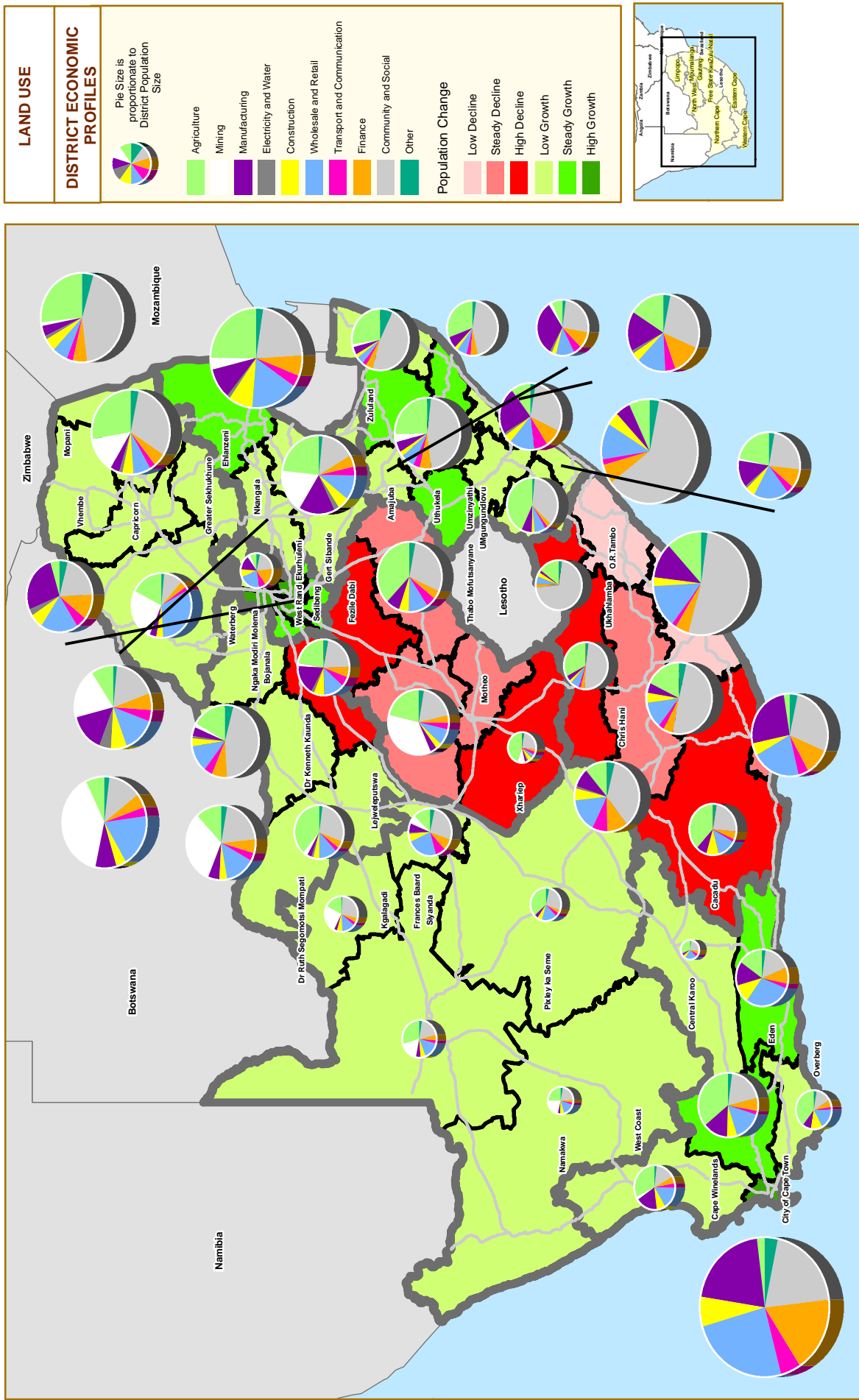
- The catchments host a great number of people living below the MLL, especially near metropolitan centres. For example 11,39% and 51,71% of the national population living below the MLL reside near Johannesburg, and eThekweni respectively; and

South Africa: DISTRIBUTION OF ECONOMIC ACTIVITY BASED ON GVA

MAP 5.2B: Distribution of Economic Activity Based on GVA



South Africa: DISTRICT ECONOMIC PROFILES: NATIONAL PERSPECTIVE

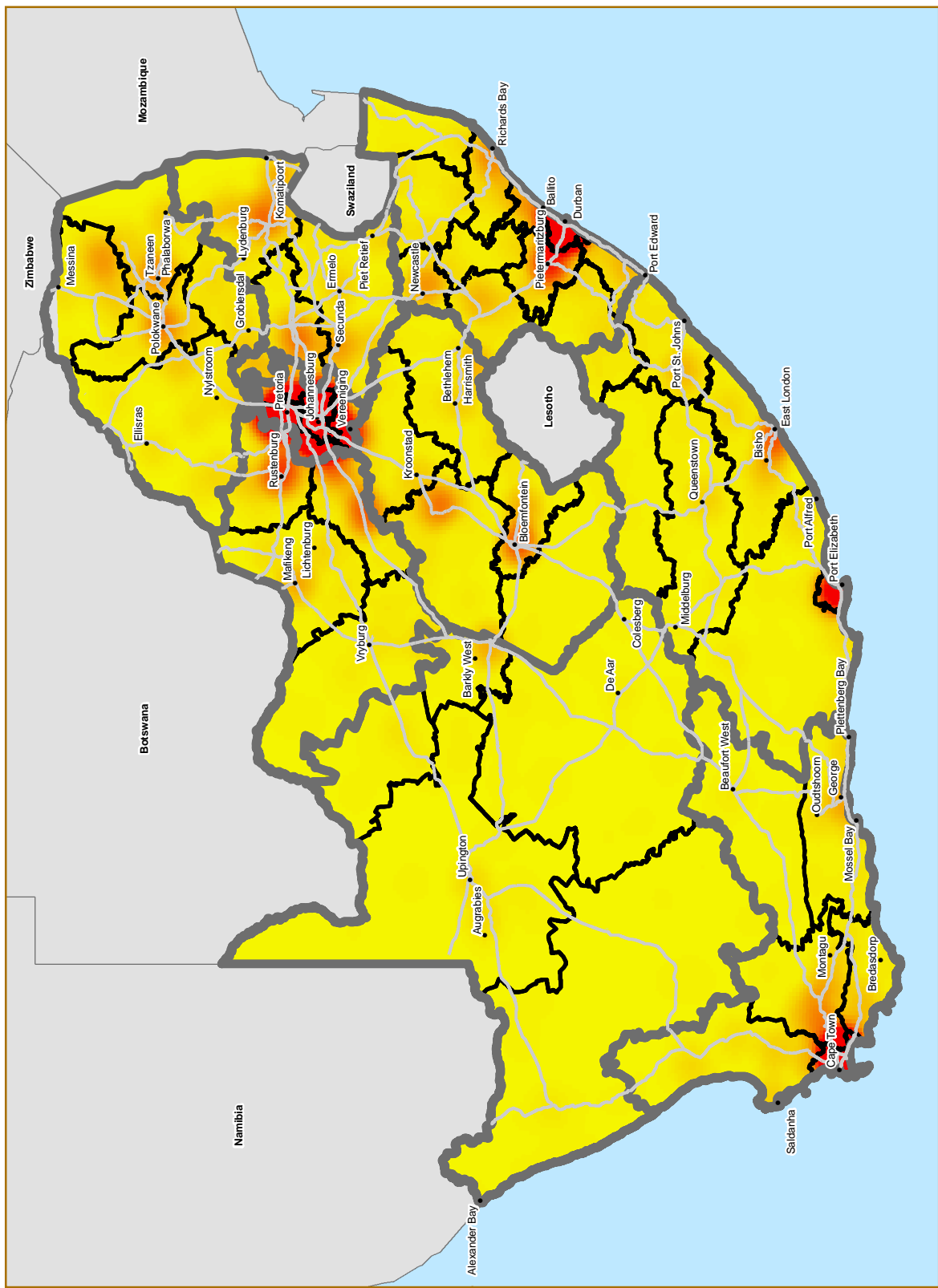


South Africa: ECONOMIC CONCENTRATIONS

MAP 5.2D: Economic Concentrations

LAND USE
ECONOMIC CONCENTRATIONS
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> ■ High </div> <div style="text-align: center;"> ■ Mid </div> <div style="text-align: center;"> ■ Low </div> </div>

Map and Data Current Status Completed
■ 0-45% ■ 45-75% ■ 75-80% ■ 80-90% ■ 90-100%
 October 03



1:10,000,000

0 25 50 100 150 200 Kilometers

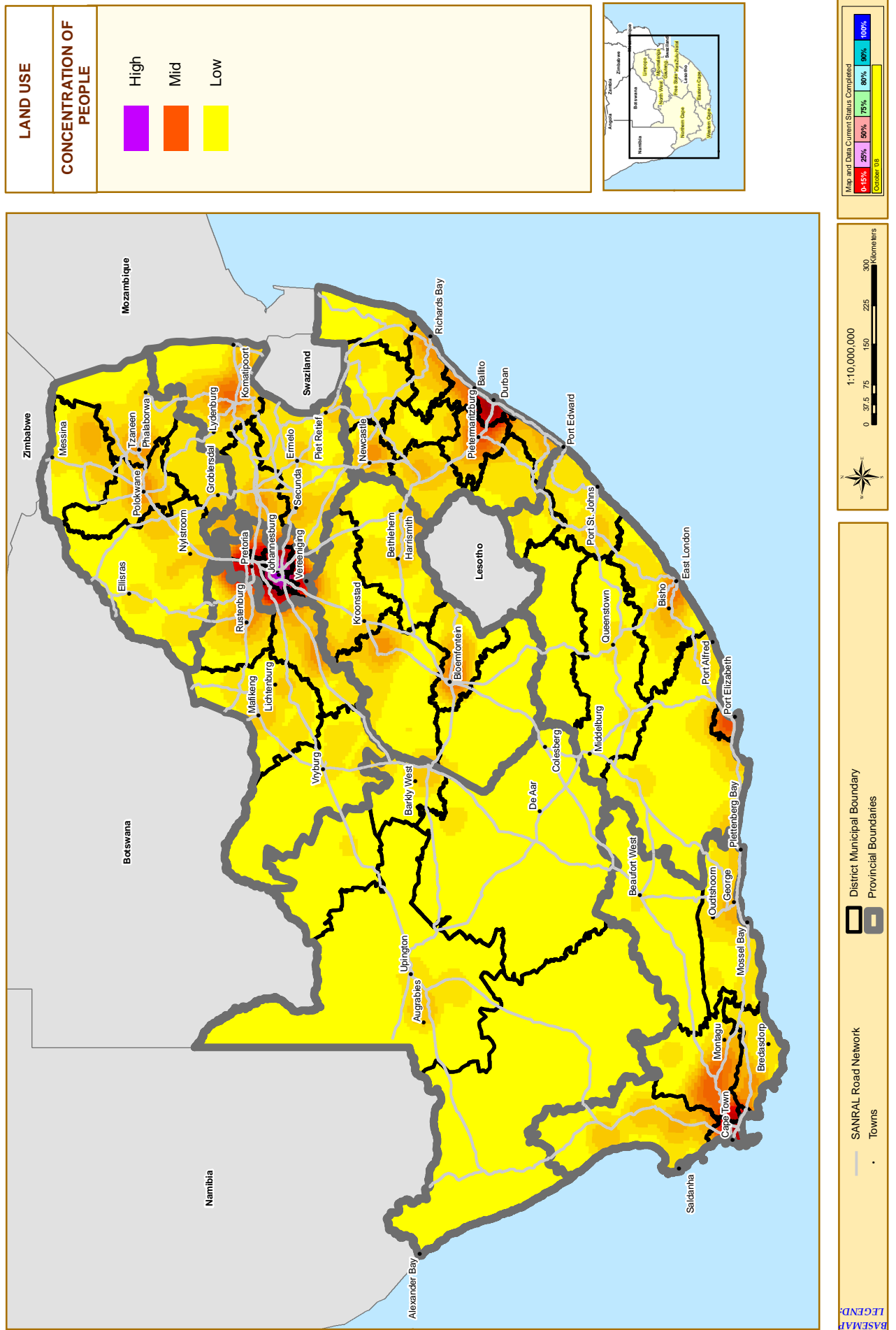
SANRAL Road Network
 Towns
 District Municipal Boundary
 Provincial Boundaries

BASEMAP LEGEND



South Africa: CONCENTRATION OF PEOPLE LIVING UNDER MINIMUM LIVING LEVEL

MAP 5.2E: Concentration of People living under Minimum Living Level



- Mining, quarrying, agri-fishing, and forestry are more prominent in the catchment areas than in the functional areas. Rustenburg is a case in point; whilst its core functional urban area was responsible for only 2,6% of national GVA (1994) in the mining and quarrying sector, when taken together with its catchment, the contribution to national GVA increased to approximately 22%.

It is against the abovementioned backdrop that government needs to consider its approach towards social and economic infrastructure spending, Economic infrastructure spending involves investing in those assets and services that support the production, distribution and consumption of goods and services. According to the DBSA infrastructure report (DBSA Report, 1998:4);

*“economic infrastructure can be divided into three categories; public utilities (electricity, gas, and water, telecommunications, sanitation, sewerage and solid waste disposal), public works (water catchment in dams, irrigation and **roads**) and **other transport sub-sectors (railways, roads, seaports, airports and urban transport systems)**”.*

When a country's economic infrastructure is efficient and effective it can provide low cost intermediate inputs of production, and reduce distribution and consumption costs. In turn, social infrastructure constitutes those physical assets and services aimed at improving the quality of life of individuals, and contribute to human resource development. Social infrastructure includes education, health, and recreation facilities.

From a human development perspective, infrastructure is important as it contributes towards the creation of sustainable livelihoods. Economic infrastructure not only provides humans with basic needs, but creates an environment conducive for income generating activities and productive employment.

Following from the broad philosophy and actions put forward by the NSDP, six principles to guide development and infrastructure investment decisions have also been formulated. A brief summary of each principle is given below:

Principle One: Economic growth is the prerequisite for the achievement of other policy objectives such as poverty eradication and equitable development.

Principle Two: Government infrastructure investment – beyond basic service delivery – will be in areas of high development potential or economic growth.

Principle Three: Efforts to address inequalities should focus on people and not places.

Principle Four: Areas with high levels of poverty and high development potential should receive investment beyond basic services to exploit this potential.

Principle Five: Areas with high levels of poverty and low development potential should receive investment to provide basic services as well as social transfers, HRD, and labour market information.

Principle Six: Focusing future settlement and economic development opportunities into activity corridors and nodes adjacent to or linked to main growth centres. Rather increase the footprint of existing urban areas through incremental development and densification than to initiate new greenfield developments far removed from all existing infrastructure and economic activity.

5.2.3 Urban Development Framework (UDF)

The Urban Development Framework builds on the principles captured in the National Spatial Development Perspective. It confirms the principle that cities are the focus areas for future investment and economic development, and it formulates a strategy which comprises the following six components:

- Increase Status of Urban Issues;
- Prevent Institutional Exclusion of Urban Residents;
- Align Policies, Investment and Enforcement;
- Implement Instruments and Incentives for Urban Reform;
- Urban Intelligence, Monitoring and Evaluation; and
- Human Capacity Development: Urban Management and Co-Operative Governance.

5.2.4 Integrated Sustainable Rural Development Strategy (ISRDS)

Apart from an Urban Development Strategy, government has also published an Integrated, Sustainable Rural Development Strategy in 2003. The ISRDS views rural development as a multi-dimensional exercise and moves away from an approach simply aimed at poverty alleviation through social programmes and transfers. Instead the ISRDS places emphasis on facilitating change in rural environments to enable poor people to earn more, invest in themselves and their communities, and to contribute towards the maintenance of the infrastructure key to their livelihoods. In short, this implies empowering poor people to identify opportunities and to act on them. In terms of the policy document this should be achieved through the improved provision of services, improved physical infrastructure, local economic development (LED), active representation in local political processes, and effective provision for the vulnerable.

Spatial focus and the targeting of funds and resources from all three spheres of government and strategic partners; and the development of local institutional capacity in rural areas are the two principle structuring mechanisms used to drive the ISRDS. In addition to the two structuring principles, the ISRDS is structured around a number of components. Those of specific relevance to a national transport plan include:

5.2.4.1 Nodal Development

The concept of nodal development is based on spatial targeting, where resources are directed to selected areas in response to identified development problems and

opportunities. A range of criteria is used to clarify problems and opportunities and to focus on key sectoral issues. The Departments of Public Works (CBPWP), Water Affairs and Forestry, Environment, Tourism, Transport, Housing, Land Affairs, Provincial Affairs and Local Government, and Social Development at national level each have a role to play towards nodal development in rural areas.

5.2.4.2 The Basket of Selected Services

It is recognized that direct investment by line function departments will focus on purposeful provision of infrastructure. The objective of this provision will be to create infrastructure to support social or productive investment. Such investment may provide a lead in some nodes that will stimulate, or kick-start local economic development when properly managed, co-ordinated and targeted.

5.2.4.3 Initial Focus on Selected Areas

The ISRDS identified thirteen Rural Development Nodes to start with. These Rural Development Nodes are illustrated in **Map 5.2F**. It is prescribed that within the nodes, the baskets with selected services should assist income generation for those who have high potential for improvement, and should include poverty-targeted programmes for those likely to be by-passed by new growth. Thus, the selection of programmes and targeting within programmes should reflect the diversity of rural communities and contribute both to income generation and poverty reduction.

DoT is a very important role-player / service provider in these Rural Development Nodes, and in each of the thirteen nodes it should assess the nature and extent of current initiatives, and determine in what way it can and should participate in the programmes of each of the nodal areas.

5.2.5 **Industrial Development**

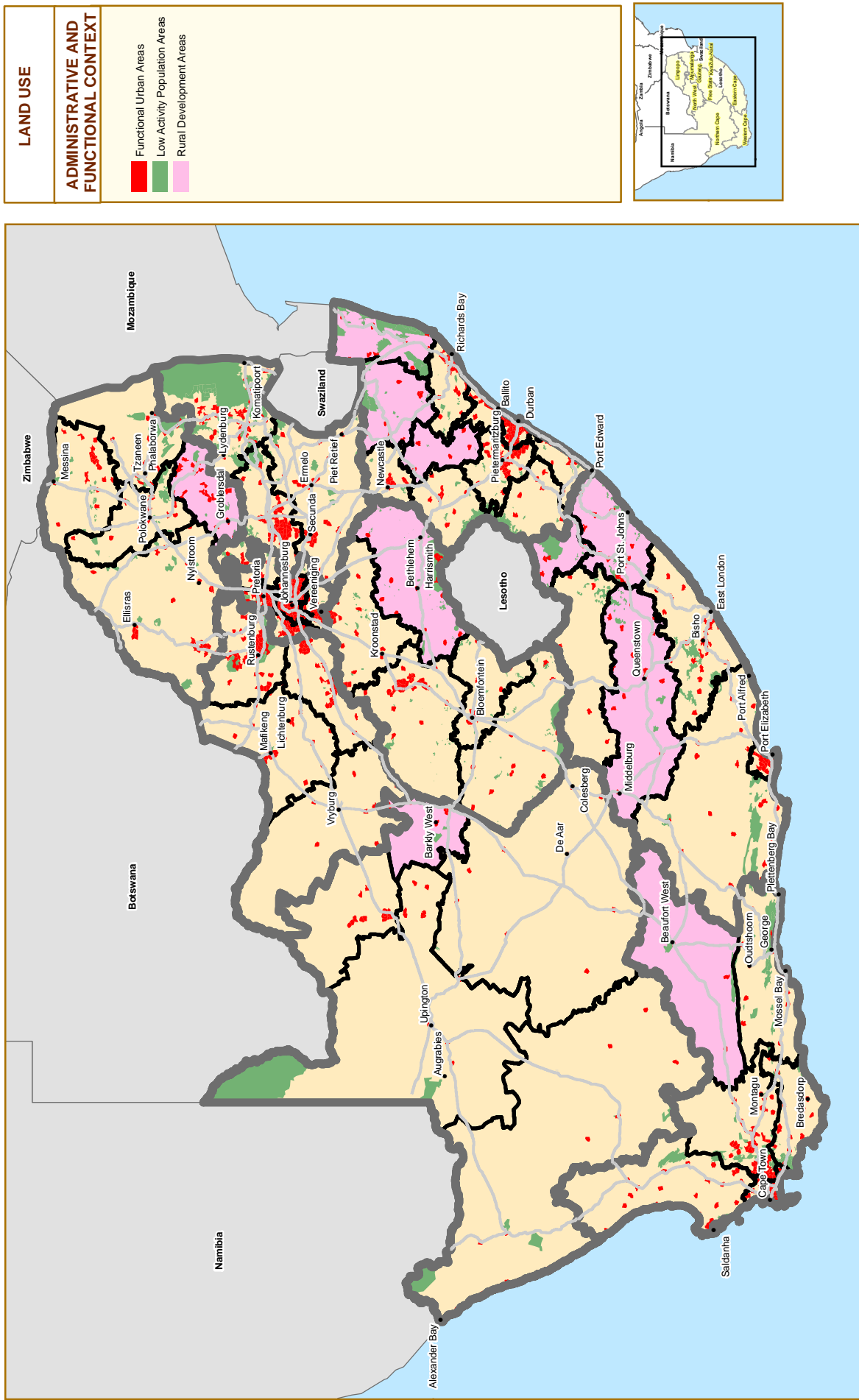
Since 1994 several policies and initiatives aimed at promoting industrial development in South Africa have been launched. The following is a brief summary of these:

5.2.5.1 Industrial Development Zones (IDZs)

The concept of IDZs was introduced to establish defined industrial zones in which unique support measures would apply, and where manufacturing would be encouraged to respond to, and meet the needs of the growing international market. The IDZs that have been identified are all associated with major harbours and / or airports to enhance the key export-orientated focus of the zones. The Coega and East London IDZs are currently the most well-established.

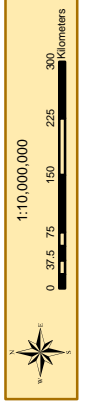
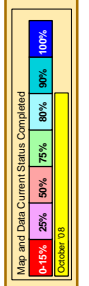
South Africa: ADMINISTRATIVE AND FUNCTIONAL CONTEXT

MAP 5.2F: Administrative and Functional Context



LAND USE	
■	Functional Urban Areas
■	Low Activity Population Areas
■	Rural Development Areas

ADMINISTRATIVE AND FUNCTIONAL CONTEXT	
---------------------------------------	--



BASEMAP LEGEND

5.2.5.2 Spatial Development Initiatives (SDIs)

The SDI programme in South Africa was conceived in 1995. SDIs are based on the principle of growth corridors that link key economic nodes and regions within a country. Some SDIs do however provide cross-border links with neighbouring countries (e.g. Maputo-Walvis Bay Corridor). The corridors are designed as arteries to encourage growth within the key sectors in those areas. The SDIs were characterized by intensive interventions in identified areas to fast-track private-sector investments, to stimulate the growth of small, medium and micro enterprises (SMMEs), and to enhance the empowerment of local communities.

By early 1999, 11, industrial, agricultural or tourism-led SDIs were initiated and launched in South Africa, and included the:

- Maputo Development Corridor (industrial and agro-processing);
- Lubombo SDI (agri-tourism);
- KwaZulu-Natal SDI (industrial);
- Fish River SDI (industrial);
- Wild Coast SDI (agri-tourism);
- West Coast Investment Initiative (industrials and agri-processing);
- Gauteng Special Economic Zone;
- Phalaborwa SDI (industrial and agri-tourism);
- Gariep (mining and agri-tourism);
- Platinum SDI (industrial and agri-tourism); and
- Coast-to-Coast Corridor (transport and tourism).

5.2.5.3 Local Economic Development (LED) Initiatives

LED is a process that brings together resources from within, and outside the community to promote economic growth in a systematic and organized manner at the local level. However, with the exception of LED initiatives supported by funding from the European Union in KwaZulu-Natal and the Eastern Cape, LED approaches do not seem to be able to enable localities or broader regions to aspire to the forefront of industrial development and economic growth activities.

Some examples of city LED-related capital projects in South Africa include the:

- East London IDZ infrastructure (Buffalo City);
- ICC Durban expansion and ICC Arena (eThekweni);
- Bloemfontein-Mangaung LED corridor (Mangaung);
- Freedom Square in Pietermaritzburg (Msunduzi);
- Infrastructure maintenance in Kempton Park (Ekurhuleni);
- Khayalitsha node project (Cape Town);
- Inner City nodes in Johannesburg (Joburg);
- Beachfront upgrading in Port Elizabeth (Nelson Mandela); and
- Science Park (Tshwane).

5.2.5.4 Accelerated and Shared Growth Initiative (ASGISA)

The Accelerated and Shared Growth Initiative sets a 6% per annum economic growth rate for South Africa from 2010 onwards, to achieve the stated 2014 targets pertaining to engineering infrastructure, housing provision, and the provision of social services. Furthermore, ASGISA puts forward a set of initiatives to serve as catalyst for faster growth, and is based on the following principles:

- On-going enabling management of fiscal and monetary policy;
- Focused industrial policy framework;
- Supporting sector policies and legislation;
- Projects and initiatives in the economic cluster of government; and
- Linked to LED Strategies.

5.2.5.5 Provincial Growth and Development Strategies (PGDS)

Another important government initiative implemented during the past few years is the Provincial Growth and Development Strategy programme. In terms of this programme each of the nine provinces in South Africa compiled a Growth and Development Strategy which specifically focused on optimizing the development opportunities present in each of the provinces, but also dealt with the constraints associated with each of these areas. The Provincial Growth and Development Strategies were compiled within the parameters set by the National Spatial Development Perspective, as well as the Integrated Sustainable Rural Development Strategy as defined by national government.

Table 10 below provides a shortlist of the high profile development projects reported on in the various, Provincial Growth and Development Strategies. Some of these projects have been short listed for government support by way of infrastructure funding, although there is currently no finality as to the status of all of these.

Table 10: Summary List of Submitted Candidate Projects for Infrastructure Funding

Province	Number of Projects	Project No.	Project Name
Eastern Cape	6	1	Umzimvubu Catchment/Development Project
		2	Timber Industries Development Initiative
		3	Strategic Rail Infrastructure
		4	Gariep Water Transfer
		5	Indwe/Molteno Coalfield Project
		6	Wild Coast Meander
Free State	3	1	Integrated SMME Development Programme
		2	Linkages with Emerging Knowledge Based Economy
		3	Harrismith Logistics Hub ("Kick-Starting")
Gauteng	1	1	Logistics Hub (JIA)
KwaZulu-Natal	4	1	Dube Tradeport
		2	Agrarian Revolution
		3	Corridor Development
		4	Fast Track Community Infrastructure
Limpopo	2	1	Dilokong Platinum Corridor
		2	Logistics Cluster
Mpumalanga	1	1	Moloto Corridor Railway Line
North West	6	1	Central Bio-Diesel
		2	Western Frontier Cattle Beneficiation
		3	Mafikeng Growth and Development
		4	Asset Management and Development
		5	Mining Service Delivery Park
		6	Infrastructure for Spatial Initiatives
Northern Cape	10	1	Enhance Transport, Harbour, Upington Airport
		2	Madibeng (Brits) Maputo Dry Port
		3	Mining and Mineral Processing Cluster (Diamonds)
		4	Iron Ore and Manganese Mining exp./Smelters
		5	Square Kilometer Array Science Demonstrator
		6	Port Nolloth Harbour Infrastructure
		7	Williston SA Science Demonstrator Telescope
		8	Enhance Transport, De Aar Rail Junction
		9	Steinkopf/Upington DSA programme for NASA
		10	Port Nolloth Fishing Node/Mariculture Park
Western Cape	3	1	Building on 2010
		2	Oil and Gas, Manufacturing, Beneficiation, Rail Inf. Hub
		3	Southern Tip of Africa

5.2.5.6 Integrated Development Plans (IDPs)

The Municipal Systems Act No.32 of 2000 guides and directs the compilation of Integrated Development Plans by all local authorities in South Africa. The Integrated Development Plans are legally required to include and align all government-led initiatives in any specific area of jurisdiction. Thus, the Integrated Development Plan of a local authority is the statutory plan for development in the area of jurisdiction of that local authority, and it has to include and align the policies, plans, and projects of the other spheres of government in that area as well.

IDPs are multi-disciplinary in nature, and comprise institutional, physical, social and economic development proposals from all three spheres of government as well as the private sector, for a specific municipal area.

5.2.5.7 District and Metropolitan Growth and Development Summits

District and Metropolitan Municipalities hold Growth and Development Summits (GDSs) in their areas of jurisdiction, subsequent to the introduction of ASGISA, which builds on the outcome of the National Growth and Development Summit. Arising from the National Growth and Development Summit, government will focus on four key strategies over the next five years to move closer to the vision of robust and inclusive local economies. These are: (1) build public and market confidence in municipalities; (2) identify and exploit the comparative and competitive advantage of the 52 district and metropolitan municipal regions; (3) intensify enterprise support; and (4) introduce sustainable community investment programs that focuses on organising communities for development, and maximising circulation of public spend in local economies.

5.2.5.8 Provincial Spatial Economic Development Strategy (PSEDS)

With the overall goal of ASGISA in mind, the KwaZulu-Natal Provincial Government launched a new phase of its economic growth and development strategy, aimed at transforming the structure of the economy and eventually eliminating the gap between the first and second economies. The Economic Development Strategy rests on four broad pillars. These are:

- Increasing investment in the Province;
- Skills and capacity building;
- Broadening participation in the economy; and
- Increasing competitiveness.

The strategy does however not provide a detailed spatial perspective on where development should take place around the Province. For this reason the Provincial Spatial Economic Development Strategy has been developed, to give a spatial context to the provincial priorities and development programmes identified in the PGDS. The particulars of the PSEDS will be discussed more thoroughly in phase 2.

5.3 PROVINCIAL LAND USE PATTERNS AND CHARACTERISTICS

5.3.1 Major Provincial Land Uses

5.3.1.1 Settlement Patterns

The Province is characterised by an extensive mosaic of scattered rural settlements and villages. Vast numbers of these settlements and villages occur within the Zululand, Umkhanyakude, Umzinyathi and Ugu District Municipalities earmarked as Rural Development Nodes by the Government's ISRDS programme. The presence of villages, informal settlements, and formal urban areas increase towards the coastline with the most significant urban conurbation being located within the eThekweni Metropolitan Municipality. A string of urban areas are also located along the coastline, predominantly in a southerly direction towards East London. An extensive urban area is however found towards the north at Richards Bay within the uMhlathuze Local Municipality.

Apart from the eThekweni metropolitan area, prominent urban areas are found towards the interior of the Province, within the local municipalities of Msunduzi, Emnambithi / Ladysmith, Endumeni, Newcastle, and Abaqulusi. Many of these urban areas are located either along the intersection of major national / provincial routes, commercial ports, areas of agriculture or industry, or tourist attractions.

The major towns and cities in the Province comprise the following:

- Durban which represents the main activity node and concentration of people in the Province;
- Pietermaritzburg, Richards Bay, Newcastle, and Ladysmith which represent some of the major secondary activity nodes in the province; and
- A range of smaller towns and villages like Estcourt, Ulundi, Howick, Vryheid, Mooi River, Dundee, Kokstad, KwaDukuza (Stanger), Kwamakhutha, Amanzimtoti, Umkomaas, Port Shepstone, and St Lucia (**Map 5.3A**).

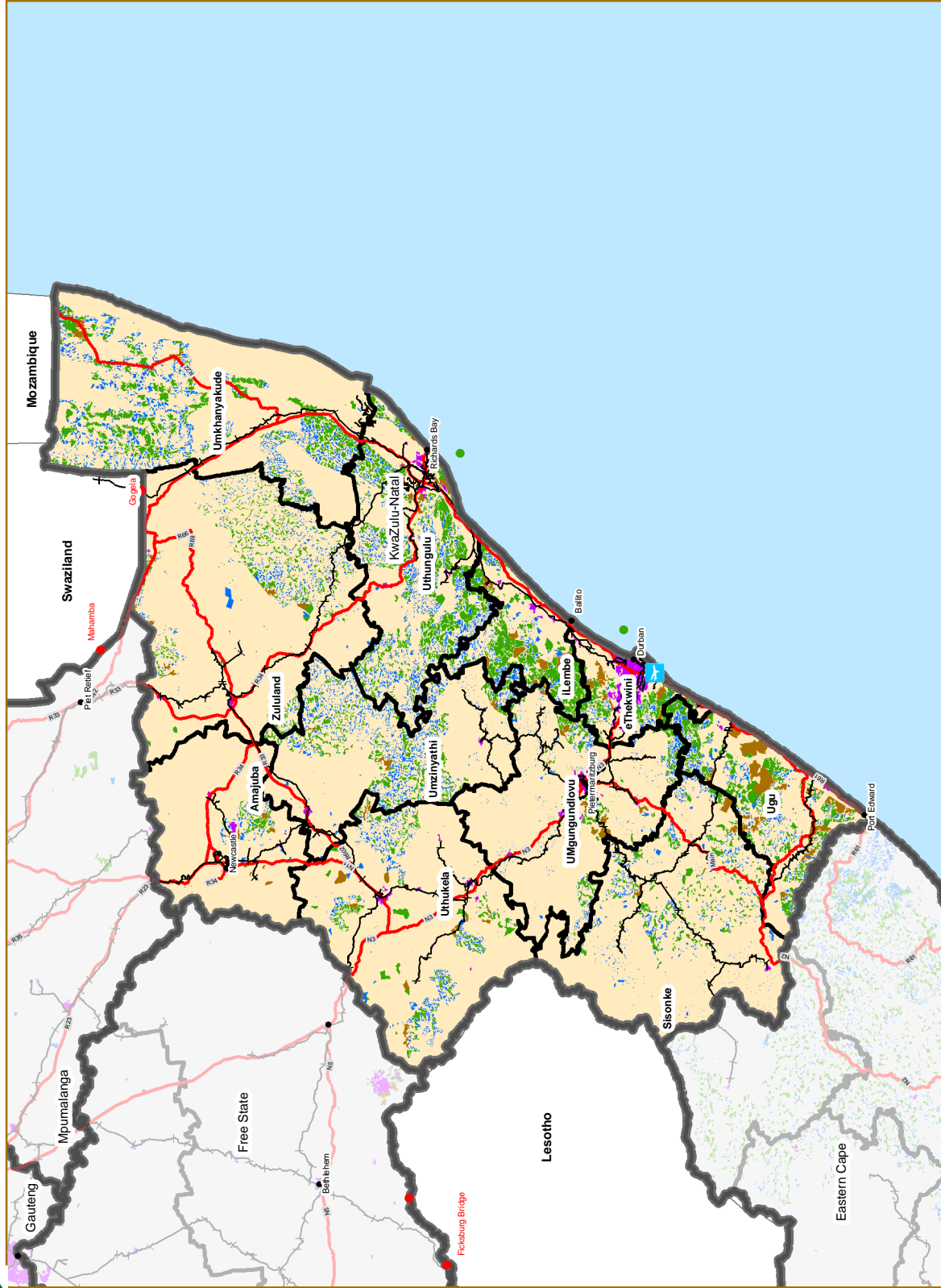
Together, the Province's two port nodes handle approximately 78% of South-Africa's cargo tonnage. The Port of Durban handles over 30 million tonnes of cargo annually with an estimated value of more than R100 billion. The Port of Richards Bay handles about 1000 containers per month. Richards Bay is also the operational centre for South Africa's aluminium industry while Richards Bay Coal Terminal ensures the country's position as the second largest exporter of steam coal in the world.

5.3.1.2 Agriculture

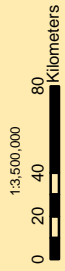
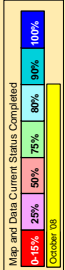
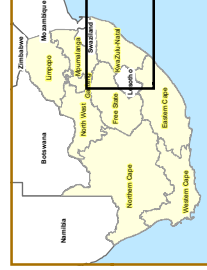
Although large expanses of the province feature medium to high potential arable land, suitable for both intensive and extensive farming purposes, much of Zululand, the Ugu District Municipality and the eastern extents of the Sisonke District Municipality feature low potential agricultural land. Consequently, these areas are mostly utilized for grazing purposes by both commercial and subsistence farmers (**Map 5.3B**). Notably, apart from the occurrence of fairly high potential agricultural land, is the occurrence of isolated wildlife areas. These are important from both an ecological / biodiversity and economic point of view.

KwaZulu-Natal Province: SETTLEMENT PATTERNS

MAP 5.3A: Land Use - Settlement Patterns



LAND USE PATTERNS
SETTLEMENT PATTERNS
<ul style="list-style-type: none"> Urban Areas Rural Scattered Rural - Dense Village > 5000 Rural - Small Village <= 5000



District Municipal Boundary
 Provincial Boundaries

Airports
 Towns

Border Posts
 Harbours

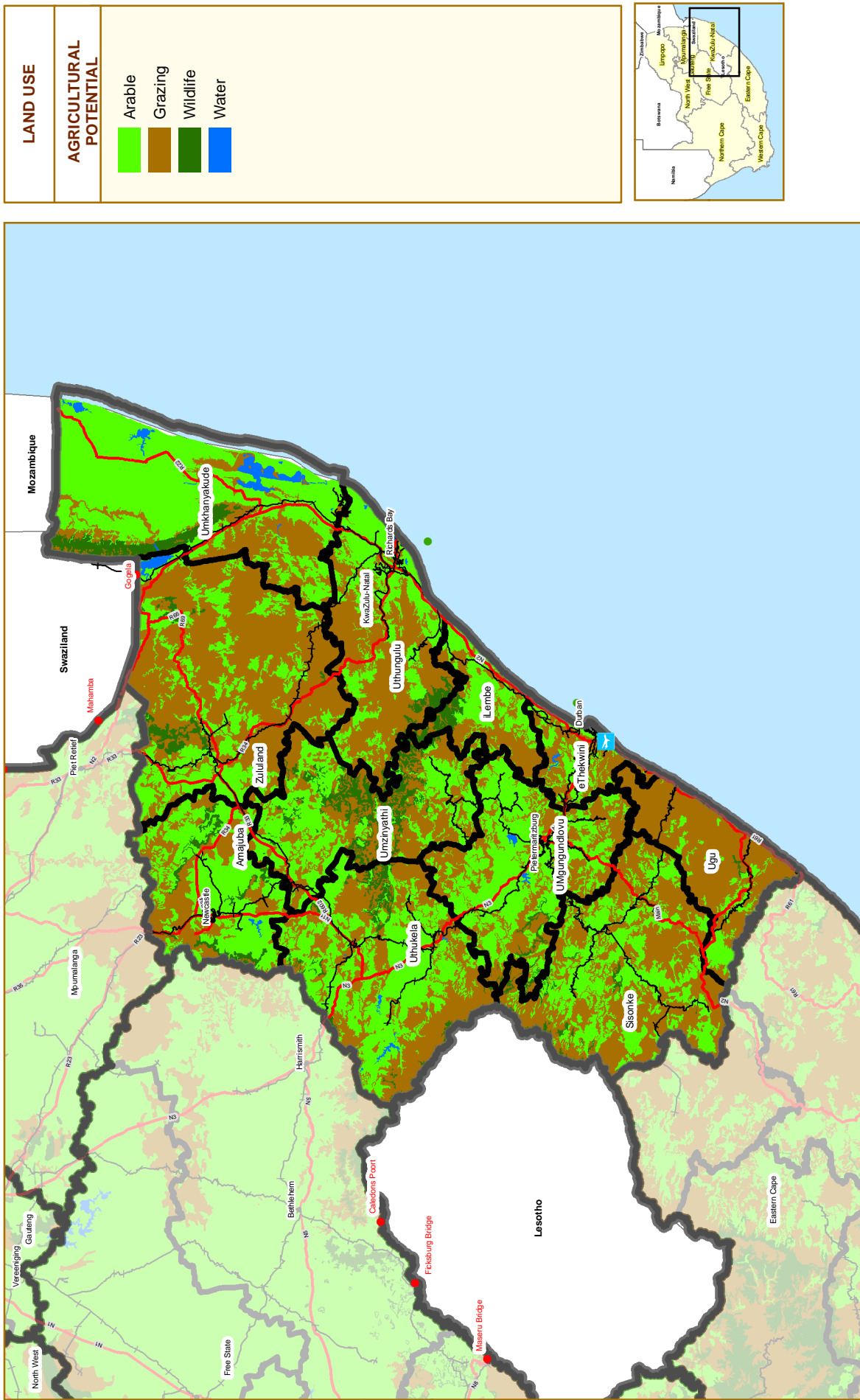
SANRAL Road Network
 Railway Network

LEGEND
BASEMAP



KwaZulu-Natal Province: AGRICULTURAL POTENTIAL

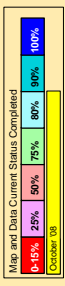
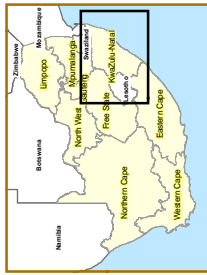
MAP 5.3B Agricultural Potential



LAND USE

AGRICULTURAL POTENTIAL

- Arable
- Grazing
- Wildlife
- Water



District Municipal Boundary
 Provincial Boundary

Airports
 Towns

Border Posts
 Harbours

SANRAL Road Network
 Railway Network

BASEMAP LEGEND

More product specific, large expanses of the Province are either under sugar cane cultivation, utilized for forestry, or used for cattle and subsistence farming (**Map 5.3C**). The majority of sugar cane cultivation occurs within a belt that runs parallel to the coast and stretches across the local municipalities of Hibiscus, Umdoni, Vulamehlo, Mkhambathini, uMshwathi, KwaDukuza, uMlalazi, and uMhlathuze. Sugarcane remains the single largest crop of the region, with over 85% of the nation's crop grown in KwaZulu-Natal (Refer to **Table 11**). The average yearly production is estimated at 18, 7 million tonnes. Significantly, the sugar industry provides approximately 350 000 jobs, with approximately 1 million people (most of them in rural areas) being dependant on the sugar industry in some way. In terms of transportation, the raw sugar exports are handled at the sugar terminal in Durban, and the transport of sugar cane in KwaZulu-Natal mainly takes place by road.



Keeping with sub-tropical produce, the humid low-lying coastal belt in north-eastern KwaZulu-Natal is best suited for banana production, as well as the south coast (Port Edward to Port Shepstone). After Limpopo (58%), KwaZulu-Natal is the second largest (22%) producer of bananas. The bananas are mainly produced along the north and south coast district municipalities of Ugu, iLembe, Uthungulu and Umkhanyakude. The total tonnage produced during 2005 is estimated at 72,600 tonnes.

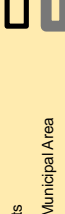
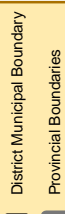
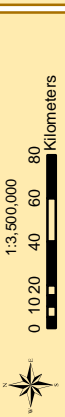
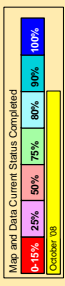
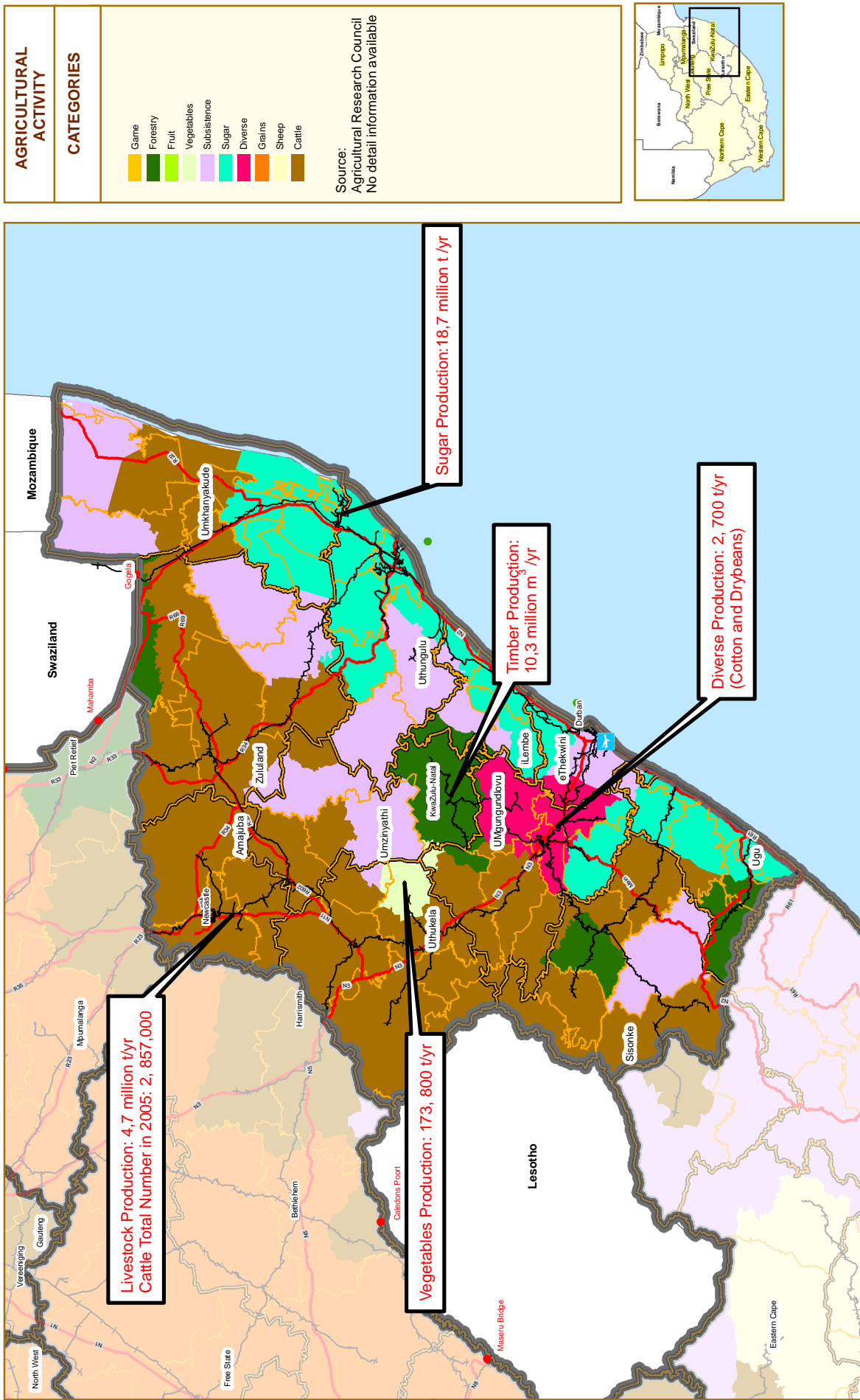
Furthermore, after Limpopo (59%) and Mpumalanga (33%), KwaZulu-Natal (8%) is the third largest producer of Avocados. The avocados are mainly produced within the Uthukela and Umkhanyakude Districts. All in all, in 2005/06, the total production areas of subtropical fruit were estimated at 48 000 hectares, producing approximately 55 000 tonnes.



Moving to Citrus, the area under citrus for 2005 was estimated at 4 140 hectares, producing approximately 82 600 tonnes.



KwaZulu-Natal Province: PRIMARY AGRICULTURAL ACTIVITY



BASEMAP LEGEND

Table 11: Areas Planted and Final Production Tonnages in KZN for the 2005/2006 Season

Agricultural Product	Production (tonnes / year)	Percentage of Country Total	Plantation Area in KZN Province (ha)	Main Areas of Production (District)
Maize - White	175,000	2,6%	32,000	Umzinyathi and Umgungundlovu
Maize - Yellow	135,000	2%	27,000	Umzinyathi and Umgungundlovu
Maize - Total	310,00	4,7%	59,000	KZN
Sunflower Seed	Nominal	Nominal	Nominal	Umzinyathi and Ilembe
Soya-beans	62,500	15%	25,000	Umgungundlovu and Izingolweni
Groundnuts	Nominal	Nominal	Nominal	Umzinyathi, Umgungundlovu and Ilembe
Sorghum	250	0,26%	100	Umzinyathi and Umgungundlovu
Drybeans	900	1,3%	600	Not available
Wheat	31,000	1,5%	7,000	Amajuba
Sugarcane ¹	18,700,000 ³	85%	365,500 ⁴	Ugu, Ilembe, Uthungulu and Umkhanyakude
Cotton	1,800	9%	1,600	Umkhanyakude (Makhathini Flats)
Tobacco	Nominal	Nominal	Nominal	Umzinyathi
Appel	6,500 ³	1%	220 ⁴	Umzinyathi
Avocado	6,600 ³	8%	1000 ⁴	Uthukela and Umkhanyakude
Banana ²	72,600 ³	22%	2,500 ⁴	Ugu, iLembe, Uthungulu and Umkhanyakude
Citrus	82,600 ³	7%	4,000 ⁴	Uthungulu
Mango	1,200 ³	2%	155 ⁴	Uthukela and Umkhanyakude
Potato	137,300 ³	8%	4,100 ⁴	Umzinyathi and Uthungulu
Table Grape	Nominal	Nominal	Nominal	Uthungulu
Tomato	36,500 ⁴	11%	730 ⁴	Uthungulu
Wine	Nominal	Nominal	Nominal	Ilembe and Ugu

Notes:

1. Highest Production of all provinces in the country.
2. Second highest production of all provinces in the country.
3. Estimated Production.
4. Estimated Planted Area.

Source: South Africa Department of Agriculture - Field Crop Market Value Chain Profiles, Volume 2, June 2007;
South Africa Department of Agriculture - Horticultural Crop Market Value Chain Profiles, Volume 2, June 2007; and
www.grainsa.co.za

Maize is primarily produced in northern KwaZulu-Natal. The amount of maize produced in KwaZulu-Natal for the year ending June 2005 was estimated at 310 000 tonnes (4,7% of the national production). In the 2006/07 financial year, the Port of Durban exported approximately 67 900 tonnes of maize and imported approximately 900 000 tonnes.



In 2005, 7 000 hectares of wheat were planted, producing approximately 31 000 tonnes. The Amajuba District is the primary production area for wheat within the Province. The import of wheat through the Port of Durban amounted to approximately 940 000 tonnes in the 2006/07 financial year.



Significantly, in 2005, 25 000 hectares of soya beans were planted, producing approximately 62 500 tonnes, or 15% of South Africa's total soybean harvest. Furthermore, in 2005, 730 hectares of KwaZulu-Natal land was under tomato cultivation, producing approximately 36 500

tonnes or 11% of South Africa's total soybean harvest.

The north-western regions of the Province (Highveld and Midlands) are largely devoted to raising livestock, with the largest concentration of commercial sheep and cattle farms found in the drier areas of the Province along the Drakensberg, Vryheid, Mount Currie – Utrecht, and Southern Natal. Significantly, after the Eastern Cape, KwaZulu-Natal boasts the second largest amount of cattle in South Africa, at 20% of the Country's total cattle population. Furthermore, KwaZulu-Natal features the third highest (15%) goat population in South Africa. In turn, Estcourt and Mooi River feature the largest pig populations (Refer to **Table 12**).



Table 12: Livestock Numbers in KZN for the 2005/2006 Season

Livestock Type	Total Number (2005)	Percentage of Country total
Cattle	2,857,000	20%
Sheep	775,000	3%
Pigs	164,000	10%
Goats	938,000	15%

Source: KwaZulu-Natal Freight transport Data Bank and www.nda.agric.za

All in all, the Province has a total of 6,5 million hectares of land for farming purposes of which 82% is suitable for extensive livestock production and 18% is arable land. Agricultural activity within KwaZulu-Natal is not only an important contributor to household food security, but also to the National and Provincial economy. Despite the fact that KwaZulu-Natal covers a relatively small amount of South Africa's land area, a large percentage of the country's small-scale and subsistence farmers are based in the Province.

5.3.1.3 Mining

The Newcastle-Madadeni-Osizweni complex within the Amajuba District Municipality, and specifically Newcastle, Dannhauser, and Utrecht represent the mining and manufacturing nodes of the Province. Although, the mining and quarrying industry makes the lowest contribution to GDP, the Province does feature diverse mining

operations, which includes the extraction of a range of mineral products (see **Map 5.3D**). These include coal, lime, slate, titanium, granite, and sand and stone for use as construction materials.

Richards Bay Minerals is in fact the largest sand mining and mineral processing operation in the world, with reserves said to last for the next 50 years. Apart from these, there are also production facilities for Ferro-silicon, Ferro-manganese, aluminium, titanium, zircon and rutile.

The coal mining industry in KwaZulu-Natal is located primarily in the northern areas of the Province (Amajuba and Zululand District Municipalities). The main inland mines are located near Dundee (anthracite), Newcastle, Utrecht, and Hlobane (bituminous coal) in northern KwaZulu-Natal. However, the majority of the approximately 69 million tonnes of coal that are annually exported through the port of Richards Bay are received from Witbank by rail via the coal link. Most of the coal produced in KwaZulu-Natal are used by industries in the Province, or exported via the Port of Durban, with very little distribution into other provinces to the north.

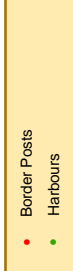
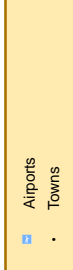
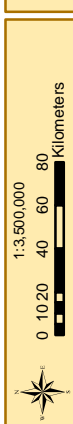
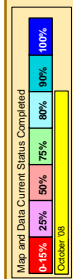
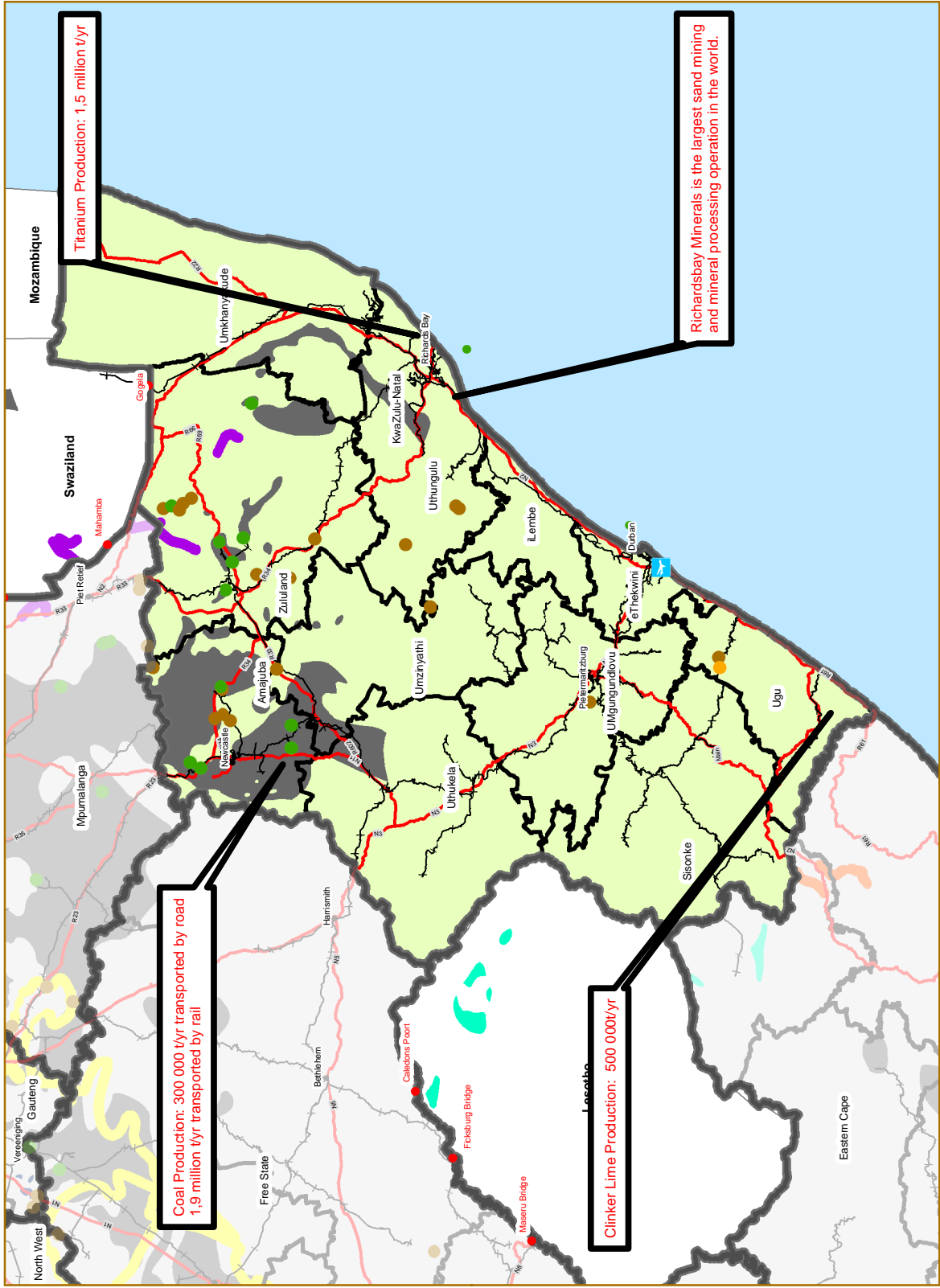
The KwaZulu-Natal coal mining operations currently contribute 300 000 tonnes per annum to road transport, and approximately 1,9 million tonnes to rail.

Apart from coal, there are extensive sand mining operations at a number of points in the Province. These are primarily located on the major rivers which are the primary source of sand from erosion of the sandstone of the interior escarpment. Coastal operations supply sand for some distance into the interior by road transport. Operations are found at Stanger, Richards Bay, Melville, Pongola, Mtwalume, Port Shepstone and Durban. The mining and quarrying of building, construction, and road maintenance materials take place at a wide range of sites in KwaZulu-Natal. Sites include inter alia Durban, Felixton, Pietermaritzburg, Greytown, Port Shepstone and Newcastle. Granite for building purposes is also mined in the Newcastle and Vryheid areas. The overall volume of material produced is unknown, but it presents a significant additional volume of road transport. Other mining operations include:

- Titanium mining operations are located to the north of Richards Bay in the coastal sands, producing approximately 1,5 million tonnes of export products per annum, which are shipped from Durban. Approximately 26 000 tonnes of titanium oxide is distributed in KwaZulu-Natal and nationally by road. In addition to the titanium oxide, there is a by-product of 37 000 tonnes of gypsum that is delivered by road to cement factories in the Durban area.
- Extensive mining of carbonates take place in the Simuna area, along the banks of the Umzimkulu River, to the north of Port Shepstone on the KwaZulu-Natal south coast. The quarries produce clinker lime for the cement industry, which is railed to the cement works at Mt Vernon in Durban. The approximate annual production of 500 000 tonnes of clinker lime.

KwaZulu-Natal Province: MINING ACTIVITY AND RESERVES

MINING	
●	Abandoned
●	Dormant
●	Intermittently Producing
●	Continuously Producing
■	Coal
■	Copper
■	Diamond in kimberlite
■	Diamonds Alluvial
■	Gold
■	Iron
■	Platinum



- for the cement industry is delivered by means of rail to Durban. The majority of lime products produced is transported by road to local and inland users.

Table 13: Mineral Production in KZN (2005)

Mineral	Unit	Production 2005
Bituminous coal	t	2,200,000
Titanium	t	1,500,000
Clinker	t	500,000
Gypsum (by-product)	t	37,000

* Note: Due to data system problems, the DME is unable to provide more detailed provincial specific mineral production data

5.3.1.4 Industries and Manufacturing

As mentioned, the Newcastle-Madadeni-Osizweni complex within the Amajuba District Municipality, and specifically Newcastle, Dannhauser, and Utrecht represent the mining and manufacturing nodes of the Province. Significantly, manufacturing is the largest sector in the Province. This can be ascribed to the fact that manufacturing enjoys a comparative advantage over industry elsewhere in South Africa in terms of access to basic production inputs such as water and coal.

Richards Bay for example, is the operational centre of South Africa's aluminium industry. Bayside Aluminium is a major producer of primary aluminium, while Richards Bay Coal Terminal ensures the country's position as the second largest exporter of steam coal in the world. Other significant activities include:

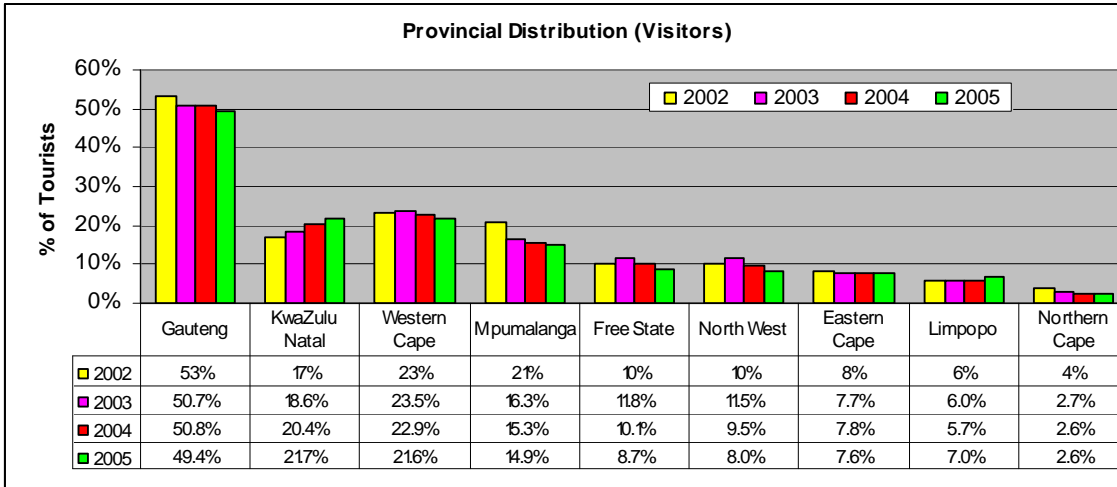
- A large plant located at Cato Ridge, which produces brass and alloys from a variety of input metals such as copper and zinc, which is used by associated foundries in the Pinetown and Prospecton areas.
- Ferro-manganese is produced at Camperdown from raw material sourced by rail from Mpumalanga. The output from the plant is exported through the Port of Durban.
- Ferro-silicon is produced at a plant located at Ballengeich in the Tugela Industrial basin.
- The large cement works at Mt Vernon in Durban.

5.3.1.5 Tourism

According to the World Travel and Tourism Council (WTTC), the tourism economy's estimated contribution to the South African economy grew by approximately R14 billion between 2004 and 2005, resulting in an overall contribution of 8.15% to the GDP of South Africa and approximately 1 083 000 jobs (7,5% of total employment). Notably, as indicated by **Figure 5**, between 2002 and 2005, KwaZulu-Natal was the

third most visited province in South Africa by foreign visitors. Significantly, in 2005, KwaZulu-Natal surpassed the Western Cape to become the second most visited province after Gauteng, with 21,7% of all foreign tourists visiting the Province. Furthermore, KwaZulu-Natal was the major beneficiary of domestic tourism in 2005, claiming 35,9% of all domestic tourism trips.

Figure 5: Provincial Distribution (Visitors)



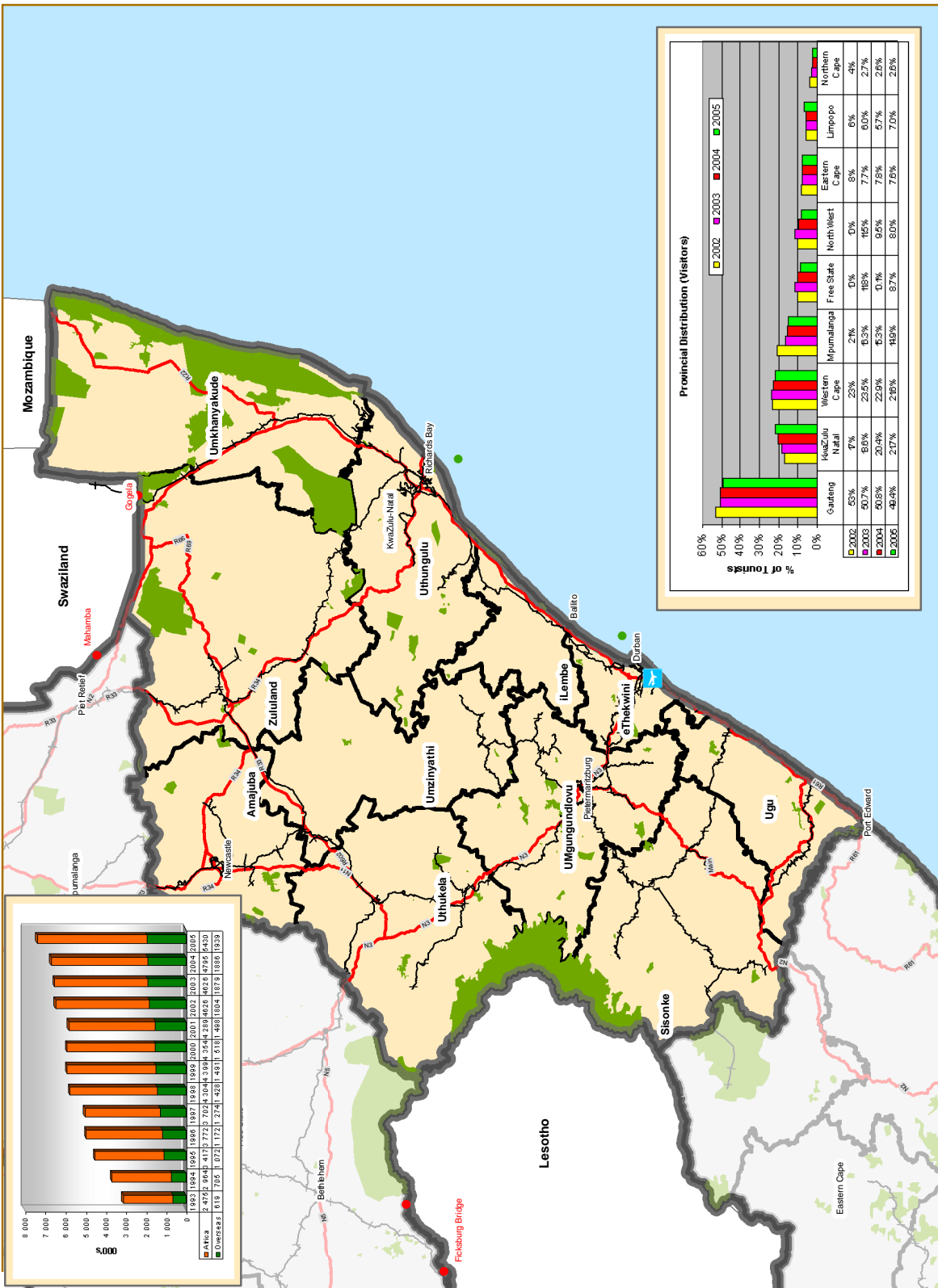
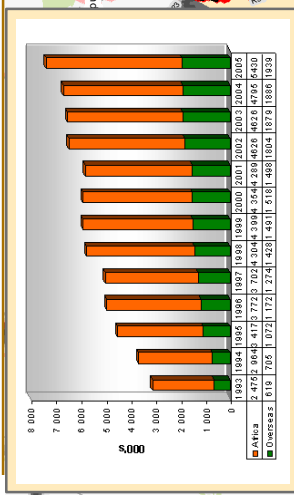
The above statistics could be attributed to the fact that the Province has an enormous amount on offer to both the local and foreign tourist, from those seeking exciting wildlife experiences or energetic adventures, to those looking for majestic vistas or restorative peace and quiet. Essentially, KwaZulu-Natal can be divided into nine tourism regions, namely the **Battlefields**, **Zululand**, **Maputaland**, **East Griqualand**, the **Drakensberg**, the **Midlands**, the **South and North Coasts**, and the **Durban Metro** itself.

The **Battlefields** are found within the north-western parts of the Province where the undulating landscape, ringed with rocky outcrops, is characterised by lone forts and small graveyards. Every town, historic building, battle sight and memorial in the Battlefields region has a fascinating tale to tell. Some of the more well-known battles include the Battle of Isandlwana, the Battle of Rorke's Drift, the Battle of Spionkop, the Siege of Ladysmith and the Battle of Blood River.



The **Zululand** region abounds with wildlife in famous, extensive reserves within easy reach of Durban. The largest of these is the Hluhluwe-Umfolozi Reserve (**Map 5.3E**). Furthermore, the area is rich in historical and cultural significance. It was here that

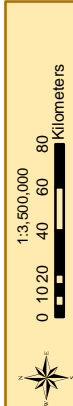
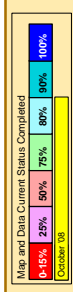
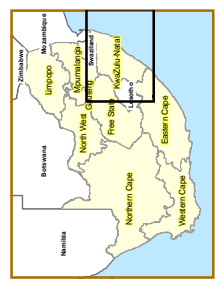
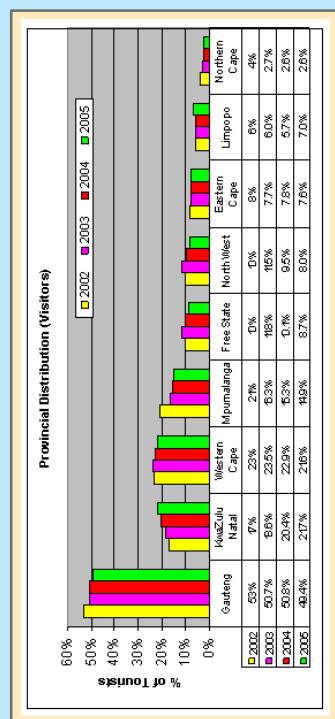
KwaZulu-Natal Province: TOURISM



TOURISM

CONSERVATION AREAS

Conservation



District Municipal Boundary

Provincial Boundaries

Border Posts

Airports

Towns

Harbours

SANRAL Road Network

Railway Network

1:3,500,000



Shaka forged his Zulu Kingdom, and the last battle of the Anglo-Zulu war was fought near Ulundi in 1879. There are several exciting traditional Zulu villages open to the public, Shakaland and Duma Zulu amongst them.



Situated in the northern-most region of

KwaZulu-Natal, **Maputaland** or the **Elephant Coast** is one of the most unspoilt areas of the Province and home to several unique game and nature reserves. The Sodwana Bay Coastal Reserve and Lake Sibayi specifically provides an ocean wonderland for scuba divers and water sport enthusiasts. Other significant nature and marine reserves / sanctuaries include Tembe Elephant Reserve, Ndumo Reserve, Kosi Bay Nature Reserve, the Maputaland Marine Sanctuary, Sodwana Bay National Park, and the St Lucia Marine Reserve down to Cape Vidal.



The majestic **Drakensberg**, rising to over 3 000 meters, is the country's highest and most impressive mountain range. Most of the Drakensberg makes up the Natal Drakensberg Park, a wilderness area with an abundance of wildlife and home hundreds of Bushman painting sites. The area offers an abundance of eco-tourism



activities, from hiking and mountain climbing to trout fishing and painting. Well-know areas within the Berg include amongst other Mont-aux-Sources, the Royal Natal National Park, the Amphitheatre, the Glen Nature Reserve, Cathedral Peak, the Devil's Knuckles, Giant's Castle Game Reserve, Champagne Castle, Monk's Cowl, Winterton, the Organ Pipes, and the Sani Pass.

The Natal **Midlands** are characterised by the gently rolling and richly forested hills of the Mist



Belt Plateau. It is arguably the most popular area in the Province for arts and specialised crafts. Notably, the area just beyond Pietermaritzburg, from Howick to Mooi River and surrounds, has been developed into the well known Midlands Meander. This is a self-drive tourist route, taking tourists past Furniture-making studios, potters working in porcelain, terra cotta and stoneware, flower and herb farms, cheese-making, decoupage, jewellers, antique shops and the spectacular Howick Falls where the Umgeni River plunges over a drop of about 100 meters. Apart from the arts, the Midlands' is home to a number of epic sports events such as the Comrades Marathon, the Duzi Canoe Marathon and the Midmar Mile swimming event, as well as trout and bass fishing activities.

KwaZulu-Natal's **North Coast** or Dolphin Coast stretches from Zimbali to the mighty Tugela River. It is one of South Africa's up-market beach tourism Meccas. More specifically, the North Coast features numerous world-class golf courses, a magnificent coastline for horse riding and angling activities, historical battle sites such as Ultimatum Tree, Ndondakusuka and Fort Pearson, the burial sites of Shaka Zulu and Albert Luthuli, Indian temples and the Harold Johnson Nature Reserve.

Sub-tropical forests, blue lagoons, golden beaches, rocky coves, the warm Indian Ocean and sunny weather make KwaZulu-Natal's **South Coast** a popular year-round holiday destination. Three beaches, namely Ramsgate, Marina Beach and Lucien, have International 'Blue Flag' status. For the golfer, this coast is close to golfing paradise, with a



comprehensive selection of 11 fine courses. Furthermore, the North Coast offers excellent surfing, scuba diving and deep-sea diving areas at Aliwal Shoal and Protea Banks. Other sites of interest include the Umtamvuna Nature Reserve, the Oribi Gorge and the annual natural phenomena of the winter Sardine run.

As a meeting place of east and west, **Durban** offers a wealth of exciting cultural differences - from African to European to Asian. Tourist attractions include Grey Street, the African township communities, the Golden Mile, the Bluff, the International Convention Centre and the Durban Beaches offering sailing, snorkelling, scuba, swimming, surfing and fishing opportunities. Apart from water sports, Durban also provides a wealth of music, theatre, museums, art



galleries, monuments, shopping centres and sports stadia. Further inland from the City lays the steep slopes and plunging gorges of the beautiful Valley of 1000 Hills.

5.3.1.6 Forestry

At present KwaZulu-Natal is the country's leading timber producer with plantations producing over 47% (10,3 million cubic meters) of all timber produced in the country (Refer to **Figure 6**). Timber accounts for 6,5% of KwaZulu-Natal's agricultural output. More specifically, in 2005, KwaZulu-Natal accounted for 356 355 hectares of hardwood and 183 554 hectares of softwood (Refer to **Figure 7**).

The vast majority of forest and woodland plantations occur towards the southern and northern extents of the Province, within the Umgungundlovu, Sisonke, Zululand, and Umzinyathi District Municipalities. Pines and eucalyptus are the most commonly planted species.



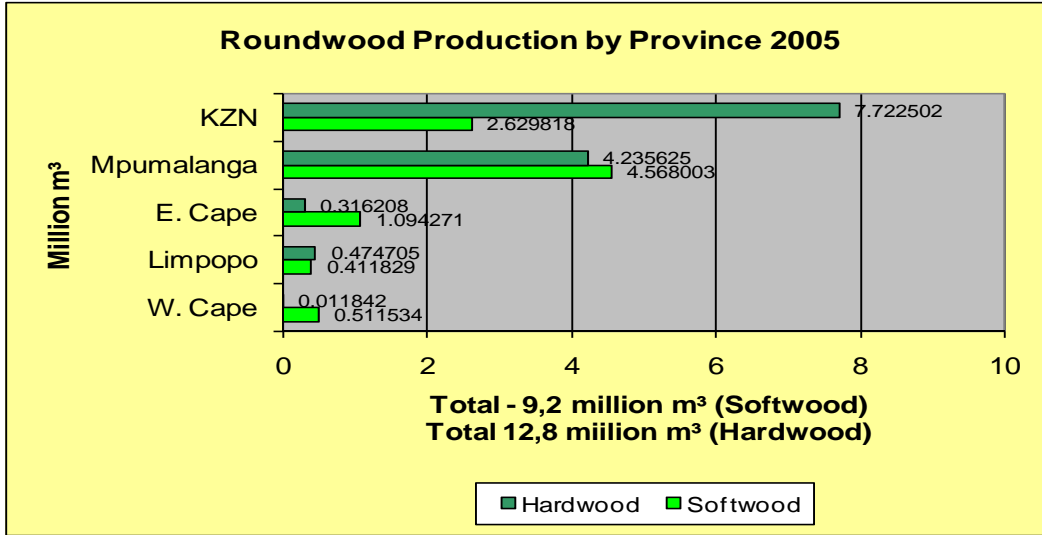


Figure 6 : Round Wood Production by Province (2005)

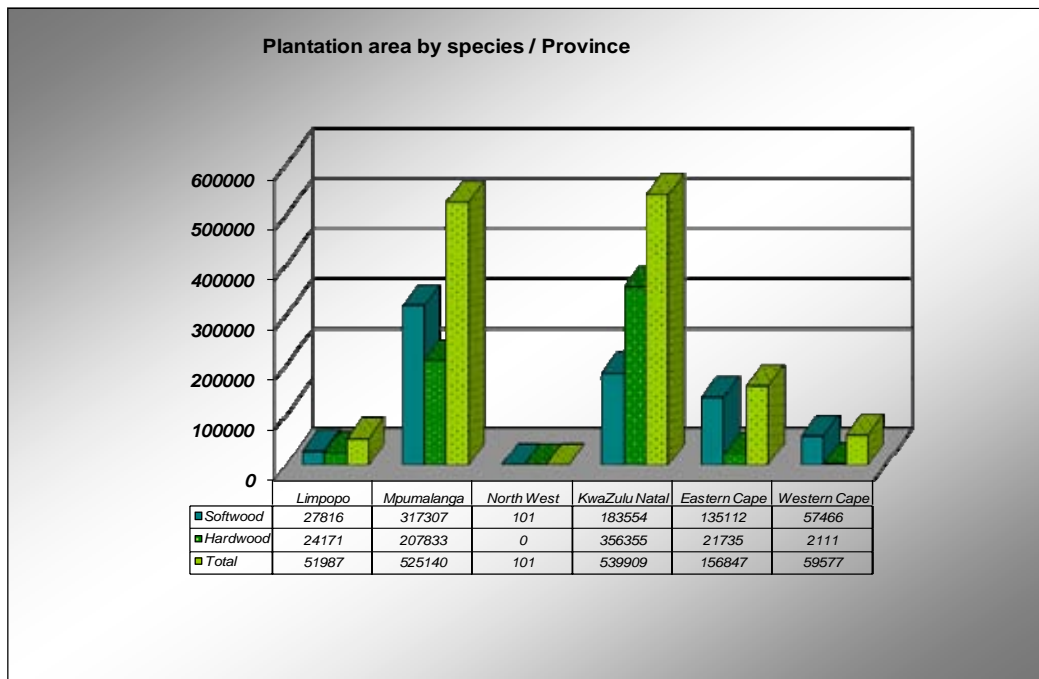


Figure 7: Plantation Area by Species and Province (2005)

5.3.2 District Specific Perspective

The section briefly highlights some of the most salient features of each of the ten District Municipality areas and the eThekweni metropolitan area (See Map 5.3F to P).

Table 14 shows the Land Use area (ha) in the province.

Table 14: Major Land Use Areas in KZN

Land Use	Hectares	Percentage
Conservation	787 084	8.22
Cultivated Land	831 439	8.68
Forest Plantation	596 996	6.23
Industrial and Commercial Plan	8 977	0.09
Mining Area	7 447	0.08
Non Cultivated Land	5 457 054	56.96
Rural Village	1 293 437	13.50
Sugarcane	376 450	3.93
Urban Activity Node	4 489	0.05
Urban Area	142 325	1.49
Waterbody	75 615	0.79
Totals	9 581 311	100.00

5.3.2.1 Ugu District Municipality

The Ugu District Municipality is located to the south of the Ethekwini (Durban) Municipality covering a coastal strip from Scottburgh in the northeast to Port Edward in the southwest (**Map 5.3F**). In the inland the district runs from the southern portion of Umbumbulu which forms part of Vulamehlo Municipality, down to Umzumbe, Ezingoleni, and eventually Umuziwabantu (consisting of former Harding TLC). Port Shepstone, the Ugu District Municipal centre, is located approximately 120 kilometres from Durban, and is easily accessible via the N2 and R102 routes. The total population in the district is estimated at 710 870 (2005).

i. Umdoni local municipality

The N2 National Road forms the primary movement corridor traversing the municipal area in a north-south direction. The Old Main Road (MR3/R102) forms a secondary movement corridor linking the coastal towns, while Main Road 612 runs from Park Rynie inland to Umzinto/Umzinto North and onwards to Braemar, Highflats and Ixopo forming a further secondary movement corridor. Tertiary links inland focus on Main Road 197 and need to be improved.

Urban development is mainly concentrated along the coastline which places pressure on the fragile coastal and marine environment. Development of Umzinto/Umzinto North and surrounding areas represents an important break with this trend, but to ensure sustainable development of this area, urban growth needs to take place along Main Road 612 to link with the coastal area via a Development Corridor.

Traditional Authority land is situated mainly in the north of the municipal area (Cele and Zembe Tribal areas) with the Emalangeni Tribal Area situated inland of Pennington, in the south. The provision of service centres in these areas is highlighted, as well as the provision of formal housing.

Agriculture is to be promoted as virtually the entire area has high agricultural potential. Agricultural land is to be retained and urban extension needs to be compact so as to minimise loss of high potential agricultural land. Where possible in terms of the existing service network and subject to environmental acceptability, densification also needs to occur.

Economic growth is to be encouraged through tourism, light industrial and commercial developments. Scottburgh is identified as the primary tourist area. Mixed use is to be encouraged in Park Rynie, with a development corridor linking inland to Umzinto/Umzinto North. The limited capacity of the existing sewerage treatment works could act as a major constraint on future development and involved the Council's economic development objectives.

ii. Umzumbe Local Municipality

Umzumbe is one of six municipalities within the Ugu District Municipality and is the largest municipality within the district. The boundary of the municipality runs along the coast for a short stretch between Mtwalume and Hibberdene and then balloons out into the hinterland for approximately 60 km. It covers a vast, largely rural area of some 1260 km² with only 1% being built up/semi-urban area. It incorporates 17 traditional authority areas comprising 19 wards.

At present there are no established towns in the municipality and it is characterised by a vast backlog of basic services, high levels of poverty with virtually no economic base. The area has high agricultural potential and a good quality environment with significant opportunities for tourist development.

According to the recently released national census (STATSSA, 2001), the total population within Umzumbe Municipality has been estimated at 193 756 persons. The average ward population (STATSSA, 1996) is 9155 people, but there is significant variation above and below this figure. Ward 3 is the largest, with 13 308 people and Ward 18, with 4487, is the smallest. The inland wards, 12, 1, 2, 6 are the least dense, with population densities of 65 to 95 people km². Coastal wards 19 and 17 have densities of 600 to almost 800 people per km². The population congregates towards the coast, where fast transport routes allow access to economic opportunity.

Accessibility problems together with the poor condition of the roads have come up strongly as transport issues within the Ugu District area. Only a limited number of access roads have been constructed by the local municipalities.

The KZN Department of Transport as the major role player is still having trouble in aligning its programs with those of the municipalities. This has resulted in implementation of projects that fall outside of the scope of the municipal IDP's.

The Department of Transport has still not been able to align its implementation programme to take full cognizance of wall-to-wall local municipalities that have been established. There is therefore a need to re-define the roles of Rural Road Transportation Forum.

iii. Umuziwabantu Local Municipality

The uMuziwabantu Municipality is located on the western boundary of the Ugu District area and share its borders to the north, west and south with the Eastern Cape and to the east with the Umzumbe and Ezingoleni Municipalities. The extent of the uMuziwabantu Municipal area is 10 862 ha (1088 km²) with the largest part of the municipal area consists of forestry and agriculture.

The municipal area consists of urban development, farmland and tribal areas, as follows:

- Urban: Harding Town, 600 ha in extent, Municipal owned farms: 2000 ha;
- Farmland: Individually owned commercial farms constituting 36% of the municipal area;
- Weza State Forest: consisting of 20% of the municipal area; and
- Tribal areas (KwaMachi, KwaJali, KwaMbotho, KwaFodo, Dumisa, Bashaweni) to the extent of \pm 42% of the land.

All of the above is interlinked with an effective main road system, more importantly the N2 National Road.

The settlement of people within the Tribal Areas has substantially been determined by topography, especially the hilly terrain. Access roads run along top of ridges and dwellings along such roads, with higher concentrations at intersections. Development of nodes along the N2 has not been pursued successfully and has substantial potential, especially with respect to tourism development.

The Umuziwabantu transport system consists of a prominent major road system, including the N2, stretching from St Luke's Mission in the east to Igeli Forest Lodge in the west, the Harding/Bizana Road, stretching from Harding Town in the north to Gun drift in the south, continuing onto Bizana and further south and lastly the Umzimkulu/Pietermaritzburg road, stretching from Harding in the south to Mzimkulu and Pietermaritzburg further north.

A further positive aspect is the existence of a well-maintained air strip, this being the only public airstrip in Southern KwaZulu-Natal, second to Margate Airport. With the

moving of the Durban International Airport to the North Coast, Margate will become all the more important and so will Harding as an alternative.

iv. Ezingoleni Local Municipality

The Ezingoleni Municipal area is approximately 649 square kilometres (64 900 hectares) in extent with the major land uses in the area being tribal settlements, smallholdings and commercial farming. The Ezingoleni Municipality is the smallest municipality in the district and account for approximately 14% of the Ugu District area. Approximately 35% of the municipality's total area can be classified as residential or smallholding areas while the remaining 65% of the land is dedicated to agriculture/ conservation and other non-residential land uses.

The population within the Ezingoleni Municipal boundary is approximately 54 427 according to the recently released Statistics South Africa (STATSSA, 2001) information. It is estimated that the population growth rate for the Ezingoleni area will remain approximately 1,02% for the period 2001 to 2010 given that the HIV/AIDS and out migration patterns are expected to remain the same during this period (STATSSA, 1996; DIB, 2001). The average household size of the residents of Ezingoleni Municipality is six people per household.

In terms of land use within the Ezingoleni Municipal area, the three traditional authority areas (KwaNyuswa, KwaMthimude and KwaVukuzithathe) constitute approximately 304 km² (30 400 hectares) or 47% of the Ezingoleni Municipal area. The State own approximately 80 km² (8 000 hectares) 12% of the land, while 265 km² (26 500 hectares) 41% of the land within the Ezingoleni Municipal area can be classified as privately owned.

In terms of development nodes, there are a few centres that can be seen as activity centres and conversion points. These areas have different roles and functions within the Ezingoleni area and are identified as such to ensure future development builds on the strengths of the various areas.

The Ezingoleni Village (centre) and surrounds is the most densely settled area within Ezingoleni Municipality and is also the main commercial and administration/government services centre. The Ezingoleni Village area is thus where the physical and social infrastructure and people are located and is commonly seen as the current main development node within the Ezingoleni Municipality. Accordingly the municipality has decided to make it priority number one in ISRDP. Other activity centres or nodes that can be identified within the Ezingoleni Municipal area include Paddock, Maryland/Mahlabathini, Eden Store and Enqabeni. These areas are mainly seen as nodes because of the current economic activity taking place within these areas.

The N2 national highway runs through the Ezingoleni Municipal area constituting the main (primary) movement and activity corridor because of its scale and function. The

N2 links the Ezingoleni Municipality directly to the Umziwabantu Municipality (Harding Town), Eastern Cape Province, Port Shepstone and beyond. Roads that constitute secondary corridors within the Ezingoleni Municipality include:

- the route from Thonjeni-Wosiyane-Maryland-Oribi Flats-Murchison (D0165, D0860, P0262, and P0354);
- the route from Eden store to Ezingoleni (p0284);
- the route from Mpunzi drift to Ezingoleni (p0057); and
- the route from Moguntia to Mthimude commonly known as Machi Road (P0058).

The third level of roads which is referred to as Tertiary Corridors consists of at least two roads. They are:

- A route that runs from Nkuswana (D0920) via Thonjeni-Nkulu (D1085)-N2-Sunshine to Nqabeni; and
- A route that runs from Moguntia to Maryland.

v. Hibiscus Coast Local Municipality

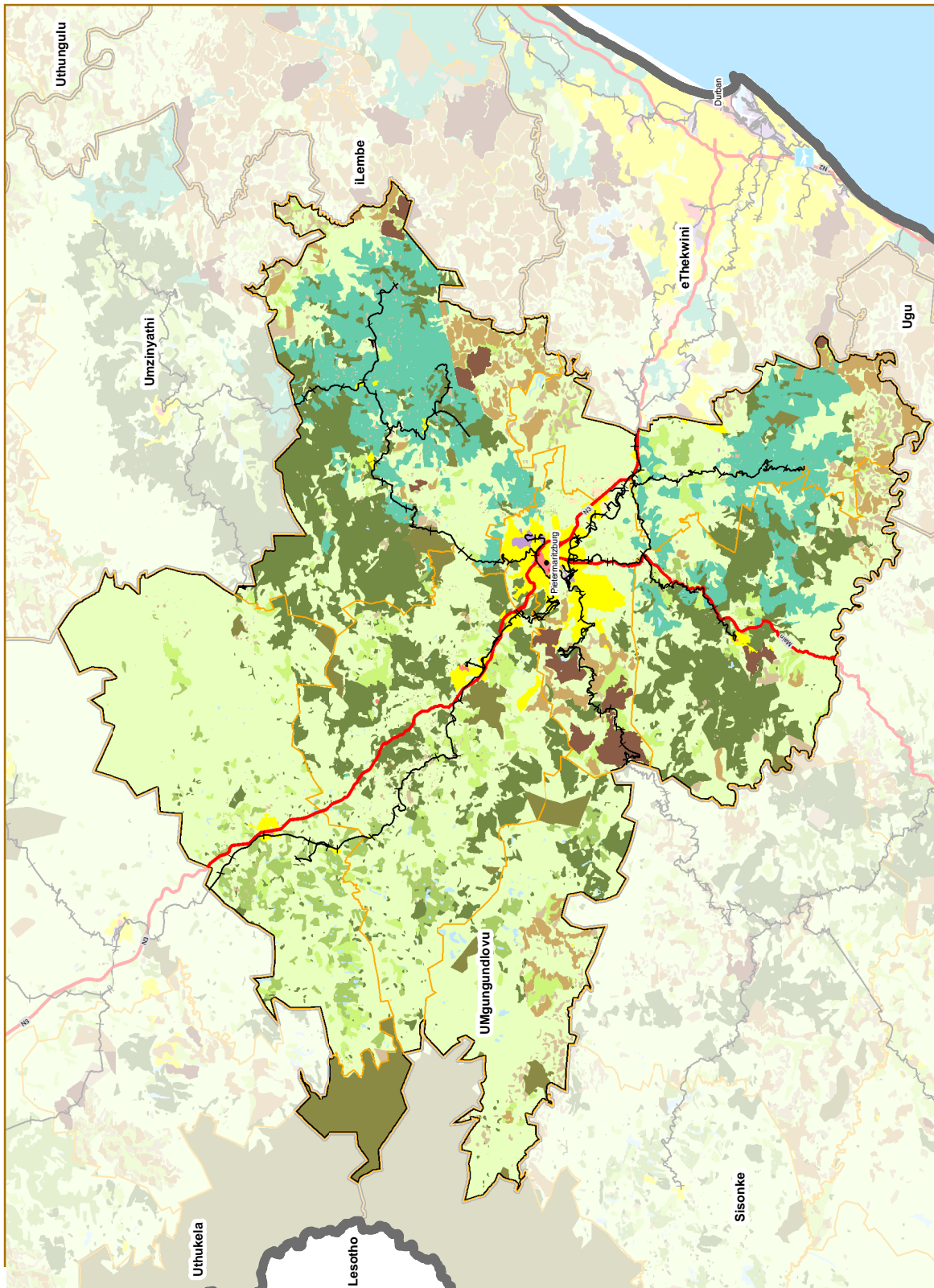
The Hibiscus Coast Municipality comprises the five (5) erstwhile Transitional Local Councils, namely Hibberdene, Port Shepstone, Margate, Impenjati and Umtamvuna. Added to this are the six (6) Traditional areas spread on the south western side of the municipal area, namely Kwa Nzimakwe, Kwa Mavundla, Kwa Xolo, Kwa Ndwalane, Kwa Lushaba and Kwa Madlala.

5.3.2.2 Umgungundlovu District Municipality (CWDM)

Umgungundlovu District population is estimated (2005) at 948 935 people. It is spread unevenly among the local municipalities with the majority (568 480 people) being within Msunduzi Local Municipality (**Map 5.3G**). Impendle Municipality is the least populated municipality in Umgungundlovu District as it accounts for only 29 310 people. Over the last few years, Impendle has experienced population decline in commercial farmlands and population increase in Nxamalala traditional authority area.

Umgungundlovu District has a diverse economy with sectors such as manufacturing, agriculture and government featuring prominently in the structure of the economy. Manufacturing is concentrated in Pietermaritzburg within Msunduzi Local Municipality, and accounts for a major share (75,1%) of the district economy. Pietermaritzburg is the main economic hub and has a generally high concentration of economic activities. This explains the difference in population size compared to other municipalities and signifies the importance of Pietermaritzburg as a regional centre.

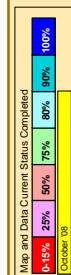
KwaZulu-Natal Province: LAND USE - UMGUNGUNDLOVU DISTRICT MUNICIPALITY



LAND USE PATTERNS

UMGUNGUNDLOVU DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Town (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



District Municipal Boundary
 Provincial Boundaries

Airports
 Local Municipal Area

Border Posts
 Harbours
 Towns

SANRAL Road Network
 Railway Network

LEGEND

The district has a high agricultural potential with areas such as Camperdown, Mooi River, Lions River and Albert Falls being well developed in terms of agriculture. The agricultural sector accounts for about 12,4% of the district economy, and the bulk of this is generated in Impendle. Impendle Municipality is one of the farming areas within the district. However, it has not risen to the prominence of the other areas, and contributes only 0,4% to the district economy. It is characterised by a high level of unemployment with 52% of the potential labour force being unemployed.

Until year 2003, the spatial economy of Umgungundlovu District has been predictable and static, the declaration of Msunduzi-Pietermaritzburg as KZN capital and the accompanying transfer of KZN Government offices from Ulundi and Durban to Pietermaritzburg has led to an unprecedented upward surge in local economy – as led by government expenditure, a number of multipliers – including an upward surge in property market and prices – thus presenting a need to review spatial goals for the District as a whole.

Lack of space for middle-income housing has necessitated a strong cross-border co-operation and partnerships between local municipalities. For instance, considering the space topographic and environmental considerations, Mkhambathini and Umshwathi has gained a comparative advantage over Msunduzi and other Local Municipalities on middle-income to low-cost housing. This will contribute to short-term public works employment as well as sustained skills development and permanent employment in the proposed housing estates and its potential multiplier businesses. Rental housing may appeal to these local municipalities to boost their respective revenue bases.

Propensity to move raw hinterland products, especially agriculture, is encouraged by good road infrastructure. Incentives to create beneficiation; the ever problematic space and environmental problems of urban and foreign processing zones provides an opportunity for rural municipality areas of the district to take advantage of the abundance of natural resources such as water, road and railway infrastructure to, at least, semi-process before exporting agricultural products e.g. cattle and dairy products for Impendle and Mpofana; tea and timber for Richmond, timber and sugar for Umshwathi whilst Msunduzi and Umngeni remain industrial and administrative.

i. Umshwathi Local Municipality

The Umshwathi Local Municipality is predominantly agricultural with urban activities based within the former Traditional Local Councils of New Hanover, Wartburg, Dalton and Cool-Air. An important factor is the dominance of the under developed traditional authority areas. The disadvantaged communities have limited access to basic physical, social and economic requirements within their areas and present authority structures are unable to provide for the enormous need for improvement of present living conditions. A rich natural environment and rural landscape contribute to a scenic environment synonymous with this part of the province. Large areas of the municipality are devoted to agricultural production. There is at the same time a

decrease in employment levels within this sector. National and International pressure on this sector continues to pressurise against threats to the natural environment.

A key feature located within the municipality is the R33 connecting Pietermaritzburg with the hinterland located centrally within the municipality and traversing the entire length of the municipality. The R33 offers substantial opportunity as a development corridor of provincial significance.

Prime location of the municipality within the regional and provincial context:

- accommodates secondary movement systems to the N3 which provide prime linkage to the hinterland; and
- there is a need to maximise on development opportunities along key routes with the municipality linking markets, places and people.

Collectively uMshwathi Municipality accounts for approximately 1 811 km² of land area with the second largest portion of uMgungundlovu District Municipality's total population. This puts the population at 108 830 people. The study area represents a range of settlements from municipal service centres, through industrial, semi-rural to rural residential settlement. Consequently a diverse range of development needs exist across the municipality.

ii. uMgeni Local Municipality

uMgeni Municipality serves a population of approximately 78 290. The economically active population is approximately 29 690, with 10 880 (37%) unemployed.

Most of the land in the municipality is utilised for commercial agriculture, and a significant proportion of the land has a very high production potential.

Recommended conservation areas are those which include wetlands and indigenous forests. Extensive area of grasslands occurs on the balance of the area, some of which have high conservation, agriculture, and landscape value.

The primary development focus in the agricultural areas will be commercial agriculture and appropriate tourism development, which needs to be done within the parameters of sound environmental management and bio-sphere reserve principles.

The Howick/Hilton Primary Node has very high agricultural potential. The extent of urban development should, therefore, be contained and infill and densification promoted, where possible. The portions not utilised for urban purposes, due to the proximity to markets, are seen as ideal for intensive food production.

Apart from urban settlement, forestry and agriculture, the interesting contrasting landforms of the region and rivers provide an important attraction for tourists, nature orientated activities and opportunities for the municipality's inhabitants and visitors alike.

The majority of the population depends on public transport. The rural residents in particular, indicated that there is a need to provide a public transport system for school goers. Thus, the need to undertake a feasibility study for the provision of such a system was identified.

The area has five levels of roads namely: National, Provincial, District, Municipal and Private Roads. At this stage the municipality is only responsible for municipal roads.

iii. Mpofana Local Municipality

Mpofana is located approximately 40km west of Pietermaritzburg and falls within uMgungundlovu District in the Midlands area of KwaZulu-Natal. It is bounded by three municipalities, namely uMgeni in the south, Umshwati in the east, and Impendle in the west.

The former Mooi River TLC area with its immediate outer areas of Bruntville and Rosetta constitutes a hub of economic/commercial and social activities in the Municipal context. The peripheral areas of Mpofana are rural in nature, sparsely populated and the predominant land use is commercial agriculture. The Mpofana Municipal boundary covers an area of approximately 181 000 hectares.

The N3 (National Route) linking Durban and Gauteng, stretches through the municipal area. Mpofana benefits from its strategic location which has easy access to rail and road infrastructure. The road network linking Mpofana to the outlining Drakensberg areas provides the municipality with a competitive advantage in terms of tourism.

The following is a brief summary of the main spatial features of the municipality:

- main access to the area via the N3 and R103, providing access to the Mooi river, the gateway of Mpofana;
- other main external access opportunities in the form of the R74 in the north-east and a series of provincial roads at the foot of the Drakensberg in the west;
- east-west linkages within Mpofana in the form of a series of secondary access corridors, linking Mooi River as the gateway to the local secondary centres and the range of development opportunities within the municipality;
- urban development concentrated in and around Mooi River, peri-urban and semi-rural development primarily encouraged in and around the secondary centres of Middelrus, Rietvlei and Tendele;
- the Drakensberg with associated nature reserves, conservancies, and environmentally sensitive areas;
- much of the remainder of the municipality is seen as an agricultural and tourism opportunity zone.

iv. Impendle Local Municipality

Impendle Municipality area forms an integral part of Umgungundlovu District. However, the importance of Impendle Municipality in the spatial economy of the district is compromised by its location outside the primary and secondary movement systems within the district. It is isolated and located away from major tourist and trade routes. While the N3 is approximately 70km to the north east of Impendle Municipality, two important tourist routes run at the edges of Impendle Municipality area. The road linking Pietermaritzburg and Underburg through Bulwer serves as an important access road to the Southern Drakensberg (Underburg, Sani Pass, etc), which is a popular tourist destination; it runs along the southern boundary and completely bypasses Impendle Municipality. The link road between Mooi River and Underburg serves as an alternative tourist route and runs through Lotheni along the north-western boundary of the Municipal area.

Impendle Municipality is the second least populated municipality in Umgungundlovu District as it accounts for only 29 310 people. Over the last few years, Impendle has experienced population decline in commercial farmlands and population increase in Nxamalala traditional authority area.

The land use pattern in the municipality reflects the land ownership pattern with the majority of villages being situated within Nxamalala Traditional Authority Area. While a few households reside on commercial farm as labour tenants or farm dwellers, a significant amount of settlement has occurred on black freehold land in areas such as Stoffelton and Lotheni.

Unlike the majority of small towns in KwaZulu-Natal, which developed as service centres for the farming community, Impendle Town developed around the magistrate court servicing Impendle Magisterial District.

The town is poorly developed a commercial centre hence leakage of income to Pietermaritzburg.

v. Msunduzi Local Municipality

After the December 2000 election five previously independent entities were amalgamated to form the Msunduzi Municipality: Pietermaritzburg, Msunduzi TLC, Ashburton TLC, rural Vulindlela, Claridge and Bishopstowe.

vi. Mkhambathini Local Municipality

Mkhambathini Local Municipality is located along the south-eastern boundary of Umgungundlovu District Municipality and adjoins Richmond and Msunduzi Local Municipalities to the west, Umshwathi Local Municipality to the north and Durban/eThekweni Metropolitan area to the east. It covers an area of approximately

917km² and is the second smallest municipality within Umgungundlovu District Municipality after Impendle Local Municipality.

The road network within Mkhambathini Municipality reflects the apartheid planning system. The former 'whites only' areas are characterised by high quality tarred roads and well developed district roads to the boundary of each farm. The quality of roads in most previously black only areas is generally poor and requires substantial upgrading and maintenance.

The state of roads in previously black only areas has a negative impact on the development of these areas as it is well known that roads play a pivotal role in economic development. All the major economic developments are located along the corridors or roads. Roads provide a key link between consumers and suppliers, as well as between components parts manufacturers and finished product manufactures. The speed at which goods and services could be delivered to the consumer is one of the investments determining factors.

A proposal for the establishment of a direct link between Mkhambathini and the proposed 'Big Five', has been made. This link will be constructed in the eastern portion of Camperdown between R103 and D417, and has been evaluated by representatives of Spoornet, and found to be feasible.

vii. Richmond Local Municipality

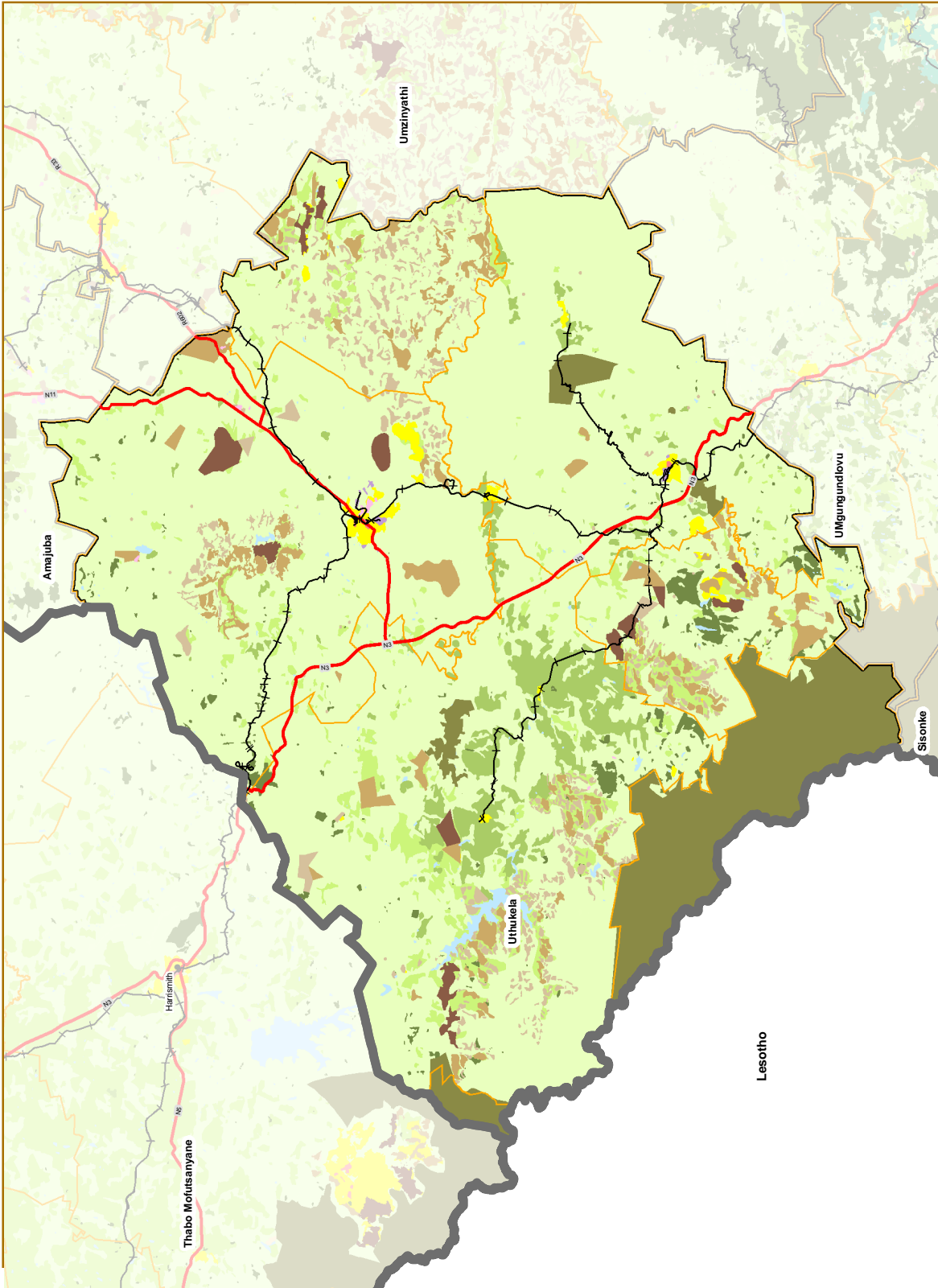
The Richmond Municipality needs to ensure that all residents of the municipality have an acceptable level of access to primary road infrastructure and various facilities and services within the Richmond Municipality. The roads in the Richmond town are tarred and they are in a bad state since they were originally designed as low volume roads. It is understood that most of the roads were constructed in the 1940's with maximum lifespan of 20 years and none of these have since been rehabilitated.

Although municipal roads are a function allocated to the Richmond Municipality there is still considerable uncertainty regarding what is defined as a municipal road. At present the Municipality takes responsibility for all roads in and around the built up areas and rural access roads. The Department of Transport is responsible for upgrading and maintaining provincial and rural roads.

5.3.2.3 Uthukela District Municipality

Uthukela District Municipality is located on the western boundary of the KwaZulu-Natal Province (KZN), and adjoins the Kingdom of Lesotho and the Free State Province (**Map 5.3H**). It borders to Umzinyathi District to the northeast, Amajuba District to the north and Umgungundlovu District to the southeast, and it is approximately 11 000km² in extent. The district consists of five local municipalities and one District Management Area (DMA), namely Emnambithi Local Municipality, Indaka Local Municipality, Umtshezi Local Municipality, Ukhahlamba Local

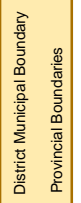
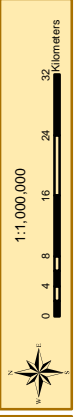
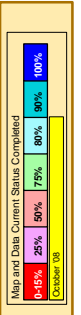
KwaZulu-Natal Province: LAND USE - UTHUKELA DISTRICT MUNICIPALITY



LAND USE PATTERNS

UTHUKELA DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Town (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



Municipality, Imbabazane Local Municipality, and District Development Management Area 23.

It has a population of approximately 703 350 with Africans being the majority (92,65%). Whites, Indians and Coloureds account for the remaining 7.35%. The population is distributed unevenly among the local municipalities, with about 31,75% being resident within Emnambithi Municipality area. Ukhahlamba Municipality accounts for 21,26% and is followed closely by Imbabazane, which has about 20,35% people. Umtshezi municipality area is dominated by commercial farmlands and accounts for only 8,84% of the district population.

Manufacturing is the biggest sector within the regional economy. This is mainly as a result of state support offered to the sector in the past. Critical interventions have included the designation of Ladysmith as a growth point in 1968 and the establishment of industrial estate of Peters at Ezakheni in 1983 as part of the government Regional Industrial Development Programme.

Textile, clothing, footwear and leather industries have historically been the mainstay of the regional economy, with food, beverages and tobacco being the other significant manufacturing sub-sectors. The manufacturing sector is however undergoing a restructuring phase as a result of stiff competition emanating from the global economic development processes. The emerging window of opportunity for reviving manufacturing, with particular reference to the textile and apparel sector is the new Africa Growth and Opportunity Act (AGOA), which is a United States – Sub Saharan Africa legislation allowing the latter relatively easier access to the United States market.

The historical development of the manufacturing has however not been spread out to the Indaka Municipality. Its impact was more at a regional level, taking more of an urban bias as against direct investment in rural areas. There are thus virtually no manufacturing investments in the Indaka Municipal area, except small manufacturing enterprises in the form of block making, panel beating and craft work.

The agricultural sector, in terms of output, is relatively a medium sized sector in the regional economy. This could be seen by the fact that the contribution of the manufacturing sector is just over three times the size of the agricultural sector. Since the Indaka Municipality falls within what historically has been referred to as the eMnambithi District, it is characterized by an extremely limited agricultural potential, which is a result of settlement pressure; traditional farming methods, and poor bioresource groupings. Dry land cropping is mostly practiced mainly for household consumption. Community gardens are limited to areas with irrigation potential such as the uThukela and Sundays River valleys and tributaries. Whilst the output contribution of agriculture is not that very impressive, its employment spin-offs need not be overlooked. This is because the sector has strong backward and forward linkages, which makes it one of the relatively dynamic industries.

Tourism is a sunrise sector at a global level, with virtually almost all global nations pursuing tourism development in an attempt to inject economic growth capable of sustaining the ever-increasing population. The location of the regional and the municipality within the Battlefields region, and the recognition of these respective authorities in the evolving provincial Tourism Development Strategy, present windows of opportunities for capitalizing on this sector. The Labour absorption potential of tourism and its revenue generation effect make the sector worth exploiting. Within the context of the Indaka Municipality, recreational and historical/cultural tourism represent important market segments for designing future economic development strategies.

The spatial structure of the district is characterized by considerable spatial inefficiency and inequality. Land allocation and use has been the source of conflict for decades, and is a highly sensitive and emotional issue. It is a result of past racial land allocation and tenure systems, public and private sector investment which resulted in gross underdevelopment in areas designated for the settlement of black people, and the designation of industrial development points. As a result, the spatial structure of the district reflects land use fragmentation, separation and inadequate access to services and urban opportunities by the poor. Any intervention in terms of spatial development should facilitate effective and efficient service delivery, and unlock opportunities for economic development in the underdeveloped areas.

The N3 bypasses all the settlements in the area, and at best contributes little to the local economy, and at worst, eliminates the potential benefits created by close proximity to a national route. It nevertheless remains an opportunity for economic development and improved access to the district.

The N11 is an important trade route linking Ladysmith with Newcastle and several coal-mining towns within Umzinyathi and Amajuba Districts. It is also a major link with Mpumalanga Province and an alternative route to Gauteng. Other important regional access routes include the following:

- R74 linking Bergville and Greytown through Weenen.
- R103 linking Ladysmith and Mooi River.
- R600 which is the main route from Ladysmith to Central Drakensberg.
- R616, which is the main, route linking Ladysmith and Northern Drakensberg.

None of the above listed major access routes runs through and provide service to the rural settlements, and this effectively excludes these settlements from the district economy.

A hierarchy of centres has developed with Ladysmith being the economic hub of the district. Ladysmith accounts for a major part of the district economy, with Estcourt being the second largest urban centre. While Ladysmith has retained its regional importance in the face of economic recession, smaller towns in the district such as Bergville, Winter and Weenen have declined in significance, and primarily function as

rural service centres. None of these is located within the former KwaZulu-areas or dense rural settlements.

The Drakensberg forms the south-western boundary and is the most influential and visible natural feature of the district. It has been declared as a World Heritage Site, and forms a major component of the district and provincial tourism economy. Equally important, are the three major rivers, namely Tugela River, Bushmans River and Klip River. Tugela River forms the basis of the Tugela-Vaal Scheme and is also subject of the proposed Tugela Water Scheme. A considerable number of other conservation and conservation worthy areas are scattered throughout the district.

i. Emnambithi/Ladysmith Local Municipality

Emnambithi/Ladysmith Municipal Area (KZ232) comprises the following areas, towns, and settlements.

- the former Ladysmith TLC area, including Steadville and Ezakheni;
- the former Colenso TLC area, including Inkanyezi;
- two settlements administered by Abantungwa-Kolwa Traditional Authority;
- other settlements and privately owned farmlands, including Roosboom, St Chads, Rantjiesvlakte, Roodepoort, Kleinfontein, Klipfontein, Doornhoek, Emgazini, Mathondwane, Driefontein, Kirkitullock, Watersmeet, Mtateni, Burford, Watershed, Compensation, Hobsland, Matiwaneskop, Jononskop, Besters, Bluebank, Elandlaagte, Van Reenen, St Joseph's Mission, Cremin, Maria Ratzchitz Mission, Steincoalspruit, Fort Mistake, and Lusitania.

The municipality stretches over an area with an extent of 3020 km².

ii. Indaka Local Municipality

Indaka Municipality is located within the eastern section of the Uthukela District Municipality.

One of the striking features of the Indaka Municipality is the spatial segmentation of the Tribal Authorities. The southern segment is comprised of the Mabaso, Ngwe, Mthembu and Sithole Tribal Authorities, whilst the northern segment is home to Mchunu, Sigweje, Mbense and Nxumalo Tribal Authorities. The size of the Indaka Municipality is 990 square kilometres, thus accounting for 9% of the total land area of the Uthukela District Council.

It is however important to point out that whilst Indaka is relatively a small municipality, the enormity of development challenges far outweigh its spatial size.

The Indaka Local Municipality has a total population of 118 320. The gender composition of the municipality indicates that 44% is male and 56% is female. This indicates that the majority of the people in the municipality is of a previously disadvantaged grouping (women). People of the municipality are distributed widely

across the municipal area. The population distribution in this area follows settlement distribution. It is no surprise therefore that half of the population of the area is found in the smaller settlement of Limehill complex. This is because here there is a concentration of settlements as compared to the Umhlumayo complex which is characterized by dispersed settlements.

In terms of the spatial dynamics, the following development dynamics need to be taken into considerations in the planning of Indaka Municipality:

- in terms of size, the land area occupied by the Indaka Municipality is approximately 9% of the total Uthukela District Council land area;
- the municipal area is just an amalgam of dispersed, dense and township settlement pattern of development;
- the Rural Service System Model provides an important approach to the future development of the area, with specific emphasis placed on service provision;
- the Identified Complexes are relatively the only existing development nodes within the area, around which integrated development projects should be focused;
- national Routes N3 and N11; Roads R103, R602, R32 and R33 fulfil a very important role in the transportation system of the area;
- Indaka Municipality is part of the regional tourism economy in terms of it forming a component elements of the Battlefields tourism region;
- from an agricultural perspective, Indaka Municipality is divided primarily into the sour sandveld, mixed thornveld and valley bushveld bioresource groups;
- the area is strategically located between the Coal Rim and Midlands Economic Development Clusters, thereby presented with important opportunities around which to base its future economic development initiatives; and
- the emerging tourism development strategy recognizes this area alongside the Uthukela District Council as part of the Van Reenen-Tugela Gateway-Battlefields Tourism Node.

The KwaZulu-Natal Spatial Growth and Development Strategy accords the Indaka Municipality a dispersed rural settlement status. This is in sharp contrast to Ladysmith which is identified as a potential urban growth node. However, since the Strategy was formulated, settlement development processes have been on the go, thus allowing now for the recognition of areas such as Limehill and eKuvukeni as dense rural settlements and to some extent, the latter is a formal township. Within this context, it could possibly be argued that the Indaka Municipality, in its entirety, is a combination of both dense and dispersed rural settlements, with the latter representing a substantial portion of the municipal land area.

Within the context of the provincial Spatial Framework, Indaka Municipality and other similar areas need to be targeted for the provision of public administrative and economic services so that eventually a degree of sustainability of these areas could

be developed. In this respect, it is prudent to suggest a Rural Service System model/project for the development of the Indaka Municipal area.

Other approaches to development in the form of local economic development and agri-tourism interventions also present some opportunities for the development of these areas.

Indaka Municipality does not have any national roads running through it. The major road that runs through the area is the Helpmekaar road which runs from Ladysmith town past the Limehill settlement web and joins the Dundee-Pomeroy road. The Mhlumayo complex is linked to the rest of the region by the gravel main road that extends beyond the municipality through to the Tugela Estates and Weenen in the Umtshezi Local Municipality. The rest of the road networks in the area is all gravel.

The major issue with regards to roads in the area is one common to the rest of the Province and the continual erosion of the budget allocated to the construction and maintenance of Provincial Roads. The issue of access roads will haunt the Indaka municipality for a number of years to come:

- National Route N3 is a primary strategic transport corridor, which not only links the Uthukela District Council, but also the entire Coastal KwaZulu-Natal to the industrial agglomeration hub of Gauteng. At a strategic economic development level with particular emphasis placed on tourism, manufacturing and other agri-business products, the N3 is very critical in allowing the region to access various market destinations and opportunities;
- the N11 route to the west of the Indaka Municipality is a major national road which links the region to Newcastle and Mpumalanga Province further north. At a local level, N11 also serves as a conduit through which the Ladysmith commercial centre is accessed;
- Road R103 is a regional route on to which the N3 just north of the Estcourt Shell Ultra City links and/or offloads;
- the Dundee R602, to the north east of the municipality serves as a connection particularly at a regional level between Uthukela and Dundee municipality;
- at a local level with specific reference to the Limehill Complex R32 is an important activity road. It has amongst other things allowed for the development of informal settlements; limited commercial, social and agricultural development. It also serves as an activity route for accessing Tribal Authority areas, with particular reference to abaKwaNxumalo;
- as regards the uMhlamayo Complex, the most important route is R33, which connects to a local route and links to Ladysmith, eKuvukeni, Helpmekaar and right down to Weenen;
- access between all the six identified webs needs to be improved dramatically to ensure that they are connected. Developments that take place in the hub and other primary and secondary webs will need to be accessible to the whole community of the municipal area. This can only happen if transport infrastructure is upgraded.

It could arguably be stated, with some degree of certainty, the regional transportation system is relatively well developed. However, at local council level, some projects would need to be undertaken in order to give effect to a reasonably sophisticated transport system. Upgrading at uMhlumayo appears and the development of R32 at Limehill Complex into a fully fledged activity transport corridor' strongly integrated into various economic activities, represents some of the potential spatial development projects for the area.

iii. Umtshezi Local Municipality

Umtshezi Municipality comprises parts of the Magisterial Districts of Weenen and Estcourt, and is located approximately 165 km northwest of Durban and 400 km southeast of Johannesburg. The National Road N3 also traverses the Municipality on its western portion linking these two major cities i.e. Durban and Johannesburg. Estcourt Town is the main urban centre for the Municipality.

Umtshezi Municipality is bordered on its south-eastern portion by the Mooi Mpfana Municipality, Msinga Municipality on its eastern portion, Indaka Municipality on its north-eastern portion, both by Emnambithi and Okhahlamba Municipalities on its north-western portion and Imbabazane Municipality on its southwestern portion.

The National N3 Road traverses the western portion of the municipality and this road falls under the National Road Authority. Whilst the N3 is the national route linking the major cities of Johannesburg and Durban, this route however plays minimal role in the economy of the municipality. This is being compared to the historical prominent role of Estcourt Town prior to the establishment of the N3 Toll Road, as a result most of the opportunities presented by this road bypass the municipality.

The R74, R103, MR29 and MR10 represent the provincial routes within the municipality and the latter two are under-utilised. This may be attributed to a better alternative route in the form of N3, as alluded to earlier. As a result these roads are mainly utilised by vehicles, which cannot bear the costs of the N3 Toll Road and resort to passing through Estcourt Town. It has to be highlighted that these roads are also in need of upgrading.

iv. Imbabazane Local Municipality

Imbabazane Local Municipality is one of the five Local Municipalities within the uThukela District Municipality. It is located at the foothills of the Central uKhahlamba Drakensberg Park (World Heritage Site), and is situated between Ukhahlamba, Umtshezi and Mpfona Municipalities.

The total population of Imbabazane Municipality could be estimated to 119 925 people marking an increase of about 10 000 people from 1996.

The majority of Imbabazane Municipality population resides in rural villages scattered throughout the municipal area, particularly traditional authority areas.

As already indicated, Imbabazane is not an economic or social functional entity, but a mere administrative and local government structure. It does not have a well-defined settlement pattern nor does it have a functional structure. In economic terms, it is part of the Estcourt economic functional region. Movement within the area tends to go towards Estcourt and even the economic/transportation infrastructure is oriented towards Estcourt. However, a limited form of modular development occurs in Loskop and Ntabamhlophe areas. This presents an opportunity for the concentration of development and decentralization of service delivery to these areas. In fact, a service centre has already been developed in Ntabamhlophe. It accommodates different government departments and will help to curb limit the need for long and expensive trips to Estcourt.

Bus companies and taxi operators provide public transport services in the area. Details of these services are required including the locations and capacities of ranks and passenger collection points and details of repair and maintenance facilities. Uthukela District Municipality has recently initiated a Public Transport Record Study intended to generate this information.

v. Okhahlamba Local Municipality

The Municipality is characterized by a predominantly rural landscape, consisting of a number of dispersed rural towns and villages, and irrigated agricultural areas. The Free State and Lesotho forms the northern and western boundaries respectively. To the south the Municipality is bordered by the Imbabazane Local Municipality and to the east by the Emnambithi Local Municipality.

A number of waterbodies are found throughout the municipal area, and include the dams of Kilburn, Woodstock and Spioenkop. The Municipality hosts a population of approximately 138 000 people, with an incremental growth rate of 3% for the period 1996 to 2001 (Census 2001).

The two most prominent settlements are the tourist towns Winterton and Bergville. Winterton functions as a popular ski-resort during the winter months. Bergville functions as the gateway to the Drakensburg. Some of the most picturesque holiday resorts, like Cathkin Peak, Cathedral Peak, Champagne Castle, Oliviershoek, Royal Natal National Park and Rugged Glen Nature Reserve are all situated within 48 km of the town. Other prominent settlements include Zunckels, Geluksburg, and Vyford.

The most prominent road is the R74 traversing the municipal area in an east - west alignment, connecting Bergville and Winterton to the N3 and N6 roads. Other prominent roads facilitating traffic movement to tourist destinations within the Drakensberg are the R616 and R600. Furthermore, Bergville is connected to Estcourt by rail, and a bus travels between Bergville and Ladysmith daily. Air

transport in the region is limited to local airstrips for light aircraft and a regional airport at Ladysmith.

5.3.2.4 Umzinyathi District Municipality

Umzinyathi District Municipality is located in northern KwaZulu-Natal. The main towns in the District are Dundee and Greytown, which are approximately 180 kilometres apart. Dundee, the administrative seat of the District, is 320 kilometres north of Durban (**Map 5.3I**). The District is generally accessed from the R33 from Pietermaritzburg or from the R68 off the N11. The larger towns of influence which are in close proximity to the District are Newcastle, which is 65 kilometres north east of Dundee, Ladysmith, which is 66 kilometres away and Estcourt, which is 135 kilometres away, in the Uthukela District south west of Dundee.

The main road linkages include the R33, which links the Endumeni part of the District to Vryheid; the R68 which links the Nquthu portion of the District to Babanango; the R622 and the R33, which link Umvoti to Mooi River and Pietermaritzburg respectively to the south.

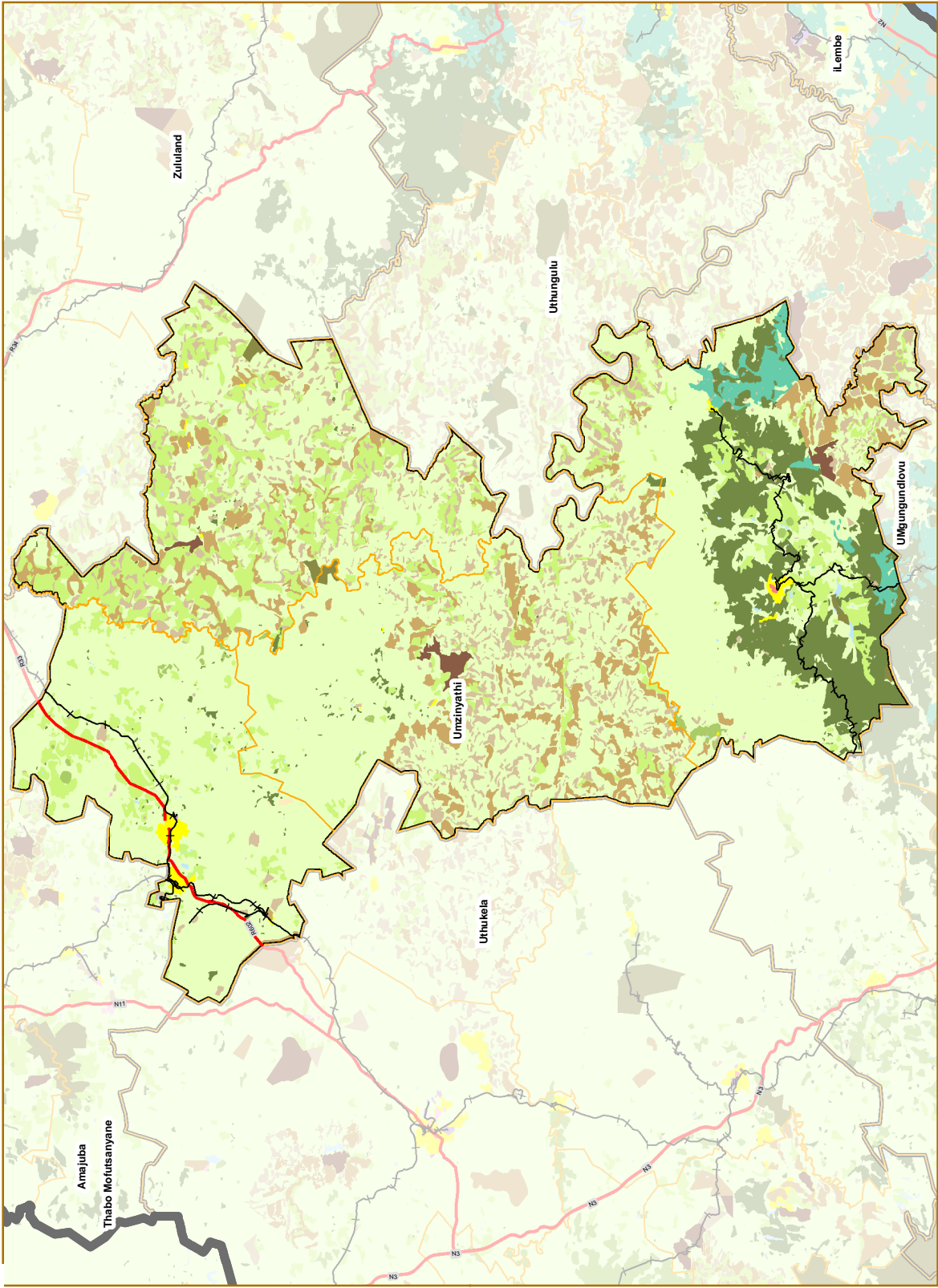
Umzinyathi District has a total area of 8 079 km² and comprises the four Local Municipalities of:

- Endumeni
- Nquthu
- Msinga
- Umvoti

The largest municipality in the area is Umvoti being 2 758 km². Each municipality has unique characteristics, which are detailed in the individual IDPs. The major settlements in the area are Dundee, Glencoe, Greytown and Kranskop.

The District lies between the main N3 corridor between Durban and Gauteng, and the Coastal Corridor, running along the east coast. This places the District at an economic disadvantage in terms of its ability to build on passing trade. The Dundee area (Endumeni) in the north of the District is however centrally placed within this area, between the two corridors, and is at the confluence of roads through the District. This provides the ideal spatial framework for the functioning of Endumeni as an administrative and service centre. Similarly, in the south of the District, Umvoti (Greytown) is well placed, in terms of location and road infrastructure, to function as a regional service centre. Both Msinga and Nquthu, are however rural in nature and they are dependent on the other two municipal areas for economic services. This spatial setting results in a District with the economically stronger Municipalities at the northern and southern ends, rather than in the centre. As a result, the strong economic “pulls” to the ends of the District also result in economic linkages to larger towns in adjacent Districts. For example, Estcourt, in the Uthukela District, is closer to Umvoti than Dundee (Endumeni) is, in the Umzinyathi District.

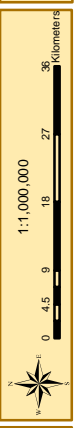
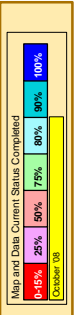
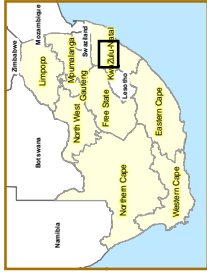
KwaZulu-Natal Province: LAND USE - UMZINYATHI DISTRICT MUNICIPALITY



LAND USE PATTERNS

UMZINYATHI DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Town (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



Legend for boundaries:

- District Municipal Boundary
- Local Municipal Area
- Provincial Boundaries

Legend for infrastructure:

- Airports
- Border Posts
- Harbours
- Towns

Legend for transport networks:

- SANRAL Road Network
- Railway Network



According to the IDP Perspective Report, January 2002, Umzinyathi has a relatively weak economy based primarily on social services and agriculture. The service sector is the most important sector in Nquthu, Endumeni and Msinga, while in Umvoti the most important sector is agriculture.

Only Endumeni, which has the highest levels of economic development and services, has a diversified economy. Endumeni is the administrative and trade centre of the District and is well located with regard to road and rail infrastructure. It also has good commercial farming activities in livestock (cattle and game) and cropping (wheat and maize).

Msinga and Nquthu are significantly underdeveloped and are relatively isolated from the main development corridors of the N2 and N3. They have strong traditional authorities, which provide support systems in the rural areas. There are a number of land reform projects in the north-east, which are linked to small-scale farming. Although Msinga has an overall low agricultural potential, areas around the Tugela and the Buffalo Rivers have good potential for irrigated farming activities and the scenic beauty along the R33 route provides potential for tourism development.

Active commercial farming activities comprise 15% of the total land cover of Umvoti. Greytown as the economic centre of Umvoti, has a relatively high level of socio-economic development but is surrounded by poorly developed areas, similar in nature to Msinga and Nquthu, where mainly subsistence farming is practiced.

Social services represent the largest employment sector in Endumeni, Nquthu and Msinga while agriculture represents the largest employment sector in Umvoti.

Endumeni LM has mainly an urbanized community with little to no rural communities.

Although the settlements were probably determined by agricultural potential in the area, climate and the availability of water, as well as the transportation network also influenced the spatial structure of the District.

Population (476 830 people in 2005) is not spread evenly throughout the district, because of a number of factors. There are higher population concentrations in the two main towns of Dundee and Greytown. In Nquthu, concentrations of population occur in the more fertile areas to the north. The two main centres of Nquthu are Nquthu Town and Nondweni. In Msinga, the topography has a large influence on the settlement patterns. In Msinga, there is a dominance of the three peri-urban settlements of Tugela Ferry, Pomeroy and Keates Drift. The population densities of these three areas are higher than those of the rest of the area. The population density pattern is further reinforced by rural villages that act as satellites to the three major settlements.

In Umvoti, the population densities vary significantly with highest population densities occurring in the Traditional Authority areas and in the main centre of Greytown.

i. Endumeni Local Municipality

Endumeni Municipality is located 360 kilometres South East of Johannesburg and 290 kilometres North of Durban. The area is in the Biggarsberg Valley in the foothills of the Drakensberg. The Municipality is generally accessed by turning off the N3 highway onto the N11 then proceeding onto the R68 into the Municipal area.

Endumeni has the smallest population but the largest economy of the local authorities in the District, focusing as it does on the main urban areas of Dundee and Glencoe.

Dundee-Glencoe plays an important role from a regional transportation perspective, with Glencoe being the primary centre from a rail perspective, and Dundee being the primary centre from a road perspective, thereby reinforcing Dundee-Glencoe as an important regional service centre.

Glencoe is situated on the main Johannesburg-Durban railway line, and hence can play an important role particularly from a goods transportation perspective. A spur line also links Glencoe via Dundee to Vryheid, which then provides a link to the Johannesburg-Richards Bay railway line.

The Municipal area is therefore, well located from an intra- and inter-regional rail perspective.

From a road perspective, the dominance of Dundee is clearly demonstrated by the fact that the following roads radiate out from Dundee, namely the R68, being the link road to Ladysmith and Newcastle via the N11, the R68 which links Dundee to Nquthu, the R33 which links Dundee to Vryheid, and also to Greytown via Pomeroy and Tugela Ferry, whilst the Provincial Main Road P33-2 links Dundee to Wasbank, the R602 which links Dundee to Elandsplaagte and the N11, the P272 which links Dundee to Hattingspruit and the R621 which links Dundee to Dannhauser.

ii. Nquthu Local Municipality

Nquthu Town, Nondweni, Ngalongo/Ngolongo and Isandlwana/Nsandlwana are the more important semi-urban centres and were the subjects of a recently completed socio-economic study. There are no fully-fledged urban settlements in the Nquthu area, with Nquthu Town having the best opportunity to grow into such a centre, as it already accommodates the administrative functions of the area.

Although the municipality is not adjacent to any of the major provincial and national transportation corridors, it has a relatively well established regional road network allowing for relatively free movement of people and goods into and out of the area. This is facilitated via the following routes:

- R68: This transport corridor consists of road linking Nquthu with Dundee to the west and Melmoth to the south-east. The road traverses Zululand from

the N11 to the N2 via the R34 to Richards Bay. The road is tarred and is maintained in a reasonable condition.

- R33: This is another important route passing through the northern part of the Municipality, linking Vryheid with Nquthu and the R68 via a gravel road, the R54. It is a busy route, carrying large numbers of local and regional traffic.

Nquthu is strongly linked to the surrounding towns of Dundee, Melmoth, Vryheid and Newcastle, and to lesser extent Ulundi. Dundee is linked to Nquthu via a tarred road (R68) and provides many of the administrative and institutional needs. It also serves as the commercial core for the Nquthu residents, particularly those in the southern portion of the municipality.

The main transportation route through Nquthu Local Municipality is the R68, linking Nquthu with Newcastle and Dundee. Ulundi and Melmoth are linked to Nquthu via the R34. Other important roads in the area are the R33 passing through the northern part of the municipality, the road passing east of Nondweni linking Vryheid with the R68 and the gravel road linking Nquthu with Kranskop.

The district roads and access roads provide access throughout the central and northern areas of Nquthu, however, there is limited access to Ward 2 and through Ward 1. Ward 1 is isolated from the remainder of the Municipality, only being accessible from the east from the Kranskop road.

Due to these routes crossing the Municipality, Nquthu is fairly accessible, with the route from Dundee to Melmoth being the shortest route from Newcastle/Ladysmith to Ulundi and the KwaZulu-Natal north coast.

The settlement pattern in Nquthu has been influenced by agricultural potential, and access to physical and social infrastructure. It comprises largely dispersed rural settlements, with the main semi-urban centre being Nquthu Town. Nondweni, Ngalongo/Ngolongo and Isandlwana/Nsandlwana are additional centres, all playing significant roles in servicing the rural community.

In terms of population density, concentration and service demands, the dormitory towns, particularly Nondweni, can be regarded as emerging semi-urban areas and recognized as the primary areas of focus for the development of new engineering and social services.

Local taxis operate in and around Nquthu Town, linking the rural areas with Nquthu Town. Local taxis operate on a hub-type system, with the nodal points being Nquthu Town and Nondweni. From these points, taxis link the area to nearby major centres such as Dundee.

It is apparent that the existing service is not reliable and is costly. Consequently, there is also a reliance on obtaining lifts from individuals with private vehicles.

There are no bus or rail services in the municipality. This is not at all surprising, given the condition of roads in the rural areas. The limited public transport provision in the municipality places limitations on the ability of individuals and households to access social services and facilities, for example health care, education as well as to travel to central places of employment.

There are two airstrips in Nquthu, located in Ward 6 (near Nquthu Town) and Ward 12. Although these are not regularly used for commercial or charter flights, they do provide opportunities for emergency medical evacuations and other disaster management interventions, should these be required.

iii. Msinga Local Municipality

Msinga is composed of six Traditional Authority Areas namely, Qamu, Mchunu, Bomvu, Ngome, Mabaso and Mthembu, comprising an area of 1762 km².

It is a largely rural area with 70% of its area being Traditional Authority land held in trust by the Ingonyama Trust. The remaining 30% of land is commercial farm land, all of which is located to the north of Pomeroy. Given the rural nature of the municipality, approximately 99% of the population lives in traditional areas. The Municipality is in the south western part of the District Municipality area, sharing boundaries with the Nquthu and Nkandla Local Municipalities to the east, Umvoti Local Municipality to the south, Uthukela District to the west and the Endumeni Local Municipality to the north.

The Municipal area is accessible via the R33, linking it with Dundee, Ladysmith, Pietermaritzburg, Kranskop and Weenen.

The Provincial route R33 links Dundee and Greytown and traverses Msinga in a north-south direction. The R33 is the only link between Msinga's commercial centres of Keates Drift, Tugela Ferry and Pomeroy. It further provides for the only transport link between the secondary settlement nodes and the aforementioned commercial centres. The Province also maintains the other main District roads linking with R 33. These roads constitute approximately 242 kilometers. The rest of the community access roads are in a state of disrepair and need the necessary attention.

Due to the topography of the municipal area, certain settlement nodes are relatively isolated from the main centres of Keates Drift and Tugela Ferry, and have to resort to alternative means to get access to services. The inaccessibility of these areas also impact on neighbouring municipalities, where areas in the southern parts of Nquthu municipality and western parts of Inkandla/Nkandla municipality are completely isolated from services. People from ward 9 in the Nkandla/Inkandla municipality also cross the Buffalo River as well as harsh mountainous terrain to obtain services from Tugela Ferry. The Mkhapula and Dolo nodes in the south east has no formal access across the Tugela River, and therefore, are forced to travel long distances to Greytown or Kranskop for services. It is probably still feasible for the people residing

in the Mkhapula node to travel to Keates Drift for services. Strategic river crossings are therefore, vital for the improvement of the quality of life of the people, not just on a municipal level, but also to provide access at a district level.

iv. Umvoti Local Municipality

Umvoti is situated approximately 65 km from Pietermaritzburg and 55 km from Stanger, and includes the urban centres of Greytown and Kranskop. It is about 2509 km² in extent and its population is estimated between 92 419 and 117 000 people who are spread unevenly among the eleven municipal wards. Umvoti is the largest of the four municipalities, in terms of area, in the Umzinyathi District.

It is located on the southern part of Umzinyathi District, and borders onto Umgungundlovu District to the south, Mshwathi Local Municipality, and largely falls within the Pietermaritzburg functional economic region. The parts of the municipality that borders onto iLembe District enjoy the influence of Stanger-KwaDukuza economic region. Umvoti Local Municipality is well integrated into the provincial transportation network.

Umvoti Municipality is located within the heartland of the Midlands area, which is renowned for its high agricultural potential and out-puts which accounts for its competitive advantage both provincially and nationally. This area stretches from Underberg and Ixopo in the south to Kranskop in the north and is often referred to as the Midlands Mistbelt. Its dominant agricultural practices include sugar cane, forestry, livestock farming dairy products and crop production.

Umvoti Municipality is also located at the intersection of the Battlefields, Midlands, North Coast and Zululand tourism zones. The Battlefields include the north-western parts of Umvoti, particularly areas near Keate's Drift with 'Itshe likaBhambatha" being the major link in this regard. The Midlands largely co-incides with the mistbelt and includes areas such as Seven Oaks, Greytown and Ahrens. Tourism within this area is concentrated around the Midmar and Albert Falls dams. Tradition and Zulu culture, which is still widely practices in the northern parts of Umvoti, serves as a major link with Zululand. Movement patterns towards the coast serves as the only major link with this tourism zone.

The R74 plays a prominent role within the municipality, facilitating movement, and connecting Greytown to Stanger in the east, and Ladysmith towards the west.

Public transport is generally in the form of mini-bus taxis. These taxis provide a reasonably efficient service to all areas of the Municipality. However taxi ranks and related facilities and amenities are needed throughout the area. Different levels of service should be provided at taxi ranks, depending on the number of commuters.

5.3.2.5 Amajuba District Municipality

The region is largely classified as rural with concentrations of urban areas. The total population of the district is estimated at 492 330 people (2005) (**Map 5.3J**). The land use is predominantly agriculture (maize and livestock), with other land uses mainly related to manufacturing, mining and quarrying activities. There are numerous conservation areas and tourism routes throughout the district.

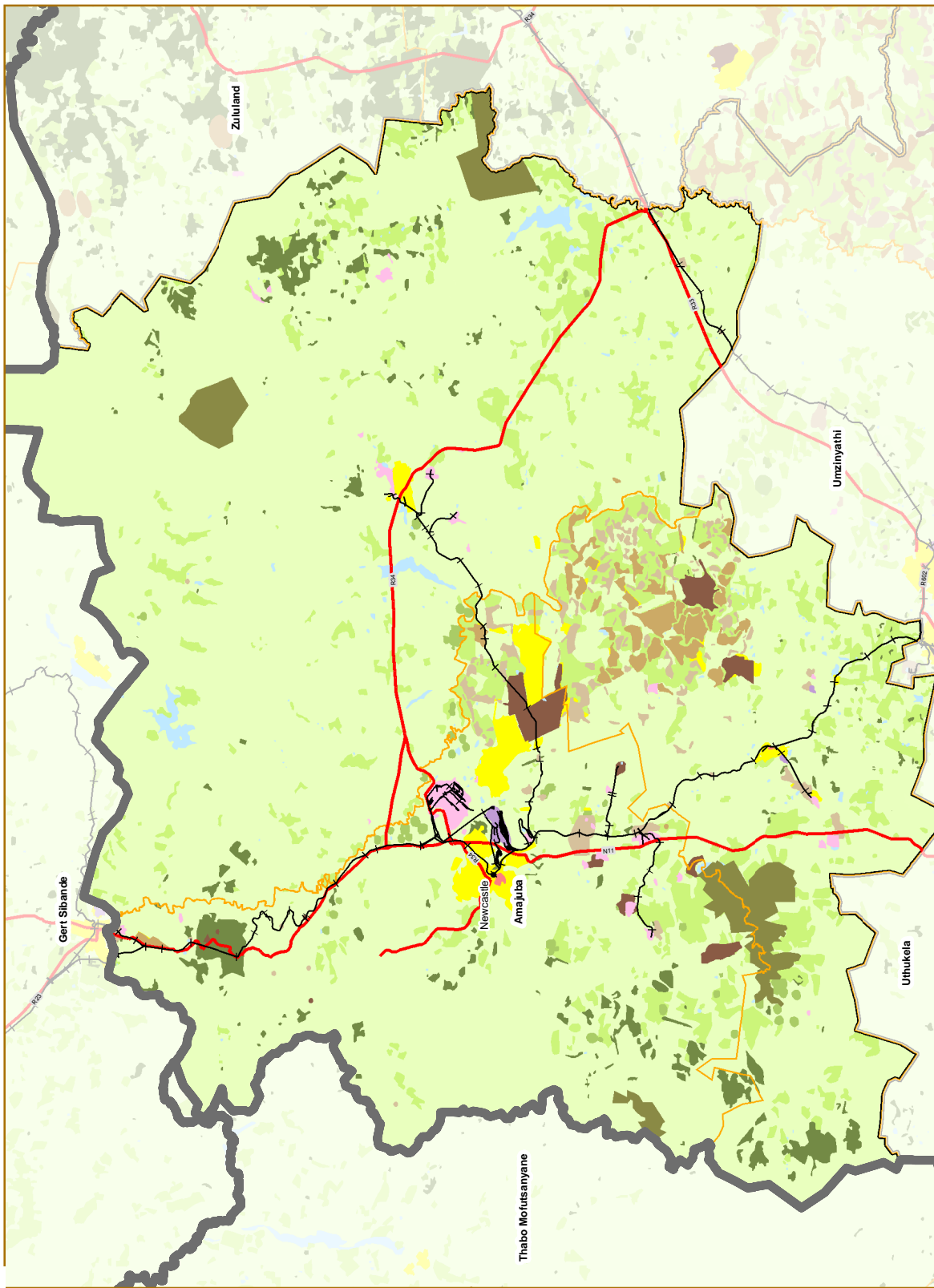
The bulk of the urban land use is concentrated in the Newcastle Municipal Area, with Newcastle classified as Regional Centre/PRAC (Provincial Rural Administration Centre). Utrecht and Dannhauser are classified as municipal centres. The bulk of settlements in the district are classified as smaller settlements.

In terms of current movement patterns in the district, the N11 National Road forms the primary corridor, traversing the district in a north-south direction. The secondary movement corridor follows the road from Newcastle to Hattingspruit. The R33 and R34 form a tertiary corridor in the district.

The key issues arising from the spatial development pattern are:

- the area is characterized by urban centres and vast rural areas;
- the urban core of the district is the Newcastle-Madadeni-Osizweni complex;
- there are numerous small centres that are in remote, rural areas, which have a low threshold, making these settlements difficult and costly to service;
- the rural areas have low thresholds making them difficult and costly to service;
- the N11, R34 and R68/R621 provide good access within the area and links to surrounding areas;
- the N11, R34 and R68/R621 largely determine the spatial movement within the district and patterns of settlement;
- the topography in the Utrecht area makes it difficult to service;
- topography, constraining development, covers areas of environmental importance hence, contributes to conservation efforts;
- integration north of the district is hindered by the topography of the area, and provincial boundaries;
- there is a concentration of mining activities, past and present, in Newcastle, Utrecht and Dannhauser;
- mining activities limit settlement in these areas;
- the environmental quality of mines is a focus of intervention; and
- opportunities in the area are identified around tourism and recreation areas.

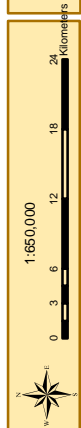
KwaZulu-Natal Province: LAND USE - AMAJUBA DISTRICT MUNICIPALITY



LAND USE PATTERNS

AMAJUBA DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Town (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



1:650,000

0 3 6 12 18 24 Kilometers

North Arrow

LEGEND

- SANRAL Road Network
- Railway Network
- Border Posts
- Harbours
- Towns
- Airports
- Local Municipal Area
- District Municipal Boundary
- Provincial Boundaries



The district is largely rural in nature and contains a settlement hierarchy that is dominated by the Newcastle-Madadeni-Osizweni complex. This forms the District Centre, by virtue of the population concentration, the urban nature of goods and services available in the complex, its diverse economic base, level of development and potential for future growth. Central and provincial agencies also maintain a strong presence in the centre.

There are two municipal centres within the District – Utrecht and Dannhauser. These are the seats of the local municipalities and are urban in nature, servicing their surrounding rural areas by way of commercial and service related activities, centres of administration for regional, provincial and central authorities, as well as service providers. Hattingspruit is another settlement in the district that is urban in nature, although at a much smaller scale. These urban centres have populations of less than 4000 people each.

Transportation infrastructure is concentrated in the central portion of the district, which is traversed by the N11, linking the district to Gauteng and through Ladysmith to Durban, and providing an alternative to the N3. This forms the primary movement corridor in the district.

Other important external road linkages are the R34, providing eastward linkages to Vryheid and westward towards Vrede, and the R68/R621 linkage to Dundee. These form the secondary and tertiary movement corridors through the district.

The railway line, connecting Gauteng to Durban, and branching off to connect Newcastle to Vryheid, Ulundi and Richards Bay is another important external linkage, reinforcing the movement corridors.

In addition, the district is well served by the network of provincial and district roads. A small airport, located at Newcastle provides facilities for light aircraft, and is supported by small airstrips scattered throughout the commercial farming area.

There is however a need for improved transportation within the rural areas. Accessibility of the rural areas will improve security, health (accessibly to medical care), and commercial development opportunities. The communities in the district largely rely on the mini-bus taxi system for transportation.

i. Newcastle Local Municipality

The major urban centres of Volksrust, Glencoe and Dundee are located just beyond the Municipality's northern and southern boundaries respectively. The smaller settlements of Utrecht and Dannhauser are also situated in close proximity.

There is currently a well developed hierarchy of roads in the Municipal area. The four types of development corridor described above, namely the Primary Corridor, Secondary Corridors, Tertiary Corridors and Mixed Activity Corridors are well

supported by District roads and Community Access roads. These roads provide local access and links to the urban areas and development corridors.

Principle nodes are to be allowed to develop at Charlestown, Ingogo and Leokop, the intersection of the N11 and R34, key intersections within Madadeni and Osizweni and at the N11/southern secondary corridor intersection. Localised nodes will be permitted where District and Community Access roads intersect with any other road.

ii. Utrecht Local Municipality

The Utrecht Local Council area comprises two areas namely the previous urban area and the commercial farming area of the magisterial district. The erstwhile Utrecht Local Council was responsible for the urban area. Services in the rural areas were provided by the Umzinyathi District Council whilst services in the urban areas were provided by the Utrecht Local Council.

The Amajuba District Council accommodates 492 330 people of which the majority (72%) lives in the Newcastle Local Council area, 20% in the Dannhauser Local Council area and 8% in the Utrecht area. The majority of the population, namely 89% is blacks and 7% whites.

The N11 links the district with Gauteng and Durban. This route provides an alternative route to Gauteng linking the N3 with Volksrust via Ladysmith and Newcastle.

The Utrecht Local Council area is reasonably accessible with the R34 which links the town with Newcastle and via the R33 with Vryheid and Dundee. The R34 links the area also to the north coast.

At present Newcastle is the main urban centre, providing a large variety of social and physical infrastructure. Dannhauser is the other urban core in the district.

Major tourism projects are in the implementation stage, the largest drawcard being the development of the Utrecht Community Game Farm and wildlife products. This project includes the development of the game farm as such as well as the Arts and Crafts Village, both aiming at the creation of job opportunities for the local community. Unemployment in the area has increased over the last few years due to the decline in the mining and agricultural industry. This tourism venture aims at decreasing the unemployment ratio.

The Arts and Crafts village offers pottery, needlework etc.

A backpacker's accommodation unit is in the process of completion.

The Utrecht game farm must be seen as the core of tourism development in the area. It creates many opportunities for rural tourism and for the manufacturing of arts and crafts in the more remote areas.

The Utrecht Local Council is well accessible and has well developed transportation links. The R34 which bisects the urban area links the Local Council with Newcastle to the west and Vryheid to the east. The main district roads are reasonably well maintained and link Utrecht with Wakkerstroom, Paulpietersburg, Osizweni, Volksrust and Ingogo.

iii. Dannhauser Local Municipality

The SDF Plan indicates desired patterns of land use in the municipal area, namely:

- Conservation Areas: These areas include KZN Wildlife's Chelmsford Nature Reserve, Important Landscapes, Important Ecosystems and Communities and Important Species Sites.
- Commercial Agriculture: This includes the following areas – Extensive Grazing (areas where natural grasslands are used for animal grazing); Forestry (areas which are used for timber production); Mixed Farming (areas which are used for cropping, horticulture and extensive grazing); and Irrigated Cropping (potential irrigation areas).
- Rural Residential: This comprises the Traditional Authority areas where there are numerous settlements and the residential use of tribal land with limited cropping and grazing.
- Mining and Quarrying: This includes the operational mines (i.e. Cambrian Dump, Springlake and Spies Dump) and the non-operational and abandoned/liquidated mines in the municipal area.

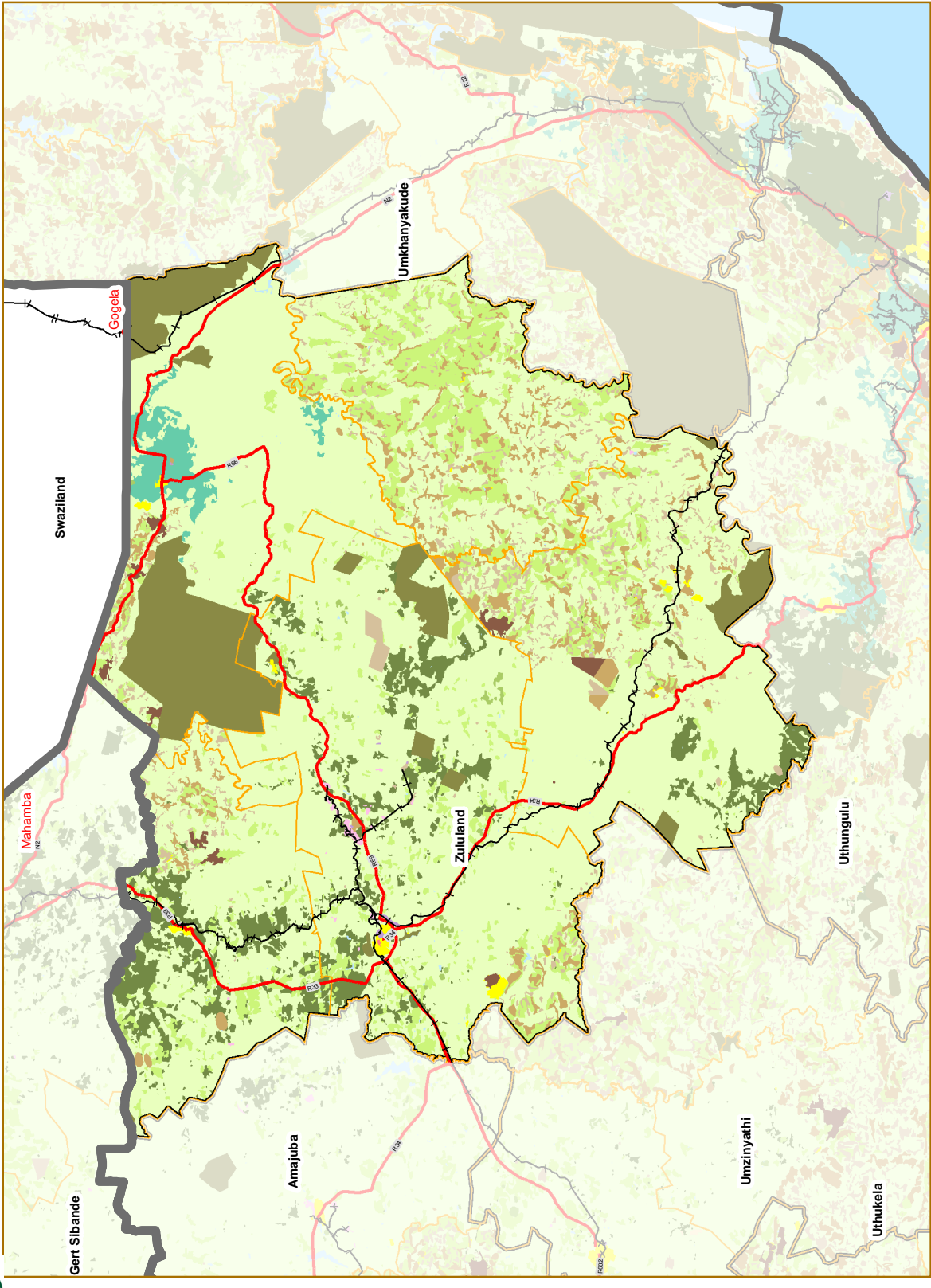
The Movement Corridors linking the hub and satellites were proposed as follows:

- Primary Movement Corridor: The N11 national road linking Newcastle and Ladysmith.
- Secondary Movement Corridor: The R621 main road linking Dannhauser and Hattingspruit to the N11 to the north and to Dundee/Glencoe to the south.
- Tertiary Movement Corridors: There are three such corridors – road 272, road 296 and road 205-2.

5.3.2.6 Zululand District Municipality

Zululand District is situated in the north-eastern part of KwaZulu-Natal. It has an area of 15 307 sq kms and a population of about 797 730 people (**Map 5.3K**). It has two major towns (Vryheid and Ulundi), both of which are well located in relation to the national road and rail networks. Vryheid (urban population 24 670) is a commercial and business centre, while Ulundi (urban population 55 000) is an administrative centre with the seat of the District Municipality, the shared seat of the Provincial Legislature and a well-equipped airport.

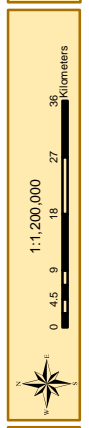
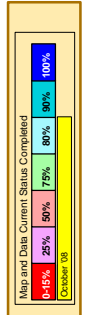
KwaZulu-Natal Province: LAND USE - ZULULAND DISTRICT MUNICIPALITY



LAND USE PATTERNS

ZULULAND DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Town (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



LEGEND

- SANRAL Road Network
- Railway Network
- Border Posts
- Harbours
- Towns
- Airports
- Local Municipal Area
- District Municipal Boundary
- Provincial Boundaries

However, the district's economy and settlement pattern are largely rural. During the apartheid era, Zululand was defined as a "homeland" and for that reason was severely deprived of government investment in infrastructure and services for many years. Today, Zululand remains one of the poorest districts in South Africa. It needs investment in basic infrastructure and economic activities, which will create employment and, for this reason, has been selected as one of the focus areas for national government's integrated sustainable rural development strategy (ISRDS) programme.

The area of jurisdiction of the new Zululand District Municipality is divided into five municipal areas. These are:

- eDumbe (Paulpietersburg) – KZ 261;
- uPhongolo (Pongola) – KZ 262;
- Abaqulusi (Vryheid) – KZ 263;
- Nongoma – KZ 265; and
- Ulundi – KZ 266.

Zululand is primarily a rural district with a population of 797 730 people living in 866 dispersed rural settlements and six urban areas, 872 settlements in total. Most of the rural settlements are small, making service delivery costly. About half the area falls under the jurisdiction of Traditional Authorities, the remainder being privately owned commercial farms, or protected areas. The district experiences high levels of poverty and has a high incidence of HIV/AIDS infection. Another pervading problem is poor accessibility to basic facilities and services.

There are 872 settlements in Zululand, of which 18 have some urban characteristics. Six are identified as towns, the five local municipality centres and eMondlo.

The settlement pattern reveals that 80,5% of the district's population live in rural settlements, a large proportion of which are small and widely dispersed, many at some distance from the main road network. Most of the 19,59% of the population who live in urban areas, are located in Ulundi (55 818), Vryheid (33 666), eMondlo (21 550), and Paulpietersburg (15 200) and Pongola (14 422). This settlement pattern has significant implications for development and service delivery throughout the district.

Zululand's main internal road network is dominated by three routes which form a triangle linking Vryheid, Ulundi and Pongola – the "coal line" corridor (R34 and R33), the road from Vryheid through Louwsburg to Magudu (R69), and from Ulundi to Pongola (R66) on the N2. The continuation of these routes connects the district's main centres to adjacent districts and urban centres. Another significant road is the N2, which flanks the district in the north.

The most important railway line is known as the "coal line". It passes through Zululand carrying coal from the Mpumalanga mines to Richards Bay (see Peter

Robinson & Associates, 1999, “Zululand’s Coalmine Corridor – Opportunities for economic development”). This is a highly specialized line and rail system, which carries 200 trucks, dedicated coal trains (23/day in 1999), which do not stop at stations within Zululand except to change crews. About 70 million tonnes of coal was transported along this line in 2000. Significantly, these trains return empty, as there is little bulk demand for goods in the KwaZulu and Mpumalanga hinterlands.

There are also, on average, 17 freight trains on this line, transporting a total of 30 000 tonnes of goods for processing or export through Richards Bay. These goods consist of ferrochrome, granite, chrome, steel and timber and some general freight. Most is loaded in the Northern Province and Mpumalanga, but a considerable amount of timber is loaded from stations in the northern parts of the district around Paulpietersburg and Vryheid. These trains return with about 10 000 tonnes of goods.

SA Airlink have indicated that they would be interested in re-establishing air services to Vryheid provided there is sufficient support for sustained viability. Support invariably requires commitment by local business and the community. The minimum threshold to justify a 19-seater service is 1200 single sector passengers (600 return passengers), while a 29-seater Jetstream, such as the one used on the Ulundi service requires 1500 single sector passengers (or 750 return passengers).

Ulundi airport has two scheduled flights in and out on weekdays on the Ulundi-Durban-Pietermaritzburg route. In addition it caters for numerous non-scheduled flights associated with the provincial government, with tourism and business. Indirectly, the commercial flights to and from Durban and Pietermaritzburg are subsidized by the amount of government activity in Ulundi. When the P700 road linking Ulundi to Umfolozi Game Reserve has been tarred, there is a possibility of direct flights from Johannesburg to Ulundi to cater for tourist traffic. A report by BKS (1998) assessed the spare capacity of Ulundi Airport, and identified possibilities for its expansion.

i. eDumbe Local Municipality

eDumbe Local Municipality is characterized by a predominantly rural landscape, consisting of a number of dispersed rural towns and villages, and conservation / forest plantation areas. Mpumalanga and the Utrecht Local Municipality form the northern and western boundaries respectively. To the south the Municipality is bordered by the Abaqulusi Local Municipality and to the east by the UPhongolo Local Municipality.

A number of prominent rivers are found throughout the municipal area, and include the Pongola and Bivane. The Municipality hosts a population of approximately 82 000 people, with an incremental growth rate of 4,7% for the period 1996 to 2001 (Census 2001). Paulpietersburg is the most prominent town. Other prominent settlements include Luneberg, Grootspuit, Bivane and Mpemvana.

The most prominent road is the R334 traversing the municipal area in a north - south alignment, connecting the towns of Paulpietersburg and Vryheid.

ii. uPhongolo Local Municipality

uPhongolo Local Municipality is located north of the Zululand District Municipality. It lies adjacent to the Swaziland border and the Mpumalanga province border. It has the third biggest land area after Abaqulusi and Ulundi Municipalities. It is also a gateway to Mpumalanga and Gauteng Provinces and Swaziland.

iii. Abaqulusi Local Municipality

The municipal area is named after one of King Shaka's Royal Homestead: abaQulusi. The municipal area is approximately 4 185 km². It is 30% of the area of the Zululand Municipal District – ZDM.

The area incorporates the whole of the Vryheid and Louwsburg magisterial districts and part of the Nquthu magisterial district. It is constituted by the following settlement(s):

- Vryheid;
- Bhekuzulu;
- eMondlo;
- Bhekumthetho/Hlahlindlela;
- Coronation, Hlobane, Mnyathi, Nkongolwane, Cliffdale – Vrede ;
- Louwsburg, Dlomodlomo ;
- Kwakhambi, Ngenetsheni, Cibilili, eSihlengeni, Ngome and Mountain View;
- and
- Glückstadt and Zwart uMfolozi.

According to the Census 2001, the population stands at 191 022 divided into about 36 000 households. About 18 000 households (50% of the total households) receive municipal service(s) of one kind or another. About 63% of the population lives in the rural settlements whilst the remainder of 37% lives in the urban settlements.

The area has in the past, relied mainly on two industries; namely, agriculture and coalmining. The latter has since collapsed, thus making most towns in the area “ghost towns”.

The collapse of coalmining has affected adversely both commerce and the rest of the tertiary industries in the area. It is the view of the Council that in the face of the collapse of the coalmining in the area, the area should be declared a “Special Need Zone” in order to draw on the energies of all spheres of government for its regeneration. The municipality along is too small to match up to the magnitude and volume of the problem. It is an industrial and social disaster that ought to be responded to in no less manner than the socio-economic disasters in major urban townships in the form of the national urban regeneration programmes.

iv. Nongoma Local Municipality

Nongoma Local Municipality has a population in excess of 230 672 (WSDP, 2001), making it Zululand's second largest Municipality in terms of population and the second largest in terms of area. The rural communities are making use of the former Nongoma TLC (ward 19) as their primary service centre. The radial network of roads all converging in Nongoma Local Municipality bears testimony in this regard.

Nongoma Town is mainly a service-orientated centre resulting from it being the seat of the Nongoma Local Municipality and centrally located with regard to surrounding rural/farming communities.

Nongoma, set along the beautiful picturesque of Zululand, is located on the North of KwaZulu-Natal Province, and is a potential tourist destination! The town offers the best mix of eco-attractions as a holiday destination with a rich diversity and scenic nature trails, historic heritage and a unique moderate climate.

The primary transport corridor (road) runs through Nongoma, linking Vryheid, Ulundi, Mkuze, and Hlabisa. Secondary transport corridors which have development potential are as follows:

- Nongoma to Vryheid;
- Nongoma Ulundi;
- Nongoma Mkuze and the N2;
- Nongoma to Hlabisa and the N2;
- Nongoma to Hlobane;
- Nongoma to Hluhluwe; and
- Nongoma to Hlabisa via Hlambanyathi.

In contrast to these transport routes, which facilitate movement within and beyond the district, there are significant barriers to movement in the form of deeply incised river valleys, ridges, and steep lands.

The air-strip at eBukhalini services the needs of Nongoma. The air-strip is used by flights, which are mainly used by specialist surgeons who visit the local Benedictine Hospital on a regular basis. The local business community and His Majesty the King frequently use the air-strip. The air-strip has a potential to be developed provided there is sufficient support for sustained viability. Support invariably requires commitment by local business and the community.

Rural access roads are in a poor condition and are in need of urgent upgrading and maintenance. The primary concern is, however, the overall accessibility of the Nongoma and linkages to the rest of the Nongoma Municipality and the province. The roads from Vryheid, Hluhluwe, Pongola and Mkuze are gravel roads and inaccessible during the rainy season. By improving these linkages with the rest of the region, an area of economic development and growth will be opened to Nongoma.

There is only one formal taxi rank located in Nongoma Town. There are proposals that a new taxi rank that is in a good condition would be provided in the near future. The main mode of transport used by the residents of Nongoma is public transport in the form of taxis. Inaccessibility is a major problem throughout Nongoma. Because of the poor condition of the roads, many areas are inaccessible when it rains. Public transport in the form of buses is scarce due to the poor condition of roads within the Municipality, which isolates the population of Nongoma even further from economic opportunities in the surrounding areas.

v. Ulundi Local Municipality

The R34 and R66 routes provide regional accessibility. The R34 is the strongest, being the main transport link between Richards Bay and Mpumalanga. The “Coal Line”, which generally follows the alignment of the R34 in other areas, passes through the town of Ulundi. This provides opportunities for development in the secondary sector to develop should the possibility of importing and exporting freight through this mode of transport be capitalized on. Other roads in the area provide linkage between different rural settlements and are generally of a poor standard and poorly maintained.

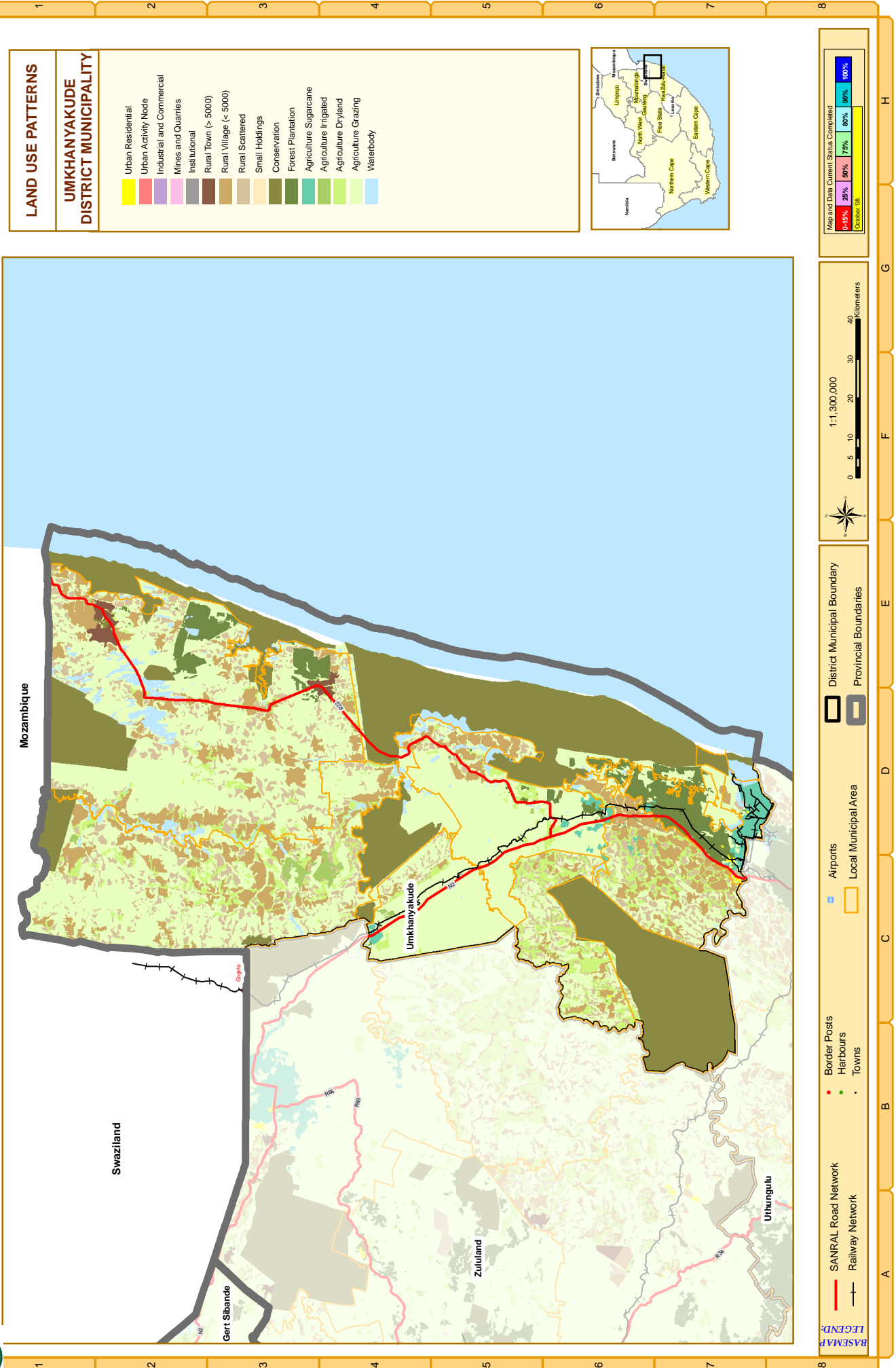
5.3.2.7 Umkhanyakude District Municipality

Umkhanyakude is one of the four District Municipalities in KwaZulu-Natal that were selected as Presidential Nodes for the implementation of the Integrated Sustainable Rural Development Programme (ISRDP) (**Map 5.3L**). As this programme seeks to redirect public funding to priority areas for poverty alleviation, Umkhanyakude District should ideally receive greater attention from various government departments and service providers. Secondly, it forms part of the strategic initiatives for social and economic development involving South Africa, Mozambique and Swaziland.

The following is a summary of the most salient feature of the Umkhanyakude District Municipality as contained in its IDP (2000):

- the fact that almost two thirds of the district are bounded by either ocean or international boundaries are special features to this district that require particular strategies to promote conservation and Trans-border access; and
- there are two transfrontier Activity Corridors in the Umkhanyakude District Municipality i.e. KwaNgwanase to Maputo in Mozambique and Ingwavuma to Big Bend in Swaziland. Another Activity Corridor is found on the new MR439 road from Hluhluwe to Maputo. “Their description as activity corridors is founded in that they provide access to a range of facilities and attractions” for example, the Pongola flood plain, towns such as Hluhluwe and Mbazwana as well as conservation areas and resorts associated with the coastal zones;
- development corridors are focused along roads and rail links as transportation routes and are a stimulus to development and bring with them positive (and negative) spin off effects. Economies of agglomeration tend to

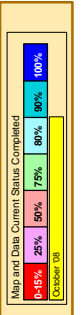
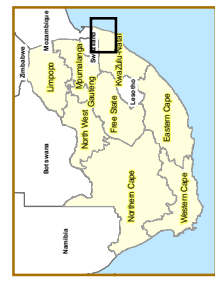
KwaZulu-Natal Province: LAND USE - UMKHANYAKUDE DISTRICT MUNICIPALITY



LAND USE PATTERNS

UMKHANYAKUDE DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Town (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



Legend for boundaries:

- District Municipal Boundary
- Local Municipal Area
- Provincial Boundaries

Legend for infrastructure:

- Airports
- Local Municipal Area

Legend for points of interest:

- Border Posts
- Harbours
- Towns

Legend for networks:

- SANRAL Road Network
- Railway Network

BASEMAP

concentrate around movement routes especially where movement routes intersect. Urban settlements often occur at these intersections". (Scott Wilson Planning and Economics, 2000: 8);

- the coastal zone is dominated by plantations and the conservation areas on the eastern and western shores of Lake St Lucia. The most significant land uses are subsistence agriculture, dispersed settlement, plantations and agriculture (primary sugar cane, pineapples and sisal) are found in the vicinity of Hluhluwe. The town of Hluhluwe is considered to be a Rural Service Centre;
- the primary national, inter-regional corridor is structured around the N2 and this is primarily a transportation/industrial corridor linking Durban and Richards Bay with Pongola and Mpumalanga. This route also provides a gateway for tourists entering from Hluhluwe and Jozini;
- the N2 and part of the Lubombo mountains from a physical divide within the district which needs to be bridged to improve accessibility throughout the district;
- major access paths run north/south – N2, R22 and MR439 (SDI road) and need to be reinforced through environmental management and infrastructure to emerging settlements along them; better east-west access paths need to be established, to improve accessibility to those in the hinterland to tourism and LED opportunities along the coast; and
- there is a dearth of tourist facilities in the northern portion of the District.

Overall there appears to be an imbalance of infrastructure and facilities provision favouring the southern half of the district. The development challenges appear to be as follows:

- the most extensive land use in the District is vacant/unspecified/grazing areas specifically in the Traditional Authority areas. These areas could be considered as underutilized and require strategies to utilize them appropriately. Other significant land uses include dispersed areas of commercial agriculture, which given the areas of high and medium agricultural potential there is significant opportunities for expansion;
- the encroachment of residential and commercial land uses onto major road reserves is creating a potential traffic hazard in some places and negatively impacting on the aesthetic quality of the area as seen from the road;
- the long, relatively undeveloped coastline provides many economic opportunities which are not being explored to date;
- a significant part of the area is reserved as conservation areas, both Private and State owned – these have implications for adjoining resident populations in terms of tourist opportunities and access;
- the extremely low-density rural settlement clusters constitute a problem for sustainably servicing them, in terms of unit costs of materials and maintenance in relation to potential cost retrieval. There are a number of settlements, which have experienced significant growth in populations and are under extreme pressure in terms of the provision of potable water and sanitation to their residents.

i. Umhlabuyalingana Local Municipality

A number of elements have defined the existing spatial structure of the Umhlabuyalingana municipal area. These are:

- there are areas of conservation and environmental interest within/adjacent to the Umhlabuyalingana area, amongst others the Tembe Elephant Park, Greater St. Lucia Wetland Park, Sand Forest Zone as well as the Pongola floodplain;
- the structuring elements of the area include Pongola River, a series of wetlands as well as the two hospitals within the area, i.e. Mseleni and Mangusi. These elements present both opportunities and obstacles to the development of the municipality in terms of tourism attractions and the provision of infrastructure and services;
- the inherent potential of the municipality includes areas of high agricultural potential and a number of tourism/historical sites, i.e. the Pongola Floodplain. Numerous tourism attractions are associated with the adjacent GSLWP on the eastern periphery of the municipality;
- Umhlabuyalingana's location provides for a number of transfrontier opportunities, as mooted in the Lebombo SID, along the international border of Mozambique and the Farazell border post;
- there are a number of well-developed urban areas (or investment points) as well as smaller concentrations of settlements; and
- some areas within the Umhlabuyalingana municipality, have limited potential, both in terms of access to tourism and conservation areas and good soils. In such areas, survival strategies, including improved methods of subsistence agriculture and related LED activities should be pursued. Some of these areas are shown as intervention areas on the accompanying map.

ii. Jozini Local Municipality

A number of elements have defined the existing spatial structure of the Jozini municipal area. These are:

- that there are many areas of conservation and environmental interest within the Jozini area, namely, the Ndumu game reserve and the Pongola floodplain;
- that the structuring elements of the area include, the Lebombo Mountain Range, Jozini Dam, the Ingwavuma, Pongola and Mkuze Rivers as well as the two hospitals within the area, i.e. Ubombo and Ingwavuma. These elements present both opportunities and obstacles to the development of the municipality in terms of tourism attractions and the provision of infrastructure and services;
- the inherent potential of the municipality includes areas of high agricultural potential and a number of tourism and historical sites, such as, the Makhatini Flats, Mkuze Farms, Dingaan's Grave, Border Cave and the Usuthu Gorge;

- Jozini's location provides for a number of transfrontier opportunities, as mooted in the Lebombo SID, along the international borders of Swaziland and Mozambique, including the Cecil Mack Pass etc;
- there are a number of urban areas (nodes) as well as a population settlement pattern; and
- some areas within the Jozini municipality have limited potential, both in terms of access to tourism and conservation areas and good soils. In such areas, survival strategies, including improved methods of subsistence agriculture should be pursued.

iii. Mtubatuba Local Municipality

The Mtubatuba Municipality (Mtubatuba) is situated on the coastline of north-eastern KwaZulu-Natal. It lies astride the Mfolozi River in the south and stretches northwards to False Bay.

Its western boundary is generally co-incident with the Mpukonyoni tribal area that falls largely within the Hlabisa Municipality (KZ274). The eastern boundary follows the coastline from the southern extremity of the Mapelane Nature Reserve to the southern boundary of the KZDMA 27 conservation area. Thereafter it follows the western shores of the former St Lucia Game Reserve to False Bay.

The N2 national road follows approximately half of the western boundary of the municipality, as does the railway line to Golela on the Swaziland border to the north. Most of the human settlement occurs within the southern portion of the municipality astride the N2 and provincial main road to St Lucia at Kwamsane, the Msane tribal area, Mtubatuba/Riverview/Nordale, Monzi, Khula Village, St Lucia and within the Dukuduku state forest.

Included in the Municipal area are the southern extremities of the Greater St Lucia World Heritage Site and Greater St Lucia Wetland Park.

The Mtubatuba municipal area enjoys ready access from the N2 national road which runs along its western boundary. The N2 provides the inter-regional linkages that the municipality has directly with other urban nodes in the Umkhanyakude District (such as Hluhluwe and Mkuze) and, supplemented by the LSDI road, those further to the north-east at Mbazwana and Kwangwanase/Emangusi.

The N2 also provide intra-regional linkages further a field with the uMhlathuze/Richards Bay port and industrial area and eThekweni Unicity/Durban port and metropolitan complex in the south, as well as Gauteng via Pongola, which linkages are vitally important to the eco-tourist focus of the district as a whole and Mtubatuba in particular, the latter centres on the St Lucia World Heritage Site and GSLWP.

The municipality has three key provincial main road linkages to the N2, namely:

- P237 through Mtubatuba to St Lucia village, Estuary and Eastern Shores;
- P397 from the St Lucia-Mtubatuba road (P237) through Monzi to the Mfolozi River and potentially a valuable future link through to Mapelane and the southern extremity of the GSLWP; and
- P380 and P510, which provide access to the Charter's Creek and Fanieseiland area on Lake St Lucia.

With the close economic and social infrastructural links that the Mpukonyoni Tribal Authority area and Hlabisa have with Mtubatuba, the P235 and P484 main roads provide important linkages between those areas and to the N2.

Apart from a limited number of provincial district roads, access to the farming and rural communities within the municipal area is provided by a network of low order local roads.

The railway main line runs more or less parallel with the N2, passing through Mtubatuba and has a station. Sidings occur north of Mtubatuba at Dukuduku, Fernwood and Nyalazi River, providing rail transportation facilities to, essentially, the agricultural (and specifically timber) sector.

Public transport within the municipal area is provided by:

- the Zungu and Buhle transport companies, the former with 5 buses and the latter with 2, the routes serviced being between Hlabisa and Mtubatuba and Mtubatuba and Durban;
- five AMC 32-seater and one 18-seater buses offering a daily services, essentially for workers, between Mtubatuba and St Luca; and
- combi-taxis, the overall number of which is uncertain, controlled by four taxi associations, namely Mtubatuba, Dukuduku, Mtubatuba Longhaul (between Johannesburg, Empangeni and Durban) and Buhle.

There is no transport plan for the municipal and adjoining areas and a need exists to establish a transport forum.

iv. The Big 5 False Bay Local Municipality

The Municipality is characterized by vast expanses of privately owned land in the form of small holdings. Large areas of tribal land occur within the north-eastern extents of the Municipality. The Greater St. Lucia Wetland Park, and the Hlabisa and Jozini Local Municipalities form the northern and western boundaries respectively. To the south the Municipality is bordered by the Mtubatuba Local Municipality and to the east by the False Bay Wetland Park, Lake St. Lucia and the Greater St. Lucia Wetland Park.

The Municipality hosts a population of approximately 31 000 people, with an incremental growth rate of 3,4% for the period 1996 to 2001 (Census 2001). The two most prominent settlements are Hluhluwe and Mduku Village.

The most prominent road is the N2, traversing the municipal area in a north - south alignment. The N2 connects the Municipality to Richards Bay in the south and Mkuze and Pongola in the north. Other prominent roads facilitating traffic movement to tourist destinations within the Municipality are the MR439, P466, P476 and the P414. Furthermore, a railway line runs parallel to the N2, connecting Hluhluwe to Richards Bay in the south and Pongola and Swaziland in the north.

v. Hlabisa Local Municipality

The Municipality is characterized by a predominantly rural landscape, consisting of a mosaic of dispersed settlements, subsistence agriculture, commercial agriculture and plantations. The Big 5 False Bay and Nongoma Local Municipalities form the northern and western boundaries respectively. To the south and east the Municipality is bordered by the Hluhluwe-Umfolozi National Park and The Big 5 False Bay Local Municipality.

The Municipality hosts a population of approximately 170 890 people (2005), with Hlabisa being the most prominent settlement. High population growth rates are exacerbating pressures on resources within the area and the youthful population has led to increased demands for job opportunities, education and health, and training opportunities.

The most prominent road is the R74 traversing the municipal area in a north - south alignment. This road connects Hlabisa to Nongoma in the north and Mtubatuba in the south. The lack of an adequate local road network impacts on transport, local economic development opportunities, and access to education and health services and facilities.

5.3.2.8 Uthungulu District Municipality

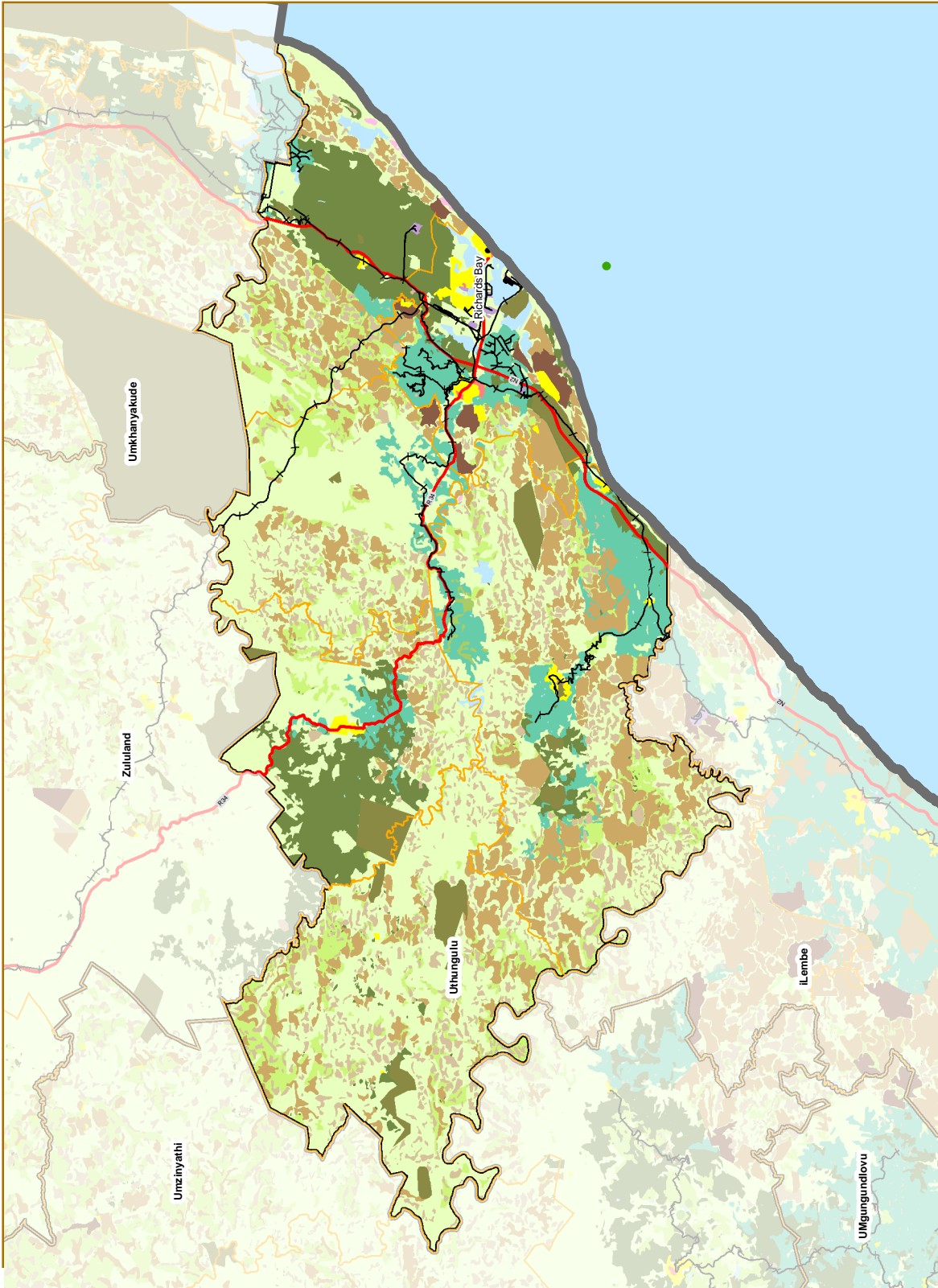
i. Mbonambi Local Municipality

The Mbonambi Municipality is situated adjacent to the Richards Bay/Empangeni complex, and its borders are defined by the Indian Ocean in the east, the Umfolozi River in the north, Mhlana in the west, and the uMhlathuze Municipality in the south (**Map 5.3M**). The N2 traverse the Municipality and is a major link to other areas on a local and national scale.

The Mbonambi Municipal area can be divided into three distinct portions, namely:

- the coastal section comprising of the Mbonambi and Sokhulu Traditional authorities with Richards Bay Minerals (a major industrial/mining operation) dominating the southern coastline, and Mapelane the northern focus;
- the commercial plantation/agriculture straddling the N2; and
- the Mhlana Traditional authority area west of Kwambonambi.

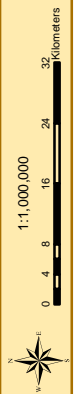
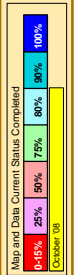
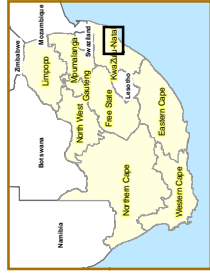
KwaZulu-Natal Province: LAND USE - UTHUNGULU DISTRICT MUNICIPALITY



LAND USE PATTERNS

UTHUNGULU DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Village (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



LEGEND

- Border Posts
- Harbours
- Towns
- Airports
- Local Municipal Area
- District Municipal Boundary
- Provincial Boundaries

LEGEND

- SANRAL Road Network
- Railway Network

The main commercial activity is contained within the commercial agricultural/plantation corridor (with Mondi and Sappi as the major roleplayers), although, as said earlier, TBM (situated in the Mbonambi Traditional Authority) remains a major roleplayer in terms of employment, production and income generation.

The population settlement density is generally below 200/300 people per km² although higher densities are found in Mbonambi (especially at Nzalabantu, Nhlanzini and Mankwathini), Sokhulu (especially in the vicinity of Bukela and Emhlangeni), the town of Kwambonambi, and Mhlana (especially at Izidono, Cinci, Novunula, and Dondotha). The total population of the district is estimated at 934 190 people (2005).

The core area of the municipality is predominantly covered by plantations and sugarcane and these areas have good inter and intra regional access as a result of their proximity to the N2. The development in Mhlana, Sokhulu and Mbonambi is typical traditional i.e. a scattered settlement pattern with an absence of a strong nodal hierarchy. As a result service provision, both physical and social, is poor and the delivery of services to such a dispersed settlement remains problematic and expensive. Although the N2, the main link between Durban, the KZN North Coast, Gauteng and Mpumalanga, traverse the area, access to the remainder of the area is poor although distances are generally less than 50 kilometres from the N2. Sandy conditions in the Sokhulu/Mbonambi area complicate access and many roads are not accessible in the wet season. The improvement of the road infrastructure will remedy the situation to a great extent since service centres such as Empangeni, Richards Bay, Mtubatuba and Kwambonambi are within a reasonable connecting distance i.e. less than an hour or so.

ii. Ntambanana Local Municipality

The road network in the Municipality is quite extensive, and the majority of residents live within 5 kilometres of a primary or district road with the exception in areas of Obuka, the largest and most remote traditional authority. The condition of roads are generally deteriorating due to limited capacity and funding from the Department of Transport, the responsible authority.

iii. uMlalazi Local Municipality

The primary urban centre in the area is Eshowe, with Mtunzini and Gingindlovu being secondary urban nodes.

Eshowe, Mtunzini and Gingindlovu are representative of the former white areas with King Dinuzulu being the traditional black township developed adjacent to Eshowe and separated from it by the provincial by-pass road (R66).

There is a band of commercial farms from the west of Eshowe to Gingindlovu and stretches to the north of Mtunzini.

The rest of the area is dominated by trust land under the control of the aMakhosi and characterized by informal settlement patterns with subsistence farming and generally poor land management, the absence of basic services, and poverty.

iv. Mthonjaneni Local Municipality

The Provincial main road MR47 passes through the middle of the municipal area, with MR 48 (Melmoth to Dundee) bisecting the western half of the area in an east-west direction. Maintenance and upgrading of these main roads are the responsibility of the KwaZulu-Natal Department of Transport. Various other secondary roads to KwaMagwaza, Mthonjaneni, Nkandhla/Nkondla and Ntambanana also fall under the control of the Provincial Department of Transport.

The Melmoth Taxi Association is the only taxi association operating out of Melmoth. There are two bus services namely the Ulundi Bus Company which operates from Mahlabathini/Mhlabatini and Mathulas Transport which operates between Melmoth and Nkandla. There are also LDVs which operate in the deep rural areas.

The main long distance routes are to Johannesburg, Durban, Vryheid, Nongoma and Mkhuze. The main short distance routes are to Empangeni, Eshowe, Mahlabatini/Mhlabatini, Babanango, Nqutu, Nkandla and Denny Dalton.

The Ulundi Bus Service offers a comprehensive service operating nine buses serving Melmoth. They operate to outlying rural areas including Debe, St Pauls, Mawanda, Mfule Mission and Nomponjwana, as well as to Mhlabatini.

As indicated above Mathulas Transport operates between Melmoth and Nkandla.

v. Nkandla Local Municipality

The Nkandla Local Municipality only has 17% of the population in the Uthungulu District. In terms of the Demarcation Board's Statistics, the population is of a rural nature totalling 129 513 persons, 59% of which is below the age of 19, within an area of 1 827 km².

Nkandla is characterized with very poor and bad conditions of roads. Again this is the most basic infrastructure without which LED remains a dream. Nkandla is linked with Empangeni, Richards Bay and Melmoth by R34/P226. The P226 is tarred but in very poor condition. It is notoriously known for its potholes which have in some instances caused accidents. It is linked with Nquthu, Eshowe and Msinga by P50/2 and P50/3 as well as by P15. These are the roads that are being upgraded through the DoT's African Renaissance Road Upgrading Program (ARRUP). The other major road linking Nkandla secondary development nodes is P90. This is the shortest road from Ulundi to Pietermaritzburg. However, it is a gravel road which is very bad to drive on and is poorly maintained. The good development that occurred within P90 has been the construction of the Nsuze River bridge.

vi. uMhlathuze Local Municipality

The Municipality is characterized by a mosaic of urban settlements, rural settlements, rural areas, farms and nature reserves. The majority of rural settlements are located within Tribal Authority areas. A number of waterbodies are found throughout the municipal area, and includes the Mzingazi Dam. The Municipality hosts a population of approximately 353 980 people.(2005).

The two most prominent settlements are Empangeni and Richards Bay and are surrounded by sugar cane fields, timber plantations, wetlands and freshwater lakes. Richards Bay is the largest deepwater port in Africa, and handles the bulk of South Africa's coal exports. An Industrial Development Zone (IDZ) has also been established close to the harbour.

The most prominent roads traversing the municipal area are the N2 (north – south alignment) and the R34 (east – west alignment). The N2 connects the Municipality to Durban in the south and the tourist areas of St. Lucia in the north. The R34 connects the Municipality to the interior of the Province (Ulundi, Melmoth, Dundee, etc.). An extensive rail network connects Richards Bay harbour to the interior of the country, across the border into Swaziland, and the major towns and cities along the east coast. The municipality has provided, and operates (in conjunction with SPOORNET) a network of ± 25 km of rail (including distribution yards) connecting its industrial suburbs with the SPOORNET network. An airport is also found within the Municipality, and according to the Municipality there is a need to acquire international status to enable commercial flights into other Southern Africa states.

5.3.2.9 Ilembe District Municipality

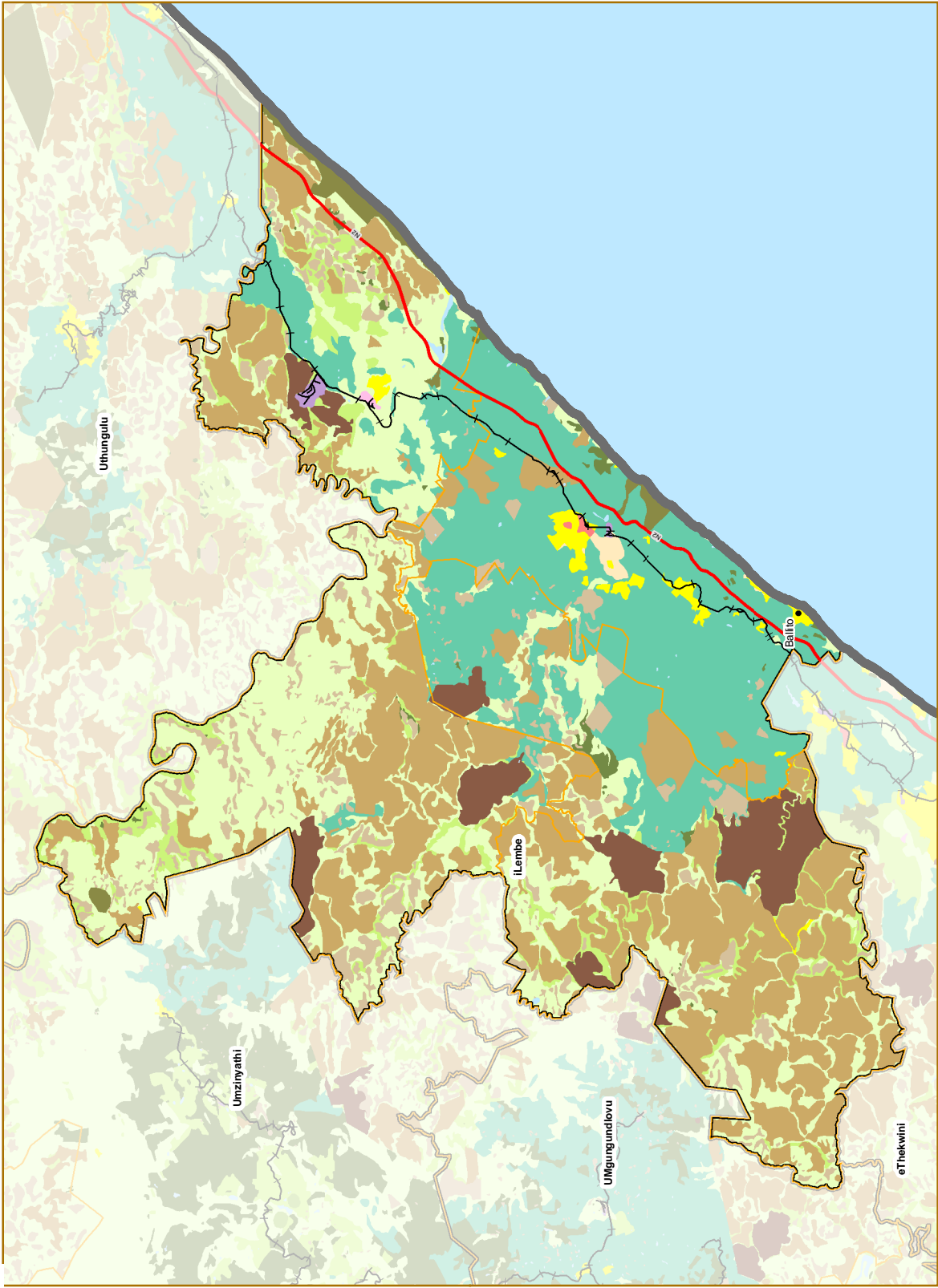
The Ilembe District Municipal Area is situated on the East Coast of KwaZulu-Natal adjacent to the northern boundary of the eThekweni Municipality (**Map 5.3N**). The district extends about 75 kms north of the metro boundary to some 25 kms beyond the mouth of the Tugela River (approximately 110 kms from central Durban). The western extent of the District Municipal area runs roughly parallel to the coastline at an average distance of about 45 kms from the coast.

Geographically, the Ilembe District is the smallest of the ten District Municipalities of KwaZulu-Natal with a population estimated at 560 377 people (2001 census). The estimated population is 561 560 people (2005). The Municipal area encompasses four local municipal council areas, namely eNdongakusuka, Ndwedwe, Maphumulo and KwaDukuza.

i. eNdongakusuka Local Municipality

eNdongakusuka Municipality is situated on the east coast of KwaZulu-Natal. The area of jurisdiction is from the Zinkwazi River north of KwaDukuza and extend ± 30 km north up to Gingindlovu.

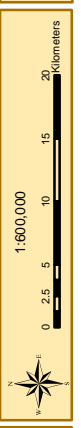
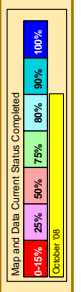
KwaZulu-Natal Province: LAND USE - iLEMBE DISTRICT MUNICIPALITY



LAND USE PATTERNS

iLEMBE DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Town (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



LEGEND

- Border Posts
- Harbours
- Towns
- Airports
- Local Municipal Area
- District Municipal Boundary
- Provincial Boundaries

LEGEND

- SANRAL Road Network
- Railway Network



eNdongakusuka Municipality's population make up about 24% of the Ilembe District totalling ± 134 360 people. This shows that at least 97% of the population is from a disadvantaged background with most persons dispersed in traditional settlements.

ii. KwaDukuza Local Municipality

KwaDukuza is the district node and dominant commercial centre in the KwaDukuza sub-region with agriculture currently dominated by sugar cultivation. The area is suitable for a range of other agricultural activities.

Investment opportunities range from the tourism sector, light industry, communications and IT, transport and specifically agriculture in the form of sub-tropical fruits, vegetables, sugar cane and flowers.

The main economic sectors are tourism, sugar, forestry, agro-industrial manufacturing, furniture manufacturing, clothing, plastic products and paper manufacturing and paper products. Holiday letting and exclusive elite residential and golf estate property development is one of the high prized unique selling propositions of the area.

Total permanent population is approximately 170 000. During peak holiday seasons the population increases to over 200 000.

Kwadukuza municipal area of jurisdiction is 630 km² in extent. The area stretches from the Zinkwazi River in the north to the Tongaat River in the south. Occupying a coastal and inland stretch of approximately 50 km in length and 14 km in width, a variety of clustered and ad hoc settlements and small towns exist and is linked with a well developed network of roads and rail infrastructure.

iii. Ndwedwe Local Municipality

The Ndwedwe Municipality is a recent amalgamation of both tribal areas and commercial farming areas. A conscious process of facilitating the growing-together of the individual areas needs to be established. This should include both physical, economic and social means.

The commercial farming expertise gained by incorporating the north-eastern part into the municipality should be made available to the remainder of Ndwedwe, while the commercial agricultural opportunities in the tribal/rural areas of the area need to be developed. At the same time a greater involvement of the communities and residents of Ndwedwe in appropriately sized commercial farming operations should be encouraged. This must include appropriate diversification, beneficiation and linkage to internal and external markets.

Without the provision of more appropriate services and facilities, the development of the human potential of Ndwedwe can not be realized. Physical conditions of the

area, relatively low densities and funding constraints suggest however that it is not realistic to expect the establishment of a high level of urban service/facility provision throughout the area in the foreseeable future.

The protection of the natural environment, via rehabilitation and appropriate management must be considered as a significant aspect of the future development of Ndwedwe in terms of creating improved living conditions for the community.

iv. Maphumulo Local Municipality

The Maphumulo Municipality is one of four municipalities that constitute the King Shaka District Municipality. Maphumulo is bounded by the Tugela River at its north and extends approximately 30 km to its southern boundary namely Ndwedwe Local Municipality. The Ndwedwe Local Municipality also serves as the eastern boundary, while Umvoti Municipality forms the western boundary. The most distinguishable characteristic of the Municipality is its predominantly rural character comprising mostly of Tribal Land (99,49%) which is administered by the Ingonyama Trust on behalf of local communities as constituted under The Ingonyama Trust Act of 1996.

Maphumulo 'town/village' is commonly accessed by the R74 provincial primary road from Stanger to Kranskop and has been identified as the Municipality's principal service and administrative node, and future focus of economic growth and development. Smaller nodes comprising of, for example, schools and small-scale retail activity, are scattered throughout the Municipality, no other notable major nodes exist. These smaller nodes provide a moderate level of services to the Municipal area.

Sugar cane cultivation is the predominant land use in the municipality. There are also other small cane farms and vegetable cultivators in and around the flat fertile Umvoti River Valley. In Maphumulo, the cultivated land is dependent on the topography. The steep slopes of the valley are characterized by extensive forest cultivation, whereas the more gentle sloping land is characterized by sugar cane cultivation.

The municipality is not well served by road infrastructure, with only one primary maintained route, namely the R74. This factor limits the potential of farmers in the area to produce fresh produce such as fruits and vegetables for the larger markets such as Durban. Most of the lower order roads are unsurfaced.

The primary object of the municipality is to upgrade existing road infrastructure so that there is all weather access for public and private transport to within 5km of every settlement.

The most significant infrastructure element of Maphumulo, upon which future growth and development are dependent, is the R74. However, the key development challenges in terms of road network include among other things the poor road access particularly within rural areas. The existing main route through Maphumulo is the

R74, which provides access to the hinterland from KwaDukuza. It runs in a north-westerly direction from KwaDukuza through the Maphumulo Village proceeding to Kranskop and further onto Greytown.

5.3.2.10 Sisonke District Municipality

The Sisonke District Municipality is one of the ten District Municipalities that form part of the KwaZulu-Natal Province (**Map 5.30**). It is located at the extreme south of the Province. The Sisonke District Municipality is bordered by the following District Municipalities: Uthukela to the north, Umgungundlovu to the north-east, Alfred Nzo and Ugu to the south-east and OR Tambo to the south.

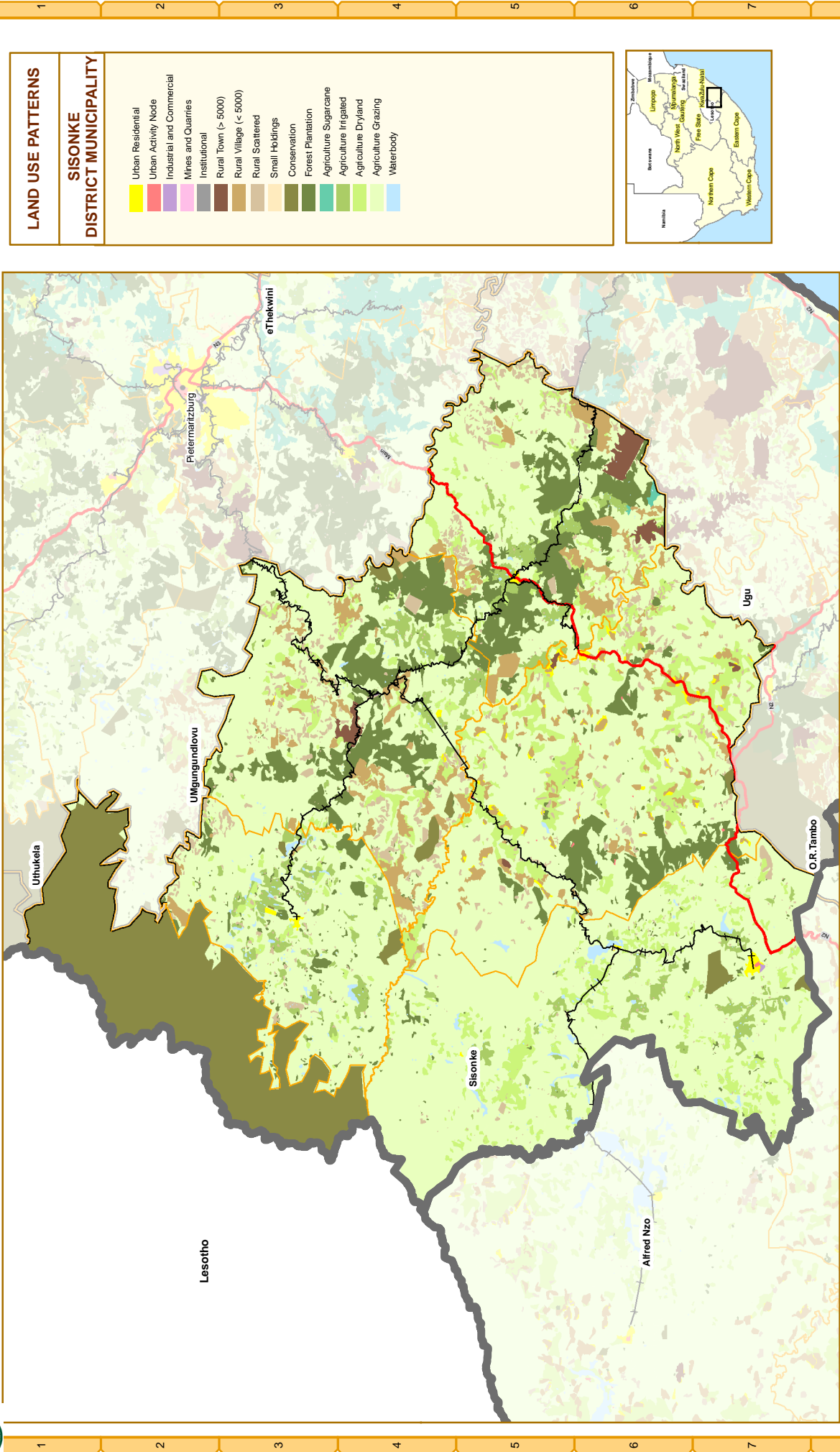
The Sisonke District Municipality is predominantly rural in nature with the majority of the people living in rural areas. The total population of the district is estimated at 476 165(2005). The rural settlements are spatially disintegrated and monofunctional in nature. The current spatial arrangement of the settlements and low threshold in each settlement makes it difficult and costly to service the areas. Although a lot has been done by the district and Local Municipalities to service the rural areas, a significant number of settlements have not been fully attended to. The people living on the outskirts have no adequate access to basic services.

Kokstad features the highest concentration of services and activities, with the seat of Sisonke District Municipality located at Ixopo. Although characterized by fewer services and activities when compared to the former, Underberg and Creighton can be regarded as primary nodes. Secondary nodes include Himeville, Cedarville, Bulwer and Highflats. Tertiary nodes include Donnybrook, Pholela, Franklin and Pevensey.

The spatial location of the District in respect of the major economic nodes in the Province (Pietermaritzburg, Durban and Port Shepstone) poses a challenge to the District. People have to travel long distances to get to these nodes, to access services that are not rendered within the District. This therefore means that the District municipality should invest in infrastructure to ensure safety of the people commuting to these nodes.

All these nodes are linked to one another by the main roads, and access roads to the surrounding rural settlements. Apart from rural and urban component (built environment), is Agriculture and Forestry. They area the major economic generators in the District and occupy a large portion of land. The area is also dominated by wetlands and a mountainous landscape dominantly covered with vegetation.

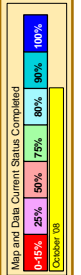
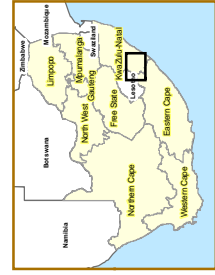
KwaZulu-Natal Province: LAND USE - SISONKE DISTRICT MUNICIPALITY



LAND USE PATTERNS

SISONKE DISTRICT MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Town (> 5000)
- Rural Village (< 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



Legend for boundaries:

- District Municipal Boundary
- Local Municipal Area
- Provincial Boundaries

Legend for infrastructure:

- Border Posts
- Harbours
- Towns
- Airports

Legend for transport networks:

- SANRAL Road Network
- Railway Network

i. Kwa Sani Local Municipality

Kwa Sani Municipality is located within Sisonke District Municipality and is strategically placed at the foothills of the Southern Drakensberg, bordering the World Heritage Site. The municipality is bordered by Umkhomazi Wilderness Area to the west, Greater Kokstad to the south-west, Eastern Cape to the south, Ingwe Local Municipality to the east and Impendle Local Municipality to the north. The location of our municipality in relation to the aforesaid areas means that we must align our planning activities to ensure orderly development, as development knows no boundaries.

The area comprises two urban areas, i.e. Underberg and Himeville, plus the following rural communities: Stepmore, Umqatsheni, Pevensey, Maguzwana, Pitela, Netherby, Thunzi, Ntwasahlobo, Reichenau and Ridge. The area is 1 180 km² in extent. According to the 2001 Census the population is estimated to have increased from 14 568 (1996) to approximately 15 309, although the accuracy of this figure is disputed by the municipality. The core economies in the area are agriculture and tourism, with some small commercial businesses.

ii. UMzimkhulu Local Municipality

UMzimkhulu Local Municipality is located in the historical East Griqualand Region. It is bounded by the Umzimvubu River in the South, the Umkhomazi River in the North, Ixopo in the East, and Matatiele in the West. The Municipality, covering a total area of 2 725 square kilometres, is sparsely populated with various groupings of settlements. The most prominent settlements are found at Sneezewood, Riverside, Bontrand, and Bisi.

The vast majority of the Municipality is utilized for grazing, with isolated pockets of dryland agriculture. The south-eastern extents of the Municipality are characterized by forest plantations and conservation areas.

Since 1996, very little new employment opportunities have been created. This is disquieting considering the high levels of unemployment, and the fact that the majority of the population is younger than 20 years of age. Current income levels are low, with the greatest part of the population earning less than R18 000 per annum. The level of dependency is foreseen to remain high as education levels are low.

The condition of roads in Umzimkhulu is bad, and this has a negative impact on the already scarce transport opportunities to the rural areas. Due to the condition of the roads, the preferred mode of transport utilized for accessing rural areas or villages are light delivery vehicles / bakkies.

iii. Greater Kokstad Local Municipality

Kokstad is situated in the Mount Currie Magisterial District and is well located on the Midlands. The town is the largest service centre in the Sisonke District Municipality

area of jurisdiction. It is a commercial and educational hub, providing services to the whole of the area and north-eastern parts of the Eastern Cape. Transport network which includes the N2, and R56 integrate Kokstad to the economic nodes. Accessibility of the area provides a basis for the location of several government departments, providing services to the Greater Kokstad and its surrounding areas.

Greater Kokstad Municipality has three urban nodes: Kokstad Town, Swartberg and Franklin. Kokstad Town is the major economic centre due to its strategic location in terms of transport network, economic and administrative activities. The National Route (N2) links the area to the major economic nodes such as Port Shepstone and Durban in the KwaZulu-Natal Province and Umtata in the Eastern Cape Province. The R56 links Kokstad to Ixopo and Pietermaritzburg. The strategic location of Kokstad creates opportunities for economic growth.

Emanating from the spatial location of the area is high population growth rate due to high immigration of people from the Eastern Cape and parts of KwaZulu-Natal to the area in search of job opportunities. The municipality is therefore faced with a challenge of planning, providing basic services and employment opportunities to the communities.

iv. Ubuhlebezwe Local Municipality

The main administrative centre of the Municipality is the town of Ixopo, which is located approximately 85km south-east of Pietermaritzburg, capital of KwaZulu-Natal, and is strategically located at the intersection of four major provincial routes leading to Pietermaritzburg, the Drakensberg, the Eastern Cape and the South Coast.

The town of Ixopo forms the primary development node of the Municipality and has also been selected as the seat of the Sisonke District Municipality. The importance of Ixopo cannot be underestimated in the socio-economic development of the area as a whole. Ixopo plays an important role in terms of the possible location for industry, commerce and other economic activity. It is a major education and health centre and assists in the diffusion of new ideas and technologies to the rural areas. It is also the primary base for the operation of many departments and service providers.

In line with the KwaZulu-Natal Integrated Rural Development Policy a number of secondary development nodes have been identified. The intention of secondary development nodes is to identify well-located settlements where government and municipal services, administrative functions and commercial and residential development will be encouraged to locate in the future. The secondary and tertiary development nodes identified are: Highflats; Hlutankugu (Stuartsville); Jolivet; KwaBhidla; Emgodi and Hlokozi.

The Ubuhlebezwe Municipality contains large tracts of good agricultural land both in the commercial farming areas and in the tribal authority areas. In addition, the area

is well endowed with natural and physical resources and has immense potential for the development of agricultural industries, tourism and other commercial enterprises.

The maintenance of provincial and district roads in the area is a major problem owing to heavy rains and inadequate resources. The Department of Transport has a major depot at Ixopo. There is a rural road upgrading programme which is undertaken in association with the local Transport Forum. Most of the roads in Ixopo are of a satisfactory standard and are maintained by the municipality.

v. Ingwe Local Municipality

The Ingwe Municipality, in the midlands of KwaZulu-Natal province, is a small, largely rural municipality centered on the town of Creighton. The economy is dependent on commercial agriculture, but few benefit directly from it. Numerous dispersed rural villages are found throughout the Municipality, in and amongst commercial farms and forest plantations. The Municipality hosts a population of approximately 109 990 people (2005).

Apart from Creighton other prominent settlements include the rural towns of Bulwer, Donnybrook and Coleford. The most prominent roads in the Municipality are the R617 (north – south alignment) and the R612 (east – west alignment). These connect all the prominent settlements within the Municipality to each other, and further a field to towns such as Pietermaritzburg, Ixopo, Kokstad and the Drakensburg area.

The local railway line is currently being revived as a tourist attraction. Links have been formed with various train operators and a tourism route through the district is being developed which will show-case key attraction.

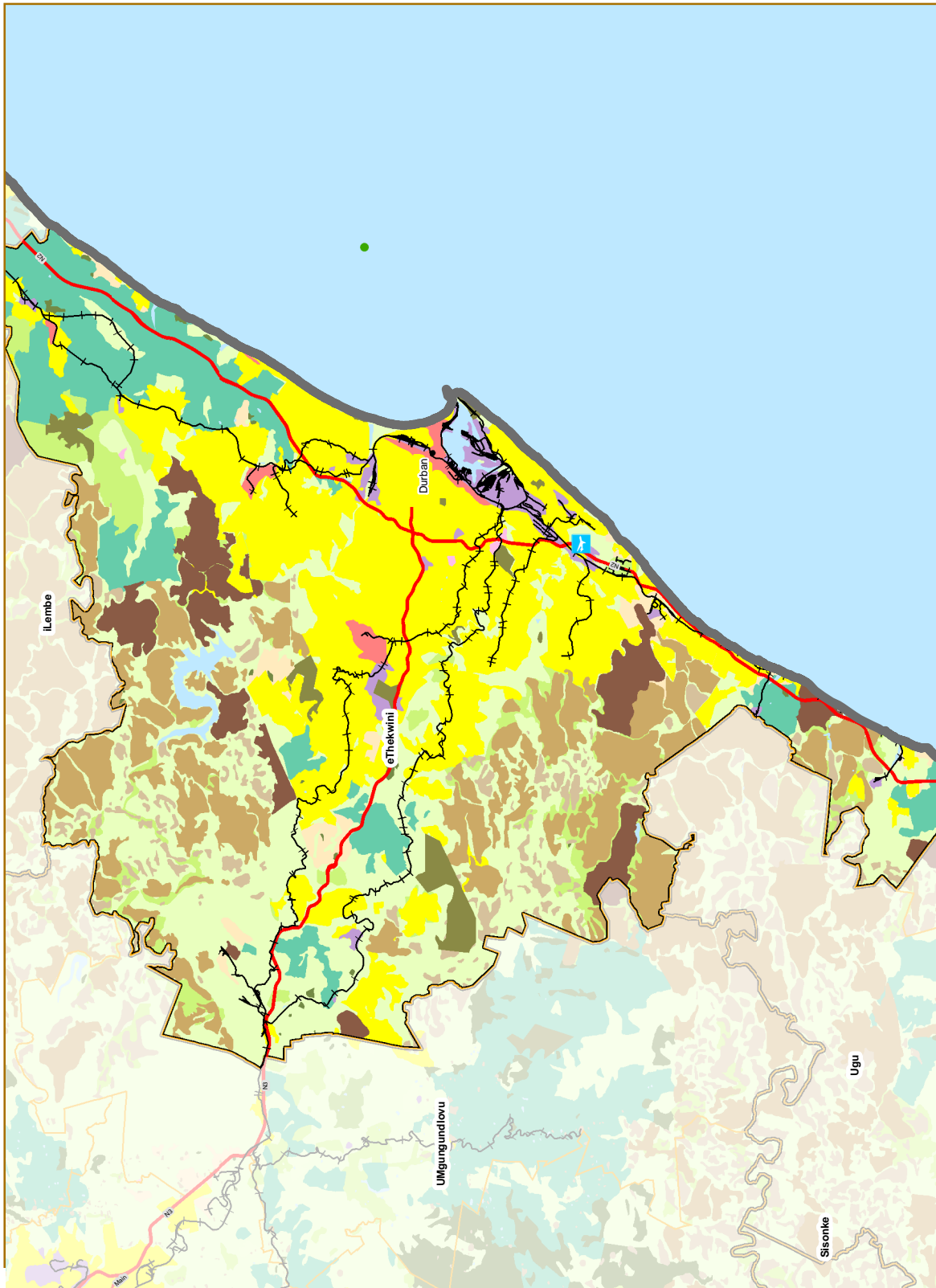
5.3.2.11 Ethekwini Metropolitan Municipality (EMM)

eThekwini Municipality is located on the eastern seaboard of South Africa within the province of KwaZulu-Natal and covers an area of 2 297 square kilometres (**Map 5.3P**). While the total area of the EMA is only 1,4% of the total area of the province, it contains just over a third(3.2 million) of the population of KwaZulu-Natal and 60% of the provincial economic activity.

eThekwini stretches from just before Tongaat on the north coast of KwaZulu-Natal to Scottburgh on the south coast and up to Cato Ridge in the west. The EMA has a wide diversity of land uses. Only 35% of the EMA area is mainly urban in character, with over 80% of the population living in these areas. The majority of the densely populated informal housing is also located within this area.

Durban is South Africa's major port city and the second largest industrial hub (after Gauteng). The city is a key trade gateway for imports and exports because of its

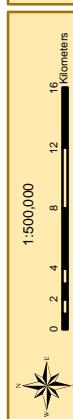
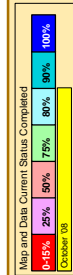
KwaZulu-Natal Province: LAND USE - ETHEKWINI METROPOLITAN MUNICIPALITY



LAND USE PATTERNS

ETHEKWINI METROPOLITAN MUNICIPALITY

- Urban Residential
- Urban Activity Node
- Industrial and Commercial
- Mines and Quarries
- Institutional
- Rural Village (< 5000)
- Rural Town (> 5000)
- Rural Scattered
- Small Holdings
- Conservation
- Forest Plantation
- Agriculture Sugarcane
- Agriculture Irrigated
- Agriculture Dryland
- Agriculture Grazing
- Waterbody



LEGEND

- SANRAL Road Network
- Railway Network
- Border Posts
- Harbours
- Towns
- Airports
- Local Municipal Area
- District Municipal Boundary
- Provincial Boundaries

NATIONAL TRANSPORT MASTERPLAN PROJECT 2005 - 2050

access to important trading routes to the east and proximity to the Gauteng mineral-industrial complex.

The city's per-capita income of R23 557 per annum, although higher than the South African average, is still significantly less than that of other emerging economies. This income has declined at a rate of 0,34% in the period between 1990 and 1999, resulting in declining standards of living.

The City's economy is currently growing at a rate of 4% p.a. One of the central growth challenges is to double per capita income over the next decade. In order to achieve this, a growth rate of 7,5% is required, and 18 000 new jobs need to be created before 2010, in order to realise the strategic vision.

5.4 TRANSPORTATION CORRIDORS

At a provincial and national level KZN is served by six transport corridors, most of which converge on the eThekweni Metropolitan Area (**See Map 5.4**). The main or national transport corridors include:

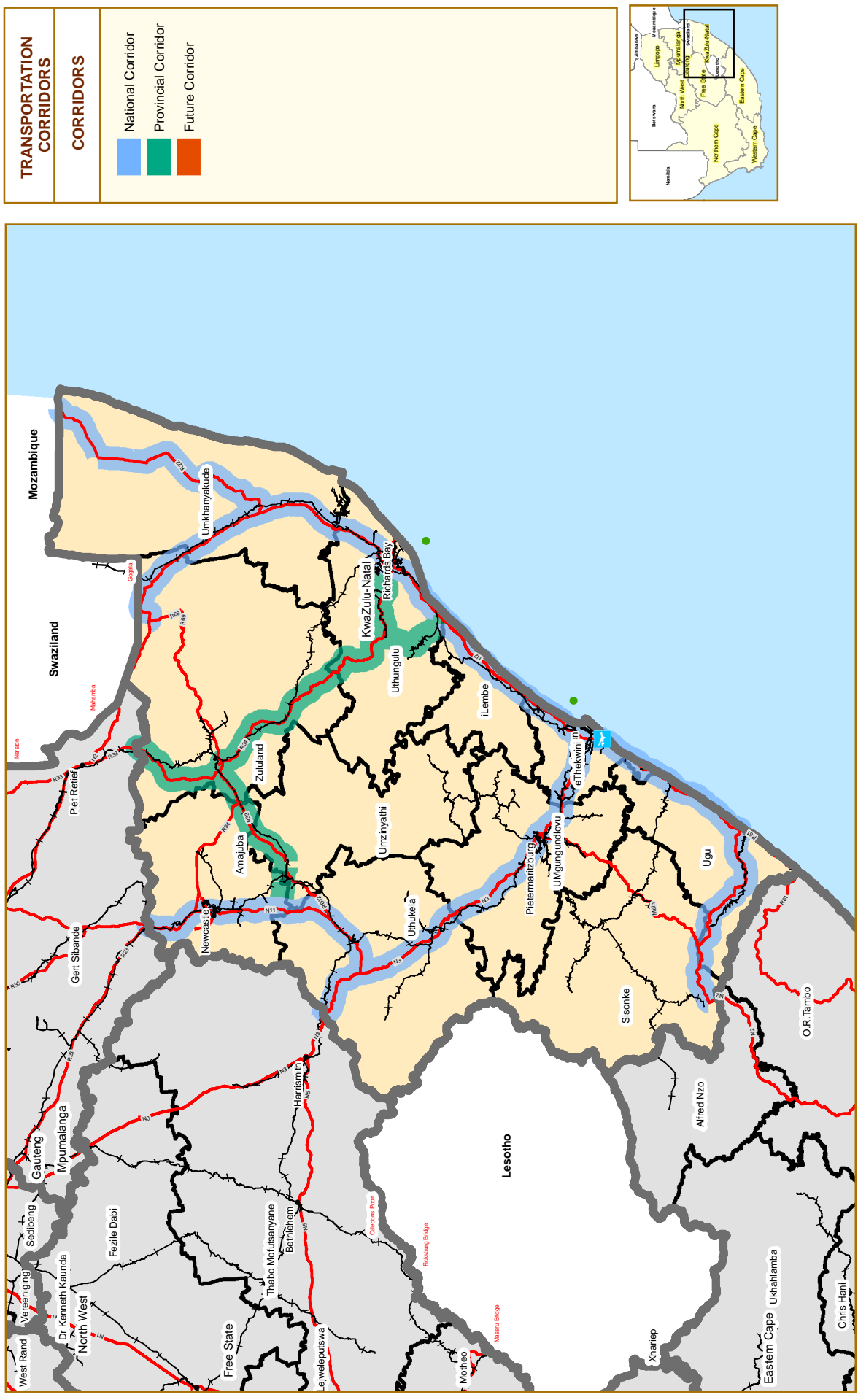
- the N2 South corridor is situated in the south coast area towards the Eastern Cape and includes the coastal railway to Port Shepstone;
- the N3 corridor serves the interior via van Reenen up to Johannesburg and includes the main-line railway to Johannesburg via van Reenen.
- the N2 North corridor serves the north coast between Durban and Richards Bay and beyond to the Swaziland border at Golela, and includes the main-line rail between KZN and Swaziland. The N2 is linked by R22 and the newly developed R439 route to Mozambique via Mangusi.
- the N11 which links Ladysmith with Newcastle and on to several mining towns in the Umzinyathi and Amajuba Districts, and Mpumalanga Province and this is parallel by the railway line between Ladysmith, Newcastle and Charlestown.

The regional development or provincial transport corridors include:

- the N11 which links Ladysmith with Newcastle and on to several mining towns in Umzinyathi and Amajuba Districts, and Mpumalanga Province. The NATCOR railway main line between Ladysmith, Newcastle and Charlestown runs more or less parallel with the N1.
- the R34 corridor from Richards Bay to Vryheid and beyond to Piet Retie, including the coal railway line between Richards Bay, Vryheid and over the provincial border to Broodsniersplaas and Ermelo.
- the R33 link between Dundee - Vryheid and Mpumalanga, which joins the R34 corridor at Vryheid.

KwaZulu-Natal Province: TRANSPORTATION CORRIDORS

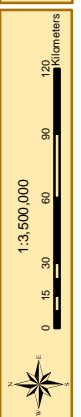
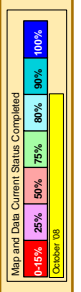
MAP 5.4: Land Use - Transportation Corridors



TRANSPORTATION CORRIDORS

CORRIDORS

- National Corridor
- Provincial Corridor
- Future Corridor



District Municipal Boundary
 Provincial Boundaries

■ Airports
● Towns

● Border Posts
● Harbours

— SANRAL Road Network
— Railway Network

LEGEND

5.5 DEVELOPMENT OPPORTUNITIES AND CONSTRAINTS

In summary, the Province consists of ten district municipalities and one metropolitan municipality, and is home to two of South Africa's export harbours. Alternatively, the Province can roughly be divided into three different geographical areas namely the Lowlands along the coast; the Midlands with its undulating hilly plateau rising towards the west; and two mountainous areas consisting of the Drakensberg in the west, and the Lebombo Mountains in the north. Settlement patterns within the Province have largely been determined by topography. Access roads for example run along the top of ridges, resulting in the formation of dwellings along these. Higher concentrations of people are also found at the various intersections throughout the Province.

Generally, economic activity is huddled around several primary and secondary activity nodes and economic clusters spread throughout the Province. These owe their existence to the three sectors driving the Province's economy, namely mining, tourism and agriculture. More specifically, the primary development / activity nodes within the Province include the Newcastle-Madadeni-Osizweni complex, and specifically the Newcastle, Dannhauser, and Utrecht mining areas. Bruntville and Rosetta constitute a commercial and social activity node. Other development nodes include Eziqoleni Village; Paddock, Maryland / Mahlabathini, Eden Store, and Enqabeni, Mooi River, New Hanover, Wartburg, Daltonne, Cool-Air, Ladysmith, Estcourt, Dundee, Glencoe, Greytown, Vryheid, Ulundi, Eshowe, Munson, Gingindlovu, KwaDukuza, Kokstad, Matatiele, Hluhluwe, and St Lucia.

The Pietermaritzburg, Richards Bay, and Greater Durban / eThekweni areas constitute the primary economic clusters characterising the Province's space economy. These form part of the 21 functional urban areas with the biggest contribution to the national economy.

The following development opportunities are noted:

- The Province features diverse **mining** operations for the extraction of a range of mineral products.
- Well established industrial areas such as Pine Town and Cato Ridge. **Manufacturing and industry** enjoy a comparative advantage over industry elsewhere in South Africa in terms of transportation and access to basic production inputs such as water and coal.
- In respect of **agriculture and forestry**, the fertile soils and topography of the Province lends itself to the cultivation of various types of plantations products – steep slopes are characterized by extensive forest cultivation, whereas the more gentle sloping land is characterized by sugar cane cultivation. Impendle and Howick / Hiltonne are epicentres of commercial agricultural. A subsistence economy based on cattle and corn is also prominent within the Province.
- In respect of **tourism**, the pristine KwaZulu-Natal coastline and magnificent Drakensberg complex offers numerous eco-tourism opportunities, and has

resulted in the development of numerous small towns functioning as seasonal recreational hubs.

- In respect of **transportation**, the Province is well connected both nationally and internationally via a network of movement and activity corridors and **gateways**. From a national perspective the N2 and N3 constitute the primary movement and activity corridors. The N2 links directly from Mpumalanga through KZN to the Eastern Cape Province, ending in the City of Cape Town. The N3 is particularly important as goods are moved by truck from Johannesburg to be shipped out of the Port of Durban and vice versa. The N11 is also an important trade route linking Ladysmith with Newcastle and several coal-mining towns within the Umzinyathi and Amajuba Districts.

Furthermore, this road forms a link to Mpumalanga Province and an alternative route to Gauteng. Secondary corridors include the route from Eden Store to Ezingoleni; the route from Mpunzi Drift to Ezingoleni; the route from Moguntia to Mthimude; the R102 linking the coastal towns; and the R612 running inland to Umzinto and onwards. Apart from these intra-national corridors, the Province plays host to two Transfrontier Corridors. These are the KwaNgwanase to Maputo (Mozambique), and the Ingwavuma to Big Bend (Swaziland). An additional activity corridor is found on the new MR439 road from Hluhluwe to Maputo.

The most important railway line is the “coal line”. The line passes through Zululand carrying coal from the Mpumalanga mines to Richards Bay. This line is currently being upgraded. From Richards Bay, two lines extend in opposite directions. The one crosses-over into Mozambique, whilst the other stretches down the eastern coast towards Durban. From Durban one primary line extends to Johannesburg and onwards, via Pietermaritzburg and Ladysmith. This line also links the town of Newcastle into the rail network. Metrorail operates a commuter rail service in Durban and the surrounding area. The Metrorail network runs from Durban Station outwards as far as Stanger on the north coast, Kelso on the south coast, and Cato Ridge in the interior.

Durban and Richards Bay constitute two of South Africa’s largest and busiest harbours, with Durban being the busier of the two. Richards Bay is South Africa’s premier harbour for the export of coal, aluminium, titanium and other heavy minerals. A number of airports are also found throughout the Province with the more prominent ones being Durban International, Margate, Ulundi, Harding, and Newcastle. Plans are currently at an advanced stage for the construction of a new airport at La Mercy, north of the Durban CBD.

The following development constraints are noted:

- The **topography** of the Province presents significant barriers to movement and land use in the form of deeply incised river valleys, ridges, and steep lands;

- A large part of the Province is gripped by **persistent poverty**, high levels of unemployment and a high HIV/AIDS infection rate. Consequently, four of the Province's district municipalities have been declared Rural Development Nodes as part of the Government's ISRDS programme.
- **Economic concentration** generally increases to the coast, with very little activity in the central and north-eastern parts bordering Swaziland and Mozambique. This said, although Pietermaritzburg, Richards Bay, and Greater Durban / eThekweni constitute the primary economic clusters, these also host the highest concentration of people under the MLL.
- The dispersed settlement pattern of the Province hinders the effective and sustainable provision of community services and **bulk services infrastructure**, especially water and electricity.

5.6 ISSUES AND CONCERNS

Some of the issues facing the provision of transportation infrastructure in the Province include:

- As mentioned, the topography of the Province presents significant barriers to movement and land use in the form of deeply incised river valleys, ridges, and steep lands;
- Rural access roads are in a poor condition and are in need of urgent upgrading and maintenance;
- The encroachment of residential and commercial land uses onto major road reserves is creating a potential traffic hazard and is hampering the provision of new roads.
- The rapid expansion of large housing developments for all income groups is increasing traffic congestion in urban areas;
- Heavy agriculture (timber and sugar cane) results in high loadings on roads;
- The quantity of grain moved by rail has fallen from 80% to approximately 50% in 2004/2005. This places additional pressure on an already overloaded road system.
- Road transport is taking over a major portion of livestock transportation due to the ease and convenience of transporting cattle by road. A limitation of rail transport is that the farmer has to pay for the full use of a truck, whether it is full or empty.
- The significance of mining and the "coal triangle" within the Province's economy is decreasing as the majority of coal fields within the Province have been depleted. The now dormant mines in the Glencoe, Durnacol, Ballengeich and Newcastle area have been closed, or mothballed.
- The provision of road access to extensive, scattered rural communities is a challenge that may require improved land use planning and control.
- The coal mining industry has in the past used rail transport wherever possible, and where necessary newer mines transport coal by road to a point where it can be railed. However, due to railway policy regarding minimum consignment size, it has become necessary to divert most of the production of the KwaZulu-Natal mines to road transport to meet the needs

of customers across the Province. As a result, large fleets of articulated tippers with 28-32 tonne loads are currently running on the KwaZulu-Natal roads delivering coal from the KwaZulu-Natal mines, and from as far afield as the Mpumalanga coal producing area. In essence, the mining operations in the Province are nearly all dependent on road transport for raw materials, and the distribution of their products;

- The call for more power generation for Eskom's grid is increasing the local consumption of Steam Coal; and
- A large increase in exports is expected as a result of the approval, in November 2005, of the Richards Bay Coal Terminal (RBCT) expansion project. With the expansion of the RBCT to a new export capacity of 91 Mt/a for 2008, it is foreseeable that more coalmines will be able to commence production, as soon as railways and terminals are geared to transport, receive and ship the new export production. To put into perspective the importance of the RBCT, in 2005 approximately 69,2 Mt of coal was exported through the terminal, whilst the other two terminals (Durban and Maputo) only exported approximately 1,1 Mt each.

General issues arising that will need attention include:

- The need to improve transport infrastructure in the rural areas;
- Improved land use planning in rural areas, and the need for clustering of housing to reduce costs associated with basic services infrastructure and transportation subsidies;
- The need for higher density developments in urban areas, in an attempt to reduce pressure on roads, and to create the necessary conditions for sustainable public transport; and
- Climate change may impact on, and influence the spatial distribution / occurrence of certain economic activities.

6. EXISTING TRANSPORTATION INFRASTRUCTURE FACILITIES

6.1 OBJECTIVE

The objective of this section is to report on the *status quo* of the KwaZulu-Natal transport infrastructure relating to roads, rail, aviation, and marine networks and facilities. Supply characteristics, demand, and levels of service are reported, as well as currently planned infrastructure projects of the province and eThekweni

6.2 ROAD

The following aspects of the road network are discussed below:

- the extent of the road network that is of national significance in terms of its geographic location, usage and condition;
- infrastructure facilities, such as weighbridges;
- safety; and
- information on existing plans by road authorities in terms of major upgrading and new road links.

6.2.1 Extent

The ownership and responsibilities for roads within KwaZulu-Natal are as follows:

- Existing National Roads in the Province are managed by SANRAL on behalf of the National Department of Transport. A number of the National Roads are tolled and are developed and maintained either by private sector concessionaires, or by SANRAL. This is done under the auspices of SANRAL and the National Department of Transport.
- In terms of the KwaZulu-Natal Provincial Roads Act (Act 4 of 2001), the MEC for Transport (through the KwaZulu-Natal Department of Transport) is responsible for the control, establishment, administration and management of all Provincial Roads in the Province. This Act also provides for the development of equitable road access to all communities within the Province, including previously disadvantaged communities.
- With the exception of the National and Provincial Roads located within its boundaries, the eThekweni Transport Authority manages the public roads infrastructure within the Metropolitan area.
- Other Municipalities in the Province generally maintain the historical municipal road networks within the formalised urban areas and townships. Funding for these roads is sourced predominantly from municipal rates and Municipal Infrastructure Grants from the Provincial level.

Roads and streets within villages and major settlements located in rural areas do need to receive attention and the KZN Department of Transport is to consult with municipalities on developing an appropriate strategy to address this.

It is estimated that the length of all public roads within the province is approximately 100 000 km.

The National Roads in the Province total 1 935 km in length and are described below:

- N2 from Brook's Nek through to the Mpumalanga Border;
- N3 from Durban to Van Reenen;
- N11 from N3 (near Ladysmith) to Volksrust;
- N20 from Port Shepstone to Umtamvuna River;
- N22 from N2 (near Hluhluwe) to Ponta do Ouro; and
- N720 from Pongola to Golela.

A new National Route is in the planning phase to link from the Airport Interchange just south of the Durban International Airport through to the Gonubie Interchange in East London. The route passes close to Port St Johns, then via Umtata.

In terms of the KwaZulu-Natal Provincial Roads Act (Act 4 of 2001), the Provincial Road network consists of Main, District and Local Roads. The KZN DoT has reviewed the network under its jurisdiction and has taken responsibility for approximately 43 000 km, even though funding allocations are totally inadequate. This adjusted road network has been termed a minimal equity network that is the first step in moving towards a balanced network.

A number of the Provincial roads are currently earth tracks, being used by public transport and/or general traffic. These roads still require upgrading to gravel roads to bring them up to a maintainable standard and a programme has been implemented whereby an average of 500 km of earth roads are being upgraded to gravel roads each year. There are approximately 15 000 km of earth road that require upgrading to a minimum of a gravel road standard.

The KZN Department of Transport has recently re-categorised the National roads and most of the Provincial roads in KZN according to the RISFSA classification system. **Table 15** gives the RISFSA classification system.

Table 15: National Road Classification System (RISFSA, 2005)

CLASS	STRATEGIC FUNCTION	
1 Primary distributor	High mobility roads with limited access for rapid movement of large volumes of people, raw materials, manufactured goods, and agri-cultural produce of national importance	Public roads: Between and through regions of national importance; Between provincial capitals and key cities; and Between major city nodes, which have significant economic or social road traffic; Between South Africa and adjoining countries which have significant national economic or social transport interaction; For access to major freight and passenger terminals including major ports and airports.

CLASS	STRATEGIC FUNCTION	
2 Regional distributor	Relatively high mobility roads with lower levels of access for the movement of large volumes of people, raw materials, manufactured goods, and agricultural produce of regional importance in rural and urban areas	Public roads: - Between and through centres of provincial importance; Between provincial capitals, large towns and municipal administration centres; Between class 1 roads and key centres which have a significant economic, social, tourism or recreational role; Between South Africa and adjoining countries which carry limited economic or social road traffic; For access to transport hubs of regional importance.
3 District distributor	Moderate mobility with controlled higher levels of access for the movement of people, raw materials, manufactured goods, agricultural produce in rural and urban areas of regional importance	Public roads: - Between centres, towns, and rural residential areas and villages; Between centres, towns and industrial/farming areas; Between residential areas and local industrial/commercial areas; Between large residential areas which provide linkages between a Class 2 and/or Class 1 routes; Which provide linkage between centres, towns, rural residential, industrial/farming areas and Class 2 or Class 1 routes.
4 District Collector	High levels of access and lower levels of mobility for lower traffic volumes of people, raw materials, manufactured goods, agricultural produce in rural and urban areas of local importance	Public roads: - Between villages, farming areas and scattered rural settlements and communities, which primarily serve local social services as well as access to markets; Within a commercial, residential, industrial areas; Linking Class 3 roads.
5 Access roads	High access and very low mobility routes for the movement of people and goods within urban and rural areas.	Public roads: Within a residential community; From a Class 3 or 4 to a residential community. To provide direct access to industries and businesses. To provide access to specific destinations such as heritage sites, national parks, mines, forests etc.
6 Non motorized access ways	Public rights of ways for non-motorized transport providing the basic and dedicated movement	Public right of way: To provide safe access and mobility for pedestrians, cyclists and animal drawn transport; for social, recreational and economic access.

A summary of the KZN classification results is depicted in **Table 16**. This table records a length of 39 649 km of existing roads that are the responsibility of the

KwaZulu-Natal Department of Transport. This department has accepted responsibility for approximately 43 000 km and the balance of approximately 3 351 km is still to be mapped and classified. It is anticipated that the majority of these will fall into the District Collector and Access Roads categories.

Table 16: RISFSA Classification: KZN National and Provincial Road Networks

CI	Description	Conc	B/Top	Gravel	Earth	New Links	Mun. Links	Total
1	Primary Distributor	283	1 648	0	0	4	0	1 935
2	Regional Distributor	0	3 661	1 191	7	39	118	5 016
3	District Distributor	4	3 007	7 497	152	106	218	10 984
4	District Collector	0	370	8 093	105	0	47	8 615
5	Access Roads	0	113	3 335	12 114	0	11	15 573
	TOTAL	287	8 799	20 116	12 378	149	394	42 123

The National Roads are categorised as the primary distributor roads in the Province, in accordance with the RISFSA classification system.

Most of the Regional Distributors are currently Provincial Main Roads, but some District and Local Roads are included where they form part of an identified Regional Distributor link. Certain Municipal Roads have also been included on a similar basis.

In a few instances there are missing links in the Regional Distributor network that are mostly earth tracks currently being utilised by traffic. These have been identified for future upgrading and incorporation into the Provincial Road network.

Map 6.2A shows the road network in the Province. It gives the national and primary provincial road network by class indicating dual and single carriageways and the number of lanes.

6.2.2 Usage

The highest traffic volumes (AADT>80,000) occur on the roads and streets within the Ethekewini metropolitan area. Traffic volumes of between 40,000 and 80,000 vpd are found on the N3 between Ethekewini and Pietermaritzburg and also on the N2 north of Ethekewini up to Phoenix.

On the N3 north of Pietermaritz up to Free Sate border the traffic varies between 5,000 and 40,000.vpd. On the N2 north of Phoenix up to St Lucia and on the N11 from Ladysmith to Newcastle also varies between 5,000 and 40,000.vpd.

The rest of the network carries less tha 5000 vpd.

Many existing Provincial gravel roads are carrying high traffic volumes, or are serving large communities and developments. Due to funding shortages relatively light road

pavements are being provided during the upgrading of these roads to blacktop. This increases future maintenance and rehabilitation needs on these roads.

Many communities are separated from local facilities such as schools, clinics and police stations by major rivers. To reach these facilities, adults and scholars from these communities often have to wade through the rivers on a daily basis. This is hazardous, especially under flood conditions and lives are lost fairly regularly. 149 priority sites for pedestrian bridges have been identified by the KZN Department of transport to allow basic access to these community facilities. A conservative estimate of funding required to provide these pedestrian bridges is R250 million, while during 2007/2008, an amount of only R22,4 million has been allocated for the construction of pedestrian bridges.

Within eThekweni, the road network is under increasing pressure, due to rapid increases in traffic volumes on roads with capacity constraints. With the upturn in the country's economy, rapid development is taking place and this is placing a strain on the road infrastructure. Present trends show an increase in use of private transport and a decrease in use of public transport. Currently eThekweni uses Level of Service D as the basis for an acceptable level of congestion in peak conditions.

Current estimates place the trend growth in peak period person trips between 2005 and 2020 at 22%. This translates into a 50% increase in trips by car and a 3% decrease in trips by public transport. Considering current levels of congestion, this is unacceptable and unaffordable in both financial and environmental terms.

In the event no actions are taken to address this trend, a number of services problems will result; these being:-

- a progressive deterioration in all forms of transport services throughout the city, including public transport, freight transport and private transport;
- road congestion affecting all forms of transport;
- road based public transport will become increasingly costly and inefficient as sprawling land use patterns continue to dilute the effectiveness of public transport;
- the demand for road capacity will exceed affordability of providing additional road space;
- a significant reduction in accessibility and mobility for the public; and
- reduced accessibility for freight movement with the concomitant effect of increased cost for commercial and industrial activities and reduced attractiveness for commercial/industrial development in eThekweni.

Inner city congestion, accessibility, inadequate vehicle and pedestrian infrastructure as well as safety and security are all transport related issues requiring attention. The current road system defining approaches to the CBD used by private and public transport vehicles results in relatively high speed traffic through heavily pedestrianised areas, in particular in the Warwick Avenue precinct. This together with localised congestion requires a review of the road system to and through the

area. A public transport distribution system serving the CBD and integrated with public transport services to/from the CBD is also essential for improved accessibility.

AADT (Total) volumes are shown on **Map 6.2B** on the following page.

The highest number of heavy vehicles on the N2 is found at the EB Cloete interchange, namely 6,000 per day in both directions. From the EB Cloete Interchange the HVs per day decrease sharply to 2 109 at Umdloti. Between Umdloti and Salt Rock the number of HVs per day remains almost constant and then it decreases to 770 at Mkuze. This is basically the same as the 762 HVs per day as at the start of the N2 at Kokstad. The directional split of the HVs on the N1 is 50/50 for all practical purposes.

On the N3 the number of HVs per day increases from approximately 5 000 at the EB Cloete Interchange to \pm 6 600 HVs/day at Paradise Valley. At Westmead it reaches a low of approximately 4 500 HVs/day and then increases again to approximately 6 800 HVs per day at Market Street and Greytown Road Interchanges. From there onwards it gradually decreases to 3 500 HVs per day at Van Reenen.

The directional split of the HVs on the N2 is 50/50 for all practical purposes.

Similar to the situation on the N2 and N3, the directional split of the HVs on the N11 is for all practical purposes 50/50. The highest number of heavy vehicles per day, namely 960, is found between Elandsplaagte and Ballengeich. The lowest HVs per day are found at Ladysmith (695 HVs per day).

AADT (Heavy) volumes are shown on **Map 6.2C** on the following page.

The stations where the ADT and ADTT counts were done are shown on **Map 6.2D**. The ADT and ADTT values at these stations are shown on **Map 6.2E** and **Map 6.2F** respectively.

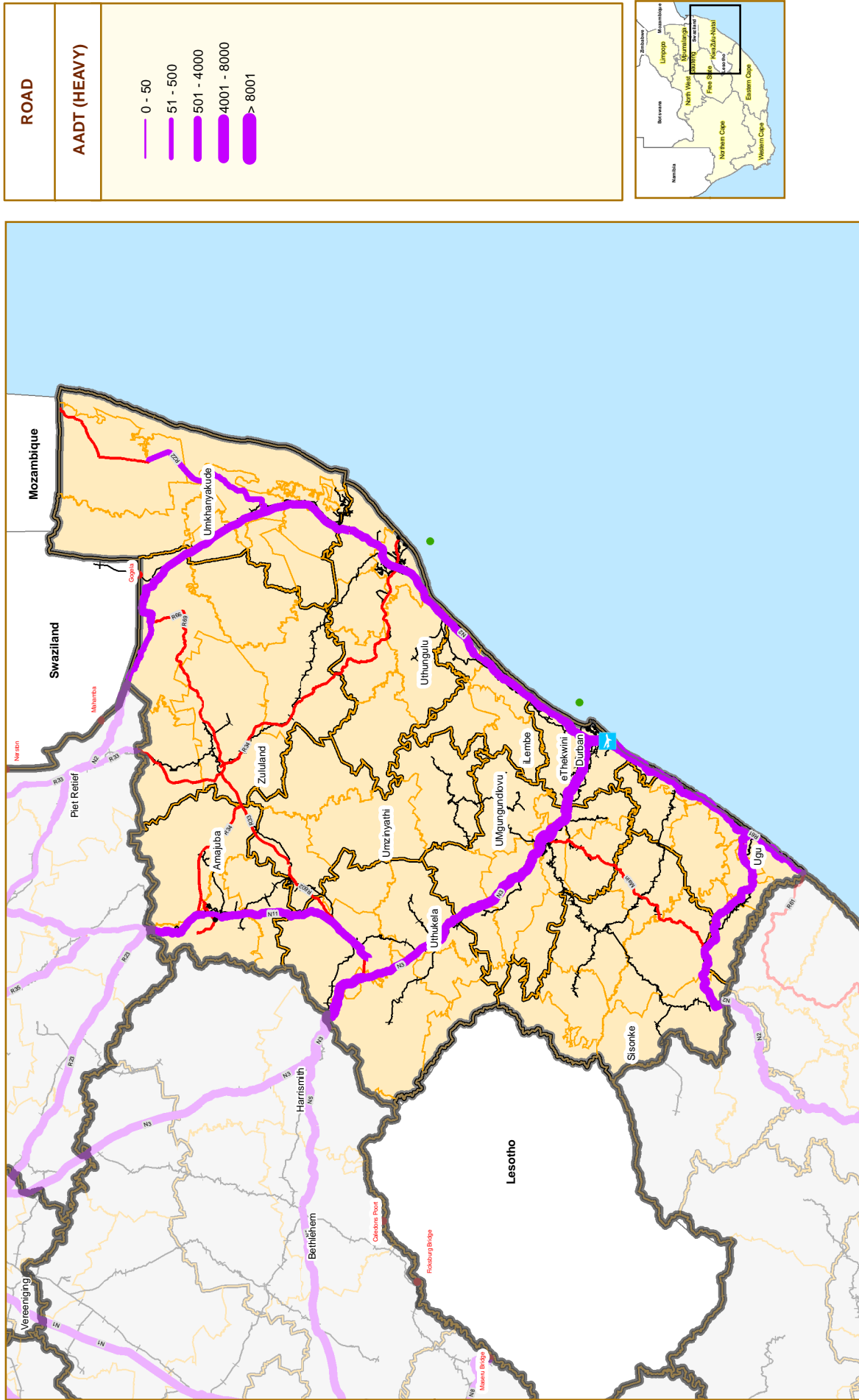
6.2.3 Condition

The KZN Department of Transport is responsible for 7 153 km of Provincial blacktop roads. During 2005 visual assessments were undertaken on 5 936 km of these roads and the results are shown in **Table 17**. The results of these assessments show that 52 percent of the blacktop roads are in a poor or very poor condition.

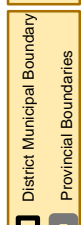
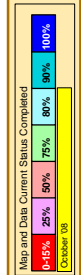
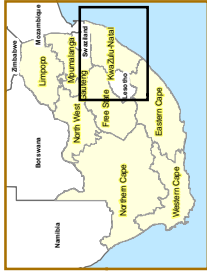
Table 17: Visual Condition Index for Blacktop Provincial Roads

VCI Category	Lengths (Km)	Percentage (%)
Very Poor	1,026	17 %
Poor	2,069	35 %
Fair	1,799	30 %
Good	780	13 %
Very Good	262	5 %
TOTAL	5,936	100 %

KwaZulu-Natal Province: AADT (HEAVY)

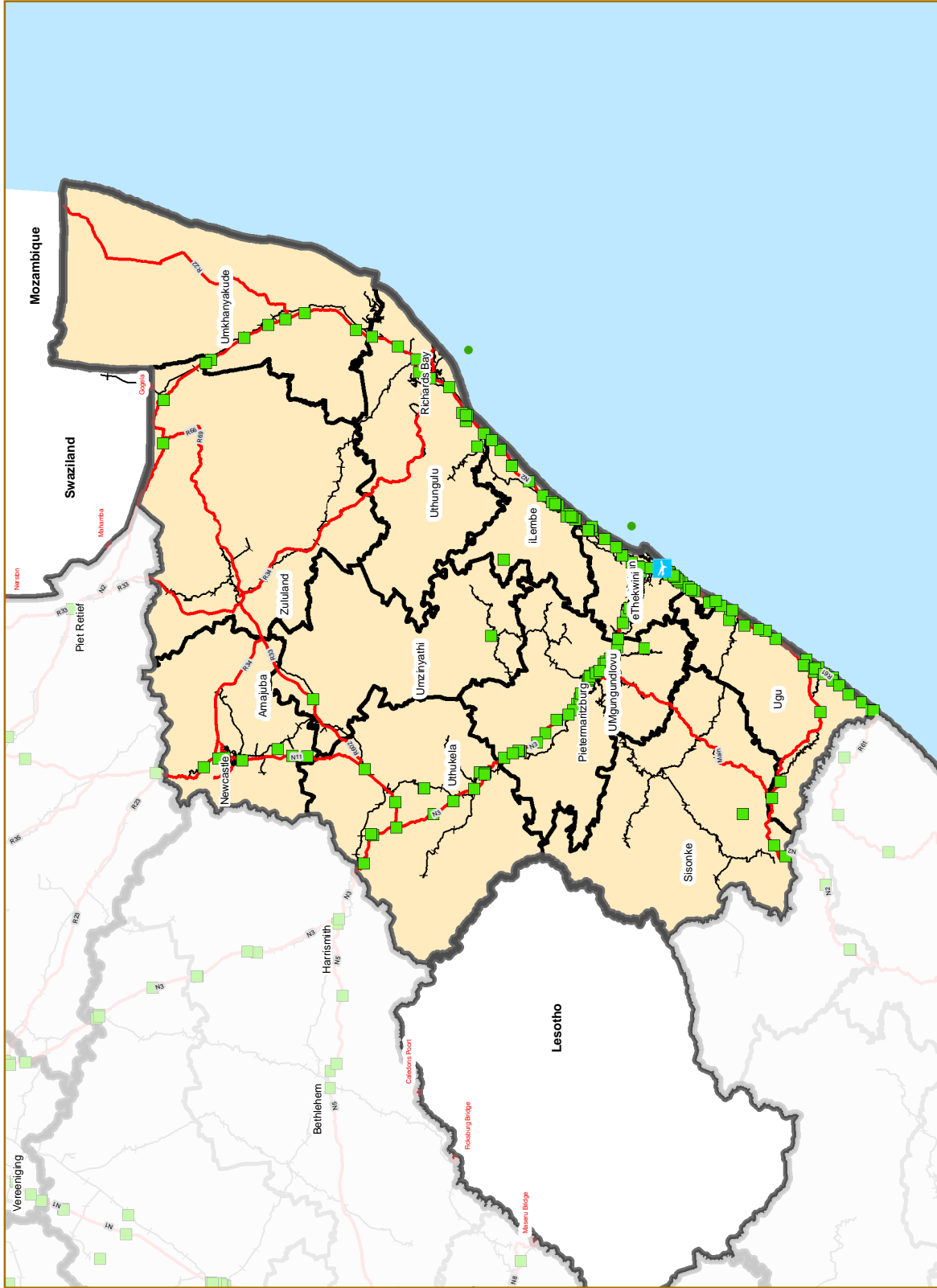


ROAD	
AADT (HEAVY)	
0 - 50	(Lightest purple line)
51 - 500	(Light purple line)
501 - 4000	(Medium purple line)
4001 - 8000	(Dark purple line)
> 8001	(Darkest purple line)



BASMAP LEGEND

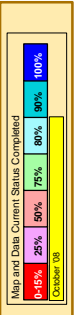
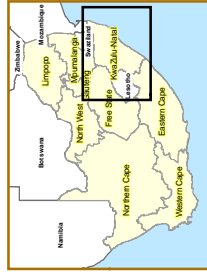
KwaZulu-Natal Province: COUNTING STATIONS



COUNTING STATIONS

STATIONS

■ Counting Stations



□ District Municipal Boundary

▭ Provincial Boundaries

✈ Airports

• Towns

● Border Posts

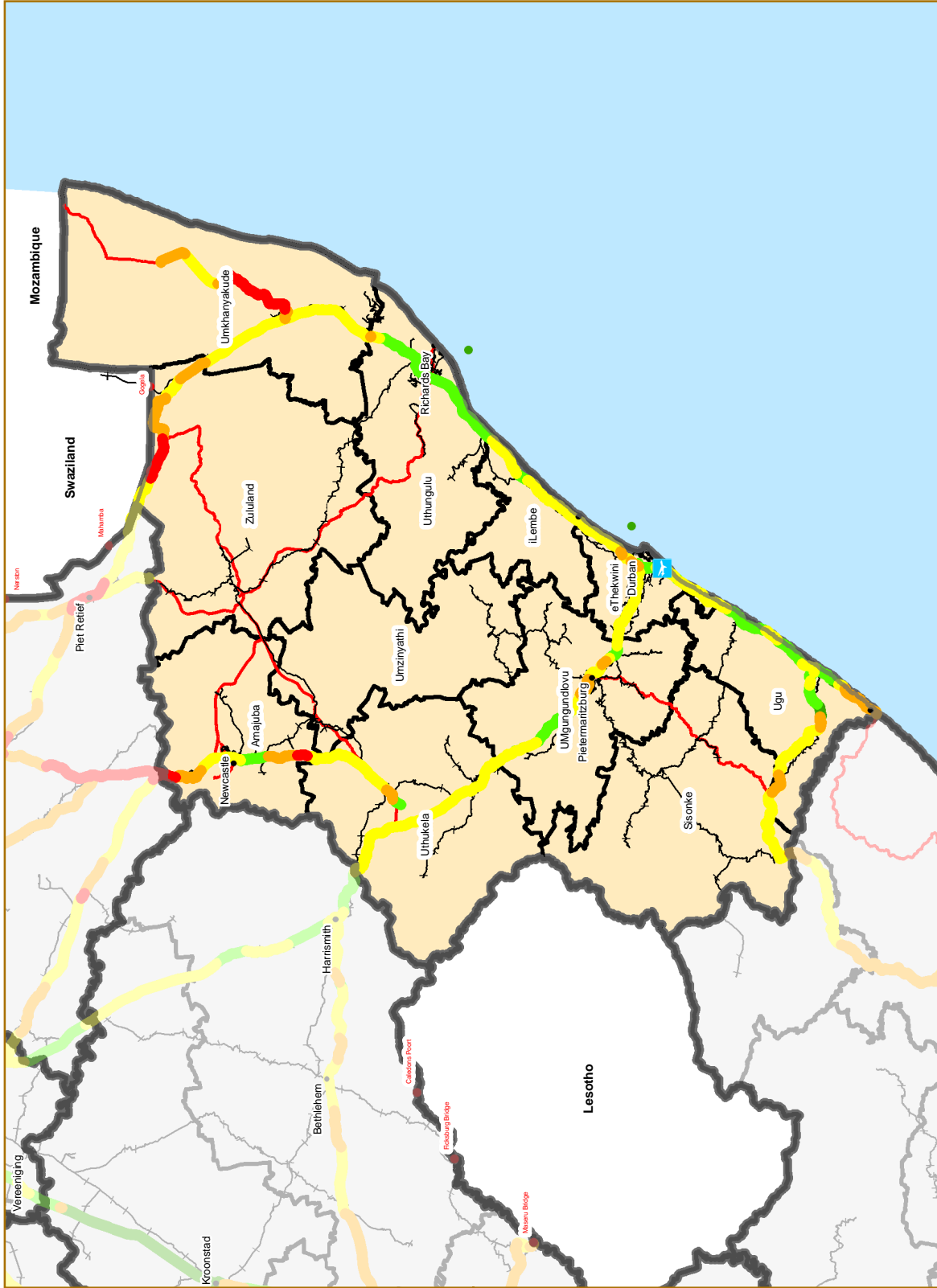
● Harbours

— SANRAL Road Network

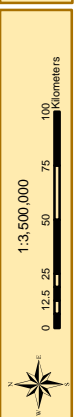
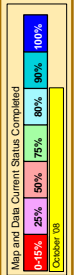
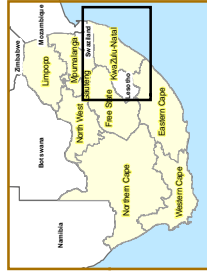
— Railway Network

LEGEND

KwaZulu-Natal Province: ROAD CONDITION



ROAD	
ROAD CONDITION	
█	Very poor
█	Poor
█	Fair
█	Good
█	Very Good



District Municipal Boundary
 Provincial Boundaries

■ Airports
● Towns

● Border Posts
● Harbours

— SANRAL Road Network
— Railway Network

LEGEND

The provincial road network has massive backlogs in terms of maintenance and rehabilitation needs. Some 52 per cent, or 4600 km, of the provincial blacktop roads are in a poor or very poor condition and are in urgent need of rehabilitation. The estimated cost of this required rehabilitation work is at least R4,5 billion.

On the Provincial gravel roads, the outputs of the 2005 gravel road assessments indicates that 4 193 km of the assessed roads had less than 50 mm of gravel. The estimated cost to regravell this backlog is R880 million. Present rates of regravelling are lower than the rates of gravel loss.

Map 6.2G on the previous page gives the road condition in terms of three levels, i.e. sound, warning and severe, based on the roads' driving quality. A few sections on the N2 south beyond Kokstad and N2 North, the R42 near Volksrust, and the R22 near Swaziland are in a severe condition, while sections on the N2 south near Kokstad, R33 near Dundee and Vryheid, R42 south of Volksrust, are indicating "warning" conditions.

Within the larger urbanised areas in the Province, a number of the Provincial Roads that fall into the Regional Distributor classification have serious traffic congestion problems, with motorists experiencing low levels of service. Examples of these are:

- P398 from Virginia to Umhlanga;
- P398 in the Ballito area;
- P94 through Umhlanga and Mount Edgecombe;
- P2-2 from Duff's Road through to Tongaat;
- P1-1 and P1-2 through Pinetown, Fields Hill and Hillcrest;
- P255 through Hillcrest and Waterfall;
- P82 from the N2 through to the N3;
- P197-1 from the Durban International Airport to the Adams Road Area;
- P496 from Empangeni through to Richards Bay;
- P395 from Port Shepstone to Ramsgate;
- P200 South of Port Shepstone.

Solutions to improve the level of service on these roads require the provision of expensive facilities, such as new or upgraded grade separated interchanges, and / or additional carriageways and lanes. Many of these requirements are not included in the construction programs, as a result of funding shortages.

Due to the hilly topography in KwaZulu-Natal, passing opportunities on a number of the heavily trafficked major routes are limited. This combined with high percentages of slow moving heavy vehicles carrying goods including sugarcane, timber, coal and industrial goods makes the construction of passing lanes necessary on steeper gradients. This requirement is largely unfunded.

63% of scholars and workers walk to school or to their place of employment and in rural areas they are forced to walk along the road shoulders, or in the roadway itself due to the absence of pedestrian facilities. It is only recently that very limited funding

has been assigned for this purpose and this is an area that requires considerable additional resources. Pedestrian facilities are being included in some instances during the upgrading of a road from gravel to a high standard blacktop road. However, retrofitting is required on many existing roads.

In addition to the backlogs on the higher order Provincial Roads, considerable funding is required to provide a basic road network to communities in rural areas. **Table 16** shows that the Provincial roads network includes 12 378 km of earth roads or tracks that require upgrading to bring them into a maintainable condition. Besides the Provincial earth roads, the roads and streets in villages and community settlements require similar upgrading.

6.2.4 Overloading Control Facilities

There are thirteen operational weighbridges in KwaZulu-Natal. Six of them are on the N2 at Empangeni, Groutville, Marburg, Park Rynie, Umhloti and Winkelspruit. On the N3 there are weighbridges at Westmead, Mkondeni and Midway. Two weighbridges are located on the N11 at Ladysmith and Newcastle. On the R33 there is a weighbridge at Greytown and on the R69 at Vryheid.

During 2006, a total of 185,798 vehicles were weighed at the 13 operational provincial weighbridges, of which 146,342 were weighed on the N3 corridor. There has been a continued significant decrease in the extent of overloading on the N3 corridor from approximately 16% to approximately 11%. When compared with 25% estimated for the rest of the country it is an excellent achievement.

The location of the overloading control facilities is shown on **Map 6.2H** on the following page.

6.2.5 Road safety

Road safety statistics published by the RTMC for the year 2005 show that the average number of fatal crashes per 10,000 registered vehicles in KwaZulu-Natal is 2.68 in comparison to the 2.05 for the country as a whole.

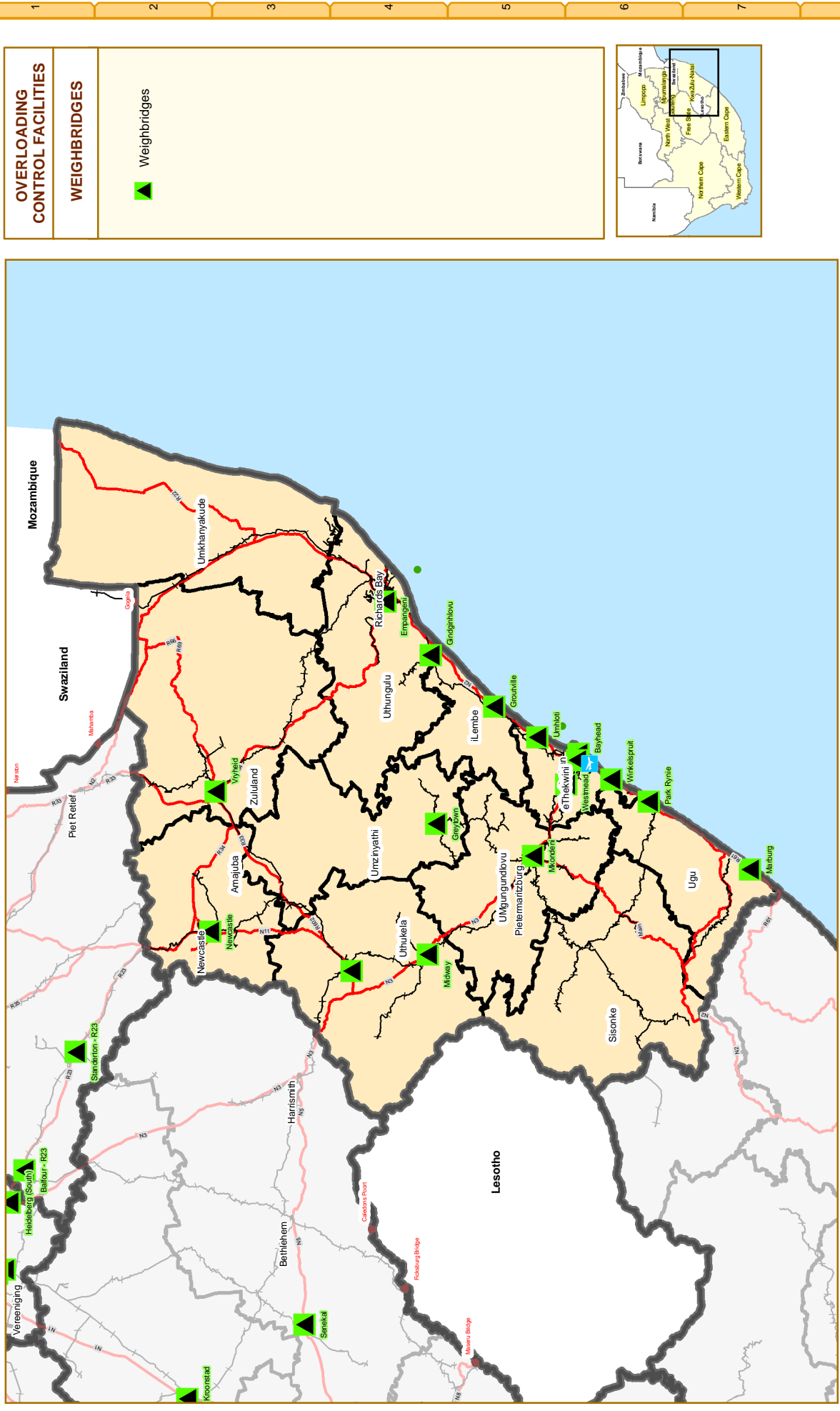
Fatal crashes by motorcars, minibuses, LDVs/Bakkies and heavy vehicles per 10,000 registered are all higher in KwaZulu-Natal than the average for the country.

In 2002 the number of fatal crashes per 100 million vehicle-km was 11.68 in comparison to national figure of 8.71. The number of fatal crashes per 10,000 registered vehicles was 51 % higher than the national figure (24.12 versus 15.94).

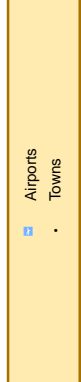
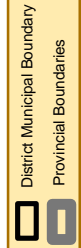
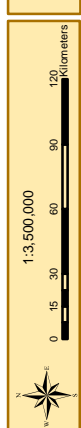
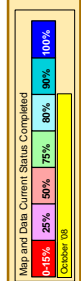
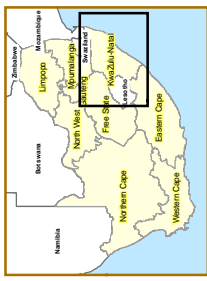
6.2.6 Planned Development

A number of the planned development projects are being undertaken in support of corridor development through an area. Several of these are Provincial Spatial Economic Development Strategy Projects. These corridor projects require co-operation with other government spheres and departments to provide co-ordinated services to enhance economic development within the corridor. In these instances

KwaZulu-Natal Province: OVERLOADING CONTROL FACILITIES



OVERLOADING CONTROL FACILITIES
WEIGHBRIDGES
Weighbridges



road construction often includes the construction of a spine road, as well as the provision of access and collector roads off the spine road.

Many of the listed projects are for the upgrading of existing gravel roads carrying high volumes of traffic. Other listed projects include the construction of new roads, as well as the upgrading of existing roads to relieve traffic congestion.

There are three major infrastructure projects by 2025 for Durban:

- Khangela bridge in Durban
- Umhlatuzana arterial near Durban port
- Durban port development and access roads

Proposed upgrades of national roads by SANRAL for 2010 to improve mobility to Kings Park and the new International Airport at La Mercy, includes:

- Additional lanes and interchange improvements to be added on sections of the N3 to increase capacity.
- Similar capacity enhancements on the N2 south of Durban
- New interchanges on the N2 north of Durban to accommodate the new International Airport at La Mercy and Dube Tradeport development.

KZN DOT paving of Sani pass to Lesotho – under construction.

SANRAL N2 wild coast toll road from Amanzimtoti to East London through Transkei – currently independent environmental impact study in process The DOT Integrated Rural Mobility Access Project (IRMA), including rural access roads.

The eThekweni Transport Authority has identified the need for upgraded and expanded transport infrastructure and services based on accessibility and mobility needs, capacity requirements as well as safety issues and problem locations

It is recognised that mobility needs differ widely across the broad spectrum of stakeholder groups that depend on transport in some form or other. These groups include inter alia:-

- low to high income commuters;
- special needs travellers in all groups;
- long distance traveller;
- various categories of commercial and industrial;
- tourists; and
- emergency services.

There are currently six key city projects in various stages of planning and development that will have a major impact on the pattern and extent of travel demand in the municipal area. They are:-

- the new International Airport at La Mercy and associated changes possible at the existing airport;
- the Dube Tradeport adjacent to new International Airport at La Mercy;

- the Point Development;
- the upgraded/expanded Port;
- the 2010 World Cup; and
- the ICC Expansion.

Durban Harbour is recognised as a major traffic generator in the municipal area with most of the land-side activity being road freight transport. Although the hinterland of Gauteng and over-border destinations account for 60 – 70 % of freight movement to/from the port, very little of this movement is by rail. This is seen as a key issue requiring strategic intervention at national level, as the achievable capacity on the road system could become a constraining influence on development of the Port. Due to traffic congestion concerns, several traffic demand management measures are being implemented or planned to reduce the rate of increase of traffic on the metropolitan roads. These include the following:

- measures to improve the ratio of public to private transport;
- Durban CBD Public Transport priority system;
- rail system and service upgrade;
- legalisation and regulation of minibus taxi industry;
- regulation of bus operations and introduction of commercial bus/taxi contracts;
- high occupancy vehicle priority;
- provision for non-motorised transport; and
- land use development management measures.

The IDP's of the District and Local Municipalities contain long lists of road requirements, many of which are unfunded. Several of the identified priorities on major Provincial Routes are included in the upgrading programs of the KwaZulu-Natal Department of Transport. However, many of the identified projects remain unfunded.

6.3 RAILWAY

6.3.1 Background

Transnet was established as a company wholly owned by the state and the shareholder being represented by the Minister of Private Enterprises on 1 April 1990. The objective was that Transnet should do business through its various divisions on an economical and profit basis without assistance from the state. The “common carrier” responsibility that was resting on SATS was not imposed on Transnet because it was considered that adequate alternative modes of freight transport will be available to all areas in South Africa.

At the same time the South African Rail Commuter Corporation (SARCC) was established, as a company of the Department of Transport (DOT), to provide the rail commuter services in the metro poles of South Africa. The objective was that the SARCC should provide suburban passenger rail services in accordance with the

socio-economic needs of each metro pole. The state, through DOT, should provide substantial support in the form of subsidies.

The South African rail network, belonging to the South African Transport Services (SATS), was transferred to Transnet and the SARCC on 1 April 1990. The lines mainly being used for suburban passenger services in Western Cape, Gauteng and KwaZulu-Natal were transferred to the SARCC and the balance of the network, mainly being used for freight and intercity passenger services, to Transnet. Transnet manages and operates the freight network outside the harbours through Transnet Freight Rail (TFR), previously known as Spoornet, and the rail lines inside the ports through the National Ports Authority (NPA). Both organisations are divisions of Transnet, which is the only legal entity.

Transnet initially provided the suburban passenger rail services, through a division Metrorail, in terms of a contract with the SARCC. Metrorail was incorporated with the SARCC in 2007. The intercity passenger rail services were provided by Spoornet under the brand name Shosholoza Meyl. This service was also transferred to the SARCC in 2008. The SARCC is now the provider of all passenger rail services, while Transnet is only providing freight services through the division Transnet Freight Rail. There is an agreement between Transnet and the SARCC for the use of each others rail lines.

Various private companies also own railway networks that are used for their own private internal operations as well as services by TFR. These networks range from a single spur to extensive networks in the case of some mining companies and are mostly connected to the national Transnet network. Various municipalities also own rail networks as a means to serve private sidings in their industrial areas.

6.3.2 Extend of the National Rail Network

6.3.2.1 National Rail Network

The national freight network of Transnet, including the heavy haul export lines, the core network, two classes of non core lines and closed lines consists of 22 300 route kilometres (30,000 rail kilometres) is shown on **Figure 8**. The network consists of various structural and track profiles. The rails in use are 30, 40, 48, 57 and 60kg/m while steel, wood and different designs of concrete sleepers are in use.

Transnet classified the network as follows:

- *Export – Heavy Haul (EHH)*. These include the coal line from Mpumalanga to Richards Bay and the iron ore line from Sishen to Saldanha. These lines were built to carry 30 ton axle loads and are dedicated for the transportation of raw materials.
- *Core Network (C)*. These include all the main lines that carry more than 5 million gross ton of freight per year.
- *Non Core Network (NC1)*. These include the lines that carry between 0.2 and 5 million gross ton of freight per year.

- *Non Core Network (NC2)*. These include the lines that carry less than 0.2 million gross ton of freight per year.
- *No service /Closed (NS)*. These include all the lines that still exist but no service is currently provided on them.
- *Leased (L)*. These include the lines that are being leased to other organisations or are in the process of being lease.

The core network (inclusive of the two heavy haul export lines) represents 43% of the network, with low and light density lines (non core network) being 42%. The balance of 15% represent closed and no service lines.

6.3.2.2 Axle Load

The maximum wagon axle load that is allowed on a rail line is determined by the structures supporting the track (bridges and culverts), the formation and the track structure (type of rails, sleepers and turnouts, sleeper spacing, type of ballast and depth.) The heavy haul export lines were built for 30 ton wagon axle loads. The Sishen-Saldanha line is using this capacity in full because of the high specific weight of the iron ore.

The Core Lines were built for 20 ton axle loads, while the permissible axle loads on the branch lines (non-core lines) varies from 15 to 18.5 tonnes. This limitation is important to keep in mind when projects are investigated that will make use of both Core and Non-Core lines. Some lines, including the 610mm gauge lines still exist with 11.5 ton axle loads.



Figure 8: Transnet Freight Network and Classification of Lines

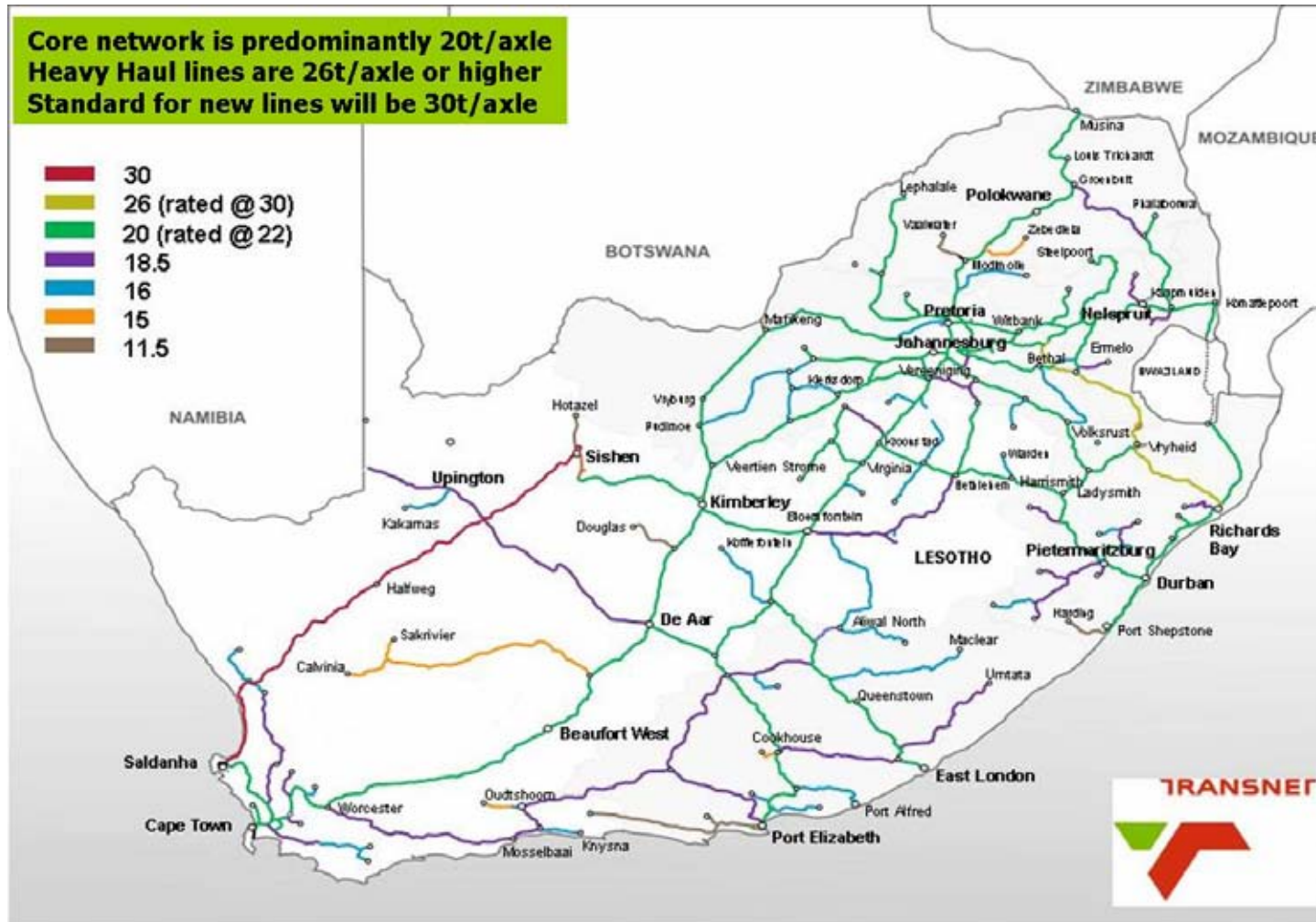


Figure 9: Maximum Allowable Axle Load on Lines

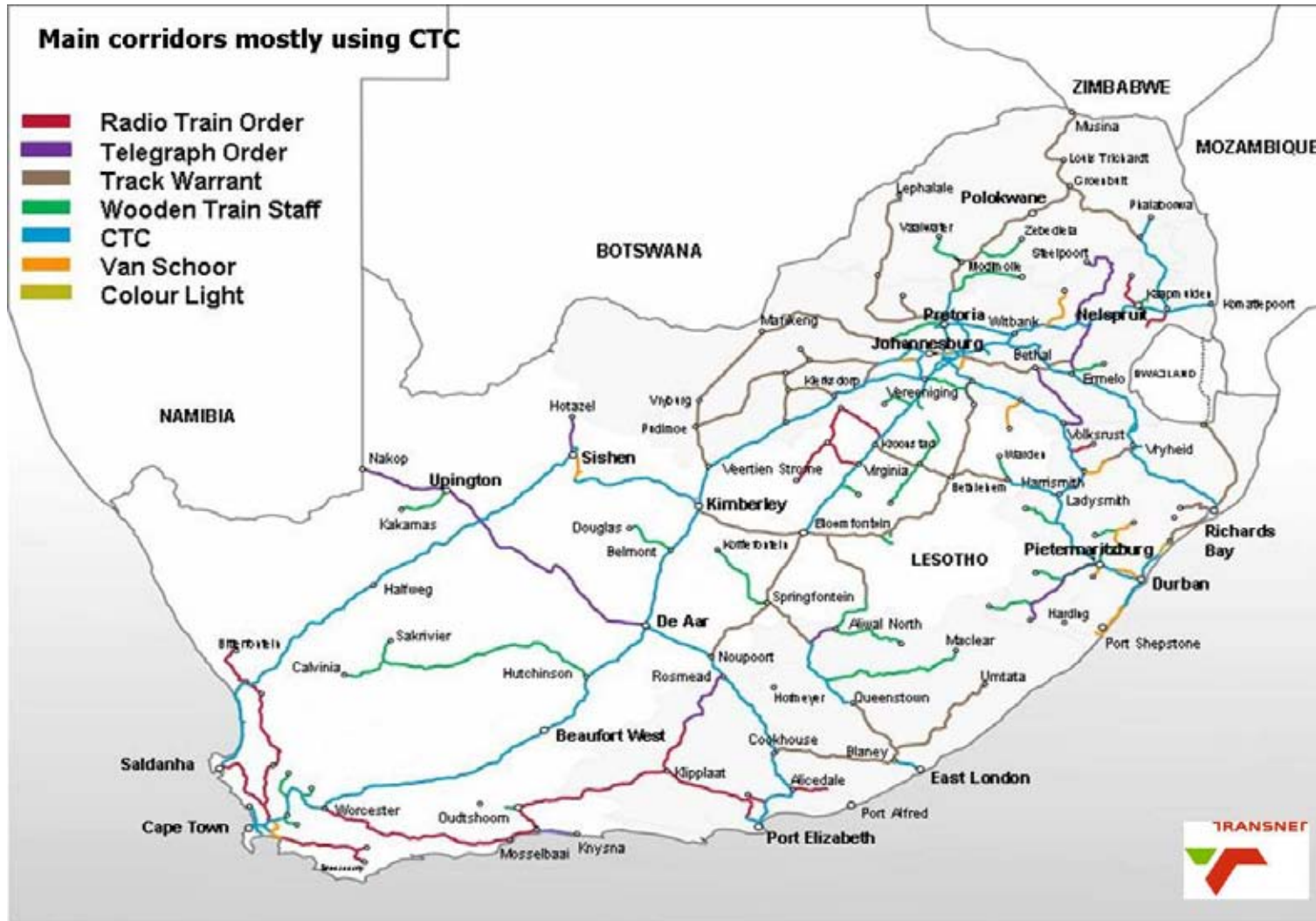


Figure 10: Train Authorization Systems on the Rail Lines

6.3.2.3 Train Authorization Systems

The basic principle of all the train authorization systems is “fail-safe.” This means that if something should go wrong trains will come to a standstill to prevent the possibility of an accident. The system in use on a section of line together with crossing facilities also determine the number of trains that can travel through that section per day per direction.

The most basic systems are inexpensive to implement, simple to operate and cheap to maintain but only enables a few trains per day to use a section. The more sophisticated systems are relative expensive, more complicated to maintain and operate, but increase the capacity of a line significantly.

The systems in use are:

- *Centralised Traffic Control (CTC)*: The trains are planned, controlled and authorised from a central point on a line. Line side colour light signals are used to authorize the driver to enter and travel in a section.
- *Colour Light signalling (CL)*: The line is divided into sections with line side colour light signals giving the driver authority to enter and travel in a section.
- *Track Warrant (TW)*: The driver receives an electronic notice through radio communication to enter and travel in a section. This notice is done by a computer that controls the train movement on a line.
- *Radio Train Order (RTO)*: Radio communication is used to communicate with the driver and other stations to give the driver authority to enter and travel in a section.
- *Van Schoor (VS)*: A disc is issued to the driver that authorise the train to enter and travel in a section. The Van Schoor instrument will only enables the train control officer to take a disc out of the machine once all the safety precautions were done and certain procedures were adhered to. This outdated system is mainly replaced with the Track Warrant system.
- *Telegraph Order (TO)*: The driver receives a written notice to enter and travel in a section. This notice is only issued after the train control officers in control of a section exchanged telephonically with each other information and authority to issue the warrant.
- *Wooden Train Staff (WTS)*: A wooden staff with the name of the end stations is allocated to a section. The driver must have this staff in his/her possession to enter and travel in a section. This ensures that there could only be one train in the section at any time. This system is only used on lines with very low volumes.

Almost all the train authorization (signalling) systems are in use within the KwaZulu-Natal Province. The systems with line side signals are sensitive for vandalism and theft which can cause critical train delays.

6.3.2.4 Traction Supply

The national rail network is served by four types of traction namely diesel, electric 3kV DC, 25 kV AC and 50 kV AC. Limited steam locomotives are still maintained by steam enthusiasts for tourist purposes.

The coal line from Ermelo to Richards Bay is 25kV DC electrified while the lines from Port Shepstone to Richards Bay, Durban to Gauteng, Ladysmith to the Freestate and Glencoe to Vryheid are 3kV DC electrified. All the other lines are operated with diesel locomotives.

The electrification voltage of choice is 25kV 50 Hz AC. Transnet foresees that in the long term the electrified network should be converted to 25 kV AC.

6.3.3 **KwaZulu-Natal Rail Freight Network**

The non-suburban rail network in KwaZulu-Natal, belonging to Transnet, is fully described below. The information on the network is summarised **Table 18** below.

There are two important mainline arterial routes running from Durban to Gauteng and Richards Bay to the Mpumalanga coal fields. There are, in addition, four important secondary main line routes: one which runs from Durban to Port Shepstone on the South Coast and the second from Durban to Golela on the North Coast. The latter line forms an international connection with Swaziland Railways, providing an additional through corridor to Mpumalanga and Mozambique. The third line is the Glencoe – Vryheid line, which forms an important link between the KZN mainline (Natcor) and the coal line. The fourth line runs from Ladysmith to Van Reenen Pass and creates a vital link with the Free State and points west as well as an alternative route to Gauteng in cases of emergency.

6.3.3.1 Inter-provincial arterial lines - (Connecting KwaZulu-Natal with adjacent provinces and Swaziland)

- i. Durban – Ladysmith – Volksrust (and beyond to Union in Gauteng)
This route is 760 km in length of which 577 km is in KZN. It is double track throughout and is electrified with 3kV DC. Train control is by CTC (Centralised Traffic Control) with lineside colour light signals. The ruling gradient is 1 in 50 and the maximum allowable wagon axle load is 20 tonnes.

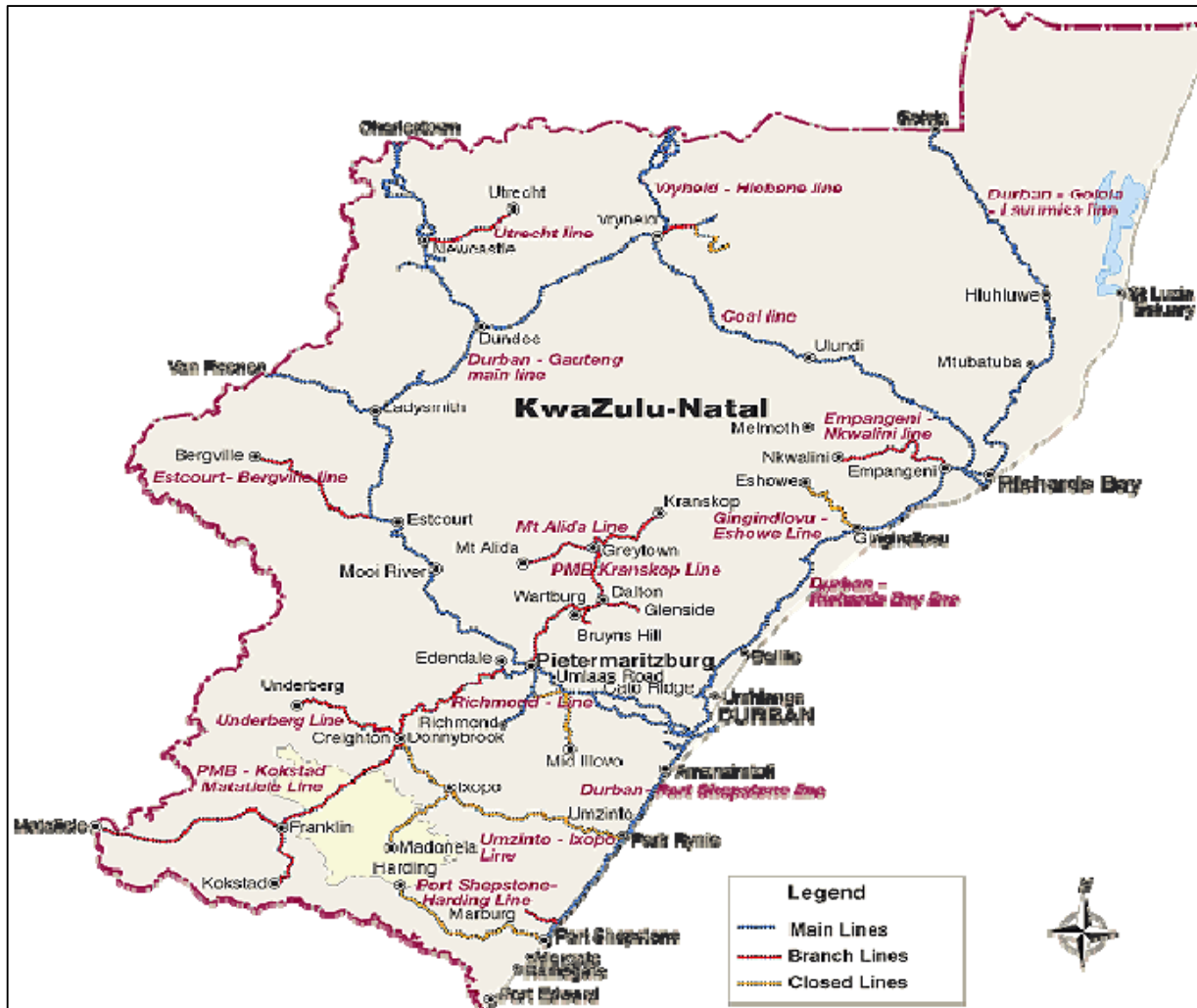


Figure 12: KZN Rail Lines and Stations

- ii. Durban – Empangeni – Golela (and Swaziland) Secondary Main line
 This route is 388 km in length. The section from Durban to Duff’s Road (15km) falls within the Durban inner Metrorail service area although Metro trains operate to Stanger (75km). The line is double track to Darnall (87km) and has a 1 in 66 ruling gradient. Train control is by colour light signalling. Beyond Darnall, the line is single track with a 1 in 66 grade to Empangeni (178km). The entire section from Darnall to Felixton, formerly using the Van Schoor tablet system is now on the Radio Track Warrant system with the exception of the 10 km Felixton – Empangeni section which is double track and CTC controlled. The 213 km section from Empangeni to Golela is single track on a 1 in 66 ruling grade and controlled by the Radio Track Warrant system. The entire line has a 20 tonne maximum allowable wagon load and is electrified to Empangeni using the 3kV DC system. Diesel locomotives are used beyond to the Swaziland border.

- iii. Durban (Rossburgh) – Kelso – Port Shepstone and Simuma Secondary Mainline
 This line is 110 km in length from Rossburgh (Junction of Natcor line) to Port Shepstone and there is a 15 km branch from Umtentweni to Simuma. The line is double track to Umbogintwini (16km), single track beyond and is controlled by CTC to Kelso (60km). Beyond, the Radio Track Order system is used. The ruling gradient is 1 in 50 between Umbogintwini and Kelso, and 1 in 38.5 to Port Shepstone. The line is electrified at 3kV DC throughout and the maximum allowable wagon axle load is 20 tonnes. The line from Rossburgh to Kelso belongs to the SARCC and from Kelso to Port Shepstone to Transnet.

- iv. Glencoe – Dundee – Vryheid Secondary Mainline
 This arterial mainline, connecting the Richards Bay coal line with the Durban – Gauteng main line (Natcor) is 89km in length. It is single track and electrified at 3kV DC. Train control is by Radio Track Order and the northbound ruling gradient is 1 in 50 compensated and the southbound gradient is 1:60. The maximum allowable wagon axle load is 20 tonnes.

- v. Danskraal – Van Reenen (and the Free State) Secondary Mainline
 The arterial mainline links KZN with the Free State. It is 346km in length, of which 60 km falls within KZN and 286 within the Free State. The KZN section has a 1 in 50 ruling grade and is controlled by CTC. It is single track and the rated wagon axle load is 20 tonnes. The entire line is electrified at 3kV DC.

- vi. Richards Bay – Vryheid East – Piet Retief and Ermelo (the Coal line)
 This route is 580 km in length of which 277 km is in KZN. It is double track throughout and is electrified at 25kV AC to Ermelo. Train control is by CTC

(Centralised Traffic Control) with lineside colour light signals. The ruling gradient is 1 in 160 in the full direction and the maximum allowable wagon axle load is 26 tonnes.

6.3.3.2 Branch lines – Rural Branch and light traffic density arterial lines

i. Pietermaritzburg Cluster: Lines North-east

a. Pietermaritzburg – Greytown – Kranskop line

This line is 154km in length and is the main route in the north-east section, with branches feeding traffic. It is single track and has a 1 in 30 ruling gradient. The maximum permissible wagon axle load is 18,5 tonnes with the permissible axle loads on the branches being 16 tonnes. Train control is by Radio Train Order.(RTO)

b. Mount Alida branch

This branch is 45km in length. It is single track and has a 1 in 50 ruling gradient. The maximum permissible wagon axle load is 16 tonnes and train control is by RTO.

c. Dalton – Jaagbaan – Glenside branch

This branch is 19km in length. It is single track and has a 1 in 50 ruling gradient. The maximum permissible wagon axle load is 16 tonnes and train control is by RTO.

d. Schroeders – Bruyns Hill branch

This branch is 24km in length although only 18 km is presently in operation. It is single track and has a 1 in 50 ruling gradient. The maximum permissible wagon axle load is 16tonnes and train control is by RTO.

ii. Lines South-west

a. Pietermaritzburg – Franklin

This line 222km in length and is the main route in the south-west area. It is single track, with an 18,5 tonne axle load and it has a maximum gradient of 1 in 40 compensated. Train control is by way of RTO.

b. Franklin – Kokstad

This branch is 41km in length and is single track with a 1 in 50 ruling gradient. The maximum permissible wagon axle load is 18,5 tonnes and train control is by Radio. There is no freight operation although the line was recently re-opened for future service requirements.

- c. Franklin – Matatiele
This branch is 77km in length It is single track and has a 1 in 50 ruling gradient. The maximum permissible wagon axle load is 16 tonnes and train control is by Radio. There are currently no train services, although the line is operational.
- d. Donnybrook – Underberg
This branch is 62km in length and portions have recently been upgraded as traffic is increasing. It is single track and has a 1 in 36 compensated ruling gradient. The maximum permissible wagon axle load is 18,5 tonnes and train control is by RTO.
- e. Pentrich – Thornville - Richmond
This branch was 28km in length but with the closing of the Thornville – Umlaas Road section of the old mainline, the line now includes the 14km Pentrich – Thornville section of the former mainline. It is single track and has a 1 in 34 ruling gradient. The maximum permissible wagon axle load is 18,5 tonnes and train control is by Radio.

6.3.3.3 Other Branch Lines

- a. Ennersdale – Bergville
This branch is 68km in length although trains operate from Estcourt, a total distance of 81km is presently in operation. It is single track and has a 1 in 50 ruling gradient. The maximum permissible wagon axle load is 16 tonnes and train control is by RTO.
- b. Newcastle – Utrecht
This branch is 47km in length and is a guaranteed line, privately owned. It is single track and has a 1 in 70 ruling gradient. The maximum permissible wagon axle load is 20 tonnes and train control is by RTO.
- c. Tendeka – Hlobane
This branch is 22km in length and is single track with a 1 in 50 compensated ruling gradient. It is electrified with 3kV DC and the maximum permissible wagon axle load is 20 tonnes. Operations are controlled by CTC from Vryheid East.
- d. Empangeni – Nkwalini
This branch is 64km in length and has a 1 in 50 compensated ruling gradient. The maximum permissible wagon axle load is 18.5 tonnes and train control is by Radio.

6.3.4 Marshalling Yards, locomotive and related facilities in KZN

6.3.4.1 Durban – Volksrust Mainline (NATCOR)

There are a number of large yards along the route. Of note is the yard at Newcastle for the steel mill, as well as another for Rooipunt traffic. Danskraal yard at Ladysmith serves main line and Free State traffic and is an important crew change point. There is, in addition, an electric loco running shed and wagon repair facility.

There are two yards in Pietermaritzburg, Masons Mill on the mainline, and Victoria on the Greytown branch, but within the Pietermaritzburg municipal area. There is also another yard at Cato Ridge, serving mainly the nearby ferro-manganese plant. There are a number of yards in the Durban area, serving not only the main line but the North and South Coast lines. Bayhead is the main yard for general traffic, while Kings Rest serves the container terminal. There are numerous industrial lines serving port areas and lines to the petroleum sites. At the Bluff, a coal terminal serves specialised coal exports and during 2005 – 2006 some 1,6 million tonnes was received, of which over 1,4 million tonnes came via the main line, the balance from the coal line.

6.3.4.2 Durban-Empangeni-Golela (and Swaziland) Secondary Main Line

Beyond the Durban area, marshalling yards are located at Stanger, Empangeni, Nseleni and Golela. Nseleni is the location of the locomotive shed and carriage wagon repair facility and coal line trains and traffic from Golela are routed past this point.

6.3.4.3 Durban-Kelso-Port Shepstone and Simuma Secondary Line

There are no major yards on the route, although exchange yards are located at Umbogintwini and Umkomaas.

Table 18: Details of Freight Rail Network in the KwaZulu-Natal 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	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.	Durban	Gauteng																	577 km in KwaZulu-Natal		
<i>(This line is the core line from the Durban to the KZN interior, Gauteng and the Free State.)</i>																					
1.1	Durban	Rossburgh	SARCC	C	8	2/9	3kV DC	CTC			20		D+					61-90	Metro lines. Goods traffic to industrial areas and northern KZN.		
1.2	Rossburgh	Cato Ridge	Trans.	C	>20	64	2	3kV DC	CTC	50	20		C			111		21-40	Also being used for Metro services		
1.3	Cato Ridge	Pietermaritzburg	Trans.	C	>20	35	2	3kV DC	CTC	50	20		C			111		21-40			
1.4	Pietermaritzburg	Ladysmith	Trans.	C	>20	179	2	3kV DC	CTC	50	20		C			119		21-40			
1.5	Ladysmith	Glencoe	Trans.	C	>20	61	2	3kV DC	CTC	50	20		C			119		21-40			
1.6	Glencoe	Vooruitsig	Trans.	C	>20	126	2	3kV DC	CTC	50	20		C			95		21-40			
1.7	Vooruitsig	Union	Trans.	C	>20	226	2	3kV DC	CTC	80	20		C			79		21-40	Through Mpumalanga to Gauteng		
1.8	Rossburgh	Pinetown	SARCC			20	1	3kV DC			20		D+			74					
1.9	Pinetown	Cato Ridge	Trans.			44	1	3kV DC			20		D+			23			Old main line as an emergency route		
2.	Harbour Connections																				
<i>(The different sidings and yards in the harbour are connected to the network)</i>																					
2.1	Cato Creek		Trans.	C			2												Northern areas of the harbour		
2.2	Maydon Warf		Trans.	C			2	3kV DC	CTC		20		C						Western areas of the harbour		
2.3	Bayhead		Trans.	C			2	3kV DC			20		C						South-western areas of the harbour		
2.4	West's		Trans.	C		11	2	3kV DC	CTC		20		C						South-eastern areas of the harbour. Also used for suburban services.		
3	Coal line (Richards Bay - Ogies)																		277 km in KwaZulu-Natal		
<i>(This is the main coal export line. The ruling grade is 1:160 in the full direction towards Richards Bay and 1:xx from Richards Bay)</i>																					
3.1	Richards Bay	Vryheid	Trans.	EHH	>20	194	2	25kV AC	CTC	160	S1	26	B					41-60			
3.2	Vryheid	Ermelo	Trans.	EHH	>20	206	2	25kV AC	CTC	160	S1	26	B					91-100	The overall tunnel is still single.		
3.3	Ermelo	Ogies	Trans.	EHH	>20	147	2	3kV DC	CTC	160	S1	26	B					41-60			
3.4	Vryheid	Hlobane	Trans.		<2	22	1		WTS		20		E			40			Servicing coal sidings		
4.	Durban - Swaziland																				
<i>(This line service the northern KZN and links through Swaziland to south-east Mpumalanga)</i>																					
4.1	Durban	Stanger	Trans.	C	5-10	75	2	3kV DC	CTC/CL	66		20						118	61-90		
4.2	Stanger	Darnall	Trans.	C	5-10	13	2	3kV DC	CL	66		20						119	41-60		
4.3	Darnall	Gingindlovu	Trans.	C	5-10	44	1	3kV DC	RTO	66		20						44			
4.4	Gingindlovu	Felixton	Trans.	C	<2	43	1	3kV DC	RTO	66		20						30	41-60		
4.5	Felixton	Empangeni	Trans.	C	<2	10	2	3kV DC	CTC	66		20						120			
4.6	Empangeni	Golela (border)	Trans.	C	5-10	213	1	D	RTO	66		20						23	41-60		
4.7	Empangeni	Nkwalini	Trans.		<2	64	1	D	RTO	50		18.5						20			
4.7	Gingindlovu	Eshowe	Trans.	NS	<2	34	1	D	RTO												

Description of line			General			Infrastructure Details									Operational Details					Comments & Notes
			Owner	Transnet Classification	Traffic Volume	Length of Line	Lines	Traction	Train Authorization	Ruling Grade	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		
5.	Durban	Port Shepstone			118															
<i>(This line is used for suburban services to Kelso and joins with the narrow gauge (610mm) line to Harding at Port Shepstone.)</i>																				
5.1	Rossburgh	Umbogintwini	SARCC		2-5	16	2	3kV DC	CTC	50		20		D+			156		61-90	
5.2	Umbogintwini	Kelso	SARCC		2-5	44	1	3kV DC	CTC	50		20		D+			55			
5.3	Kelso	Umtentwini	Trans.	NC1	2-5	47	1	3kV DC	RTO	38.5		20		C			38		41-60	
5.4	Umtentwini	Port Shepstone	Trans.	NC1	<2	3	1	3kV DC	RTO	38.5		20		C			38		41-60	
5.5	Umtentwini	Simuna	Trans.	NC?	<2	14	1	3kV DC				20					26			
6.	Ladysmith - Free State																		60 km to KZN border at van Reenen.	
<i>(This line links Durban with the Freestate and also provides an additional route to Gauteng.)</i>																				
6.1	Ladysmith	Harrismith	Trans.	C	2-5	97	1	3kV DC	CTC	50		20		C			30		41-60	
6.2	Harrismith	Bethlehem	Trans.	C	2-5	98	1	3kV DC	TW	50		20		C			29		41-60	
7.	Glencoe	Vryheid				89														
<i>(This line links the Durban - Gauteng main line with the coal line)</i>																				
7.1	Glencoe	Dundee	Trans.	C	5-10	8	1	3kV DC	RTO	50		20		C			37		41-60	
7.2	Dundee	Vryheid	Trans.	C	5-10	82	1	3kV DC	TW	50		20		C			37		41-60	
8.	Pietermaritzburg Branch Line Cluster: North-east																			
<i>(A cluster of branch line are taking off from Pietermaritzburg to service the midlands north east of Pietermaritzburg.)</i>																				
8.1	Pietermaritzburg	Greyton	Trans.	NC1	<2	104	1	D	WTS	30		20		E			22			
8.2	Greyton	Kranskop	Trans.	NC1	<2	51	1	D	RTO	30		18.5		E			16			
8.3	Greyton	Mount Alida	Trans.	NC1	<2	45	1	D	WTS	50		16		E			11			
8.4	Dalton	Glenside	Trans.	NC1	<2	19	1	D		50		16		E			27			
8.5	Schroeders	Bruynshill	Trans.		<2	24	1	D		50				E			18		Only 18km is currently in operation.	
9.	Pietermaritzburg Branch Line Cluster South-west																			
9.1	Pietermaritzburg	Donnybrook		NC1	<2	129	1	D	RTO			18.5		E			21			
9.2	Donnybrook	Franklin		NC1	<2	92	1	D	RTO	40		18.5		E			12			
9.3	Franklin	Kokstad		NC1	<2	41	1	D	WTS	50		18.5		E			9			
9.4	Franklin	Matatiele		NC1	<2	77	1	D	WTS	50		16		E			16			
9.5	Donnybrook	Underberg		NC1	<2	62	1	D	WTS	36		18.5		E			7			
9.6	Pentrich	Richmond		L??	<2	42	1	D	WTS	34		18.5		E			18		Line now includes 14km (Pentrich - Thornville) of old main line.	

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		
9.	Ennersdale	Bergville	Trans.	NC2	68	1	D	WTS	50		16		E			9			Trains operate from Escort	
<i>(This line service the agriculture areas of Winterton and Bergville.)</i>																				
10.	New Castle	Utrecht	Private		<2	48	1	D	RTO							15				
<i>(This line service the coal mines at Utrecht)</i>																				
11.	Port Shepstone	Harding	SARCC	NS		1	D	WTS			11.5		E							
<i>(This narrow gauge (610) line was operated by a private company for years.)</i>																				

NOTE 1: Transnet Classification	
EHH	Export Heavy Haul lines
C	Core lines carrying > 5 MGT
NC1	Non Core carrying > 0.2 < 5 MGT
NC2	Non Core carrying < 0.2 MGT
NS	No service or closed
L	Leased

NOTE 2: Traction Supply	
3kV DC	Electrified with 3kV DC
25kV AC	Electrified with 25kV AC
50kV AC	Electrified with 50kV AC
D	Non Electrified lines. Use mainly diesel locomotives

NOTE 3: Train Authorization	
CTC	Centralised Traffic Control
CL	Colour Light
TW	Track warrant
RTO	Radio Train Order
VS	Van Schoor
TO	Telegraph order
WTS	Wooden Train Staff

NOTE 5: General Condition	
<i>(Based on SAICE classification of infrastructure in South Africa)</i>	
A:	Very good
B:	Good
C:	Fair
D:	Poor
E:	Very poor

NOTE 4: Track Structure	
S1	Heavy Haul Lines. Built for 26 ton axle loads with 60kg/m rails on FY/PY concrete sleepers @ 650mm crs., with 300mm ballast under sleepers @ 1600 cub.m per km
N1	Main Lines >15MGT per year: Built for 20 ton axle loads with 57kg/m rails on P4/F4/FY/PY concrete sleepers @ 700mm crs., with 280 mm ballast under sleepers @ 1500 cub.m per km
N2	Lines with 5-15 MGT per year: Built for 20 ton axle loads with 48kg/m rails on F2/P4, wood or steel sleepers @ 700mm crs., with 200 mm ballast under sleepers @ 1200 cub.m per km
N3	Branch and Yard lines: Mainly built with 30, 40 or 48kg/m rails on steel, wood, mono block or concrete sleepers @ 800mm crs., with varying ballast quantities.

6.3.5 Inter-modal terminals

There is very little true inter-modalism in South Africa, except between the marine transport and the overland transport sector. Competition between rail and road in the overland sector is intense and there has been major shift to road in recent years – particularly for import traffic where just-in-time delivery is important.

When large-scale containerisation was introduced in the late 1970's, rail had a virtual monopoly on long-haul transport which included container traffic from the various ports to interior destinations such as Gauteng. The railway administration introduced the PX (Parcel Express) system in an effort to consolidate and expedite parcels traffic. This was a form of true intermodalism since rail was used for the long-haul and road for collection and delivery. Huge warehouses were established at major centres and auto-sort facilities using the latest technology were constructed. High speed trains were introduced on the Cape Town – Johannesburg route, taking only 14 hours for the rail portion. Unfortunately, the road link-ups were often deficient and when compared to direct road transport, the rail-road intermodal system could not always compare in point-to-point time and cost. In consequence, nearly all these facilities have been closed and often leased as warehouses. The auto-sort facilities were all scrapped. The PX containers were sold to the South African Post Office who is running it as a separate product, on road, within their Courier Freight Business.

After transport deregulation during the late 1980's, road operators could operate without permits to any point in the country and this undermined the railway's former monopoly. Today on the Durban – Gauteng route only about 30% of import and 60% of export container traffic is still on rail. This has caused major road congestion in the area of the Durban Container Terminal and calls have been made to reduce the number of trucks hauling containers in and out of the port.

As early as the year 2000, proposals were made to establish an inland "port" at Mooi River, some 200 kilometres inland and served by both road and rail. Road traffic to and from the interior would exchange container loads to rail but for this concept to have been successful it would have required an even flow of traffic in both directions – a requirement that would probably not have been possible. A more recent proposal has been to establish an inter-modal facility at Cato Ridge to perform a similar function to the earlier Mooi River concept.

Concern has been expressed that the location of the City Deep Terminal in Johannesburg is not ideal and this adversely affects rail container traffic. When established in the late 1970's, it was ideally placed but over the past 35 years there have been claims by some transport experts that the weighted nodal distribution point has moved to the north-east. Certain road transport companies who specialise in container transport believe that Kempton Park might be a good place to establish a new container terminal as there is adequate space, it would be near Sentrtrand yard and road distribution would avoid the congested CBD. This is a matter that requires further investigation.

6.3.6 KwaZulu-Natal Suburban Network

The rail network within the eThekweni and surrounding areas as well as the south coast line to Kelso belong to the SARCC (South African Rail Commuter Corporation) and are mainly being used for suburban services.

Figure 13 is a diagrammatic layout of the rail network.

6.3.6.1 Mainline Passenger Operations

Main Line passenger trains are operated under the brandname Shosholozza Meyl. This service was transferred from Transnet to the SARCC. There are, at present, an average of six round trip “Sitter” and three “Sleeper” trains per week on the Durban – Johannesburg route. In addition, one train a week operates on the Durban – Cape Town route. On the Johannesburg route, passenger trains can be loaded to 18 coaches, but out of season this may be reduced to 14.

6.3.6.2 Suburban Passenger Operations

The South African Rail Commuter Corporation and Metrorail have now been consolidated into one unit falling under the Department of Transport. In the Durban operating area, 208 kilometres of track are utilised by Metrorail trains which use 102 stations including the main Durban station. Shosholozza Meyl and Metrorail trains run over the Mariannhill to Cato Ridge mainline while Metrorail trains share the North and South Coast line, otherwise all freight. This includes the Rosburgh to Kelso portion of the South Coast line and the Durban station to Stanger portion of the North Coast line.

The present “official” Durban station has 15 full-length run-through lines, most of which are used by suburban trains although three are normally used by main line trains. The Berea Road station, used only by suburban trains, is located 2 kilometres to the west and adjacent to downtown Durban. It is actually busier than the main station and is adjacent to a large taxi rank.

Metro trains operate on eight routes, three of which are dedicated commuter lines. These are the short Duff’s Road to KwaMashu line in the north, the longer line from Merebank to Crossmore in the south, as well as the Reunion – Umlazi branch. Most operations are controlled by the CTC (Centralised Traffic Control) centre, located at Durban Station but some of the outlying sections use colour light signals, controlled by local TCO Train Control Officers. The Pinetown section is single track and controlled by on-line TCO’s operating mechanical semaphore signals. The South Coast line is double track to Umbogintwini and single track to Kelso. It is controlled by CTC to Park Rynie.

On the North Coast, suburban services operate on a common route to a point north of Umgeni station, from where the line splits into two parallel routes as far as Duffs Road. The one line runs on the land side via Effingham while the other runs on the seaward side through Briardene and Avoca. KwaMashu trains normally operate over

the Effingham section and operate through to Umlazi in the south. Other trains operate to Tongaat and Stanger further north. Other suburban train operations include the Durban to West section via Rosburgh, Kings Rest, and Island View. Other trains operate over the new Natal mainline via Marianhill and Cato Ridge. Some of these trains operated to Pietermaritzburg in the past but they were discontinued several years ago.

6.3.6.3 Passenger Statistics

The Durban metro system carried nearly 54 million passengers during the 2005 – 2006 financial year. Growth statistics and comparison with other major centres are illuminating and illustrated in the table below.

Table 19: Suburban Rail statistics: 1980 and 2005

Area	1980	2005	% Inc	Track km	Stations
Durban	20,853,815	53,924,366	2.59	208	102
Cape Town	30,664,036	169,886,431	5.54	370	102
Port Elizabeth	1,912,465	1,687,431	0.88	43	11
East London	1,282,771	6,397,530	4.99	49	18
Witwatersrand	38,852,935	184,552,237	4.75	360	167
Pretoria	6,805,784	75,435,635	11.08	120	78
Total	100,371,816	491,902,037	4.90	1,150	478

From the above table it can be seen that the growth of passenger numbers in the Durban area has been less than most other centres with the exception of Port Elizabeth. It has, however, been reported that Durban passenger traffic has grown more rapidly than others centres in the last two years and predictions are that this growth will continue in the future.

6.3.6.4 Passenger Rail Operating Equipment and Infrastructure

Suburban trains are operated in configurations of 8 and 12 coaches. The majority of suburban passenger coaches in use are the all steel 5M2A type, built after 1959. Many of these have been completely rebuilt as 10M2 – 5 types by the Transwerk division of Transnet at Koedoespoort in Pretoria. There are currently 46 sets of the 5M2A type, one Class 10M2 prototype and five 10M5 train sets in operation in the area. The rebuilding programme to create more 10M coach types cannot keep up the demand of increasing patronage as is being driven by government.

Unfortunately, general maintenance of rolling stock was allowed to fall behind in the recent past and a significant proportion of coaches have gone beyond the 13 year requirement of having a 'A Class' overhaul. Because of this, many coaches are standing out of use for safety reasons. In Durban for example, there is an allocation of about 800 suburban coaches but only 600 are in service. Because of this, trains are chronically overcrowded and there appears to be no short-term solution. The private sector could assist with rebuilding coaches but to date the railway administration has not made a request for such services.

Table 20: Details of Suburban Passenger Rail Network in the KwaZulu-Natal 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	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.	Cape Town	Gauteng			1538														624 km in Western Cape	
<i>(This is the core line from the Western Cape to the other provinces and neighbouring countries.)</i>																				
1.1	Cape Town	Bellville	SARCC		19	3/4	3kV DC	CL			20		C					61-90	Metro lines. Freight to industrial areas. Alternative link to harbour.	
1.2	Bellville	Wellington	Trans.	C	5-10	54	2	3kV DC	CTC		20		C			138		41-60	Also being used for Metro services	
1.3	Wellington	Worcester	Trans.	C	5-10	102	1	3kV DC	CTC		20		C			50		21-40	Through Nuwekloof round mountains.	
1.4	Worcester	Beaufort West	Trans.	C	5-10	368	1	3kV DC	CTC		20		C			33		21-40	Hex River tunnel.	
1.5	Beaufort West	Three Sisters	Trans.	C	5-10	79	1	25kV AC	CTC		20		C			44		21-40		
1.6	Three Sisters	De Aar	Trans.	C	5-10	179	1	25kV AC	CTC		20		C			44		21-40	Western Cape Border in this section.	
1.7	De Aar	Kimberley	Trans.	C	5-10	231	1/2	3kV DC	CTC		20		C			95		91-100	Iron ore from Hotazel to Port Elizabeth.	
1.8	Kimberley	Johannesburg	Trans.	C	10-15	506	1/2	3kV DC	CTC		20		C			95		41-60	Northern Cape to Gauteng	
2.	Saldanha	Sishen	Trans.	EHH	>20	861			CTC	250	S1	30	B			6		91-100	215 km in Western Cape	
<i>(This line is being used for Iron Ore from Sishen and other minerals along the route.)</i>																				
3	Kraaifontein - Bitterfontein				259															
<i>(This line services the West Coast, Swartland and Namakwaland)</i>																				
3.1	Kraaifontein	Kalbaskraal	Trans.	NC1	<2	33	1	D	RTO		N2	20				31				
3.2	Kalbaskraal	Klawer	Trans.	NC1	<2	270	1	D	RTO		N3	18.5				20				
3.3	Klawer	Bitterfontein	Trans.	NC?	<2	132	1	D	RTO		N3	16	N3			14				
4.	Kalbaskraal - Saldanha		Trans.	NC1	<2	142		D	RTO		20		C			21		41-60		
<i>(This line service the western areas of the Swartland and the Vredenburg - Saldanha industrial areas.)</i>																				
5.	Eerste River - Proteem/Bredasdorp																			
<i>(This line services the Strand-Somerset West metro pole and the areas east of the Mountains.)</i>																				
5.1	Eerste River	Van der Stel	SARCC		<2	17	2	3kV DC	CL		N2					51			Metro lines.	
5.2	Van der Stel	Caledon	Trans.	NC1	<2	90	1	D	RTO		N3	18.5		C		15				
5.3	Caledon	Klipdale	Trans.	NC1	<2	69	1	D	RTO		N3	16	N3	C		22				
5.4	Klipdale	Protem	Trans.	NC1	<2	16	1	D	RTO		N3	16	N3	C						
5.5	Klipdale	Bredasdorp	Trans.	NC1	<2	40	1	D	RTO		N3	16	N3	C		16				
6.	Worcester - Oudtshoorn - Port Elizabeth																			
<i>(This line services the area between Worcester and Mossel Bay, George and Oudtshoorn from where it goes to Port Elizabeth via. Klipplaat in the Eastern Cape)</i>																				
6.1	Worcester	Voorbaai	Trans.	NC1	<2	329	1	D	RTO		18.5		C			16				
6.2	Voorbaai	George	Trans.	NC1	<2	45	1	D	RTO		18.5		C			19				
6.3	George	Oudtshoorn	Trans.	NC1	<2	73	1	D	RTO		18.5		C			19				
6.4	Oudtshoorn	Port Elizabeth	Trans.	NC1	<2	444	1	D	RTO		18.5		C			20				
6.5	Oudtshoorn	Calitzdorp	Trans.	L/NS	0	57	1	D	WTS		15	N3	E							
6.6	George	Knysna	Trans.	L/NS		67	1	D	TO		16	N3	E			19				

Description of line			General			Infrastructure Details								Operational Details					Comments & Notes	
			Owner	Transnet Classification	Traffic Volume	Length of Line	Lines	Traction	Train Authorization	Ruling Grade	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		
7. Harbour Links																				
7.1	Harbour	Bellville	Trans.	C	5-10	21	2	3kV DC	CTC		S1	20		C						Also being used for Metro services
<i>(This line, linking the harbour with the main line and marshalling yards at Bellville, is the main access to the harbour.)</i>																				
7.2	Harbour	Woltemade			<2	8	2		CL			20		C						
<i>(This line links the harbour with the main network at Woltemade. Most of the traffic is now using the)</i>																				
8. Kentemade Atlantis			Trans.	NC1	<2	45	1	D	CTC			20		C			14			
<i>(This line service the industrial area at Atlantis)</i>																				
9. Paarl - Franschhoek			Trans.	L		28	1	D	WTS			18.5		E			18			
<i>(This line may have toerisme potential)</i>																				
10. Hermon Porterville			Trans.	NC1	<2	58	1	D	WTS			18.5		C			11			
<i>(This line service mainly the cement industry)</i>																				
11. Wolseley Prins Alfret Hamlet			NS			27	1	D	WTS			16	N3	E			18			
<i>(This line)</i>																				
12. Bellville - Stellenbosch - Muldersvlei																				
<i>(This line is mainly used for passenger services and the industries around Stellenbosch)</i>																				
12.1	Bellville	Eerste River	SARCC		<2	15	2	3kV DC	CL			18.5		D+						Metro lines.
12.2	Eerste River	Muldersvlei	SARCC		<2	42	1	3kV DC	CL			18.5		D+						Metro lines. Freight to Stellenbosch.
13. Salt River Simonstown			SARCC		<2	33	2	3kV DC	CL			18.5		D+						Metro lines. Freight to industrial areas and Simonstown Naval Base.
<i>(This suburban line service the industrial areas in the Southern Suburbs and the Navel base at Simonstown)</i>																				

NOTE 1: Transnet Classification	
EHH	Export Heavy Haul lines
C	Core lines carrying > 5 MGT
NC1	Non Core carrying > 0.2 < 5 MGT
NC2	Non Core carrying < 0.2 MGT
NS	No service or closed
L	Leased

NOTE 2: Traction Supply	
3kV DC	Electrified with 3kV DC
25kV AC	Electrified with 25kV AC
50kV AC	Electrified with 50kV AC
D	Non Electrified lines. Use mainly diesel locomotives

NOTE 3: Train Authorization	
CTC	Centralised Traffic Control
CL	Colour Light
TW	Track warrant
RTO	Radio Train Order
VS	Van Schoor
TO	Telegraph order
WTS	Wooden Train Staff

NOTE 5: General Condition	
<i>(Based on SAICE classification of infrastructure in South Africa)</i>	
A:	Very good
B:	Good
C:	Fair
D:	Poor
E:	Very poor

NOTE 4: Track Structure	
S1	Heavy Haul Lines. Built for 26 ton axle loads with 60kg/m rails on FY/PY concrete sleepers @ 650mm crs., with 300mm ballast under sleepers @ 1600 cub.m per km
N1	Main Lines >15MGT per year: Built for 20 ton axle loads with 57kg/m rails on P4/F4/FY/PYconcrete sleepers @ 700mm crs.,with 280 mm ballast under sleepers @ 1500 cub.m per km
N2	Lines with 5-15 MGT per year: Built for 20 ton axle loads with 48kg/m rails on F2/P4, wood or steel sleepers @ 700mm crs., with 200 mm ballast under sleepers @ 1200 cub.m per km
N3	Branch and Yard lines: Mainly built with 30, 40 or 48kg/m rails on steel, wood, mono block or concrete sleepers @ 800mm crs., with varying ballast quantities.

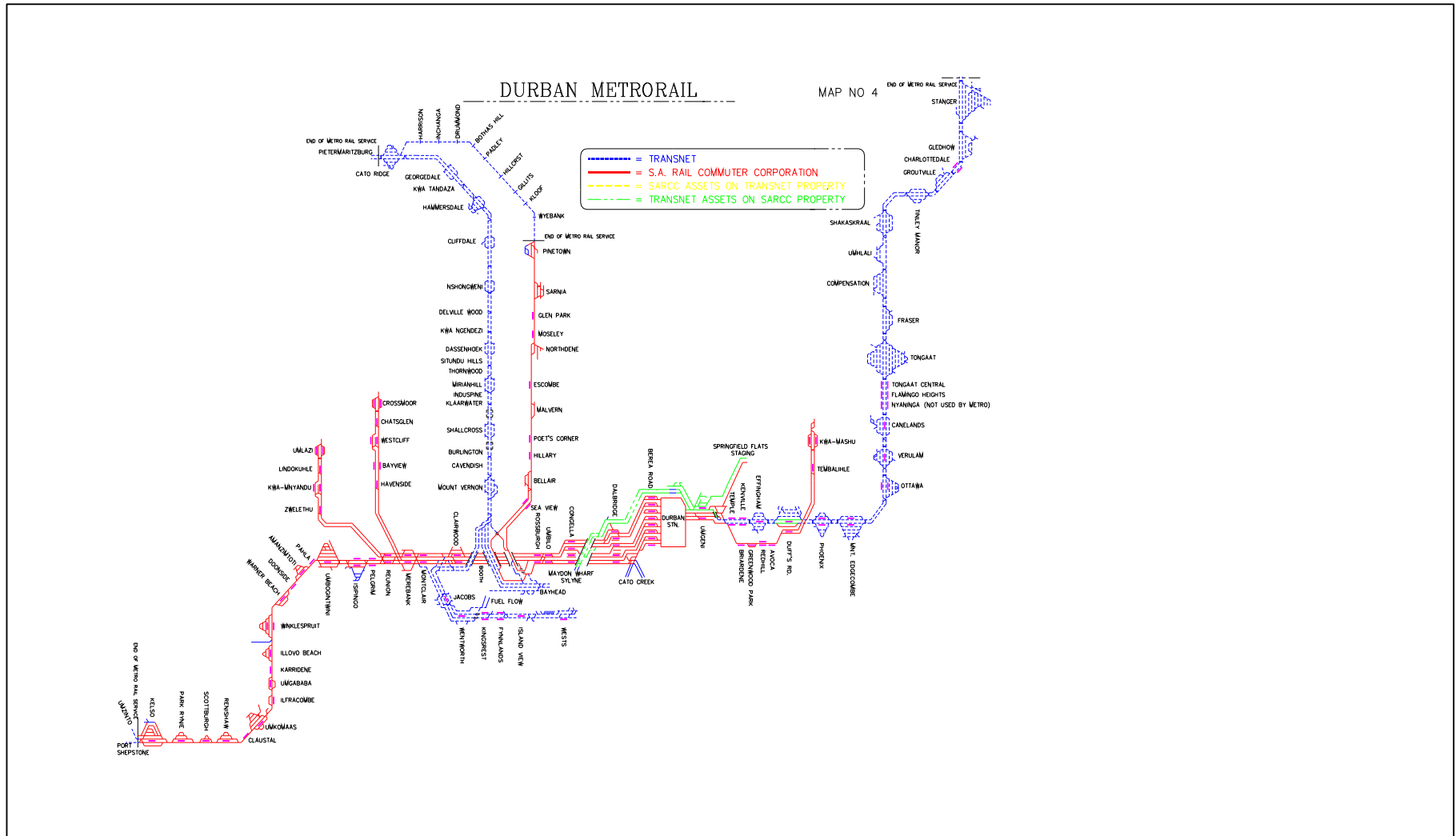


Figure 13: Diagrammatic Layout of the KwaZulu-Natal Suburban Rail Network

6.3.7 Usage and classification of the KwaZulu-Natal Network

6.3.7.1 National Usage

The traffic on a line is measured in million grosstonnes per year. Grosstonnes exceed payloadtonnes as the mass of wagons and locomotives are included. **Figure 14** below indicates the usage of the different lines in South Africa.

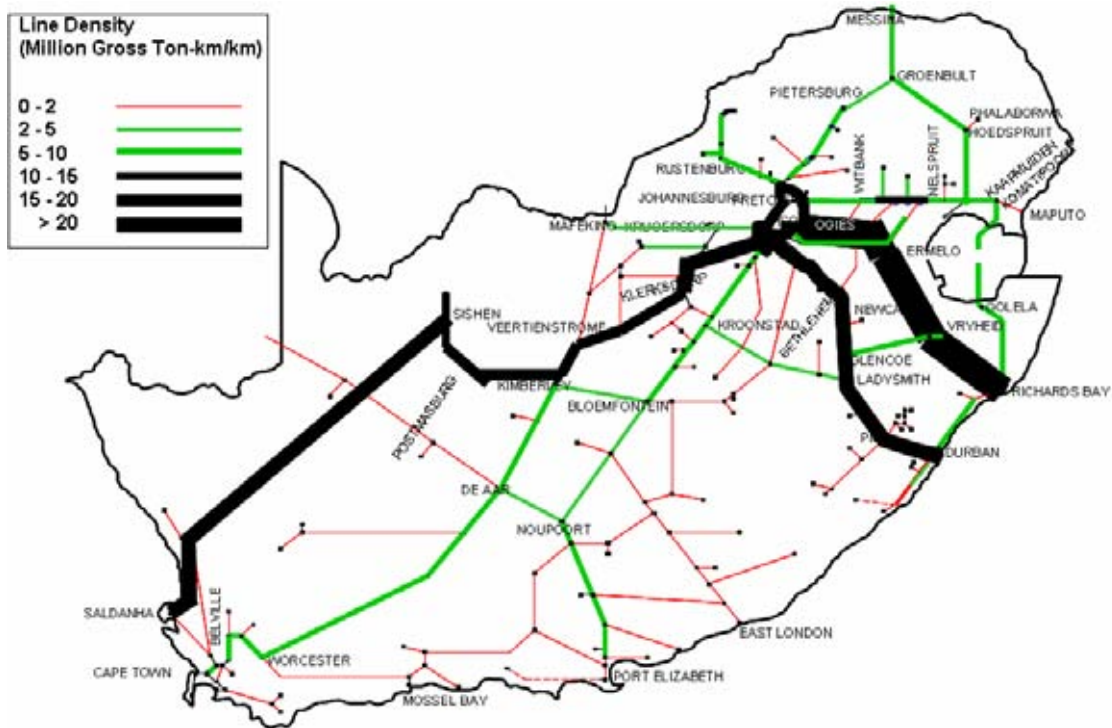


Figure 14: Gross Ton per Year on the Freight Rail

The commercial capacity (net ton per annum) of a rail corridor is determined by the axle loads, the train length (number of trucks) and the number of trains that can travel through the network.

6.3.7.2 Classification of KwaZulu-Natal Rail Network

Transnet classification of the network, as described in 6.3.2.1 above, is based on the potential business value of the different routes. The rail infrastructure in KwaZulu-Natal is classified by Transnet as follows:

(i) Export Heavy Haul Lines

The Mpumalanga – Richards Bay 25kV AC electrified coal line is built to carry 26 ton axle. The capacity of this line (number of trains) is only approximately 60% used. The section through the single Overvaal tunnel, south-east of Ermelo, is currently 100% utilised.

The current traffic on the line is 66.3 million tonnes per year. Transnet forecasts a growth in the demand from between 86 and 96 million tonnes by 2026.

(ii) Core Network (carrying more than 5 million gross ton per year)

- The main line from Durban and the Port of Durban via Ladysmith to Gauteng is built for 20 ton axle loads. The line is double all the way to Gauteng. The line is electrified with 3kV DC. Transnet is planning enhancements of the CTC train control system (Central Traffic Control) as well as the electrification system. The line is also used for suburban services up to Cato Ridge.

The utilization of this line varies from 21 to 40%.

- The Line from Durban to the Swaziland border is built for 20 ton axle loads. The line is double to Darnall (north-east of Stanger) from where it is single to the Swaziland Border. The line is electrified with 3kV DC to Empangeni while diesel traction is used from Empangeni to Swaziland.

The network links to the rail lines in the port at Cato Creek, Mayden Warf, Bayhead and the line to Wests.

The utilization of this line varies from 21% to 90% as follows:

Durban to Stanger: 61 – 90%

Stanger to Empangeni: 41 – 60%

Empangeni to Golela: 21 – 40%

- The single line from Ladysmith (Danskraal) to Harrismith and beyond in the Free State is built for 20 ton axle loads and is 3kV DC electrified.

The utilization of this line varies from 41% to 60%.

- The line from Glencoe to Vryheid is built for 20 ton axle loads and is 3kV DC electrified. This line links the Durban – Gauteng mainline with the coal line.

The utilization of this line varies from 41% to 60%.

(iii) Non Core Network (carrying between 0.2 and 5 million gross ton per year)

The following lines are in this category:

- The 3kV DC electrified single line from Kelso to Port Shepstone. This line is an extension of the SARCC line from Durban to Kelso. An electrified line to Simuna is taking off at Umtentwini.
- Pietermaritzburg branch line cluster to the North-east.
- Three non-electrified branch lines take off from Pietermaritzburg to service the areas north-east of the city. These lines are to Kranskop via Greyton with a branch to Mount Alida, from Dalton to Glenside and from Schroeders to Bruynshill. The allowable axle load varies from 16 to 20 tonnes.
- Pietermaritzburg branch line cluster to the South-west.
- Two non-electrified branch lines take off from Pietermaritzburg to service the areas south-west of the city. These lines are Pietermaritzburg to Kokstad with branches to Underberg and Matatiele and from Pentrich to Richmond. The allowable axle load varies from 16 to 18.5 tonnes.
- The non-electrified line from Empangeni to Nkwalini is built for 18.5 ton axle loads.

- The branch line from Tendeka (Vryheid) to Hlobane is built for 20 ton axle loads.

(iv) Non Core Network (carrying less than 0.2 million gross ton per year)

The lines in this category are:

- The branch line from Ennersdale to Bergville that was built for 16 ton axle loads.
- The old main line from Pinetown to Cato Ridge. This line is mainly being used as an alternative route from Durban to Cato Ridge in cases of emergency.

(v) Lines with no service on or closed.

The lines with no services on are:

- The line from Gingindlovu to Eshowe.
- The narrow gauge line from Port Shepstone – Harding. This line was leased to a private company who operate

(vi) Lines that are leased.

No lines being leased at present

6.3.7.3 Suburban Network

The suburban network is well utilised with an intensive suburban service concentrating on commuters to and from work.

6.3.7.4 Inter Passenger Services

The following return services by Shosholoza Meyl are still available in the KwaZulu-Natal province:

- Durban –Johannesburg (Tourist sleepers and sitter)
- Cape Town – Durban (Tourist sleepers and sitter)

The usage of the Trans-Oranje (Cape Town – Durban) is very low.

6.3.8 Condition of the Infrastructure

6.3.8.1 Transnet Strategy

Transnet is planning to maintain the current good condition of the core network by focussing track material replacement plans on these lines of the network. Released material will be refurbished and cascaded to non-core lines and yards. The strategy is to only use high quality material on the core lines. (e.g. Rails with HSH350LHT steel for heavy haul line and grade 900 for rest of the core network. Concrete sleepers manufactured to the latest technology and designs. The latest 60kg designs for turnouts.) Non-important and low tonnage light and low-density lines are maintained according to safety standards at low axle loading and low speeds.

TFR monitor the condition via planned inspections and audits in respect of bridges, tunnels and other structures while alignment, gauge, top, profiles and other relevant

parameters are measured via the IM2000 measurement car. Two ultrasonic measurement cars are utilised to monitor the rails for cracks and faults. The measurement information is utilised by the maintenance staff to repair faults and schedule planned maintenance interventions. In respect of core lines the goal is to keep speed restrictions to a level less than 1.8% of the network. The current level is just above 1%. For non-core lines the goal is less than 4% with the current level at 3.5%.

To address minor breakdowns of the rail line and some day-to-day maintenance processes, maintenance teams are being equipped with technologically advanced equipment of vehicles capable of travelling on road and rail. The latter enable them to get to parts of the network that was previously not easily accessible and the package supports the drive to improve efficiency, productivity quality of work performed, and safety at the work place. The corrective preventive maintenance actions that are performed with on-track machines like tampers, ballast cleaners and rail grinders will be further improved with the new generation machines that are able to produce more work in less occupation time at lower unit costs.

Some of the authorisation systems that have been implemented over the years are obsolete and must be replaced. Others have far exceeded their design life and are still functional, although approaching obsolescence. At present the electrification systems are maintained by TFR in an operationally serviceable condition, but require periodic interventions in the form of partial- or complete replacements. Conditions are monitored via planned inspections and audits in respect of substations and via the state of the art IM2000 measurement car in respect of the overhead track equipment. The measurement car gets scheduled according to traffic volumes and also importance of lines. Measurement information is utilised by maintenance staff to repair faults and schedule planned maintenance interventions.

6.3.8.2 Condition as described by SAICE

The South African Institution of Civil Engineering (SAICE) publishes an annual report card describing the condition of infrastructure in South Africa. The 2006 report describe the rail condition as follows:

Rail	B for heavy haul freight lines	The iron ore and coal lines are world class and well maintained. Profitable. Where demand is approaching capacity, upgrading is programmed.
	C for general freight lines being retained	Condition declined in recent years due to maintenance backlogs and skills reduction. Traffic volumes are increasing, and upgrading urgently required. Improvement expected as Transnet profitability improves.
	E for uneconomical general freight lines	Low volume low priority lines in the process of being disposed of.
	D+ for passenger lines	Gradual deterioration due to inadequate maintenance funding, reducing skills base, and vandalism, with resulting increased safety risks. Refurbishment underway. Improvement expected with the transfer to Department of Transport.

Where
 A = very good
 B = good
 C = fair
 D = poor
 E = very poor

Apart from the heavy haul freight lines and the ACSA owned airport facilities; no other infrastructure installations in South Africa were rated as high as B (good).

6.3.9 Capacity and Constraints

6.3.9.1 Capacity of the Freight System

The capacity of the different sections of the rail network in the KwaZulu-Natal province is reflected in **Table 18** classifies lines of the percentage of track capacity being used. Congestion is being experienced on the coal line with the single line through the Overvaal tunnel between Piet Retief and Ermelo. The rest of the network is under utilised to varying degrees.

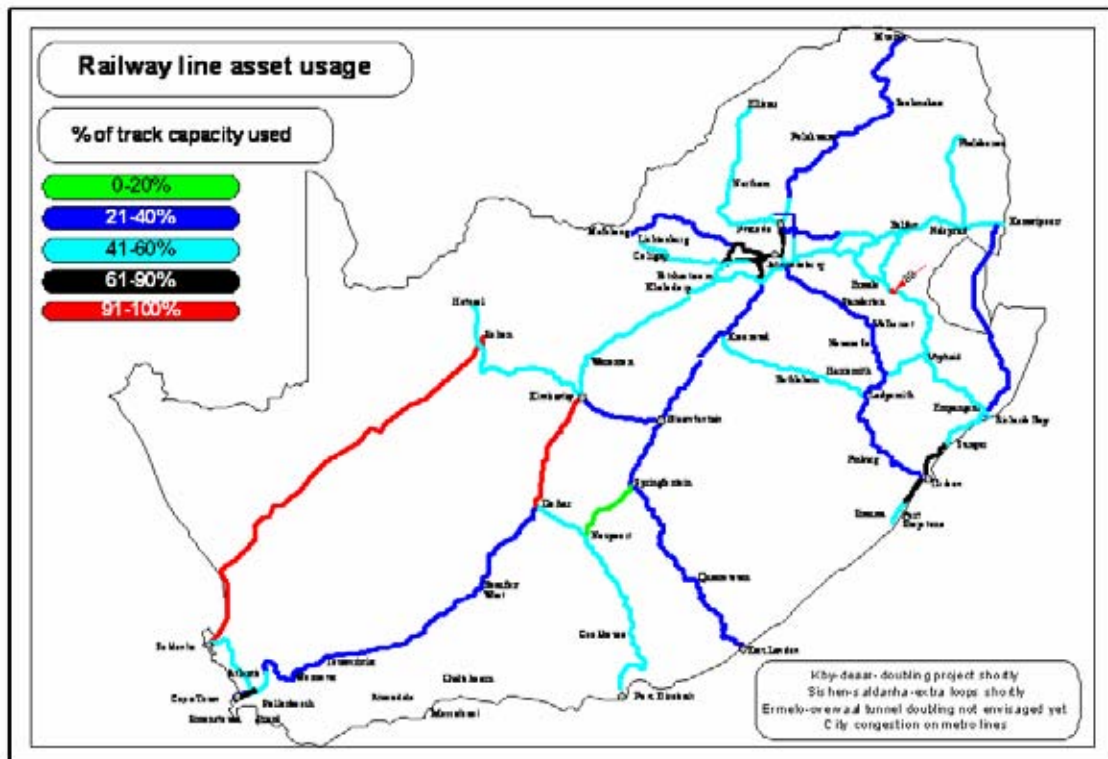


Figure 15: Rail Line Asset Usage

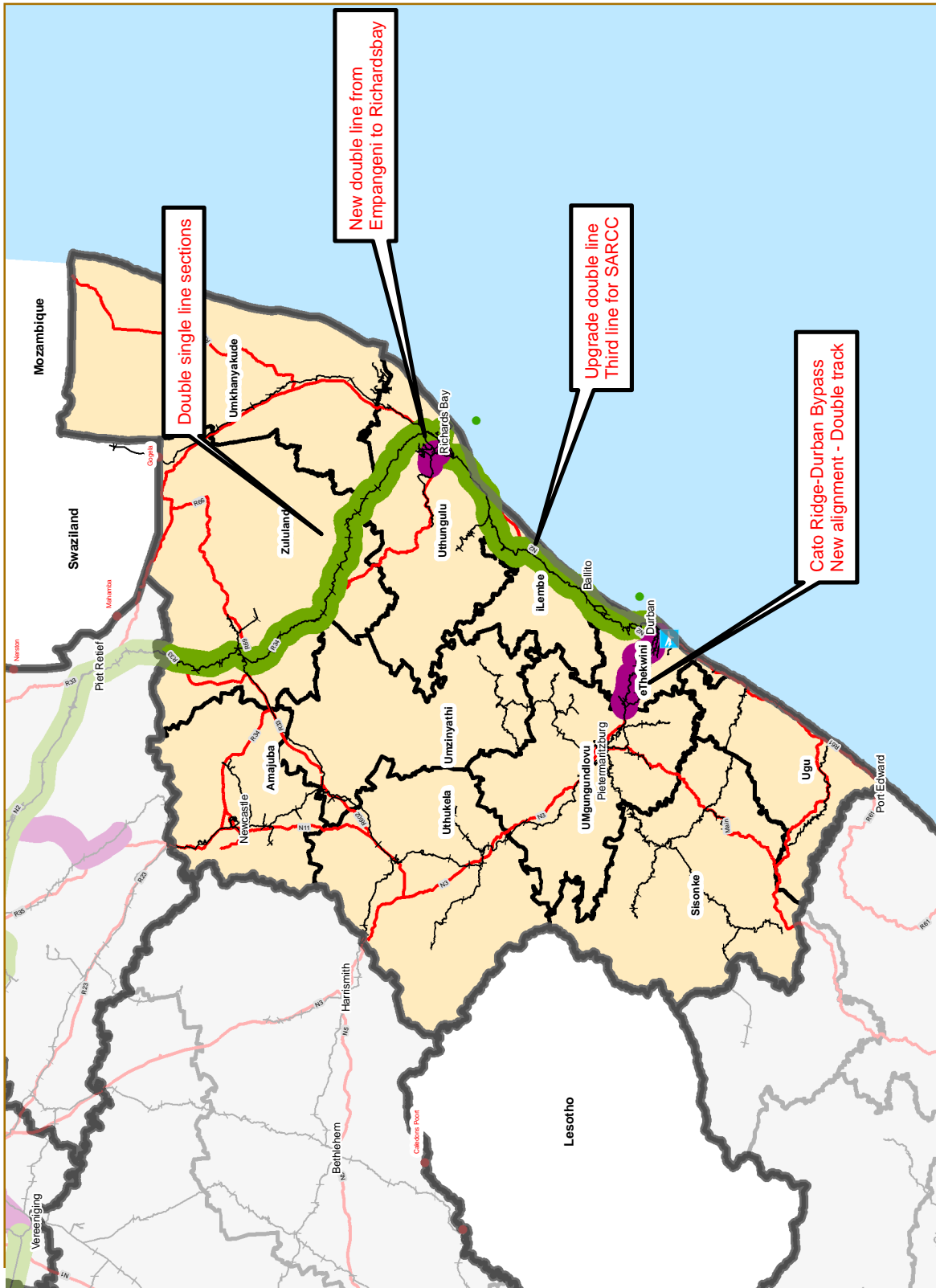
The freight system also experience shortages of specialised rolling stock and locomotives.

6.3.9.2 Constraints of the Freight Rail System

The freight rail system encounters the following constraints:

- Rail is considered world wide to be competitive on commodities that are heavy and can thereby use the carrying capacity of rail, over longer distances where the saving in running cost become more than the end point handling cost. Most of the consumer goods fall outside these requirements.

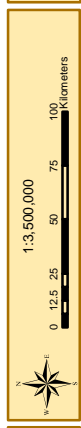
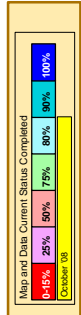
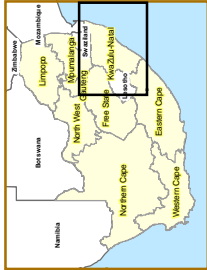
Kwazulu-Natal Province: RAIL NETWORK



RAIL NETWORK

DEVELOPMENTS

- Upgrade
- New Lines



Legend for boundaries:

- District Municipal Boundary
- Provincial Boundaries

Legend for points:

- Airports
- Towns

Legend for infrastructure:

- Border Posts
- Harbours

Legend for networks:

- SANRAL Road Network
- Railway Network

LEGEND

- Transnet claims that the road competitors do not carry the full cost of the infrastructure while the rail must carry the full cost of the rail infrastructure and facilities.
- The rail system is inherent not competitive on short distances and with commodities that requires expensive en time consuming loading, off-loading and distribution processes.
- The system lacks products and services for general freight that can easily access the rail rolling stock, are reliable, consistent, delivered within a reasonable time and be price competitive.
- The rail system lacks rail competition that will drive innovation and customer conformance.
- The rail infrastructure in the KwaZulu-Natal of the general freight lines has significant spare capacity. The capacity of most of the lines can be increased with relative small investments.
- The role of the Province in the future of the branch lines is unclear.

6.3.9.3 Constraints of the Suburban Rail System

The SARCC reports that the aging rolling stock is the major constraint. The funds that are available will be spent by the SARCC on refurbishing (recovering) the rolling stock and bringing the current network up to the required standard. Funds for expansion of the network will only become available after completion of their short and medium term in approximately 2010.

6.4 AVIATION

6.4.1 Outline of the approach

This section is the status quo report on the KwaZulu-Natal airports and contains all relevant data pertaining to airports of national importance including:

- Information from the Airports Company of SA (ACSA), as well as other stakeholders;
- Data related to airport infrastructure (capacity and expansion potential);
- Historical and present usage (passengers and flights);
- Origin destination demand lines;
- Demand forecasts from masterplans;
- Airport master plans; and
- Users (airlines, workers, precinct, freight)

This information was analysed in line with the expectations of Phase 1: Inventory, of NATMAP including making the links to other modes of transport. The task was intended to provide base year information on the airports including both airside (air passengers and number of flights) and landside (vehicles (pcu)) which will be input to the Phase 2 Analysis of future trends in demand for airports in the RSA. The task also has the objective of determining recent trends in growth in airside demand.

The output will be used in Phase 2 to assist in establishing the likely growth in demand for road space on both urban and inter-city networks to the major airport of national importance and the growth in demand for air space.

Air freight is addressed separately by the freight working group. The National Aviation Development Plan was not incorporated as this is still under development;

The primary sources of information for airports were:

- the current master plans for each airport;
- passenger flows between the airports were provided by ACSA as well as the growth trends for the pass year;
- ACSA, Air Traffic Forecasts 2005 – 2020;
- http://www.aircharterguide.com/Airport_Fleet/South_Africa/ZA;
- <http://www.aircraft-charter-world.com/airports/africa/southafrica>;
- <http://www.answers.com/topic/list-of-airports-in-south-africa>;
- http://worldaerodata.com/countries/South_Africa.php;
- http://en.wikipedia.org/wiki/Category:Airports_in_South_Africa; and
- Dube Trade Port and new International Airport at La Mercy Pre-Feasibility Study.

The airport master plans analyse the economic trends in detail to predict the air passenger demand. The data relevant to each airport for the National Transport Master Plan was then extracted and submitted to ACSA for approval. In addition ACSA provided data on the current flow of air passengers between the various airports. No additional calculations were done to predict the demand for the status quo report. This status quo data was summarised into tables for inclusion in this report.

Map 6.4A shows the location of the major airports in SA.

6.4.2 Functional airport categories

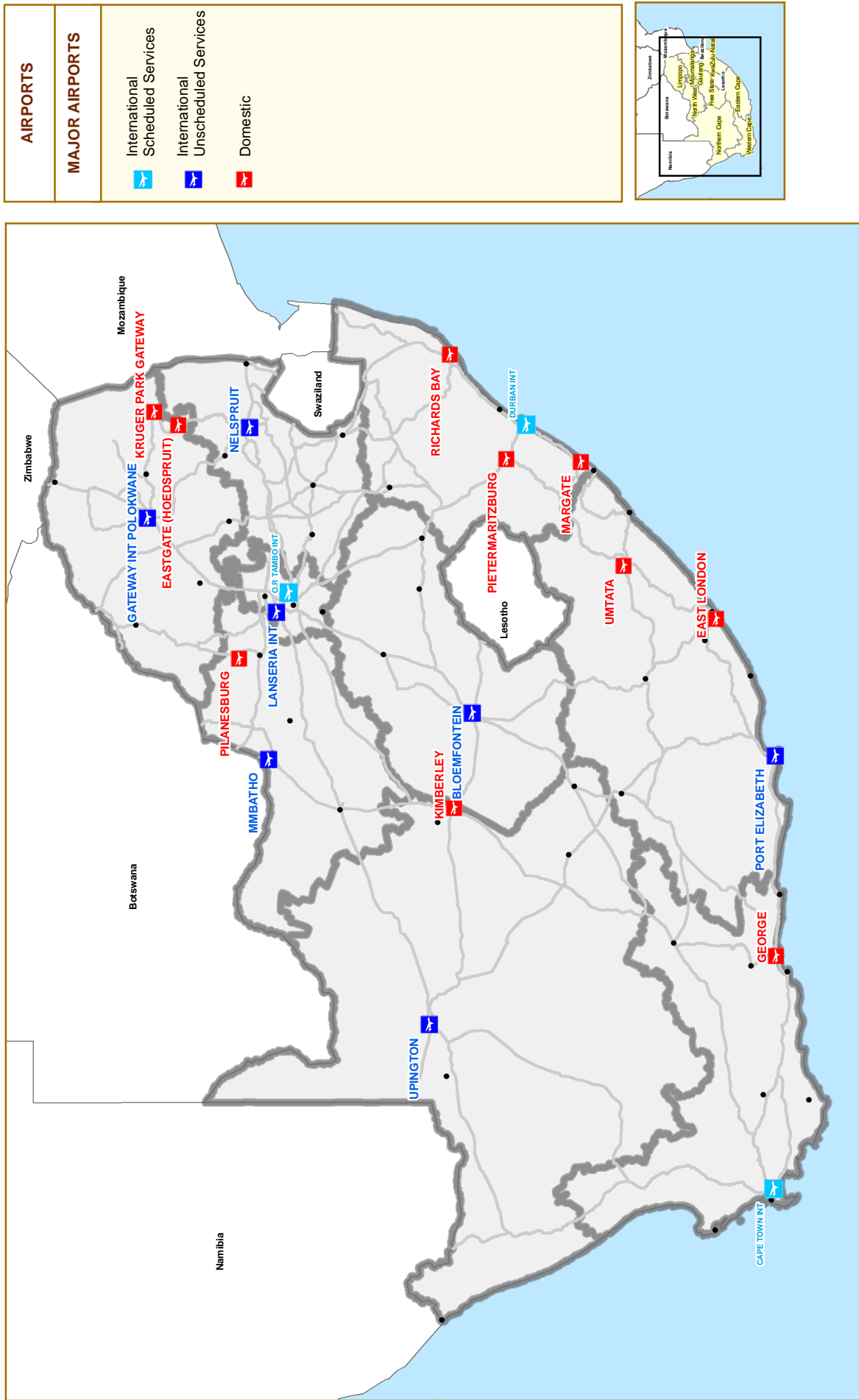
Three functional airport categories were identified:

- **International 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.
- **Domestic Airports:** These airports only 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:** Local airports do not provide scheduled services and usually have a small number of tenants. Where we have identified these airports they

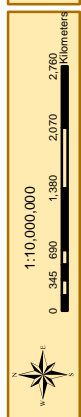
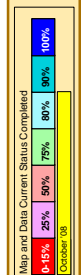
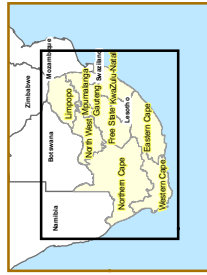


South Africa: MAJOR AIRPORTS IN SOUTH AFRICA

MAP 6.4A Major Airports in South Africa



AIRPORTS	
International Scheduled Services	
International Unscheduled Services	
Domestic	



LEGEND

- SANRAL Road Network
- Towns
- Provincial Boundaries

are only listed and available information is presented. No assessment or write-up of these airports has been included in the Methodology.

- **Future Infrastructure Plans:**

- Hold baggage screening equipment
- Freight section to be extended (by Airlink)
- Re-design of check-in facilities and baggage handling
- Expansion of hanger development area with new access road and helipad
- Relocation of fuel farm
- Expansion of fire station
- VOR / DME let down procedure
- GNSS let down procedure (to decrease diversions by 80 % - 90 %)

6.4.3 Airports in KwaZulu-Natal

There are 17 airfields in KZN as indicated in **Table 21**. There are four airports of national importance:

- Pietermaritzburg Airport,
- Durban International Airport,
- Richards Bay Airport; and
- Margate Airport.

Table 21: List of Aerodromes in KwaZulu-Natal

Closest Town	Airport	Owner	Runways	Private / Public Ownership and Usage	Runway Type
Durban, South Africa	Durban International	ACSA	2438	Public	Paved
Durban, South Africa	Virginia	Ethekwini Municipality	914	Public	Paved
Empangeni, South Africa	Empangeni	Alton Aero Engineering	701	Private	Unpaved
Eshowe, South Africa	Eshowe		640	Public	Unpaved
Estcourt, South Africa	Estcourt		1219	Public	Unpaved
Harding, South Africa	Harding	Umuziwabantu Municipality	1097	Public	Unpaved
Harrismith, South Africa	Harrismith	Harrismith Municipality	1189	Private	Paved
Hluhluwe, South Africa	Hluhluwe	The Big Five False Bay Municipality The Big Five	1189	Private	Unpaved

Closest Town	Airport	Owner	Runways	Private / Public Ownership and Usage	Runway Type
		False Bay Municipality			
Howick, South Africa	Howick		823	Private	Unpaved
Ladysmith, South Africa	Ladysmith	Ladysmith Municipality	1189	Public	Paved
Margate, South Africa	Margate	Margate Airport Management Company	1341	Public	Paved
Newcastle, South Africa	Newcastle	Newcastle Municipality	1494	Public	Paved
Pietermaritzburg, South Africa	Pietermaritzburg	Msunduzi Municipality	1524	Public	Paved
Richards Bay, South Africa	Richards Bay	Richards Bay Airport Company	1280	Public	Paved
Ulundi, South Africa	Prince Mangosothu Buthelezi	Aviation Services, KwaZulu-Natal Government, Prince M Buthelezi Airport	1615	Public	Paved

(Source AIP, 2007)

The proposed new International Airport at La Mercy at the Dube Tradeport (also referred to as the King Shaka International Airport) will be commissioned in 2010. When the new international airport is commissioned, Durban International Airport will be decommissioned.

Virginia Airport (Durban) has no scheduled flights. Only the airports of national importance were considered in this report.

6.4.4 Pietermaritzburg Airport (FAPM)

6.4.4.1 Usage

Pietermaritzburg Airport has limited scheduled flights and is used by a flight training school and parachute club.

6.4.4.2 General

In summary Pietermaritzburg Airport has the following characteristics:

- current demand is 0.07 MAP (2005);
- there is no freight export and import by air;
- the capacity of the airport is 1 MAP (million air passengers per year);
- domestic growth rates are predicted at about 10% per annum; and
- the main destination is Johannesburg (ORTIA).

Details about the airport are listed in the following tables.

Table 22: Information about Pietermaritzburg Airport

Name	Pietermaritzburg Airport, ICAO, FAPM, IATA, PMB
Location	Pietermaritzburg
Coordinates	South Latitude 293848.44° East Latitude 302351.98°
Access	Pietermaritzburg Airport in Pietermaritzburg is situated 2 NM south of the town with access from roads from Pietermaritzburg; Durban; Howick and Richmond.
Access roads	N3, R103, M50, Oribi Road, R56
Operating agency	Indiza Airport Management
Airport falls under	Msunduzi Municipality
Airport land owned by	Msunduzi Municipality (Pietermaritzburg)
Airport utilized by	Scheduled (Airlink) and general aviator (flight training school and parachute club)
Expansion	The airport is situated on municipal land and sufficient land exists for the future expansion or upgrading of this airport.
Rail access	There is a railway line in this area, however, no immediate plans to link with the airport.
Public transport	Dedicated public transport kerb Split between public and private transport unknown
Developments in the area	None planned
Current plans for future development of airport (masterplan)	Development of hangar area (17 new hangers) to accommodate private aviation operators and a pilot training centre. It is intended to construct a parallel taxiway and a link to the parallel taxiway.
Operating hours	Currently operated during Mon Thu 04h00 – 17h30Z: Fri 04h00 – 18h30Z; Sat 06h00 – 16h00Z and Sun 09h00 – 17h30Z
Future infrastructure	Hold baggage screening equipment. Freight section to be extended (by Airlink). Re-design of check-in facilities and baggage handling. Expansion of hangar development area with new access road and helipad. Reolocation of fuel farm. Expansion of fire station. VOR / DME let down procedure. GNSS elt down procedure (to decrease diversion by 80 – 90%)
Constraints	None identified

6.4.4.3 Capacity (2005)**Table 23: Capacity of Pietermaritzburg Airport**

Airport classification	2C
Air passengers (MAP) (Million Air Passengers per year)	1 MAP
Comments	The airside and terminal capacity is 1 MAP and no immediate need required to upgrade.

6.4.4.4 Demand (2005)**Table 24: Demand at Pietermaritzburg Airport**

Air passengers (MAP) (Million Air Passengers per year)	0,07 MAP (2005)
Cargo/freight (tonnes)	0
Growth	2% GDE achieved in past 3 years Passenger 10% per annum
Main Origin destination demand – domestic flights	Johannesburg OR Tambo 36,258

Air passengers

Pietermaritzburg Airport mainly hosts domestic flights and there are no international and regional flights. The scheduled flights are mainly from Johannesburg and Durban International Airports. A summary of yearly passenger demand for domestic departures and arrivals for the year 2007 is provided in **Table 25**.

Table 25: Pietermaritzburg Airport yearly air passengers and scheduled ATM's (2007)

Passenger	Yearly data (2007)			
	Airline Capacity (Seats)	Passengers	Spare capacity	ATM
Domestic arrivals	45,886	35,197	23%	1,547
Domestic departures	45,576	36,204	21%	1,538
Total	91,462	71,401	22%	3,085

(Source ACSA database, 1 Jan 2007 – 31 Dec 2007)

The yearly passenger volumes include:

- 2007: 91,462 pax/year;
- 2006: 77,832 pax/year;
- 2005: 28,629 pax/year;
- 2004: 30,249 pax/year;
- 2003: 33,685 pax/year.

Table 26: Pietermaritzburg Airport daily air passengers and ATM's (2007)

Passenger	Daily data (2007)			
	Airline Capacity (Seats)	Passengers	Spare capacity	ATM
Domestic arrivals	126	96	23%	4
Domestic departures	125	99	21%	4
Total	251	196	22%	8

(Source ACSA database, 1 Jan 2007 – 31 Dec 2007)

ATM's

The airport handle on average 8 scheduled ATM's per day.

The yearly ATM's includes:

- 2007: 18,449 ATM's/year (3,085 scheduled flights);
- 2006: 17,767 ATM's /year;
- 2005: 16,726 ATM's /year;
- 2004: 18,996 ATM's /year;
- 2003: 21,659 ATM's /year.

Freight

No official freight records were recorded and the freight data are not available. There was no dedicated freight planes to Pietermaritzburg during 2007 and freight were moved in the belly of the passenger aircraft. An average of 30tonnes p.a. (inbound and outbound) is assumed. (Source NADP, 2008). This is mostly domestic cargo.

6.4.4.5 Runways

Table 27: Pietermaritzburg Airport dimensions

Number of runways	1
Dimensions	1537 x 30 m
Surface	Asphalt
Pavement Classification Number (PCN)	22
Aircraft classification number (ACN)	18

6.4.5 Durban International Airport (FADN)

6.4.5.1 General

Durban International Airport is situated in eThekweni, one of South Africa's biggest cities. The coastal town is a popular tourist destination and attracts high numbers of international and local visitors, business people and general aviation. The airport is set to be de-commissioned when the new International Airport at La Mercy comes on stream.

Salient features of Durban International Airport (FADN) are:

- current demand is 3.5 MAP (2005) and 4.25 MAP in 2006/2007;
- daily average of 13,200 passengers (2007);
- it is the smallest of the three international airports in RSA;
- the runway is too short to cater for long haul aircraft with maximum load and international flights prefer to fly to Johannesburg (OR Tambo);
- it will be replaced by the new International Airport at La Mercy once completed (2010);
- there is limited freight export and import movement;
- the domestic growth rate was 8% in 2005 (TRL, 2005), but currently (2007) it is much higher (15%); and
- the main destinations are Johannesburg, Cape Town and Port Elizabeth.

Details about the airport are listed in the tables that follow.

Table 28: Information about Durban International Airport (FADN)

Name	Durban International Airport (IATA: DUR, ICAO: FADN), formerly Louis Botha Airport
Location	Durban
Coordinates	29°58'07"S, 30°56'52"E
Access	The airport is accessible from the N2 and M4 freeways. It is also accessible from the M30 and R102. The N2 is rather congested
Access roads	N2, M4, R102, M30, Airport Road
Operating agency	Airports Company South Africa
Airport falls under	Airports Company South Africa
Airport land owned by	Airports Company South Africa
Airport utilized by	Scheduled pax flights, freight and general aviators
Expansion	None planned as the airport will ultimately be replaced by the the new International Airport at La Mercy. The existing airport site is suitable for expansion, but only at tremendous cost. Ultimate capacity is able only to handle projected growth up to 2025.
Rail access	There is a railway line in this area, however, no immediate plans to link with the airport.
Public transport	Dedicated public transport kerb
Developments in the area	The Durban Port is adjacent and need additional land to handle the growth in freight demand
Current plans for future development of airport (masterplan)	Development of hangar area to accommodate private aviation operators and a pilot training centre. It is intended to construct a parallel taxiway.
Operating hours	24 hours Current flights operated between 06h00 – 22h00

6.4.5.2 Capacity

Capacity

The current airport capacity is 4.5 MAP. The ultimate airport capacity is 14 MAP.

Operating hours

The airport operates twenty four hours.

Runways

The airport has one runway (06/24). The 4E runway can handle wide bodied aircraft with load limitations due to the shorter runway length.

Table 29: Runways at DIA

Number of Runways	1 Main Runway (06/24)
Dimensions	2,450 x 60 m Could be expanded to 3,000m
Surface	Asphalt
Pavement Classification Number (PCN)	22
Aircraft classification number (ACN)	18

Parking

The airport has 21 apron bays for narrow bodied aircraft. Six of these parking bays can be used to park three wide bodied aircraft.

ATNS

The declared airside capacity for DIA, taking runway capacity, parking capacity, taxiway capacity and air capacity into consideration is:

- Radar capacity: 32 ATM's per hour; and
- Non-radar capacity: 10 ATM's per hour.

Table 30: Durban International Airport Terminals

Terminal	Capacity ¹	ATM'S ²
International and Regional Departures	300 pax per hour	2
International and Regional Arrivals	300 pax per hour	2
Domestic Departure	900 pax per hour	6
Domestic Arrivals	900 pax per hour	6

Note 1: Information on terminal capacity provided by ACSA as estimated for 2010

Note 2: ATM's based on Cat C aircraft with 150 seats per ATM

6.4.5.3 Demand (2005)

Table 31: Demand at DIA

Air passengers (MAP) (Million Air Passengers per year)	2005 – 3.484 MAP (TRL) 2010 – 5.589 MAP (TRL) 2015 – 7.396 MAP (TRL)
---	--

	2020 – 10,240 MAP (TRL)
Air traffic movements	2005 – 40,405 (TRL) 2010 – 54,219 (TRL) 2015 – 62,231 (TRL) 2020 – 78,554 (TRL)
Busy day forecast (TRL)	2005: 9,708 Pax, 113 ATM, 86 pax/ATM 2010: 15,797 Pax, 139 ATM, 114 pax/ATM 2015: 23,305 Pax, 176 ATM, 132 pax/ATM 2020: 33,400 Pax, 191 ATM, 175 pax/ATM
Growth	7.9% (2005 – 2010) (TRL) 5.8% (2010 – 2015) (TRL) 6.7% (2015 – 2020) (TRL)
Main Origin destination demand – domestic flights	Richards Bay 200 (Charter Flights and General Aviation) Phinda 239 (Charter Flights and General Aviation) Durban 472 (Charter Flights and General Aviation) Lanseria 798 (Charter Flights and General Aviation) Nelspruit 8,643 George 10,757 Bloemfontein 21,101 East London 42,793 Port Elizabeth 134,134 Cape Town 400,167 Johannesburg 1,499,057
Airlines	1Time (Cape Town, Johannesburg) Air Mauritius (Mauritius) British Airways Comair (Cape Town, Johannesburg) Kulula.com (Cape Town, Johannesburg, Port Elizabeth) Linhas Aéreas de Moçambique (Maputo) Mango (Bloemfontein, Cape Town, Johannesburg) Nationwide Airlines (Cape Town, Johannesburg) South African Airways (Cape Town, Johannesburg) South African Airlink (Bloemfontein, Maputo, Nelspruit) South African Express (Cape Town, East London, Port Elizabeth, George) Swazi Express Airways (Manzini)

Table 32: DIA yearly air passengers and ATM's (2007)

Passenger	Yearly data (2007)			
	Airline Capacity (Seats)	Passengers	Spare capacity	ATM
International arrivals	23,507	15,251	35%	408
International departures	23,395	16,016	32%	409
Domestic arrivals	3,057,994	2,390,765	22%	24,586
Domestic departures	3,057,470	2,390,722	22%	24,584
Regional arrivals	5,399	2,430	55%	249
Regional departures	5,396	2,546	53%	250
Total	6,173,161	4,817,730	22%	50,486

(Source ACSA database, 1 Jan 2007 – 31 Dec 2007)

Table 33: DIA daily air passengers and ATM's (2007)

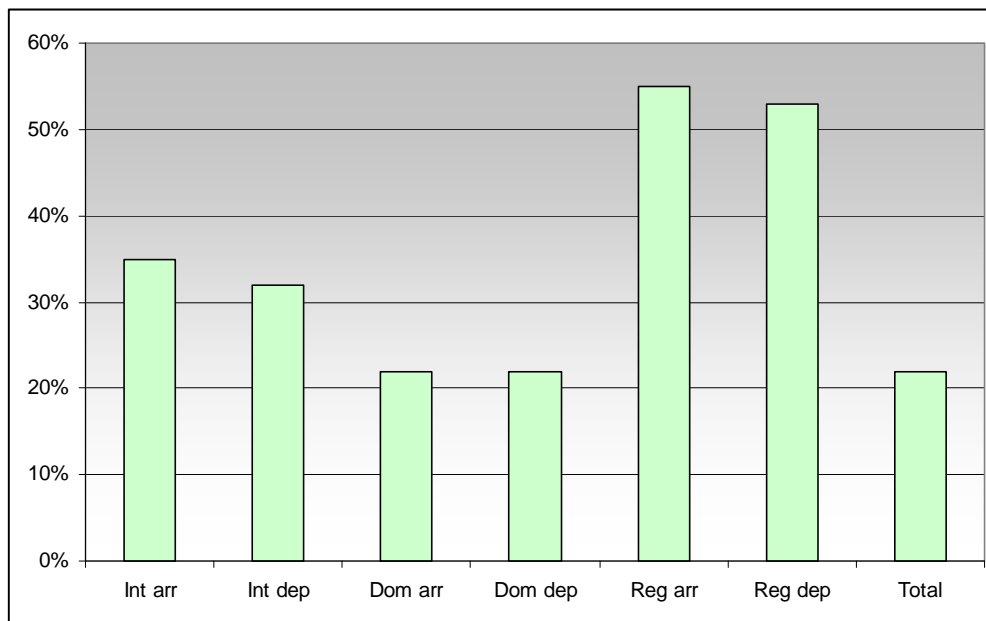
Passenger	Daily data (2007)			
	Airline Capacity (Seats)	Passengers	Spare capacity	ATM
International arrivals	64	42	35%	1
International departures	64	44	32%	1
Domestic arrivals	8,378	6,550	22%	67
Domestic departures	8,377	6,550	22%	67
Regional arrivals	15	7	55%	1
Regional departures	15	7	53%	1
Total	16,913	13,199	22%	138

(Source ACSA database, 1 Jan 2007 – 31 Dec 2007)

Table 34: DIA yearly ATM's from 2003/2004 to 2006/2007

Flight	03/04	04/05	05/06	06/07
International arrivals	529	462	668	635
Regional arrivals	374	379	330	310
Domestic arrivals	19,977	19,467	21,609	23,393
Unscheduled arrivals	1,538	1,429	1,310	1,421
Total arrivals	22,418	21,737	23,917	25,769
International departures	524	465	689	625
Regional departures	292	389	327	314
Domestic departures	19,476	19,297	21,615	23,418
Unscheduled departures	2,104	1,535	1,271	1,428
Total departures	22,395	21,688	23,902	25,785
Total ATM's	44,813	43,425	47,819	51,554

(Source ACSA website)



(Source: ACSA Database 2007)

Figure 16: DIA: Percentage Spare Capacities for Different Flights

International air passengers

Durban has seen a reduction in international traffic over the years, as most international flights leaving South Africa are routed through Johannesburg. Durban's runway is too short for a fully-laden Boeing 747 to take off, making a refuelling transit in Johannesburg necessary for most international flights. Currently (2008) the airport only service regional flights to Mozambique and international flights to Madagascar.

A comparison of the international and regional flights to the DIA compared with RSA (ORTIA, DIA and CTIA) is made in Figure 17.

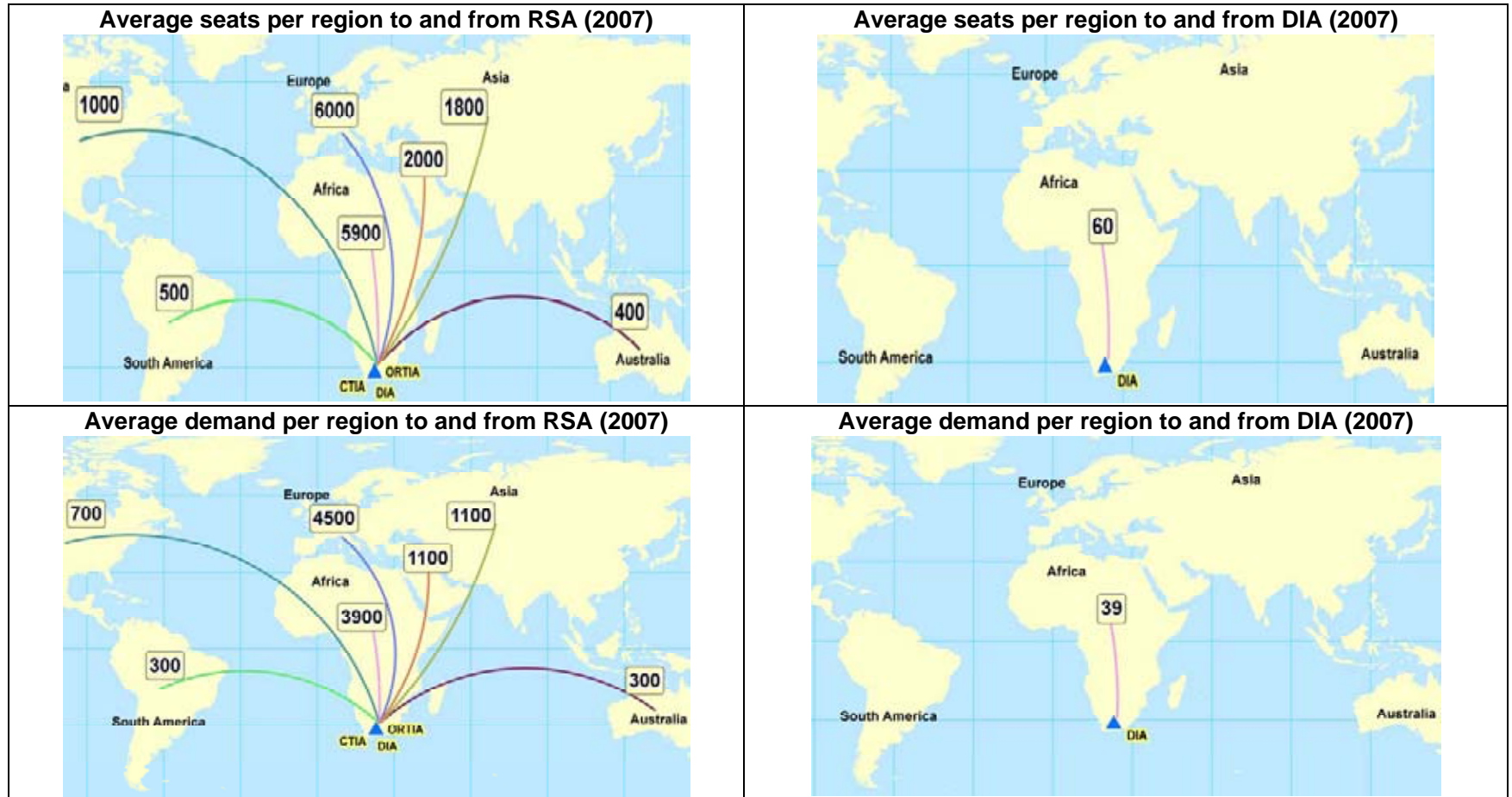


Figure 17: International and regional flights to DIA compared with RSA as a whole

Air freight

Freight volumes from DIA per year includes:

(Source: NADP, 2008)

- 2006: 16,200 tonnes;
- 2005: 15,600 tonnes;
- 2004: 13,500 tonnes, and
- 2003: 14,800 tonnes.

Most of the freight (approximately 90%) is carried in the the belly of domestic aircraft.

6.4.5.4 Runways

Table 35: Runways at DIA

Number of runways	1
Dimensions	2450 x 60 m Could be expanded to 3,000m Cannot be expanded to carry the new wide body aircraft
Surface	Asphalt

6.4.6 The new International Airport at La Mercy

The new International Airport at La Mercy is in the advanced construction stage. It used to be an airstrip used by microlights near La Mercy Airport, which will be upgraded to a new international airport. Salient facts are as follows:

- It is aimed to replace the Durban International Airport that can only be upgraded at tremendous cost and then will only be able to handle projected demand up to 2035;
- The new International Airport at La Mercy will be commissioned in 2010. When the international airport is commissioned, Durban International Airport will be decommissioned;
- The runway will be long enough to cater for long distance international carriers;
- It could promote international tourism to Durban;
- Together with the planned adjoining Dube Trade Port, it will be an important catalyst for development and employment in the Province;
- SARCC is investigating the possibility of rail access to the airport, tapping off the Durban-Richards Bay line;
- The focus of the new International Airport at La Mercy is not only on domestic passengers but also on export cargo destined for international markets; and
- The Dube Trade Port will not contain a harbour for the first phase (2010) but the International Airport, Tradezone, Agrizone and Commercial zone will be completed for first phase: 2010

More details can be found in the tables which follow.

Table 36: Information about the new International Airport at La Mercy

Location	Durban, KZN
Coordinates	Y -10 434.931, X 3 278 555.700 (WGS)
Access	International Airport is situated in La Mercy, 30km north of Durban. The airport will be accessed via La Mercy and Tongaat from the National Route 2 (N2 freeway) which connects the airport to Durban and Richards Bay. The airport will also be accessible via the R102 and is in close proximity to the M4, as well as the main railway line heading up the Natal North Coast from Durban. A road link between the airport and the N2 will be constructed. Refer to Figure C1 in Appendix C.
Operating agency	Airports Company of South Africa (ACSA)
Airport falls under	Airports Company of South Africa (ACSA)
Airport land owned by	Airports Company of South Africa (ACSA)
Airport to be utilized by	National and International Airlines
Expansion	The airport is situated on Dube Tradeport land and sufficient land exists for the future expansion or upgrading of this airport.
Rail access	There is no railway line to the airport, but it is in the vicinity of the northern leg of Durban North-South Railway Corridor which is also part of the Durban – Richards Bay line with a station at Nyaninga which is approximately 8 kms from the site. The airport can be linked to this line.
Public transport	Dedicated public transport terminal and dedicated public transport kerb.
Developments in the area	The Dube TradePort will consist of a Trading Zone, a Support Zone and an Agri Zone.
Current plans for future development of airport (masterplan)	Secondary runway and all other supporting facilities will be completed by 2025 to increase capacity to 20 MAP.
Operating hours	24 hours

6.4.6.1 Capacity (2010)**Table 37: Capacity of the new International Airport at La Mercy**

Aerodrome Reference Code	4F
Air passengers (MAP) (Million Air Passengers per year)	7.5 MAP, with 90,000m2 passenger terminal with vehicle park
Pax terminal	7.5 MAP
Cargo/freight (tonnes)	10,000m2 cargo terminal
Growth	Unknown
Comments	The airport will open with a single runway to cater for 7,5 Million Air Passengers (MAP) and be able to accommodate the new A380-900 Airbus by 2010. Ultimately the airport will have 2 runways

6.4.6.2 Demand

The airport will replace Durban International Airport and the domestic passenger demand is expected to be similar.

6.4.6.3 Runways

Table 38: Runways at KSIA

Number of runways	1
Dimensions	3700 x 60 m
Surface	Asphalt
Pavement Classification Number (PCN)	PCN 80/F/C/W/T
Aircraft classification number (ACN)	Code F

6.4.7 Margate Airport (MA)

6.4.7.1 General

The following is a summary of the salient features of Margate Airport:

- current demand is 0.001 MAP;
- there is no freight export and import;
- there is no rail access; and
- Main destination is Johannesburg which is the only destination with scheduled flights.

Full details about the airport are contained in the tables which follow.

Table 39: Information about Margate Airport

Name	Margate Airport, ICAO, FAMG, IATA, MGH
Location	Near Margate
Coordinates	30 51 25S; 30 20 36E
Access	The airport can be accessed via Town on old South Coast road and through ext 3 Margate. A new access from R61 – Ramsgate Offramp will make the airfield more accessible.
Routes	R61, R620, local roads with Margate, Wingate Road Refer to Map E1 in Appendix E.
Airport managed by	Airlink South Africa
Airport land owned by	Hibiscus Coast Municipality
Airport utilized by	Airlink, general aviation (private), charter companies, SAAF
Expansion	The airport is situated on municipal land and sufficient land exists for the future expansion or upgrading of this airport. Plans to extend runway to allow bigger aircrafts to land and take off from Margate.
Rail access	There is no railway lines in this area
Public transport	Taxi's only
Developments in the area	Not aware of any planning
Current plans for future development of airport	Plans to extend runway to allow bigger aircrafts to land and take off from Margate. Plans to attract a low cost airline to fly schedule flights into Margate once runway has been extended.
Operating hours	24 hours Currently operated between Monday to Friday 0800-1630, Sat 0800-1400, Sunday 1030-1830

6.4.7.2 Demand (2005)

Table 40: Demand at MA

Air passengers	Scheduled – approx 10,500 pax pa Private – approx 17,340 pax pa
Main Origin destination demand – domestic flights	Johannesburg 5,077 There are daily commercial flights between Margate Airport and Johannesburg (one per day per direction)

The airport is used for limited scheduled flights, flying school and general aviation. There are scheduled flights between Margate and ORTIA on SA Airlink on 4 days a week (one arrival and one departure per day). The demand to Margate Airport has not increased much per year in recent years due to the introduction of low cost carriers to DIA. Scheduled flights represent about 10 per cent of the daily ATM's. Scheduled passengers represent about 33 per cent (2006) of the daily passengers.

Table 41: Margate Airport yearly air passengers and ATM's (2007)

PASSENGER	YEARLY DATA (2007)			
	AIRLINE CAPACITY (SEATS)	PASSENGERS	SPARE CAPACITY	ATM
Domestic arrivals	7,313	4,926	23%	260
Domestic departures	7,313	4,627	23%	260
Total	14,626	9,553	23%	520

(Source ACSA database, 1 Jan 2007 – 31 Dec 2007)

Table 42: Margate Airport daily air passengers and ATM's (2007)

PASSENGER	DAILY DATA ON SCHEDULED FLIGHTS (2007)			
	AIRLINE CAPACITY (SEATS)	PASSENGERS	SPARE CAPACITY	ATM
Domestic arrivals	20	13	23%	1
Domestic departures	20	13	23%	1
Total	40	26	23%	2

(Source ACSA database, 1 Jan 2007 – 31 Dec 2007)

Historical passenger volume data includes:

- 2006: 34,400 pax per year (11,600 scheduled flight passengers);
- 2005: 27,800 pax per year (10,500 scheduled flight passengers);
- 2004: 28,100 ATM's per year (11,200 scheduled flight passengers);
- 2003: 27,800 ATM's per year (15,600 scheduled flight passengers).

ATM's

The airport handled on average 2 scheduled ATM's per day during 2007.

Historical ATM data includes:

- 2005: 7,800 ATM's per year;
- 2004: 5,500 ATM's per year;
- 2003: 5,200 ATM's per year.

Table 43: Margate Airport yearly ATM's

FLIGHTS	2003	2004	2005	2006
Scheduled	389	278	291	286
Unscheduled	3,276	4,865	5,195	7,502
Total	3,665	5,143	5,486	7,788

Freight

There are limited available freight data. There are however potential to have freight operations as there are about 20 cut flower farmers in the vicinity of the airport.

6.4.7.3 Runways**Table 44: Runways at MA**

Number of runways	1 X Runway -04 and 22
Dimensions	1371 x 30 m
Surface	Paved
Pavement classification number (PCN)	43
Aircraft classification number (ACN)	Cat 4

6.4.8 Richards Bay6.4.8.1 General

The following points are the salient aspects about Richards Bay Airport:

- the airport is used by scheduled flights (SA Express), general aviation and training
- current demand is 0.001 MAP;
- current capacity is 2 MAP;
- there is no freight export and import;
- there is no rail access; and
- the main destination is Johannesburg which is the only destination with scheduled flights.

Details are contained in the following tables.

Table 45: Information about Richards Bay Airport

Name	Richards Bay Airport, ICAO, FARB, IATA, RCB
Location	Richards Bay
Coordinates	28° 44' 27.74" S; 032° 05' 31.60" E
Access	N2 via M231, R34, local roads including Verbena, Richaria and Fish Eagle Flight Road.
Expansion	The airport is situated on municipal land and sufficient land exists for the future expansion or upgrading of this airport.
Rail access	There is no railway lines in this area
Public transport	Taxi's only
Developments in the area	Not aware of any planning
Current plans for future development	No plans for expansion. Parking area for car

of airport (masterplan)	rental companies was recently completed. Considering adding additional parking and garage facilities for passengers.
Operating hours	Currently operated between Mon-Fri, 0700-0900 Sat, 0915-1045 and Sun 1500-1700
Ownership	uMhlatuze Municipality
Management	Indiza Airport Management (concession from 2 flying companies, charter flight municipality)
Usage	Company, SA Red Cross, Netstar tracking helicopters, crop spraying, maintenance and aviation welding scheduled flights

6.4.8.2 Demand (2005)

Table 46: Demand at RBA

Air passengers	42,526 pax/year Johannesburg
Main Origin destination demand – domestic flights	Johannesburg 42,526 pax/year

The yearly air passenger at Richards Bay airport is summarised in Table 47.

- 2007: 89,723 pax/year;
- 2006: 79,905 pax/year;
- 2005: 75,090 pax/year;
- 2004: 75,509 pax/year;
- 2003: 84,846 pax/year.

Table 47: Richards Bay Airport yearly air passengers and ATM's (2007)

PASSENGER	YEARLY DATA (2007)			
	AIRLINE CAPACITY (SEATS)	PASSENGERS	SPARE CAPACITY	ATM
Domestic arrivals	57,499	44,245	23%	1,149
Domestic departures	57,364	45,478	21%	1,148
Total	114,863	89,723	22%	2,297

(Source ACSA database, 1 Jan 2007 – 31 Dec 2007)

Table 48: Richards Bay Airport daily air passengers and ATM's (2007)

PASSENGER	DAILY DATA (2007)			
	AIRLINE CAPACITY (SEATS)	PASSENGERS	SPARE CAPACITY	ATM
Domestic arrivals	158	121	23%	3
Domestic departures	157	125	21%	3
Total	315	246	22%	6

(Source ACSA database, 1 Jan 2007 – 31 Dec 2007)

ATM's

The airport handles on average 6 scheduled ATM's from and to Johannesburg per day.

The yearly ATM's include:

- 2007: 9,675 ATM's/year;
- 2006: 8,968 ATM's/year;
- 2005: 8,765 ATM's/year;
- 2004: 10,044 ATM's/year;
- 2003: 9,618 ATM's/year.

Table 49: Richards Bay ATM's from 2003 to 2007

FLIGHT	2003	2004	2005	2006	2007
Domestic scheduled arrivals	1,518	1,434	1,140	1,114	1,139
Unscheduled arrivals	1,660	1,588	1,533	1,722	1,839
Total arrivals	3,178	3,022	2,673	2,836	2,978
Domestic scheduled departures	1,518	1,434	1,140	1,114	1,139
Unscheduled departures	1,654	1,571	1,527	1,747	1,837
Total departures	3,172	3,005	2,667	2,861	2,976
Local and Training Flights	294	804	1,052	1,256	1,510
Total flights	6,644	6,831	6,392	6,953	7,464

(Source ACSA website)

Freight

There are no available freight data.

6.4.8.3 Runways

Table 50: Runways at RBA

Number of runways	1 x runway
Dimensions	1300 x 21 meters
Surface	Asphalt
Pavement Classification Number (PCN)	Asphalt LCN 40
Aircraft Classification Number (ACN)	Unknown

Apart from the fact that the foregoing information is useful in understanding the Status Quo of airport demand in the different parts of KwaZulu-Natal, the data produced by this task will form the base year data for the analysis of future demand for air transport services in KwaZulu-Natal.

6.4.9 Air passenger origins and destinations

The air passenger origin destination demand is indicated in **Map 6.4B**. From this it can be concluded that the main demand is to Johannesburg, Cape Town and Port Elizabeth.

6.5 PORTS AND HARBOURS

6.5.1 Extent

The first recorded ship to visit a KwaZulu-Natal port was on Christmas day, 1497 when Portuguese navigator Vasco Da Gama sailed into the bay which he named Rio do Natal, today's bustling Port – City of Durban. Very little development took place until the 1850's as early attempts at improving the harbour were thwarted by the constantly moving sandbars in the lagoon. However, with the growing demand created by the discovery of gold in the interior, the building of the Natal rail line and the coming of effective dredgers the turn of the 20th century saw rapid growth in the port of Durban overtaking all the other ports in South Africa in size and cargo throughput.

Over the years the Port of Durban prospered and grew as a break-bulk port, but it was the advent of the ubiquitous container in the late 1960s that has had the most significant impact on the Port we see today. Massive construction in the 1970's ensured that the Port of Durban was in a strong position to handle the ever-growing demand to handle the containers that revolutionised maritime cargo handling, and paved the way to fast, efficient and secure import and export of all manner of goods entering and leaving the country. Durban retains the status of premier container port in South Africa, handling 65% of the country's total throughput.

At the same time as the container revolution in Durban, another major port on the KwaZulu-Natal was experiencing its birth. Long identified as a potential port, Richards Bay, being closest to the coalfields of Mpumalanga Province and inland KwaZulu-Natal, was developed during the early 1970's and was opened in 1976, with an initial order to export 12 million tonnes of coal to Japan per annum. The Port has enjoyed continuous growth over the intervening years, and now ships over 68 million tonnes of coal per annum all over the world, as well as a handling a host of other imports and exports over its 21 berths.

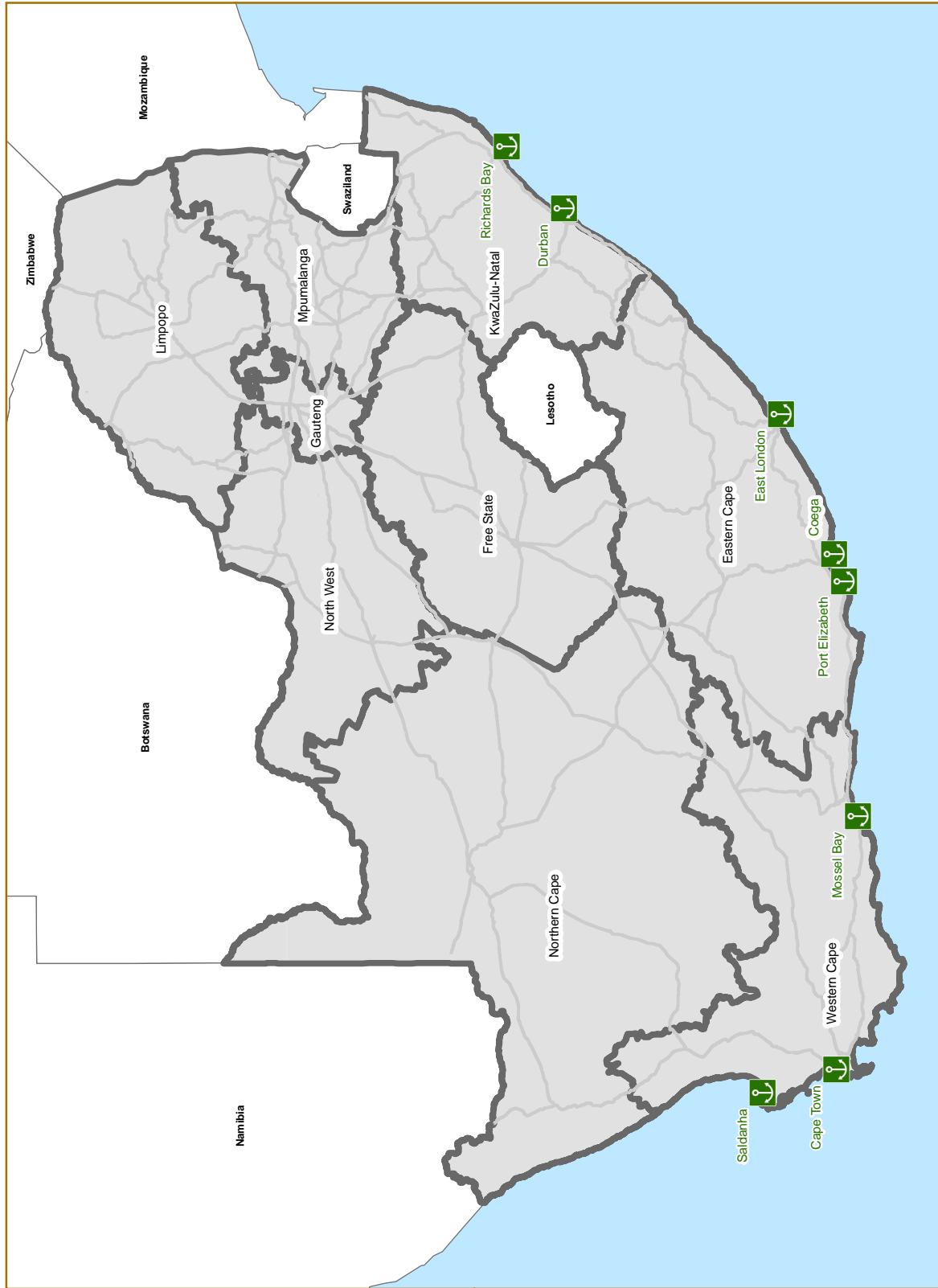
The Ports of Durban and Richards Bay provide KwaZulu-Natal and South Africa with a complementary port system, handling bulk commodities, general break bulk cargoes and ever increasing numbers of containers, and development plans for these two ports, will continue to service the needs of the Province and Country.

Refer to **Map 6.5** depicting the South African Ports below.



South Africa: SOUTH AFRICAN PORTS

MAP 6.5 South African Ports



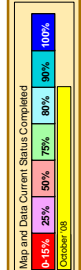
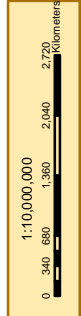
PORTS
RSA PORTS
RSA Ports



BASEMAP LEGEND

SANRAL Road Network
 Towns

Provincial Boundaries



6.5.2 Port of Durban

6.5.2.1 Facilities

Durban as Africa's largest and busiest port, serves the immediate Durban/Pinetown industrial areas, Gauteng and the Southern African region. The port of Durban operates 24 hours a day 365 days a year. The entrance channel has a depth of 12.8m from Chart Datum. The channel width is 122m but construction is in progress to widen the channel to 220 m, with a depth in the inner channel of 16m Chart datum, increasing to 19m Chart Datum in the port approaches. The cost of this project is R3.2 billion, and will be completed in 2009.

The port, like all others in South Africa, is operated on a common-user basis and is managed by Transnet National Port Authorities (TPNA), which provides and maintains the infrastructure of the port. Most of the terminals are also provided by the Port Terminals division of Transnet, which makes the parastatal both landlord and tenant, a situation that has negative implications for the efficiency of the port, as will be discussed in further detail in Phase 2 of NATMAP.



Entrance to Durban Harbour

Quay Structure Characteristics

Table 51 provides details of the quay and berth layouts and depths.

Table 51: Quay Structure Characteristics

Berths	Structure	Dredge Depth (m CD)	Length (m)	Type
Bluff Berth 1	Blockwork	-8.6	148	Dry Bulk
Bluff Berth 2	Blockwork	-9.0	177	Dry Bulk
Bluff Berth 3	Blockwork	-8.8	180	Dry Bulk
Bluff Berth 4	Blockwork	-10.3	234	Dry Bulk
Island View Berth 3	Piles	-10.8	165	Dry Bulk
Island View Berth 1	Caisson & piles	-12.5	230	Layby/Bunkers
Island View Berth 2	Caisson & piles	-10.0	175	Bulk Liquid
Island View Berth 4	Piles	-9.4	175	Bulk Liquid
Island View Berth 5	Sheet Piles	-10.6	175	Bulk Liquid
Island View Berth 6	Sheet Piles	-8.9	175	Bulk Liquid
Island View Berth 7	Piles	-11.9	230	Oil Products
Island View Berth 8	Piles	-12.0	230	Oil Products
Island View Berth 9	Piles	-12.2	245	Oil Products
Point Tug Jetty	Caisson	-8.8	183	Tugs
Point A Ext	Caisson	-11.2	62	Tugs
Point A Berth	Blockwork	-11.2	288	General Cargo
Point B Berth	Blockwork	-9.9	329	General Cargo
Point C Berth	Caisson	-9.9	263	General Cargo
Point D Berth	Caisson	-13.7	239	General Cargo
Point E Berth	Caisson	-13.7	239	General Cargo
Point F Berth	Caisson	-13.7	239	General Cargo
Point G Berth	Caisson	-13.7	239	General Cargo
Point M Berth	Caisson	-11.1	305	General Cargo
Point N Berth	Caisson	-11.3	262	Passenger
Point O Berth	Caisson	-11.6	310	Pre-cooling
Point P Berth	Caisson	-10.6	310	Pre-cooling
Point Q Berth	Caisson	-10.1	183	Motor vehicles
Point R Berth	Caisson	-10.6	183	Motor vehicles
Pier 1 Berth 100	Blockwork	-8.2	276	General Cargo
Pier 1 Berth 101	Blockwork	-12.1	229	General Cargo
Pier 1 Berth 102	Blockwork	-10.7	213	General Cargo
Pier 1 Berth 103	Blockwork	-12.0	235	General Cargo
Pier 1 Berth 104	Blockwork	-11.9	351	General Cargo
Pier 1 Berth 105	Blockwork	-11.4	235	Containers
Pier 1 Berth 106	Blockwork	-11.7	213	Containers
Pier 1 Berth 107	Blockwork	-11.9	238	Containers
Crossberth Berth 108	Blockwork	-11.0	273	Containers
Crossberth Berth 109	Blockwork	-12.1	272	Containers
Pier 2 Berth 200	Blockwork	-11.7	236	Containers
Pier 2 Berth 201	Blockwork	-11.9	216	Containers
Pier 2 Berth 202	Blockwork	-12.3	216	Containers
Pier 2 Berth 203	Blockwork	-12.2	305	Containers
Pier 2 Berth 204	Blockwork	-11.1	305	Containers

Berths	Structure	Dredge Depth (m CD)	Length (m)	Type
Pier 2 Berth 205	Blockwork	-11.4	305	Containers
Maydon Wharf Fish jetty	Sheet piles	-3.7	441	Fishing
Maydon Wharf Berth 1	Sheet piles	-9.1	152	General Cargo
Maydon Wharf Berth 2	Sheet piles	-9.6	153	Dry Bulk Sugar
Maydon Wharf Berth 3	Sheet piles	-8.7	152	General Cargo
Maydon Wharf Berth 4	Sheet piles	-9.1	153	General Cargo
Maydon Wharf Berth 5	Piles	-9.6	200	Dry Bulk
Maydon Wharf Berth 7	Piles	-9.2	244	General Cargo
Maydon Wharf Berth 8	Piles	-9.2	172	Dry Bulk Grain
Maydon Wharf Berth 9	Piles	-9.6	180	General Cargo
Maydon Wharf Berth 10	Piles	-8.3	226	General Cargo
Maydon Wharf Berth 11	Piles	-9.9	190	General Cargo
Maydon Wharf Berth 12	Sheet Piles	-5.1	275	General Cargo
Maydon Wharf Berth 13	Sheet Piles	-9.6	172	General Cargo
Maydon Wharf Berth 14	Sheet Piles	-9.6	173	General Cargo
Maydon Wharf Berth 6	Piles	-9.6	154	General Cargo
Maydon Wharf Berth 15	Mass concrete	-9.6	213	Forest products

Facilities

The port provides cargo handling (except stevedoring aboard vessels which is undertaken by private enterprise) and marine services including tugs and pilotage. Ship repair facilities are available at the Prince Edward Graving Dock that has an overall docking length of 352,04m.

Bunkering: The port offers bunker facilities as follows: Fuel and gas oil at Island View, New Pier 1 and Pier 2 (container terminal) berths. Gas oil at Island View berths 4,5,6,7 and 8.

Terminals: Cargo handling facilities are provided on a non-discriminatory basis, whilst vessels are served on a first planned-first served basis. Where necessary, special purpose quays may be provided on a common-user basis for the handling of specific commodities or types of cargo such as ore, grain, bulk cargoes, unitised cargo and containers. Transnet Port Terminals (TPT) manage numerous berths on a common user basis namely;

- Durban Container Terminal (Africa's busiest),
- Pier 1 Container Terminal,
- Multi Purpose terminal (also known as the City Terminal),
- Durban Car Terminal (three berths),
- Maydon Wharf Terminal.

There are a number of other terminals in the port which are managed and operated by private companies, including the Bluff Coaling Terminal known as Bulk Connections, the large Island View oil and petroleum complex, the Fresh Produce Terminal at the T-Jetty and another fruit terminal at Maydon Wharf, the Sugar Terminal and Wood Chip Terminal on Maydon Wharf, SA Bulk Terminals (Bidfreight)

on both Maydon Wharf and Island View in addition to a number of other private facilities mostly at Maydon Wharf.

Durban Container Terminal (DCT)

The terminal has 2,128m of quayside divided into seven berths in addition to the use of three berths on Pier 1 (part of the existing MPT). DCT has more than 13,000 ground slots and 500 reefer points and handles approximately of 200 000 TEU's per month. The DCT has recently been expanded by inclusion of the stacking area and berths at Pier 1, to accommodate the continued increase in the containers handled.

Multi Purpose Terminal

The multi-purpose terminal, which handles break-bulk, bulk and containerised cargoes, has become this port's largest general cargo-handling facility. It is the largest cargo handling facility in the port, operating across 14 berths at Pier 1, the Point and on the T-Jetty, and handles both import and export break-bulk cargo.

Durban Car Terminal

In 2006, 389681 units were handled in the terminal, which represents a 41% increase on the previous year's volume. In 2007 the volume is expected to grow by 18%. The car terminal throughput has outgrown the available space and car parking is now encroaching on the multipurpose terminal back berth space.

The Maydon Wharf MPT

This terminal operates across a number of berths at Maydon Wharf principally between berths 8 to 13, and handles a variety of commodities, focusing on niche cargo including neo-bulks (salt, fertilisers and other mineral products, steel, scrap metal and forest products).

Landside Linkages

1. Road

The main access to the container terminal is via Bayhead Road into Langeberg Road and for the Bulk Liquid Terminals, via Bayhead and Trinidad Roads. Access to Car Terminal, the City Multi-Purpose Terminal and T-Jetty berths via Victoria Embankment and Point Road. Access to Maydon Wharf is via South Coast and Maydon Roads or from Victoria Embankment.

The major road linkages to the Port of Durban are;

- the N3 national route from Gauteng, which branches to the south of the Mariannhill toll plaza into the M7 route via Queensburgh and to the Tollgate-Berea Road route to the port;

- the N2 south provides access to the port via South Coast road and from the M7; and
- the N2 north also has an exit onto the M7.

All three routes channelling traffic into the port area are a major cause of congestion, delays and pollution in the area.

A considerable amount of heavy freight traffic is currently diverted from the N2 north onto the M4 from Ballito, entering Durban and the port via Stanger Street and the Victoria Embankment [where congestion is also a cause for concern.

2. Rail Linkages

The port of Durban is linked to the rail network by three main routes. The one is by way of the main line through Congella, which feeds in to Maydon Wharf and via the Esplanade to the Durban Point area. The second route is by a line which runs parallel to the large Bayhead yard to Kings Rest yard at the entrance to the Durban Container Terminal. The third route runs from Clairwood to Jacobs and Wentworth to Kings Rest and Fynnland, Island View and Wests.

3. Pipelines

The port of Durban has a dedicated chemicals and fuels basin with 8 berths equipped with discharge pumping equipment directly into a very extensive tank farm area. In addition, large volumes of crude oil are received via a deep water offshore mooring buoy and discharge point located near Reunion with direct undersea pipeline to the refineries at Prospecton.

From the Durban area there are three bulk pipelines to the interior:

- the Refined Products Pipeline, a 300 mm line from Durban to Sasolburg
- the Crude line, a 400 mm pipeline that conveys crude oil from Durban's offshore mooring buoy to the Reef storage and inland refinery
- the Gas line, a 450 mm pipeline from Secunda, via Richards Bay to Durban.

Products transported by pipeline include, gas, aviation turbine fuel, crude oil, diesel, alcohol, and various grades of petrol.

The pipelines currently move approximately 2,3 million tonnes of refined products and 4,6 million tonnes of crude oil per annum. The refined products line has potential for expansion up until about the year 2007 whereas the crude oil line is already running at near capacity.

4. Air Cargo

The Durban International airport is the only air cargo handling facility in KZN with annual throughput of about 6500 tonnes.

6.5.2.2 Usage

Table 52: Port Throughput and Capacity

Berths	Berth Occupancy 2005/06	Tonnage handled 2005	TEUs handled 2005	Vehicles FBU 2005	Capacity Tonnes/TEUs/FBUs
Bluff Berth 1	23.7%	1,910,000			4,800,000
Bluff Berth 2					
Bluff Berth 3					
Bluff Berth 4					
Island View Berth 3	32.6%	1,050,000			2,100,000
Island View Berth 1	30.7%				1,700,000
Island View Berth 2	47.6%	1,970,000			5,100,000
Island View Berth 4					
Island View Berth 5					
Island View Berth 6	6.8%	220,000			370,000
Island View Berth 7	45.4%	5,330,000			12,000,000
Island View Berth 8					
Island View Berth 9					
Point Tug Jetty	N/A				N/A
Point A Ext	N/A				N/A
Point A Berth	20.2%	1,070,000			4,250,000
Point B Berth					
Point C Berth					
Point D Berth					
Point E Berth					
Point F Berth					
Point G Berth					
Point M Berth					
Point N Berth		N/A			N/A
Point O Berth	34.4%	447,123			700,000
Point P Berth					
Point Q Berth	43.9%			311,353	330,000
Point R Berth					
Pier 1 Berth 100	36.6%	76,000			85,000
Pier 1 Berth 101					
Pier 1 Berth 102					
Pier 1 Berth 103					
Pier 1 Berth 104					
Pier 1 Berth 105	48.4%		140,000		600,000
Pier 1 Berth 106					
Pier 1 Berth 107					
Crossberth Berth 108	70.1%		1,740,000		2,400,000
Crossberth Berth 109					
Pier 2 Berth 200					

Berths	Berth Occupancy 2005/06	Tonnage handled 2005	TEUs handled 2005	Vehicles FBU 2005	Capacity Tonnes/TEUs/FBUs
Pier 2 Berth 201					
Pier 2 Berth 202					
Pier 2 Berth 203					
Pier 2 Berth 204					
Pier 2 Berth 205					
Maydon Wharf Fish jetty					N/A
Maydon Wharf Berth 1	29.1%	866,510			1,700,000
Maydon Wharf Berth 2					
Maydon Wharf Berth 3	39.1%	640,000			900,000
Maydon Wharf Berth 4					
Maydon Wharf Berth 5	48.2%	1,050,000			1,100,000
Maydon Wharf Berth 7	31.8%	26,000			32,000
Maydon Wharf Berth 8	35.5%	620,000			700,000
Maydon Wharf Berth 9					
Maydon Wharf Berth 10	33.9%	1,990,000			3,800,000
Maydon Wharf Berth 11					
Berths	Berth Occupancy 2005/06	Tonnage handled 2005	TEUs handled 2005	Vehicles FBU 2005	Capacity Tonnes/TEUs/FBUs
Maydon Wharf Berth 12					
Maydon Wharf Berth 13	41.2%				
Maydon Wharf Berth 14	31.2%	210,000			280,000
Maydon Wharf Berth 6	45.8%	105,000			1,300,000
Maydon Wharf Berth 15					

In addition the Bulk liquid handling capacity of the port is enhanced by the deep water Single Buoy Mooring facility located off Reunion, with direct connection to the refineries at Prospecton.

6.5.2.3 Condition

The condition of the berths, assessed in 2005, is as follows:

Table 53: Port of Durban: Conditions of Berths

Berth	Condition / Maintenance over next 30 years	Berth	Condition / Maintenance over next 30 years
Bluff Berth 1	Good, major repairs	Pier 1 Berth 102	Good, minor maintenance
Bluff Berth 2	Good, major repairs	Pier 1 Berth 103	Good, minor maintenance
Bluff Berth 3	Good, major repairs	Pier 1 Berth 104	Good, minor maintenance
Bluff Berth 4	Good, major repairs	Pier 1 Berth 105	Good, minor maintenance
Island View Berth 3	Good, major repairs	Pier 1 Berth 106	Good, minor maintenance

Berth	Condition / Maintenance over next 30 years
Island View Berth 1	Good, major repairs
Island View Berth 2	Good, major repairs
Island View Berth 4	Good, major repairs
Island View Berth 5	Good, major repairs
Island View Berth 6	Good, major repairs
Island View Berth 7	Good, minor maintenance
Island View Berth 8	Good, minor maintenance
Island View Berth 9	Good, major repairs
Point A Berth	Good, minor maintenance
Point B Berth	Good, minor maintenance
Point C Berth	Good, minor maintenance
Point D Berth	Good, minor maintenance
Point E Berth	Good, minor maintenance
Point F Berth	Good, minor maintenance
Point G Berth	Good, minor maintenance
Point M Berth	Good, minor maintenance
Point N Berth	Good, minor maintenance
Point O Berth	Good, minor maintenance
Point P Berth	Good, minor maintenance
Point Q Berth	Good, minor maintenance
Point R Berth	Good, minor maintenance
Pier 1 Berth 100	Good, minor maintenance
Pier 1 Berth 101	Good, minor maintenance

Berth	Condition / Maintenance over next 30 years
Pier 1 Berth 107	Good, minor maintenance
Crossberth Berth 108	Good, minor maintenance
Crossberth Berth 109	Good, minor maintenance
Pier 2 Berth 200	Good, minor maintenance
Pier 2 Berth 201	Good, minor maintenance
Pier 2 Berth 202	Good, minor maintenance
Pier 2 Berth 203	Good, minor maintenance
Pier 2 Berth 204	Good, minor maintenance
Maydon Wharf Berth 1	Good, major repairs
Maydon Wharf Berth 2	Good, major repairs
Maydon Wharf Berth 3	Good, major repairs
Maydon Wharf Berth 4	Good, major repairs
Maydon Wharf Berth 5	Good, minor maintenance
Maydon Wharf Berth 7	Good, minor maintenance
Maydon Wharf Berth 8	Good, minor maintenance
Maydon Wharf Berth 9	Good, minor maintenance
Maydon Wharf Berth 10	Good, minor maintenance
Maydon Wharf Berth 11	Good, minor maintenance
Maydon Wharf Berth 12	Good, major repairs
Maydon Wharf Berth 13	Good, major repairs
Maydon Wharf Berth 14	Good, major repairs
Maydon Wharf Berth 6	Good, minor maintenance
Maydon Wharf Berth 15	Good, minor maintenance

6.5.2.4 Planned Developments

Note: I have been trying to obtain this information out of Transnet, through DoT, since I started this project, without success.

6.5.3 Port of Richards Bay

6.5.3.1 Facilities

Situated at Longitude 32° 02' E and Latitude 28° 48' S, Richards Bay, South Africa's most northernmost and easterly port, is 87 nautical miles (160 km) northeast of Durban and 252 nautical miles (465 km) southwest of Maputo. The port occupies 2,157 ha of land area and 1,495 ha of water area at present. The entrance channel is dredged to a permissible draught of 17,5 metres with a -19,5m depth in the entrance channel. Berthing varies between 8m (small craft berth) and 19m (coal berths).

Pilotage is compulsory for all vessels and the port operates a fleet of five tugs owned and operated by the Transnet National Ports Authority (TNPA).

Quay Structure Characteristics

Table 54: Quay Structure Characteristics

Berth	Structure	Dredge Depth (m CD)	Length (m)	Type
Berth 209	Piled	-14.0	300	Bulk Liquids
Berth 301	Counterfort	-19.0	350	Coal
Berth 302	Counterfort	-19.0	350	Coal
Berth 303	Caisson	-19.0	350	Coal
Berth 304	Caisson	-19.0	350	Coal
Berth 305	Caisson	-19.0	350	Coal
Berth 606	Mass Concrete	-14.5	220	Break Bulk
Berth 607	Mass Concrete	-14.5	220	Break Bulk
Berth 608	Caisson & Mass Concrete	-14.5	204	Break Bulk
Berth 705	Block Work	-19.0	280	Break Bulk
Berth 706	Block Work	-14.7	200	Break Bulk
Berth 707	Block Work	-14.7	200	Break Bulk
Berth 708	Block Work	-14.7	200	Break Bulk
Berth 609	Counterfort	-14.5	300	Bulk Import
Berth 701	Counterfort	-14.5	300	Bulk Import
Berth 702	Counterfort	-19.0	240	Bulk Import
Berth 703	Counterfort	-19.0	240	Bulk Export
Berth 704	Counterfort	-19.0	240	Bulk Export
Berth 801	Piled	-19.0	260	Woodchips
Berth 804	Piled	-19.0	260	Woodchips
Repair Berth	Counterfort	-8.0	300	SCH
Reclaim	Reinforced Concrete	-	-	Sand Bypassing

Richards Bay Coal Terminal (RBCT)

The terminal handled 68,35 million tonnes of export coal, an increase of 2.3% on the previous year (66,83Mt in 2004). Ships are handled at four berths (301-304) each 350m in length with a -19m water depth alongside and a permissible draught of 17,5m. The adjacent 209 chemical berth is 300m long and has a depth alongside of -14m with a permissible draught of 12,5m.

200-wagon trains deliver coal to RBCT on a non-stop daily basis, each payload averaging 16,800 tonnes. A maximum of 6 million tonnes of coal can be stockpiled at the terminal. There are 80km of rail track within the RBCT complex.



Richards Bay Coal terminal

Richards Bay Dry Bulk Terminal

The terminal has the use of three import berths and five export berths. Total throughput capacity is 18mt per annum. Extensive use is made of multiple use conveyor systems, which requires thorough cleaning after each commodity. Terminal currently handles about 12 million tonnes of dry bulk cargo annually for import and export, consisting mainly of ores and mineral cargo. Export products include: andalusite, chrome, copper concentrate, ferro fines, fertiliser, rock phosphate, rutile, titanium slag, vanadium slag, vermiculite, woodchips, and zircon.

Imports include: alumina, coking coal, fertiliser products, metallurgical coke, petcoke, rock phosphate, salt, and sulphur.

Richards Bay MPT

The Multi purpose terminal specialises in raw and semi-processed materials such as steel, ferro alloys and forest products. The terminal currently operates across seven berths in the port. The terminal has extensive warehousing and covered storage area for sensitive cargo and a huge open storage area comprising 330,000m² for cargo handling. A specialised 75,000m² ferro-alloy handling facility is available.

Bunkering

Bunkering is provided by bunker barge or from the chemical and coal berths - berths 209,301 and 302.

Landside linkages

Road

The port of Richards Bay has a single entry road, the John Ross Highway that is currently being upgraded to relieve the congestion that has been hampering road freight efficiency. The port receives large volumes of timber, steel and general cargo by road. There is an adequate road system with the R34 John Ross highway linking Richards Bay to the N2 on route to Gauteng, Swaziland, Mozambique and Mpumalanga, and an excellent road south to Durban.

The road route from Gauteng is circuitous and includes the very steep Melmoth - Nkwalini section. There are current plans to investigate a more direct connecting route between the N11, the Tugela Basin and the port.

Rail

Access to Richards Bay Harbour is via Nseleni yard, about 10 km north of Empangeni. The Coal line crosses the Empangeni – Golela route at this point and there is a locomotive and wagon maintenance facility, as well as a yard at this point. Two lines run from the yard to Richards Bay, one of which gives access to the Alton industrial area and the Bulk Cargo quay. The other line runs to the south and connects with the Richards Bay Coal terminal.

From the double track Coallink line, access to Richards Bay Harbour is via Insele yard, about 10 km north of the port where there is a locomotive and wagon maintenance facility, as well the marshalling yard that also serves the main North Coast line. The Coal line proceeds directly as a double track from the interior crosses the Empangeni – Golela main line and enters the Richards Bay Coal Terminal.

Trains for Alton or the Dry Bulk Terminals are shunted through the Insele yard [if less than 50 wagons; or via Visgraat if longer], and proceed via the single track to the Alton industrial area and the Bulk Cargo quay. This single track is overloaded and a cause of delays.

Train working is further complicated by variations in AC and DC sections of the tracks and the use of diesel locos for main line to the north and within the Richards Bay complex. The diagram below gives a simplified illustration of the track layout.

Pipelines

Development of the 450 mm gas pipeline from Secunda is planned to increase the availability of gas from Mozambique Temane fields. The pipeline to Richards Bay will be used to provide gas to industries such as aluminium smelting.

6.5.3.2 Usage

Table 55: Port Throughput and Capacity

Berth	Berth Occupancy 2005	Tonnage handled 2005	TEUs handled 2005	Capacity Tonnes
Berth 209	42%	1,784,442		1,100,000
Berth 301	65%	68,206,213		72,000,000
Berth 302				
Berth 303				
Berth 304				
Berth 305				
Berth 606	50%	4,395,043	5,179	6,650,000
Berth 607				
Berth 608				
Berth 705	70%			
Berth 706				
Berth 707				
Berth 708				
Berth 609	61%	5,347,688		6,000,000
Berth 701				
Berth 702				
Berth 703	70%	7,419,715		4,000,000
Berth 704				
Berth 801	65%			5,500,000
Berth 804				
Repair Berth	N/A	N/A		N/A
Reclaim	N/A	N/A		N/A

6.5.3.3 Condition

The condition of the berths, assessed in 2005, is as follows:

Table 56: The Condition of the Berths, assessed in 2005

Berth	Condition/Maintenance Over Next 30 Years	Berth	Condition/Maintenance Over Next 30 Years
Berth 209	Good, major repairs	Berth 707	Good, minor maintenance
Berth 301	Good, minor maintenance	Berth 708	Good, minor maintenance
Berth 302	Good, minor maintenance	Berth 609	Good, minor maintenance
Berth 303	Good, minor maintenance	Berth 701	Good, minor maintenance
Berth 304	Good, minor maintenance	Berth 702	Good, minor maintenance
Berth 305	Good, minor maintenance	Berth 703	Good, minor maintenance
Berth 606	Good, minor maintenance	Berth 704	Good, minor maintenance
Berth 607	Good, minor maintenance	Berth 801	Good, minor maintenance
Berth 608	Good, minor maintenance	Berth 804	Good, minor maintenance
Berth 705	Good, minor maintenance	Repair	Good, minor maintenance
Berth 706	Good, minor maintenance	Reclaim	Good, major repairs

6.5.3.4 Planned Developments

Comments given under Port Of Durban apply here as well

6.6 ISSUES AND CONCERNS

6.6.1 Roads

Issues relating to the provision of roads in the Province include:

- the shift away from rail freight onto road transport is resulting in the deterioration of the road pavements;
- the provincial and municipal road networks have massive backlogs in terms of maintenance and rehabilitation needs. With Provincial roads 52% of the blacktop roads are in a poor or very poor condition and are in urgent need of rehabilitation;
- approximately 15 000 km of the existing Provincial road network consists of earth roads that require upgrading to gravel roads to bring them into a maintainable condition;
- Further research is required to more accurately estimate the extent and condition of the municipal roads in the province.
- Roads and streets in outlying villages and community clusters which fall outside the historical municipal road networks and which also do not qualify as national or provincial roads often receive little construction and maintenance attention.
- There is a serious deficiency in NMT, including pedestrian facilities along rural roads.

- The scattered nature of large rural communities makes the provision of road access difficult and costly.
- Many Municipalities have very limited capacity to fund and manage road networks.
- The growth in both light vehicle and freight road transport is resulting in traffic congestion within major urban areas

6.6.2 Railway

6.6.2.1 Road and Rail Competition

The main issues surrounding road rail competition are the contention of the rail operator that it is prejudiced by the fact road freight operators are not carrying the full infrastructure cost of the road network while the rail operator must carry the full infrastructure cost of the rail system. Users however complain that the lack of service and high tariffs force them to use roadfreight transport in spite of the additional cost. The issues must be addressed by NATMAP and resolved at national level.

In KwaZulu-Natal there has been an increasing switch from rail to road over the past ten years with resultant over utilisation of the main road corridors and under utilisation of the rail system.

6.6.2.2 Branch Lines

The branch lines in KwaZulu-Natal are in need of extensive overhaul and operational upgrade in order to make them competitive with the road haulage of the major commodities which are timber, sugar and on one line only, coal transport.

The potential for the Province to get involved in the planning, management and financing of strategic branch lines needs to be further investigated and reported in NATMAP.

6.6.2.3 Main Line

Main line operations through KwaZulu-Natal have been severely reduced over recent years with a resultant increase in heavy vehicle road traffic. The line is greatly under utilised and has about 65% of spare capacity without alterations. Some upgrading of systems, staffing, rolling stock, locomotives and management would be needed to achieve competitiveness of NATCOR main line in comparison with long haul road transport.

6.6.2.4 Coal-link

The Coal-link main line from the interior to Richards Bay requires a considerable amount of upgrading and replacement of rolling stock to keep pace with the continual gross export coal from Richards Bay port. The major bottleneck on the line is the

single track 4.5 km Overvaal Tunnel in Mpumalanga which effectively reduces the capacity of the line by 60%.

6.6.2.5 Container Terminal

The container terminal at the port of Durban has adequate rail capacity for present throughput but for future increases in container throughput with the planned expansion will be required and extensive upgrading and development of the rail facilities.

6.6.2.6 Road access to Ports

The port of Durban requires a considerable amount of urgent planning and investment to improve the road access to the port. Within the next ten years, there will be a need for construction of major access roads to connect the port and the South Durban Basin to the N3 corridor as an alternative route to the Mariannhill and M7 via Queensburgh in order to reduce current congestion and inefficiency.

6.6.3 Aviation

The existing Durban International Airport has capacity to handle projected growth up to 2035. But with the completion of the King Shaka International airport at La Mercy in 2010 it will be possible to close the old airport and with careful planning, redevelop the area for logistics activities in support of the revitalisation of the port of Durban.

6.6.4 Ports and Landside Linkages

6.6.4.1 Port of Durban

Major transport issues for the port of Durban are:

- the road access to the port is congested and needs urgent capacity expansion
- the existing rail system to the container terminal is barely adequate for present volumes and needs upgrading if there is to be increased use of rail.
- The container terminal lacks capacity, and is need of urgent redevelopment and modernisation.
- The current planning process does not provide adequate future capacity for break-bulk and general cargo and is not integrated with the needs of the logistics markets, major industries, shipping lines and the plans of eThekweni city.

6.6.4.2 Port of Richards Bay

Transport Issues for the port of Richards Bay are:

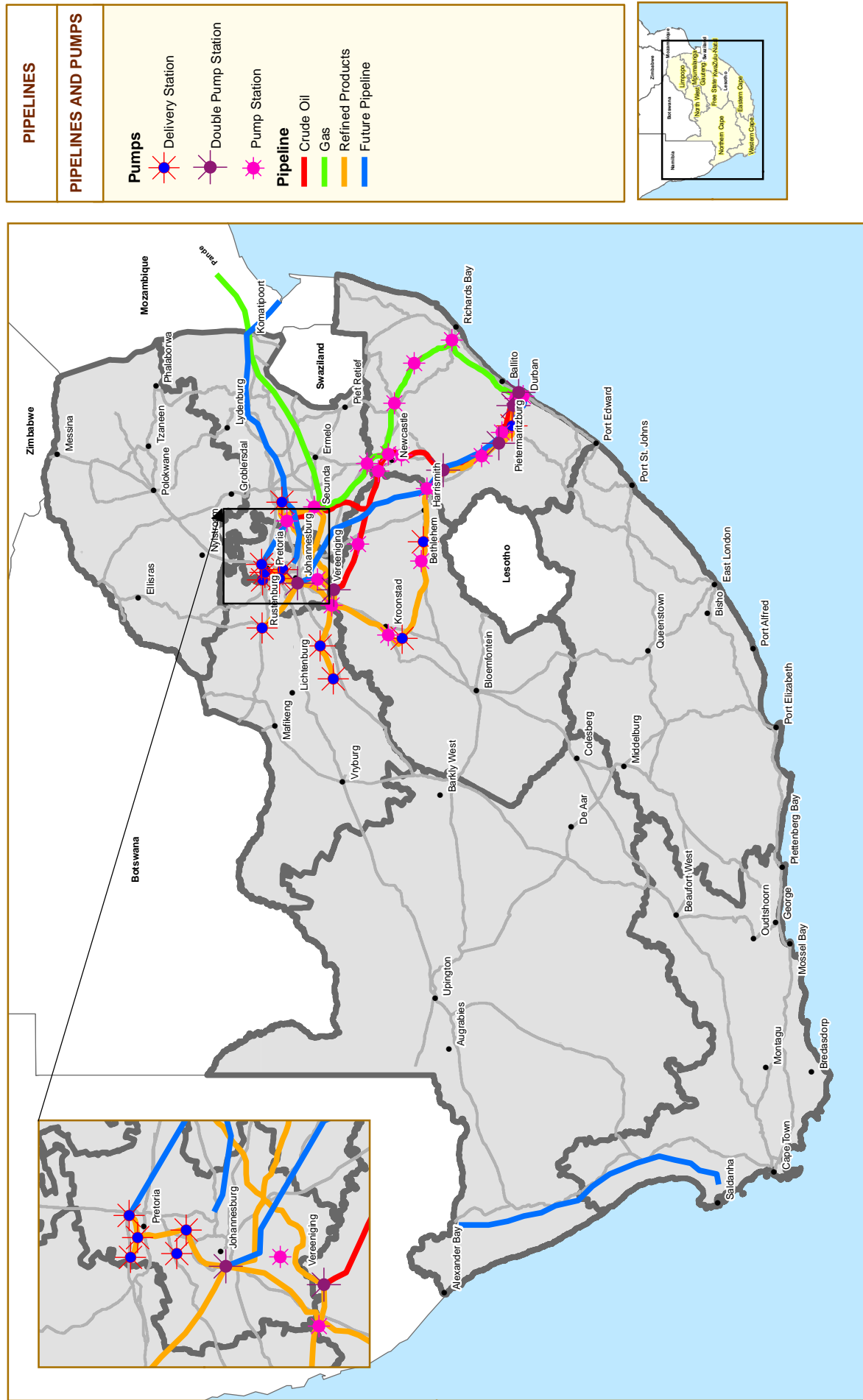
- the primary road providing access into the Richards Bay harbour is the John Ross Highway. This road is being upgraded to relieve congestion and increase capacity.

- the movement of road freight between Gauteng and Richards Bay is not efficient due to the lack of a direct road route. If there is to be future growth of break-bulk and container services there will be a need for extensive planning and investment in road infrastructure.
- the rail market share is being eroded to lack of capacity, costs, operating policies, speed of delivery, service and safety.
- the capacity and operational efficiency of the main Coal link rail line is limiting the potential for coal exports. A considerable amount of upgrading and replacement of rolling stock is required.

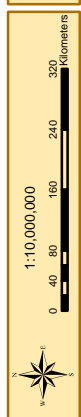
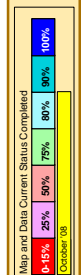
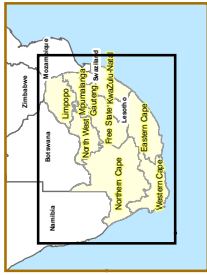


South Africa: PIPELINES AND PUMPS IN SOUTH AFRICA

MAP 6.6 Pipelines and Pumps in South Africa



PIPELINES AND PUMPS	
Pumps	
	Delivery Station
	Double Pump Station
	Pump Station
Pipeline	
	Crude Oil
	Gas
	Refined Products
	Future Pipeline



A B C D E F G H
1 2 3 4 5 6 7 8

7. PASSENGER TRAVEL PATTERNS AND CHARACTERISTICS

7.1 OBJECTIVE

This report is the fourth version of the Phase 1 Status Quo report and it constitutes the draft final report. At the time the report was completed, it was freely acknowledged that there were some gaps in the information, particularly on the supply side. This was because it was not possible to obtain information from some of the operators in time for completion of the report. During Phase 2, some of the missing information has been obtained and this is included in this version of the report.

The Passenger Working Group (PWG) held a meeting with the Department of Transport to clarify certain anomalies in the various interpretations of the terms of reference. These are summarised below:

Scope of Work

With reference to NATMAP's Terms of Reference (ToR), in particular clause 4.3.4, "determine the most sustainable high-quality country-wide, multi-modal, integrated passenger transport system over the planning period 2005 to 2050 in South Africa", the following interpretation was agreed by the client and the PWG:

- i) The system should include institutional, legal and financial components covering both infrastructure and operations to ensure that strategies, programmes and projects can be implemented.
- ii) The emphasis is to be on long-distance passenger movement, i.e. inter-city in general, and inter-metropolitan in particular.
- iii) Local passenger movement is only of concern where it compromises efficient long distance transport, e.g. congested or capacity restricted intra-urban trunk routes affecting access to ports and airports, efficient movement and inter-urban passenger movement.
- iv) The scope and breadth of the mandate should be restricted to infrastructure and modes of travel regulated by the national Department of Transport. In this regard the passenger strategies, programmes and projects in NATMAP should be harmonized with the plans of independent transport entities such as the CAA, the NMA, ACSA, SARCC/Metrorail/Sosholoza Meyl, and SANRAL. The Master Plans of these entities should be reflected in the 2050 Vision for NATMAP. Only the inconsistencies between these plans should be addressed.
- v) Future passenger demand estimates in NATMAP should reflect the master plans of these transport entities and those of national, provincial and municipal development authorities and agencies. In the passenger arena these will include national, provincial and municipal Spatial Development Initiatives of national significance.
- vi) Passenger strategies and actions developed in NATMAP should be mindful of energy depletion, environmental issues and the millennium development goals.

Objective

This task in Phase 1 was intended to provide base year demand and supply information which will be input to the Phase 2 Analysis and modelling of future trends in passenger travel patterns given different scenarios of population and income growth. The task also has the following specific objectives:

1. to differentiate between different types of trip purpose (work and education) and the modes used for different purposes in the province;
2. to determine intercity origins and destinations in terms of business, holiday and migrant trips (the output will be used in Phase 2 to assist in establishing the growth in demand for transport in the main corridors on both urban and inter-city networks);
3. to provide base year information which will be input to the Phase 2 Analysis of future trends in car ownership in the RSA, given different scenarios of population and income growth. Other variables to be considered include the income profiles and race of households given their propensity to grow at variable rates off different base year ownership rates;
4. to determine recent trends in car ownership in the province, to help establish the likely trajectory of future growth (in Phase 2 the output will assist in establishing the likely growth in demand for road space on both urban and inter-city networks);
5. with respect to car use, the primary objective is to determine the extent of current use of cars for commuting, particularly for work and education trips;
6. to describes household trip generation from the National Household Travel Survey (NHTS) results
7. The task also has the objective of determining trip generation per household for work, education, business, migrant and holiday travel from the NHTS results; and
8. to show trip generation results by travel mode.
9. operator supply information

The main sources of information was the National Household Travel Survey (NHTS) conducted by the Department of Transport in 2003, eNATIS, NAAMSA, operator information from Sogholoza Meyl, SARCC, SABOA, long-distance coach operators, long-distance taxi operators, and KZN province.

7.2 MARKET SEGMENTS

7.2.1 Adaptation of the Moving South Africa market segmentation

Moving South Africa (MSA) in 1998 introduced the concept of “market segmentation” in passenger transport. Subsequently in 2000 the DoT modified the concept slightly to establish new and slightly more relevant definitions of the segments as shown in the text which follows **Figure 20**. The new definition and analysis was restricted to workers, and justified on the basis that their travel experiences are reflective of those of the households in which they live.

Striking features of the figure are the dominance of the 'mobile' (38% in the RSA and 36% in KZN) the fact that most public transport users are 'captive' (27% and 34% respectively) and around one quarter of all workers walked to work, 6% for longer than 30 minutes each way. These figures are lower in KwaZulu-Natal, one fifth and 5%.

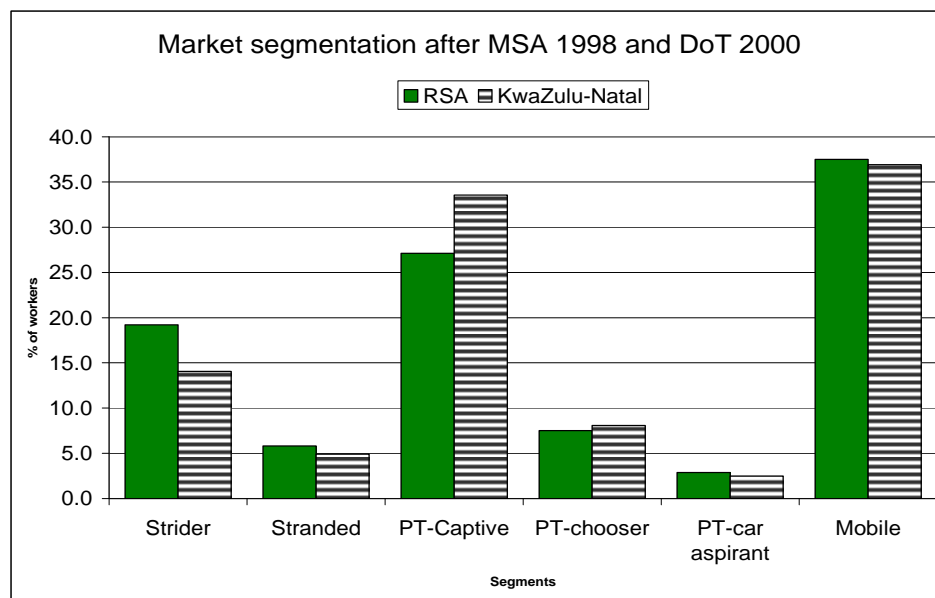


Figure 20: Moving South Africa South 1998 and DoT 2000 Market Segmentation of the worker travel market

For the record, the following is a definition of the six segments: and

- **Strider:** Walk or cycle up to 30 minutes;
- **Stranded:** Walk or cycle for more than 30 minutes;
- **P T Captive:** No car in household – household income <R2 000/month;
- **P T Chooser:** No car in household, household income R2 001 to R4 500/month;
- **P T Car aspirant** No car in household, household income >R4 501 per month or more; and
- **Mobile:** Car driver, car passenger and public transport users with one or more cars available to the household.

7.3 TRANSPORT DEMAND

The types of Information obtained from various sources are given below:

NHTS

The **NHTS survey** asked the following questions of workers and learners:

- *“What is your main place of work? (Suburb, municipality and province) At what time did you leave / arrive? How do you usually get there (mode)”:*
- *“Where does (each learner) attend? (Suburb, municipality and province) At what time do they leave and arrive?”*

The survey asked the following questions of all members of the household.

- *“Has (each household member) undertaken a holiday trip of at least 24 hours within the RSA in the past year? On how many occasions did each person undertake a holiday trip? On the most recent trip, where did they go? (and what mode did they use?)”*
- *“Have you undertaken any business trips of longer than 200 km in the past month? How many? Where? Mode?”*
- *“Is there another place in the RSA which you regard as your home and to which you regularly make an overnight visit? (Migrant) Have you gone there by public transport during the last month? How many times have you gone during the past month? Where is this place, what type of transport did you use and on which day of the week did you go?”*

The foregoing provides typical week day information on worker and learner O-Ds at least once per year information on holiday travel O-Ds, monthly information on business trips and weekly information on migrant travel and O-Ds.

Various ITPs contain information on municipal O-Ds for work and other trips. However, the differing survey dates, variables and methods used mean that the information is not strictly comparable. Accordingly, the NHTS information is to be used for NATMAP strategic analysis of passenger O-Ds.

The source of information for trip generation was also the National Household Travel Survey (NHTS) conducted by the Department of Transport in 2003. The survey asked the following questions of respondents:

- *“Thinking of travel day did (each household member) leave the premises to go anywhere, such as going to work, visiting a friend or going to the shops?”*
- *Thinking of travel day, to which of the following did (each household member) go. (Work, education, shops, looking for work, medical services, welfare offices, visiting, sport/recreation and entertainment, church and other?”*
- *“ In the last 7 days, how many days has (each person) used a train, bus, metered taxi, minibus taxi, sedan taxi, bakkie taxi, a car/bakkie/station wagon/kombi/4 by 4, a truck/lorry, a motor cycle scooter, a bicycle, animal transport, an aircraft and other.”*
- *“What is your main place of work? (Suburb, municipality and province) How do you usually get there (mode)”:*
- *“Where does (each learner) attend? (Suburb, municipality and province) How do they usually get there mode?”*

The survey asked the following questions of all members of the household.

- *“Has (each household member) undertaken a holiday trip of at least 24 hours within the RSA in the past year? On how many occasions did each person undertake a holiday trip? On the most recent trip, where did they go? (and what mode did they use?)”*
- *“Have you undertaken any business trips of longer than 200 km in the past month? How many? Where? Mode?”*
- *“Is there another place in the RSA which you regard as your home and to which you regularly make an overnight visit? (Migrant) Have you gone there by public transport during the last month? How many times have you gone during the past month? Where is this place, what type of transport did you use and on which day of the week did you go?”*

The foregoing provides information on both individual and household trip making and has been used to establish trip generation rates. The primary source of information for car ownership was the National Household Travel Survey (NHTS) conducted by the Department of Transport in 2003. The survey asked the following question of household heads:

“How many of the following motorised vehicles in running order does this household have available for private use:

- *Motorcycle/scooter;*
- *Car, Bakkie, Station Wagon, 4 x 4 owned by employer of company;*
- *Car, Bakkie, Station Wagon, 4 x 4 owned by the household, a relative or friend;*
- *Minibus or combi”.*

The foregoing provides information on both household car ownership and car availability for households

The NHTS was also the source of information on car use in that it ascertained the use of cars for the following trip purposes:

- daily trips to work;
- daily trips to education;
- trips to services and amenities (no frequency established);
- number of days / week each household member used a car;
- most recent holiday trip;
- most recent business trip; and
- most recent trip home by migrant.

In the case of the latter three trip purposes, it is possible to ascertain the frequency of such trips to obtain an estimate of daily or weekly car use by the population of the RSA.

e-NATIS

The **DoT e-NATIS** was the source of information for the number of registered vehicles in each province. Since the provincial borders were only finalised by the Demarcation Board in 2000, it is only possible to establish recent trends in the growth of car ownership by province. It is also important to note that the number of registered vehicles is not the same as the number of cars owned by households because many of the vehicles are owned by government or companies. Recent car ownership trends can, however be inferred from the **e-NATIS vehicle registration** trends.

National Association of Automobile Manufacturers of South Africa (NAAMSA)

new and used car sales data was used to corroborate the above trends. Similarly, the **South African Advertising Research Foundation (SAARF)** annual All Media Products Survey (AMPS) which includes demographic and lifestyle factors, such as car ownership, was used to verify trends.

7.3.1 Trip generation

Table 57 shows the approximate number of home-based trips per day made by all persons in the KwaZulu-Natal by District Municipality. Overall, 30% of persons do not make any trips from home on a typical weekday. Three or more trips per day are made by a surprisingly large proportion of people in the more rural municipalities particularly Umkhanyakude, Ugu and Zululand. For the province as a whole 7,5 per cent of persons make 3 or more trips per day.

Table 57: KwaZulu-Natal approximate number of home-based trips per person per day

Origin		Approximate number of trips per person per day (% of persons)			
		0	1	2	3+
		Percentage of persons			
KZN districts	Umgungundlovu DM	26.7	63.0	7.0	3.2
	Sisonke DM	41.8	50.6	4.4	3.1
	Uthukela DM	31.3	50.1	12.9	5.8
	Ugu DM	33.5	44.4	9.8	12.4
	Zululand DM	28.4	41.5	17.5	12.5
	Umkhanyakude DM	17.3	57.2	9.6	15.9
	Uthungulu DM	39.2	54.9	5.1	0.7
	Umzinyathi DM	34.2	45.1	10.6	10.1
	Amajuba DM	43.9	50.7	3.7	1.7
	Ilembe DM	39.9	50.2	4.2	5.7
	Ethekwini MM	24.9	55.1	11.6	8.4
KwaZulu-Natal		30.2	52.5	9.8	7.5

Source: NHTS

The average number of trips from home by persons and households is shown in **Table 58**. Once again the trip generation per household in some of the rural areas is surprisingly high (Umkhanyakude, Ugu, Zululand and Umzinyathi). Trip generation for the two most important household trip purposes, namely work and education is also shown in the table, but work trips in the rural areas are significantly lower than the urban, while the reverse is true for education trips.

Origin		Average number of trips per person per day	Average number of trips per household per day	Average number of work trips per household per day	Average number of education trips per household per day
KZN metros and districts	Umgungundlovu DM	0.9	3.8	0.9	1.4
	Sisonke DM	0.7	2.9	0.4	1.4
	Uthukela DM	1.0	5.0	0.5	1.8
	Ugu DM	1.1	5.6	0.5	1.7
	Zululand DM	1.2	6.9	0.4	2.1
	Umkhanyakude DM	1.4	8.7	0.3	2.7
	Uthungulu DM	0.7	3.1	0.6	1.5
	Umzinyathi DM	1.1	5.4	0.3	1.7
	Amajuba DM	0.6	3.1	0.6	1.6
	Ilembe DM	0.8	3.8	0.6	1.4
	Ethekwini MM	1.1	4.0	0.9	1.0
KwaZulu-Natal		1.0	4.4	0.7	1.4

Source: NHTS

Table 58: Average number of trips from home

The NHTS only collected information about trips from home and did not record any details about non-home-based trips or return trips. If it assumed that every outward trip has a return trip, an approximation of household trip generation can be made.

Table 59 shows the average number of home-based trips per person and household per day including return trips based on responses to the question “*Thinking of travel day, did you leave the premises to go anywhere, such as going to work, visiting a friend or going to the shops?*”

Table 59: An approximation of trip generation based on outward and return trips in KwaZulu-Natal

Origin		Approximate number of trips per person per day (% of all persons)				Average number of trips per person per day	Average number of trips per household per day
		0	2	4	6+		
		Percentage of persons					
KZN metros and districts	Umgungundlovu DM	26.7	63.0	7.0	3.2	1.8	7.6
	Sisonke DM	41.8	50.6	4.4	3.1	1.5	5.7
	Uthukela DM	31.3	50.1	12.9	5.8	2.0	10.0
	Ugu DM	33.5	44.4	9.8	12.4	2.3	11.1
	Zululand DM	28.4	41.5	17.5	12.5	2.5	13.8
	Umkhanyakude DM	17.3	57.2	9.6	15.9	2.9	17.3
	Uthungulu DM	39.2	54.9	5.1	0.7	1.4	6.2
	Umzinyathi DM	34.2	45.1	10.6	10.1	2.2	10.8
	Amajuba DM	43.9	50.7	3.7	1.7	1.3	6.3
	Ilembe DM	39.9	50.2	4.2	5.7	1.6	7.5
	Ethekwini MM	24.9	55.1	11.6	8.4	2.2	8.1
KwaZulu-Natal		30.2	52.5	9.8	7.5	2.0	8.9

Source NHTS

Trip making and household income

Table 60 shows the trip-making characteristics of persons and households in three different household income categories, low, medium and high income groups. High-income person trip generation is higher than the medium and low income-categories, and as can be expected, work trip generation rises with income. Trip rates for education trips are highest among low and middle income households – family size tends to decrease as incomes rise.

Table 60: Trip-making by income group of household

Monthly Household Income	Approximate number of trips per person per day (% of persons)				Average number of trips per person per day	Average number of trips per household per day	Average number of work trips per household per day	Average number of education trips per household per day
	0	1	2	3+				
Up to R1000	35.6	48.6	8.6	7.3	0.9	4.1	0.3	1.4
R1001 - R6000	27.3	55.9	9.9	6.9	1.0	4.8	0.9	1.5
R6001+	14.9	59.8	15.2	10.1	1.3	5.2	1.7	1.2

Trips from home (i.e no return trips counted)

Source: NHTS

Holiday, business and migrant travel trip rates (generation)

Table 61 shows the trip-making by individuals and households for holiday trips. These rates reflect the fact that in the population as a whole, few households make holiday trips. The quantum of trips is, however, significant in terms of the annual demand for intercity travel. As would be expected the highest rates are in Ethekwini and Umgungundlovu.

It is of interest to note that holiday trip rates and the total number of annual holiday trips (861 000) are much lower in KZN than in the Western Cape. The rates per household average only 0,39, compared with 0,95 in the latter.

Table 61: Holiday trip rates

District	Number of households	Total number of holiday trips per year	Average number of trips per household per year
Sisonke DM	83 000	15 000	0.18
Uthukela DM	137 000	172 000	1.26
Ugu DM	149 000	29 000	0.20
Umgungundlovu DM	222 000	80 000	0.36
Ethekwini	865 000	382 000	0.44
Zululand DM	151 000	40 000	0.26
Umkhanyakude DM	99 000	24 000	0.24
Uthungulu DM	205 000	62 000	0.30
Umzinyathi DM	93 000	4 000	0.05
Amajuba DM	99 000	29 000	0.30
ILembe DM	121 000	24 000	0.20
KwaZulu-Natal	2 224 000	861 000	0.39

Trip rates per worker and per household vary considerably across the province, with no particular pattern to distinguish between districts with large urban as opposed to rural settlements.

Table 62: Business trip rates in KwaZulu-Natal

District	Number of households	Total number of business trips per month	Average number of trips per household per month
Sisonke DM	83 000	3 000	0.04
Uthukela DM	137 000	7 000	0.05
Ugu DM	149 000	6 000	0.04
Umgungundlovu DM	222 000	16 000	0.07
Ethekwini	865 000	43 000	0.05
Zululand DM	151 000	10 000	0.07
Umkhanyakude DM	99 000	1 000	0.01
Uthungulu DM	205 000	1 000	0.00
Umzinyathi DM	93 000	5 000	0.05
Amajuba DM	99 000	9 000	0.09
ILembe DM	121 000	1 000	0.01
KwaZulu-Natal	2 224 000	101 000	0.05

Source: NHTS

Business trip rates are shown in **Table 62**. As with holiday travel, business trips are relatively insignificant but nevertheless can be expected to increase significantly in the future. Most of the trips originate in Ethekewini, Umgungundlovu and Uthungulu.

Migrant travel generates a considerable number of trips in KwaZulu-Natal in contrast with some other parts of South Africa. The rates and monthly trips are shown in **Table 63**.

The monthly rates can be recalculated to give approximations of weekly trip-making by migrant travellers. For example, on average there are about 45 000 migrant trips per week in the province. A cautionary note is made that the analyst should note that the monthly frequency of such trips varies from once a month to four times. Most trips are made at month end so a peak weekly total could be as high as 120 thousand in KwaZulu-Natal. From the table it is evident that most migrant trip origins are from Ethekewini and Umgungundlovu.

Table 63: Migrant trip rates in KwaZulu-Natal

District	Number of households	Total number of migrant trips per month	Average number of trips per household per month
Sisonke DM	83 000	13 000	0.16
Uthukela DM	137 000	10 000	0.07
Ugu DM	149 000	8 000	0.06
Umgungundlovu DM	222 000	24 000	0.11
Ethekewini	865 000	111 000	0.13
Zululand DM	151 000	11 000	0.07
Umkhanyakude DM	99 000	5 000	0.05
Uthungulu DM	205 000	6 000	0.03
Umzinyathi DM	93 000	3 000	0.03
Amajuba DM	99 000	1 000	0.01
ILembe DM	121 000	4 000	0.03
KwaZulu-Natal	2 224 000	191 000	0.09

* Public transport trips to another home in another district

Source: NHTS

The weekly pattern of migrant trip making is shown in **Table 64**.

Table 64: The days of the week on which migrant travel takes place in KZN

Province	Day of the week on which travelled home						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	Percentage of all migrants						
KwaZulu-Natal	1.5	1.7	2.8	3.3	44.4	40.3	6

Source: NHTS

Finally, the rates of weekly travel for all trip purposes from households are summarised in **Table 65**. It is evident that work, education trips and shopping trips predominate. Visiting trips are also significant.

Table 65: Rates of week-day travel by households for all trip purposes

Home area	Trip purpose									
	Work	Education	Shopping	Look for work	Medical	Welfare	Visiting	Recreation	Church	Other
	Average number per household per weekday									
Umgungundlovu DM	0.88	1.35	0.51	0.11	0.08	0.04	0.58	0.08	0.13	0.04
Sisonke DM	0.39	1.37	0.39	0.09	0.10	0.04	0.27	0.05	0.14	0.02
Uthukela DM	0.50	1.83	0.77	0.12	0.22	0.06	0.79	0.45	0.20	0.07
Ugu DM	0.54	1.72	1.01	0.20	0.46	0.05	0.72	0.20	0.61	0.06
Zululand DM	0.44	2.14	1.31	0.22	0.15	0.12	1.50	0.42	0.51	0.06
Umkhanyakude DM	0.32	2.65	1.54	0.30	1.01	0.25	0.97	0.54	1.06	0.01
Uthungulu DM	0.59	1.53	0.43	0.13	0.05	0.03	0.20	0.06	0.07	0.01
Umzinyathi DM	0.34	1.75	0.93	0.27	0.12	0.09	0.83	0.38	0.69	0.02
Amajuba DM	0.57	1.63	0.34	0.08	0.04	0.03	0.29	0.06	0.08	0.02
Ilembe DM	0.64	1.42	0.52	0.12	0.18	0.10	0.54	0.08	0.16	0.01
Ethekwini MM	0.91	0.99	0.75	0.18	0.14	0.05	0.55	0.17	0.25	0.03
KwaZulu-Natal	0.70	1.43	0.75	0.17	0.19	0.06	0.62	0.20	0.30	0.03

Source: NHTS

7.3.2 Origin and Destination Data

Work trip O-D's

Table 66 shows the inter-municipal work trip O-D pattern in KwaZulu-Natal. The table shows that the majority of workers live and work in the same district. It also shows the domination of Ethekwini as both the origin and destination of work trips in the province. Over 800 thousand daily trips to work take place in Ethekwini compared with the next largest municipality, Umgungundlovu with only about 208 thousand trips.

Cross-boundary trips are few and far between. Only 3 000 trips cross from all other KwaZulu-Natal district municipalities into Ethekwini on a typical weekday. Likewise, very few trips are made between KwaZulu-Natal and the neighbouring provinces (just over 4 000 in total).

Table 66: Base year inter-district O-Ds in KwaZulu-Natal

Origin		Destination														
		External		KwaZulu-Natal Districts										All		
		Eastern Cape	Mpumalanga	Sisonke DM	Uthukela DM	Ugu DM	Umgungundlovu DM	Ethekwini MM	Zululand DM	Umkhanyakude DM	Uthungulu DM	Umzinyathi DM	Amajuba DM		Ilembe DM	
External	Eastern Cape	0	0	1 800	0	500	0	100	0	0	0	0	0	0	0	2 400
	Free State	0	0	0	100	0	0	0	100	0	0	0	0	0	0	200
KwaZulu-Natal districts	Mpumalanga	0	0	0	0	0	0	0	0	0	0	0	800	0	800	
	Sisonke DM	1 500	0	31 600	200	500	600	0	0	0	0	0	0	600	35 000	
	Uthukela DM	0	0	300	72 100	0	500	200	800	100	0	900	0	0	75 000	
	Ugu DM	800	0	500	0	74 100	300	4 000	0	200	100	700	0	1 100	81 800	
	Umgungundlovu DM	200	0	400	100	400	200 900	4 500	200	0	200	200	200	800	207 900	
	Ethekwini MM	1 300	0	1 000	700	6 900	7 800	783 300	0	0	1 400	600	0	2 800	805 800	
	Zululand DM	0	900	200	0	4 000	300	400	63 300	200	2 000	1 100	0	0	72 600	
	Umkhanyakude DM	0	0	200	0	0	500	1 800	700	29 100	1 200	0	0	400	33 900	
	Uthungulu DM	0	0	0	300	0	0	700	100	1 800	123 400	100	0	3 200	129 600	
	Umzinyathi DM	0	0	0	0	100	0	300	500	0	27 500	600	800	29 800		
	Amajuba DM	0	0	0	500	0	900	0	600	0	0	500	57 200	100	59 800	
Ilembe DM	0	0	300	500	300	1 000	6 400	0	0	900	600	0	75 400	85 500		
All		3 700	900	36 300	74 600	86 800	212 800	801 800	66 300	31 500	129 000	32 200	58 700	85 200	1 619 900	

Source: NHTS

Table 67 shows the work trip O-D's by public, private and non-motorised transport. Overall public transport carries about 50 per cent of all travellers, private transport 31% and Non motorised trip accounts for 19% of the 1,5 million daily trips to work in the province. Ethekwini is the origin of 51% of work trips. Non motorised trips are less prevalent in Ethekwini than in the municipal districts. Most of the trips have origins and destinations within the municipality. There are relatively few cross-boundary work trips.

Table 67: Work trip OD's by public, private and non-motorised transport

Origin	Destination											
	Sisonke DM	Uthukela DM	Ugu DM	Umgungundlovu DM	Ethekwini MM	Zululand DM	Umkhanyakude DM	Uthungulu DM	Umzinyathi DM	Amajuba DM	Ilembe DM	All
Public transport												
Sisonke DM	7 900	0	0	600	0	0	0	0	0	0	300	8 800
Uthukela DM	300	41 700	0	400	200	200	0	0	900	0	0	43 700
Ugu DM	0	0	28 200	0	2 900	0	0	0	300	0	1 100	32 500
Umgungundlovu DM	400	0	300	95 000	2 000	200	0	0	0	200	600	98 600
Ethekwini MM	400	100	3 300	5 200	414 700	0	0	500	0	0	1 300	425 600
Zululand DM	0	0	700	0	0	20 200	200	1 400	900	0	0	23 400
Umkhanyakude DM	0	0	0	500	100	0	5 300	900	0	0	0	6 800
Uthungulu DM	0	300	0	0	300	0	0	51 400	0	0	2 500	54 500
Umzinyathi DM	0	0	0	0	100	100	0	0	6 300	300	100	7 100
Amajuba DM	0	0	0	0	0	100	0	0	100	25 100	0	25 400
Ilembe DM	0	0	0	600	3 600	0	0	0	200	0	32 300	36 600
All	9 000	42 100	32 600	102 200	424 000	20 900	5 500	54 200	8 700	25 600	38 100	762 900
Private Transport												
Sisonke DM	3 400	0	100	0	0	0	0	0	0	0	300	3 800
Uthukela DM	0	16 100	0	0	0	500	0	0	0	0	0	16 600
Ugu DM	300	0	20 700	100	500	0	200	0	0	0	0	21 800
Umgungundlovu DM	0	100	0	47 300	2 100	0	0	0	200	0	0	49 700
Ethekwini MM	0	400	3 100	2 000	288 900	0	0	700	600	0	1 500	297 200
Zululand DM	0	0	0	300	0	13 200	0	500	0	0	0	14 000
Umkhanyakude DM	0	0	0	0	1 600	0	5 300	100	0	0	100	7 100
Uthungulu DM	0	0	0	0	400	100	1 200	28 800	100	0	400	30 900
Umzinyathi DM	0	0	0	0	200	300	0	0	7 600	200	100	8 300
Amajuba DM	0	400	0	0	0	300	0	0	0	20 700	0	21 300
Ilembe DM	200	0	0	400	2 300	0	0	300	0	0	11 000	14 200
All	3 900	17 100	23 900	50 100	295 800	14 200	6 800	30 300	8 400	20 900	13 400	484 800
Non-motorised transport												
Sisonke DM	20 100	200	400	0	0	0	0	0	0	0	0	20 700
Uthukela DM	0	11 800	0	100	0	200	100	0	0	0	0	12 200
Ugu DM	200	0	20 600	200	400	0	0	100	400	0	0	21 900
Umgungundlovu DM	0	0	100	48 400	400	0	0	0	0	0	0	48 900
Ethekwini MM	600	200	0	0	60 200	0	0	0	0	0	0	61 000
Zululand DM	200	0	3 300	0	400	26 800	0	100	200	0	0	31 100
Umkhanyakude DM	200	0	0	0	0	700	16 100	0	0	0	300	17 300
Uthungulu DM	0	0	0	0	0	0	600	28 100	0	0	300	29 000
Umzinyathi DM	0	0	100	0	0	0	0	0	12 200	0	500	12 800
Amajuba DM	0	100	0	900	0	200	0	0	0	8 100	100	9 400
Ilembe DM	0	500	300	0	100	0	0	300	0	0	30 800	32 000
All	21 300	12 800	24 900	49 600	61 500	27 800	16 800	28 600	12 800	8 100	32 000	296 400

Source: NHTS

Work trip length

Table 68 shows the time bands for travel to work in municipal districts and TAZ in KwaZulu-Natal. The data specification for modelling in the NATMAP calls for trip-length frequency distributions for all travel modes. Unfortunately, because of the unreliability of “reported” trip distances, the NHTS did not collect information on travel distances. Accordingly, travel times will have to be used as a surrogate for distances. **Table 68** is provided for this purpose. Most of the “long” trips of over 60 minutes (between 30 and 45 km) are found in Ethekwini, particularly the peripheral areas of Umbumbulu, Inanda rural and Kwa Mashu. In the more rural districts long travel

times are common in Umgungundlovu, Ilembe and Uthungulu. In Ethekwini 46% of workers travel for 30 minutes or less and for the province as a whole 50% get to work in 30 minutes or less.

Table 68: Travel time to work by municipality and TAZ (Source: NHTS)

Origin		Travel time to work					
		Up to 15 mins	16 - 30 mins	31 - 60 mins	61 - 90 mins	91+ mins	All
Umgungundlovu DM TAZ	uMngeni	7 900	7 300	6 800	500	1 200	23 700
	uMshwathi	5 700	9 000	3 500	400	600	19 200
	Mooi Mpofana	6 400	3 100	1 100	0	100	10 700
	Richmond/ Mkhambathini	4 600	3 900	5 900	200	1 200	15 800
	Pietermaritzburg	11 300	8 600	4 900	1 000	100	26 000
	Northdale/ Raisethorpe	5 600	14 600	11 200	2 000	1 500	35 000
	Ashburton	1 400	800	1 000	200	0	3 400
	Henley Dam/ Umsunduzi Valley	1 700	3 700	7 800	6 900	4 000	24 200
	Imbali/ Edendale	2 300	17 000	22 600	3 900	1 500	47 200
KZN districts	Umgungundlovu DM	46 800	68 100	64 700	15 100	10 200	204 900
	Sisonke DM	12 700	7 500	8 500	1 900	2 100	32 700
	Uthukela DM	13 300	22 700	24 500	10 000	4 200	74 600
	Ugu DM	16 600	27 000	23 800	8 000	4 800	80 200
	Zululand DM	20 700	20 600	19 800	6 800	2 000	69 900
	Umkhanyakude DM	9 100	12 100	7 200	2 300	2 000	32 700
	Uthungulu DM	23 100	35 300	39 900	17 400	13 500	129 100
	Umzinyathi DM	8 700	8 000	9 200	2 800	900	29 600
	Amajuba DM	11 400	19 600	15 900	7 200	3 200	57 200
	Ilembe DM	17 300	20 900	26 300	13 600	6 600	84 600
	Ethekwini MM	103 800	265 500	298 100	93 900	37 500	798 700
Ethekwini MM TAZ	Inanda rural	4 700	9 500	24 000	14 100	5 000	57 300
	Bluff	4 700	10 700	7 000	1 800	200	24 500
	Durban CBD	1 400	9 300	4 100	500	200	15 400
	Umgeni	1 100	8 100	6 100	3 300	1 400	20 000
	Berea North	10 700	18 800	13 200	7 700	2 100	52 500
	Cato Manor	5 500	11 400	5 100	100	0	22 100
	Monthlands	1 800	6 500	5 800	1 000	700	15 800
	Chatsworth	10 400	27 100	32 600	8 900	600	79 600
	Umbumbulu	2 800	18 500	50 300	14 000	4 900	90 500
	Inner West	18 300	40 000	25 600	6 700	3 000	93 700
	Westville	4 500	14 400	11 700	1 800	1 100	33 500
	Kingsburgh	4 300	10 100	13 300	7 100	4 100	38 800
	Outer West	4 000	12 100	16 400	3 400	5 500	41 400
	Tongaat	6 300	8 800	7 900	3 400	1 400	27 800
	Canelands	5 000	8 500	10 000	1 800	500	25 900
	Umdloti	2 200	4 600	1 900	100	0	8 800
	Durban North	6 300	14 800	8 700	400	200	30 400
	Verulam	6 300	21 100	31 400	7 900	2 600	69 200
	Kwa Mashu	3 500	11 200	23 000	9 800	4 000	51 600
KwaZulu-Natal		283 500	507 300	537 800	178 900	86 900	1 594 300

Work trips starting and ending in KwaZulu-Natal

The reason for the longer travel times is, however, not only trip distance. Access, waiting and transfer times all play a part.

Education trip origins and destinations

The O-Ds of trips to education centres in KwaZulu-Natal are shown in **Table 69** . As is evident, while there is some cross-boundary travel between municipalities most trips have origins and destinations within the municipality.

Table 69: Education trip origins and destinations by municipality

Origin		Destination											All			
		External		KwaZulu-Natal Districts												
		Eastern Cape	Mpumalanga	Sisonke DM	Uthukela DM	Ugu DM	Umgungundlovu DM	Ethekwini MM	Zululand DM	Umkhanyakude DM	Uthungulu DM	Umginyathi DM		Amajuba DM	Ilembe DM	
External	Eastern Cape	0	0	1 100	0	3 700	0	0	0	0	0	0	0	0	0	4 800
	Mpumalanga	0	0	0	0	0	0	0	1 400	0	0	0	0	0	0	1 400
KwaZulu-Natal districts	Sisonke DM	3 400	0	107 700	0	7 500	0	100	0	0	200	0	0	300	119 200	
	Uthukela DM	0	0	1 300	255 300	1 100	3 400	1 000	200	3 300	1 000	200	100	5 500	272 400	
	Ugu DM	0	0	2 600	0	265 900	0	5 600	0	1 100	1 300	600	0	1 400	278 500	
	Umgungundlovu DM	0	0	3 600	200	1 100	305 300	6 600	500	0	1 400	3 700	0	2 800	325 200	
	Ethekwini MM	0	0	800	2 100	5 300	8 300	921 400	1 200	500	1 400	2 800	0	10 300	954 200	
	Zululand DM	0	0	1 400	1 600	7 100	2 700	1 900	313 900	4 700	8 700	11 400	0	100	353 400	
	Umkhanyakude DM	0	0	0	800	0	400	300	0	255 400	6 600	200	0	4 500	268 200	
	Uthungulu DM	0	0	0	1 800	2 400	0	1 700	0	2 400	329 800	400	0	4 200	342 700	
	Umginyathi DM	0	0	0	1 900	6 300	0	1 400	4 500	200	0	161 600	0	7 100	183 000	
	Amajuba DM	0	200	0	100	600	0	300	4 800	0	200	700	168 100	0	175 000	
Ilembe DM	0	0	9 400	7 200	600	1 400	10 100	0	0	1 100	0	0	166 800	196 500		
All		3 400	200	127 900	271 000	301 500	321 600	950 400	326 500	267 500	351 700	181 600	168 300	203 000	3 474 600	

All education trips starting or ending in KwaZulu-Natal

Source: NHTS

Table 70 shows the origins and destinations of all education trips in KwaZulu-Natal by public transport, private vehicles and non-motorised transport. There are about 3,5 million daily trips to education in the province of which 27% take place in Ethekwini. About 80% of the trips in Ethekwini are non motorised trips (2,75 million) and the balance of the trips (about 20%) is shared between public (13%) and private transport (7%). In the district municipalities the proportion of NMT trips to education is much higher.

Table 70: O-Ds of education trips by public, private and non-motorised transport

Origin	Destination											
	Sisonke DM	Uthukela DM	Ugu DM	Umgungundlovu DM	Ethekwini MM	Zululand DM	Umkhanyakude DM	Uthungulu DM	Umzinyathi DM	Amajuba DM	Ilembe DM	All
Public transport												
Sisonke DM	8 100	0	0	0	100	0	0	0	0	0	300	8 400
Uthukela DM	0	30 600	0	600	600	100	0	0	200	0	0	32 000
Ugu DM	1 700	0	17 600	0	1 000	0	0	0	0	0	0	20 400
Umgungundlovu DM	0	200	0	45 800	1 700	0	0	0	0	0	100	47 900
Ethekwini MM	400	700	1 000	1 600	219 400	900	300	1 400	500	0	700	226 800
Zululand DM	0	0	1 100	0	0	19 000	1 300	0	0	0	0	21 400
Umkhanyakude DM	0	0	0	0	0	0	11 700	500	100	0	0	12 200
Uthungulu DM	0	0	0	0	0	0	1 100	30 200	0	0	1 200	32 500
Umzinyathi DM	0	700	0	0	0	200	0	0	9 400	0	500	10 900
Amajuba DM	0	0	300	0	0	0	0	0	400	18 900	0	19 500
Ilembe DM	0	4 000	0	0	500	0	0	500	0	0	16 100	21 200
All	10 200	36 200	20 100	48 100	223 200	20 200	14 300	32 600	10 600	18 900	18 900	453 200
Private Transport												
Sisonke DM	2 500	0	0	0	0	0	0	0	0	0	0	2 500
Uthukela DM	0	6 700	0	0	0	0	0	200	0	0	0	7 000
Ugu DM	0	0	10 300	0	400	0	0	0	0	0	0	10 700
Umgungundlovu DM	0	0	0	35 000	1 500	0	0	0	0	0	800	37 300
Ethekwini MM	0	0	3 100	400	130 500	0	0	0	0	0	300	134 400
Zululand DM	0	0	0	0	0	6 200	0	0	0	0	0	6 200
Umkhanyakude DM	0	0	0	0	0	0	2 000	100	0	0	100	2 300
Uthungulu DM	0	0	0	0	0	0	0	15 400	0	0	0	15 400
Umzinyathi DM	0	200	0	0	0	100	0	0	3 200	0	0	3 500
Amajuba DM	0	0	0	0	0	0	0	0	0	7 500	0	7 500
Ilembe DM	0	200	0	0	600	0	0	0	0	0	5 800	6 600
All	2 500	7 200	13 500	35 500	132 900	6 300	2 000	15 700	3 200	7 500	7 000	233 400
Non-motorised transport												
Sisonke DM	96 200	0	7 500	0	0	0	0	200	0	0	0	103 900
Uthukela DM	1 300	217 300	1 100	2 800	500	100	3 300	800	0	100	5 500	232 800
Ugu DM	900	0	234 600	0	4 200	0	1 100	1 300	600	0	1 400	244 100
Umgungundlovu DM	3 600	0	1 100	222 000	3 400	500	0	1 400	3 700	0	1 800	237 500
Ethekwini MM	400	1 100	1 200	6 300	558 000	0	200	0	2 300	0	9 300	578 800
Zululand DM	1 400	1 600	6 000	2 700	1 900	288 700	3 400	8 700	11 400	0	100	325 800
Umkhanyakude DM	0	800	0	400	300	0	241 300	6 000	100	0	4 400	253 300
Uthungulu DM	0	1 800	2 400	0	1 700	0	1 300	283 800	400	0	3 100	294 500
Umzinyathi DM	0	1 000	6 300	0	1 400	4 100	200	0	147 400	0	6 600	167 000
Amajuba DM	0	100	300	0	300	4 800	0	200	300	140 700	0	146 700
Ilembe DM	9 400	2 900	600	1 400	9 000	0	0	500	0	0	142 100	165 900
All	113 100	226 700	261 000	235 700	580 700	298 300	250 800	303 000	166 300	140 800	174 100	2 750 400

External trips left out; Sample too small to do by mode

Source: NHTS

Travel times to education centres in KwaZulu-Natal

Use of travel time as a surrogate for travel distance is problematic in the case of education trips because of the dominance of trips on foot. However, trip times to education centres are shown in **Table 71**. In view of the large number of walking trips the large proportion (about 42%) of learners travelling for more than 30 minutes should be of concern to education authorities. About 10 per cent travel for longer than 60 minutes.

Table 71: Travel times to education in KwaZulu-Natal

Origin	Travel time to work					All
	Up to 15 mins	16 - 30 mins	31 - 60 mins	61 - 90 mins	91+ mins	
Sisonke DM	23 400	31 100	38 600	14 500	6 600	114 200
Uthukela DM	73 200	85 500	86 000	19 400	6 700	270 800
Ugu DM	46 900	80 900	105 500	28 800	7 400	269 600
Umgungundlovu DM	80 300	125 000	79 800	19 200	9 000	313 400
Ethekwini MM	264 600	389 200	217 100	38 800	17 600	927 300
Zululand DM	90 800	110 100	107 300	28 000	13 900	350 100
Umkhanyakude DM	31 800	83 900	101 400	29 900	14 600	261 600
Uthungulu DM	42 800	110 900	134 200	26 500	17 800	332 100
Umzinyathi DM	42 900	46 900	74 700	10 300	7 300	182 100
Amajuba DM	42 500	65 900	41 200	8 900	3 300	161 800
Ilembe DM	32 000	67 400	69 300	15 700	7 900	192 400
All	771 300	1 197 000	1 055 100	239 900	112 100	3 375 400

Education trips starting and ending in KwaZulu-Natal
Source: NHTS

Holiday travel origins and destinations

The number of people making holiday trips during the course of a year is shown in **Table 72**. In proportionate terms, White and Indian persons have the highest incidence of holiday trip making, but 250 thousand holiday trips by Blacks represents a large number which is likely to grow considerably in the life of the Master Plan. Even if only half the population indulges in holiday travel by the 2050, this will represent a significant increase in demand for road space and intercity services.

Overall, only 4,3% of the population are currently making holiday trips.

Table 72: Number of persons making holiday trips in KwaZulu-Natal

Race	Holiday trips during the past year?	
	Yes	No
African/Black	251 100	8 135 200
Coloured	7 800	141 100
Indian/Asian	68 000	729 500
White	97 100	361 200
Other	200	2 600
KwaZulu-Natal	424 200	9 369 500
Percentage	4.3	95.7

All persons in Kwa Zulu-Natal
Source: NHTS

Table 73 shows the origins and destinations of all holiday trips made by KwaZulu-Natal residents within the province. Over 424 thousand people made at least one holiday trip of which 268 thousand trips were confined to the province.

Over 36 per cent of the holiday trips beginning and ending in KZN originated in the City of Ethekwini and it attracted 26 percent of the trips with origins in the province. Uthukela was the other popular destination. Of those people making holiday trips, the average number of such trips was 2 per year. In all, 424 000 people in KwaZulu-Natal made at least one holiday trip in the year preceding the survey, so the total number of trips would be approaching 1 million per annum.

Table 73: Origins and destinations of most recent holiday trips with destinations in KwaZulu-Natal

Origin	KwaZulu-Natal destinations											
	Sisonke DM	Uthukela DM	Ugu DM	Umgungundlovu DM	Ethekwini MM	Zululand DM	Umkhanyakude DM	Uthungulu DM	Umzinyathi DM	Amajuba DM	Ilembe DM	KwaZulu-Natal
Sisonke DM	1 100	0	0	400	2 100	0	200	0	0	0	0	3 800
Uthukela DM	0	19 200	1 300	3 700	10 300	2 700	800	1 300	6 200	4 000	800	50 300
Ugu DM	300	0	2 200	100	5 400	0	100	0	0	300	1 400	9 800
Umgungundlovu DM	400	2 300	3 700	5 100	11 000	600	300	6 800	300	300	1 100	31 900
Ethekwini MM	2 300	12 900	19 200	10 400	21 200	5 100	4 100	8 700	1 700	4 600	6 300	96 500
Zululand DM	0	0	0	0	4 000	4 600	800	100	4 100	200	500	14 300
Umkhanyakude DM	0	300	300	0	3 400	1 000	3 800	4 300	0	300	200	13 600
Uthungulu DM	0	0	0	0	9 400	2 200	6 100	7 400	0	0	0	25 100
Umzinyathi DM	0	200	0	1 000	400	0	0	0	100	0	0	1 700
Amajuba DM	0	1 900	2 100	0	2 500	800	200	300	0	2 700	600	11 100
Ilembe DM	200	100	500	0	1 700	0	700	5 300	0	800	900	10 200
KwaZulu-Natal	4 300	36 900	29 300	20 700	71 400	17 000	17 100	34 200	12 400	13 200	11 800	268 300

* Persons who made at least 1 holiday trip in the past year

Source: NHTS

Table 74 shows the origins and destinations of the most recent holiday trips made by the residents of South Africa prior to the NHTS. Trips with origins and destinations in KwaZulu-Natal are highlighted in yellow. KwaZulu-Natal attracting 814 thousand is the main holiday destination in the RSA by a considerable margin. KZN however, only generates about 413 000 holiday trips well behind Gauteng which produces nearly a million. The numbers in the table can probably be doubled to get an annual figure, in view of the fact that, among those making holiday trips, the annual average is 2 trips per person.

Table 74: Provincial origins and destinations of holiday trips

Province	Number of people who made at least one holiday trip in the past year	Average number of holiday trips per person* per year	Destination Province (most recent holiday trip)									
			Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	RSA
Western Cape	562 000	2.2	384 800	66 800	16 800	10 700	23 400	3 600	37 300	7 200	5 300	555 700
Eastern Cape	496 000	1.7	88 200	274 900	3 200	15 800	35 900	8 600	63 100	3 100	700	493 500
Northern Cape	104 100	1.6	30 800	6 700	30 100	11 700	6 000	6 300	10 100	1 500	500	103 700
Free State	323 000	2.3	36 300	27 800	11 500	142 900	33 000	17 400	38 600	5 300	7 900	320 700
KwaZulu-Natal	424 200	2.0	21 900	21 200	300	7 800	268 100	3 900	68 600	13 300	8 300	413 400
North West	331 300	2.0	36 300	13 300	11 700	19 600	43 700	102 000	77 700	7 900	17 100	329 400
Gauteng	886 800	1.9	89 700	84 300	12 500	35 200	301 400	56 800	59 100	77 700	157 400	874 100
Mpumalanga	395 700	2.3	8 500	10 700	1 400	9 500	64 200	7 900	87 100	167 200	34 000	390 500
Limpopo	554 400	1.8	9 700	2 300	600	2 200	37 900	14 500	145 500	29 300	308 100	550 000
RSA	4 077 500	2.0	706 300	507 900	88 100	255 500	813 500	221 000	586 900	312 500	539 300	4 031 100

* Persons who made at least 1 holiday trip in the past year

Business travel origins and destinations

The origins and destinations of the most recent business trips made by workers in KwaZulu-Natal in the month prior to the NHTS, are shown in **Table 75**. In all, there were 23 000 internal trips and 46 000 such trips with destinations in the province and the rest of the RSA with an average of 2,2 per month by those making such trips indicating that there are about 100 000 trips made on a monthly basis.

Table 75: Business trips by workers in KwaZulu-Natal

Origin	KwaZulu-Natal destinations											All destinations		
	Sisonke DM	Uthukela DM	Ugu DM	Umgungundlovu DM	Ethekwini MM	Zululand DM	Umkhanyakude DM	Uthungulu DM	Umzinyathi DM	Amajuba DM	Ilembé DM	KwaZulu-Natal	Workers in KwaZulu-Natal who made at least one business trip in the past month	Average number of business trips per worker* per month
Sisonke DM	300	0	0	200	100	300	0	0	0	0	0	900	1 500	2.3
Uthukela DM	0	0	0	400	1 900	200	0	0	0	0	0	2 500	3 300	2.1
Ugu DM	0	0	900	500	1 400	0	0	0	0	0	0	2 800	3 700	1.7
Umgungundlovu DM	400	500	0	400	500	300	0	300	0	200	0	2 600	4 600	3.5
Ethekwini MM	300	200	600	400	400	700	500	2 200	200	1 100	0	6 600	23 400	1.9
Zululand DM	0	300	0	0	2 000	400	0	400	0	0	800	3 900	4 100	2.5
Umkhanyakude DM	0	0	0	0	100	200	0	0	0	0	0	300	600	2.1
Uthungulu DM	0	0	0	100	300	0	0	100	0	0	0	500	400	1.3
Umzinyathi DM	0	0	0	0	600	0	0	0	0	0	0	600	900	5.2
Amajuba DM	0	0	300	0	1 100	100	0	200	0	300	0	2 000	3 000	3.1
Ilembé DM	0	0	0	0	0	0	0	100	0	0	0	100	500	1.5
KwaZulu-Natal	1 000	1 000	1 800	2 000	8 400	2 200	500	3 300	200	1 600	800	22 800	46 000	2.2

* Workers who made at least 1 business trip in the past month

Table 76: Provincial origins and destinations of business trips

Province	Number of workers who made at least one business trip in the past month	Average number of business trips per worker* per month	Destination Province (most recent business trip)									
			Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	RSA
Western Cape	43 300	1.8	12 700	2 900	3 300	1 100	5 200	200	17 800	0	0	43 300
Eastern Cape	36 400	2.3	3 200	25 200	0	700	4 100	400	2 300	200	0	36 100
Northern Cape	17 900	2.9	2 600	700	7 500	2 400	400	700	3 400	0	300	17 900
Free State	28 900	2.5	1 800	900	2 700	9 600	1 900	1 800	7 100	800	800	27 300
KwaZulu-Natal	46 000	2.2	3 700	2 300	0	2 000	22 800	300	12 800	1 100	200	45 200
North West	28 800	2.4	900	400	1 400	900	0	8 100	11 200	200	5 500	28 600
Gauteng	83 100	2.5	12 900	5 100	4 000	3 700	16 500	7 500	13 500	7 600	7 400	78 000
Mpumalanga	25 800	2.5	400	200	0	800	4 300	400	8 200	7 100	2 400	23 800
Limpopo	30 600	2.6	500	400	400	500	800	1 500	14 300	2 200	9 300	29 900
RSA	340 900	2.4	38 600	38 000	19 300	21 700	56 000	20 900	90 600	19 200	26 000	330 200

* Workers who made at least 1 business trip in the past month

Source: NHTS

Table 76 shows the origins and destinations of the most recent business trip for all such trips made in the RSA, with the O-Ds of KwaZulu-Natal Trips highlighted in yellow. Fewer business trips are made in KwaZulu-Natal (2,2 trips per month) compared with the national average of 2,4. Perhaps this is a function of the large low income population of the province.

KwaZulu-Natal generates 45 000 business trips in all and is the destination of 56 000 trips from all over the RSA. The reader is reminded that this result is an approximation from a survey sample representative of the most recent business trip made by workers in the RSA. At the district level, the survey sample was too small for the results to be truly representative.

Migrant travel origins and destinations

Migrant travel in KwaZulu-Natal is a fairly significant feature of travel demand in the province. **Table 77** shows that some 112 000 workers made at least 1 such trip in the month before the survey. Of these the majority (88 000) were made to destinations within the province. It is possible that many of the migrant labourers in the province make only one or two trips per year to their homes during their annual or bi-annual holidays from work and would have thus been counted in the question on holiday travel.

Table 77: Migrant trip origins and destinations in KwaZulu-Natal

Origin	KwaZulu-Natal destinations											All destinations		
	Sisonke DM	Uthukela DM	Ugu DM	Umgungundlovu DM	Ethekwini MM	Zululand DM	Umkhanyakude DM	Uthungulu DM	Umzinyathi DM	Amajuba DM	Ilembe DM	KwaZulu-Natal	Number of workers in KwaZulu-Natal who made at least one migrant trip in the past month	Average number of migrant trips per worker* per month
Sisonke DM	0	0	1 800	600	200	0	200	0	0	0	100	2 900	9 100	1.4
Uthukela DM	0	0	100	700	300	400	0	0	1 700	600	0	3 800	6 900	1.4
Ugu DM	100	0	0	1 000	600	0	0	300	0	0	0	2 000	3 500	2.4
Umgungundlovu DM	1 300	700	400	0	3 000	200	0	1 100	1 200	100	600	8 600	10 700	2.2
Ethekwini MM	6 500	2 600	10 300	8 100	0	3 600	1 600	7 100	2 100	800	9 500	52 200	61 900	1.8
Zululand DM	0	500	1 100	100	1 200	0	1 600	300	1 900	300	100	7 100	7 300	1.5
Umkhanyakude DM	0	0	300	700	200	600	0	400	200	0	0	2 400	2 700	1.7
Uthungulu DM	700	0	400	0	0	1 000	2 000	0	100	0	700	4 900	4 900	1.3
Umzinyathi DM	0	0	0	200	600	0	0	0	0	800	0	1 600	1 600	1.7
Amajuba DM	0	0	0	100	0	100	0	0	0	0	0	200	500	1.0
Ilembe DM	0	200	200	0	300	0	1 200	300	300	0	0	2 500	3 000	1.3
KwaZulu-Natal	8 600	4 000	14 600	11 500	6 400	5 900	6 600	9 500	7 500	2 600	11 000	88 200	112 100	1.7

* Public transport trips to another home in another district

** Workers who made at least 1 migrant trip in the past month

Source: NHTS

Table 78 shows the O-Ds of migrant travel with the movements to and from KwaZulu-Natal highlighted in yellow. As indicated, the volume of migrant travel to and from KwaZulu-Natal is high by comparison with provinces such as the Western and Northern Cape. KZN is the largest destination of migrant trips (134 000 in the case of the most recent migrant trip home) 88 000 of which originate in the province.

Table 78: Origins and destinations of migrant travel in the RSA

Province	Number of workers who made at least one migrant trip in the past month	Average number of migrant trips per worker* per month from origin	Destination Province (most recent migrant trip)									
			Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	RSA
Western Cape	5 700	1.6	3 500	0	500	0	400	0	1 300	0	0	5 700
Eastern Cape	29 400	1.6	300	25 800	0	800	1 700	0	700	0	0	29 400
Northern Cape	4 700	1.5	0	600	1 900	100	0	2 000	100	0	0	4 700
Free State	15 000	1.6	600	3 300	500	6 500	400	400	2 800	0	400	15 000
KwaZulu-Natal	112 100	1.7	0	17 400	0	1 400	88 400	0	4 400	700	0	112 200
North West	42 500	1.6	300	2 900	3 500	3 200	0	22 300	4 500	3 000	3 100	42 600
Gauteng	234 000	1.6	1 400	15 700	700	11 900	41 600	20 700	49 000	16 900	76 200	234 200
Mpumalanga	28 400	1.7	0	500	100	300	2 100	0	3 700	6 800	14 600	28 200
Limpopo	29 000	1.9	0	800	700	300	100	2 900	1 200	5 200	16 000	27 200
RSA	500 700	1.6	6 200	66 900	7 900	24 600	134 600	48 200	67 700	32 600	110 300	499 000

* Public transport trips to another home in another district

** Workers who made at least 1 migrant trip in the past month

Source: NHTS

It should be remembered that not all migrants are labourers but include those who live in Ethekeini and work in Gauteng such as businessmen working at corporate headquarters in Johannesburg. This can be ascertained from the travel modes (i.e. air travel).

7.3.3 Transport Mode Choice Selection

The NHTS sample was too small to show the detailed travel modes by trip origins and destinations although it is justifiable to consider the modes from the origin and at destinations separately.

The modes to work from different origins in KwaZulu-Natal are shown in **Table 79**. Over all car travel is dominant in the province as a whole but particularly in Ethekeini. Walking is the main mode of travel in the rural districts such as Umgungundlovu, Sisonke, Ugu, Zululand, Uthungulu, and Ilembe. Even in Ethekeini, however, over 59 thousand people travel to work on foot, more than in any of the DMs.

In the Ethekeini transport analysis zones, (TAZ) the variation in mode used is pronounced. Train use is most significant in Kwa Mashu and Umbumbulu. Bus use is relatively insignificant for work trips in all TAZ except Inanda rural, Umbumbulu and KwaMashu but even in those areas it is much higher than train use. Minibus taxi use is competitive with bus use in all the aforementioned areas and in all other areas dominates the public transport market share. Minibus-taxi use is significant in most areas of Ethekeini. Exceptions are Cato Manor, Mounthlands, Durban North, Westville and Tongaat.

Table 79: Mode to work from origins in KwaZulu-Natal

Origin	Main mode to work							All (includes other)	
	Train	Bus	Minibus taxi	Bakkie taxi	Car driver	Car passenger	Walk		
Umgungundlovu DM TAZ	uMngeni	0	800	6 100	0	7 600	600	8 600	24 300
	uMshwathi	0	0	1 000	400	1 400	1 100	9 200	19 500
	Mooi Mpofana	0	0	200	0	900	400	8 600	10 900
	Richmond/ Mkhambathini	0	900	2 700	400	700	500	9 100	15 800
	Pietermaritzburg	0	0	4 100	0	15 200	3 600	2 400	26 400
	Northdale/ Raisethorpe	0	500	17 900	0	8 300	4 300	4 300	35 800
	Ashburton	0	0	0	0	1 200	400	1 800	3 400
	Henley Dam/ Umsunduzi Valley	0	8 400	11 800	400	1 200	200	1 600	24 300
	Imbali/ Edendale	0	600	41 200	0	2 000	100	2 600	47 600
KZN districts	Umgungundlovu DM	0	11 300	85 000	1 200	38 400	11 300	48 200	207 900
	Sisonke DM	0	1 500	6 900	1 000	2 900	1 400	20 600	35 300
	Uthukela DM	0	10 700	31 800	1 100	13 300	3 200	11 100	75 000
	Ugu DM	800	6 200	23 000	600	16 500	5 500	21 700	81 900
	Zululand DM	0	5 200	15 100	3 000	9 800	4 300	30 800	73 100
	Umkhanyakude DM	0	900	2 900	2 500	3 500	3 600	17 000	33 900
	Uthungulu DM	100	35 700	15 600	3 000	23 500	7 500	29 000	129 600
	Umzinyathi DM	0	900	6 200	0	5 000	3 300	12 800	29 800
	Amajuba DM	0	7 000	18 000	0	19 100	2 200	9 300	60 400
	Ilembe DM	4 600	8 500	12 600	10 700	7 000	7 200	32 100	86 300
	Ethekwini MM	39 400	142 600	240 200	2 300	258 400	40 000	58 800	809 200
Ethekwini MM TAZ	Inanda rural	0	28 800	17 300	0	1 800	0	5 500	57 900
	Bluff	400	2 700	6 700	0	9 800	1 600	3 100	24 700
	Durban CBD	100	4 500	3 900	0	4 500	0	2 800	16 700
	Umgeni	200	5 800	3 800	0	8 300	1 200	300	20 400
	Berea North	0	5 000	11 400	0	28 100	2 200	4 400	52 500
	Cato Manor	100	3 800	1 100	0	14 200	1 700	1 000	22 800
	Monthlands	0	2 600	1 400	0	9 600	1 400	500	15 800
	Chatsworth	4 600	7 700	26 300	0	28 700	7 000	4 500	79 600
	Umbumbulu	9 900	31 700	35 800	0	6 900	1 800	4 500	91 700
	Inner West	400	8 300	35 400	0	34 600	400	13 200	95 400
	Westville	200	2 000	1 300	0	25 000	4 100	700	33 500
	Kingsburgh	3 500	1 700	12 400	500	12 200	2 000	4 000	39 500
	Outer West	2 000	5 900	22 500	600	6 800	200	2 600	41 400
	Tongaat	2 000	7 000	4 700	400	9 000	2 300	1 300	27 800
	Canelands	100	700	5 900	0	12 900	3 500	2 300	26 200
	Umdloti	0	100	200	0	7 500	300	200	9 300
	Durban North	500	2 400	5 300	0	17 100	2 500	1 000	31 700
	Verulam	0	8 300	28 900	700	19 100	6 400	4 200	69 200
	Kwa Mashu	15 500	13 600	15 900	0	2 400	1 400	2 800	53 100
KwaZulu-Natal	45 000	230 500	457 200	25 400	397 300	89 500	291 400	1 622 200	

Source: NHTS

Travel modes to education from home origins in KwaZulu-Natal

The mode of travel to education centres from home origins in KwaZulu-Natal is shown in **Table 80**. Train use is minimal and only evident in Ethekwini. Car use is particularly prevalent in Ethekwini. Walking accounts for 80% of all education trips in the province.

Of the other modes, buses, minibus-taxis and bakkie-taxis are the most commonly used.

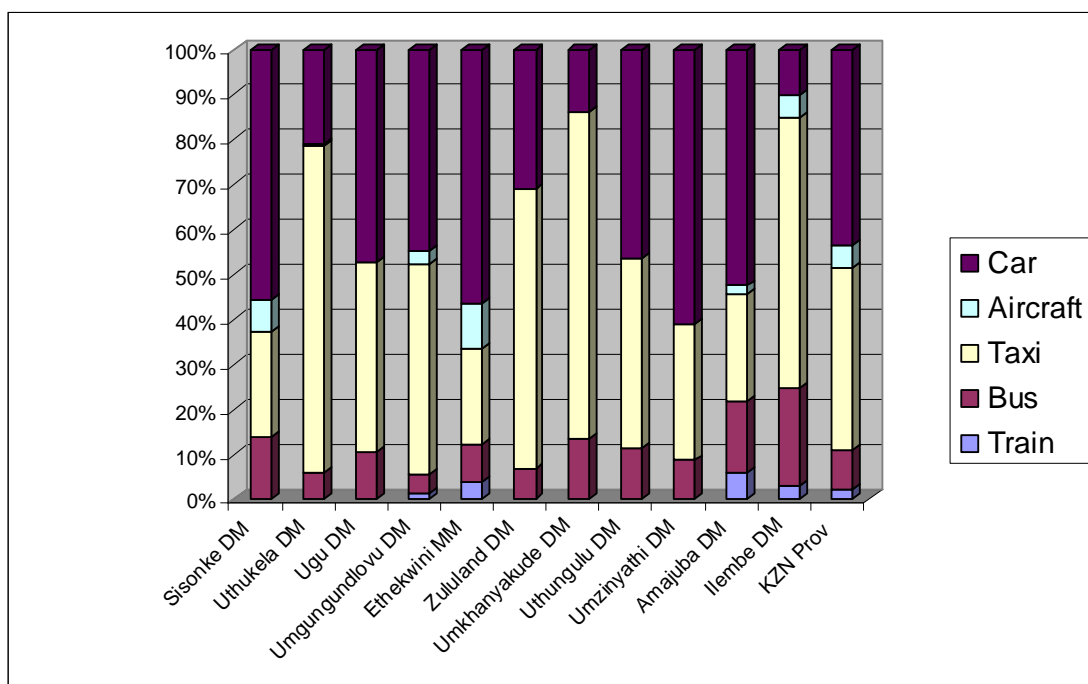
Table 80: Mode of travel to education from trip origins in KwaZulu-Natal

Origin	Main mode							
	Train	Bus	Minibus-taxi	Bakkie-taxi	Car	Walk	Other	All
Sisonke DM	0	1 700	5 300	1 500	2 500	101 800	3 000	115 700
Uthukela DM	0	6 500	21 200	4 200	7 000	230 900	2 100	271 800
Ugu DM	0	3 700	10 200	6 000	10 700	241 200	3 700	275 500
Umgungundlovu DM	0	8 500	32 800	5 000	37 300	234 100	5 200	322 900
Ethekwini MM	12 900	77 200	118 200	16 600	134 400	576 200	10 100	945 600
Zululand DM	0	16 000	3 000	2 100	6 200	322 200	4 000	353 400
Umkhanyakude DM	0	4 300	3 800	4 200	2 300	251 200	2 100	267 800
Uthungulu DM	0	18 200	9 100	5 100	15 400	293 300	1 200	342 300
Umzinyathi DM	0	1 500	7 800	1 500	3 500	166 200	2 100	182 700
Amajuba DM	0	6 300	12 100	500	7 500	146 400	900	173 800
Ilembe DM	1 600	10 600	5 400	3 600	6 600	163 600	3 900	195 300
KwaZulu-Natal	14 500	154 500	229 100	50 200	233 400	2 727 000	38 200	3 446 700

Education trips starting and ending in KwaZulu-Natal

Travel modes used for holiday, business and migrant travel.

The travel modes for holiday, business and migrant trips are illustrated in **Figure 21** to **Figure 23** below.

**Figure 21: Mode for Holiday Trips**

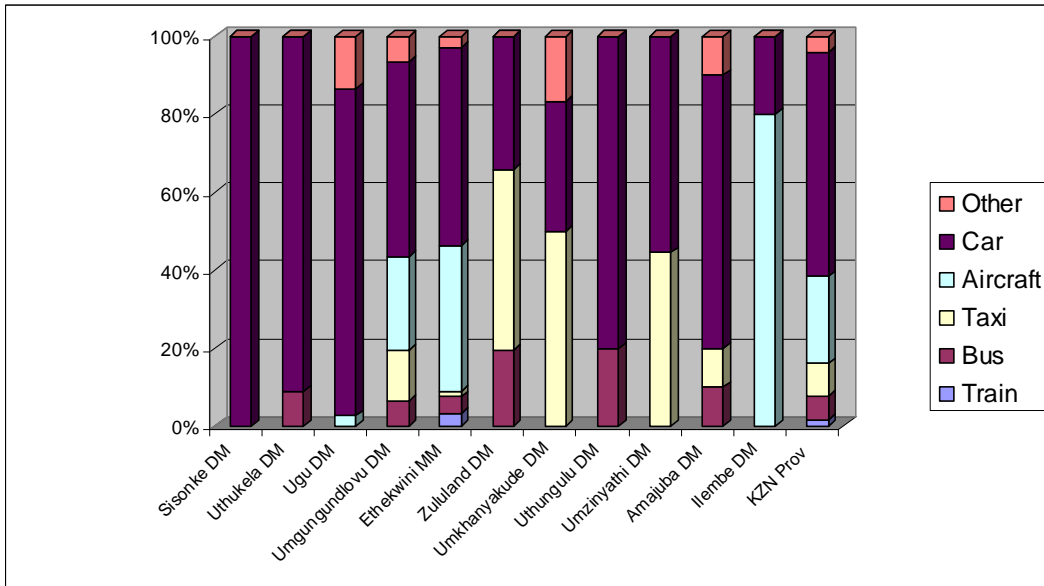


Figure 22: Mode for Business Trips

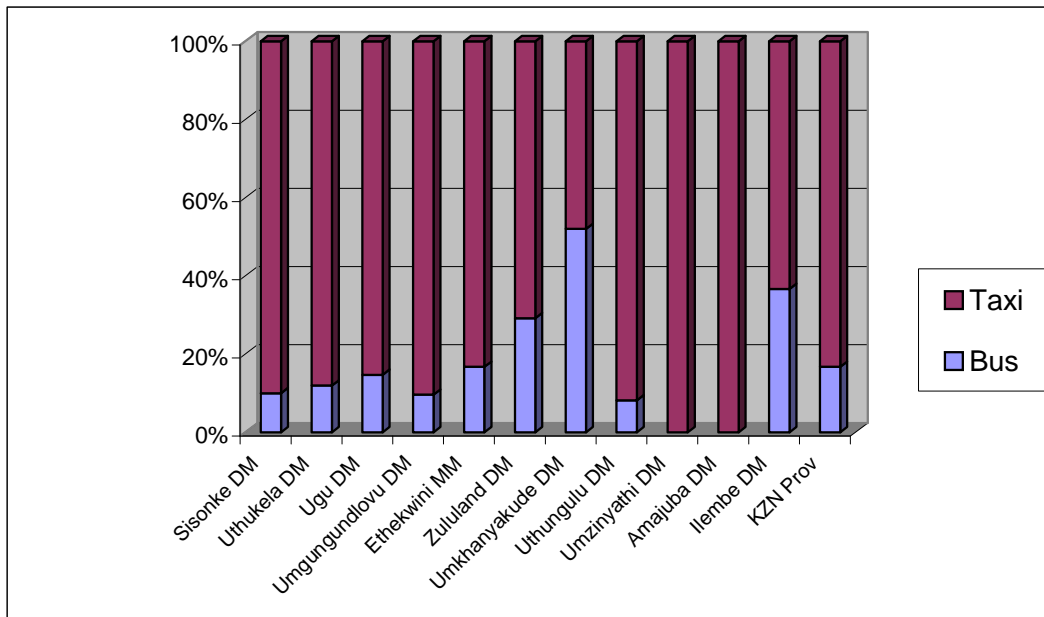


Figure 23: Mode for Migrant Trips

The modes of travel used for the most recent holiday trips originating in KwaZulu-Natal are shown in **Table 81**. Car travel is the dominant travel method at 43% but road-based public transport carries 49% of persons making holiday trips and air travel is also quite significant, particularly for trips originating in Ethekwini.

Table 81: Modes of transport used for the most recent holiday trip originating in KwaZulu-Natal

Origin	Mode of transport (last holiday trip)						
	Train	Bus	Taxi	Aircraft	Car/Bakkie	Other	All
Sisonke DM	0	600	1 000	300	2 400	0	4 300
Uthukela DM	0	4 300	51 900	100	15 100	500	71 900
Ugu DM	0	1 600	6 300	0	7 100	0	15 000
Umgungundlovu DM	600	1 800	20 500	1 300	19 600	200	44 000
Ethekwini MM	7 000	15 300	38 000	18 500	102 000	400	181 200
Zululand DM	0	1 500	13 300	0	6 700	0	21 500
Umkhanyakude DM	0	2 000	10 900	0	2 100	0	15 000
Uthungulu DM	0	3 400	12 700	0	14 000	0	30 100
Umzinyathi DM	0	200	700	0	1 400	0	2 300
Amajuba DM	1 100	2 800	4 300	300	9 400	0	17 900
Ilembe DM	500	3 400	9 500	800	1 600	0	15 800
KwaZulu-Natal	9 200	36 700	169 200	21 300	181 100	1 100	418 600
Percentage KZN	2.2	8.8	40.4	5.1	43.3	0.3	100.0

Source: NHTS

The modes of travel for business trips originating in KwaZulu-Natal are shown in **Table 82**. Air and car travel dominate and the figures for the most recent trip taken together with the monthly average mean that there are about 10 000 monthly business trips by air from the province. Taken together with return trips, this indicates a significant volume of air travel to and from the province.

Table 82: Mode of travel for business trips in KwaZulu-Natal

Origin	Mode of transport (last business trip)							KZN Total	%
	Train	Bus	Taxi	Aircraft	Car/Bakkie	Other			
Sisonke DM	0	0	0	0	1 500	0	1 500	3.3	
Uthukela DM	0	300	0	0	3 000	0	3 300	7.2	
Ugu DM	0	0	0	100	3 100	500	3 700	8.0	
Umgungundlovu DM	0	300	600	1 100	2 300	300	4 600	10.0	
Ethekwini MM	800	1 000	300	8 800	11 900	700	23 500	51.1	
Zululand DM	0	800	1 900	0	1 400	0	4 100	8.9	
Umkhanyakude DM	0	0	300	0	200	100	600	1.3	
Uthungulu DM	0	100	0	0	400	0	500	1.1	
Umzinyathi DM	0	0	400	0	500	0	900	2.0	
Amajuba DM	0	300	300	0	2 100	300	3 000	6.5	
Ilembe DM	0	0	0	400	100	0	500	1.1	
KwaZulu-Natal	800	2 800	3 800	10 400	26 400	1 800	46 000	100	
Percentage KZN	1.7	6.1	8.3	22.6	57.4	3.9	100.0		

Business trips originating in KwaZulu-Natal

Source: NHTS

Travel modes used for the most recent migrant trip originating in KZN are shown in **Table 83**. Taxi dominates holiday trips, followed by bus.

Table 83: Modes of travel used for migrant trips originating in KwaZulu-Natal

Origin	Mode of transport (last migrant trip)						KZN Total	%
	Train	Bus	Taxi	Aircraft	Other			
Sisonke DM	0	900	8 100	0	200	9 200	8.3	
Uthukela DM	0	800	5 900	0	200	6 900	6.2	
Ugu DM	0	500	2 900	0	0	3 400	3.1	
Umgungundlovu DM	0	900	8 500	0	0	9 400	8.5	
Ethekwini MM	300	9 800	48 800	800	2 200	61 900	55.9	
Zululand DM	0	2 100	5 100	0	0	7 200	6.5	
Umkhanyakude DM	0	1 300	1 200	100	0	2 600	2.3	
Uthungulu DM	0	400	4 500	0	0	4 900	4.4	
Umzinyathi DM	0	0	1 500	0	0	1 500	1.4	
Amajuba DM	0	0	400	0	200	600	0.5	
Ilembe DM	0	1 100	1 900	0	0	3 000	2.7	
KwaZulu-Natal	300	17 800	88 900	900	2 800	110 700	100	
Percentage KZN	0.3	16.1	80.3	0.8	2.5	100.0		

Migrant trips originating in KwaZulu-Natal

Source: NHTS

7.3.4 Passenger Volumes

Objective and method

The task is intended to provide traffic flow information which will be input as input into the provincial transportation model and input into the data bank development. The objectives were:

- to provide and package traffic flows information that will be used as output for Phase 2 by different team members;
- to determine the extent of the traffic movements on major corridors in the provinces;
- to provide the status quo in relation to the average daily traffic for all modes and heavy vehicles; and
- to plot on a GIS, positions where traffic information was collected or captured.

The primary source of information for traffic flows was raw data from Micros. Micros is a company contracted by the National Roads Agency (SANRAL) to capture and manage traffic data/information around the country. Data was also made available by the National Roads Agency (SANRAL).

A massive amount of raw data (traffic flows) was made available to the team for the whole country. The team developed a programme which was used to source out the data which was relevant to the consortium.

The next step was to identify within the province which routes or roads constitute and/or are classified as provincial and/or national routes. The routes were identified as well as the stations/locations where counts were undertaken.

Once the routes and stations were identified, the traffic data was sourced and sorted out. The information/data was aggregated to daily traffic volumes. Data was aggregated on the traffic volumes (all modes) and data it was also provided for heavy traffic volumes.

The data was packaged in-line with the needs of the modelling team, so that the data provided is usable for modelling and projections (phase 2 & 3) purposes.

Conclusion and use of information

The traffic flow data collected and packaged in the report is useful in understand the traffic flow on major route in KwaZulu-Natal provinces and is also useful for the purpose of traffic modelling. The data will be used by traffic modelers and will also be used in the coming phases of NATPLAN (phases 2 – 3).

Traffic information is summarized in **Table 84**.

Table 84: Traffic Flow Information – Average Daily Traffic (ADT)

Item	Point No	Route	Speed Limit	ADT
Lowest traffic flow	800	N002	120km/h	223
Maximum traffic flow	182	N002	120km/h	9303
Average volume	-	-	-	16 675
85 th Percentile	-	-	-	35 505
90 th Percentile	-	-	-	43 934
Total traffic volume	-	-	-	3 551 809

7.4 TRANSPORT SUPPLY (2005)

Information on public transport services is voluminous and presently this summarised data is not readily available. There are thousands of bus and minibus-taxi routes in eThekweni alone. The information in the CPTR is also not of the highest quality. For example, the CPTR is intended to count the supply of minibus taxis from surveys at taxi ranks, but very many taxis do not operate from ranks. Accordingly, these vehicles will not have been counted.

Records from the Taxi Registrars, the OLBs, through the Operating License Administration System (OLAS) and the CPTRs do not correspond. . Accordingly, screening will be needed in the Phase 2 Analysis, to ensure that the NATMAP database is not polluted with unreliable information.

The SARCC is currently operating old rolling stock. No significant new rolling stock was purchased over the last 20 years. This is a contribution factor to their ability to provide an adequate, safe en reliable passenger rail service.

7.4.1 Private Car Access and Ownership

Table 85 shows the breakdown of car ownership in KwaZulu-Natal (KZN) by District Municipality. The table shows that the majority of households do not own cars (80%) ranging from 70 per cent in Ethekewini up to 93% in Sisonke DM.

The greatest number of multiple car owning households (2+ cars) is not unexpectedly to be found in Ethekewini (11%). KwaZulu-Natal has a large rural population component. For example, 39% of households in KwaZulu-Natal live in a metropolitan area (Ethekewini) 19% in the other urban areas such as Umgungundlovu and Uthukela and 42% in rural areas such as Umkhanyakude, where the population is 97% rural.

Table 85: Base year car ownership in KwaZulu-Natal

Area	Population	Number of households	Percentage of households		
			Number of private cars (incl combi's)		
			0	1	2+
Sisonke DM	324 000	83 000	93.0	4.0	3.0
Uthukela DM	695 000	137 000	83.9	11.1	5.0
Ugo DM	728 000	149 000	84.5	9.9	5.7
Umgungundlovu DM	947 000	222 000	78.9	13.2	7.9
Ethekewini MM	3 211 000	865 000	69.7	19.5	10.7
Zululand DM	838 000	151 000	87.6	8.3	4.1
Umkhanyakude DM	600 000	99 000	90.9	7.0	2.0
Uthungulu DM	938 000	205 000	87.3	9.4	3.3
Umzinyathi DM	467 000	93 000	89.7	8.8	1.5
Amajuba DM	489 000	99 000	78.6	14.2	7.2
Ilembe DM	571 000	121 000	90.2	8.0	1.8
KwaZulu-Natal	9 806 000	2 224 000	79.5	13.6	6.9

Source: NHTS

The average number of cars per household is shown in **Table 86**. There are over 650 thousand family owned cars in KwaZulu-Natal, an average of 0.3 cars per household. This ranges from a low of 0,11 in Sisonke DM to 0,44 in Ethekewini. This translates to 120 cars per thousand people in Ethekewini down to 20 per 1 000 in Umkhanyakude DM.

Table 86: Average number of cars per household

Area	Population	Households	Average household size	Mean number of cars per household	Total number of private cars	Private cars per '000 persons
Sisonke DM	324 000	83 000	3.9	0.11	9 000	28
Uthukela DM	695 000	137 000	5.1	0.22	30 000	43
Ugo DM	728 000	149 000	4.9	0.23	34 000	47
Umgungundlovu DM	947 000	222 000	4.3	0.31	69 000	73
Ethekwini MM	3 211 000	865 000	3.7	0.44	384 000	120
Zululand DM	838 000	151 000	5.5	0.19	28 000	33
Umkhanyakude DM	600 000	99 000	6.1	0.12	12 000	20
Uthungulu DM	938 000	205 000	4.6	0.16	33 000	35
Umzinyathi DM	467 000	93 000	5.0	0.12	11 000	24
Amajuba DM	489 000	99 000	4.9	0.31	31 000	63
Ilembe DM	571 000	121 000	4.7	0.12	15 000	26
KwaZulu-Natal	9 806 000	2 224 000	4.4	0.30	656 000	67

Source: NHTS

Current ownership levels indicate considerable scope for increase as household incomes rise. This will impact significantly on the demand for road space as the population grows and car ownership expands. This will be a major driver of the need for road infrastructure expansion, but preferably for improvements in public transport systems and infrastructure.

Table 87 shows the relationship between car ownership and income. It is obvious that income is the major factor in car ownership, with a household monthly income of R4 500 appearing to be an important threshold, above which about half or more households own a car.

The full details of car ownership by Local municipality in KwaZulu-Natal are provided in Appendix 1. This information at local municipal level is the data to be included in the NATMAP Data-Bank.

Table 87: Relationship between car ownership and income

Household Income	Number of households	% of households having access to a private car	Mean number of private cars per household
R500 and less	519 000	4.6	0.05
R501 - R1 000	593 000	6.5	0.07
R1001 - R3 000	595 000	15.5	0.20
R3 001 - R4 500	128 000	39.0	0.49
R4 501 - R6 000	93 000	53.2	0.71
R6 001+	204 000	75.5	1.27
No information	92 000	52.5	0.82
KwaZulu-Natal	2 224 000	20.5	0.30

Source: NHTS

Vehicle registrations

Table 88 shows the vehicle registrations in KwaZulu-Natal and the RSA between 2000 and the NATMAP base year. The increase in RSA amounted to about 10 percent (roughly 2% per annum) over the five year period. It was slightly lower in KwaZulu-Natal at 9%.

Not all these vehicles are household owned as many are absorbed by government, companies and the car rental industry. However, using the NHTS, it can be estimated that there are about 660 thousand household-owned cars in KwaZulu-Natal.

Table 88: Vehicle registrations in KwaZulu-Natal and RSA

Province	Vehicle Type	Year ending 31 December (i.e 2004 is the position at the start of base year 1 Jan 2005)				
		2000	2001	2002	2003	2004
KwaZulu-Natal	Cars	555 472	562 013	569 045	583 409	604 700
	LDV's Bakkies	196 096	199 034	200 433	205 847	213 180
	Total	751 568	761 047	769 478	789 256	817 880
RSA	Cars	3 913 470	3 977 255	4 041 828	4 154 593	4 307 943
	LDV's Bakkies	1 297 383	1 332 591	1 358 157	1 406 217	1 464 171
	Total	5 210 853	5 309 846	5 399 985	5 560 810	5 772 114

Source: NATIS

New Car Sales

Table 89 shows the number of units of each class of vehicle sold in the province in the period 2000 to 2006. Passenger vehicle sales surged in 2004 by 11 000 units per annum from regular annual sales of around 25 000 units. This rapid growth was maintained in 2005 especially and to a lesser extent in 2006.

Table 89: New vehicle sales in KwaZulu-Natal

KwaZulu-Natal	2000	2001	2002	2003	2004	2005	2006
Buses	252	138	236	189	181	276	106
Heavy commercial vehicles	307	278	297	369	571	883	1 207
Light commercial vehicles	12 744	12 788	12 649	13 080	16 001	22 366	25 129
Medium commercial vehicles	706	643	633	720	1 088	1 778	1 990
Passenger vehicles	24 724	25 997	25 731	26 931	36 555	48 027	54 729
Extra heavy vehicles	523	596	654	860	1 143	1 404	1 833

Car use for various trip purposes

Table 90 shows the number of people in KZN who used a car at least once during the course of the week prior to survey day (1,1 million). The NHTS survey did not record all daily trips by car for all trip purposes, so this indicator merely provides an indication of the current “reach” or dominance of the car in the province. Considering the number of daily trips by car to work (492 000) and education (236 000) the difference $[(1.1 - (0.492+0.236) = 0.372)]$ indicates the high dependence of people in the province on cars for other trip purposes during the course of a typical week.

In Ethekwini, about one fifth of the population use a car at least once per week (650 thousand out of 3,2 million people). The incidence of use is lowest in Sisonke (3%) and is less than 10 per cent in all other areas. Most trips begin and end in the same metropolitan or local municipality.

Table 90: Weekly use of cars for all trip purposes

Area	Number of people	% of people who used a car in the last seven days	Number of people who used a car in the last seven days
Sisonke DM	324 000	2.9	9 000
Uthukela DM	695 000	7.1	49 000
Ugo DM	728 000	8.2	60 000
Umgungundlovu DM	947 000	14.7	139 000
Ethekwini MM	3 211 000	20.3	651 000
Zululand DM	838 000	3.1	26 000
Umkhanyakude DM	600 000	3.4	21 000
Uthungulu DM	938 000	6.6	62 000
Umzinyathi DM	467 000	3.0	14 000
Amajuba DM	489 000	9.1	44 000
Ilembe DM	571 000	4.0	23 000
KwaZulu-Natal	9 806 000	11.2	1 099 000

Source: NHTS

Table 91 indicates that of the 1,6 million workers in KwaZulu-Natal, about 30 per cent on average use cars for work trip travel. The proportion is highest in Ethekwini (37%) and lowest in Sisonke (12%). Work trips are mostly local trips, that is, they are not made on national or provincial roads except where they pass through urban areas.

Fewer trips are made to education centres by car than is the case with work trips as is evident if **Table 91** and **Table 92** are compared. Nevertheless, the use of cars for education trips is significant in the urban areas, especially Ethekwini. In rural areas in KwaZulu-Natal, use of cars for education trips is extremely low (less than 5%).

Table 91: Work trips by car

Area	Number of workers	% of workers who travel by car	Number of workers who travel by car
Sisonke DM	35 000	12.2	4 000
Uthukela DM	75 000	22.2	17 000
Ugo DM	82 000	27.7	23 000
Umgungundlovu DM	208 000	23.9	50 000
Ethekwini MM	809 000	37.2	301 000
Zululand DM	73 000	19.4	14 000
Umkhanyakude DM	34 000	21.1	7 000
Uthungulu DM	130 000	24.5	32 000
Umzinyathi DM	30 000	27.9	8 000
Amajuba DM	60 000	35.8	22 000
Ilembe DM	86 000	16.7	14 000
KwaZulu-Natal	1 622 000	30.3	492 000

Source: NHTS

Table 92: Car trips to education centres

Area	Number of learners	% of learners who travel by car	Number of learners who travel by car
Sisonke DM	119 000	2.1	3 000
Uthukela DM	272 000	2.6	7 000
Ugo DM	275 000	3.9	11 000
Umgungundlovu DM	324 000	11.5	37 000
Ethekwini MM	952 000	14.4	137 000
Zululand DM	354 000	1.9	7 000
Umkhanyakude DM	268 000	0.8	2 000
Uthungulu DM	342 000	4.5	15 000
Umzinyathi DM	183 000	1.9	4 000
Amajuba DM	175 000	4.3	8 000
Ilembe DM	195 000	3.4	7 000
KwaZulu-Natal	3 459 000	6.8	236 000

Source: NHTS

Table 93 shows that car travel is the main travel mode used for going on holiday. Around 823 thousand holiday trips by car are made by KwaZulu-Natal residents. (NHTS can be used to track the origins and destinations of these trips for assignment to the inter-district and inter-provincial road network.) The large number of taxi trips is explained by migrant labour going home “on holiday” one or more times per year.

Table 93: Car use for holiday trips

Mode used for last holiday trip	% of last holiday trips	Total number of trips per year
Train	2.2	61 000
Bus	8.8	60 000
Taxi	40.4	306 000
Aircraft	5.1	34 000
Car	43.3	358 000
Other	0.3	5 000
KwaZulu-Natal		823 000

Source: NHTS

Car travel is a significant mode for monthly business travel for trips of longer than 200 kilometres. Most of these trips occur on the main inter-city routes either between districts or between provinces. The NHTS can, and will be used to track the origins and destinations of these trips. About 100 thousand such car trips originate in KwaZulu-Natal every month.

Table 94: Car use for business trips

Mode used for last business trip	% of last business trips	Total number of trips per month
Train	1.7	1 000
Bus	6.2	3 000
Taxi	8.3	10 000
Aircraft	22.5	25 000
Car	57.3	55 000
Other	4.0	8 000
KwaZulu-Natal		100 000

Source: NHTS

7.4.2 Vehicle Fleets and Public Transport Routes

Commuter and inter-city rail¹

From a regional transport perspective, inter-city rail services in South Africa are provided by Shosholoza Meyl, which is intended to be consolidated in the near future with the national commuter rail institution, South African Rail Commuter Corporation trading as Metrorail.

There are a number of independent operators such as Rovos Rail who cater for the up-market end of the tourist trade. This company owns its own passenger coaches and a number of locomotives but uses Transnet locomotives over certain sections of travel. A number of private preservation groups operate day-trip trains on a regular basis but TFR has curtailed many of their operations due to a claimed shortage of locomotives and passenger coaches. This is an issue which is currently being discussed at various levels in an attempt to consider private sector initiatives to promote tourism.

South Africa has an extensive network of railroads that serve freight and passenger traffic, and both urban and intercity trips. Intercity rail freight and passenger traffic have been dropping for many years. Intercity passenger travel by rail alone dropped almost 80 % between 1988 and 1995, and is now a minor share of total intercity passenger traffic. Urban rail services, offered by MetroRail, have also declined, but remain important.

Possible new Transnet Freight Rail lines that coincide with passenger corridors are:

- Richards Bay – Durban
- Pietermaritzburg – Durban
- Johannesburg – Durban/ Richards Bay

Since October 2006, Shosholoza Meyl has been providing three types of inter-city services, namely economy (also called sitters), tourist services (4 sleepers only) and premier class services provided with luxury coaches. The services currently provided by Shosholoza Meyl are shown in **Table 95**.

¹ This information is extracted from Department of Transport [2010 Initial Transport Operations Plan](#), September 2007

Table 95: Current Shosholozza Meyl Services

ROUTE	SERVICE TYPE	FREQUENCY	TRAIN-SETS
CT – East London	Economy	Sunday, Tuesday	1
DBN – BFN – KBY – CT	Economy	Wednesday, Monday	1
JHB – CT	Economy	Daily	4
JHB – CT	Tourism	Sunday, Monday, Tuesday, Wednesday, Friday	4
CT – DBN	Tourism	Wednesday, Friday	1

The maximum speed at which Shosholozza Meyl services are allowed to be legally operated is 80 km/h. The current travel time (with stops included) from Johannesburg to Ethekwini takes more than 10 hours. These long travel times can be attributed to the age of the technologies used, the fact that access and slots on the Spoornet network have to be negotiated, in a dispensation where passenger services compete for its share of available line capacity and freight rail receives priority in the allocation of slots.

Table 96 give the breakdown of the current fleet in use and the semi-active fleet which is deployed during peak periods, based on demand. In most instances the coaches are added to train-sets as the demand increases. The current aim is to have all tourist/sleeper services upgraded to Premier Class by 2010, which could lead to a reduction in available service capacity.

Table 96: Current Fleet in Use in the RSA

COACH TYPE	CAPACITY	AVAILABLE	TOTAL CAPACITY
Sleepers (4) ¹	28	107	2 996
Sleepers (4) ²	24	40	960
Sleepers (2)	22	12	264
Sleepers (6) ¹	39	48	1 872
Sleepers (6) ²	42	113	4 746
Economy sitters	72	349	25 128
Combo coaches ³	33	11	363
Premier Class	14	6	84
TOTAL		686	36 413

¹ Old generation,

² New generations

³ Baggage and sitter

The 20 economic or so-called sitter train-sets and the 9 tourism train-sets require the availability of about 75 locomotives for operations, due to the exchange principle that is applied in the operations. These locomotives are currently leased from

Spoornet. Shosholoza Meyl also has approximately 750 "spare" coaches (250 sleepers and 500 sitters), which had been "mothballed". These coaches are generally in very poor condition and would need a major refurbishment both inside and outside for future operation.

The length of a coach is 22 metres and the normal (usual) composition of a train-set is 10 coaches. Coaches are added to train-sets depending on bookings and demand up to a maximum of 21 coaches per set (limited by speed restrictions and safety standards such the braking system).

Current train fares from Ethekwini to Johannesburg are as follows:

- 1st Class
- 2nd Class
- Economy

Route network

A map of the inter-city Sholoza Meyl routes is given in **Figure 24**. There are two lines entering KZN, from Johannesburg and from Kroonstad. They merged at Lady Smith and continue to Durban. There is only line between Durban and Cape Town, via Johannesburg, to Kimberley and on to Cape Town. He Noth-South line along the coast is for freight, while commuters use the line within the ETA boundaries.

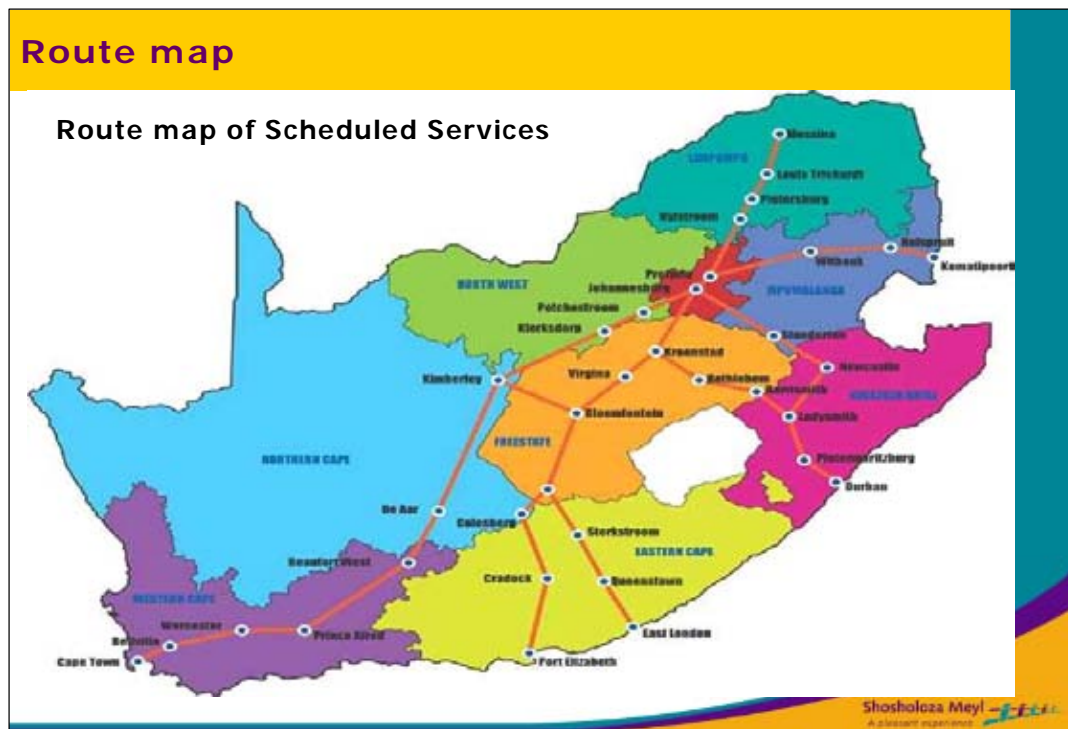


Figure 24: Route Network of Shosholoza Meyl Scheduled Services

Rail passenger volumes:

Figure 25 below reflects the three year average economy passengers and tourist passengers. The Economy passengers are much higher than Tourist passengers.

Economy services for Trans Natal are just below 10,000 pass per month throughout year, with the December peak 175% of the average. There is little change in volumes from 2003 to 2005. There is a minor peak at Easter, ranging from 100% to 125% and at the month-end in the economy traveller demand. In the Traveller Class, migrant workers dominate the demand at peak. For the rest of the year demand comprises of migrant workers travelling on family business.

Tourist services range from 3000 to 5000 passengers per month outside the peaks. During the April and December peaks the volumes vary between 5000 and 7000 per month.

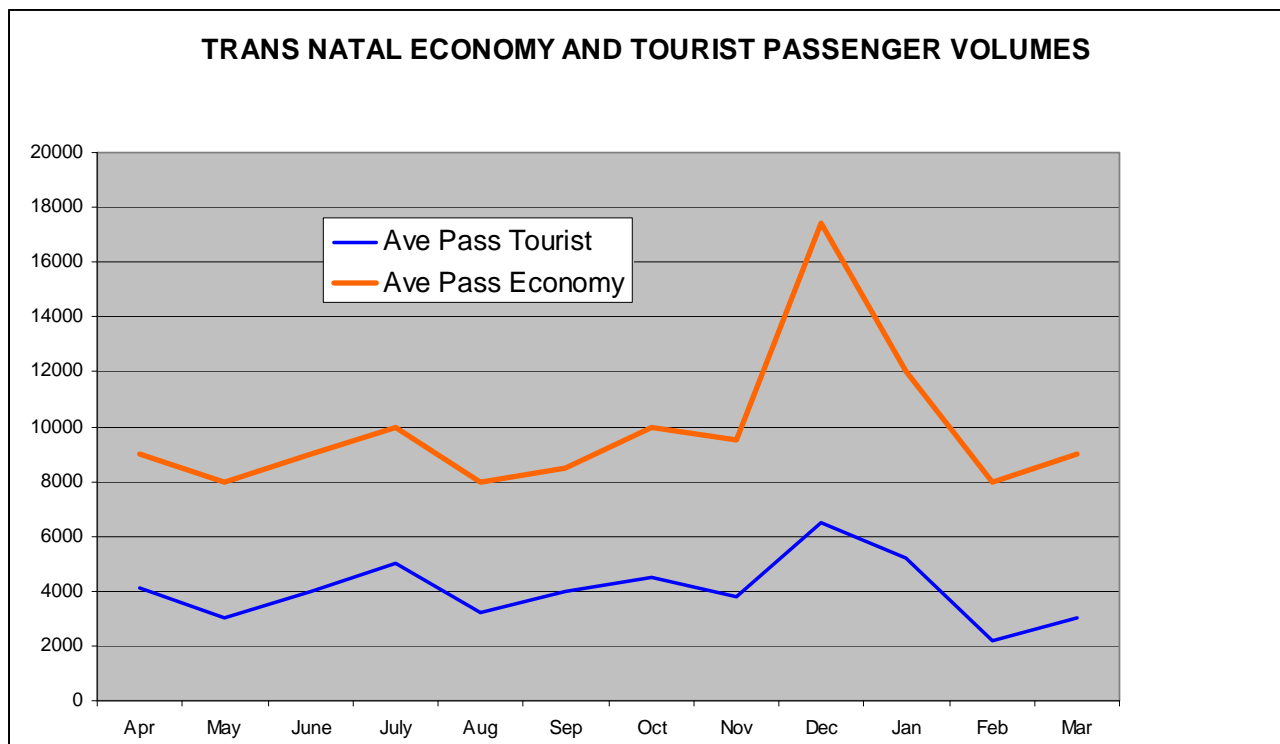


Figure 25: Trans Natal Economy and Tourist Passenger Volumes

Capacity Utilisation

Table 97 summarise the average number passengers (economy and tourist) booked per week, seat available, and service capacity utilisation, for the two Durban lines. The Economy services are well utilised, above 90 %, while the Tourist services are only utilised between 50% and 65%.

Table 97: Capacity Utilisation

Economy Class		Average Week		
From	To	Booked	Available Seats	Capacity Utilisation
Cape Town	Durban	1030	1096	94%
Johannesburg	Durban	6135	6706	91%
Tourist Class		Average Week		
From	To	Booked	Available Seats	Capacity Utilisation
Cape Town	Durban	463	726	64%
Johannesburg	Durban	517	1062	49%

Inter-city bus and charters²

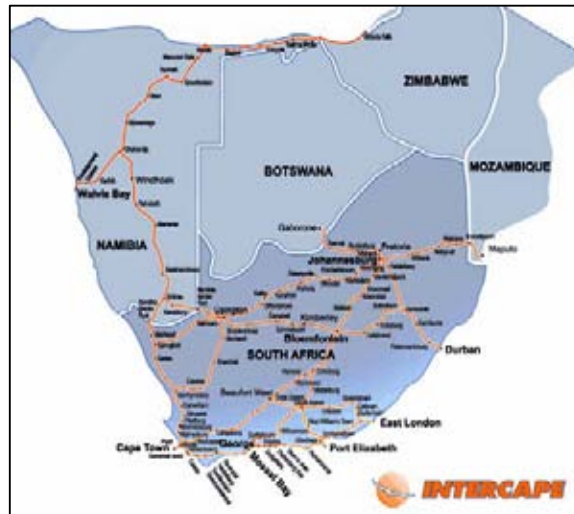
The Southern African Bus Operators Association (SABOA) indicated that approximately 800 luxury and semi-luxury coaches are in operation in South Africa by the tourism coach industry, of which 350 belong to SABOA members. It is believed that only about 400 of the current fleet would be suitable for use during the 2010 World Cup tournament. This may increase to 500 or even 600 vehicles mainly due to the industry replacement programme, and expected growth of the tourism industry in general over the next few years.

On average the luxury coaches can seat between 45 and 50 passengers and cost between R1.5 to R2million. The vehicles are well equipped and air-conditioned. In terms of the road traffic legislation, only coaches with double back axles may be used in South Africa (prescribed axle load limits), which is different from European countries such as the UK. Operators generally follow acceptable vehicle maintenance and replacement strategies, which mean that although the vehicles may be fairly "old", the condition of coaches is generally good. Most of these vehicles belong to larger tourism operators that use them to either provide scheduled long-distance and inter-city services (25% of the fleet), chartered tours for tourists and intra-city guided tours. A small portion of the fleet is used to provide private- and daily hire services for organized groups and excursions. For the latter, semi-luxury rather than luxury coaches are being used.

(a) Intercape

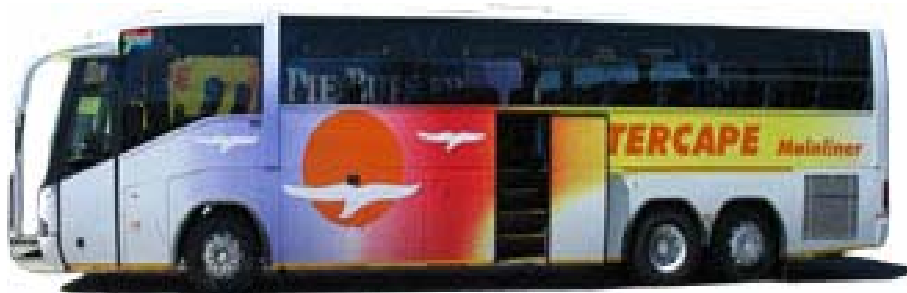
The INTERCAPE inter-city routes are shown on the map below. There are two types of service, namely the **Sleepliner** and the **Mainliner**. There are no Sleepliner routes to KZN. The Mainliner routes to KZN are as follows:

² This information is extracted from Department of Transport 2010 Initial Transport Operations Plan, September 2007



- **Bloemfontein to...**
Durban
- **Cape Town to...**
Durban via Bloemfontein
- **Durban to...**
Bloemfontein Cape Town via Bloemfontein
Pretoria / Johannesburg
- **Pretoria/Johannesburg to...**
Durban

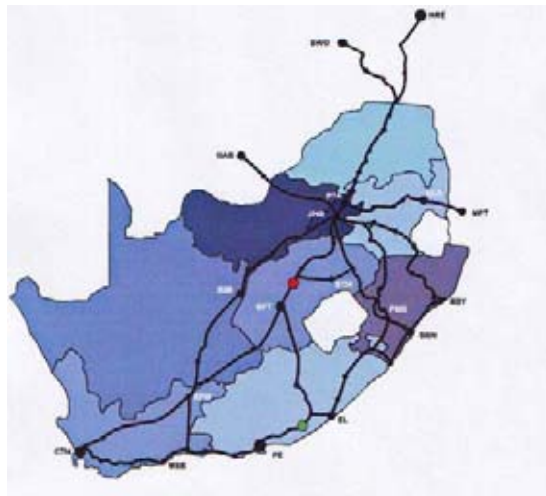
The Mainline is a 44-seater luxury coach. The typical schedule and price are shown below the graphic.



The typical daily schedule and fares for the service from Durban to Johannesburg are shown in **Table 98**.

Table 98: Daily Schedule

Depart From DURBAN - Intercape Office, Motor coach Terminal, Durban Station To JOHANNESBURG - Intercape Office, Park City Transit Centre, Johannesburg Station						
From/To	Depart	Arrive	Full Flexi	Flexi	Saver	Notes
Durban To Johannesburg Route: Mainliner DUR - PTA (D-1)	Thu 01 May 2008 08:30am ZA	Thu 01 May 2008 16:10pm ZA	230.00	190.00	SOLD OUT	Direct Route
Durban To Johannesburg Route: Mainliner DUR - PTA (N)	Thu 01 May 2008 22:00pm ZA	Fri 02 May 2008 05:40am ZA	250.00	210.00	175.00	Direct Route

**(b) Greyhound**

The Greyhound Coach routes are shown in the graphic below.

Greyhound routes with origins and destinations in the KwaZulu-Natal are listed below:

- Pretoria - Johannesburg - Empangeni - Durban.
- Durban - Empangeni - Johannesburg - Pretoria.

- [Pretoria - Johannesburg - Newcastle - Durban.](#)
- [Durban - Newcastle - Johannesburg - Pretoria.](#)
- [Pretoria - Johannesburg - Swinburne - Durban.](#)
- [Durban - Swinburne - Johannesburg - Pretoria.](#)
- [Cape Town - Bloemfontein - Durban.](#)
- [Durban - Bloemfontein - Cape Town.htm](#)
- [Cape Town - Port Elizabeth - Durban.htm](#)
- [Durban - Port Elizabeth - Cape Town.htm](#)

The above routes connect with all the others on the map above.

At the various provincial nodes, these KwaZulu Natal-based services link to all the other provincial main centres, for example Bloemfontein to Johannesburg.

Typical schedule and ticket price details appear **Table 99**.

Table 99: Typical Schedule and Ticket Price Details

Route: Pta/ Jhb - Durban - Jhb/ Pta (Via Howick)*		Seats: 10+	Price: R210.00
Depart	Durban	Arrive	Johannesburg
Friday, May 2 2008 08H00		Friday, May 2 2008 15H45	
Route: Pta/ Jhb - Durban - Jhb/ Pta (Via Newcastle)		Seats: 10+	Price: R225.00
Depart	Durban	Arrive	Johannesburg
Friday, May 2 2008 08H45		Friday, May 2 2008 18H50	
Route: Pta/ Jhb - Durban - Jhb/ Pta (Via Vryheid)		Seats: 10+	Price: R225.00
Depart	Durban	Arrive	Johannesburg
Friday, May 2 2008 09H00		Friday, May 2 2008 21H35	

Typical fares for the Greyhound service are R225 between Johannesburg and Durban.

(c) Autopax

Autopax is a wholly owned subsidiary of TRANSNET. The company has two distinctive brands namely, Translux and City-to-City. Over the past years these two brands have transported and serviced long distance travellers (about 4 million per annum), throughout South Africa and increasingly to countries across South African borders. Autopax operates luxury inter-city coach services between the major centres

of Southern Africa. The route network covers more than 100 destinations domestically and major cities in Malawi, Mozambique and Zambia.

Translux established itself as an inter-city operator in terms of its route network. It operates luxury inter-city coach routes running between the major centres in South Africa. Translux has double and single-decker luxury coaches in its fleet. Vehicles are equipped with the following onboard facilities:

- Audio and visual entertainment
- Reclining seats
- Air-conditioning
- Reading lights
- Heaters
- On-board toilet facilities.

Inter-city Buses

Autopax' City-to-City bus service operates no frills bus routes between the major centres in Southern Africa. Its route network is operated to most parts of the South African provinces and across borders to neighbouring countries, Lesotho, Malawi, Mozambique, Swaziland, Zambia and Zimbabwe. City-to-City also provides long transport distance services to the mining communities.

There are numerous other unscheduled small inter-city bus services. For example, the Baz Bus is a hop-on hop-off, door-to-door, backpacker bus service. This network serves independent travellers in South Africa. The concept is simple; passengers buy one ticket to their final destination and can board or alight anywhere along the route, as many times as they desire, wherever they like, with no time limit. The Baz Bus offers a door to door service between 180 backpacker hostels and lodges around South Africa and Swaziland with links to Lesotho and Mozambique. The routes run in each direction between Ethekwini and Johannesburg / Pretoria; either via the Drakensberg or Swaziland.

According to SABOA, an estimated fleet of 18 500 buses (vehicles with a passenger capacity of 19 and more) are in operation in South Africa, of which 13 000 are operated by its members and the largest portion of these members' vehicles are deployed on provincially subsidised interim or tendered bus contracts.

Commuter bus services

Subsidised contracts for providing road-based commuter transport services were introduced under the previous government dispensation to enable workers to be transported from dormitory townships to places of employment. Many of these services have been operating for more than 30 years under agreements with Department of Transport (DoT), which were later formalized into interim contracts or converted into tendered contracts. In 1997 the management of these contracts was devolved to provinces. All contracts have expired a number of years ago, and are currently being extended on a month-by month basis and are intended to be redesigned and advertised for tender (or negotiated under certain conditions) by

provinces in the next 12 months.

A broad indication of the fleet being used on KwaZulu Natal subsidized commuter bus contracts are given in **Table 100**. The vehicles are mainly standard commuter buses with a seated capacity of about 60 passengers, plus 15 to 20 standing. The table also shows the non-subsidised operators in the municipality.

Table 100: Provincially Subsidised Bus Fleet

Province	Fleet	Estimated Age, Condition & Comments
KwaZulu Natal	1 600	Std. buses operated by a variety of operators, general age and condition not very good
Ethekwini	650	590 std. buses and 60 midi-buses (35-seaters). Age and condition of std. buses generally poor and operated by a proliferation of small private operators

The DoT is applying pressure on provinces to redesign all their contracts for the provision of subsidised road-based commuter transport services for tender; and all provinces are in the process of doing so. A requirement for these designs is support for approved integrated transport plans and specifically integration with Rapid Public Transport Networks planned by cities and spelled out clearly in the recently published Public Transport Action Plan of the DoT. This pressure is somewhat inconsistent with the Action Plan approach which envisages that the contracts will be gross cost contracts administered and managed by the municipal network operating authorities, and that operating subsidies can be vastly reduced or even eliminated in many instances.

The implementation of the new provincial (or municipal when this inconsistency is ironed out) tendered contracts for the provision of subsidised road-based commuter transport services may significantly change the size, composition and condition of the bus fleet available in some parts of the country by 2010, especially in urban areas. It is expected that this change would be to the benefit of the commuter at large and also to the quality of bus services and vehicles available for the World Cup 2010.

The integration of the strategy to procure an additional bus fleet for providing 2010 World Cup services (especially between cities and provinces in an attempt to fill the gap) with the fleet requirements and replacement schedule of the tendered contracts, may have merit but needs to be investigated further with specific recommendations as part of a further phase of the development of the National Transport 2010 Operational Plan.

Long distance taxi

The number of long-distance minibus taxis operating in KwaZulu-Natal is difficult to estimate. This is because the services are unscheduled; there are weekly variations

in the services offered, depending on the time of the month migrants' travel, and variable leave patterns of the workers. The best way of assessing this supply is to consider the migrant and holiday travel demand discussed elsewhere in this report and in the Phase 1 report. In any event, most long distance minibus taxi vendors are the same operators that offer week-day services in Ethekewini and the other towns of KwaZulu-Natal. Considering the high average migrant trip rates in KwaZulu-Natal about 25 to 30 thousand per week, at least 2 000 minibus taxis are involved in this form of inter-city travel at peak week-ends in KwaZulu-Natal.

The total number of mini-bus taxis operating in South Africa is estimated at approximately 125 000. Because the services are unscheduled, it is difficult to estimate either the peak or off-peak supply of services. KwaZulu-Natal and Ethekewini minibus taxi supply numbers are listed **Table 101**.

Table 101: KwaZulu-Natal and Ethekewini Taxi Fleets

PROVINCE	ESTIMATED TOTAL FLEET	ESTIMATED TOTAL FLEET (%)
Kwa-Zulu Natal	21 000	17 %
eThekewini	8 600	7 %
RSA TOTAL	±125 000	100 %

The majority of mini-bus taxi vehicles have a passenger capacity of 15 and in 1999 more than 100 000 of these vehicles were older than 6 years, with the larger portion much older. The general condition of the taxi fleet is such that these vehicles are not deemed suitable to be used for the provision of services for visitors during the 2010 World Cup.

The national initiative to encourage taxi operators to replace their vehicles with new vehicles suitable for providing public transport services has, however, started gaining momentum. As part of a presentation at the South African Transport Conference in July 2007, the technical team assisting government with the roll-out of the taxi recapitalization programme indicated that they hope to have 6 000 vehicles scrapped and replaced by the end of 2007 and at least 10 000 vehicles per annum thereafter. This implies that between 25 000 to 30 000 new mini-bus taxi vehicles are expected to be available by mid 2010.

Table 102 shows the supply of all vehicle types in KZN with public transport vehicles highlighted. The vehicle registrations in the province are lower than the provincial share of the national population (14% of vehicles and 21% of the population). There are some 4 700 buses and 37 000 minibuses registered in the province, not all of them forming part of the public transport supply as many are used privately or in fulfilling commercial functions. The details of vehicle used for public transport are contained in the Current Public Transport Records (CPTRs), which have been included in the NATPLAN database. The composition of the vehicle fleet registered in KZN is shown in **Figure 26**.

Table 102: Vehicles registered KZN – Jan 2005

01-Jan-05	KZN	RSA	KZN as % of RSA
Motorised Veh's			
Motorcars	604 700	4 307 943	14.0
Minibuses	36 750	245 753	15.0
Buses	4 680	28 834	16.2
Motorcycles	21 281	188 320	11.3
LDV's - Bakkies	213 180	1 464 171	14.6
Trucks	37 952	242 436	15.7
Other & Unkwn	27 409	199 782	13.7
Sub-Total	945 952	6 677 239	14.2
Towed Veh's			
Caravans	8 695	107 633	8.1
Heavy Trailers	20 269	110 184	18.4
Light Trailers	54 906	564 484	9.7
Unknown	1 991	19 638	10.1
Sub-Total	85 861	801 939	10.7
All Vehicles	1 031 813	7 479 178	13.8

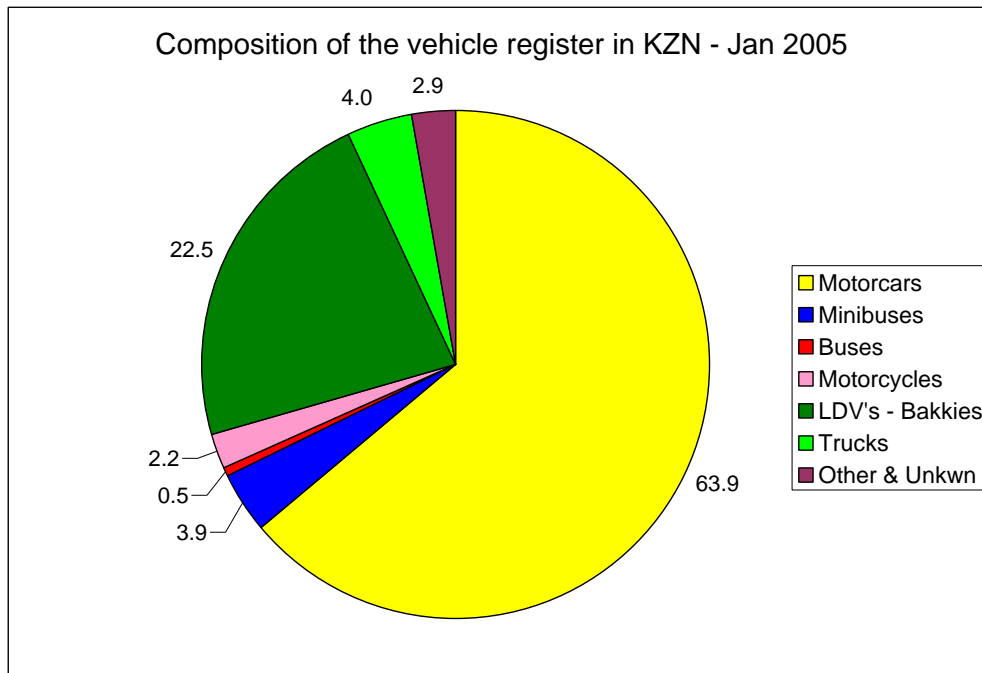


Figure 26: Composition of the registered vehicle fleet in KZN

7.4.3 Travel Times and Fares

Jhb-Dbn		Ave	Ave	
		Travel time (hrs)	Fare (R/trip)	SOURCE
Car	598	6.0	447	Fuel cost R7.47 / liter; 10 km / liter; Jan 2008
Taxi		7.1	200	90 km /hr; 0.5 hr stops; R0.32 p km
Bus		8.0	220.0	Grey Hound; R0.36 / km
Train		15.20	141	Sosh Meyl: Aug 2008
Air		1.17	1,761	Late May - Safights.co.za
CPT-Durban		Ave	Ave	
		Travel time (hrs)	Fare (R/trip)	SOURCE
Car	1,660	16.6	1,240	Fuel cost R7.47 / liter; 10 km / liter; Jan 2008
Taxi		18.9	530	90 km /hr; 0.5 hr stops
Bus		22.1	580.00	75 km / hr; R0.35 / km
Train		23.80	370	Sosh Meyl: Aug 2008
Air		2.08	3,041	Late May - Safights.co.za

7.5 EXISTING PASSENGER TRANSPORT PLANS

7.5.1 Introduction

It is important that NATMAP passenger forecasting in Phase 3 should build forward from the short- and medium-term visions, strategies and plans of transport authorities in the RSA in general and KwaZulu-Natal in particular. This section of the KwaZulu-Natal Phase 1 report includes summaries of the main current passenger initiatives. These include the national "Public Transport Strategy and Action Plan (PTSAP), the Rail Master Plan, the Ethekwini Integrated Transport Plan, the Ethekwini IRPTN Scoping Operational Plan and 2010 transport legacy projects.

7.5.2 The National Passenger Strategy and Action Plan³

Strategic direction of the National Passenger Strategy and Action Plan

The Cabinet approved the release of the Draft Public Transport Strategy for public consultation in October 2006. Following this, a broad-based Transport Indaba - during October Transport Month - initiated a process of widespread stakeholder engagement on the way ahead for public transport.

The Public Transport Strategy maps out a framework to accelerate the transformation of public transport service delivery in 3 phases (Phase 1: 2007-2010, Phase 2: 2010-2014 and Phase 3: 2014-2020).

³ Extracted from a memorandum submitted to the RSA Cabinet in March 2007.

The Action Plan is a high-level plan that supplements the Public Transport Strategy. It maps out the Phase 1 (2007-2010) implementation programme and funding requirements for the next 4 to 7 years. It aims to initiate implementation of catalytic Integrated Rapid Public Transport Network (IRPTN) projects in up to 12 cities and 6 districts (including the nine 2010 World Cup venue cities) at an estimated cost of R12bn over and above the current capital allocations to bus and rail subsidies and the Public Transport Infrastructure and Systems Fund (PTIS).

The Cabinet approved the release of the draft Public Transport Strategy for public consultation in October 2006. It was circulated among a wide range of stakeholders and was also the subject of two days of deliberation at the Transport Indaba - hosted by the Minister of Transport in October 2006. The Action Plan was later submitted in order to translate the Strategy into action - with a focus on implementing Phase 1: (2007-2010) Catalytic Integrated Rapid Public Transport Network Projects in 12 cities and 6 districts.

The Public Transport Strategy has two key thrusts as follows:

1. Accelerated Modal Upgrading; and
2. Integrated Rapid Public Transport Networks (IRPTNs).

Modal Upgrading focuses on the 3-7 year transitional period with regard to improving the quality of the public transport fleet and its current operations. The DoT's Public Transport Management Division is currently finalising 3-7 year Modal Upgrading Plans for Passenger Rail, Bus, Minibus and Metered Taxi services.

The Action Plan focuses on Integrated Rapid Public Transport Networks over the 4-20 year period and aims to implement high quality networks of "car competitive" public transport services that are fully integrated, have dedicated rights-of-way and are managed and regulated by a capable municipal transport department. In this regard, the aim is for major cities, such as Ethekwini, to upgrade both commuter rail services and bus and minibus services to a Rapid Rail and a Bus Rapid Transit (BRT) level of quality respectively. Ultimately, these services will be fully integrated to form a single system regardless of mode.

As far as possible, the Modal Upgrading Plans are aligned with the Action Plan's focus on Integrated Rapid Public Transport Networks and especially the initial Phase 1 catalytic packages of rapid rail and road priority corridors.

In the development of the Action Plan the DoT has engaged with 6 metropolitan cities including Ethekwini and 6 secondary cities as well as the SA Rail Commuter Corporation (SARCC) - with regard to developing a Phase 1 (2007-2010) package of catalytic integrated rapid rail and road corridors.

The Action Plan engagement with the 12 cities to date has also aimed to **integrate the 2010 Legacy components** of the Public Transport Infrastructure and Systems Fund (PTIS). The cities' PTIS proposals were used as a basis for developing the

Phase 1 catalytic package for the Public Transport Action Plan. However, cities were encouraged to go beyond their initial 2010 Legacy proposals – if required – in order to fully align with the Public Transport Strategy's thrust of moving to the initial stage of integrated rapid public transport networks that can retain existing users and attract car users.

The Action Plan is also integrated with the implementation aspects of the draft Rural Transport Strategy. In this regard, the Department's current work in 3 district municipalities will be scaled up to form a strategic Phase 1 Rural public transport package and it is intended that the Action Plan will aim for full-scale implementation in 6 rural districts in the Phase 1/2 period (2007-2014).

An estimated costing of these Phase 1 integrated rapid public transport networks is also included as well as a funding and institutional framework. Since Cabinet approval cities and districts have embarked on detailed network operational planning and costing from March 2007 to create the basis for Phase 1 implementation (2007-10).

The vision of where public transport should be heading involves moving from the current basic commuter operations to Accelerated Modal Upgrading and ultimately towards transforming mode-based vehicle recapitalisation into Integrated Rapid Public Transport Networks (IRPTNs) that meet the following high quality standards:

- Maximum accessibility and coverage - 85% of all metropolitan city residents within 1km of Rapid Public Transport Networks by 2020. Upgraded modal fleet, facilities, stops and stations that are integrated as part of an Integrated Rapid Public Transport Network. Extended hours of operation (16-24 hours a day).
- Peak frequencies (5-10min) and off peak frequencies (10-30min).
- Full accessibility for users with special needs and wheelchairs especially on the high volume rail and road corridors and related stop/station infrastructure.
- Safe and secure operations monitored by a Control Centre.
- Electronic fare integration, which enables transfers between services and modes on a single ticket.
- Integrated feeder services including high quality pedestrian and cycle networks.
- Personal motorised two and three wheeler integration into the Rapid Public Transport Network for inner city feeder services and as a low cost personal transport option.
- Integration with metered taxi services and long distance services to promote: connectivity with hubs and nodes, ensure after hours mobility for shift work and provide reliable services for tourists and long distance travellers.
- Expanded access to quality public transport services in rural areas.

- Car competitive public transport that enables strict peak period car use management.

South African cities and districts have been cautioned to refocus their current Integrated Transport Plans to include the phasing in of IRPTNs. To assist in translating the vision into an Action Plan, the strategy proposes 3 action agendas:

- | | |
|--|-------------|
| (i.) Accelerated Recovery and Catalytic Projects | (2007-2010) |
| (ii.) Promote and Deliver Basic Networks | (2010-2014) |
| (iii.) Advance and Sustain Accessible Networks | (2014-2020) |

Accelerated Recovery and Catalytic Projects Agenda (2007-2010) - The strategic thrust is to stabilise the current passenger transport service delivery environment as well as to recover from the accumulated neglect of decades of under-investment. The Accelerated Recovery Plan includes: the completion of network design for all subsidised services, building local sphere capacity in planning, monitoring and network management and acceleration of fleet upgrading. The Catalytic Projects component is dealt with in the Action Plan's focus on IRPTN Phase 1 initiation in up to 12 cities and 6 districts.

- (i.) **A Stabilise and Recover** Plan is the second component of the Accelerated Recovery Agenda and runs over the next 3 - 5 years. The key objective is an effective public transport implementation platform including: devolving funding to capable municipalities and refining Integrated Transport Plans with a focus on Integrated Rapid Public Transport networks. The strategic thrust of the **Promote and Deliver Basic Networks Agenda** (2010-2014) is to incrementally enhance and expand the passenger transport system through: the upgrade of key integrated rapid public transport network corridors, travel demand management measures for car users, and consolidating public transport operators into capable entities.
- (ii.) The strategic thrust of the **Advance and Sustain Accessible Networks Agenda** (2014-2020) is to significantly expand and transform public transport through large-scale implementation including: rolling out fully interconnected mass rapid public transport networks, ensuring most public transport facilities, vehicles and infrastructure are high quality and **expanding universally accessible vehicles and infrastructure for users with special needs**.

Successful implementation over the Phase 1 and 2 periods (2007-2014) in 18 of South Africa's total of 53 Metropolitan and District Municipalities will see the improvement in public transport services for potentially over half the country's population. This is an ambitious programme for the overhaul of public transport and will require a serious and concerted effort by the three spheres of Government and all other stakeholders

Financing the Action Plan

The MTEF 2007/8-2009/10 budget for Passenger Rail amounts to R14.7bn. A portion of this amount (R5.4bn) will be used to upgrade the Priority Rail Corridors which form a component of the Integrated Rapid Public Transport Networks in some cities. A further portion (R2.6bn p/a) also covers the Phase 1 target of refurbishing enough coaches to achieve 10 minute headways on the Priority A and B Rail Corridors.

In addition, the Passenger Rail Plan outlines the need to purchase new rolling stock as opposed to only refurbishing the existing fleet. This is anticipated to occur in Phases 2 and 3 and will involve the likely need to purchase 103 additional train-sets at a cost of over R15bn in order to achieve 5 minute headways. A further 71 additional train-sets will be required from Phase 3 onwards in order to maintain the 5 minute headway standard due to the future scrapping of coaches that can no longer be refurbished. This is expected to cost an additional R11bn.

An amount of R8.3bn is also budgeted in the 3 year MTEF period for existing subsidised road-based services. This amount simply covers the current services. The current transformation plan for these services envisages an increase in the subsidy requirement from the current R2.8bn per annum to R4.5bn per annum, in order to normalise the current contracting compliance in terms of vehicle quality as well as to fully integrate all road-based services (bus and minibus) in 4 metro cities. It should be noted that the implementation of full Bus Rapid Transit infrastructure and operations for all current bus and minibus operations in a city is likely to reduce the need for operational subsidies (or is likely to provide more and better service coverage for similar amounts of subsidy) – but this will become clear as the cities progress on their detailed operational planning in 2007.

In addition, it is estimated that up to R10bn in total will be required for the Phase 1 capital costs for Road-based priority corridors in the 6 metropolitan cities (costed up to a full Bus Rapid Transit infrastructure standard) and a further R3bn for the same in the secondary cities. To fully implement a basic Phase 1 Integrated Public Transport Network concept in 6 rural districts (including high quality walking and cycling facilities and affordable periodic contracted public transport services) is estimated at R3bn in total.

The immediate implementation task at city level is to engage in a detailed operational cost study by July 2007 to indicate the savings in operational subsidy that will result from implementing Phase 1 road-based corridors to full BRT infrastructure and service standards.

Currently there is R5.5bn in the PTIF that is awaiting final allocation to municipalities for the 2007/8-2009/10 MTEF period. The Action Plan envisages that the current and increased future allocations to the PTIF could serve as the ideal vehicle to implement the additional funding required for the capital costs of implementing the road-based component of the IRPTN.

Thus, in addition to the current rail and bus subsidy budget, and also assuming that R4bn of the current R5.5bn in the PTIF can be applied to IRPTN Phase 1 projects – implies that up to R12bn in additional (mostly capital) funding is required over a 4 to 5 year period in order to initiate Phase 1 implementation in up to 18 cities and districts.

Furthermore, an estimated additional R1.7bn annually is required for the full rollout of road-based tendering for subsidised contracts as well as for the full integration of bus and minibus services into a combined network in 4 metropolitan cities. This estimate is subject to the outcomes of the detailed operational modelling of the IRPTN by the cities in 2007.

While detailed operational planning is still required in 2007, the required capital costs for the road-based component of the IRPTN (costed up to full Bus Rapid Transit standards) is estimated at an additional R12bn for Phase 1 in up to 12 cities and 6 districts (assuming that R4bn of the R5.5bn in the PTIF is invested in Phase 1 IRPTN projects). This also assumes the continuation of the current separate funding for the Passenger Rail Plan projects as well as the current funding for subsidised road-based services. The detailed operational planning will reveal the extent to which operational subsidies are required on the IRPTN Phase 1 projects – with the ultimate goal of minimising these to zero – at affordable fare levels.

Manpower requirements for implementing the Action Plan

The Action Plan will require a major enhancement of municipal capacity in order to plan and manage an integrated network. It is envisaged that this capacity enhancement will be phased in over the 2007-10 period. The DoT will need to work closely with municipalities and the Department of Public Service and Administration in order to develop detailed resourcing plans for each Phase 1 municipal IRPTN rollout. In addition, the focused use of international expert resources with operational experience of IRPTN implementation will be required in order to fast-track implementation and to train a local cadre of IRPTN experts.

7.5.3 National Rail Plan⁴⁵

National commuter rail planning process

The Phase 1 Rail Plan identified corridors in which rail is the most appropriate mode of public transport consistent with national transport policy. This was a move away from a rail network-based approach, leaving the network planning to municipalities in the context of Integrated Rapid Public Transport Networks (IRPTN). Identification of corridors was done on a regional basis. The function of the Regional Rail Plans is to

⁴ Material sourced from SARCC Metrorail; National Rail Plan: Final Consolidated Report (Condensed Version), November 2006.

⁵ Also from SARCC, Metrorail, Shosholozza Meyl; Role of rail in rural passenger demand corridors. Interim Report on Screening of corridors, April 2007.

apply the corridor principle and interpret this policy at the local rail network level with the aim of redefining local rail networks in terms of identifiable travel corridors. This involved close engagement between, the Metrorail management team and city transport planning officials.

The consultative process was the first time, the operator and the local authority have engaged in joint planning sessions to discuss aspirations for rail passenger transport. From the operator's point of view, rail planning is a technical matter informed by the operational aspects of the different elements of the physical network. For Metrorail, a major strategic refocusing was required to move away from technically oriented, network-based planning towards the broader-based transport corridor approach to rail planning.

The process of reviewing policy and defining Priority Rail Corridors in the regions contributed to enhancing local rail transport planning capacity. This has contributed to the Transport White Paper objective of seeing responsibility 'devolved to the lowest competent level'. The need to balance the network oriented approach with the land use planning approach to defining rail corridors has meant that varying approaches to the process of corridor definition were adopted in the different regions. Generally speaking, the more technically complex the network, as for example Wits, and KwaZulu-Natal, the more that network factors had to be taken into account. Although SARCC directives allowed some flexibility in the interpretation of principles and policies, the respective Rail Plan reports generally included the following steps:

- Review local/provincial transport policy;
- Understand the relationship between land uses and transport demand in the region;
- Identify the scale of public transport demand by major travel corridors;
- Note current patronage and recent trends in rail share of the travel demand corridors;
- List proposed future rail routes and the corridors with which they are associated;
- Assess any implications for modal integration and intermodal transfer facilities.

KwaZulu-Natal commuter rail plan

The Rail Plan process in the KwaZulu-Natal was influenced by the following policy documents:

- Provincial Vision for Public Transport and Five Year Strategic Delivery Programme.
- The City of Ethekwini Integrated Development Plan, 2006/07.
- The City of Ethekwini Public Transport Plan, 2006.
- The City of Ethekwini Rail Framework, March 2006.

Based on national policies and principles, provincial and local policies, the following general role was established for rail within KwaZulu-Natal:

Spatial Development Support: Existing rail corridors are to be supported by densified spatial development along their length. Corridors for future spatial development will also be supported by densified development irrespective of whether such corridors will eventually be served by road-based or rail transport modes.

Rail Network Operational Support: Existing rail services to continue to form the backbone of the Ethekwini Transport Authority public transport system. As such, the existing rail network will be served by feeders and distributors at railway stations.

Operational Network Efficiency: The investment in the existing rail system is to be protected and the rail system to be operationally enhanced. Rail network proposals should be considered in terms of the possibility of their improving the existing rail network and public transport network efficiency.

Financial Considerations: Investment in new lines, especially in areas with no existing rail use culture, should be postponed until the existing network is operating to an agreed standard. The investment in new lines should also be subject to comprehensive financial, economic and environmental evaluations, including spatial and developmental opportunities, with respect to different modes.

The role of rail is significant in the KwaZulu-Natal region on account of the fact that eThekweni ITP has determined that rail is the backbone of its public transport system. The North – South corridor is the dominant element in the rail transport system, with east – west lines feeding this at varying degrees of intensity. The North – South corridor is a strong commuter line supporting existing development and able to support much future development along the route if adequate service levels can be provided. An ongoing role for rail on this transport corridor is a vital component of the ETA transport strategy.

Of the four east – west inland rail routes, only the Umlazi – Isipingo transport corridor was sufficiently supported by current and proposed future land use patterns to warrant a clear cut case for ongoing commuter rail services.

Based on the numerous development proposals in the northern parts of the EMM area, including the Inanda/Ntuzuma/Kwa Mashu (INK) Regeneration Area and the proposed La Mercy Airport development, a strong land use planning case could be made for extending the existing North – South rail route into the proposed INK regeneration node.

Major inter-connectivity nodal points with the rail priority corridors (**Figure 27**) have been identified as follows:

- Durban station
- Isipingo station

- Berea station
- Kwa Mashu station
- Umlazi station
- Bridge City (New station in the north towards Inanda. Rail-head to a 4km rail extension)

Rail's function as the major mode, or backbone of public transport led to the following functional definition of corridors for purpose of the Rail Plan evaluation process:

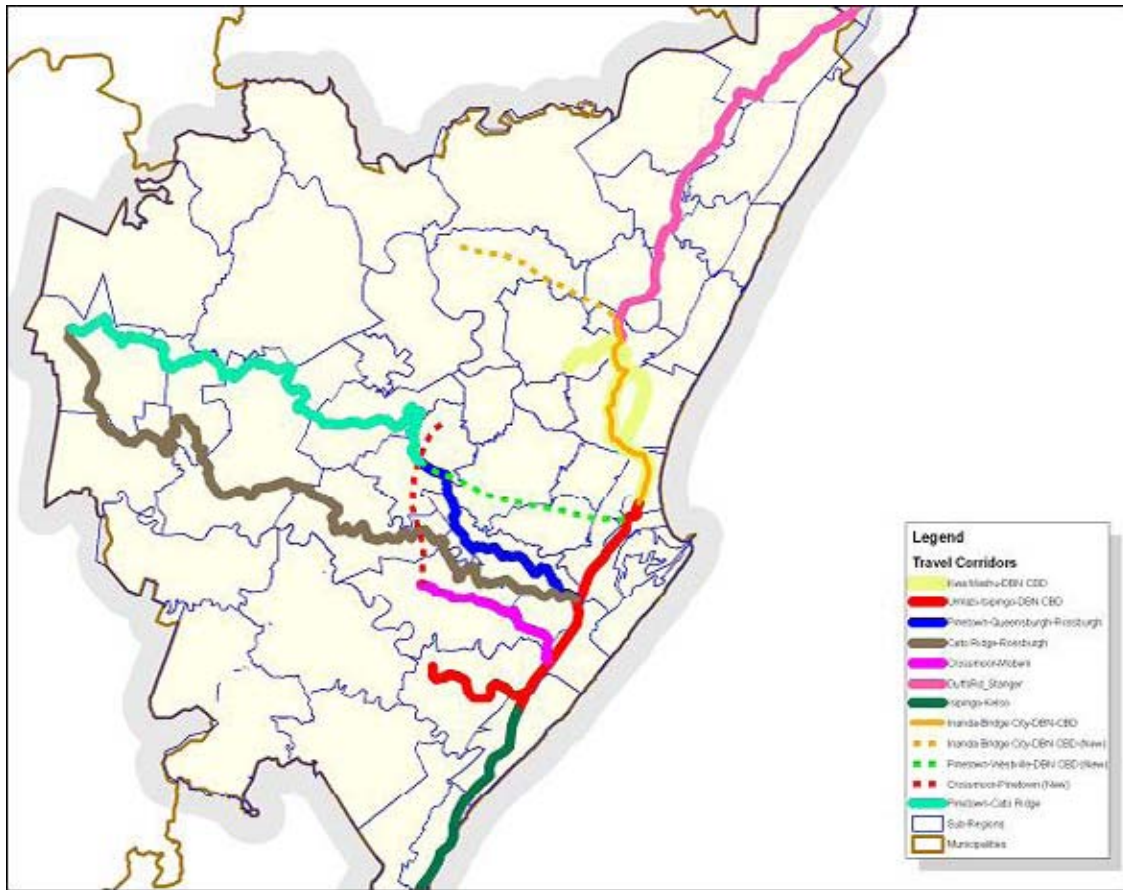


Figure 27: KwaZulu-Natal Rail Network

Role of rail in rural passenger demand corridors

Rail Authorities undertook a project in 2006/07 to determine the role of passenger rail in areas external to the metropolitan areas. These include commuter services in rural areas, commuter services from towns and settlements outside metropolitan boundaries, as well as inter-city services, such as those of Shosholozza Meyl. The project was an extension of the SARCC Commuter Rail Master Plan (National Rail Plan), which covered the six metropolitan areas as well as Buffalo City. The strategy adopted was to focus on the upgrading of the existing rail network along priority

corridors, before developing new rail lines. The same strategy was followed in the Rural Rail Master Plan.

The following objectives guided the project:

- (i.) To consult with provinces and municipalities, where there is potential for rural rail services, and to co-operate with them to identify potential rail corridors, and to obtain their buy-in on the results of the project.
- (ii.) To determine the demand for rail services external to metropolitan areas, and to identify which corridors would support rail from travel demand and cost efficiency viewpoints.
- (iii.) To determine priority corridors for rural rail services serving commuter demand as well as inter-city travel demand on the existing rural rail network. Different criteria for prioritising corridors will be required in the rural context compared to the urban context.
- (iv.) To determine potentially new rural rail corridors that can be developed over the longer term.
- (v.) To provide information for rail feasibility criteria that the SARCC would like to use to develop a strategic assessment tool for determining the feasibility of rail.

Four criterion were used to rate the importance of inter-city passenger links in the plan. These criteria were:

- (i.) Population size of municipality;
- (ii.) Future increase in the population of the municipality;
- (iii.) Extent to which the link lies within a development corridors;
- (iv.) Economic activity.

Three types of development corridors are distinguished in **Figure 28**:

- national SDI's;
- national freight corridors identified by the National Freight Logistics Strategy;
and
- provincial corridors from provincial spatial development frameworks.

The high priority corridors are identified in **Figure 29**.

Finally, **Figure 30** shows the relationship between Spoornet proposed rail infrastructure enhancements and the suggested passenger demand corridors. The report does not allocate a budget or timetable to any enhancements in the proposed priority corridors. It concludes by noting that the Municipalities and demand corridors that indicated a high priority based on the screening process will be further investigated in the next phase according to the agreed project plan.

Fig 4.2 Municipalities meeting Economic and Development Criteria

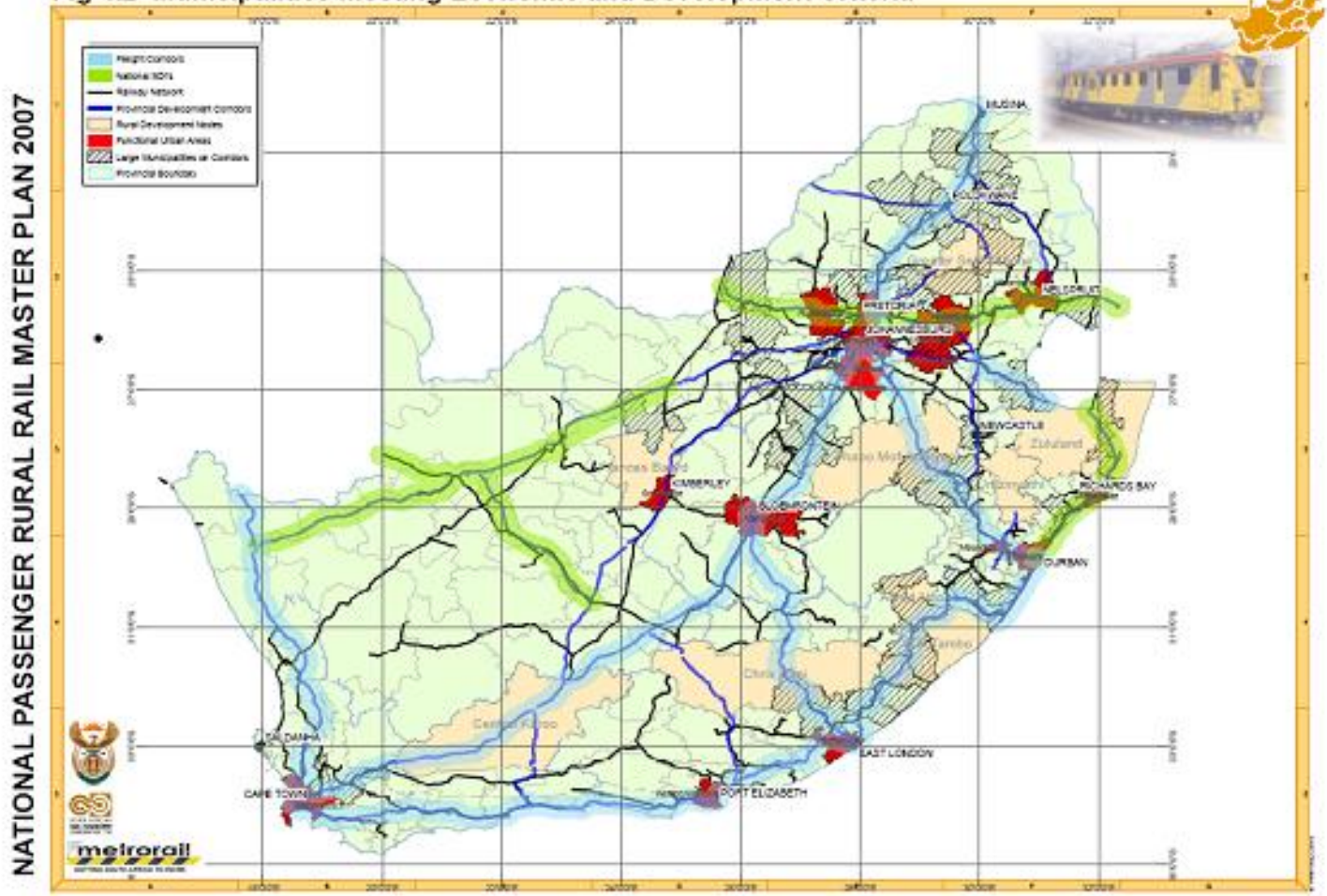


Figure 28: Municipalities meeting economic and development criteria

Fig 6.2 Spoornet Rail Infrastructure Enhancements compared to Passenger Demand Corridors

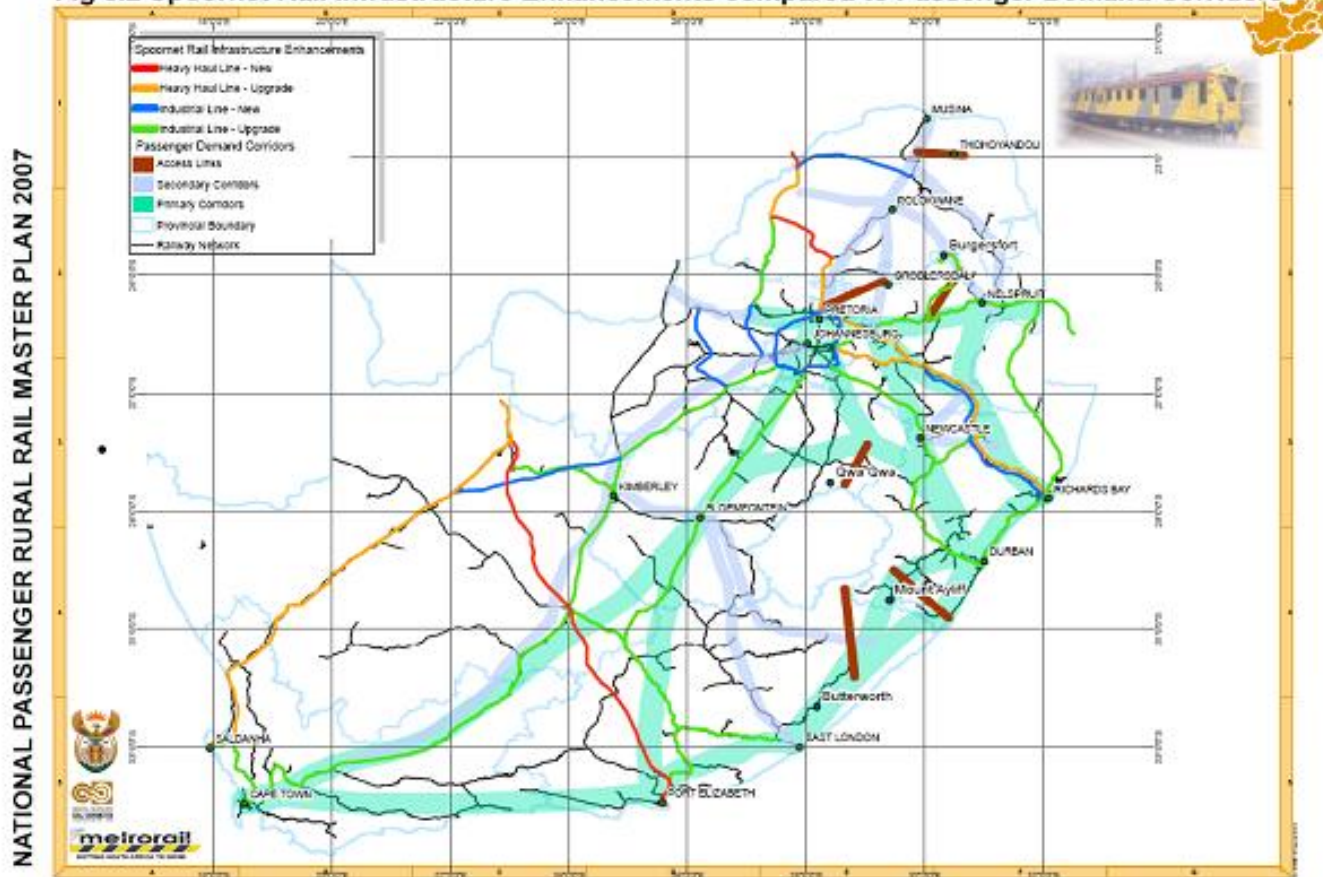


Figure 30: Spoornet rail infrastructure enhancements compared to the passenger demand corridors

7.5.4 Status of public transport plans in ITP's

Public Transport Plans for Ethekewini and the metropolitan and district municipalities have been completed. These plans mostly reflect the status quo of public transport in the municipalities in terms of the flawed, statutory Current Public Transport Records (CPTR). Accordingly, the data they contain are not a reliable indication of the demand for public transport in KwaZulu Natal, but to a lesser extent in Ethekewini.

The implementation projects contained in the plans are mostly planning projects which involve further research and analysis and are, therefore, of little relevance to NATMAP in its search for locally generated infrastructure and services projects of provincial and national significance. Those infrastructure projects that were proposed in the 2005/06 plans, and subsequently in terms of the World Cup Legacy Projects do not go far enough to encapsulate the national Public Transport Strategy and Action Plan. There is little progress in the detailed planning and design of any of the PTP rationalised networks, or corridor projects or even infrastructure upgrading. The only projects to be implemented are piecemeal projects, such as the Warwick Triangle project which has little hope of success without comprehensive system-based, or network approaches to public transport improvements. Building an interchange or a priority lane, or taxi rank here and there, will not improve the overall public transport system.

Most of the infrastructure implementation projects in the Metro and District PTPs proposed list of projects are new or upgraded interchanges, or minibus taxi ranks and facilities. These planning efforts have, furthermore, being piecemeal, been rendered redundant by the network approach being proposed in the National IRPTN Action Plan. The Ethekewini IRPTN Scoping is briefly outlined in the section which follows in the context of the Public Transport Strategy and Action Plan.

Status of municipal operational plans and 2010 plans

Ethekewini - Introduction

The Ethekewini Transport Authority is currently in the process of developing operational plans both for the IRPTN network implementation and for the 2010 Football World Cup, principally through its Inner City Distribution System. It is too early to state with any finality how these plans will finally turn out, or the extent to which the 2010 Plan will leave any lasting public transport legacy.

Priority Rail Network

The Regional Rail Framework has identified KwaMashu – Umlazi rail corridor as a category A corridor for investment. This will form the backbone of the future IRPTN network described in the following section. The eThekewini rail network and priority lines are described in **section 6.5.2.2**.

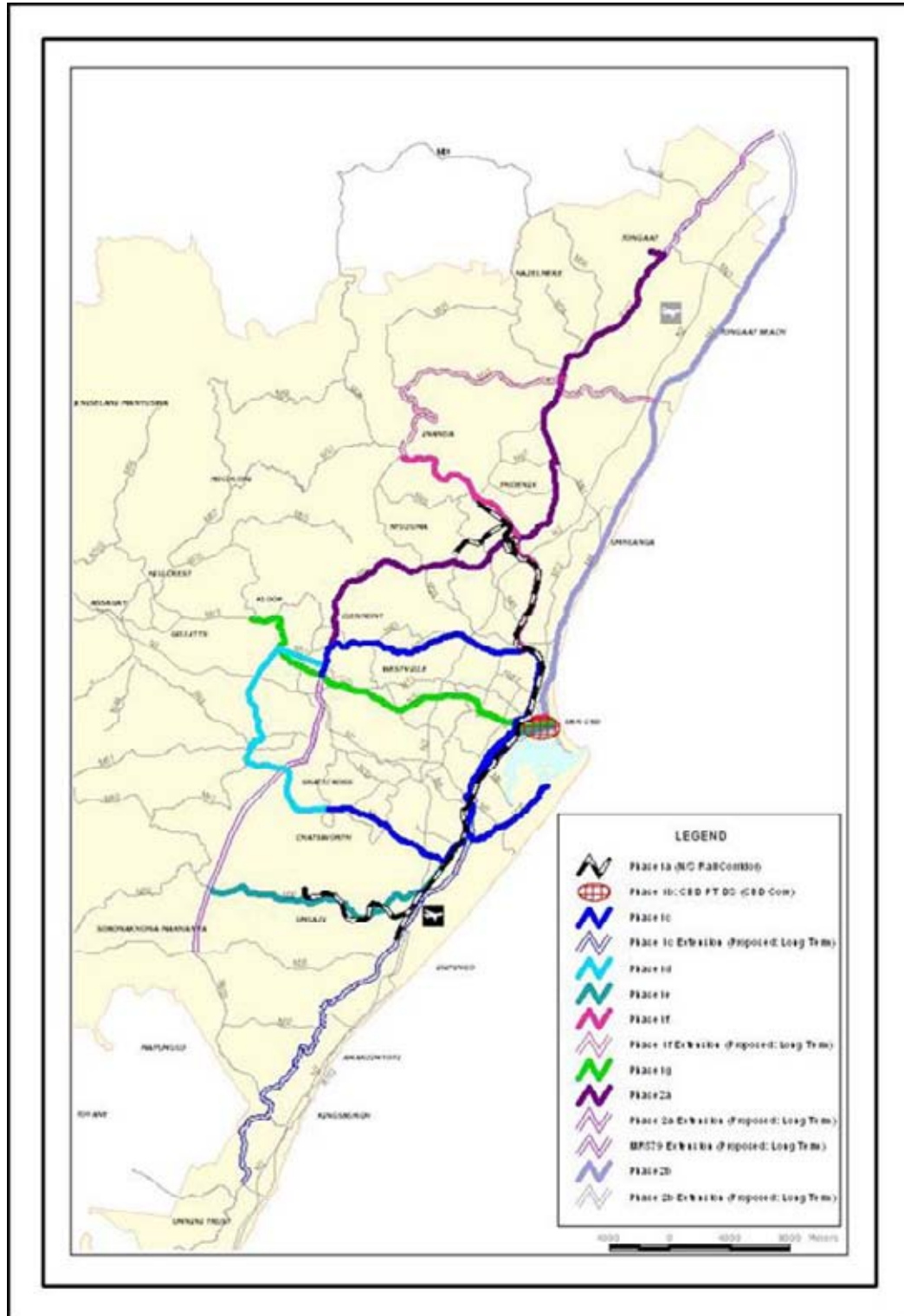


Figure 31: Proposed Phases of the eThekweni (draft) IRPTN network

eThekweni IRPTN network (rail and road)

The demand estimation for the conceptual design of the ETA was based on NHTS O-D tables. Destinations of public transport work trips are shown in **Table 103**.

Table 103: Public transport destinations adjusted to reflect the distribution of formal employment

Area	% jobs by area according to Durban Formal sector employment survey	Destinations by Rail	Dest by bus and taxi	Total Public transport destinations
Inanda Rural	1	0	4 800	4 800
Bluff	29	11 900	113 100	125 000
CBD	14	5 700	54 000	59 700
Umgeni	0	0	1 600	1 600
Berea North	4	1 600	15 400	17 000
Cato Manor	5	2 200	20 600	22 800
Montlands	1	300	3 000	3 300
Chatsworth	2	700	6 900	7 600
Umbumbulu	2	700	6 500	7 200
Inner West	12	4 700	44 900	49 600
Westville	2	1 000	9 100	10 100
Kingsburgh	1	500	4 500	5 000
Outer West	7	2 700	26 100	28 800
Tongaat	3	1 000	10 300	11 300
Canelands	2	600	6 000	6 600
Umdloti	2	800	7 600	8 400
Durban North	2	700	6 500	7 200
Verulam	2	800	7 600	8 400
Kwa Mashu	9	3 800	36 200	40 000
Total	100	39 700	384 700	424 400

Taking all the numbers into account, the following strategic considerations underlie the IRPTN System Design:

- The north-south rail corridor between Kwa Mashu and Umlazi is the logical backbone to the ETA public transport system, which in terms of national policy we shall name the Ethekewini IRPTN;
- Current peak period rail demand of 40 000 can be expanded through rail service capacity improvements and by providing effective feeder and distributor services to up to about 30 000 passengers per direction per hour. This means that ultimate peak capacity is probably 60 000 to 70 000;
- Peak rail capacity is significantly short of overall peak period demand for public transport of 144 000 in the north-south corridor (Tongaat, Inanda, Verulum and Kwa Mashu);

- Likewise peak demand in the south-north corridor (136 000 from Kingsburgh, Umbumbulu/Umlazi and Chatsworth) exceeds rail capacity; and
- Rapid road based public transport BRT is needed to supplement the rail backbone, particularly for those commuters whose destinations are distant from the central rail stations and for those whose destinations lie in the developing east west corridor.
- There is evidence that many commuters whose trips originate in the north-south corridor, subsequently transfer in the centre to destinations in the western corridor.

The Draft IRPTN network for Ethekeeni, which is still under analysis and may change significantly. The network will provide good public transport coverage for the entire city.

The first phases of the IRPTN are the following:

- The north-south rail corridor between KwaMashu and Umlazi;
- The CBD distribution system which forms a strong part of the ETA Operational Plan for 2010; and
- The east-west linkages between the Bluff and CBD on the one hand and Chatsworth and Westville on the other.

It is estimated that the planning costs for the IRPTN Operational Plan, Business Plan Marketing and Communications Plan and Infrastructure Design will amount to about R30 million. Infrastructure costs will amount to about R1 billion for the first road-based phase and R7 billion in all for the road-based system. Note that these costs exclude the CBD distribution system and the rail component of the IRPTN in

Table 104.

Table 104: Phases and rough costing of infrastructure for the ETA IRPTN

PHASES	ROUTE DESCRIPTIONS	LENGTH_Km	Rough Costs
Phase 1 c	M1 East (Chatsworth Centre to CBD)	55.0	1 099 820 120
Phase 1 c Ext	Future Extension (CBD to Kingsburgh)	42.1	842 349 820
Phase 1 d	West (Chatsworth to Pinetown)	20.5	410 862 400
Phase 1 e	Umlazi to CBD	31.8	635 738 520
Phase 1 f	Inanda to CBD	26.0	519 715 680
Phase 1 f Ext	Future Extension (Inanda (M25), M27)	29.9	597 404 360
Phase 1 g	West (Kloof to CBD)	24.8	496 905 880
Phase 2 a	R105-M5 (Tongaat: Dube Trade Port to Pinetown)	44.3	885 284 980
Phase 2 a Ext	Future Extension: Dube Trade Port to Balito	11.5	230 064 520
MR579 Ext	Pinetown to R603	22.5	449 488 200
Phase 2 b	M4 (CBD to Municipal Boundary)	37.8	755 706 380
Phase 2 b Ext	Municipal Boundary to Balito	6.0	119 814 440
Total		403.7	7 043 155 300

Msunduzi Integrated Rapid Public Transport Network⁶

The Msunduzi conceptual IRPTN design was based on the O-D movements to work by public transport (Bus and Taxi) from the NHTS depicted in **Table 105**.

⁶ Department of Transport and Msunduzi Local Municipality: Implementation of an Integrated Rapid Public Transport Network (IRPTN) in Msunduzi – Scoping Study, March 2008.

Table 105: Origins and destinations of trips to work by public transport in Msunduzi

Origin		Destination							All destinations
		KwaZulu-Natal	Umgungundlovu	uMngeni	Pietermaritzburg Central and Suburbs	Northdale/ Raisethorpe	Henley Dam/ Umsunduzi Valley	Imbali/ Edendale	
Bus and taxi	KwaZulu-Natal	0	0	1 321	2 736	0	163	0	4 220
	Umgungundlovu	0	0	0	729	0	0	0	729
	uMngeni	385	0	5 314	1 189	0	0	0	6 888
	Pietermaritzburg Central and Suburbs	411	0	0	2 264	110	0	1 271	4 056
	Northdale/ Raisethorpe	305	211	431	14 677	2 289	224	291	18 428
	Henley Dam/ Umsunduzi Valley	1 280	0	4 078	12 276	1 398	814	820	20 666
	Imbali/ Edendale	377	566	1 409	34 759	2 091	0	2 636	41 838
All origins	2 758	777	12 553	68 630	5 888	1 201	5 018	96 825	

The relevant numbers are as follows:

- Msunduzi attracts 11 000 bus trips to work and 82 000 by minibus taxi;
- Pietermaritzburg central attracts 7 500 of the above bus trips and 61 000 of the taxi trips, a total of 68 000 trips to work in all;
- Most bus trips to work are from the Umsunduzi Valley (5 700); and
- Most minibus taxi trips are from Imbali / Edendale (34 400).

The Scoping Study - Implementation Framework proposes to base the Msunduzi IRPTN system on several synergistic road services as follows:

Trunk services (BRT): – High-demand corridors will operate predominately in median busways with pre-board fare collection and platform level boarding, providing a rapid and high-quality customer experience.

Conventional services: - Principal bus routes in corridors with either insufficient demand for exclusive infrastructure or where the nature of the urban environment does not permit exclusive infrastructure. In subsequent project phases, some conventional services may be upgraded to trunk services.

Feeder services: – Community or local area services that connect passengers to trunk road and conventional services.

Additional modes – A range of other modal types may also assist in feeding customers to the public transport system, including private cars (e.g. park-and-ride facilities), bicycles (cycleways), and quality walkways.

The Scoping Study Implementation Framework articulates the recommended form of the system and the required steps to full implementation. The development of the full integrated network will take place over a series of phases, in order to match the available resources for planning, finance, and construction.

The following routes are recommended for development of trunk road services in project Phases 1a to 1b: (Figure 32, Figure 33 and Figure 34).

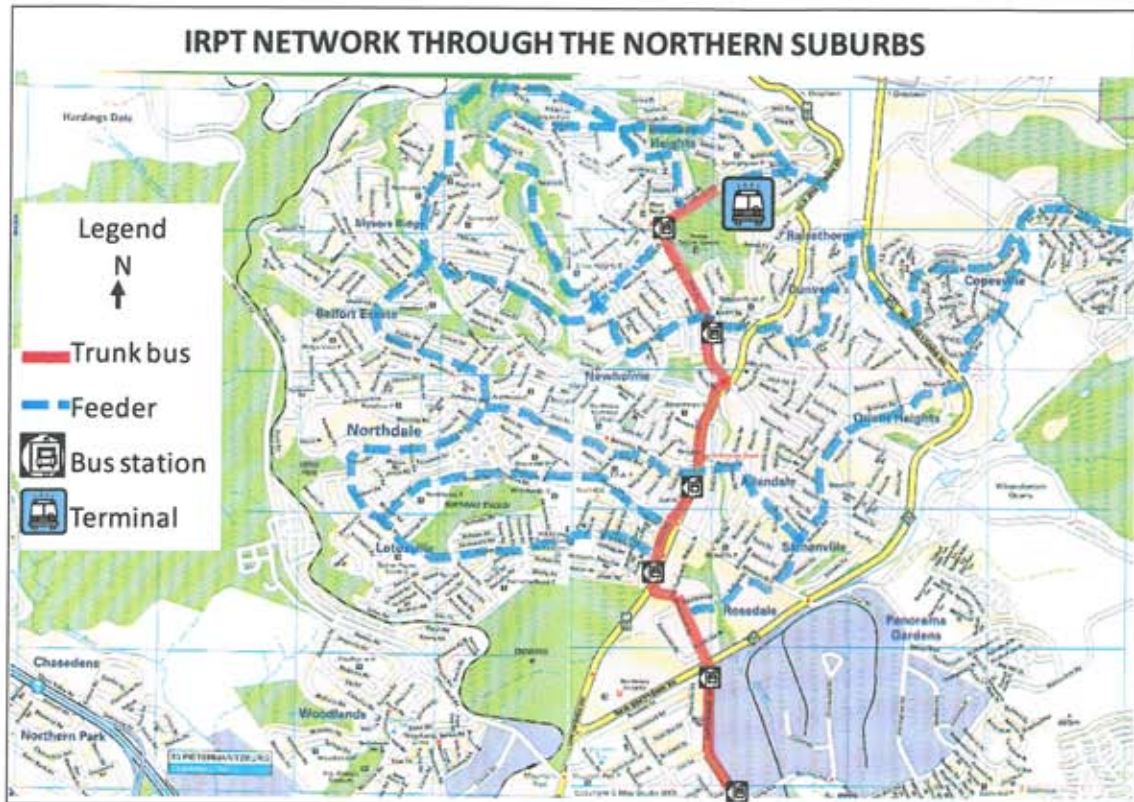


Figure 32: Proposed Phases BRT network in Msunduzi north

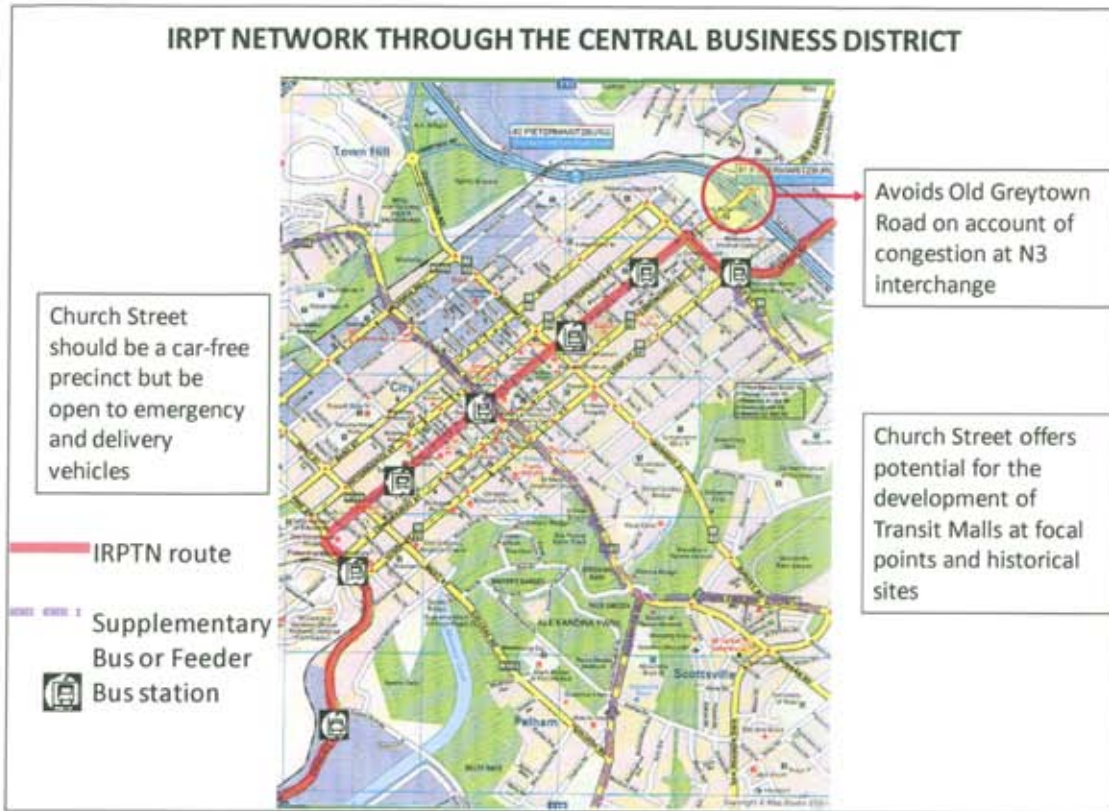


Figure 33: The BRT distribution network in Msunduzi CBD

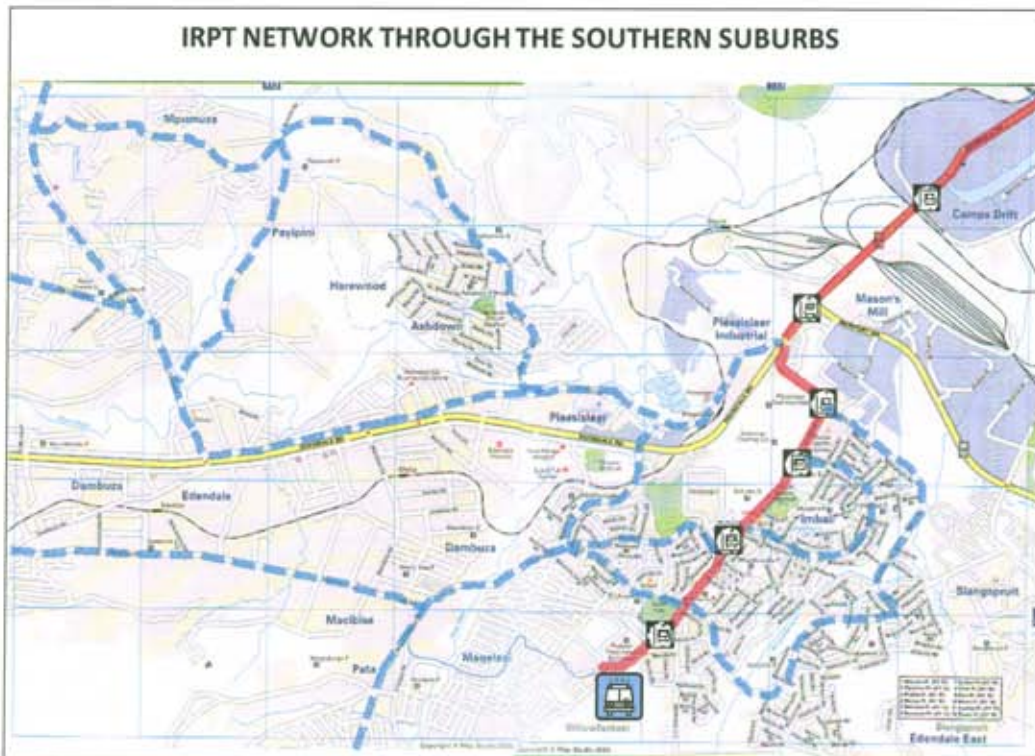


Figure 34: Proposed Phases BRT network in Msunduzi south

Phase 1A: (10.88 km) - F L Sithole Rd from the Federal Theological Seminary to Sutherland Road, Edendale Road, Keate Street and Church Street.

Phase 1B: (7.63 km) - Bombay Heights to the CBD via Bombay Road, Khan Road, Old Greytown, Manchester and Ohrtmann Roads, Manning Avenue, Larch Road, East and Church Streets.

Phase 2: Caluza Road to Old main road and Edendale Road.

Phase 3 and future phases: Swartkop Road to Mayors Walk **AND** Baynes Drift Road to Manning Avenue **AND** Sikhosana Street to Promed Road and Ohrtmann Road

Initially the Phase 2 and 3 services can function as conventional bus services, preferably within the IRPTN contracting system and with interchange terminals with the IRPTN system.

The Phase 1 proposal has been broken down to Phases 1A (Edendale) and 1B (Northdale) in order to kick start the initiative within reasonable budget limitations (Phase 1A would link the main high density settlement areas to the CBD and Phase 1B the predominantly Indian areas to the Phase 1A link in the CBD).

Phase 1A is 10.88 km and Phase 1B is 7.63 km. Phases 2 and 3 are about 17.3 km giving a total network of 35.5 km. Beyond these 3 Phases, the network could be extended to a total length approaching 70 km of full BRT trunk routes as the city expands.

Figure 32 to 34 highlight suggested positions of the trunk routes, convergent feeder services giving a maximum walking distance of 500 metres and the position of bus stations and terminals. The bus station spacing varies from 600 to 750 metres in the residential areas and is about every 500-600 metres in the CBD. Terminals (and Depots for buses) are placed at the end of the trunk line. The terminals and/or depots should be placed conveniently close together to facilitate bus layovers during off-peak periods.

Phase 1 in total represents a total of 18.51 kilometres of segregated busway infrastructure. Each phase requires approximately two years for planning and construction. The central area (CBD) routing of the BRT network can facilitate the development of a CBD distribution system. A suggested CBD routing is depicted in **Figure 33**. Fortunately, the Pietermaritzburg CBD is rectangular and the IRPTN Trunk route runs centrally through the longest parts of the rectangle. Accordingly, bus patrons from all parts of the CBD will have to walk a maximum of about 750 metres to get access to the service.

7.6 ISSUES AND CONCERNS

The following is a summary of the issues and concerns raised in Phase 1 in respect of passenger transport:

- Rising car ownership and use and declining use of Public Transport;

- Perception of lack of safety during the non-motorised part of public transport journeys;
- Non-uniformity of standards, and non-integration between modes;
- Absence of common, controlled fare structures and common signage;
- The slow pace of compliance with universal accessibility standards.

The customer attitudinal analysis undertaken in Phase 2 has highlighted a host of additional problems related to the following passenger service attributes:

- Perceptions of a lack of safety from crime on the approach to public transport services, crime at stations and on trains;
- Vehicles which are not roadworthy;
- The reckless driving and bad behaviour of minibus taxi drivers;
- Poor accessibility of stations;
- Absence of off-peak services and low frequency of services;
- Overcrowding on trains; and
- Absence of facilities at stations, interchanges, taxi ranks and at bus stops.

Passenger Operations

- With rising car ownership and use, pressure on the road network can be expected to mount considerably in the coming decades. The poor quality of public transport services influences this rise in car ownership.
- A very high 63% of scholars and workers walk to school or to their place of employment and cognisance of this is required in the provision of transport infrastructure.
- *Most households in KwaZulu-Natal have no access to public transport, or cannot afford it. Some 43 per cent of households using public transport spend more than 10 percent of their household income on public transport.*

Institutional problems – contested territory

Passenger transport experiences great difficulty in moving towards the achievement of integration and seamless public transport services because the operating space is divided and hotly contested. This contest is manifested in two ways as follows:

1. Institutional rivalry between national, provincial and municipal government authorities over planning and strategy development and control of operations and plan implementation.
2. Physical competition between modes and institutional disagreements about the role of modes particularly in the context of the contest for state funds for implementation.

8. FREIGHT TRAVEL PATTERNS AND CHARACTERISTICS

8.1 OBJECTIVE

The overarching objective of all freight transport is by definition, economic efficiency in the movement of goods, so that freight transport policy must be primarily directed at creating conditions that support that objective.

KwaZulu-Natal has the busiest freight corridors in South Africa and the objective for this province is the efficient movement of goods by sea, road, and rail to and the interior.

Provincial and National freight transport policy must be primarily directed at creating conditions that support the abovementioned objectives. The role of government has been stated in the National Freight Logistics Strategy to be:

- the provision of infrastructure
- regulation of competitive practices
- enforcement, the acceptable standards for issues such as safety, environment, employment and infrastructure usage.

The major current policy issue in freight transport is the fact that government is involved as the major supplier of services and infrastructure and that this has been inadequate to meet the demand for service.

The private sector as both supplier and user of the transport system is constrained by the fact that the government continues to be operational competitor, controller of both infrastructure supply and regulator of the operating environment.

8.2 MARKET SEGMENTS

The road freight tonnage on the main corridor routes in the province where parallel road and rail make competition possible amounts to approximately 35,0 million tonnes per annum and the rail freight is about 13 million tonnes giving rail a 27% market share.

Some general statements about market segmentation are as follows.

8.2.1 Road

There is a clear indication that goods transport is increasingly shifting from rail to road transport with resultant need for additional road funding. The trend is also causing urban congestion and has road safety and environmental implications as well as aggravating the under utilisation of existing rail infrastructure.

Market segmentation is a difficult concept to apply in the context of road freight on account of the variety of commodities carried and the huge differences in their weight and value.

8.2.2 Rail

The overall volume of general rail freight in the KZN has diminished considerably in recent years, due largely to withdrawal of services. Many commodities such as domestic and export fruit and vegetables, consumer and household goods, as well as refrigerated fish directed to Gauteng and chilled meat from the north has been transferred to road. Even some grain, fertiliser, new cars, fuel, granite blocks, containerised and coal traffic has been lost to road as railways have reduced services by about 60% on the main lines.

8.2.3 Coastal shipping

The total volume of cargo being landed and shipped by Coastal shipping at the KZN ports is approximately 2.3 million tonnes p.a., mainly fuels.

8.2.4 Pipelines

The tonnage of commodities transported by pipeline (petroleum products and gas) is 6.9 million tonnes p.a. in comparison to the 48,0 million tonnes carried by rail and road.

8.2.5 Air Cargo

As there is no standardised system in South Africa to record airfreight cargo movements, it is difficult to establish this information. The airfreight industry particularly the private charter operators, are generally unwilling to impart this information. Another factor that makes cargo tonnages difficult to assess is that substantial quantities of cargo booked as airfreight, actually travels by road transport. The estimated tonnage of air cargo handled through Durban Airport was about 6500 tonnes in 2005.

8.3 TRANSPORT DEMAND (2005)

8.3.1 Road

8.3.1.1 Sources of information

The primary source of information was:

- The SANRAL Traffic Count Year Book 2005.
- *[The latest provincial traffic data is still outstanding]*

The data from the SANRAL Year Book which was used in this Task includes the following:

- GPS co-ordinates of the counting stations where the data was collected;
- Average Daily Truck Traffic (ADTT);
- Percentage of heavy vehicles (HVs);
- Percentage of night traffic (20:00 - 06:00).

If traffic data at a permanent traffic counting station was not available for 2005, the most recent available data was used.

8.3.1.2 Method of analysis

i. National Roads

The GPS co-ordinates were used to locate the counting stations along the following national roads in the province:

- N2; From the Eastern Cape boundary (counting station at Kokstad South) to the Mpumalanga boundary (last counting station at Mlanze);
- N3; From Durban (counting station at EB Cloete East) to the Free State boundary (last counting station at Van Reenen);
- N11; From the intersection with the N3 (counting station at Ladysmith Piezo) to the Mpumalanga boundary (last counting station at Volksrust Piezo).

The ADTT values from the various counting stations were used to determine the HV traffic flows (recorded per direction where available), the directional split and HV night traffic on the different national roads. This is discussed in more detail in Alter sections.

ii. Provincial Roads

The most recent traffic counts on the provincial roads will become available shortly and will then be analysed and incorporated in an updated report.

8.3.1.3 Findings on National Roads

The findings of the HV traffic flows on national roads will be discussed separately for each national road in the following sub-sections of the report. The traffic flows are also shown diagrammatically on histograms.

i. N2 : Eastern Cape Boundary to Mpumalanga Boundary

a. Traffic Flows

For presentation purposes the HV flows on the N2 are split into two sections. The first section (shown on **Figure 35** on the following page) runs from Kokstad to Illovo River and the second section (shown on **Figure 36** on the following page) runs from Amanzimtoti to Mkuze. ***HV traffic numbers in this report represent the total number of HVs in both directions.***

The directional split of the HVs on the N2 is for all practical purposes 50/50, except at the EB Cloete Interchange where the split is 46.5(N)/53.5(S). The number of HVs increases from 762 per day at Kokstad South to 2 257 per day at Illovo River. The increase is almost linear except for a decrease at Oribi, Umtentweni and Winkelspruit. (Refer to Figure 1.) The increase in HVs per day continues from Amanzimtoti (3 233 HVs/day) to EB Cloete Interchange (6 042 HVs/day).

From the EB Cloete Interchange the HVs per day decrease sharply to 2 109 at Umdloti. Between Umdloti and Salt Rock the number of HVs per day remains almost constant and then it decreases to 770 at Mkuze. This is basically the same as the 762 HVs per day as at the start of the N2 at Kokstad. (Refer to **Figure 35**)

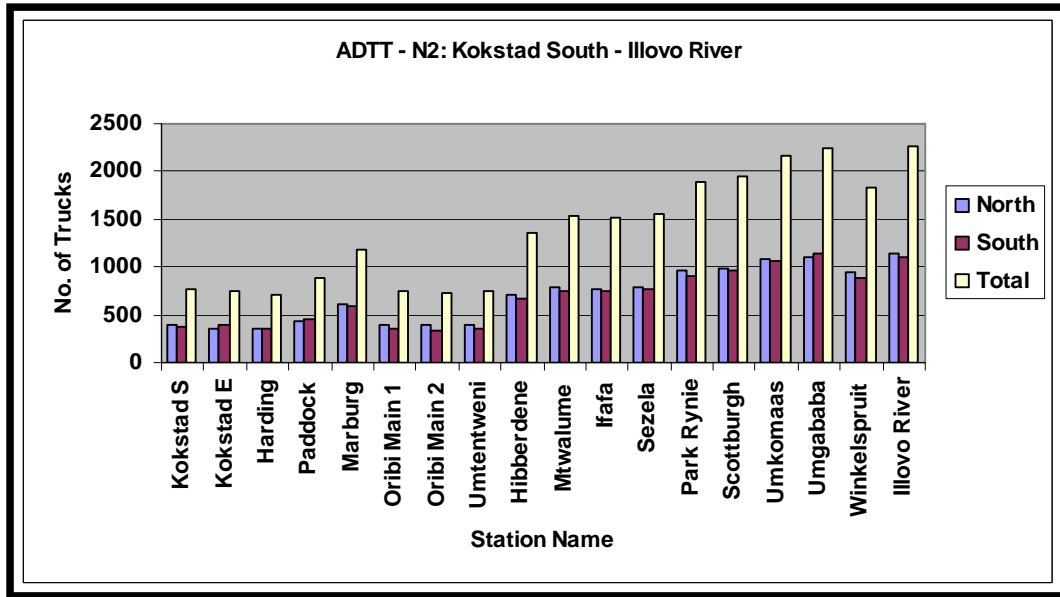


Figure 35: Heavy Vehicle Flows (ADTT) on the N2 from Kokstad south to Illovo River

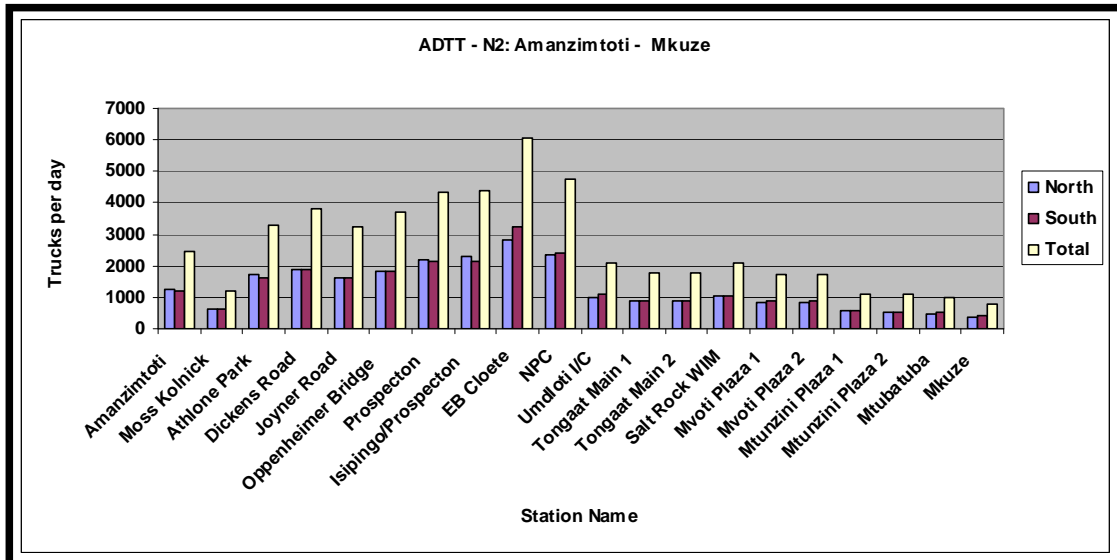


Figure 36: Heavy Vehicle Flows (ADTT) on the N2 from Amanzimtoti to Mkuze

b. Heavy Vehicles travelling at Night

The percentage of heavy vehicles travelling at night varies between 9.5% and 13.5%. There is no a definitive pattern in the variation of the percentage HVs travelling at night. The variation is similar to that on the N2 and N7 in the Western Cape which may be an indication that freight movement on N2 in KwaZulu-Natal is not over very long distances (less than 200 km).

ii. N3 : Durban to the Free State Boundary

a. Traffic Flows

For presentation purposes the HV flows on the N3 are also split into two sections. The first section (shown on **Figure 37**) runs from the EB Cloete Interchange to Sanctuary Road and the second section (shown on **Figure 38**) runs from Chatterton to Van Reenen.

The directional split of the HVs on the N3 is for all practical purposes 50/50, with the exception at the EB Cloete and Greytown Road interchanges. At the former the split is 33.5(N)/66.5(S) and at the latter it is almost the opposite with a split of 62(N)/38(S).

The number of HVs per day increases from approximately 5 000 at the EB Cloete Interchange to \pm 6 600 HVs/day at Paradise Valley. At Westmead it reaches a low of approximately 4 500 HVs/day and then increases again to approximately 6 800 HVs per day at Market Street and Greytown Road Interchanges. From there onwards it gradually decreases to 3 500 HVs per day at Van Reenen.

b. Heavy Vehicles travelling at Night

The percentage of heavy vehicles travelling at night between the E.B. Cloete Interchange and Mooi River varies (randomly) between 9% and 15.5%. There is no a definitive pattern in the variation of the percentage HVs travelling at night on this section of the N3.

From Mooi River onwards, however, the percentage of HVs travelling at night increased rapidly to 26% at Tugela Plaza. At Van Reenen the percentage was still 24.5%. This high percentage of night travel is probably an indication of long distance road freight that moves over long distances (i.e. Durban to Johannesburg).

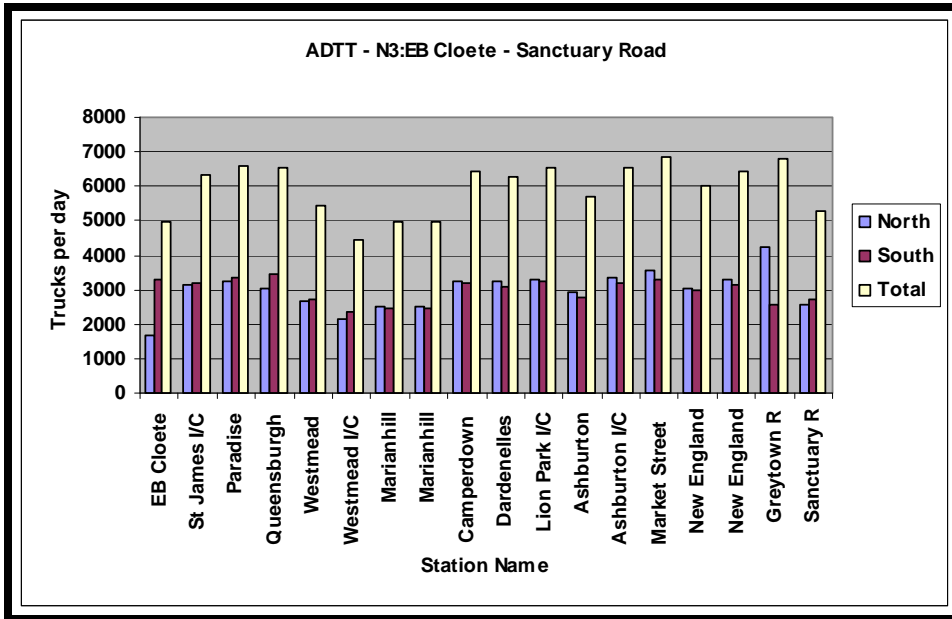


Figure 37: Heavy Vehicle Flows (ADTT) on N3 from EB Cloete - Sanctuary Road

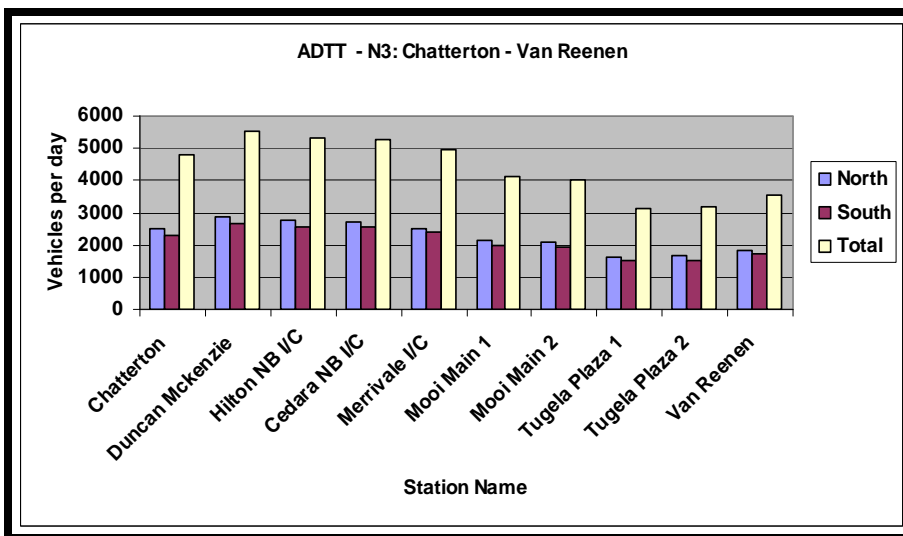


Figure 38: Heavy Vehicle Flows (ADTT) on N3 from Chatterton to Van Reenen

iii. N11 : N3 Intersection to Mpumalanga Boundary

a. Traffic Flows

Similar to the situation on the N2 and N3, the directional split of the HVs on the N11 is for all practical purposes 50/50. With reference to **Figure 39** below, the highest number of heavy vehicles per day, namely 960, is found between Elandsplaagte and

Ballengeich. The lowest HVs per day are found at Ladysmith Piezo (695 HVs per day).

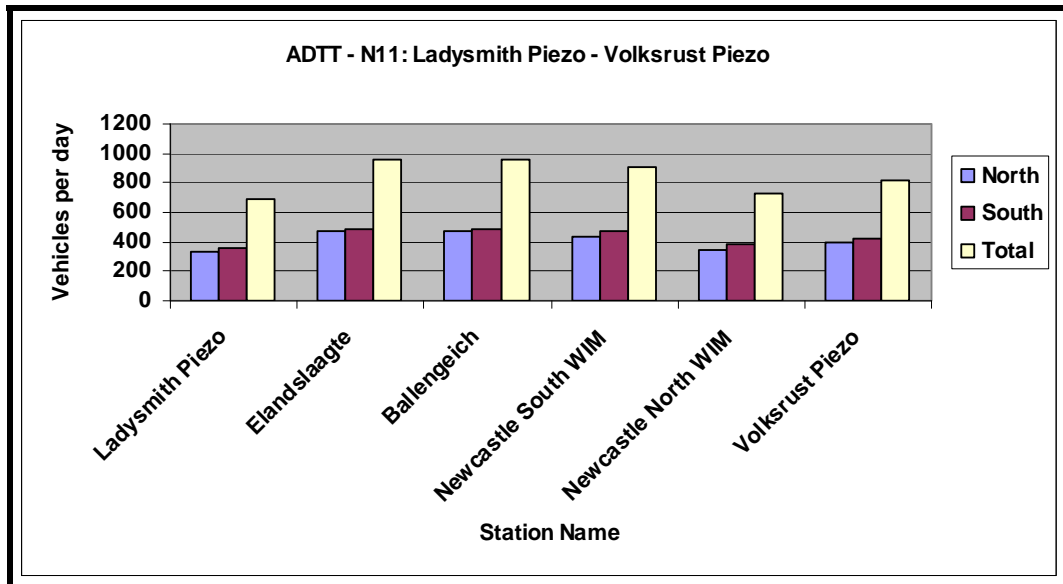


Figure 39: Heavy Vehicle Flows (ADTT) on the N11 from Ladysmith Piezo to Volksrust Piezo

b. Heavy Vehicles travelling at Night

The percentage of HVs travelling at night on the N11 increases as the distance from Ladysmith Piezo increases. At Ladysmith 11% of the HVs travel at night and this percentage increases to 18% at Volksrust. This may again be an indication that long distance road freight (Durban/Newcastle to Mpumalanga).moves on this road.

8.3.1.4 Findings on Provincial Roads

These results will be provided once the data which was recently received has been analysed.

8.3.2 Summary – Transport Demand

Transport demand occurs by mode (road, rail, air, sea and pipelines). The consumption of transport services and infrastructure is by individuals and firms. The demand for transport is mainly a derived demand, i.e., it is a means to an end such as to get to work or shops or to move goods from one place to another. Consumers of transport services base their decisions not only on price but also on factors such as trip and delivery times, convenience, comfort, safety, reliability and (in the case of goods transport) minimisation of losses in transit.

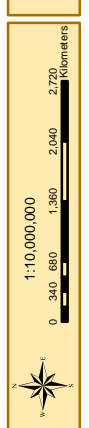
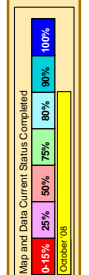
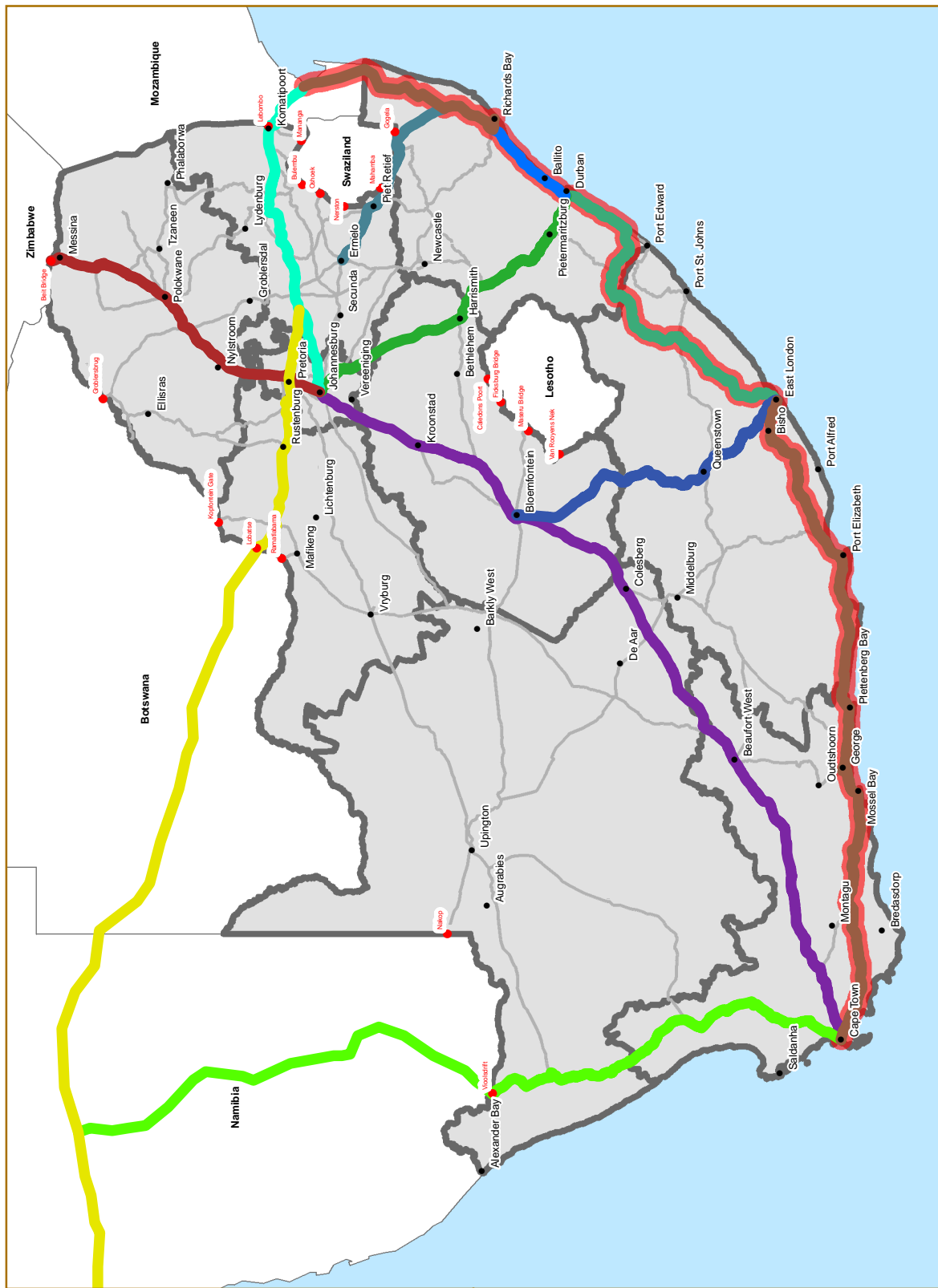
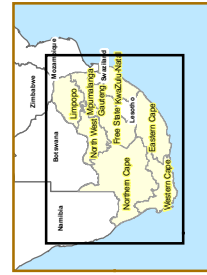
Many of the factors influencing transport supply also influence demand. Thus, a transport policy skewed in favour of one particular mode might lead to more of the infrastructure for that mode being supplied and less of the infrastructure for another

South Africa : NATIONAL FREIGHT CORRIDORS

FREIGHT CORRIDORS

NATIONAL FREIGHT CORRIDORS

- █ Cape Town to East London
- █ Cape Town to Johannesburg
- █ Cape Town to Windhoek
- █ Durban to East London
- █ Durban to Richards Bay
- █ Johannesburg to Beitbridge
- █ Johannesburg to Durban
- █ Johannesburg to East London
- █ Johannesburg to Maputo
- █ Richards Bay to Ermelo
- █ Walvis Bay - Maputo
- █ Future Coastal Corridor



LEGEND

- SANRAL Road Network
- Provincial Boundaries
- Towns

mode being supplied even though, all other things being equal, the consumer might in fact prefer more of the latter and less of the former. Because of policy and investment distortions there are also distortions in market demand.

Statistics relating to the demand for transport in the KwaZulu-Natal are as follows:

Road –

Total vehicle fleet (2006) 1087,539 (of which motor cars 692,661, minibuses 40,209, buses 5,920, motorcycles 28,435, LDVs 246,813, trucks 44,062 and other or unknown 29,439.

Volumes Available only for each survey point on the main cargo routes and not for the province as a whole.

Rail (2005/06)–

Mainlines 126 million tonnes

Branch lines 1,6 million tonnes

Port Freight Volumes (2006) –

Durban 43.8 million tonnes

Richards Bay 86.3 million tonnes

Airports (2006/07) –

Durban International 2,132,405 passenger departures

Airfreight DIA 6,375 tonnes per annum

8.4 TRANSPORT SUPPLY (FREIGHT FLOW CHARACTERISTICS AND PATTERNS)

KwaZulu-Natal has the busiest freight corridors in South Africa and the objective for this province is the efficient movement of goods by sea, road, and rail to and the interior.

Freight transport policy must be primarily directed at creating conditions that support that objective, whilst recognising the role of government in the provision of infrastructure and defining and enforcing the acceptable standards for issues such as safety, environment, employment and infrastructure usage.

8.4.1 KwaZulu-Natal Transport Modes

8.4.1.1 Road Freight

In the provincial context the road freight volumes that are of significance are:

- the volumes and characteristics of the freight entering and leaving the province on the main national corridors;

- the volumes moving on the main rural roads;
- the volumes being transported to and from the ports; and
- the volume of urban freight movement within the main cities and towns.

A total of 54 check points were surveyed, where utilising a combination of SANRAL and Provincial electronic count information and visual surveys to determine truck type and where possible commodity, a cargo tonnage per major trucking route was calculated.

8.4.1.2 Rail Freight:

Over 100 million tonnes of cargo moved through KZN during 2005 – 2006. Some 20 million tonnes ran over the general freight mainline, NATCOR – the Durban to Gauteng line; while nearly 80 million tonnes of traffic ran over the Richards Bay Coal line – a ‘heavy-haul’ railway known as Coal *Link*. There are four secondary main lines – the South Coast and North Coast lines, the Glencoe to Vryheid line and the Ladysmith – Free State line, all of which fed over 4,5-m tonnes traffic into and from the Natcor mainline. In addition, there is the Pietermaritzburg branch line cluster which fed over 775 000 tonnes of timber traffic, molasses and bulk sugar into the mainline, the Bergville branch, the Utrecht branch (not operational), the Hlobane branch and the Nkwalini branch fed an additional 600 000 tonnes.

8.4.1.3 Services and cargos on each line

i. Durban – Gauteng (NATCOR)

This is the busiest general freight corridor in the country and over 25 trains run on the route in each direction every day. This includes 80 and 100 wagon air brake trains with coal and ore. A minimum of four 50 wagon container trains are operated each day between the Durban Container terminal and the City Deep terminal. Additional container trains run to and from Sasolburg, Vaalcon and Pretcon. The Auto train runs to Kaalfontein, Cape Town and Port Elizabeth. Intermediate stations such as Pietermaritzburg, Estcourt, Ballengeich, Rooipunt and Newcastle receive and generate large volumes of rail traffic as well.

ii. The Richards Bay Coal Line

Up to 30 trains operate each way every day, most of which are 200 wagon coal trains.

The line also caters for timber traffic from Mpumalanga to various mills and chipping plants at Richards Bay and Mandini. Chrome and ferrochrome ore is also railed from Mpumalanga to Richards Bay.

iii. North Coast Line

Several trains operate on the North Coast line daily, feeding traffic to various pulp mills and export chip mills. Traffic also flows to and from Swaziland, and between Mpumalanga and Richards Bay.

iv. South Coast Line

Clinker limestone traffic is directed to the large cement plant in Durban while coal and timber traffic is received at major pulp and sugar mills on the line. The large industrial complex at Umbogintwini generates and receives various chemicals. Two end-to-end trains operate each day while several additional trains run to intermediate points. Metrorail services share the line to Kelso.

v. Glencoe - Vryheid

The Glencoe – Vryheid line is a conduit for both import and export coal with up to four trains being run every day. Coal traffic is generated at Talana station, east of Dundee. An average of four trains operates in each direction every day.

vi. Ladysmith – Free State line

This line caters for import/export traffic including chemicals and containers from Sasolburg and Vaalcon. Export and domestic grain traffic to various KZN destinations are handled by four trains a day.

vii. Pietermaritzburg Branch Line Cluster including Bergville branch

Up to eight trains are run each day on the various branch lines. The main traffic is timber to various mills on the North and South Coast, while bulk sugar and molasses is railed to various destinations in Gauteng, the Eastern and Western Cape. Maize and wheat traffic is generated as well.

viii. Hlobane branch

Two coal mines generate both domestic and export traffic on this electrified branch.

ix. Nkwalini branch

Two trains operate a day on the Nkwalini branch during the sugar season. Sugar cane is taken to the Felixton Mill, 9km south of Empangeni.

8.4.1.4 Coastal Shipping:

Durban Port is the largest in Southern Africa in terms of value of cargo handled per annum and second largest in terms of cargo tonnes handled. Of the 7 South African Ports, Durban had the most vessel arrivals during the 2006 calendar year. Altogether 4,556 vessels entered Durban harbour, which is 32% of the total arrivals of 14,191. Of these approximately 90% were ocean-going and 10% were coastal, fishing and miscellaneous. By contrast, Richards Bay received 1575 vessels but only 0,3% were coastal.

For the calendar year 2006, Durban and Richards Bay compared as follows to South Africa's other ports in terms of coastal shipping.

Table 106: Coastwise Shipping, SA Ports (Jan-Dec 2006)

Port	Cargo Handled - Landed		Cargo Handled - Shipped	
	(Tonnes)	%	(Tonnes)	%
Cape Town	493,961	16.33	309,745	8.6
Durban	163,596	5.41	2,324,510	64.6
East London	892,751	29.51	0	0
Mossel Bay	128,032	4.23	786,896	21.9
Port Elizabeth	720,631	23.82	0	0
Richards Bay	316,850	10.47	171,803	4.8
Saldanha	309,501	10.23	6,227	0.2
Total	3,025,322	100	3,599,181	100

The combined volume tonnes for all ports in South Africa with regard to coastwise landed for the 2006 are 3,025,322 tonnes and 3,599,181 that were shipped. The volume shipped from Durban port for the 2006/07 financial year is 2,324,510 tonnes of which fuel related products made up 2,257,323 tonnes and sugar 21,462 tonnes. The coastal volumes shipped from the port of Richards Bay for 2006 was 171,803 of which coal makes up 98%.

With regard to the container movement, Durban handled 2,198,600 TEU's (twenty foot equivalent unit) in 2006, of which 1,102,689 were shipped and 1,095,911 landed. Of the 1,102,689 TEU's that were shipped, 26,316 were coastwise and 251,776 were transshipment compared to the TEU's landed were 32,693 for coastal and 237,980 for transshipment.

By comparison, Richards Bay only handled 4,191 TEU's in total of which 121 landed coastally and 2 were shipped. There was no transshipment of any containers.

8.4.1.5 Pipelines:

The transportation of liquid fuels by pipelines is a major transportation undertaking in South Africa with nearly all long distance pipelines being owned and operated by the specialist pipeline division of the parastatal transportation organisation.

The products currently transported by pipeline are gas, crude oil, aviation turbine fuel, diesel, alcohol and various grades of petrol.

8.4.1.6 Pipeline network

The main pipeline network in South Africa presently spans five provinces, namely KwaZulu-Natal, Free State, North West, Mpumalanga and Gauteng.

The five main long distance pipelines are:

- the refined products pipeline, a 300 mm diameter multi-product pipeline which transports from the coastal refineries to the interior refinery at Sasolburg;
- the crude line, a 400 mm diameter crude oil pipeline which conveys product from the coast to the Reef storage and inland refinery. A branch from this line enters Mpumalanga to the north of Vrede and terminates at Secunda;
- the gas line, a 450 mm diameter pipeline which transports gas from Secunda to KwaZulu-Natal, via Empangeni to Durban;
- the AVTUR (Aviation Turbine Fuel) pipeline, a dedicated 150 mm diameter pipeline which transports Avtur from the refinery in Sasolburg to Johannesburg International Airport;
- the Temane – Secunda Gas Pipeline; and
- in addition there are refined product pipelines from Secunda to Witbank, via Kendal (where there is a base for strategic reserves), Meyerton – Alrode (and the Gauteng and North West network), and to Coalbrook (Sasolburg).

There is only one commercial pipeline operator in South Africa operating high pressure underground pipelines. These pipelines are at least 1 metre underground.

8.4.2 Commodities and Tonnages

Total liquid products tonnages (combined) moved on the pipelines amount to approximately 16,8 billion litres per annum.

i. Crude Oil:

Approximately 5 billion litres of crude oil per annum is moved on this pipeline. Crude oil is moved from Durban to the NATREF refinery in Sasolburg.

ii. Refined Products:

These include petrol, diesel, and synthetic fuel. A total of approximately 9,8 billion litres of refined products per annum is moved. Most of these products are transported from Durban to Gauteng – via Ladysmith and the Free State.

iii. Jet Fuel (also a refined product):

PETRONET uses a dedicated jet fuel pipeline from NATREF to OR Tambo International. A total of 1,2 billion litres per annum is moved on this line. Approx. 200 million litres of this is moved from Durban refineries to O.R. Tambo International.

iv. Gas Pipeline:

The gas pipeline runs from Secunda to various places in KZN, including Newcastle, Richards Bay and Durban refineries via Empangeni. A total of 14 MGJ (million giga joules) is moved on this pipeline per annum.

All liquid products are transported via pipeline to their customer's storage tanks, and from there are distributed by their customers via road using tankers.

8.4.2.1 Constraints

Pipelines are running at near capacity – especially the Durban Gauteng line. A new 24 inch pipeline is needed, and will cost approx. R9,4 billion rand.

8.4.3 **Airfreight**

As there is no standardised system in South Africa to record airfreight cargo movements, it is difficult to establish this information. And, the airfreight industry, particularly the private charter operators, is generally unwilling to impart this information. Another factor that makes cargo tonnages difficult to assess is that substantial quantities of cargo booked as airfreight, actually travels by road transport.

8.4.3.1 Durban

The movement of airfreight in KwaZulu-Natal is confined mainly to the operations at the Durban International Airport. A small amount of freight volumes is carried at DIA compared to the two other major airports in South Africa, namely the Cape Town International Airport and the O.R. Tambo International Airport. Currently, only 6375 tonnes of freight is being moved at DIA, in addition to the goods associated with passenger movements.

There are two main reasons for this low volume of freight.

Firstly, the airport has no intercontinental capability; therefore most air cargo from KZN is transported by road to meet international flights to and from R.S.A. at O.R. Tambo International.

Secondly, the airport's runway is only 2, 439m long, which is too short for a fullyladen large aircraft to take off with sufficient fuel to reach a long-haul destination.

Thirdly the airport has no dedicated freighter service as there has been insufficient cargo demand begin generated to warrant dedicated services in and out of Durban at present.

8.4.4 **Import-Export Shipping Cargoes:**

8.4.4.1 Port of Durban

In the calendar year of 2006, the Port of Durban handled a total of 4566 vessels. The total amount of tonnage handled was 43,861,241 tonnes, of which 35,876,822 tonnes was bulk cargo and 7,984,419 tonnes break-bulk.

- i. Exports amounted to 10,673,394 tonnes of which bulk cargo made up 7,140,512 tonnes, and break-bulk 3,532,882 tonnes. Of the bulk cargo that was shipped, 2,302,449 tonnes moved along the coast [mainly fuels].). Most of the exports were made up of coal (1,199,128 tonnes), vehicles (1,030,590 tonnes) and steel (1,287,357 Tonnes).

In 2006 1,102,689 TEUs that were shipped, 26,316 were coastwise and 251,776 were transshipment

- ii. Imports amounted to 32,892,427 tonnes of which break-bulk made up 4,312,182 tonnes and bulk cargo 28,580,242 tonnes. 157,556 tonnes of the bulk cargo that landed was coastal. For the 2006/07 financial year, 22,013,996 tonnes of petrol and petroleum gas was imported. There were 2,445,680 tonnes of vehicles on own wheels (Ro-Ro only). In 2006 containers amounted to 1,095,011 landed, of which 32,693 were coastal and 237,980 for transshipment.
- iii. The break-bulk transshipment of cargo was 295,420 tonnes.

8.4.4.2 Port of Richards Bay

In the calendar year of 2006, the Port of Richards Bay handled a total of 1 575 vessels. The total amount of tonnage handled was 86,319,200 tonnes, of which 81,384,838 tonnes were bulk cargo and 4,934,362 tonnes break-bulk. Richards Bay only handled 4,191 TEUs in total of which 121 landed coastally and 2 were shipped. There was no transshipment of any containers.

- (i) Exports amounted to 80,050,728 tonnes of which bulk cargo made up 75,075,617 tonnes, coastwise 171,803 tonnes and break-bulk 4,803,308 tonnes. For the 2006/07 financial year, 63,450,607 tonnes of coal, 3,728,948 tonnes of woodchips and 2,798,517 tonnes of ferro-alloys was exported.
- (ii) Imports amounted to 6,268,335 tonnes of which break-bulk made up 130,917 tonnes and bulk cargo 6,137,418 tonnes. 316,850 tonnes of the bulk cargo that landed were coastal. Most of the imports were made up of aluminium, 1,560,662 tonnes and 1,661,553 tonnes of coal.
- (iii) The transshipment of cargo was only 137 tonnes.

Detailed analysis of import – export volumes by commodity are included in the NATMAP freight database.

8.4.5 Provincial Transport Corridors

KwaZulu-Natal has 4 main corridor routes;

- the N2 national route from the Eastern Cape to Durban.[which has no parallel rail route, but experiences a small amount of competition from coastal shipping];
- the N3/N11 national routes that, with parallel rail lines provide the linkage between the Gauteng industrial complex [and the Southern African interior], and the ports of Durban and Richards Bay;
- the N2 national route from Durban via Richards Bay and Piet Retief to the interior; and
- Coal-link rail line.

8.4.5.1 Unimodal Routes

- i. **N2 South** – The N2 south is a unimodal route carries approximately 4,0 million tonnes of cargo with 2,5 million tonnes eastbound [into the province] and 1,5 million tonnes to the west.
The main commodities identifiable are perishables and sugar, steel, fuels, vehicles and foodstuffs.
- ii. **Coallink rail line** – The rail line from Mpumalanga to Richards Bay carries approximately 80 million tonnes per annum of mainly coal and timber. As there are no directly parallel road routes it can be considered to be a unimodal route. It is however possible to move cargo between points on the line by road on the N2 via Piet Retief and on the R33 via Vryheid.

8.4.5.2 Multimodal Routes

- i. **N3** - The annual tonnage of road freight on the N3 amounts to approximately 30,0 million tonnes with approximately equal quantities to the north and south. The tonnage fluctuates at various points on the route between about 45 million tonnes at Mariannhill and 22 million tonnes at Villiers.

The main commodities are imported manufactured goods, coal, cement, perishables, fuels, vehicles and machinery, containers, grains and timber as well as a wide range of foodstuffs and industrial cargo.

The volume of rail freight on all the main rail lines in KwaZulu-Natal has reduced considerably over the past 10 years, due largely to the railway policy of concentrating on “profitable” traffic. Many commodities such as timber, coal, fertiliser, sugar cane, sugar, molasses, steel and containers have been largely transferred to road transport.

There are currently 8 - 10 goods trains per day on the mainline to and from Durban. On the main line from Gauteng to Durban there is approximately 8.0 million tonnes of cargo transported to the south and 2.5 million tonnes to the north.

8.4.6 **Tonnage on Main KwaZulu-Natal Routes by Commodity 2005**

8.4.6.1 N2 North

The N2 corridor carries an annual volume of road freight of about 5,0 million tonnes with approximately equal volumes in each direction, on the section between Durban and Richards Bay. This reduces to about 3 million tonnes on the rest of the route to the north of Richards Bay.

The main commodities are coal, general foodstuffs, perishables, timber, fuels [including Swaziland], and unspecified containerised cargo.

The estimated tonnage on the rail line between Durban and Richards Bay is approximately 3,0 million tonnes with 1,6 million tonnes to the north and 1,4 million tonnes to the south. The main commodities are timber, coal, railway ballast material, fuel, chemicals and sugar.

8.4.6.2 Rural Routes

For lack of O&D information it is not possible to estimate the exact tonnage of road freight on rural routes, but there are significant volumes being transported from coal producing areas in Mpumalanga and KZN, local haulage of sugar cane and timber, food, fuel, fertiliser, and feeds. There is very extensive distribution of a wide range of commodities from central distribution warehouses and depots in Durban to all areas of the province, including groceries, beer, drinks, fuels and industrial supplies.

On the branch lines in KwaZulu-Natal there has been a continuing shift of cargo from rail to road due to service and tariff considerations.

8.4.6.3 Road Freight to Ports

The annual volumes moving to and from the 2 main ports by road are estimated to be approximately 38.0 million tonnes of which the major portion is containers, steel, and timber as well as short haul local deliveries. A more recent development has been the increasing use of large road tippers to deliver and collect minerals, coal, grains and other bulk commodities to and from ports; this traffic is also sometimes connected to the containerisation of bulk commodities at the port terminals.

8.4.6.4 Urban Road Freight movements

The volume of urban freight movement is impossible to establish accurately as the movement of vehicles on the network permits unavoidable double counting of vehicles. To obtain a realistic estimate it would be necessary to combine the Durban-Pinetown –Pietermaritzburg areas. It can however be reliably stated that the increasing use of road for long haul cargo is aggravating the levels of traffic in urban areas and adding to congestion and road damage.

8.4.7 Summary – Transport Supply

Transport supply consists of physical infrastructure and equipment. Physical infrastructure refers to, for example, roads, railway track and stations, bridges, airport runways and terminals, and docks. Equipment embraces vehicles, locomotives and rolling stock, traffic control, cranes, etc.

Physical infrastructure tends to be supplied overwhelmingly by various tiers of government, including parastatals. The most pressing problems in freight transport are caused by the fact that in South Africa the major proportion of capital equipment and transport services are supplied by the public sector.

The government is responsible for making decisions on investment and the decisions are mainly influenced by the political process (especially in public-sector investment), and the official assessment of economic conditions (including the trade cycle and perceptions about political and economic stability), and economic policies (especially policy consistency, government regulations and the availability of funding in relation to the overall demands on government spending. The decision process is too slow and totally unresponsive to the real world demand by industry and the import-export trades within the economy

Although the supply of transport is located in both the public and private sectors, the influence of government is overwhelming: it is the direct provider of services and infrastructure, levies taxes, pays subsidies, and sets regulations.

The government involvement complicates the issue of resource allocation. If the price mechanism is not used as the basis for allocating transport services, [notwithstanding policy distortions in the form of taxes, subsidies, failure to recover full costs of infrastructure, etc] the resources are not allocated optimally among modes and competition is restrained or eliminated, with resultant inefficiency.

The supply of infrastructure by the public sector is determined by project appraisal in which cost-benefit analysis distinguishes between financial and economic viability. The former examines the project from the point of view of the investor/operator, and the latter from the point of view of society as a whole. Thus, a project that produces an acceptable financial return might not meet the minimum required economic return once externalities such as accidents, congestion, air and noise pollution, and other environmental effects are included in the analysis. In relation to demand for transport the process is too divorced from the real world of economic activity and as a result the South African freight transport system has become very expensive and is riddled with distortions and constraints on performance of the necessary tasks to support industrial growth and competitiveness.

The supply of transport in KwaZulu-Natal is shown by the following statistics:

Roads –

- surfaced 6 656km
- unsurfaced 18 943km
- weighbridges 16

Railways –

- mainlines 777km
- secondary mainlines 678km
- rural branchlines 875km
- suburban/metro 208km

Pipeline –

- KwaZulu – Gauteng 3 000km

Airports –

- International 1
- other (numerous smaller airports and landing strips)

Ports –

- major 2
- other (small fishing harbours)

8.5 ISSUES AND CONCERNS**8.5.1 Bottlenecks**

- The road access to the port is congested and needs urgent capacity expansion.
- The existing rail system to the container terminal is barely adequate for present volumes and needs upgrading if there is to be increased use of rail.
- The container terminal lacks capacity, and is in need of urgent redevelopment and modernisation.

The current planning process does not provide adequate future capacity for break-bulk and general cargo and is not integrated with the needs of the logistics markets, major industries, shipping lines and the plans of eThekwin city.

- The primary road providing access into the Richards Bay harbour is the John Ross Highway. This road is being upgraded to relieve congestion and increase capacity.
- The movement of road freight between Gauteng and Richards Bay is not efficient due to the lack of a direct road route. If there is to be future growth of break-bulk and container services there will be a need for extensive planning and investment in road infrastructure.
- The capacity and operational efficiency of the main Coal link rail line is limiting the potential for coal exports. A considerable amount of upgrading and replacement of rolling stock is required.

8.5.2 Concerns

The rail system for general and containerised traffic is totally under utilised. The system will need extensive upgrading and expansion if currently proposed levels of port throughput are to be accompanied by increased use of rail.

The container terminal at the port of Durban, which is already subject to lack of capacity, has limited expansion potential on its present site and the development of additional capacity is being impeded by planning delays and lack of inter-organisational coordination.

A further concern is that the current planning process for the development of the port of Durban does not appear to provide adequate future capacity for break-bulk and general cargo.

8.5.3 Infrastructure / Service gaps

The road into Richards Bay [John Ross Highway] is being upgraded to relieve congestion and provide more capacity.

The road access to Richards Bay is not efficient due to the routing of the existing main roads and there is future need for a more direct road route from the port to the interior, if break-bulk and container services are to be promoted in the port.

There is increasing concern regarding the need for road maintenance on most of the provinces roads in the absence of adequate funding.

8.5.4 Modal Competition

There is high level of competition between road and rail on the multimodal corridors with a continual erosion of the rail market share due to costs, operating policies, speed of delivery, service and safety considerations. In addition the branch line system of the province continues to lose tonnage of timber and other commodities to private road carriers.

9. INSTITUTIONAL STRUCTURE

9.1 OBJECTIVE

The Department of Transport in September 1996 published Government's policy on transport in a document entitled the White Paper on National Transport Policy (White Paper). The policy provides a basis for transport to play a more strategic role in social development and economic growth. The broad goal of transport is the smooth and efficient interaction that allows society and the economy to assume their preferred form. To play this role, policies in the transport sector must be outward looking, shaped by the needs of society in general, representative of the needs of users or customers of transport and in support of the economy.

The purpose of this report on the institutional parameters as related to transport in South Africa is to list and provide a summary of the relevant and applicable institutions related to the transport sector and related transport infrastructure, as well as all ancillary matters legislatively connected therewith and to provide a framework within which the Master Plan can develop. Transport infrastructure comprises all physical elements upon which transport operations take place. It includes roads, railways, airports, harbours, pipelines, interchange facilities, and the associated dedicated power and communication systems.

9.2 NATIONAL OVERVIEW OF INSTITUTIONAL STRUCTURE

There are essentially four components to the institutional segment of the NATMAP, each of which will be elaborated on further and tasks assigned, namely:

- General Institutional Overview, including the transport-related roles and responsibilities of the three spheres of government;
- Institutional parameters per transportation mode from a national perspective, focusing on the status quo, cross border issues and international best practice;
- Unique institutional issues per province;
- Issues having an impact on transportation and the institutional implications, including:
 - Land use and land use systems
 - Environmental management practices and processes
 - Social dimension, including empowerment, broad-based black economic empowerment and labour issues
 - Fiscal issues
 - Human resource relationships, with the focus being on the DoT and its ability to manage the existing and proposed institutional framework
 - Regional structures and their functions and related institutional relationships, including SADC and SACU.

- The institutional analysis will firstly be on the transportation lifecycle in relation to public sector infrastructure. The institutional analysis will be in terms of the categories detailed below. The stages of the lifecycle include:
 - Provide
 - Own
 - Operate
 - Management
 - Regulate
 - Maintain
- Secondly the analysis will be on a public operator at national or provincial level.

9.2.1 Institutional Policy Principles

- **Role of the Government** – focusing on policy and strategic planning including substantive regulation, and reducing its direct involvement in operations and the provision of infrastructure;
- **Institutional Principles** – addressing arrangements for the various relationships among all spheres of government as well as the structure for non-governmental and statutory transport bodies;
- **Inter-governmental Matters** – the National Government will co-ordinate certain functional areas of transport that provide for joint responsibilities, such as the SADC-SATCC Protocol on Transport, Communications and Meteorology as well as the Constitution on areas of concurrent national and provincial legislative competence;
- **Statutory Bodies** – the Government has established several commercial statutory organisations to provide service delivery functions. In relation to aviation, the organisations Transnet (South African Airways (SAA)), the Airports Company South Africa (ACSA) and the Air Traffic and Navigation Services Company (ATNS) play a key role in the transport system;
- **Arms-length Government Agencies** – certain government functions can be more efficiently and cost-effectively undertaken in specialised environments, giving higher levels of service. The user pays directly or indirectly for these services and they are run on commercial principles. The South African Civil Aviation Authority (SACAA) specialising in and regulating aviation safety and security, illustrates this principle;
- **Implementing Regulating Bodies** – various independent regulatory bodies (but funded by government) have been established in the transport sector. For civil aviation, the regulatory bodies are the Regulating Committee responsible for the economic regulation of ACSA and the ATNS Company, the Air Services Licensing Council (ASLC) and the International Air Services Council (IASC) respectively responsible for licensing domestic and international air transport services;

- **Financing Principles** – a distinction is made between –
 - Elements of “economic” infrastructure and operations which provide a measurable economic or financial return, such as airports, where the user-pays principle or cost recovery directly from users will be applied as far as possible. This category also includes financially viable freight and passenger operations such as air transport services which should be run on commercial principles;
 - Funding could be in the form of appropriations, grants or subsidies to achieve an equitable distribution of resources, or as an incentive to provide services which are desirable in a broader social context. It is recognised that the current funding of aviation infrastructure in terms of this principle is inadequate. In all cases of government funding, the return on investment (whether financial, economic or social) of monetary and other resources must be justifiable;

- **Principles of Regulation** – basically this is a form of Government intervention, and the intention is to regulate only where it is essential. The Government will apply different forms of regulation to provide for inter alia the regulation of monopolies, competing operators and the provision of services under contract;

- **Human Resource Development** - the human resources needs of the transport sector are of a multidisciplinary nature. Neither the public nor the private sector has the people, skills or technological knowledge to implement fully this policy framework, manage the system envisaged, and so achieve the vision for transport. Government and the private sector will move towards a culture where labour is seen as a resource that needs to be developed; and

- **Black Economic Empowerment (BEE)** – implementation of the principles formulated in terms of the strategic objectives contained in the Government's policy and legislation designed to integrate black people of South Africa in the broader economy.

9.2.2 Institutional Parameters per Transport Mode

9.2.2.1 Roads

Efficiency in the provision, maintenance and operation of the primary economic road infrastructure network will be facilitated by a professionally managed Roads Agency (SANRAL) with a Board of Control consisting mainly of users from the private sector. The primary road network should preferably be financed through dedicated levy on fuel and toll charges. Further innovative ways of securing finance for the development of road infrastructure will be explored, such as Build-Operate-Transfer (BOT) or Fund-Rehabilitate-Operate-Maintain (FROM). Other rural and inter-city and urban infrastructure will be the responsibility of provincial and local authorities and be funded from a variety of tax sources.

9.2.2.2 Railways

Rail is seen as an essential long-term component of the network for both freight and passenger transport. The provision and maintenance of rail infrastructure for bulk and general cargo, and for inter-city passenger transport, will be determined by market needs and commercial viability. The national transport authority will own the commuter rail infrastructure, rolling stock and land associated with rail reserves, until the provincial or metropolitan transport authorities are able to take over this responsibility.

In terms of Schedules 4 and 5 of the Constitution, rail matters are not mentioned and the regulation of railways is thus a competence of the national government unless functions are specifically assigned to the provinces by national legislation (section 104) or the aspect concerned can be brought within the scope of the matters listed in Schedules 4 or 5. For example, provincial competencies in relation to the Gautrain Rapid Rail Link Project (Gautrain) are found within the function of “public transport” listed in Schedule 4. The Constitution also provides that national functions can be assigned to other spheres of government by legislation or agreement.

9.2.2.3 Airports

The continuation of the Airports Company to provide and manage the airport infrastructure at the former State Airports is confirmed. South Africa also has many smaller airports and aerodromes, many of which are not viable, or duplicate others close by. Airports should in future be developed in accordance with an integrated national airport development master plan.

9.2.2.4 Seaports

A port authority (or authorities) with specific responsibilities for the maintenance and development of port infrastructure should be in place. The port authority should be independent of any port operating entity (or entities) and the principle of competition within a port is supported. As a monopoly the port authority must be regulated by an independent regulator.

9.2.2.5 Pipelines

A network of liquid and gas pipelines will be developed based on needs, which will be operated as a utility and regulated by government.

9.2.3 Unique Provincial Institutional Structures

The intention is to only elaborate on the unique institutional structures that are in operation in the respective Provinces, as detailed below, in Chapter 9.3. The institutional assessment for the NATMAP is focused on the national institutions as well as changes that would be required nationally to enable the NATMAP to be implemented over the designated 50 year period.

9.2.4 List of Policies Reviewed

- The White Paper on National Transport Policy, 1996
- The Moving South Africa Action Agenda, 1999
- The National Freight Logistics Strategy, September 2005
- DoT: The Road to Safety 2001 -2005 November 2001
- DoT: South African Road Safety Strategy 2006 - Strategic Plan for Road Safety 2006 - 2012 - Operation Jika
- National Land Transport Strategic Framework, 2006
- The Public Transport Action Plan, 2007
- Strategy for South Africa, 2003
- Public Transport Strategy, 2007

9.2.5 List of Other Documents Reviewed

- Planning requirements published in terms of the NLTTA
- Road Traffic Management Corporation - First Business Plan 2005 - 2006
- MINMEC Report on the Road Traffic Management Corporation, 2005
- RTMC Road Traffic Report - 10 January 2006

9.2.6 Conclusions and Issues of Concerns

The issues of concern will be elaborated upon order to take institutional process further in the coming NATMAP phases.

There are numerous Acts, policies, discussion papers, plans, reviews and other documents regarding transport in South Africa. The institutional inventory has focused on determining the institutional structures of the various national transportation entities, as categorised in the six transport sectors.

9.3 INSTITUTIONAL STRUCTURE IN THE PROVINCE OF KWAZULU-NATAL

9.3.1 Departments/institutions responsible for transport matters

9.3.1.1 The KwaZulu-Natal Department of Transport

The Province of KwaZulu-Natal has a Department of Transport (KZN DoT) that is responsible for the administration and regulation of provincial transport. The Department's responsibility includes the construction, maintenance and control of the provincial road network. They also regulate, manage and control public and freight transport, traffic, registration and licensing of vehicles and drivers. The Department

has a regulatory authority Directorate that provides staff for the Provincial Public Transport Licensing Board and the Provincial Transport Registrar.

The Department is structured according to the functional areas of its mandate. It has an MEC as the political head and a Head of Department (HoD) as the administrative head. The Department has the following six chief directorates:

1. Financial Services, whose primary responsibility is to provide the Department with necessary support in the utilization of government resources including budgeting;
2. Corporate Services that comprises of professional support from legal services, human resources, labour relations, technology transfer and motor transport services;
3. Strategic Planning has a responsibility to ensure the development and implementation of the strategic objectives of the Department;
4. Implementation is responsible for the implementation of the departmental programmes that include construction and maintenance of road infrastructure, law enforcement, corporate governance, licensing of vehicles and related responsibilities;
5. Public and Freight Transport is responsible for the management and control of public and freight transport in the Province including the National Taxi Recapitalisation Programme, programmes emanating from public transport plans, integration of the minibus taxi industry into the public transport subsidy system as well as liaison with other statutory bodies; and
6. Public Safety and Communication is responsible for the management and control of traffic control and traffic policing. This Chief Directorate is also responsible for educating the public about road safety. Lastly, they liaise with other provinces sharing common borders with them on matters of common concern.

As indicated above, the Public and Freight Transport Branch of the Department is responsible to manage the bus subsidy system. This system was originally administered by the DOT, and administration of the relevant funds was transferred to the provinces around 1996. The Province thus inherited a number of interim contracts where subsidies are paid to operators on the difference between the economic fare for multi-journey passengers and the cost per passenger kilometre (CPPK). These contracts are supposed to be tendered on their expiry in terms of the NLTTA, but are renewed on a monthly basis pending a revamp of the system. There are also some "current tendered contracts" in existence that were put out to tender on a net-based revenue kilometre system before devolution of the function to the provinces.

At present the Department administers payment of the subsidies and monitoring of the contracts. Substantial sums of money are involved. In terms of the NLTTA the eThekweni Transport Authority must take over this function for its transport area, i.e. be allocated the money for subsidies in its area that are currently administered by the provincial Department. The DoT's Public Transport Action Plan (February 2007) provides for a phased transfer of the bus subsidy system to a system of integrated

transport networks. It proposes that the transport authority or metropolitan authority responsible for public transport planning should also be responsible for managing and paying the subsidies, to facilitate rationalisation of services and integration of modes.

9.3.1.2 The KwaZulu-Natal Public Transport Licensing Board

The KwaZulu-Natal Public Transport Licensing Board (KZNPTLB) was established by section 23 of the KwaZulu-Natal Public Transport Act 3 of 2005 which came into force on 1 July 2006. The former Provincial Operating Licensing Board was established in terms of section 77 of the NLTTA. The Board is made up of not more than five members appointed by the MEC in terms of section 25 of the KZN Act. The Board consists of the following:

- a qualified attorney or advocate;
- a person with extensive commercial and financial expertise;
- a person with expertise or knowledge of the public transport industry;
- two persons recommended by a commuter representative body; and
- at least one female conforming to the above profiles.

The Board is supported by administrative staff appointed by the HoD in terms of and subject to the laws governing the public service. The Board reports to the MEC responsible for public transport.

The main function of the Board is to regulate the provision of public passenger road transport and, in particular, to deal with applications for operating licenses and related matters.

9.3.1.3 The KwaZulu-Natal Provincial Transport Registrar

The Provincial Transport Registrar is appointed by the MEC in terms of section 82 of the KZN Public Transport Act. The MEC, after consulting the Registrar, may appoint a panel of assessors in terms of section 89 of that KZN Act. The Registrar is supported by administrative staff appointed by the HoD in terms of and subject to the laws governing the public service. He or she reports to the MEC.

The functions and duties of the Registrar are as conferred and imposed by Chapter 8 of the KZN Public Transport Act. The functions are to receive, consider and decide upon applications for the registration of associations and their members and of non-members operating minibus taxi-type services. In terms of Chapter 9 (section 104) the MEC may make regulations to register associations, their members and operators of other modes, which should be broadly based on Chapter 8 of the Act.

9.3.2 Unique provincial institutions

KwaZulu-Natal is unique at the moment in having the country's only transport authority (TA). Other municipalities, e.g. Tshwane, are in the process of establishing

transport authorities. As a TA is essentially a municipal structure, this is dealt with under the section on municipalities below. Another “unique” structure is the KZN Transport Appeals Tribunal, although some other provinces have also established provincial Appeal Tribunals. The Appeals Tribunal is dealt with below.

9.3.2.1 The KwaZulu-Natal Appeals Tribunal

This Tribunal was established by Chapter 6 of the KZN Public Transport Act 3 of 2005. It consists of three members, two of whom must be attorneys, advocates or High Court judges, and the third must have at least five years’ experience in the public transport industry. Its function is to hear appeals from decisions of the Public Transport Licensing Board and the Transport Registrar relating to intra-provincial transport (the national Transport Appeal Tribunal hears appeals relating to interprovincial transport)..

9.3.3 Municipalities in KwaZulu-Natal

Section 156 of the Constitution provides for the powers and functions of municipalities. The Constitution also provides for instances where the municipalities have concurrent competence with national and provincial spheres of government. These aspects are dealt with in the section on the role of municipalities and other spheres in general.

9.3.3.1 The eThekweni Metropolitan Municipality

The Province of KwaZulu-Natal has one metropolitan municipality, the eThekweni Metropolitan Municipality. The metro is a Category A municipality and is constituted by forty towns/districts.

9.3.3.2 The eThekweni Transport Authority

The eThekweni Metropolitan Municipality has established a Transport Authority, the only transport authority currently operating in the country.

The eThekweni Transport Authority (ETA) was established as a juristic person by means of a founding agreement concluded in terms of the NLTTA. It has a governing body composed of three councillors. The administrative, technical and professional management of the transport authority is provided through the Transport Executive that is a municipal department of the Metro. The Transport Authority comprises a Public Transport Department, a Strategic Transport Planning Department and a Road System Management Department. It has three branches:

Traffic Operations, whose primary function is to investigate road safety and operational problems raised by the public regarding road markings, traffic signs, parking meters, crash barriers and other related matters. The other function of the Traffic Operations branch includes providing for public transport facilities such as bus and taxi ranks.

Traffic Studies is responsible for the provision of traffic and transportation data as well as traffic engineering research;

Traffic Management is responsible for the facilitation of free flow of traffic on roads in the metro.

The eThekweni Transport Authority has its own challenges that include problems presented by the fact that the three councillors constituting the Governing Body are all members of the mayoral committee of the eThekweni Metro and includes the Executive Mayor. It is reported that these councillors have too many other duties to be able to devote sufficient time to transport matters.

The lack of dedicated funding sources is cited by the ETA as a major problem. This makes it difficult to do long-term planning and to support sustainable projects. The ETA is dependent on the three spheres of government to allocate funds for its functions. It has no powers to raise its own funds, such as existed under section 21 of the Urban Transport Act, 1977. It received some start-up funding from the DoT but needs sustainable sources. The revision of the NLTTA is considering providing for own funding sources for transport authorities.

Another challenge is a challenge presented by municipal legislation, mainly the recent amendments to the Local Government: Municipal Systems Act 32 of 2000 by the Local Government: Municipal Systems Amendment Act 44 of 2003. This Act creates confusion regarding the definition of a municipal entity and how it may be constituted. Councillors may not be directors of a municipal entity. However, a reading of the definition of “municipal entity” reveals that it is a private company or service utility, neither of which includes a transport authority. A bigger problem is section 86B, which provides that no municipality may establish any corporate body of any kind unless it is a municipal entity. These issues call into question the status of the Transport Authority and will have to be clarified in the proposed replacement legislation to the NLTTA.

The interlinkages between the ETA, the eThekweni Metro, SANRAL etc. will be examined in Phase 2 of the Project.

9.3.3.3 District Municipalities

The province has the following district municipalities as well as 43 local municipalities:

- Amajuba District Municipality
- ILembe District Municipality
- Sisonke District Municipality
- Ugu District Municipality
- uMgungundlovu District Municipality
- uMkhanyakude District Municipality
- uMzinyathi District Municipality
- Uthukela District Municipality

- Uthungulu District Municipality
- Zululand District Municipality.

The *Public Transport Action Plan* identifies uMzunduzi (Pietermaritzburg) as an “aspirant metro” city requiring an integrated public transport network, in addition to eThekweni.

9.4 ISSUES AND CONCERNS

The problems experienced by the ETA will probably also apply to other transport authorities when they are established, and are being addressed by the replacing legislation to the NLTTA. These are mainly a lack of own funding sources and the confusion created by the local government legislation that has post-dated the NLTTA.

A problem with the ETA is the fact that there are too few councillors on the Governing Body (only three), and they reportedly have too many other duties to be able to devote sufficient time to TA transport matters.

10. LEGAL STRUCTURE

10.1 OBJECTIVE

The objective of this legislative report is to list and provide a summary of the relevant and applicable legislation and policy documents regarding transport infrastructure as well as all ancillary matters legislatively connected therewith and to provide a framework within which the Master Plan can develop.

10.2 NATIONAL OVERVIEW OF LEGAL STRUCTURE

10.2.1 Background

Transport Minister Jeff Radebe revealed on 16 August 2007 that the shortfall in funding for national road infrastructure over the next five years amounted to about R50 billion. A further R10.54 billion was needed to upgrade the rolling stock for the railways. He suggested that the only way to make up for the shortfall was through the mechanism of tolls. It is estimated that SA needs a total of 260km of new roads; however, no funding has been made available for this in the medium-term expenditure framework.

Transport infrastructure comprises all physical elements upon which transport operations take place. It includes roads, railways, airports, harbours, pipelines, interchange facilities, and the associated dedicated power and communications systems. Transport infrastructure represents a significant proportion of Government's total financial investment in fixed assets, and as such needs to be well managed.

The adequacy or inadequacy of transport infrastructure can have a significant enhancing or inhibiting effect on social and economic development.

Transportation systems in the Republic of South Africa are characterised and riddled with inherited and/or acquired problems and according to travel websites, the following is even said regarding rail infrastructure in South Africa "Normal railway travelling is by no means luxurious or fast." The Department of Transport wants to upgrade the transportation system and develop a dynamic, long term and sustainable Land Use Systems Framework for the development of networks infrastructure facilities, and they are in the process of drafting a Master Plan in order to give effect to their proposed ideas. This legislative review forms part of the Master Plan and sets out the status quo of transport infrastructure legislation.

The report consists of the following sections:

- (i) National legislation and policy relating to Railway Infrastructure, Road Transport, Maritime Transport, Aviation and Environment.
- (ii) Provincial legislation relating to all forms of transport by rail, road air and sea – having regard to each of the nine provinces.

(iii) Policies and other documents in the transportation sector.

(iv) List of Legislation Reviewed.

10.2.2 National legislation

10.2.2.1 Railway

- The Constitution
- National Land Transport Transition Act 22 of 2000 (NLTTA)
- National Railway Safety Regulator Act 16 of 2002
- Legal Succession to the South African Transport Services Act 9 of 1989
- Railway Acquisition and Construction Act 10 of 1936 (now repealed)
- Railway Construction Act 75 of 1985
- Railway Purchase Act 25 of 1971
- National Road Traffic Act 93 of 1996
- Urban Transport Act, 78 of 1977

10.2.2.2 Road Transport - Public Road Transport

- Road Transportation Act 74 of 1977
- Urban Transport Act 78 of 1977
- National Road Traffic Act 93 of 1996
- Cross-Border Road Transport Act 4 of 1998
- Transport Appeal Tribunal Act 39 of 1998
- The National Land Transport Transition Act 22 of 2000

10.2.2.3 Road Traffic

- National Road Traffic Act 93 of 1996
- Road Traffic Act 29 of 1989 (some sections still apply)
- Administrative Adjudication of Road Traffic Offences Act 46 of 1998 (AARTO Act)
- Road Traffic Management Corporation Act 20 of 1999 (RTMC Act)
- National Road Traffic Amendment Act 21 of 1999
- National Land Transport Transition Act 22 of 2000
- Finance and Financial Adjustments Acts Consolidation Act 11 of 1977

10.2.2.4 Roads

- The South African National Roads Agency Limited and National Roads Act 7 of 1998
- The National Roads Act 54 of 1971
- The South African Roads Board Act 74 of 1988
- The Urban Transport Act 78 of 1977
- The National Land Transport Transition Act 22 of 2000

- The Advertising on Roads and Ribbon Development Act 21 of 1940

10.2.2.5 Maritime

- The Constitution
- Sea Shore Act 21 of 1935
- Cape Town Foreshore Act 26
- Merchant Shipping Act 57 of 1951
- Defence Act 44 of 1957
- Customs and Excise Act 91 of 1964
- National Parks Act 57 of 1976
- Dumping at Sea Control Act 73 of 1980
- Marine Traffic Act 2 of 1981
- Marine Pollution (Control and Civil Liability) Act 6 of 1981
- Admiralty Jurisdiction Regulation Act 105 of 1983
- Carriage of Goods by Sea Act 1 of 1986 - Schedule amended by the Shipping General Amendment Act 23 of 1997
- Marine Pollution (Prevention of Pollution from Ships) Act 2 of 1986 - Schedule amended by the Shipping Laws Amendment Act 57 of 1998
- Marine Pollution (Intervention) Act 64 of 1987
- Sea Fishery Act 12 of 1988
- Legal Succession to the South African Transport Services Act 9 of 1989
- Maritime Zones Act 15 of 1994
- Wreck and Salvage Act 94 of 1996
- Counterfeit Goods Act 37 of 1997
- South-African Maritime Safety Authority Act 5 of 1998
- South-African Maritime Safety Authority Levies Act 6 of 1998
- Marine Living Resources Act 18 of 1998
- National Water Act 36 of 1998
- Shipping Laws Amendment Act 57 of 1998
- Ship Registration Act 58 of 1998
- National Environmental Management Act 107 of 1998 (NEMA)
- National Heritage Resources Act 25 of 1999 - includes protection of wrecks
- World Heritage Convention Act 49 of 1999
- Sea Transport Documents Act 65 of 2000
- Immigration Act 13 of 2002
- Defence Act 42 of 2002 - deals with SA Navy, which is designated as Hydrographer
- South African Maritime and Aeronautical Search and Rescue Act 44 of 2002
- Disaster Management Act 57 of 2002
- National Environmental Management: Protected Areas Act 57 of 2003
- National Health Act 61 of 2003
- National Ports Act 12 of 2005

10.2.2.6 Aviation

- Carriage by Air Act 17 of 1946
- Aviation Act 74 of 1962
- The Chicago Convention
- Civil Aviation Offences Act 10 of 1972
- Air Services Licensing Act 115 of 1990
- Airports Company Act 44 of 1993
- Air Traffic and Navigation Services Company Act 45 of 1993
- International Air Services Act 60 of 1993
- Convention on the International Recognition of Rights in Aircraft Act 59 of 1983
- South African Civil Aviation Authority Act 40 of 1998
- South African Maritime and Aeronautical Search and Rescue Act 44 of 2002
- International Air Services Act 60 of 1993
- Space Affairs Amendment Act 64 of 1995
- Shipping and Civil Aviation Laws Rationalization Act 28 of 1994
- National Environmental Management: Air Quality Act 39 of 2004
- Environmental Laws Rationalisation Act 51 of 1997
- Safety Matters Rationalisation Act 90 of 1996

10.2.2.7 Environment

- Environmental Conservation Act 73 of 1989
- Physical Planning Act 125 of 1991
- National Environmental Management Act 107 of 1998
- Dumping at Sea Control Act 73 of 1980
- Marine Pollution (Prevention of Pollution from Ships) Act 2 of 1986
- National Environmental Management : Air Quality Act 39 of 2004

10.2.3 Provincial legislation

10.2.3.1 KwaZulu-Natal

- The KwaZulu-Natal Provincial Roads Act 4 of 2001
- The Advertising on Roads and Ribbon Development Act 21 of 1940
(repealed for Provincial Roads only, but still applicable for National and Municipal Roads)
- The Urban Transport Act 78 of 1977
- The KwaZulu-Natal Public Transport Act 3 of 2005
- The National Land Transport Transition Act 22 of 2000
- The KwaZulu-Natal Interim Minibus Taxi Act 4 of 1998
- The Road Transportation Act 74 of 1977
- The KwaZulu-Natal Road Traffic Act 7 of 1997

10.2.3.2 Eastern Cape

- Eastern Cape Road Traffic Act
- Eastern Cape Roads Act
- Eastern Cape Passenger Transport Act

10.2.3.3 Northern Cape

- Northern Cape Road Traffic Act, 3 of 1997
- Northern Cape Land Administration Act, 6 of 2002
- Northern Cape Land Transport Act, 3 of 2003

10.2.3.4 Western Cape

The Roads Ordinance 19 of 1976

The Western Cape Toll Roads Act 11 of 1999

The Advertising on Roads and Ribbon Development Act 21 of 1940

The Urban Transport Act 78 of 1977

The draft Western Cape Transport Infrastructure Bill, 2007

The National Land Transport Transition Act 22 of 2000

The Road Transportation Act 74 of 1977

The Western Cape Road Transportation Act Amendment Law 8 of 1996

The Western Cape Road Transportation Act Amendment Act 7 of 2000

The draft Western Cape Transport Planning and Administration Bill

The draft Western Cape Public Transport Regulatory Bill

The Western Cape Road Traffic Act 12 of 1998

The draft Western Cape Road Traffic Bill, 2006

The Western Cape Planning and Development Act 7 of 1999

Legislation applying in the other provinces is reviewed in the specific provincial reports.

10.2.4 List of Policies Reviewed

- The White Paper on National Transport Policy, 1996
- The Moving South Africa Action Agenda, 1999
- The National Freight Logistics Strategy, September 2005
- DoT: The Road to Safety 2001 -2005 November 2001
- DoT: South African Road Safety Strategy 2006 - Strategic Plan for Road Safety 2006 - 2012 - Operation Jika
- The Public Transport Action Plan, 2007
- National Land Transport Strategic Framework, 2006
- Strategy for South Africa, 2003
- Public Transport Strategy, 2007
- From Cape Gauge to International Gauge – A Policy Heritage for our National Future and Children, Draft 1

10.2.4.1 List of Other Documents Reviewed

- Planning requirements published in terms of the NLTTA
- Road Traffic Management Corporation - First Business Plan 2005 - 2006
- MINMEC Report on the Road Traffic Management Corporation, 2005
- RTMC Road Traffic Report - 10 January 2006

Only a few of the most relevant Acts and policy documents will be discussed below.

10.2.5 Conclusion

The various policy and discussion documents reveal the status quo of transport in the Province and in the country as a whole. They give insight into how policy has been implemented in the relevant legislation and how the legislation needs to change in order to implement latest policy initiatives and to aid government in facing and solving the current transport (infrastructure) issues and problems.

There are numerous Acts, policies, discussion papers, plans, reviews and other documents regarding our transport system, but an insufficient legislative infrastructure information base. As the Cape Gauge document highlights – there has not been much interest and investment paid to rail infrastructure in the last 20 years thus resulting in the serious decline of the use of the railway systems and infrastructure.

As stated in the Cape Gauge discussion document, establishment of rail infrastructure investment funds and legislation on the national standard gauge, establishment of rail companies, the development of frameworks and an audit of railway infrastructure will aid in solving the country's infrastructural problems and sufficiently provide information regarding railway infrastructure and development.

At the Africa Rail 2007 Conference, Ms Mpumi Mpofo, the Director General of Transport, commented on, "The problem of South Africa's aging rail network and the decreased volume of freight that it now carries", and stated that, "Investment in this sector is essential to maintain accelerating growth."

The Concept *White Paper on National Maritime Transport Policy*, 2006 finds that maritime legislation is complex and fragmented and needs revising and updating. The roles and functions of the various institutions need re-examination with a view to rationalisation. Port infrastructure is in need of attention, which will hopefully be effected by the restructured NPA under the new National Ports Act. Seamless freight corridors need to be developed incorporating the port-land interfaces.

10.3 LEGAL STRUCTURE IN THE PROVINCE KWAZULU-NATAL

10.3.1 Legislation

10.3.1.1 Roads legislation

i. The KwaZulu-Natal Provincial Roads Act 4 of 2001

Provincial roads in KwaZulu-Natal are regulated and managed in terms of the KwaZulu-Natal Provincial Roads Act 4 of 2001. This Act places an obligation on the MEC responsible for roads in the Province to “develop, declare, implement, administer and promote the provincial road network” and to “protect and maintain provincial road network assets” and “maintain and protect the environment”. Provincial roads are divided into main roads, district roads and local roads. The MEC may enter into agreements with the DoT or municipalities to provide assistance with the construction and maintenance of roads that are not provincial roads.

The control, establishment, administration and management of all provincial roads in the Province vests in the MEC. He or she may declare main, district and local roads.

The Act also deals with matters such as the following:

- access to provincial roads
- control of stormwater and watercourses on provincial roads
- structures adjacent to and on provincial roads
- fencing on provincial roads
- protection of and damage to provincial roads
- trading on or adjacent to such roads, and
- advertising on or adjacent to those roads.

The Act empowers the MEC to acquire (expropriate) land to provide access to any property. The MEC must register public rights of way.

The Act repeals the Roads Ordinance, 1968 and the Advertising on Roads and Ribbon Development Act, 1940 in the Province.

Regulations were published under the KZN Provincial Roads Act on 24 November 2006 (*Provincial Gazette* 6524). These included regulations on applying for permission to erect advertisements on or adjacent to provincial roads.

ii. The Advertising on Roads and Ribbon Development Act 21 of 1940

The Advertising on Roads and Ribbon Development Act 21 of 1940 is a national Act the administration of which was assigned to the Province in 1995. It provides for the regulation of the display of advertisements outside certain urban areas at places visible from public roads, the depositing or leaving of disused machinery or refuse and the erection, constructing or laying of structures and other things near certain public roads, and the access to certain land from such roads. This Act is also somewhat outdated. It applies outside of “urban areas”, which are basically defined

as built-up areas. It was repealed in the Province by the Provincial Roads Act, but acts done or regulations made under the Act remain valid until changed or repealed under the new Act. Any proceedings commenced under Act 21 of 1940 must be completed under that Act.

iii. The Urban Transport Act 78 of 1977

The Urban Transport Act, 1977 provides for the “planning and provision of adequate urban transport facilities” (i.e. mainly infrastructure). It provides for the declaration of metropolitan transport areas (MTAs). When such an area is declared, the Act provides for the designation of a municipality in the area to act as the core city. The core city undertakes various functions related to transport, mainly in connection with infrastructure (facilities). The core city also administers a local fund for the area, called a consolidated metropolitan transport fund. The Act also establishes national and provincial urban transport funds. MTAs were declared for Durban (eThekweni) and for Pietermaritzburg (Umsunduzi).

The Urban Transport Act is dealt with in more detail in the section on national legislation. It has largely become defunct with the promulgation of the NLTTA. In eThekweni the MTA and core city have been disestablished under section 10(4) of the NLTTA and replaced by the eThekweni Transport Authority and its declared transport area.

10.3.1.2 Transport legislation

i. The KwaZulu-Natal Public Transport Act 3 of 2005

The KwaZulu-Natal Public Transport Act 3 of 2005 (PTA) came into effect on 1 July 2006. It is designed to provide for the transformation and restructuring of the public transport system in the Province.

The PTA is a replacing provincial law for the province as provided for in section 3(1)(b) of the NLTTA and replaces Chapter 3 of the NLTTA. It deals with transport planning and transport authorities. It established a Public Transport Licensing Board consisting of no more than five members with experience in public transport, industrial, commercial, financial or legal matters. The MEC may appoint two alternate members to the Board. The Act also established a Transport Appeals Tribunal and a Provincial Transport Registrar. It deals with all matters relating to operating licences and other matters dealt with in Chapter 3 of the NLTTA.

As regards infrastructure, the PTA provides that the MEC must ensure co-ordination of all planning processes of [municipal and provincial] planning authorities and must ensure that all plans address road and rail networks and the integration of transport and land use planning, among other things.

Apparently, regulations for the Public Transport Act have not been published yet. If this is so it could cause serious legal problems in that the Act is in force, but many sections cannot be implemented due to the lack of regulations.

ii. The National Land Transport Transition Act 22 of 2000

Chapters 1, 2 and 4 of the NLTTA apply in KZN. This includes Part 7 on transport planning, which includes roads and other infrastructure. The Province has replaced Chapter 3 by the KwaZulu-Natal Public Transport Act (see above). The various regulations on operating licences, registration etc. promulgated in terms of the NLTTA have been replaced by regulations under the Public Transport Act.

iii. The KwaZulu-Natal Interim Minibus Taxi Act 4 of 1998

This Act was enacted as interim legislation to regulate the minibus taxi industry. It was meant to provide a framework to formalise, restructure and legalise minibus taxi registration and services. It provided for the appointment of a Provincial Taxi Registrar and a procedure for registering minibus taxi associations and their members, and non-members. The Act has been repealed by the Public Transport Act, with the exception of Part X that deals with the legitimisation (legalisation) process for members of registered minibus taxi associations. Part X will remain in force until the legitimisation process is completed.

iv. The Road Transportation Act 74 of 1977

This Act was assigned to the provinces in May 1996, was supplemented by the Interim Minibus Taxi Act and has now been repealed in the Province by the Public Transport Act.

10.3.1.3 Road traffic legislation

i. The KwaZulu-Natal Road Traffic Act 7 of 1997

This Act is designed to consolidate and amend the provisions relating to road traffic in the Province and to provide for related matters. It must be read with the National Road Traffic Act 93 of 1996 and the National Road Traffic Regulations, 2000. Certain sections were brought into effect by Proclamation 2 of 17 November 2004 (*Provincial Gazette* 6303). Similar Acts were passed by all nine provinces based on a template provided by the DoT. Most of the aspects dealt with in this Act are now provided for in the National Road Traffic Act. The main remaining provisions of relevance are those empowering the Provincial Minister to make by-laws on certain road traffic issues and to impose fees, e.g. for registering motor vehicles. The Province needs legislation to “clean up” and replace Act 7 of 1997 to respond to amendments to the National Road Traffic Act and to the AARTO Act and RTMC Act.

10.3.2 Policy documents

10.3.2.1 The KwaZulu-Natal White Paper on Freight Transport Policy

The *KwaZulu-Natal White Paper on Freight Transport Policy*, 2004 mainly deals with broad issues affecting all modes of freight transport. Its purpose is stated to be to maintain and develop the freight transport system of the Province of KwaZulu-Natal. It deals with the identification of challenges affecting freight transport in the Province and identifies some implementation issues that may affect the challenges. The purpose of the *White Paper* includes ensuring the continued ability of KwaZulu-Natal's freight transport corridors to serve the needs of the KZN Province, the Republic of South Africa and the SADC region. It also aims at the creation of sustainable freight transport systems through modal and intermodal optimisation. It identifies that regulation and the provision of adequate facilities with supportive human resource development are also important.

In dealing with road transport, it identifies vehicle standards, driver standards and operating standards as vital and requiring promotion to achieve operational efficiency.

10.4 ISSUES AND CONCERNS

As regards roads, the KwaZulu-Natal Provincial Roads Act focuses on provincial roads and leaves municipal roads issues to be dealt with by municipal by-laws. It has been found in some other provinces that there is a need to regulate some aspects of municipal roads, e.g. on standards, by provincial legislation. This could also be done by the MEC for local government producing standard by-laws under section 14(2) of the Local Government: Municipal Systems Act, 2000. .

The KwaZulu-Natal Road Traffic Act 7 of 1997 needs to be amended or replaced to respond to the amendments to the National Road Traffic Act and to the AARTO and RTMC Acts. In the case of public transport, the NLTTA has given rise to the situation where there are different and diverse laws in the provinces replacing Chapter 3, which makes for a lack of uniformity and consistency, and is confusing for people who must implement the legislation. This aspect is under discussion with the revision of the NLTTA.

A serious problem appears to be the fact that regulations for the KwaZulu-Natal Public Transport Act have not been promulgated yet. This makes it impossible to implement many of the provisions of the Act.

11. TRANSPORT FUNDING MECHANISMS

11.1 OBJECTIVE

The task is intended to identify and document current revenue sources; financing policies and mechanisms; and trends for infrastructure, rolling stock and equipment capital and maintenance expenditures. This report focuses on the KwaZulu-Natal Department of Transport and the eThekweni Transport Authority. National funding is being covered by the Finance Working Group and is not included in this report.

The task also aims to trace the evolution of Public-Private Partnership (PPP) financing of transport infrastructure in South Africa. This is being carried out by the Finance Working Group and is not included in this report.

11.2 NATIONAL OVERVIEW OF FUNDING MECHANISMS

11.2.1 General

Funding Transport is a concurrent function, placing provinces at the centre of programmes for delivering on transportation. The budget has become a key instrument of co-operative governance. Whilst there has been progress in building a better understanding of the roles of the different spheres in relation to concurrent functions, Treasury says more work is required to consolidate and further strengthen these gains.

- The largest share of funding for transportation is in the form of national transfers, which consist of the equitable share and conditional grants – the former deployed in transport operations – in the most, and the latter more relevant for transportation investments. Although there have been changes to the legal framework, which sought to create opportunities for provinces to explore new options for provincial taxes, national transfers have consistently contributed to more than 95% of total provincial revenue. In the 5-year period between 2002 and 2006, transfers rose from R107,3 billion to R153,8 billion and are set to grow further to R. 217.5 billion by 2008/9, representing a 12.2% average annual growth rate over the METF.
- Government's R416 billion infrastructure programme is a fundamental part of the modernizing impetus, contributing to a steadily rising gross domestic fixed capital formation ratio – now at 18,4% of GDP. Transportation funding is integral and a pivotal component of this impetus. Of course, 2010 FIFA World Cup has served to both elevate transportation – in particular – public transportation onto the pedestal and so fast-track investment plans into this sector. The watchword is 2010 legacy.
- Private funding supported by user charges has also been used for toll roads built to date as well as in investments by ACSA and Transnet, in their respective mandates for transportation.

11.2.2 Road

For both freight and passenger transport, road-based transportation is currently by far the most relevant of the modes in SA. Consequently, in the following, this overview accords this transportation mode a corresponding weighting.

- The advent of democracy in SA brought with it a shift to both sectoral and spatial financial Treasury allocations, and government having to reconsider the road funding options and strategies used over the last two decades prior to 1994.
- In a direct response to diminishing fuel levy-based road funding in the mid-70's, the political will to introduce user charges to maintain the national road network emerged in the mid-80's. At that time, the 12 000 km network was already carrying 70% of the country's economic traffic. The result was a dedicated bond was issued to fund road infrastructure and the seed for subsequent SANRAL-driven PPPs was sown).
- A principle of road funding is to endeavour to recover costs as directly as possible from those who benefit from the road. This implies toll roads for the national system and for urban arterials; funding of provincial roads from a fuel levy; and funding of purely access roads from the general tax base, be it general taxation in the rural environment or the municipal rates base in the municipal environment.
- Equally, as the case internationally, there are three levels of government, central, provincial and municipal and hence three levels of institution in providing and managing roads. In the broadest sense, the sources of road funding should match the level of institutional governance for the roads affected with the function of the road shifting from largely economic on the national road system, through to largely social on the access road system.
- The idealized concept is to apply direct user cost recovery on toll roads carrying in excess of 4 000 vpd; utilise a fuel levy for economic roads carrying less traffic; and utilise the general tax base for 'social access' roads. Furthermore, acceptable methods to apply shadow tolls for roads that meet the needs of a few intensive users (e.g. coal hauliers and commercial timber growers) are currently being explored. In short, the country is endeavouring further to externalize road benefits and costs within available institutional structures and technology.
- To the extent that rail and bus subsidies underpin the operations costs of public transport, these will be factored in with regards to private bus operations, the taxi recapitalization programme, SARCC rolling stock renewal and municipal road rapid transit transport initiatives currently receiving attention ahead of the FIFA World Cup in 2010.

- SANRAL is rolling out ITS to meet the challenge of congestion. It has also received R2,1 billion additional funding for the maintenance of the national road network, whilst a similar amount is allocated to SARCC for rolling stock, and signalling systems for priority corridors. Rapid transit networks in host cities have also received a R5,5 billion leg-up from the 2010 World Cup with regards to development of integrated public transport infrastructure.
- At SADC level, a Protocol on Transport, Communications and Meteorology, Articles 4,5 and 4,6 commit countries to implement road funding policies and harmonized national road user charging systems, as well as harmonized cross-border road user charging systems – respectively.
- Currently, a Regional Cross Border Road User Charges Collection Association is contemplated by the SADC countries. It is hoped that this will go a long way to harmonizing RUC in the region following the implementation of the Draft MoU on harmonization of these cross-border RUCs. Currently, most countries implement fixed per entry fees, with the exception of Malawi, Zambia and Zimbabwe levying distance-based charges and SA no charge. Cross border charges are the highest entering the DRC and lowest for Lesotho.

11.2.3 Rail

Transnet is responsible for the funding of freight infrastructure and rolling stock while the SARCC is responsible for the funding suburban infrastructure and rolling stock. Intercity passenger services (Shosholozza Meyl) has also been transferred from Transnet to SARCC which will now also be responsible for the funding of the rolling stock.

The Department of Transport provides funding to the SARCC to make good their operating short fall and to provide for their capital requirements.

The SARCC adopted the following 3 strategies:

- 2010 strategy includes the improvement and provision of facilities and rolling stock that will be required for the 2010 soccer world cup.
- The second strategy which could be completed by 2014 includes the revitalization of the existing services, infrastructure and rolling stock to improve the service to the desired level
- The third strategy includes the expansion of the network and services.

Transnet is reported to have in place significant investment roll-out plans to address pipeline and rail-based freight transportation. In KZN are included the increase in capacity of the Coal Line and enhancements of the electrification and train authorization systems on the main lines. A new industrial line is foreseen between Ermelo and Richards Bay in the future. The full investment plans of Transnet will be analysed on a whole life basis for fit with NATMAP's 2005-2050 time frame.

A new trend was established when the Gauteng Province embarked on the large R25 billion Gautrain high-speed rail link between Johannesburg, Tshwane and OR Tambo International Airport. This project has been structured as a PPP, with the developer (Bombela consortium) providing approximately R3 billion of the required funding

To the extent that the R416bn infrastructure spend described under 1.2.3 includes state agencies' investment programmes (Transnet and SARCC), parastatal contribution and share of the development spend for transportation development has been factored in.

11.2.4 Air

- ACSA operates the ground air transport infrastructure of national significance, and is expanding its capacity at various airports to cater for growth experienced since the re-introduction of SA into the global village. ACSA's infrastructure roll-out will be factored into NATMAP over the planning period.
- The SA sky is partially deregulated. Whilst, the national airline is consuming public funds in an effort to turn around its business, private sector low-cost airline are thriving.

11.2.5 Maritime

- The ports division of Transnet is the sole actor in this space and similar capital expenditure to the rail freight and pipeline divisions is being rolled out.
- The National Ports Master Plan has only now been made available and further details of Transnet's ports investments will be incorporated into the next version of the report.

11.3 FUNDING MECHANISMS IN PROVINCE

The primary sources of information were:

- KwaZulu-Natal Province, Budget Statement 2007, Vote 12: Transport; and
- eThekweni Municipality, Medium Term Budget 2007/08 to 2009/10.

The budget tables were analysed using Excel spreadsheets. Relevant data was extracted in keeping with the objectives of the Task. This data was summarised into tables for inclusion in this report.

11.3.1 Provincial Department of Transport

Table 107 shows a summary of the Department of Transport (KZN DoT) sources of funding from 2003/04 to 2009/10.

Table 107: KZN DoT Sources of Funding: 2003/04 – 2009/10

Receipts R'000	Audited 2003/04	Audited 2004/05	Audited 2005/06	Estimated Actual 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
Treasury funding							
Provincial allocation	1,355,141	1,522,053	1,964,411	2,188,639	2,546,855	2,924,839	3,405,351
Conditional grants (PIG)	200,121	282,594	315,121	348,194	573,012	649,422	818,843
Total treasury funding	1,555,262	1,804,647	2,279,532	2,536,833	3,119,867	3,574,261	4,224,194
% of total funding	73%	75%	76%	76%	79%	80%	82%
Departmental receipts							
Tax receipts	496,951	515,828	624,302	706,000	745,000	785,000	821,688
Sales of goods and services	8,479	73,193	50,422	56,588	61,000	67,000	75,266
Fines, penalties and forfeits	23,352	21,611	20,158	23,956	28,000	30,000	33,701
Transfers received							
Interest, dividends & rent	350	173	45	98	100	100	113
Sales of capital assets	32,264	2,003	6,502	13,371	16,000	18,000	20,221
Financial transactions	3,263	1,403	1,820	987	900	900	1,011
Total departmental receipts	564,659	614,211	703,249	801,000	851,000	901,000	952,000
% of total funding	27%	25%	24%	24%	21%	20%	18%
Total funding	2,119,921	2,418,858	2,982,781	3,337,833	3,970,867	4,475,261	5,176,194

Source: KwaZulu-Natal Province, Budget Statement 2007, Vote 12: Transport

Total receipts show a nominal annual increase of between 12 and 23 percent from 2003/04 to 2006/07. In the MTEF, receipts are estimated to nominally increase annually by between 13 and 19 percent, from R3,337 billion in 2006/07 to R5,176 billion in 2009/10.

Funding from Treasury remains fairly constant at between 73 and 82 percent of total funding between 2003/04 and 2009/10.

Tax receipts – largely motor vehicle license fees - are the largest source of departmental funding at about 88 percent.

The KZN DoT received funding from the national Department of Transport on an agency basis aimed at subsidizing bus transport in the province. This increased from

R410 million in 2003/04 to R497 million in 2006/07 (21%), and is estimated to reach R670 million by 2009/10 – a further nominal increase of 35 percent.

KZN DoT also receives funding from SANRAL for an extended overload control function on the national road network in this province. This was about R9,2 million in 2006/07 and is estimated to increase to R10,7 million by 2009/10.

Table 108: KZN DoT Budget or Estimated Payments: 2003/04 – 2009/10

Programme R'000	Audited 2003/04	Audited 2004/05	Audited 2005/06	Revised Estimate 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
Administration	104,683	118,199	112,257	125,464	149,173	153,911	160,913
Road Infrastructure	1,129,947	1,333,407	1,682,010	1,844,762	2,359,229	2,796,871	3,404,589
Transportation	31,994	30,967	34,097	94,389	70,788	77,478	80,373
Traffic Management	231,134	265,894	370,433	389,149	434,238	430,430	457,982
Community Based Programme	67,669	61,795	80,227	83,184	106,439	115,571	120,337
Total	1,565,607	1,810,262	2,279,024	2,536,948	3,119,867	3,574,261	4,224,194

Source: KwaZulu-Natal Province, Budget Statement 2007, Vote 12: Transport

Table 108 shows the KZN DoT budget or estimated expenditure per programme from 2003/04 to 2009/10.

More than three-quarters of the budget is allocated to expenditure on roads infrastructure. Expenditure on public transport and traffic management comprises about 16 percent of the budget.

For roads infrastructure, just over 40 percent of the budget is allocated to maintenance and about 50 percent to construction.

More than 50 per cent of the annual transportation budget is allocated to planning, with about 20 percent allocated to empowerment and institutional management, and over 10 percent to regulation and control (this was about 30 percent of the budget in 2004/05 and 2005/06). Historically, very little has been allocated to transportation infrastructure. This shows an increase over the MTEF period, peaking at R11 million in 2009/10 (14% of the budget).

Administration declines from seven percent of the budget in 2003/04 to an estimated four percent in 2009/10. Compensation for employees increases from 13 percent of total payments in 2006/07 to 20 percent over the MTEF. Payments are on goods and services range between 47 and 67 percent of total payments over the 2003/04 to 2009/10 period.

Table 109 shows the transfers to municipalities. These transfers average less than one percent of total payments. The large increase in transfers to Category A municipalities (eThekweni) from 2006/07 onwards relates to the establishment of the Metropolitan Transport Authority Board (MTAB). The increase to Category B municipalities relates to the new programme to support municipalities in the construction and upgrading of public transport infrastructure. A large portion of the “unallocated/unclassified” amounts are subsidies paid to municipalities for the maintenance of provincial roads undertaken by the municipalities.

Table 109: KZN DoT Transfers to Local Government: 2003/04 – 2009/10

Transfers R'000	Audited 2003/04	Audited 2004/05	Audited 2005/06	Revised Estimate 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
Category A	2,000	189	206	11,170	13,250	13,350	13,450
	48%	13%	13%	69%	62%	50%	43%
Category B	244	18		1,000	2,000	6,000	11,000
	6%	1%	0%	6%	9%	23%	35%
Category C		1,201	1,369	408			
	0%	85%	87%	3%	0%	0%	0%
Unallocated/unclassified	1,964			3,595	6,241	7,102	6,905
	47%	0%	0%	22%	29%	27%	22%
Total Transfers	4,208	1,408	1,575	16,173	21,491	26,452	31,355
Total Payments	1,216,208	1,258,628	1,773,251	2,316,437	2,206,698	2,321,379	2,417,059
Transfers as % of Payments	0%	0%	0%	1%	1%	1%	1%

Source: KwaZulu-Natal Province, Budget Statement 2007, Vote 12: Transport

The KZN DoT has finalized a feasibility study for the supply and maintenance of major plant such as graders and bulldozers to both the department and the *Vukuzakhe* emerging contractors as a Public-Private Partnership (PPP) project. The study, however, still needs to conclude on the sustainability of the PPP and the department has thus not yet made any provision in its budget for the PPP.

11.3.2 eThekweni Metropolitan Municipality

Table 110 shows the summarized operating revenue by source for the eThekweni Municipality (EM) for the period 2005/06 to 2009/10.

Table 110: EM Operating Revenue by Source: 2005/06 – 2009/10

Funding by Source R'000	Audited Actual 2005/06	Full Year Forecast 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
Property rates	3,071,229	3,323,943	3,540,835	3,876,212	4,164,060
Electricity service charges	3,069,334	3,329,954	3,633,045	3,858,186	4,120,373
Water service charges	1,284,401	1,420,361	1,618,401	1,758,116	1,889,195
Sanitation, refuse removal and other service charges	248,512	274,417	289,079	303,726	319,349
RSC levies	570,029				
Grants, donations and subsidies	1,070,360	2,280,931	3,180,557	4,232,460	3,702,397
Other income	2,617,881	1,997,692	2,090,574	2,172,486	2,284,126
Total	11,931,746	12,627,298	14,352,491	16,201,186	16,479,500

Source: eThekweni Municipality, Medium Term Budget 2007/08 to 2009/10

Total revenue increased by six percent from 2005/06 to 2006/07, and is estimated to increase by about 14 percent annually from 2006/07 to 2008/09. An increase of only two percent is estimated for 2009/10. The increase in revenue is largely due to the increase in grants, which is seen to drop off in 2009/10.

Property rates comprise about 25 percent of the total budget, and service charges a further almost 40 percent. The percentage contribution of the various revenue sources remains fairly constant over time, with the RSC levies being replaced by increased grants.

Table 111 shows the EM operating expenditure by General Functional System (GFS) Classification for 2005/06 to 2009/10.

The largest operating expenditure items are electricity (about 28%), water (about 18%) and finance and administration (about 12%). Road transport accounted for seven percent of operating expenditure in 2005/06 and 11 percent in 2006/07, and fluctuates between five and 13 percent over the MTEF. There is also a small amount budgeted for air transport.

Operating expenditure on the eThekweni Transport Authority forms a constant two percent of total operating expenditure and about 23 percent of operating expenditure on road transport.

Table 111: EM Operating Expenditure by GFS: 2005/06 – 2009/10

Operating Expenditure by GFS R'000	Audited Actual 2005/06	Full Year Forecast 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
Executive and Council	142,911	164,294	183,152	194,267	205,101
Finance and Administration	1,309,877	1,450,327	1,531,700	1,597,280	2,030,272
Planning and Development	333,241	388,476	453,288	492,977	454,465
Health	229,582	245,128	270,181	289,933	309,856
Community and Social Services	335,899	388,637	493,724	524,213	561,799
Housing	621,544	244,488	277,860	278,626	212,184
Public Safety	677,073	581,917	620,547	675,034	719,108
Sport and Recreation	584,937	609,297	622,732	667,893	715,151
Environmental Protection	5,210	8,133	12,624	8,238	8,598
Waste Management	473,985	550,672	608,366	632,953	675,889
Waste Water Management	517,792	554,086	653,018	707,481	781,473
Road Transport	815,017	933,183	1,038,623	1,094,528	1,232,592
Water	1,881,707	2,018,951	2,205,527	2,411,778	2,573,881
Electricity	3,134,042	3,154,089	3,437,533	3,646,034	3,883,829
Air Transport	3,318	3,295	3,510	3,707	3,916
Tourism	1,379	1,468	1,573	1,660	1,753
Markets	47,681	53,380	56,981	58,828	62,814
Licensing and Regulations	14,063	22,895	26,174	28,553	30,363
Total Expenditure	11,129,258	11,372,716	12,497,113	13,313,983	14,463,044
eThekweni Transport Authority	184,048	239,947	234,598	250,697	267,818

Source: eThekweni Municipality, Medium Term Budget 2007/08 to 2009/10

Table 112 summarizes the EM capital funding by source for 2005/06 to 2009/10.

Table 112: EM Capital Funding by Source: 2005/06 – 2009/10

Funding by Source R'000	Audited Actual 2005/06	Full Year Forecast 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
National government grants and subsidies	804,126	863,353	1,243,192	2,087,296	1,022,661
Provincial government grants and subsidies	12,500	718,449	525,000	609,500	570,000
Public contributions and donations	29,260	96,435	35,000	5,000	5,000
Accumulated surplus (own funds)	40,666	456,848	1,445,465	1,141,891	914,159

Funding by Source R'000	Audited Actual 2005/06	Full Year Forecast 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
External loans	1,200,000	900,000	950,000	950,000	1,000,000
Total	2,086,552	3,035,085	4,198,657	4,793,687	3,511,820

Source: eThekweni Municipality, Medium Term Budget 2007/08 to 2009/10

Capital funding from national government is estimated to increase by 44 percent in 2007/08 and a further 68 percent in 2008/09. It then decreases by 51 percent in 2009/10. This pattern can most likely be explained by increased expenditure on infrastructure for the FIFA World Cup in 2010, as well as the fact that this is the last year in this MTEF cycle and funding is as yet still uncertain. Provincial grants show a similar pattern, but peak in 2006/07 off a very low base in 2005/06.

Table 113 shows the EM capital expenditure by General Functional System (GFS) Classification for 2005/06 to 2009/10.

Capital expenditure on road transport has declined from 18% of the capital budget in 2005/06 to only 4% in 2007/08 and 8% in 2009/10. In nominal terms, road transport capital expenditure decreased by over 53% from 2005/06 to 2007/08, and is estimated to then increase by over 50% by 2009/10.

Capital expenditure on the eThekweni Transport Authority averages about 2% of total capital expenditure and varies between 23% (2005/06), 41% (2007/08) and 33% (2009/10) of capital expenditure on road transport.

Table 113: EM Capital Expenditure by GFS: 2005/06 – 2009/10

Capital Expenditure by GFS R'000	Audited Actual 2005/06	Full Year Forecast 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
Executive and Council	4,105	14,488	11,000	10,000	12,000
Finance and Administration	212,156	199,731	225,975	182,375	155,800
Planning and Development	133,123	419,296	1,501,210	1,869,454	489,556
Health	9,775	28,442	26,238	15,289	20,000
Community and Social Services	258,632	163,005	58,430	32,462	18,100
Housing	128,017	900,052	690,774	730,880	817,602
Public Safety	36,615	33,336	7,900	4,000	
Sport and Recreation	19,706	10,852	16,625	21,447	16,000
Environmental Protection	3,356	2,213	1,700	2,200	2,200
Waste Management	65,154	80,259	50,300	62,600	51,700
Waste Water Management	294,316	276,148	269,065	261,774	324,958

Capital Expenditure by GFS R'000	Audited Actual 2005/06	Full Year Forecast 2006/07	MTEF 2007/08	MTEF 2008/09	MTEF 2009/10
Road Transport	373,347	220,816	174,414	284,156	272,500
Water	228,850	281,524	682,210	688,386	626,425
Electricity	310,372	395,983	474,716	620,064	695,979
Markets	9,028	8,940	8,100	8,600	9,000
Total Expenditure	2,086,552	3,035,085	4,198,657	4,793,687	3,511,820
eThekwini Authority	85,940	48,296	71,382	103,387	90,100

Source: eThekwini Municipality, Medium Term Budget 2007/08 to 2009/10

Analysis of the provincial and metropolitan MTEF budgets and budget trends over the past few years gives an indication of the relative importance of transport and the amounts allocated to planning, operations and infrastructure.

In KwaZulu-Natal, more than two-thirds of the provincial transport budget is funded by Treasury, with motor vehicle license fees as the largest source of departmental funding.

The provincial transport budget has increased significantly (57% in nominal terms) over the period 2003/04 (R2,12 billion) to 2006/07 (R3,34 billion), and is estimated to increase by a further 55% to R5,18 billion by 2009/10.

More than three-quarters of the provincial transport budget is allocated to expenditure on roads infrastructure. About 40% of the infrastructure budget is spent on maintenance and 50% on construction.

Expenditure on public transport and traffic management comprises about 16% of the provincial transport budget. In 2006/07, nearly R500 million was received from national Department of Transport for bus subsidies and this is projected to grow by 35% to R670 million by 2009/10.

Transfers from the province to local government average less than one percent of provincial transport expenditure over the period 2003/04 to 2009/10.

Total operating revenue for the eThekwini Municipality (EM) is estimated to increase nominally by 14% annually from R12,63 billion in 2006/07 to R16,2 billion in 2008/09, largely due to a nominal increase in grants of over 85% over this period. Property rates comprise about 25% of the total revenue and service charges a further 40%.

The largest operating expenditure items for the EM are electricity (about 28%), water (about 18%), and finance and administration (about 12%). Road transport accounted for seven and 11% of operating expenditure in 2005/06 and 2006/07 respectively, and fluctuates between five and 13% over the MTEF. Operating expenditure on the

eThekwini Transport Authority forms a constant two percent of total operating expenditure.

Capital grant funding to EM from national government is estimated to increase by 44% in 2007/08 and a further 68% in 2008/09, before decreasing in 2009/10. Provincial grant funding shows a similar pattern.

EM capital expenditure on road transport declined from 18% of the capital budget in 2005/06 to only four percent in 2007/08 and eight percent in 2009/10. Capital expenditure on the eThekwini Transport Authority averages about two percent of total capital expenditure.

11.4 ISSUES AND CONCERNS

Funding allocated to the KZN DoT shows a steady increase through to the end of the current MTEF period. This will allow for increasing amounts to be utilised for much needed road maintenance and road rehabilitation work. The allocations are however insufficient to address the massive backlogs that have built up from years of under funding for road maintenance and rehabilitation and it is estimated that a further R1,6 billion is required per year for this purpose.

The metropolitan trend in transport expenditure clearly reflects the impact of the FIFA 2010 World Cup and the resulting increased transport investment. It is of some concern that the trend is for these transport operating and capital budgets to fall by 2009/10, which may suggest that sustained transport investment beyond 2010 is currently not being adequately considered, or could just be as a result of the end of this MTEF cycle. The fluctuations in transport funding are also of some concern, since it is difficult to plan ahead when the budgets keep increasing and decreasing on an almost annual basis.

Presently limited funding is being expended on rural village streets and roads and as a result, this infrastructure is receiving little attention.

The funding that is available through the SARCC for the suburban rail services is inadequate to improve and extend the services to the desired service levels.

The future role of the Province in the financing of branch lines is unclear.

12. SUMMARY AND CONCLUSIONS

12.1 OVERVIEW

This Final Draft of the Phase 1 report on the Transport Inventory incorporates the comments of the various national and WC provincial stakeholders, including those of the DoT and the DoT Consolidated Working Group.

Data collection has necessarily involved a large number of authorities, including government departments and municipalities. The co-operation and involvement of these authorities has generally been good during this data gathering phase, especially at a national, provincial and metropolitan level. However, the availability of data from District and Local municipalities is somewhat limited. However, the relevant data from local government authorities have been obtained via the KZN DoT.

With data coming from various sources, some discrepancies and misalignment of data has become apparent. The robustness of the data will need to be monitored and tested during the analysis phase and discrepancies will have to be checked at the data source.

Much useful data has been collected during the Phase 1 process and the subsequent commenting stage. This will provide a good basis for the further development of the NATMAP. The only critical gaps are the data requested from TRANSNET, as well as the road freight O-D data.

The problems encountered and quantified in KZN province is typical of those identified in the Project's ToR, which are summarised below. KZN is a vast province, with large urban and deep rural communities, and typical urban and rural problems are found, exacerbated by the hilly terrain making transport access difficult and costly.

Summary of national problems stated in ToR:

- *Transportation systems are characterized and riddled with both intra and inter-modal problems.*
- *Transportation is characterized by fragmentation of the responsibility for multi-modal planning, operation, and regulation amongst different government departments, agencies and private operators in all three spheres of Government and institutional hierarchies.*
- *There is total lack of coordinated planning and operations between the taxi industry, SARCC, PUTCO, and other bus operators.*
- *Transport systems are neither demand responsive nor cost effective.*
- *The lack of an up to date and accurate data bank is a major constraint to transport planning, implementation, management and monitoring.*

- *Metro rail rolling stock is up to 35 years old.*
- *The DoT's Taxi Recapitalisation project is being implemented to address the general old and unsafe taxi fleet, but it is taking very slow due to various logistical reasons.*
- *There is a lack of modal coordination and integration.*
- *There is a pronounced poor land use/transport integrated planning in South Africa. Transport is slow and inadequate to respond to respond to the needs of committed and/or proposed land use developments. Transport is also playing its optimal role in stimulating economic and spatial development.*
- *Poor land use/transport integrated planning is aggravated by sporadic unplanned land use within major corridors and urban areas.*
- *Uncoordinated implementation of multi-sectoral land use committed developmental projects is prevalent in South Africa. Each sector does its own planning in silo's.*
- *There is poor rural accessibility in predominantly rural areas of this country.*
- *Escalating of infrastructure facilities, rolling stock and equipment capital and maintenance costs since 1990 is phenomenal.*
- *Financing of transportation systems infrastructure facilities, rolling stock, and equipment is competing with other public services sectors, with transport getting the lowest priority*

In the following sections the main features of the land use transport system and problems found in KZN are summarised. Although many urban problems relating to commuter, school, and non-motorised travel have been identified, it must be stressed that NATMAP will not address these problems in the next phases, except at a policy, institutional and financial level. The main focus of the NATMAP project is transport infrastructure relating to networks of national significance and giving access to land uses of national significance.

12.2 INFORMATION SYSTEMS

Access to key national and provincial databases has been obtained and a comprehensive status quo dataset is available for use in the project. This will be used for designing and developing the Databank, GIS and transport model.

In terms of the national GIS and planning data, a major problem is the lack of proper coordination and integration between all national departments, let alone between provinces. Many departments have, or plan to, develop GIS systems for planning (KZN DoT, DWAF, DEAT, CSIR, SARCC, SA STATS) and while they attempt to coordinate, there is a crucial need for one national department, or organisation, and

one senior manager to coordinate and integrate GIS data and systems at national level.

It is recommended that a national GIS coordinator be appointed and mandated to set national GIS standards and specifications, coordinate GIS data collection, development and dissemination, among all national departments, and ultimately between all provinces.

The largest costs and time spent on a national master plan such as this goes into the collection, formatting and processing of data from different sources into a uniform format suitable for use. A national GIS coordinator will make a huge improvement on the efficiency of master planning, which will expedite design and implementation, and ultimately economic development.

A major concern with the data for modelling purposes is the lack of origin-destination flows between different areas of the country, especially in terms of road freight. The Freight Data Bank does not yet contain any O-D data, and it will require major effort, time and cost to collect. It is recommended that the national freight transport origin-destination surveys should be planned for 2008 and thereafter, these surveys should be updated every five years.

The sample of the NHTS data is adequate for a national survey, but is very small for municipal level analysis. This will be supplemented with link volume data to adjust the O-D matrices to realistic levels. In terms of the data limitations, it is not viable to develop the transport model to zones much smaller than District Municipal boundaries.

12.3 DEMOGRAPHIC AND SOCIO-ECONOMIC

KZN is the second largest province in terms of GDP in South Africa, with most of the KZN economic activity being in eThekweni.

21% of South Africa's population resides in KwaZulu-Natal and this population is slightly less educated compared to the rest of South Africa. There is a very high unemployment rate, especially in the uMkhanyakude and Zululand Districts in the Northern portion of the Province. This is also an area of the province with the least developed transport infrastructure.

Currently, a major area of concern is the rising inflation rate. However, it must be noted that this is a countrywide problem. The economy is growing rapidly and this is having positive impacts on unemployment, but is likely to further stoke inflation if supply cannot meet the increasing demand. Overall, KwaZulu-Natal has a sound macroeconomic foundation.

Only 33% of the population is economically active, which is lower than the national average of 37%. The growth in the economy is however reducing unemployment and overall KwaZulu-Natal has a sound macro-economic foundation.

The transport infrastructure especially in rural areas is inadequate to support higher levels of economic activity. This in turn has an impact on the ability to reduce unemployment in Districts with low levels of employment.

In rural areas the transport infrastructure has largely been planned around motorised vehicles and few facilities exist for non-motorised transport. However, 63% of scholars and workers reach their destination on foot, and planners will need to take cognisance of this.

12.4 LAND USE AND DEVELOPMENT CORRIDORS

The topography of the Province presents significant barriers to movement and land use in the form of deeply incised river valleys, ridges, and steep lands. Settlement patterns within the province have largely been determined by topography.

Primary economic clusters are the greater Durban area/ eThekweni, Pietermaritzburg and Richards Bay. The Newcastle and Ladysmith areas constitute the secondary economic clusters. Economic concentration generally increases to the coast, but with little activity in the North-eastern parts bordering Swaziland and Mozambique. This results in high unemployment in these North-eastern parts, which also have large populations.

Mining, agriculture and tourism are the driving forces behind the Province's economy. Many small towns along the coastline serve as seasonal recreational hubs, while there is extensive forest and sugar cane cultivation. The haulage of this produce that is largely undertaken by road transport places a heavy loading on the road network in these areas.

From a transport infrastructure perspective the rural areas are only served by a road network that requires substantial upgrading and maintenance, especially in respect of roads and streets located within rural villages and settlements.

The province is characterised by an extensive mosaic of scattered rural settlements and villages, with vast numbers of these occurring within the District Municipalities of Zululand, uMkhanyakude, Umzinyathi and Ugu that have been earmarked as Rural Development Nodes. Due to the scattered nature of these communities, the provision of an adequate road network becomes difficult and expensive. Improved land use planning and control is an option to be considered so that clustering of housing can be effected and larger, more viable supporting agricultural areas can be created nearby to housing clusters.

The rapid expansion of large housing developments for all income groups is increasing the size of urbanised areas and is also contributing significantly to traffic congestion, especially within eThekweni and the coastal strips to the North and South of eThekweni.

Large expanses of the province are under sugar cane or timber, while there are acclaimed tourist destinations along the North Coast, South Coast and the Drakensberg mountains on the Western side of the province. Other significant agricultural activities include crop production and cattle farming.

Game reserves and game farms are a targeted activity, especially within the uMkhanyakude District. This does have the potential to improve employment levels in the area, but other economic activities are also required to reduce unemployment to acceptable levels. The introduction of sugar cane farming by small cane growers to this area is another activity that is receiving attention. These activities will require an upgraded road infrastructure to support them.

There is extensive industrial manufacturing activity within the eThekweni metropolitan area and major centres within the province. Mining is a predominant activity within the Amajuba District.

12.5 TRANSPORT INFRASTRUCTURE FACILITIES

12.5.1 Road network

The National, provincial and metropolitan road networks in the province are well defined, but research is required to determine both the extent and condition of the municipal networks in the rest of the province. Little information is available from most municipalities on their road networks. A small number of the municipalities are now commencing with the determination and extent of their road networks, but a co-ordinated project is necessary to undertake this for all municipalities.

Roads and streets in outlying villages and community clusters which fall outside the historical municipal road networks and which also do not qualify as national or provincial roads often receive little construction and maintenance attention.

Although the majority of the National Roads are in a fair to good condition, there are considerable backlogs on the provincial and municipal networks in terms of maintenance and rehabilitation, following many years of under funding. The funding trends for the Provincial network are encouraging, although additional funding is still needed to address the vast backlogs in terms of maintenance and rehabilitation work.

There is a need for improved transportation within the rural areas. This is in terms of the lack of an efficient public transport system, inadequate facilities for NMT, as well as insufficient and poor road infrastructure. Accessibility of the rural areas will improve security, health, and commercial development opportunities.

63% of scholars and workers walk to school or to their place of employment and in rural areas they are forced to walk along the road shoulders, or in the roadway itself due to the absence of pedestrian facilities. It is only recently that very limited funding has been assigned for this purpose and this is an area that requires considerable

additional resources. Pedestrian facilities are being included in some instances during the upgrading of a road from gravel to a high standard blacktop road. However, retrofitting is required on many existing roads.

With motorised transport, the communities in the rural areas rely largely on the mini-bus taxi system and busses.

12.5.2 Railway

The two primary freight routes are those running from Durban to Gauteng and from Richards Bay to the Mpumalanga coal fields. These two lines carry 100 million tonnes of freight annually.

Main line operations through KwaZulu-Natal have been severely reduced over recent years due to concentration by the railways on the transport of bulk primary products. Considerable investments will be required to upgrade systems, facilities, staffing, rolling stock and locomotives in order to regain competitiveness of main line rail for transport of general cargo in competition with long haul road transport.

The coal-link main line from the interior to Richards Bay requires a considerable amount of upgrading and replacement of rolling stock to cope with the demand for export coal from the Richards Bay port.

The branch lines in KwaZulu-Natal are also in need of extensive overhaul and operational upgrade in order to make them competitive with the road haulage of the major commodities which are timber, sugar and on one line only, coal transport.

Overall, the reduction in rail freight services has had the effect of transferring large proportions of former rail freight onto road transport.

12.5.3 Aviation

There are four airports of National importance within KZN, namely:

- Pietermaritzburg Airport;
- Durban International Airport;
- Margate airport; and
- Richards Bay.

The present Durban International Airport handles the third most passengers in the country. Although the existing site can be expanded, this can only be done at tremendous cost. Even then its ultimate capacity will only be able to handle projected growth up to 2035. The planning is to replace this with the new International Airport at La Mercy.

12.5.4 Marine Ports and Landside Linkages

The Port of Durban is Africa's largest and busiest port, serving the surrounding industrial areas and Gauteng. Major transport issues for the port of Durban are:

- the road access to the port is congested and needs urgent capacity expansion
- the existing rail system is barely adequate for present volumes to the port and needs extensive upgrading to meet the proposed throughput and increased use of rail.
- The container terminal lacks capacity, and has limited expansion potential on present site
- The current planning process does not provide adequate future capacity for break-bulk and general cargo.

The Port of Richards Bay consists of a dry bulk terminal, a multi purpose terminal and the privately operated coal terminal. Other private operators within the port include several wood chip export terminals and a bulk liquids terminal. It has extensive rail and conveyor belt systems servicing the berths from nearby factories and plants.

With the main Coal link rail line the operational efficiency is limiting the potential for coal exports. A considerable amount of upgrading and replacement of rolling stock is required. For other goods, the rail market share has been eroded due to costs, operating policies, speed of delivery, service and safety.

The primary road providing access into the Richards Bay harbour is the John Ross Highway. This road is being upgraded to relieve congestion and increase capacity. However, there is concern that the movement of road freight between Gauteng and Richards Bay is not efficient due to the lack of a direct road route; this could in the future be a limitation and require very extensive investment to prepare for any development of general cargo breakbulk and container services by road.

12.6 PASSENGER TRAVEL PATTERNS AND CHARACTERISTICS

KwaZulu-Natal province is not seriously affected by the problems of institutional fragmentation as some other provinces in the RSA. There is, therefore, less likelihood of functional bias affecting decisions about sustainable future transport systems and technology. Nevertheless, in the development of a "blue-print" for future infrastructure development, there is a need for NATMAP to advocate decision-making on the basis of "value for money".

Accordingly, it is recommended that the NATMAP Action Agenda should be rigorous in upholding the principles of rigorous economic evaluation in appraising long-term projects and schemes that are generated in Phase 4 of the project.

In summary, the conclusions are as follows:

- Ethekekwini dominates the travel patterns of KwaZulu-Natal;
- KwaZulu-Natal is home to 21% of the RSA population;
- Many work trips in KwaZulu-Natal are made in Ethekekwini (nearly 1 million or 27% of all work trips) and very few are cross-boundary trips;
- The main cross-border trips are between Ugu and Umgungundlovu to Ethekekwini;
- Walking is the main mode in district municipalities and car and public transport in Ethekekwini;
- Long-distance work travel is mostly found in Ethekekwini where more than 16% travel for more than 60 minutes;
- 27% of education trips are in Ethekekwini and there is little cross-boundary movement for these trips;
- Walking to education is the main mode everywhere except in Ethekekwini where about 39% use other modes;
- Travel times to education of less than 15 minutes are rare (24% in KZN and 28% in Ethekekwini); a large proportion travel for more than 60 minutes (10% in KwaZulu-Natal and 6% in Ethekekwini);
- Most holiday trips from Ethekekwini are made by whites and Asians;
- On average those who make holiday trips make about 2,2 per year;
- 27% of business trips originate from Ethekekwini;
- Gauteng and KwaZulu-Natal are the main business trip destinations;
- Air travel is most prevalent for business trips; and
- Migrant trips are mostly in taxis.

Numerous problems and issues are evident from the analysis of the existing passenger transport system in KZN. Amongst the worst are the following:

- Rising car ownership and use in the metropolitan areas and large urban centres, giving rise to serious congestion and unacceptable levels of air pollution and wasteful use of valuable urban land taken up by car parking.
- Delay to road-based public transport services caused by buses and minibus taxis having to operate in congested traffic streams and making public transport even less attractive to commuters.
- Aged and, in some cases unsafe, rolling stock and public transport vehicles, subject to breakdowns and uncomfortable and unattractive to passengers.
- Serious user dissatisfaction with almost all attributes of train, bus and minibus taxi services often leading to vandalism of vehicles and an incipient tendency to burn vehicles as a form of protest against non-delivery of adequate services.
- Existing public transport is not sustainable under present operating and management practices. The main problem is low profitability for many

private operators, resulting in a failure to adequately maintain and recapitalise fleets. The result will be a reduction in service offered in the medium- to long-term. Public operators are not incentivised to offer improved services or limit operating losses.

- After 12 years of fruitless planning effort, public transport systems are no nearer to achieving the desired integration and seamless services envisioned in the White Paper and Moving South Africa.

It is to be hoped that the IRPTN initiatives discussed in the Phase 2 analysis report will be the catalyst required to address the foregoing problems. The initiatives will require political and financial support well beyond the 2010 target. Most IRPTN networks will not be running by 2010 and those that are will require considerable expansion thereafter. If the political and financial support is not forthcoming, the IRPTN initiative will become another “9-day wonder”.

Recommendations

1. It is recommended that NATMAP should endorse and support the IRPTN initiative and assist in extending public transport service improvements into the realm of inter-city and rural transport.
2. It is recommended that NATMAP adopt a rigorous approach to technology evaluation from a position of “best value for money”. In this regard NATMAP needs to engage in the: debates about:
 - the most appropriate role of modes;
 - safety, energy efficiency and the environment;
 - the necessary regulatory response to achieve the desired vision for public transport in the RSA.

12.7 FREIGHT TRAVEL PATTERNS AND CHARACTERISTICS

KwaZulu-Natal has the busiest freight corridors in South Africa and the objective for this province is the efficient movement of goods by sea, road and rail to and from their destinations.

Policy issues in freight transport are complicated by the fact that government and private sector are both suppliers and users of the transport system so that government is both competitor and regulator.

12.7.1 Bottlenecks

The road system that provides access to the Port of Durban is increasingly congested and urgent development of infrastructure is required to reduce current inefficiencies.

The high volume of heavy vehicles on the main routes causes congestions and delays at critical gradients. The traffic levels on the N3 between Durban and Cedara are already approaching saturation levels at peaks and there are no current plans to alleviate the problems.

The rail system into the port is barely adequate for present volumes but will need extensive upgrading and expansion if currently proposed levels of port throughput are to be accompanied by increased use of rail.

The main Coallink rail line, operating systems rolling stock and locomotives are in increasing need of overhaul, upgrading [some rebuilding], and expansion as the current levels of operational efficiency are limiting the potential for coal exports through the port.

12.7.2 Concerns

The container terminal at the port of Durban, which is already subject to lack of capacity, has limited expansion potential on its present site and the development of additional capacity is being impeded by planning delays and lack of inter-organisational coordination.

The planning process is port-focussed and is failing to involve all stakeholders involved in the overall logistics systems surrounding the development of the Greater Durban area, including authorities in charge of streets, access routes, airport property, modal operators and industries using the port. The delays are costing significant amounts in lost efficiency due to ship delays and sub-optimal usage and location of the very extensive logistics facilities developments that have been put in place by port user industries.

There is urgent need for modernisation, equipping and expanding the container facilities to meet the demand from import and export commodity markets.

A further concern is that the current planning process for the development of the port of Durban does not appear to provide adequate future capacity for break-bulk and general cargo

12.7.3 Infrastructure / Service gaps

The road through Richards Bay town [John Ross Highway] is being upgraded to relieve congestion and provide more capacity for traffic generated by the expanding local industries and the port.

The road access to the port of Richards Bay is not efficient due to the routing of the existing main roads and there is future need for a more direct road route from the port to the interior, if break-bulk and container services are to be promoted in the port.

There is increasing concern regarding the need for road maintenance on most of the provinces roads in the absence of adequate funding.

12.7.4 Modal Competition

There is continual erosion of the rail market share on the multimodal corridors due to rail tariffs, operating policies, speed of delivery, service and safety considerations. In addition the branch line system of the province continues to lose tonnage of timber and other commodities to private road carriers.

12.8 INSTITUTIONAL STRUCTURE

This report identifies the institutional parameters as related to transport and provides a summary of the relevant and applicable institutions related to the transport sector and related transport infrastructure, as well as all ancillary matters legislatively connected therewith. These parameters provide a framework within which the master plan can develop.

Details of certain unique provincial institutional structures established through provincial legislation are provided. In addition, KwaZulu-Natal has the country's only operational Transport Authority in eThekweni.

The institutional problems of fragmentation identified in the TOR are also typical of that found in KZN. In line with the policies of coordinated planning required by the NLTTA, the KZN DoT and the ETA have coordinated planning structures, but due to various constraints and the fragmented nature of institutional structures, coordination is a major challenge. The envisaged benefits of Transport Authorities have not fully materialised in the ETA due to lack of resources and problems inherent in the NLTTA.

12.9 LEGAL STRUCTURE

The section in this report on the legislative structure lists and provides a summary of the relevant and applicable national and provincial legislation and policy documents regarding transport infrastructure. It also provides all ancillary matters legislatively connected therewith to provide a framework within which the master plan can develop.

12.10 TRANSPORT FUNDING MECHANISMS

This report identifies and documents current revenue sources; financing policies and mechanisms; and trends for infrastructure, rolling stock and equipment capital and maintenance expenditures. It focuses on the KwaZulu-Natal Department of Transport and the eThekweni Transport Authority. National funding is being covered by the Finance Working Group and is not included in this report.

Funding Transport is a concurrent function, placing provinces at the centre of programmes for delivering on transportation. The budget has become a key instrument of co-operative governance.

Funding allocated to the KZN DoT shows a steady increase through to the end of the current MTEF period. This will allow for increasing amounts to be utilised for much needed road maintenance and road rehabilitation work. The allocations are however insufficient to address the massive backlogs that have built up from years of underfunding for road maintenance and rehabilitation and it is estimated that a further R1.6 billion is required per year for this purpose.

The metropolitan trend in transport expenditure clearly reflects the impact of the FIFA 2010 World Cup and the resulting increased transport investment. It is of some concern that the trend is for these transport operating and capital budgets to fall by 2009/10, which may suggest that sustained transport investment beyond 2010 is currently not being adequately considered, or could just be as a result of the end of this MTEF cycle. The fluctuations in transport funding are also of some concern, since it is difficult to plan ahead when the budgets keep increasing and decreasing on an almost annual basis.

Presently limited funding is being expended on rural village streets and roads and as a result, this infrastructure is receiving little attention.

13. LIST OF REFERENCES

Document	Publication Status	Date	Owner Institution
Key Provincial Reference Documents			
Provincial Land Transport Framework	Final	Aug-04	KZN Department of Transport
Five year Infrastructure Plan 2007/2008 - 2012/2013	Final	Jan-07	KZN Department of Transport
Provincial Spatial Economic Development Strategy	Final	Aug-06	Economic Cluster
Provincial Growth and Development Strategy	Draft, no citing without permission	Dec-06	Economic Cluster
Strategic Assessment of Transport Infrastructure Needs (SATIN)	Final	Aug-06	KZN Department of Transport
Integrated Freight Transport Strategy	Final	Dec-04	KZN Department of Transport
Strategic Assessment of the Construction Needs for the Primary Road Network	Final	Mar-06	KZN Department of Transport
Strategic Plan 2005/2006 to 2009/2010	Final	2005	KZN Department of Transport
KZN RISFSA Classification	Final	Oct-07	KZN Department of Transport
Provincial Strategic Framework 2010 Football WC	Final	Jun-07	Provincial Government
Annual Performance Plan 2007/2008 - 2009/2010	Final	Jun-05	KZN Department of Transport
Supplementary Provincial Reference Document			
Formulation of a transport strategy for tourism	Final	Oct-03	Tourism KwaZulu-Natal
King Shaka International Airport and Dube Trade Port - planning review of road needs	Initial assessment	May-07	KZN Department of Transport
King Shaka International Airport and Dube Trade Port - Master Plan	Final	2007	Dube Trade Port
Makathini Master Plan	Final	Jul-06	KZN Department of Agriculture and Environmental Affairs

Transportation projects in KZN in preparation for the 2010 Soccer WC	Submission	Jun-07	KZN Department of Transport
KwaZulu-Natal Road Rail Study	Final	Apr-04	KZN Department of Transport
Spatial representation of KwaZulu-Natal Provincial Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Implementation Plan for Conserving the Road Network	Progress Report	May-03	KZN Department of Transport
Minimum equity strategic road network (RISFSA classification)	Final	Mar-07	KZN Department of Transport
Transport and Transportation in KwaZulu-Natal 2002 Facts and Figures	Final	Jul-04	KZN Department of Transport
KwaZulu-Natal Rural Mobility Project	Final	Jul-00	KZN Department of Transport
White Paper on Freight Transport Policy	Final	Oct-04	KZN Department of Transport
Freight Transport Industry Driver Working Conditions	Final	Mar-06	KZN Department of Transport
KwaZulu-Natal Provincial Roads Act, No 4	Final	Jun-01	KwaZulu-Natal provincial government
KwaZulu-Natal Public Transport Act, No 3	Final	Dec-05	KwaZulu-Natal provincial government
KwaZulu-Natal Road Traffic Act, No 7	Final	Sep-97	KwaZulu-Natal provincial government
KZN Department of Transport Annual Report 2004/2005	Final	Oct-05	KZN Department of Transport
Departmental Strategic Plan for the period 2005 - 2010	Draft	2005	KZN Department of Economic Development
Strategic and Performance Plan	Final	2006	KZN Department of Economic Development

Strategic Plan			KZN Department of Agriculture and Environmental Affairs
Annual Report 2005-2006	Final	2006	KZN Department of Economic Development
KZN Department of Social Welfare and Population Development Strategic Plan 2006-2008	Final	Jun-05	KZN Department of Social Welfare and Population Development
KZN Department of Housing Strategic Plan 2005 - 2010	Final	2005	KZN Department of Housing
KZN Land Use and Management Bill 2003	Final	Aug-03	KwaZulu-Natal provincial government
Key Local Development Reference Documents			
iLembe District Public Transport Plan	Draft	Jun-05	iLembe District Municipality
eThekweni Transport Authority Integrated Transport Plan	Final	Mar-05	eThekweni Transport Authority
uThungulu District Integrated Transport Plan	Final	Apr-05	Uthungulu District Municipality
Zululand District Public Transport Plan	Final	2005	Zululand District Municipality
uThukela District Public Transport Plan	Final	Feb-06	uThukela District Municipality
Sisonke District Public Transport Plan	Final	Dec-05	Sisonke District Municipality
uMzinyathi District Public Transport Plan	Final	Apr-06	Umzinyathi District Municipality
Amajuba District Public Transport Plan	Final	Nov-05	Amajuba District Municipality
uMgungundlovu District Public Transport Plan	Final	May-05	uMgungundlovu District Municipality
Supplementary Local Development Reference Documents			
Long term development framework	Final	Nov-01	eThekweni Municipality

Project Tempi Traffic and Transportation Issues in the Port of Durban	Draft	Jun-06	eThekweni Municipality and National Ports Authority
Project Tempi Traffic and Transportation Issues in the Port of Durban	Technical Note	Jul-06	eThekweni Municipality and National Ports Authority
Spatial representation of Uthungulu District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Spatial representation of Zululand District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Spatial representation of Sisonke District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Spatial representation of Amajuba District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Spatial representation of iLembe District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Spatial representation of uMgungundlovu District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Spatial representation of Ugu District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs

Spatial representation of Umkhanyakude District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Spatial representation of Uthukela District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Spatial representation of Umzinyathi District Profile 2006	Final	Jan-06	KZN Department of Local Government and Traditional Affairs
Ugu Current Public Transport Record - phase 2	Final	May-05	Ugu District Municipality
Ugu Current Public Transport Record -map	Final	May-05	Ugu District Municipality
uMgungundlovu Current Public Transport Record (incl tables)	Final	Apr-03	uMgungundlovu District Municipality
Uthukela Current Public Transport Record	Draft	Jul-05	uThukela District Municipality
Umzinyathi Current Public Transport Record - phase 2	Final	2005	Umzinyathi District Municipality
Umzinyathi Current Public Transport Record-tables	Final	2005	Umzinyathi District Municipality
Amajuba Current Public Transport Record - phase 2	Final	2005	Amajuba District Municipality
Amajuba Current Public Transport Record - tables	Final	2005	Amajuba District Municipality
Zululand Current Public Transport Record	Final	2005	Zululand District Municipality
Umkhanyakude Current Public Transport Record - phase 2	Final	2005	Umkhanyakude District Municipality
Umkhanyakude Current Public Transport Record - Tables	Final	2005	Umkhanyakude District Municipality
uThungule Current Public Transport Record - phase 2	Final	2005	Uthungulu District Municipality
iLembe Current Public Transport Record - phase 2	Final	2005	iLembe District Municipality

Sisonke Current Public Transport Record - phase 2	Final	2005	Sisonke District Municipality
eThekwini Transport Authority Current Public Transport Record	Final	2005	eThekwini Transport Authority
eThekwini Metro Integrated Development Plan	Final	2003	eThekwini Metropolitan Municipality
eThekwini Metro Integrated Development Plan - review 2005	Final	2005	eThekwini Metropolitan Municipality
uMhlatuze Spatial Development Framework	Final	Feb-07	City of uMhlatuze (Richards Bay)
Msunduzi Spatial Development Framework	Draft	Jul-07	Msunduzi Municipality (Pietermaritzburg)
Amajuba District Integrated Development Plan for 2007/8	Final	May-07	Amajuba District Municipality
iLembe District Integrated Development Plan	Final	2002	iLembe District Municipality
iLembe District Integrated Development Plan 2007 - 2012	Final	2007	iLembe District Municipality
Sisonke District Revised Integrated Development Plan	Final	2002	Sisonke District Municipality
Sisonke District Revised Integrated Development Plan review 2005/2006	Final	2005	Sisonke District Municipality
Ugu District Integrated Development Plan	Final	2002	Ugu District Municipality
Ugu District Integrated Development Plan review 2005/2006	Final	2005	Ugu District Municipality
uMgungundlovu District Integrated Development Plan	Final	2002	uMgungundlovu District Municipality
uMgungundlovu District Integrated Development Plan, review 2007/2008	Final	2007	uMgungundlovu District Municipality
Umkhanyakude District Integrated Development Plan	Final	2003	Umkhanyakude District Municipality
Umkhanyakude District Integrated Development Plan - review 2007/2008	Final	2007	Umkhanyakude District Municipality
uThukela District Integrated Development Plan	Final	2005	uThukela District Municipality

uThukela District Integrated Development Plan - review 2007/2008	Final	2007	uThukela District Municipality
uThungulu District Integrated Development Plan	Final	2003	uThungulu District Municipality
uThungulu District Integrated Development Plan - review 2007/2008	Draft	2007	eThungulu District Municipality
Zululand District Integrated Development Plan	Final	2003	Zululand District Municipality
Zululand District Integrated Development Plan - review 2007/2008	Final	2007	Zululand District Municipality
Umzinyathi District Integrated Development Plan	Final	2003	Umzinyathi District Municipality
Umzinyathi District Integrated Development Plan - review 2007/2008	Final	2007	Umzinyathi District Municipality

Document	Publication Status	Date	Owner Institution	Internet Location
National Framework Documents				
National Land Transport Strategic Framework (2006 to 2011)	Final	2006	DOT	http://www.transport.gov.za/library/docs/strateg/Final%20NLTsf.pdf
National Freight Logistics Strategy	Final	Sep-05	DOT	http://www.transport.gov.za/library/index.html
Rural Transport Strategy for South Africa	Final	2003	DOT	http://www.transport.gov.za/library/index.html
Moving South Africa	Action Agenda	May-99	DOT	http://www.transport.gov.za/projects/msa/action-agenda-may99/contents.html
Transport Statistics	Final	2001	DOT	http://www.transport.gov.za/library/index.html
Transport Action Plan for 2010	Version 1 (2006)	2006	DOT	http://www.transport.gov.za/library/docs/strateg/2010%20TRANSPORT%20ACTION%20PLAN%2010%20OCTOBER%202006.pdf
Key Provincial Reference Documents				
KZN Provincial Land Transport Framework	Final	Aug-04	KZN Department of Transport	chrise@pmb.ssi.co.za
KZN Five year Infrastructure Plan 2007/2008 -	Draft, no citing without permission	Jan-07	KZN Department of Transport	chrise@pmb.ssi.co.za
KZN Provincial Spatial Economic Development Framework	Final	Aug-06	Economic Cluster	chrise@pmb.ssi.co.za
KZN Provincial Growth and Development Strategy	Draft, no citing	Dec-06	Economic Cluster	chrise@pmb.ssi.co.za
Supplementary Provincial Reference Document				
Formulation of a transport strategy for tourism	Final	Oct-03	Tourism KwaZulu-Natal	chrise@pmb.ssi.co.za
Spatial representation of KwaZulu-Natal Provincial Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Strategic Assessment of the Construction Needs for the Primary Road Network	Final	Mar-06	KZN Department of Transport	chrise@pmb.ssi.co.za
Proposed Road Classification and Surface Type (map)	Final	Sep-05	KZN Department of Transport	chrise@pmb.ssi.co.za
Transport and Transportation in KwaZulu-Natal 2002 Facts and Figures	Final	Jul-04	KZN Department of Transport	http://www.kzntransport.gov.za/reading_room/reports/Transport&TransportationInKZN.pdf
KwaZulu-Natal Rural Mobility Project	Final	Jul-00	KZN Department of Transport	http://www.kzntransport.gov.za/reading_room/reports/RuralMobilityStudy.pdf
White Paper on Freight Transport Policy	Final	Oct-04	KZN Department of Transport	http://www.kzntransport.gov.za/reading_room/acts/provincial/KZN%20White%20Paper%20on%20Freight%20Transport%20Policy.pdf
KwaZulu-Natal Provincial Roads Act, No 4	Final	Jun-01	KwaZulu-Natal provincial government	http://www.kzntransport.gov.za/reading_room/acts/provincial/KZNProvincialRoadsActNo.4of2001.pdf
KwaZulu-Natal Public Transport Act, No 3	Final	Dec-05	KwaZulu-Natal provincial government	http://www.kzntransport.gov.za/reading_room/acts/provincial/KZN%20Public%20Transport%20Act.pdf
KwaZulu-Natal Road Traffic Act, No 7	Final	Sep-97	KwaZulu-Natal provincial government	http://www.kzntransport.gov.za/reading_room/acts/provincial/KZNRoadTrafficAct1997.pdf
Annual Performance Plan 2005/2006 - 2007/2008	Final	May-05	KZN Department of Transport	http://www.kzntransport.gov.za/reading_room/ann_reports/2005/AnnualPerformancePlan2005-8.zip
KZN Five year Infrastructure Plan 2005/2006 to 2009/2010	Final	Apr-05	KZN Department of Transport	http://www.kzntransport.gov.za/reading_room/strat_plans/FiveYearStrategicPlan2005-8.zip
KZN Department of Transport Annual Report 2004/2005	Final	Oct-05	KZN Department of Transport	http://www.kzntransport.gov.za/reading_room/ann_reports/2005/KZN%20Trans%20Annual%20Report%202005.zip
Departmental Strategic Plan for the period 2005 - 2010	Draft	2005	KZN Department of Economic	http://www.kznded.gov.za/Portals/0/docs/Pub
Strategic and Performance Plan	Final	2006	KZN Department of Economic Development	http://www.kznded.gov.za/Portals/0/docs/Publications/Strategic%20Plans/STRATPLAN-2006.pdf
Annual Report 2005-2006	Final	2006	KZN Department of Economic	http://www.kznded.gov.za/LinkClick.aspx?link
KZN Department of Social Welfare and Population Development	Final	Jun-05	KZN Department of Social	http://www.idp.org.za/documents/Strategic%2
KZN Department of Housing Strategic Plan 2005 - 2010	Final	2005	KZN Department of Housing	http://www.idp.org.za/documents/Strategic%2
KZN Land Use and Management Bill 2003	Final	Aug-03	KwaZulu-Natal provincial	http://www.idp.org.za/documents/Legislation/
Key Local Development Reference Documents				
iLembe District Public Transport Plan	Draft	Jun-05	iLembe District Municipality	http://www.kzntransport.gov.za/reading_room/reports/trans_reports/ptp/iLembe%20PTP%20Draft%20Report.zip
eThekweni Transport Authority Integrated Transport Plan	Final	Mar-05	eThekweni Transport Authority	http://www.kzntransport.gov.za/reading_room/reports/trans_reports/ptp/eThekweni_ITP%20Full%20Report%20Final.zip
uThungulu District Integrated Transport Plan	Final	Apr-05	uThungulu District Municipality	http://www.kzntransport.gov.za/reading_room/reports/trans_reports/ptp/uThungulu%20Final%20ITP.zip
Zululand District Public Transport Plan	Final	2005	Zululand District Municipality	http://www.kzntransport.gov.za/reading_room/reports/trans_reports/ptp/ZDM_PTPDraft2006.zip
Amajuba District Public Transport Plan	Draft	Mar-05	Amajuba District Municipality	http://www.kzntransport.gov.za/reading_room/reports/trans_reports/ptp/Amajuba%20Draft%20PTP.zip
uMgungundlovu District Public Transport Plan	Final	May-05	uMgungundlovu District Municipality	chrise@pmb.ssi.co.za
Supplementary Local Development Reference Documents				
Spatial representation of Uthungulu District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Spatial representation of Zululand District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2

Spatial representation of Sisonke District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Agenda/2
Spatial representation of Amajuba District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Spatial representation of iLembe District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Spatial representation of uMgungundlovu District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Spatial representation of Ugu District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Spatial representation of Umkhanyakude District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Spatial representation of Uthukela District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Spatial representation of Umzinyathi District Profile 2006	Final	Jan-06	KZN Department of Local	http://devplan.kzntl.gov.za/General/Reports/2
Ugu Current Public Transport Record - phase 2	Final	May-05	Ugu District Municipality	http://www.kzntransport.gov.za/reading_room
Ugu Current Public Transport Record -map	Final	May-05	Ugu District Municipality	http://www.kzntransport.gov.za/reading_room
uMgungundlovu Current Public Transport Record	Final	Jun-05	uMgungundlovu District	Malusi.Mnomiya@Kzntransport.gov.za
Uthukela Current Public Transport Record	Draft	Jul-05	uThukela District Municipality	http://www.kzntransport.gov.za/reading_room
Umzinyathi Current Public Transport Record - phase 2	Final	2005	Umzinyathi District Municipality	http://www.kzntransport.gov.za/reading_room
Umzinyathi Current Public Transport Record-tables	Final	2005	Umzinyathi District Municipality	http://www.kzntransport.gov.za/reading_room
Amajuba Current Public Transport Record - phase 2	Final	2005	Amajuba District Municipality	http://www.kzntransport.gov.za/reading_room
Amajuba Current Public Transport Record - tables	Final	2005	Amajuba District Municipality	http://www.kzntransport.gov.za/reading_room
Zululand Current Public Transport Record	Final	2005	Zululand District Municipality	http://www.kzntransport.gov.za/reading_room
Umkhanyakude Current Public Transport Record - phase 2	Final	2005	Umkhanyakude District	http://www.kzntransport.gov.za/reading_room
Umkhanyakude Current Public Transport Record - Tables	Final	2005	Umkhanyakude District	http://www.kzntransport.gov.za/reading_room
uThungulu Current Public Transport Record - phase 2	Final	2005	uThungulu District Municipality	http://www.kzntransport.gov.za/reading_room
iLembe Current Public Transport Record - phase 2	Final	2005	iLembe District Municipality	http://www.kzntransport.gov.za/reading_room
Sisonke Current Public Transport Record - phase 2	Final	2005	Sisonke District Municipality	http://www.kzntransport.gov.za/reading_room
eThekweni Transport Authority Current Public Transport Record	Final	2005	eThekweni Transport Authority	johnny@ssi.co.za
eThekweni Metro Integrated Development Plan	Final	2003	eThekweni Metropolitan	http://devplan.kzntl.gov.za/Municipal/IDPs/eT
eThekweni Metro Integrated Development Plan - review 2006/2007	Final	2006	eThekweni Metropolitan	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007
Amajuba District Integrated Development Plan	Final	2003	Amajuba District Municipality	http://devplan.kzntl.gov.za/Municipal/IDPs/Amajuba/idp_amajuba_list.asp
Amajuba District Integrated Development Plan - review 2006/2007	Final	2006	Amajuba District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC25&STATUS=Adopted&muniname=Amajuba District Municipality
iLembe District Integrated Development Plan	Final	2002	iLembe District Municipality	http://devplan.kzntl.gov.za/Municipal/IDPs/iLembe/idp_ilembe_list.asp
iLembe District Integrated Development Plan - review 2006/2007	Final	2006	iLembe District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC23&STATUS=Adopted&muniname=iLembe District Municipality
Sisonke District Revised Integrated Development Plan	Final	2002	Sisonke District Municipality	http://devplan.kzntl.gov.za/Municipal/IDPs/Sisonke/idp_sisonke_list.asp
Sisonke District Revised Integrated Development Plan review 2006/2007	Final	2005	Sisonke District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC43&STATUS=Adopted&muniname=Sisonke District Municipality
Ugu District Integrated Development Plan	Final	2002	Ugu District Municipality	http://devplan.kzntl.gov.za/Municipal/IDPs/Ugu/idp_ugulist.asp
Ugu District Integrated Development Plan review 2006/2007	Final	2006	Ugu District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC22&STATUS=Adopted&muniname=Ugu District Municipality
uMgungundlovu District Integrated Development Plan	Final	2002	uMgungundlovu District	http://devplan.kzntl.gov.za/Municipal/IDPs/uMgungundlovu/idp_umgungundlovu_list.asp
uMgungundlovu District Integrated Development Plan, review 2006/2007	Final	2005	uMgungundlovu District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC22&STATUS=Adopted&muniname=uMgungundlovu District Municipality
Umkhanyakude District Integrated Development Plan	Final	2003	Umkhanyakude District Municipality	http://devplan.kzntl.gov.za/Municipal/IDPs/Umkhanyakude/idp_umkhanyakude_list.asp
Umkhanyakude District Integrated Development Plan - review 2006/2007	Final	2006	Umkhanyakude District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC27&STATUS=Adopted&muniname=Umkhanyakude District Municipality
uThukela District Integrated Development Plan	Final	2005	uThukela District Municipality	http://devplan.kzntl.gov.za/Municipal/IDPs/Uthukela/idp_uthukela_list.asp
uThukela District Integrated Development Plan - review 2006/2007	Final	2006	uThukela District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC23&STATUS=Adopted&muniname=uThukela District Municipality
uThungulu District Integrated Development Plan	Final	2003	uThungulu District Municipality	http://devplan.kzntl.gov.za/Municipal/IDPs/Uthungulu/idp_uthungulu_list.asp
uThungulu District Integrated Development Plan - review 2006/2007	Final	2006	uThungulu District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC28&STATUS=Adopted&muniname=uThungulu District Municipality
Zululand District Integrated Development Plan	Final	2003	Zululand District Municipality	http://www.idp.org.za/documents/IDP/KwaZulu-Natal/DC26/2003/DC26_IDP_ALL.zip
Zululand District Integrated Development Plan - review 2006/2007	Final	2006	Zululand District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC28&STATUS=Adopted&muniname=Zululand District Municipality
Umzinyathi District Integrated Development Plan	Final	2003	Umzinyathi District Municipality	http://devplan.kzntl.gov.za/Municipal/IDPs/Umzinyathi/idp_umzinyathi_list.asp
Umzinyathi District Integrated Development Plan - review 2006/2007	Final	2006	Umzinyathi District Municipality	http://devplan.kzntl.gov.za/idp_reviewed_2006/2007/ipddisplay.aspx?MDBNAME=DC24&STATUS=Adopted&muniname=Umzinyathi District Municipality